

PETER REUTER  
JENNY MOUZOS

*Australia:  
A Massive Buy back of  
Low-Risk Guns*

On April 28, 1996, in the historic Tasmanian penal colony of Port Arthur, a lone gunman killed thirty-five persons with a semiautomatic rifle. Following that incident, which was the largest of a series of mass homicides, the federal and state governments of Australia agreed on a broad plan of gun control, implemented over the following twelve months. The new controls included prohibitions on certain categories of firearms, to be supplemented by a large-scale buyback of those weapons and new licensing, registration, safe storage, and firearm training requirements.

Three features of this experience make it of potential interest to U.S. gun control scholars. First, in a federal system there was unanimous agreement by all the relevant governments to make changes that were consistent across states, rapidly implemented, and extremely far reaching. This offers an instance of gun control in a situation of high salience. The program had strong political support and competent execution. Second, the gun buyback program was vastly larger and better funded than comparable efforts in the United States. Third, the interventions had modest effects on the extent of suicide and violent crime. Suicide rates did not fall, though there was a shift toward less use of guns, continuing a very long-term decline. Homicides continued a modest decline; taking into account the one-time effect of the Port Arthur massacre itself, the share of mur-

We are grateful for assistance from Helen Begg.

ders committed with firearms declined sharply. Other violent crime, such as armed robbery, continued to increase, but again with fewer incidents that involved firearms. This relatively small effect is hardly surprising given that the type of firearms prohibited had not previously been used frequently in crime or suicide, as well as the low power of the potential tests, with less than five years of postban data. However, the principal goal of the intervention was ending the mass murders; in the five years since the buyback, there has been a modest reduction in the severity of these murders, and none have involved firearms, though the frequency of these events is so low that not much can be inferred from this occurrence.

### Literature Review and Analytic Framework

The Australian response to the Port Arthur massacre was similar to the response of Britain to massacres in Hungerford in 1987 and Dunblane in 1996. Each British incident was followed by prohibitions on additional types of guns. In 1988 the newly prohibited guns were certain self-loading and pump-action rifles and shotguns; in 1997 handguns of .22 caliber or higher were prohibited.<sup>1</sup> Both times owners of these weapons were offered compensation for turning them in. According to the Home Office, the 1988 buyback resulted in the collection of approximately 3,500 self-loading rifles and carbines, with total compensation in the area of £600,000. The 1997 buyback resulted in the collection of more than 162,000 handguns and 700 tons of ammunition. Compensation payments totaled some £90 million (about \$U.S. 130 million) plus administrative costs of £8 million including special grants to police forces.<sup>2</sup> Firearms covered by certificates (that is, legally owned) fell from 414,000 in 1996 to 305,000 one year later. These figures do not include the approximately 1.3 million shotguns for which certificates were also required.

There is no evidence that the new prohibitions and buybacks reduced violent crime in the United Kingdom. Recorded gun crimes fluctuated between

1. Self-loading and pump-action rifles and shotguns differ from other firearms in the number of shots they can fire with each pull of the trigger. Self-loading or semiautomatic firearms reload automatically after each shot, so the user does not have to insert a fresh round of ammunition after each bullet is fired. Each time the trigger is squeezed, a shot is fired. The size of the magazine will determine how many rounds can be fired in rapid succession. Some of these firearms can be equipped with trigger accelerators, a device that "pumps" the trigger repeatedly. The practical effect is that the firearm discharges multiple cartridges in quick succession without the shooter having to execute a complete pull of the trigger for each shot.

2. Wilkins and Addicot (1998) report that after passage of the 1997 act, 110,382 of large-caliber handguns were handed in, along with another 24,620 smaller-caliber handguns "in anticipation of further legislation."

4,900 and 6,900 over the period 1995 to 2000, with no clear trend. Homicides totaled 728 in 1999-2000, compared with 585 in 1996. Firearm homicides, always less than 10 percent of all homicides, did not fall. Firearm robberies as a share of all robberies continued a fall that had begun in 1993.<sup>3</sup> In a nation that already had strict gun control and low rates of firearm-related crime, these new restrictions could hardly be expected to make much difference in total violent crimes.

A number of foreign jurisdictions have implemented purer gun buyback programs. Following a civil war, some nations have tried to buy back the stockpile of combatants' guns. For example, it was recently reported that Japan is "considering accepting an informal United Nations request to provide \$3 million in financial assistance to help finance the world body's small arms collection in Sierra Leone. . . . The U.N. has been paying \$150 to each Sierra Leone militiaman who surrenders small arms."<sup>4</sup> Cambodia has also been the site of a Japanese-funded buyback program.

In the United States there has been a steady flow of initiatives at every level. For example, in 1998 President Bill Clinton set aside \$15 million for the Department of Housing and Urban Development to buy guns from public housing residents. Cities or counties have also launched such programs on their own initiative; Baltimore, Boston, Seattle, St. Louis, and Washington, D.C., are just some of the more prominent. One of the attractions of gun buybacks is their promise of increasing popular participation in gun control and of raising the salience of the issue. Indeed, some have been launched by local non-governmental organizations. For example, "Goods for Guns of Allegheny County" (in Pittsburgh) launched such a program in 1994 and reported in 2001 that the organization had collected 7,184 guns over an eight-year period, paying (with gift certificates) the equivalent of \$50 for handguns and \$25 for rifles and shotguns.<sup>5</sup>

Programs offer anonymity. Without that, those in possession of an illegal weapon, the programs' most highly valued targets, are less likely to participate. The programs are usually of limited duration (weeks or months), partly for incentive reasons and partly because of administrative costs. The returned weapon may be investigated to determine whether it was used in any criminal offense but is not used to pursue the individual who turned in the gun (for example, through fingerprints).

3. Home Office (2000).

4. H. Masaki, "Japan Funds Extension of Small Arms-Collection Program," *Japan Times*, January 18, 2002. In the context of Sierra Leone incomes, \$150 is a very large sum, perhaps equivalent to three months' earnings.

5. "Goods for Guns of Alleghany County," press release, December 10, 2001.

The U.S. buyback efforts occur in the context of existing gun control laws and regulations. Their premise is that fewer guns will lead to lower levels of violence, since the availability of firearms is frequently asserted to be an important factor in explaining variation in violent crime rates; for example, research by Mark Duggan suggests a relationship between gun ownership and both homicide and suicide rates.<sup>6</sup> Arthur Kellermann and his colleagues found that possession of a gun in a household increased the risk of victimization.<sup>7</sup>

The literature on gun buybacks in the United States has strained to find any evidence of violence reduction.<sup>8</sup> Failure has often been ascribed to the small scale of the interventions; \$ 100,000 for purchase of firearms, usually handguns, would produce a minimal reduction in the stock of firearms available in an American city.<sup>9</sup> For example, at \$50 a weapon (a typical price), the program would produce only 2,000 guns. In a nation with 800 guns per 1,000 population (and roughly 280 handguns per 1,000) this will account for barely 1 percent of all guns in a city with 250,000 population.<sup>10</sup> If a large fraction of firearms handed in were weapons at high risk of use in criminal offenses there might still be a substantial effect on crime, but the characteristics of those handed in suggest quite the opposite. For example, David Kennedy, Anthony Braga, and Anne Piehl note that the type of pistols favored by youthful offenders are hardly represented among the guns turned in, and that "many guns were chambered in unusual and obsolete calibers, such as those used in older military style rifles."<sup>11</sup>

There are also more systematic threats to buyback effectiveness. It may be that buybacks increase the demand for guns, directly and indirectly. An offender contemplating acquisition of a weapon has in effect a price support program, a guaranteed minimum compensation, namely, the buyback price.<sup>12</sup> Though each program is of limited duration, its existence in any city suggests the possibility of a repeat. Just as amnesties undercut immigration controls, or compensation programs to coca growers for taking land out of production can promote coca growing, so buybacks lessen the risks of gun ownership. They can also provide an incentive for theft of guns. Though buyback programs set low prices, compared with sales through the illegal markets, transactions can be consummated more rapidly and safely in the buyback program.

6. See Duggan (2001) and his chapter 2 in this book.

7. Kellermann and others (1993).

8. See, for example, Rosenfeld (1996).

9. Kennedy, Braga and Piehl (1996).

10. Kleck (1996) estimates that the programs will remove no more than 2 percent of the total stock of guns.

11. Kennedy, Braga, and Piehl (1996), p. 158. See also Callahan, Rivara and Koepsell (1994).

12. Similar arguments are made by Mullin (2001).

The hypothesized link between buybacks and violent crime is straightforward. By making the most lethal weapons (firearms) less available, the number of violent crimes will fall and the average lethality of those crimes will also decline. There are many assumptions built into this chain of reasoning, and it has been subject to numerous attacks.<sup>13</sup> For example, buybacks may not reduce the stock of weapons available; a buyback may merely facilitate disposal of unwanted guns that the buyer will replace through purchase of other more desired guns. Even if the stock of active guns is reduced, offenders, by substituting less intimidating instruments of violence (such as knives), will have greater incentive to use the weapon rather than control the actions of victims merely through showing the gun; that may generate more violent crime, in particular homicides. However, the evidence suggests that substitution away from firearms does lead to fewer fatalities and serious injuries.

The theory of buybacks as a gun control measure rests on the guns purchased being at substantial risk of criminal use. Diminution of the stock of low-risk guns will do little to affect criminal options. Perhaps there is a complex substitution effect; with fewer of one class of gun available, the market price for the high-risk categories will rise as former owners attempt to maintain their stock of weapons, and that will lead to fewer being held by high-risk owners. That seems unlikely, but that is one proposition that the Australian program can test.

Australia is an attractive site for evaluation of a buyback because of its isolation. It is more difficult to import prohibited guns into Australia than into the United States or any western European country because there are no land borders. There is no domestic production for domestic sales. Unfortunately from a research point of view, the consistency of the approach taken by each state and territory government in Australia in the enactment of uniform firearm legislation, including buyback programs, together with the paucity of state-level data, has meant that an evaluation can only be conducted for the whole country and not for individual states or counties.<sup>14</sup>

## Historical Background

Though Australia was initially settled as a penal colony at the end of the eighteenth century, it has not been characterized by high levels of gun violence. There was no frontier as Americans think of that, a region with a substantial settler population in which the power of the state was weak and the settlers resorted to guns to settle disputes, though Aborigines were subject to much brutality.

13. See Cook, Moore and Braga (2001).

14. For example, there are no data on total firearms holdings by state.

Australia, despite the prominence of the Outback in its international image, is overwhelmingly urban; 85 percent of its population lives in major metropolitan areas. Approximately one-quarter live in the Sydney metropolitan area and another quarter in Melbourne. The population was ethnically homogeneous until about 1950; the overwhelming majority was from the British Isles, though with a sharp social and political division between Irish (Catholic) and English (Protestant) populations. Since 1950 large-scale immigration has transformed the cities; Asians now account for more than 5 percent (and the share continues to rise), while among the European-origin population, the share from the British Isles, has fallen substantially. Australia now has much of the ethnic diversity of the United States. It too has an Indigenous population, which suffers much higher rates of violence, suicide, alcoholism, and unemployment. Indigenous persons (constituting about 2 percent of the total population) suffer from discrimination, despite large-scale government aid programs. One important difference from the United States is that there is no Australian counterpart to the large African American population, with a legacy of slavery and discrimination.

Crime rates generally have been close to *the* average of other wealthy Western nations. Comparing Australia to England/Wales, Canada, New Zealand, the United States, and Japan, Australia has neither the highest nor lowest rate for any of five major offense categories (homicide, robbery, assault, motor vehicle theft, larceny).<sup>15</sup> Australia does have an unusually large and rapidly growing heroin problem.<sup>16</sup> In 1998 the estimated prevalence of heroin addiction was about 690 per 100,000 persons 15 to 54 years old, very close to that for the United States. Moreover, whereas the heroin addiction rates in the United States and western Europe have generally been flat over the past ten years, rates have been rising rapidly in Australia, particularly in Sydney and Melbourne. Heroin addicts exhibit high rates of criminal offending, though the differences between them and any matched population are greater for property than violent crime.<sup>17</sup>

The Australian Bureau of Statistics maintains a historical series (based on Causes of Death data) on total homicides and firearm-related homicides starting in 1915. For total homicides the variation is between about 1 and 2.5 per 100,000; for firearm-related homicides, the lowest annual rate was 0.16 in 1950, and the highest was 0.78 in 1984. U.S. homicide rates per 100,000 in the mid-1990s were about 8.5 for all homicides and 6.5 for firearm-related homicides. In recent times, the homicide rate in the United States has decreased significantly but is still several times higher than other similar countries such as Canada, England and Wales, and Australia. However, a different picture emerges

15. See Barclay and Tavares (2000) for international comparisons of criminal justice statistics for the year 1998.

16. Bammer and others (2002).

17. EMCDDA(2001).

when firearm-related homicides are excluded from the homicide rates of these four countries. When firearm-related homicides are excluded from analysis, the homicide rates of these four countries not only converge over time, but the proportionate ratio between them decreases substantially.

Gun ownership rates in Australia are also in the middle of the range for Western nations. In 1994 the figure per 100,000 in Australia was 19,444, compared with 29,412 in New Zealand and 85,385 in the United States and 3,307 in Britain.<sup>18</sup>

Essentially all new guns in Australia are imports, perhaps facilitating control efforts.<sup>19</sup> Over the period 1988-97, total imports annually ranged between 40,000 and 70,000, approximately 1-2 percent of the estimated mid-1990s stockpile (table 4-1).<sup>20</sup> This figure included imports of handguns for use by police services, which accounted for a substantial fraction of total handgun imports.

Australia experienced thirteen mass killings (defined as four or more victims killed within a few hours) in the period 1989-90 to 1996-1997, an average of 1.3 incidents per annum.<sup>21</sup> Of these thirteen incidents, six involved a firearm; the others involved a knife (two), arson (two), or a blunt instrument (three). During the same period, the United States (with a population fifteen times as large) had approximately twenty-six such killings annually. James Fox and Jack Levin report an average of nineteen such incidents annually involving a firearm over the period 1976-95.<sup>22</sup> These constitute three-quarters of the mass homicides compared with about half in Australia. Though on a per capita basis the two nations are similar in mass homicides per 100,000 persons, mass killings account for a larger share of total homicide-related deaths in Australia than in the United States. Between 1989-90 and 2000-01, mass murders accounted for 3 percent of all homicides in Australia.

The share of homicides accounted for by firearms in the period before 1996 was 21 to 30 percent, much lower than for the United States (65 percent) and much higher than for England and Wales (8 percent). Knives and hands and feet accounted for more homicides than firearms.

18. Firearms Control Task Group (1995, table 1.1).

19. There is only one firearm manufacturer in Australia—Australian Defence Industries Limited, producing primarily Austeyr F88 military rifles. Of its roughly 110,000 production in the period 1988-96, only 159 were sold to Australian individuals. Most were sold to the Australian Defence Forces (John Fenton, personal communication, 2002).

20. Even if the average length of life for a firearm is fifty years, this import level would barely maintain the stockpile in the long run. Given annual population growth of about 1.5 percent, the stock of guns per capita is probably declining.

21. The definition excludes serial homicide, that is, incidents in which the same offender killed four or more victims but over a period of more than a few hours. See Mouzos (2000c, 2002a). The largest before Port Arthur included the death of seven victims and the suicide of the killer.

22. Fox and Levin (1998).

Table 4-1. *Imports of Firearms, by Type*

<i>Year</i>	<i>Military style</i>	<i>Handguns</i>	<i>Shotguns</i>	<i>Rifles</i>	<i>Total</i>
1988	1,920	6,596	11,319	20,594	40,429
1989	1,680	6,649	15,049	35,168	58,546
1990	4,548	6,065	20,497	45,687	76,797
1991	436	7,411	17,210	35,238	60,295
1992	7,888	7,829	7,510	18,798	42,016
1993	16,710	9,830	7,498	16,715	50,753
1994	15,267	9,994	10,004	21,629	56,894
1995	1,686	9,244	12,209	22,068	45,207
1996	357	9,795	21,356	37,864	69,372
1997	532	7,443	28,595	30,191	66,761
1998		12,484			
1999		10,047			
2000 <sup>a</sup>		12,416			
Total, 1988-97					567,070

Source: Australian Bureau of Statistics (ABS) as reported by Gun Control Australia, Melbourne, 1998.

a. As of July 31, 2000.

Firearms have been involved in many more suicides than homicides; for example, in 1993 there were 435 suicides involving a firearm, compared with only 64 homicides.<sup>23</sup> The firearm-related suicide rate in Australia is much lower than the U.S. rate, about 1.25 compared with about 6 per 100,000 in the United States.<sup>24</sup> About 90 percent of firearm-related suicides in Australia in 1998 involved a long gun, either rifle or shotgun.<sup>25</sup>

Table 4-2 presents comparisons of the United States and Australia in various dimensions:

The firearm-related suicide rates had been declining for ten years before the Port Arthur incident; the two other series of interest (unintentional and homicide) were erratic over the same period.

## The New Controls

Within two weeks of the Port Arthur massacre, the Commonwealth and state governments held a meeting (the Australasian Police Ministers' Council [APMC]), which produced a consensus report containing a series of new restrictions and pro-

23. See Mouzos (1999, table 1).

24. Cook and Ludwig (2000).

25. Mouzos (2000b).

Table 4-2. *Suicide and Homicide Rates, Australia and United States, 1998<sup>a</sup>*

<i>Category</i>	<i>Australia</i>	<i>United States</i>
Total homicide rate	1.80	6.80
Firearm-related homicide rate	0.30	4.40
Fraction of homicides committed with firearms	0.17	0.65
Total suicide rate	14.30	11.30
Firearm-related suicide rate	1.30	6.40
Fraction of suicides committed with firearms	0.09	0.55

Sources: Adapted from ABS, *Causes of Death* (1998); Centers for Disease Control (1998).

a. Total and firearm-related rates per 100,000 people.

grams (National Firearms Agreement [NFA]).<sup>26</sup> In order to own a firearm, an individual was required to show a legitimate purpose and fitness of character ("genuine reason and need for owning, possessing or using a firearm"), conform to stringent safe storage requirements, and undertake safety training if a new licensee.<sup>27</sup> This effectively introduced uniform licensing and registration of firearms in all eight states and territories in Australia, replacing a patchwork that included regimes of varying stringency. Moreover, certain classes of weapons (self-loading rifles, self-loading and pump-action shotguns) were prohibited, as was the importation of these weapons. To encourage compliance with the new prohibitions, the Commonwealth (federal) government financed a large-scale gun buyback program, conducted by the states.<sup>28</sup> The buyback initially covered only newly prohibited weapons, primarily long arms; later it was extended to include nonconventional weapons, such as submachine guns and heavy machine guns.<sup>29</sup> There was also an amnesty for handing in unlicensed firearms during that same period, but no payments were made for these weapons.

The focus on long guns was a consequence of two facts. First, semiautomatic weapons and rifles had been used in the most prominent of the mass killings. Second, handguns were already tightly regulated. The implication was that long guns were the appropriate target for any new legislative initiative.

By U.S. standards implementation was rapid and uniform. All states had passed legislation by May 1997, twelve months after the APMC meeting. The

26. Australasia includes New Zealand. The New Zealand government, despite its participation in the APMC, has not implemented the recommendations from the 1996 meeting.

27. APMC special firearms meeting, May 10, 1996.

28. Dealers were also eligible for compensation, indeed even for loss of value of stocks; payments to dealers totaled \$A50 million. Australian National Audit Office (1997).

29. The most controversial purchase was of twenty-two World War II aircraft cannons, for which the Northern Territory government paid \$440,000. Questions were raised about how much these purchases posed a threat to public safety.

buyback program had been completed by September 30, 1997. The differences among the states in regulation and statute were modest. The most serious was a technical aspect of the initial Queensland law that allowed for "inoperable" firearms to be deregistered. No other state had a similar provision. The Queensland provision was changed when a substantial number of guns were sold by two dealers in the "inoperable" version but then, lacking any registration information, reassembled in other states.<sup>30</sup>

### *Gun Buyback*

The most novel feature of the National Firearms Agreement was the decision to support the new restrictions on gun types and ownership by attempting to buy back a substantial fraction of the stockpile.<sup>31</sup> An expert committee developed a price list, which would be used by all states so as to prevent any shopping around among states. Between 1996 and 1997, 643,726 prohibited firearms were handed in.<sup>32</sup> Prices were set to reflect "fair value" (market value). Individuals with permits could also turn in firearms that they had failed to register. Total public expenditures were about \$A320 million (\$U.S. 230 million<sup>33</sup>), approximately \$A500 (\$U.S. 359) per gun. The buyback program was financed by an additional 0.2 percent levy on national health insurance.

Estimates of the total stock of guns were few and drew on limited survey data. Estimates ranged as high as 11 million, but the high figures had no known provenance. Gun Control Australia cited a figure of about 4.25 million, building on the only academic estimate, then roughly twenty years old.<sup>34</sup> The most targeted population survey of gun ownership was conducted by Newspoll; the resulting estimate was approximately 2.5 million firearms in 1997, after the gun buyback. If that is approximately correct, it suggests that there were about 3.2 million firearms in 1996 and that the buyback led to the removal of approximately 20 percent of the total stock. In U.S. terms that would be equivalent to the removal of 40 million firearms.

30. Fitzgerald and others (2001).

31. Frank Zimring (conference discussion) observed that the Fourth Amendment on "takings" would probably require any new gun prohibition in the United States to be accompanied by an offer of compensation.

32. This was five times as many guns as were bought back in England and Wales in 1997. On a per capita basis, it was fifteen times as many. However, as a share of the stockpile it was probably smaller. Data on the numbers of unlicensed but nonprohibited guns handed in are not available for all states; in New South Wales, there were 37,000 of these compared with 155,000 prohibited weapons.

33. Exchange rate as of September 25, 1997.

34. Harding (1981).

There are no national published figures on the number of guns registered until 2001.<sup>35</sup> In Victoria, with about one-quarter of the Australian population, there were 750,000 registered weapons, of which 220,000 fell into the newly prohibited category in 1996. Approximately 210,000 prohibited guns were handed in, but 20 percent of these were unregistered, so that the success rate for registered prohibited firearms was about 70 percent.<sup>36</sup> It is possible that the firearms that were registered and technically "prohibited" were category C firearms, which are prohibited except for occupational purposes (that is, persons who are primary producers).

Nationally, estimates of the buyback penetration range between 40 percent and 80 percent, depending on differences in beliefs about the size of the stock of prohibited firearms in June 1996. The share probably varied by state. For Tasmania, the state in which the Port Arthur massacre occurred, the state police estimated that 90 percent of prohibited guns were handed in.<sup>37</sup> In New South Wales and Queensland, where the "shooters" lobby had been more politically prominent, the share may only have been 50 percent of the prohibited guns.<sup>38</sup>

The number of guns handed in per capita varied considerably, as shown in table 4-3. The low figure for the Australian Capital Territory, the capital city of Canberra, probably represents the high degree of urbanization, usually associated with fewer hunting weapons.<sup>39</sup> But there are no data that would allow systematic analyses of the correlates of gun turn-in. As of July 2001, there were 764,518 individual firearm license holders and 2,165,170 registered weapons in Australia. On a population basis approximately 5 percent of the total population (18 years and over) hold a current firearm license.<sup>40</sup>

Since the buyback there have been a series of "rolling amnesties." Firearm owners can hand over guns that are either prohibited or not registered, without penalty, during a fixed period. Substantial numbers of guns have been handed in. A four-month amnesty in New South Wales in 2001 resulted in 5,772 firearms being handed in and the registration of 72,000 firearms under the amnesty.<sup>41</sup> At the time of implementation of the NFA, 155,000 prohibited guns were handed in, along with 37,000 unregistered guns.

35. Mouzos (2002b)

36. Gun Control Australia, "Gun Buyback," press release, July 29, 1998, Melbourne.

37. Security Australia (1997).

38. Gun Control Australia, "Gun Buyback."

39. In a survey of electors in 1998, it was found that firearm ownership levels varied between urban and rural environments; only 4 percent of respondents living in inner metropolitan areas lived in a household with a gun present, compared with 24 percent of rural respondents. Makkai (2000).

40. Mouzos (2002b).

41. Helen Begg, personal communication, April 26, 2002. This amnesty did not have a financial component (that is, no compensation was paid for the surrendered weapons).

Table 4-3. *Gun Buyback, Totals and Expenditures, by Jurisdiction, August 2001*

<i>Region</i>	<i>Number of firearms collected</i>	<i>Compensation paid to firearm owners (A\$ thousands)</i>	<i>Population (100,000s, approximate)</i>	<i>Guns per 100,000</i>
Victoria	207,409	101,823	48	4,300
New South Wales	155,774	83,535	65	2,400
Australian Capital Territory	5,246	2,803	3	1,800
Tasmania	34,584	19,650	5	6,400
Northern Territory	9,474	5,039	2	4,700
Western Australia	51,499	18,758	19	2,700
South Australia	64,811	25,369	15	4,300
Queensland	130,893	67,614	36	3,600
Total	659,940	359,600	193	3400

Source: Adapted from Commonwealth Attorney-General's Department (2002); ABS (2001).

Very little is known about the characteristics of the purchased guns beyond numbers in each state. Only for Victoria is a breakdown of gun types available. Nearly half were "Rimfires (Pea Rifle)"; almost all the remainder were shotguns (Victorian Firearms Licensing Branch). Only 204 automatics were handed in (fewer than the 247 machine guns), representing just one in a thousand of the guns received. There are no data from administrative records on who handed guns in during the buyback.

A survey found that, on the basis of self-reports, 573,000 persons claimed to have handed in a gun in the twelve months before July 1997, about 4.2 percent of those 16 and over.<sup>42</sup> At the time about 14 percent of households (and 10 percent of persons) reported owning at least one gun. More than half of households that owned firearms reported two or more guns; 16 percent had four or more. Consequently the fraction of households with firearms did not much decline with the buyback. The survey did estimate that three-quarters of those who had owned an illegal gun at the time of the new laws were no longer owners of any illegal guns.<sup>43</sup> Over 95 percent of the population knew of the new laws, and 56 percent strongly favored them. The published survey results included no demographic breakdowns.

The passage of the new statute led to a large increase in membership of firearm associations.<sup>44</sup> Membership enabled an applicant to meet the require-

42. Newspoll (1997).

43. Self-report of illegal gun ownership is particularly suspect at a time when disapproval was being so strongly, prominently, and frequently reported.

44. For example, membership of the Sporting Shooters Association of Australia (SSAA), the largest firearm association in Australia, increased from 42,000 in April 1996 to approximately 115,000 as of February 4, 2002.

ment of having a legitimate purpose for owning a firearm (long gun or handgun). The associations have been very critical of new training standards and the requirements for trainer eligibility. There have been corresponding complaints from the other side about laxity in regulation and enforcement.

### *Storage and Training Requirements*

The specifics of these regulations need not concern us, but they were onerous. For example, most gun types had to be stored "in a locked receptacle constructed of either hard wood or steel with a thickness to ensure it is not easily penetrable. If the weight is less than 150 kilograms the receptacle shall be fixed to the frame of the floor or wall so as to prevent easy removal. The locks fitted to these receptacle shall be of sturdy construction." Firearm sales could be conducted only through licensed dealers. In turn, such dealers could mail only to other dealers. All other purchases had to be made in person.

Though requiring approximately eight hours of class time, training requirements apparently were not onerous.<sup>45</sup> Of 15,000 persons who applied for a license to own a gun in Victoria in 2000, only ten failed to pass the test.<sup>46</sup>

### *Enforcement*

Penalties for violations of firearms law were substantially enhanced. Possession of a prohibited firearm or handgun in New South Wales is punishable by a maximum fourteen-year prison sentence; sale of such a weapon could earn a twenty-year sentence. New South Wales has a population of 6.5 million and in 1999, there were 24 firearm homicides and 737 firearm robberies. One study reports that 284 persons were convicted of possession of a firearm without a license (principal offense), where the maximum penalty is two-years' imprisonment.<sup>47</sup> Of these, only eleven received any prison time at all. A majority received only a fine (average value \$A439).

New South Wales created a Firearms Trafficking Unit in September 1999, the first specialized unit to deal with illegal firearms.<sup>48</sup> In its first eighteen months of operation, which included undercover purchases, the unit seized 216 firearms and arrested twenty-eight people on firearm charges.<sup>49</sup> The arrest figure hardly

45. Australian Police Ministers' Council (2001).

46. Gun Control of Australia, "How Many Guns in Australia?" press release, June 29, 1998, Melbourne.

47. Fitzgerald and others (2001).

48. Helen Begg, personal communication, New South Wales Police Service, 2001.

49. See Fitzgerald and others (2001, p. 7). Recent figures indicate that the unit has seized almost 400 weapons. See *Daily Telegraph*, December 26, 2001.

suggests intense enforcement, but there is no means of measuring the base (number of sales of prohibited or unregistered firearms to persons without a license), a matter we return to at the end of this chapter.

Registration can be revoked, and there is some enforcement of those conditions. For example, if a Domestic Violence order is sworn out against an individual with a licensed gun, the gun will be seized by the police. Data on the frequency of such seizures were not obtainable.

### Assessing the Results

A small number of indicators on the use of guns and crime levels are available and have been extensively analyzed by the Australian Institute of Criminology.<sup>50</sup> We examine seven indicators: homicides, homicides with a gun, suicides, suicides with a gun, other violent crime, prices for guns in illegal markets, and reported theft of firearms. We hypothesize that, given the characteristics of the guns purchased, effects will be found only in the share of these crimes that involve use of a firearm, but even these will be modest. Gun prices may also be only slightly affected, unless there is a substitution effect among firearm types.

— Number of homicides. The total homicide rate has been slowly declining throughout the 1990s (figure 4-1). In the five years post-NFA there has been no pronounced acceleration of that decline.

A study by Jenny Mouzos and colleagues examined the effect of the Port Arthur massacre on the incidence of subsequent homicides in Australia.<sup>51</sup> They found that the Port Arthur incident did not have a significant effect on the temporal behavior of total homicides but had a significant sudden effect on the temporal behavior of firearm homicides (there was an instantaneous increase in the average number of firearm homicides during the five days following the massacre). They also found that the daily rate of homicide, both total and firearm homicide, has declined since the Port Arthur incident. Overall, there has been a decline of 8.9 percent in the rate of total homicide and a 3.2 percent decline in the daily rate of firearm homicide. However, these observed declines in total homicide and firearm homicide continued a long-term trend rather than the effect of the Port Arthur incident.<sup>52</sup>

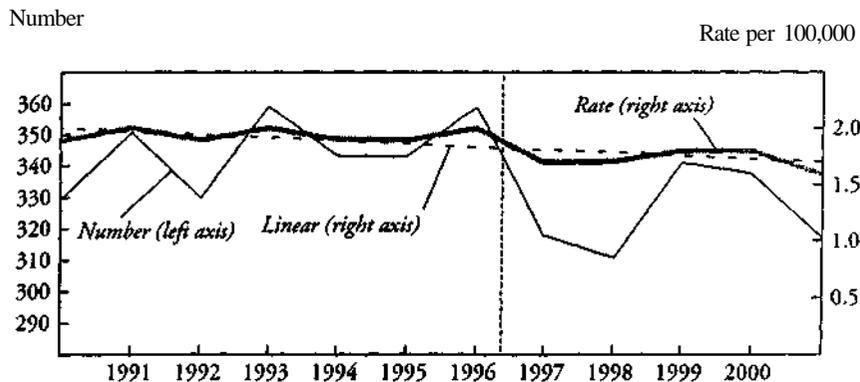
Between 1996-97 and 2000-01 there were four mass homicide incidents: two incidents involved four victims (knife and carbon monoxide gas), one incident had five victims (carbon monoxide gas), and another incident fifteen victims (arson/fire). All but *the* last mass murder occurred in a domestic situation.

50. Mouzos (1999, 2000a, 2000b, 2000c, 2001a, 2001b, 2002a, 2002b).

51. Carcach, Mouzos, and Grabosky (2002).

52. Mouzos (1999).

Figure 4-1. Homicide Rate per 100,000 People, 1989-90 to 2000-01



Source: Australian Institute of Criminology, National Homicide Monitoring Program, 1989-90 to 2000-01 (computer file). Figures 4-1 through 4-6 show statistics for Australia.

Note: Includes victims of Port Arthur.  $y = -0.0273x + 2.0273$ ;  $R^2 = 0.5598$ .

There was at least one firearm mass murder in four of the six years before the Port Arthur incident (between 1989-90 and 1994-95); not including the year of the Port Arthur incident (1995-96). In the five years since the massacre, there have not been any firearm-mass murder incidents in Australia (between 1996-97 and 2000-01). Moreover, the average number of victims involved in these murders has been smaller than in the earlier mass murders.

— Homicides committed with a firearm. Firearm-related homicides declined between 1980 and 1995 and then fell sharply from 1996 to 1999 (figure 4-2). Jenny Mouzos reports that for the period 1989-1999 just under one quarter of all homicides were committed with a firearm.<sup>53</sup>

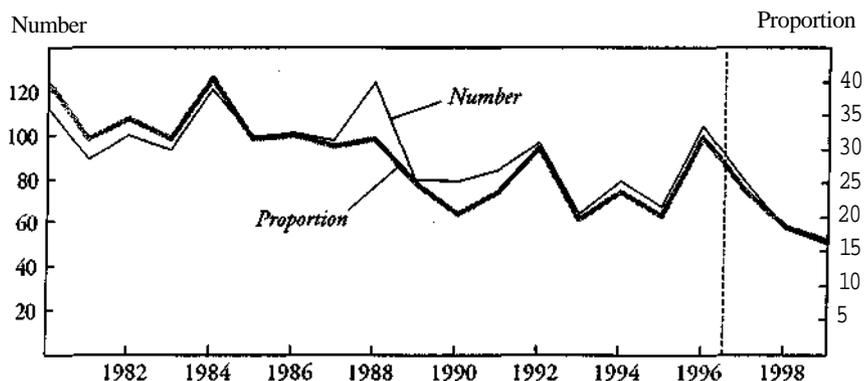
The share of firearm homicides that involved a handgun did increase sharply after the NFA, from less than one-sixth in 1992-93 to 50 percent in 2000-01.<sup>54</sup> This is consistent with a decrease in the availability of long guns. Between July 1, 1997 (after implementation of the NFA), and June 30, 1999, only 10 percent (11 out of 117) of firearm homicides involved use of a registered gun by a licensed owner; in five of the 117 deaths, the gun was owned by the victim.

New Zealand participated in the Australasian Police Ministers Council but chose not to implement the NAF. It is of some interest to compare changes in homicide and gun-related homicide rates in New Zealand with those in Australia. In New Zealand, there was no decline in the total number of homicides, but a significant decline occurred in the fraction committed with a firearm.<sup>55</sup>

53. We exclude 1996, since the Port Arthur massacre accounted for one third (35 of 111) of all firearm-related homicides that year. Mouzos (2000a).

54. Mouzos (2002a).

55. New Zealand Police National Headquarters, Homicide Statistics and Analysis.

Figure 4-2. *Proportion of Firearm Homicides, 1980-99*

Source: Australian Bureau of Statistics (ABS), *Causes of Death*.

Note: Includes victims of Port Arthur.

— Suicides and suicides with a firearm. Substitution of weapon is as plausible for suicides as homicides, though the nature of the substitution is different.

Australian suicide rates have fluctuated around about 20 per 100,000 since the end of World War II. Suicide is just as sensitive to the age distribution of the population as is homicide; rates for suicide generally are much higher among the elderly. The age-adjusted rates for firearm-related suicides fell sharply over the entire period 1979-98; the NFA generated no noticeable break in the series.<sup>56</sup> Figure 4-3 shows age-standardized rates for suicide in total and suicide with firearms. A sharply increasing share of suicides is the result of hanging or suffocation, surely representing different dynamics from instrumentality.

In Australia, as elsewhere, men are much more likely than women to use a firearm for suicide. Despite this, figure 4-4 shows that the rate of firearms suicide declined as sharply in the 1990s for women as it did for men.

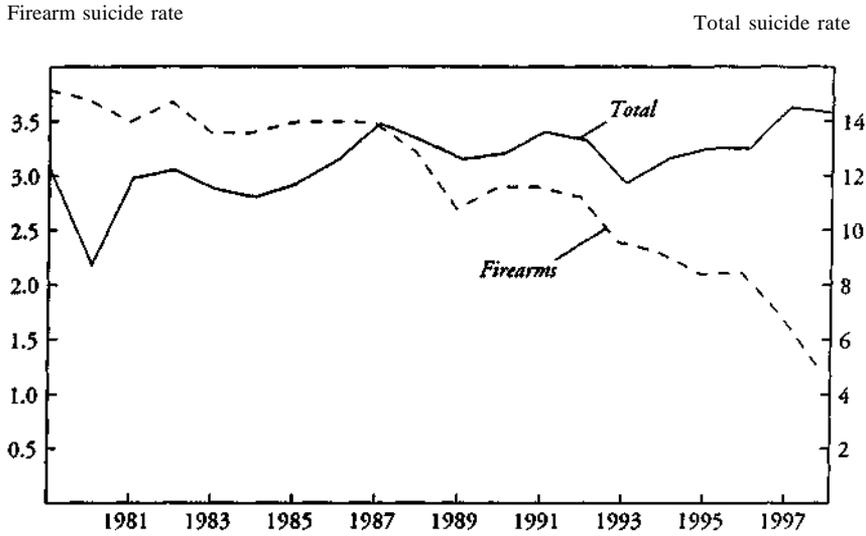
— Injuries with a firearm. Jenny Mouzos notes that accidental firearm injury rates declined over 1995-99.<sup>57</sup> The number of firearm-related hospitalizations has declined each year between 1994-95 and 1998-99.<sup>58</sup> Over that period, about half each year are classified as accidental. This decline in accidental injury is consistent with diminished stockpile and enhanced safety requirements, but the decline starts well before the NFA implementation and is no sharper following than in the two years before.

56. Harrison and Steenkamp (2000) report that age-adjusted rates for suicide showed similar fluctuations to the unadjusted rates.

57. Mouzos (2001b).

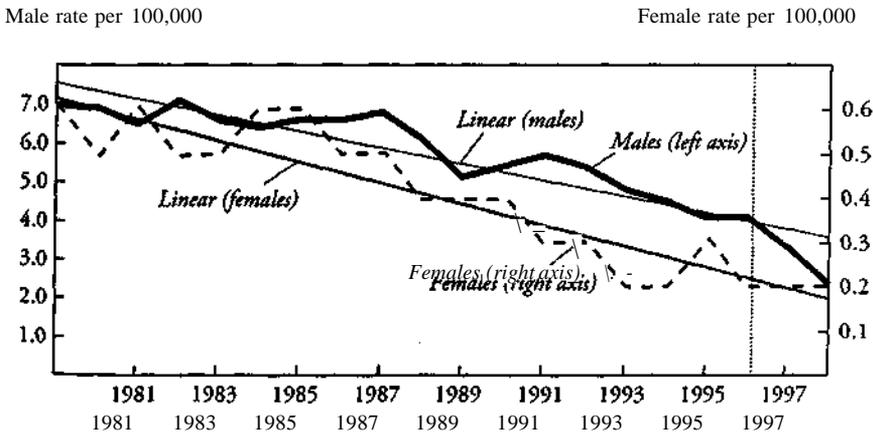
58. These are counts of "separations . . . the term used to refer to an episode of care, which can be a total hospital stay (from admission to discharge, transfer, or death) or a portion of a hospital stay ending in a change of type of care (for example, from acute to rehabilitation)." Mouzos (2001b, p. 1).

Figure 4-3. Age-Standardized Suicide Rates Using Firearms versus Total Suicide Rates, 1979-98

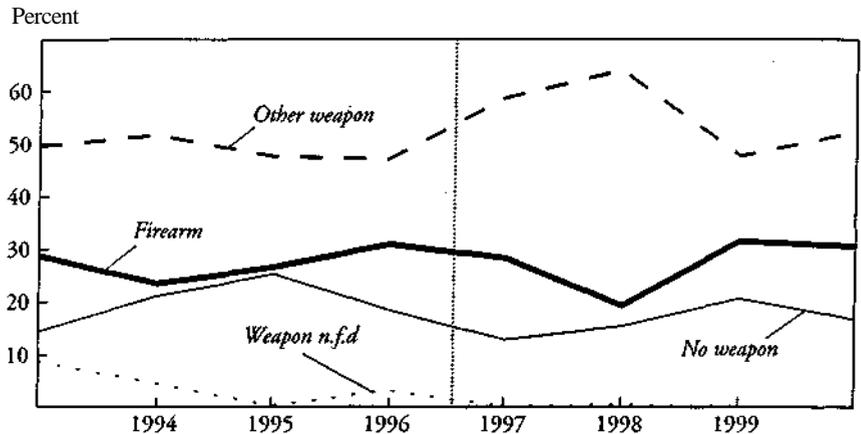


Source: ABS (2000).

Figure 4-4. Suicide by Firearms, Males and Females, 1979-98



Source: ABS (2000).  $R^2 = 0.8558$  for males;  $R^2 = 0.8532$  for females.

Figure 4-5. *Proportion of Attempted Murders by Type of Weapon*

Source: ABS, *National Crime Statistics* (1994-96) and *Recorded Crime Australia* (1997-2001).

— Other violent crime. Limited data are available on the use of firearms in the commission of violent crime other than homicide. Official statistics on attempted murder indicate that the use of firearms has remained stable, fluctuating between 29 percent in 1993 and 31 percent in 2000 (figure 4-5). Although there has been an increase in the incidence of assault over the years, the use of firearms in the commission of assault is extremely rare. During 2000, Australia recorded 141,124 assaults, of which 786 involved the use of a firearm; that is, barely 0.5 percent of assaults were committed with a firearm.<sup>59</sup>

In contrast, the use of firearms in the commission of armed robbery has changed greatly over the years. Despite an overall increase in the number of armed robberies between 1993 and 2000, the proportion of armed robberies committed with a firearm has declined substantially.<sup>60</sup> For example, in 1993, 37 percent of armed robberies were committed with a firearm (1,983). Since then the proportion has declined to a low of 14 percent in 2000 (1,328) (figure 4-6). While the use of firearms to commit armed robbery has fallen, there has been a subsequent increase in the use of "other weapons" such as knives to commit armed robbery.<sup>61</sup>

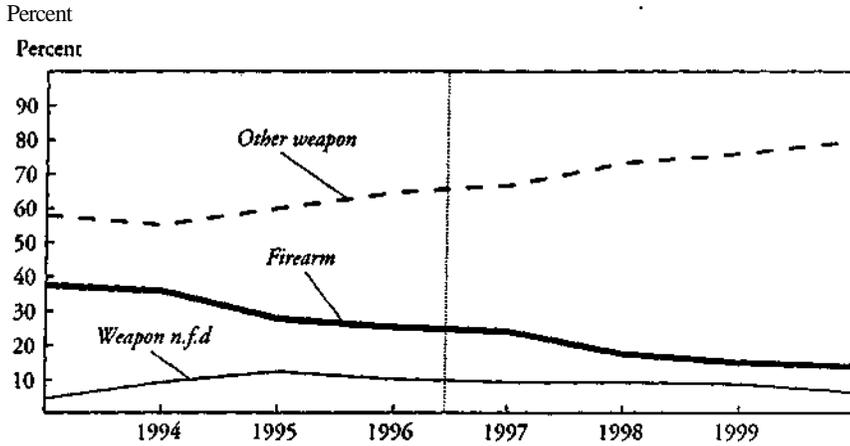
— Gun prices. Prices of guns in illicit transactions are many times higher than the cost of the same gun in a legal retail purchase, suggesting tough enforce-

59. ABS (2001).

60. Mouzos and Carcach (2001). In 1993 Australia recorded 5,294 armed robberies compared with 9,474 in 2000. ABS (2001).

61. The use of "other weapons" in the commission of armed robbery increased from 3,068 in 1993 to 7,537 in 2000. ABS (2001).

Figure 4-6. *Proportion of Armed Robberies by Type of Weapon*



Source: ABS, *National Crime Statistics* (1994-96) and *Recorded Crime Australia* (1997-2001).  
 ment.<sup>62</sup> Data have been collected by a special firearm unit of the New South Wales Police Service on both retail and wholesale transactions involving four or more firearms. Data were available for five different guns. The only gun for which the illicit price is not at least four times that of the legitimate retail price is the Desert Eagle, a rare and high-end gun that may be perceived as having a relatively high risk of detection if used in a crime. No data were available on how prices had changed over time.

— Theft of firearms. A recently released report examining the theft of firearms in Australia between 1994-95 and 1999-2000 found that the majority of firearms reported stolen to police were rifles (51 percent), followed by shotguns (22 percent) and handguns (14 percent); most were stolen from a residential premise (81 percent).<sup>63</sup> Theft is a rare event; with a total stock of approximately 3 million firearms post-1997, only about one firearm in a thousand is reported stolen in the course of a year.

The number of firearms reported stolen declined sharply post-NFA. Data on the category of firearms stolen were available for South Australia only. Trend analysis for South Australia indicates that the number of category A firearms, that is, air rifles, rim-fire rifles, and single- and double-barreled shotguns, reported stolen increased after 1996-97 from about 266 in 1996-97 to 330 in 1999-00, whereas the number of category D firearms that are prohibited except for official purposes decreased from 280 in 1996-97 to less than 10 in 1998-99 and 1999-00.

62. Cook, Molliconi, and Cole (1995).

63. Mouzos (2002b).

The overall decline in the number of firearms reported stolen, and the specific decline in category D firearms, may reflect several factors: the effects of the NFA's increased storage requirements, the reduction in the number of newly prohibited category D firearms, and decreased willingness to report theft of these firearms precisely because they are prohibited. The third factor cannot be discounted as contributing to what otherwise appears to be one of the successful outcomes of the NFA.

## Discussion

The NFA can be treated as a case study in the effects of tightening an already stringent gun control regime. It involved numerous changes, any of which could in theory have had a serious influence. The gun buyback in support of a new prohibition is the most distinctive but not necessarily the most important. The introduction of the uniform licensing and registration system across Australia has meant that persons who do not have a genuine reason and need to own a firearm will find it difficult to obtain a firearm *legally*. This consequently reduces the number of people who can obtain and have access to firearms legally; there is still, of course, access to firearms through the illegitimate firearm market.

There may have been a modest effect on homicides. The number declined continuing a preexisting trend. Given only five years of postban data, one could not reject the hypothesis that it had reduced homicides by 10 percent. The share of homicides committed with firearms fell sharply after the implementation of the NFA; among firearm homicides, an increasing share were with a handgun, whose ownership had been tightly restricted even before 1996. The fact that New Zealand, a similar nation in many respects, which did not introduce the new measures, saw no decline, provides a small piece of evidence in favor of an NFA effect.

Suicide did not decline, but again there was a sharp decrease in the share involving a firearm, continuing a long trend. Although there has been a significant decrease in the number of armed robberies committed with a firearm, the decline began before 1996; the decline was more pronounced post-NFA.<sup>64</sup>

All this is generally consistent with a story of substitution. Firearms were never the dominant means of homicide or suicide and reducing the availability of one form of firearm was not likely to have a large effect. The more stringent registration and licensing requirements (including a twenty-eight-day waiting period for

64. These conclusions are similar to those of Carcach, Mouzos, and Grabosky (2002).

purchasers) may have made a difference; not enough detail is *yet* available on the characteristics of licensed weapons to allow analysis of this possibility.

The buyback alone was an implausible candidate for reducing crime rates because the targeted gun type was one not much used in homicides or, presumably, other kinds of violent crime.<sup>65</sup> Even if half of long-gun homicides were eliminated, homicide rates would decline by only 5 percent, difficult to detect in a series as noisy as this one. The hypothesis that gun owners would try to maintain their total inventory of weapons and thus reduce offender holdings of higher-risk weapons, a hypothesis with low face plausibility, was not supported.

In important respects the NFA was similar to the U.S. ban on assault weapons and large capacity magazines, analyzed by Christopher Koper and Jeff Roth.<sup>66</sup> This again targeted a class of firearm that accounted for fewer than 8 percent of homicides before the 1994 ban, which also followed some highly publicized mass murders. Koper and Roth report very modest effects on homicide from that ban; their best estimate is a statistically insignificant 6.7 percent decline in the year immediately following the ban. Gary Kleck argues that even this figure is an overestimate and that the assault weapon ban could at most have led to a reduction of two homicides annually.<sup>67</sup>

The Australian evidence is slightly more promising when one looks at what the program targeted, namely, the occurrence of another "Port-Arthur" incident in Australia, which explained the choice of weapons prohibited and purchased. Five years post-NFA, no mass murders have been committed with a firearm in Australia. There have been three mass murders in five years, a statistically insignificantly lower rate than pre-1996, and two of the three incidents were lower salience and involved domestic disputes only. Given that mass murders cause so much community fear, it is appropriate to choose this as an evaluation outcome separate from homicide rates generally.

For those interested in gun buyback proposals as a means of reducing violent crime, the results provide little insight. The Australian buyback was certainly large scale. It acquired a substantial fraction of the prohibited firearms, perhaps three-quarters. Even as a share of all firearms, the buyback led to the removal of a noticeable fraction of holdings. However, it targeted a low-risk weapon, quite the opposite of U.S. gun buyback program targets. Whether a large-scale buyback with a more appropriate target can make a difference to violent crime rates remains to be tested.

### Note on Sources

The gun control debate in Australia provokes rhetorical debate comparable to that found in the United States. The Sporting Shooters Association of Australia (SSAA) and the principal gun control advocacy group, Gun Control Australia Inc., occupy positions roughly comparable to those of the National Rifle Association and Handgun Control Inc. Their websites contain primarily materials supporting their views, though in 2002 they started to include more neutral papers.

The Australian Institute of Criminology (AIC) has a National Firearms Monitoring Program and a National Homicide Monitoring Program. The AIC provides objective statistical analysis of homicide trends and has published some analyses of the effects of various interventions. Other useful reports can be found on the site of the Bureau of Crime Statistics and Research of the New South Wales Attorney General's Department. Otherwise there are little data or published research.

### COMMENT BY

## Anne Morrison Piehl

It is often argued that a reduction in the ownership of guns through a buyback initiative will work to reduce gun violence. Programs to purchase guns from citizens have been implemented in many jurisdictions, with government or private sources providing the funding. Although the literature does not provide an optimistic view for their prospects, one could reasonably argue that past efforts were on a small enough scale or were so poorly implemented that the buyback idea has not been fully tested.<sup>68</sup> The buyback in Australia in the late 1990s analyzed by Peter Reuter and Jenny Mouzos is orders of magnitude larger than efforts undertaken in the United States and was, by all accounts, carefully and thoroughly implemented. Thus it seems a "fair test" of the prospects for gun buy backs.

### *The Australian Experience*

In reaction to a mass killing of thirty-five people in Port Arthur in 1996, legislation was adopted by all Australian states implementing a (nearly) uniform sys-

68. See reviews in Reuter and Mouzos, chapter 4, in this volume; Sherman (2001); and Kennedy, Braga, and Piel (1996).

term of licensing and registration of firearms. Weapons of the type used in the massacre (long guns) were newly prohibited (handguns were already heavily regulated), and a short-term buyback program was initiated for the newly prohibited firearms. By any measure, the buyback was massive and generous: more than 600,000 firearms turned in, more than \$U.S. 350 paid out per gun. Since then, several amnesties have attracted even more weapons. Contemporaneous with these other changes, enforcement increased.

From a policy perspective, the Australian case is a clean example for evaluation. There is essentially no domestic supply of these weapons, imports were banned, and the buyback was well funded and had nationwide coverage. Yet, from a statistical perspective, evaluation is difficult. The reforms targeted the type of weapon used in one mass killing, and the legislation was supported by arguments that it would reduce future similar incidents. But mass killings are rare events; the authors report 1.3 a year in Australia, less than half of them involving firearms. So if one were to evaluate the effect of the reforms on mass killings, there would not be enough statistical power to establish conclusively even a large effect.<sup>69</sup>

The authors consider additional, broader outcomes of violent crime and suicide, presumably because of the infrequency of mass killings and because of an interest in the effect on these other outcomes regardless of the motivation for reform. Homicide and suicide are lower following the Port Arthur massacre and the subsequent gun control reform. However, these changes are not statistically different from longer-term downward trends. The number of armed robberies is up since the reform, but the proportion using a firearm is down. The trends complicate interpretation of the results. Without a well-developed understanding of the causes of these trends or without high-frequency variation across jurisdictions that experienced differential impact of the reform (owing to variation in preexisting regulation), strong conclusions are not possible.

### *What Does This Experience Tell Us about Buybacks?*

Clearly, the change in regulatory environment analyzed by Reuter and Mouzos was much more extensive than a repurchase of existing weapons. What is less clear is what can be applied from the Australian experience to other environments and other proposals.

69. For example, Reuter and Mouzos (this volume) report that there were mass killings in four of six years before the reform (excluding the Port Arthur event) and no mass killings in the five years following. Assuming the probability of mass killing in a given year is 0.67, the binomial probability of observing zero events in five independent trials is 0.135. That is, there is a 13.5 percent chance that one would observe no mass killings in a five-year period even if the frequency were unchanged.

Even the authors indicate that it would not be reasonable to expect great impacts on crime from this intervention. They state that their findings for violent crime are "hardly surprising given that the type of firearms prohibited had not previously been much used in crime or suicide." It is common for buyback efforts to be overly broad, not targeting guns of high risk of being used in violence. In his review of the evidence, Lawrence W. Sherman declares, "Nothing in the structure of gun buyback programs attempts to focus the intervention on the risk." Furthermore, the characteristics of the guns collected reveal little overlap between crime guns and buy-back guns.<sup>70</sup> Yet Australia's effort was more highly specified than most efforts in the United States, suggesting that more targeted efforts are possible.

One also needs to sort out the role of the buyback in the larger reform effort, which included increased enforcement, prohibitions on certain weapons, and training and registration requirements. Perhaps it is not relevant to separate the gun bans from the buyback, as the former may not be feasible without the latter. But the results should be considered biased upward if applied to a buyback alone.

A related question is whether Australia's experience could inform policy discussion about comprehensive gun control legislation in the United States. As reported in table 4-2, the two countries have very different rates of firearm use in homicide and suicide. Although the homicide rate in the United States is nearly four times that in Australia, the firearm-related homicide rate is more than fourteen times higher. For suicides, the overall rate is higher in Australia, but the firearm-related suicide rate in the United States is five times Australia's rate. Equally important is the difference in the regulatory environment. Australia has much tighter regulation. For these two reasons, it is possible that similar nationwide legislation in the United States would have a much larger impact on violent outcomes.<sup>71</sup>

### *Should Policy Analysts Close the Book on the Buyback Idea?*

From the literature on the effect of gun buybacks on violence, the answer to this question is probably yes. However, there are two qualifications. As mentioned, buybacks have not traditionally been tightly targeted to those weapons and own-

70. Sherman (2001, p. 19); Kennedy, Braga, and Piel (1996).

71. This is by no means a prediction of the impact of a tightening of the regulation of firearms in the United States. Many factors would need to be considered before making such a prediction (including modeling of enforcement actions, operation of the illegal market in firearms, impact of reform on extent and distribution of gun ownerships, and so on). An analysis of this sort is beyond the scope of this comment.

ers at highest risk for violence. Although a buyback will generally draw the least "risky" guns from any pool, defining the pool more narrowly (for example, not offering payment for old weapons or those not in working order) could cause the average repurchased weapon to have a higher likelihood of being involved in criminal violence. In light of recent evidence suggesting that marginal changes in gun availability might have substantial impacts on violent outcomes, crafting an initiative to repurchase guns that would have important local effects on violence may be possible.<sup>72</sup> More generally, gun buyback programs, or (perhaps equivalently) amnesty for those turning in guns, may be important aspects of more comprehensive efforts to reduce gun availability in certain locations. Finally, descriptions of buyback initiatives suggest that they are productive for community organizing, which may make them essential aspects of the larger law enforcement picture.<sup>73</sup>

## COMMENT BY Jim Leitzel

Australia's ban, buyback, and destruction of hundreds of thousands of guns within a few months in 1997 is one of the most massive government adjustments of a firearm regulatory regime in recent history. Indeed, the simultaneous licensing changes, new safe storage rules, and amnesty for unregistered guns would themselves constitute a major reform, even without the legislated disappearance of more than half a million guns. The Australian case is long overdue for analysis, and Peter Reuter and Jenny Mouzos have ably answered the call. My intention is to supplement their analysis by providing some additional context through a comparison with the contemporaneous British ban on handguns.

The post-Port Arthur Australian reforms involved a combination of a ban, a buyback, and other regulatory measures. The effects of the reforms, then, cannot be directly compared with the consequences of gun bans or buybacks implemented in isolation.<sup>74</sup> Note that the buyback portion of a combined ban-

72. See Duggan (2001) on gun availability and homicide, Duggan, chapter 2 in this volume, on gun availability and suicide, and Sherman and Rogan (1995) on gun seizures and gun violence.

73. Plotkin (1996).

74. The U.S. assault weapons ban, for instance, not only did not buy back the existing stock, but the ban itself only applied to future acquisitions; that is, the existing stock of assault weapons remained legally owned.

buyback might be a good idea even in the absence of any incremental reduction (that is, beyond the effects of the ban itself) in the social costs of firearm violence. Such "just compensation," which presumably would be required by the Fifth Amendment should a ban of existing weapons take place in the United States, would, among other things, help build public support for the reform. In other words, if a ban of some privately owned weapons is sound public policy, then a buyback might be a useful (or even required) measure to ease the path to the ban.<sup>75</sup>

Although the existing gun buyback literature is not directly relevant for Australia's combined ban and buyout, the British precedents are squarely on point. The British reforms were motivated by tragic mass murders, involved ban-buyback combinations and other measures such as amnesties for unregistered guns, and in the case of the 1988 reforms, even concerned the same class of firearms. Indeed, the post—Port Arthur firearm regulation regime in Australia moves it close to the circa 1996 British model: licensing of gun owners, based on having a legitimate reason to own a gun (primarily membership in a target shooting club) and fitness of character, and prohibition of self-loading and pump-action shotguns and rifles (which were the subject of the 1988 British ban-buyback.) At about the same time as the Australian reforms, Britain was moving toward its own new ban, this one on handguns, and my comments concentrate on the consequences of this measure. One important difference between the buybacks is that the long guns banned in 1988 in Britain and 1997 in Australia were not commonly used in firearm crimes before the bans—this is the sense in which Reuter and Mouzos refer to these guns as "low risk." But handguns, the object of the 1997 British ban, were involved in most British firearm crimes.<sup>76</sup>

### *Post-Dunblane Handgun Bans-Buybacks in Britain*

In the wake of the murder of sixteen schoolchildren and a teacher in Dunblane, Scotland, in March 1996, Britain moved to ban handguns.<sup>77</sup> The policy reform took place in two stages: first, handguns above .22 caliber were banned, followed by a nearly total handgun prohibition a few months later. High-caliber

75. Buybacks also might be useful, even without direct impacts on reducing crime, by providing a convenient opportunity for those who have become ambivalent about their gun ownership to safely divest themselves of guns.

76. Most British gun crimes involve property damage caused by low-powered airguns. Such guns are not subject to the certificate control system, and crimes conducted with these guns are not included in the firearm crime statistics presented here. Handguns are involved in most firearm crimes when airgun crimes are not taken into account.

77. Squires (2000) is an excellent source for background into the post-Dunblane changes to British firearm regulations.

weapons had to be handed in by October 1, 1997, and the remaining handguns by March 1, 1998. Legal owners of newly prohibited firearms were entitled to compensation for their guns, and for related equipment and ammunition. As with the Australian buyback, weapons relinquished during the hand-in period were destroyed.

Analysis of the Australian reform package is challenging because the prevalence of the newly banned guns before the buyback is not known with much precision. Because of the certification system that had long been in place, the number of legally owned handguns was somewhat less of a mystery in Britain. On the basis of the existing firearm certification system in Britain, the government originally estimated the legal handgun stock before the ban to consist of approximately 200,000 handguns. This figure turned out to be a significant overestimate, in part because of a discrepancy between the number of firearms that were authorized by certificates to be owned and the lesser number of those actually owned. Some of the "missing" guns had never been purchased, some had been destroyed, deactivated, sold abroad, or otherwise surrendered, and some long guns had been misclassified as handguns. (The 1997 acts that banned handguns also included provisions for informing police upon the "death" of a certified gun.) In the event, 162,353 guns were handed in, some 25,000 fewer than originally expected, though police forces generally felt that there was nearly universal compliance with the ban by licensed gun owners.<sup>78</sup>

Table 4-4 presents some information on trends in the prevalence of legally owned weapons in England and Wales. Between 1995 and 2000, the number of firearm certificates declined by 11.5 percent, while the number of firearms fell by more than 28 percent. As in Australia, most individuals who owned at least one firearm before the handgun ban continued to own a firearm. Nor does it seem that the handgun ban caused a resurgence in the popularity of shotguns. (The British certification system makes a distinction between shotguns and other types of guns. The system of control over shotguns has traditionally been less strict than that over "firearms." A long-standing upward trend in the number of shotgun certificates was reversed following the 1988 ban-buyback of pump-action and self-loading shotguns.)

The years leading up to the Dunblane massacre witnessed a significant rise in British handgun crime, which peaked in 1993. In 1996, before the ban was introduced, there were 3,347 recorded handgun crimes—a number far higher than

78. "Home Office: Handgun Surrender and Compensation," HC 225 1998-99, National Audit Office Press Notice, London, February 26, 1999. The cost of the compensation (including that of the surrendered ammunition) was estimated as approximately 95 million pounds. The rough U.S. equivalent, circa 1998, to 95 million pounds was \$150 million.

Table 4-4. *Legal Firearm Oumership, England and Wales*

<i>Item</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>
Firearm cenificates	141,700	141,900	133,600	131,900	132,300	125,400
Authorized firearms	413,600	418,300	305,000	295,000	296,400	296,800
Shotgun certificates	653,800	638,000	623,100	627,600	625,700	600,700
Authorized shotguns	1,325,800	1,335,000	1,343,900	1,343,100	1,327,800	1,320,900
Firearm dealers	2,470	2,490	2,400	2,180	2,090	2,070

Source: Jenner and Gray (2001).

that recorded throughout the 1980s and previously surpassed only by the statistics for 1991-93.

What has happened to crime, and gun crime, in Britain following the handgun ban? Recently, there has been a major discrepancy in British crime figures. Although recorded crimes have seen major jumps since 1997, the British Crime Survey (which, as the equivalent to the National Crime Victimization Survey in the United States, includes unrecorded and even unreported crimes) has indicated steep declines, so that by 2001 the probability of being a crime victim in Britain reached a twenty-year low.<sup>79</sup> Table 4-5 provides some official statistics on recorded crime in England and Wales.

The immediate aftermath of Dunblane saw large reductions in handgun crime, overall firearm crime, and crime more generally. By the end of the 1990s, however, these gains were being eroded, and by 2001, gun crime had returned close to the record levels of 1993. Shotgun crime, however, remains low, at less than half the number of offenses recorded at the 1993 peak. The homicide rate in Britain has been rising since the mid-1990s, to 1.55 per 100,000 in 2000-01, though it remains extremely low by international standards, even in comparison to Australia. The percentage of homicides that involves guns is also low, at 8.8 percent.<sup>80</sup> There does not seem to be any trend since the mid-1990s in the percentage of homicides that involve guns or, more specifically, handguns: in 2000-01 England and Wales had a total of forty-seven handgun homicides and fourteen shotgun homicides. The fraction of suicides that involves guns is even lower than for homicides: 2.4 percent in 1998.<sup>81</sup>

Recent robbery statistics are a cause for concern: recorded robberies increased by 26.1 percent between 1998-99 and 1999-2000, and by a further 12.9 percent the following year. Gun robberies have seen a similar rise, though they still represent a small fraction (4.2 percent) of all robberies. For robberies, however, the discrepancies between recorded crime and statistics from the British Crime Survey are widest. Between 1999 and 2000, robberies increased by some 21 percent (in recorded statistics) or fell by 22 percent (according to the British Crime Survey)!<sup>82</sup>

To the extent that the increase in recorded robberies is a real phenomenon and not a statistical anomaly, it is not the case that the additional robberies can be seen as motivated by further assurance for criminals that, following the hand-

79. Kershaw and others (2001).

80. There is considerable uncertainty in the gun crime figures, and especially in type-specific figures. Many crimes that are recorded as involving handguns may actually be carried out with unworkable imitation or replica weapons.

81. "Controls Over Firearms" (1999, para. 36).

82. Kershaw and others (2001).

Table 4-5. *Crime and Guns, England and Wales*

<i>Item</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1997-98</i>	<i>1998-99<sup>a</sup></i>	<i>1999-2000</i>	<i>2000-01</i>
Recorded crime (thousands)	5,101.2	5,036.6	4,598.3	4,545.3	5,109.1	5,301.2	5,170.8
Recorded gun crime (excluding airguns)	5,866	6,063	4,904	4,903	5,209	6,843	7,362
Shotgun	984	933	580	565	642	693	607
Handgun	3,318	3,347	2,648	2,636	2,687	3,685	4,019
Homicide	663	585	612	612	655	693	818
Firearm homicide	70	49	59	54	49	62	72
Total homicide (percent) <sup>b</sup>	9.4	7.2	8.0	7.2	6.5	8.1	8.8
Robbery (thousands)	68.1	74.0	63.1	62.7	66.8	84.3	95.1
Firearm robbery	4,206	4,013	3,029	2,938	2,973	3,922	3,965
Total robbery (percent)	6.2	5.4	4.8	4.7	4.4	4.7	4.2
Handgun	2,647	2,575	1,854	1,811	1,814	2,561	2,700
Shotgun	544	484	299	266	331	355	297
Burglary (thousands)	1,239.5	1,164.6	1,015.1	988.4	953.2	906.5	836.0

Source: *Criminal Statistics* (2000).

a. New rules for offense coverage and counting came into effect on April 1, 1998. The changes had the effect of increasing the number of recorded crimes, though for firearm offenses, the extent of the inflation is unknown.

b. The percentage of homicides that involves firearms does not perfectly agree with the two previous rows for a variety of reasons: currently recorded homicides differ from originally recorded homicides, some gun homicides involve the use of the gun as a blunt instrument, and other reasons.

gun ban, potential victims would not be armed. For decades, firearms could not legally be carried (or even owned) for the purpose of personal protection, so the assurance that potential victims were unarmed was almost complete before the ban, too. Unlike robberies, however, burglaries may have seen a ban-induced change in the extent of deterrence. Nevertheless, the number of recorded burglaries has been falling in England and Wales since peaking in 1993. The use of a firearm in a burglary is a rare event: of approximately every 2,700 burglaries, only 1 is conducted with a firearm.

Although definitive conclusions are hard to come by, it seems that the handgun ban in Britain may have helped to sustain the mid-1990s reversal of the buildup to the relatively high handgun crime levels of a few years earlier. Crime and firearm crimes fell in the immediate aftermath of the ban, but that trend subsequently ended: according to statistics on recorded crimes, current rates are near pre-ban levels. It can be stated with more certainty that the handgun ban has not resulted in any sort of crime nightmare in Britain, as some had feared. First, the handgun ban did not lead to a perverse effect, where fewer guns in the hands of law-abiding citizens generated a huge crime spree by gun-toting criminals.<sup>83</sup> Second, the handgun ban did not lead to a noticeable substitution toward shotgun crime, though shotguns have long been by far the most commonly available type of gun, and fears of such a substitution are often voiced in discussion about proposed handgun controls in the United States.<sup>84</sup> Britain remains a nation with enviably low levels of homicide and firearm crime.

### *A Few Words but No Answers on Mass Gun Killings*

The Australian and British ban-buybacks were motivated by horrific, high-profile mass murders. The perpetrators of these massacres were unmarried males, and they were unbalanced by any common reckoning—a profile that seems to extend to mass murderers more widely.<sup>85</sup> The British assailants were suicidal as well as homicidal, and they committed suicide at the end of their sprees. The suicidal intention of the Australian gunman was not as apparent, though he set fire to the house he was holed up in and emerged, surviving, with his clothes on fire.

83. Arguments based on such perverse effects are commonly arrayed in the United States against various proposals for stricter gun controls; see, for example, the discussion of the perversity argument in Cook and Leitzel (1996).

84. See, for example, Kleck (1984).

85. See, for instance, the discussion of the research by forensic psychologist Paul Mullen ([www.monash.edu.au/pubs/montage/Montagej97-02/killer.html](http://www.monash.edu.au/pubs/montage/Montagej97-02/killer.html)). The motives of those who kill strangers more or less randomly apparently differ systematically from those murderers who target acquaintances and family members.

The suicidal tendencies of many mass murderers are important for control purposes, because they suggest that such potential killers will be hard to deter through threats of punishment. Preventive measures, therefore, take on increased importance with suicidal assailants. (Suicide bombers in the Middle East provide a similar instance: deterrence needs to be supplemented with *ex ante* controls.)

The perpetrators of the British and Australian massacres did not just happen to own guns; rather, they were all rather deeply immersed in the gun culture. Further, despite their unstable mental condition and the relatively strict gun laws that already prevailed in Britain and Australia, the assailants were legal gun owners. Somehow, the existing control systems failed to screen out these individuals. This fact helped to promote stricter controls following the massacres, even though it was understood that most gun crime was not committed by legal firearm owners.

It has been argued, on the basis of U.S. data, that liberalized laws governing concealed gun carrying are an effective means to combat mass firearm murders.<sup>86</sup> This is a reform for which there was essentially no public support in Britain or Australia, even though both countries contained vocal constituencies opposed to the ban-buybacks. In general, one would expect that the utility of having more guns in public settings would vary with such conditions as the existing prevalence of firearms and of firearm crimes. Further, the suicidal tendencies of many mass killers tend to undermine the deterrence value of an increasingly armed populace.<sup>87</sup> At any rate, in Britain and Australia, countries with a relatively low incidence of gun crime, liberalized carry rules (or other loosening of gun controls) held little appeal as a means to lowering the social costs of firearm violence. Britain, like Australia, has not seen a similar large-scale mass shooting since the ban, but fortunately, as Peter Reuter and Jenny Mouzos note, these events were always sufficiently rare that *the* influence of the bans on mass firearm shootings is guaranteed to be hard or impossible to detect—though again, it is reassuring that nightmare "perversity" scenarios did not develop.

Although horrific mass murders motivated major firearm policy responses in Australia and Britain, the school shootings in Litdeton, Colorado, and elsewhere, did not lead to similar changes in the United States. Why did the response differ so noticeably among these settings? Although I cannot pretend to put forward a complete answer to this question, some of the difference undoubtedly relates, again, to the preexisting firearm prevalence and crime. In Britain and Australia, law-abiding citizens can be significantly more assured that they will not face an assailant armed with a gun than can someone in the United States. As a result,

86. Lott and Landes (2000).

87. Lott and Landes (2000) argue that liberalized concealed-carry laws not only deter some mass public shootings but also reduce the number of victims in those shootings that nevertheless take place.

the perversity argument against gun controls—essentially, more guns, less crime—is not nearly as influential in Britain and Australia as it is in the United States.<sup>88</sup>

To conclude, in general it seems that both the Australian and the British ban-buybacks did not increase crime, and they may even have contributed to some short-term postban declines in criminal activity. This outcome is shared, even though the Australian ban-buyback applied to guns that were not frequently used in crime, while the British post-Dunblane ban-buyback involved the most common type of crime gun. But the real contribution of the ban in Britain (and Australia) may have little to do with such metrics as measured crime rates or the other indicators tracked by Reuter and Mouzos. For many British people, the fear of a widening gun culture and, as they saw it, the long-run potential for American levels of gun violence were the larger concern—a concern enhanced by the fact that the Hungerford and Dunblane perpetrators were legal gun owners.<sup>89</sup> A widening gun culture might set the stage for an arms race between criminals and the public: more gun prevalence would lead to more gun violence, which would lead to more gun prevalence for defensive purposes, and so on. This fear of an expanded gun culture is sufficiently widespread that even most police officers in Britain do not routinely carry firearms. The lower levels of legal gun prevalence following the ban-buybacks, from this perspective, represent a move in the right direction, irrespective of the marginal impact of the reforms on the short-run social costs of gun violence.

## References

- Australian Bureau of Statistics (ABS). Annual Issues. *Causes of Death*. Canberra.
- . Annual Issues. *National Crime Statistics*, cat. 4510. Canberra.
- . Annual Issues. *Recorded Crime Australia*, cat. 4510. Canberra.
- . 2000. *Suicides Australia 1921-1998*. cat. 3309.0. Canberra.
- . 2001. *Australian Demographic Statistics*. Canberra.
- Australian National Audit Office. 1997. *The Gun Buy-Back Scheme*. Audit Report 25, 1997-98. Canberra.
- Australian Police Ministers' Council. 2001. *Minimum National Standards for Firearms Safety Training in Australian States and Territories*. Commonwealth Attorney General's Department, Canberra.
- Bammer, Gabrielle, Wayne Hall, Margaret Hamilton, and Robert Ali. 2002. "Harm Minimization in a Prohibition Context—Australia." *Annals of the American Academy of Political and Social Sciences* 582: 20-32.
- Barclay Gordon, and Cynthia Travares. 2000. *International Comparisons of 'Criminal Justice Statistics 1998*. Home Office, London.

88. See Leitzel (1998). *More Guns, Less Crime* is the title of Lott (1988).

89. See, for example, chaps. 4 and 6 in Squires (2000).

- Callahan, C. F. Rivara, and T. Koepsell. 1994. "Money for Guns: Evaluation of the Seattle Gun Buy-Back Program." *Public Health Reports* 109 (4): 472-77.
- Carcach, C. J. Mouzos, and P. Grabosky. 2002. "The Mass Murder as Quasi-Experiment: The Impact of the 1996 Port Arthur Massacre." *Homicide Studies* 6 (2): 107-27.
- Centers for Disease Control. 1998. WISQARS Injury Mortality Data Reports ([www.cdc.gov](http://www.cdc.gov)).
- Commonwealth Attorney-General's Department. 2002. *The Australians Firearms Buyback: Tally for Number of Firearms Collected and Compensation Paid*. Canberra.
- "Control Over Firearms." 1999. Select Committee on Home Affairs Second Report, House of Commons. London.
- Cook, P. J., and J. Leitzel. 1996. "Perversity, Futility, Jeopardy: An Economic Analysis of the Attack on Gun Control." *Law and Contemporary Problems* 59 (Winter): 91-118.
- Cook, Philip J., and Jens Ludwig. 2000. *Gun Violence: The Real Costs*. Oxford University Press.
- Cook, Philip J., Stephanie Molliconi, and Thomas B. Cole. 1995. "Regulating Gun Markets." *Journal of Criminal Law and Criminology* 86 (1): 59-92.
- Criminal Statistics, England and Wales, 2000*. Home Office. London: The Stationery Office, (December).
- Cook, Philip J., Mark Moore, and Anthony Braga. 2001. "Gun Control." In *Crime: Public Policies for Crime Control*, edited by James Q. Wilson and Joan Petersilia. San Francisco: Institute for Contemporary Studies.
- Duggan, Mark. 2001. "More Guns, More Crime." *Journal of Political Economy* 109 (October): 1086-1114.
- European Monitoring Center on Drugs and Drug Abuse (EMCDDA). 2001. *Annual Report on the State of the Drug Problem in the EU*. Lisbon.
- Firearms Control Task Group, Department of Justice Canada. 1995. *A Review of Firearm Statistics and Regulations in Selected Countries* (March).
- Fitzgerald, J., S. Btiscoe, and D. Weatherburn. 2001. "Firearms and Violent Crime in New South Wales." *Contemporary Issues in Crime and Justice*. Bulletin 57. Bureau of Crime Statistics and Research. Sydney.
- Fox, James Alan, and Jack Levin. 1998. "Multiple Homicide; Patterns of Serial and Mass Murders." In *Crime and Justice: An Annual Review of Research*, vol. 23, edited by Michael Tonry, 423-55. University of Chicago Press.
- Harding, Richard. 1981. *Firearms and Violence in Australian Life*. University of Western Australia Press.
- Harrison, J., and M. Steenkamp. 2000. "Suicide in Australia; Data and Trends in 1998." *Australian Injury Prevention Bulletin* 23. Adelaide.
- Home Office. 2000. *Criminal Statistics, England and Wales, 1999*. London.
- Jenner, John, and Alan Gray. 2001. *Firearm Certificates. England and Wales, 1999 and 2000*. [www.homeoffice.gov.uk/rds/firearmsl.html](http://www.homeoffice.gov.uk/rds/firearmsl.html).
- Kellermann, Arthur L., Frederick P. Rivara, N. B. Rushforth, J. G. Banton., D. T. Reay, J. T. Francisco, A. B. Locci, J. B. Prodzinski, B. B. Hackman, and G. P. Somes. 1993. "Gun Ownership as a Risk Factor for Homicide in the Home." *New England Journal of Medicine* 329 (15): 1084-91.
- Kennedy, David, Anthony Braga, and Anne Morrison Piehl. 1996. "Gun Buy-Backs: Where Do We Stand and Where Do We Go?" In *Under Fire: Gun Buy-Backs, Exchanges and Amnesty Programs*, edited by Martha R. Plotkin, 141-74. Washington: Police Executive Research Forum.

- Kershaw, C, N. Chivite-Matthews, C. Thomas, and R. Aust. 2001. "The 2001 British Crime Survey: First Results, England and Wales." Home Office Statistical Bulletin 18-01 (October 25).
- Kleck, Gary. 1984. "Handgun-Only Gun Control: A Policy Disaster in the Making." In *Firearms and Violence: Issues of Public Policy*, edited by Don B. Kates. Ballinger.
- . 1996. "Gun Buy-Back Programs: Nothing Succeeds Like Failure." In *Under Fire: Gun Buy-Backs, Exchanges and Amnesty Programs*, edited by Martha R. Plotkin, 29-53. Washington: Police Executive Research Forum.
- . 2001. "Impossible Policy Evaluations and Impossible Conclusions—a comment on Koper and Roth." *Journal of Quantitative Criminology* 17 (1): 75-80.
- Koper, Christopher, and Jeffrey Roth. 2001. "The Impact of the 1994 Federal Assault Weapon Ban on Gun Violence Outcomes: An Assessment of Multiple Outcome Measures and Some Lessons for Policy Evaluation." *Journal of Quantitative Criminology* 17 (1): 33-74.
- Leitzel, James. 1998. "Evasion and Public Policy: US and British Firearm Regulation." *Policy Studies* 19 (June): 141-57.
- Lott, John R. Jr. 1998. *More Guns, Less Crime: Understanding Crime and Gun Control Laws*. University of Chicago Press.
- Lott, John R. Jr. and William M. Landes. 2000. "Multiple Victim Public Shootings." Working Paper (October).
- Makkai, Toni. 2000. "Crime in Australia." In *Sociology of Australian Society*, edited by J. M. Nojmar and J. S. Western, 239-57. MacMillan Publishers.
- Mouzos, Jenny D. 1999. *Firearm-Related Violence: The Impact of the Nationwide Agreement on Firearms*. Trends and Issues in Crime and Criminal Justice Series. No. 116. Canberra: Australian Institute of Criminology.
- . 2000a. *The Licensing and Registration Status of Firearms Used in Homicide*. Trends and Issues in Crime and Criminal Justice Series. No. 151. Canberra: Australian Institute of Criminology.
- . 2000b. *Firearm Related Deaths in Australia 1998*. Trends and Issues in Crime and Criminal Justice Series. No. 161. Canberra: Australian Institute of Criminology.
- . 2000c. *Homicidal Encounters: A Study of Homicide in Australia 1989-1999*. Research and Public Policy Series 28. Canberra: Australian Institute of Criminology.
- . 2001a. *Homicide in Australia 1999—2000*. Trends and Issues in Crime and Criminal Justice Series. No. 187. Canberra: Australian Institute of Criminology.
- . 2001b. *Firearm Related Morbidity in Australia, 1994-95 to 1998-99*. Trends and Issues in Crime and Criminal Justice Series. No. 198. Canberra: Australian Institute of Criminology.
- . 2002a. *Homicide in Australia: 2000-2001 National Homicide Monitoring Program (NHMP) Annual Report*. Research and Public Policy Series. No. 40. Canberra: Australian Institute of Criminology.
- . 2002b. *Firearms Theft in Australia*. Trends and Issues in Crime and Criminal Justice Series. No. 230. Canberra: Australian Institute of Criminology.
- Mouzos, Jenny D., and C. Carcach. 2001. *Weapon Involvement in Armed Robbery*. Research and Public Policy Series. No. 38. Canberra: Australian Institute of Criminology.
- Mullin, Wallace P. 2001. "Will Gun Buyback Programs Increase the Quantity of Guns?" *International Review of Law and Economics* 21(1):87-102.

- Newspoll Market Research. 1997. *Australian Firearms' Buyback Tracking Study-Phase Two Advertizing-June-July 1997*. Surry Hills, New South Wales, Australia.
- Plotkin, Martha, ed. 1996. *Under Fire: Gun Buybacks, Exchanges and Amnesty Programs*. Police Executive Research Forum.
- Sherman, Lawrence W. 2001. "Reducing Gun Violence: What Works, What Doesn't, What's Promising." *Criminal Justice* 1 (February): 11-25.
- Sherman, Lawrence, and D. Rogan. 1995. "Effects of Gun Seizures on Gun Violence: Hot Spots Patrol in Kansas City." *Justice Quarterly* 12: 673-93.
- Squires, Peter. 2000. *Gun Culture or Gun Control? Firearms, Violence and Society*. London and New York: Routledge
- Rosenfeld, Richard. 1996. "Gun Buy-Backs: Crime control or Community Mobilization." In *Under Fire: Gun Buy-Backs, Exchanges and Amnesty Programs*, edited by Martha R. Plotkin, 1-28. Washington: Police Executive Research Forum.
- Security Australia. 1997. "Gun Buyback Reaps Slow Rewards." *Security Australia* 17(7): 26.
- Wilkins, G., and C. Addicot. 1998. *Firearm Certificate Statistics, England and Wales, 1997*. Home Office. London.