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## **The Costs and Benefits of Reducing Gun Violence**

*Philip J. Cook PhD and Jens Ludwig PhD*

Each year, approximately 30,000 people in the United States die as a result of gunfire and about 80,000 people are wounded. While nearly everyone agrees that these figures are too high, what exactly should be done about the problem? One informal slogan held by some advocates is that any intervention targeted against gun violence is worthwhile “so long as one life is saved.” But as a guide for improving the lives of Americans, this slogan is not helpful. Would those who adhere to it endorse a program that prevented a single firearm injury, but had an operating cost equal to the entire federal government’s annual budget? This program would meet the informal test of saving a life, but would deprive tens of millions of disadvantaged and elderly families of governmental assistance with housing, food, health care, and education upon which they desperately depend. Anyone who would be unwilling to support this program implicitly accepts the idea that benefits and costs are relevant for judging gun policies, and that some gun-oriented interventions are not worthwhile even if they would save lives. Thus, estimates for the costs of gun violence and the benefits of reducing it are crucial for identifying worthwhile interventions.

For some, calculating the costs of gun violence may conjure up a dry accounting exercise of totaling up medical expenditures and earnings lost due to injury. But in our view, an exercise of this sort misses the point (Max and Rice, 1993). The public concern with gun violence has little to do with the resulting burden on our healthcare system or the reduction in the size of the labor force due to death and disability.

Rather, especially for children and their families, the effects of gun violence have everything to do with concerns about safety. Avoiding and preventing gun violence is a costly enterprise in both the public and private spheres, but most people would be willing to pay more to reduce that threat. Thus, the cost of gun violence is the flipside of the value of safety, and that is the perspective that we develop further in the remainder of this essay.

### **Valuing Safety**

The idea of conducting benefit-cost analysis in the area of crime and injury avoidance strikes many people as being disturbing since life should be priceless. Economists would agree up to a point, noting that human lives are “priceless” in the sense that they are not regularly bought and sold in the marketplace. It is usually true that no feasible sum of money can fully compensate the family and friends of the victims of fatal gunshot injuries. Nevertheless, courts do regularly place

a price on life in setting damages for personal injury suits; legislatures and regulatory agencies are routinely required to decide how much an increment in safety is worth.

When Congress established a national speed limit of 55 miles per hour in 1974, the highway fatality rate dropped dramatically (Clotfelter and Hahn, 1978). But much of the public, including the commercial trucking interests, eventually demanded a return to higher speed limits despite the likely increase in fatalities, and Congress complied. Individual consumers are also forced to make decisions in the face of what might be thought of as a “quality-quantity” tradeoff for our lives. Should we spend extra to obtain a car with anti-lock brakes, or save the money for our child’s college fund? Should we pay an extra \$10,000 to buy a house that is farther away from the local nuclear plant?

To be clear, policy makers and private citizens are making judgments about the value of ex ante reductions in the risk of injury, before the identity of those who will be injured is known. While most people would give up much of their net worth to save themselves or a loved one from certain death, their willingness to pay for small reductions in the risk of death is more limited. The “value of a statistical life” is the summation of what people will pay for small reductions in the probability of death, with values defined similarly for statistical injuries and other health hazards. If each person in a community of 100,000 is willing to pay \$50 to reduce the number of deaths in that community by one per year, then the value of a statistical life to those residents equals \$5 million.

The amount people will pay to reduce the risk of a gunshot injury will presumably depend on how it affects them, their families, and their communities. Sometimes the monetary value of greater safety comes directly from a spreadsheet. For example, the sharp decline in the rate of violent crime during the 1990s have brought widespread gains in property values to many homeowners in urban neighborhoods. But most of what is at stake are intangible commodities not traded in the marketplace, i.e. freedom from the threat of gun violence and relief from the need to take steps to reduce that threat.

The “willingness-to-pay (WTP)” approach leads to quite a different picture of the dollar cost of gun violence from the standard public health approach. This “cost of illness (COI)” approach defines the costs of gun violence as the medical expenses incurred by victims plus lost productivity. This method ignores most of what is captured in WTP: the subjective value of safety, concern about others’ welfare, and the costs of prevention and avoidance.

In our book, *Gun Violence: The Real Costs*, (Cook and Ludwig, 2000), we show that medical expenses and lost productivity actually make up very little of the societal burden of gun violence. For example, the costs of medical treatment to victims for all gunshot injuries in 1997 was on the order of \$1.9 billion. But this figure overstates the net effects of gun violence on total medical expenditures in the U.S., since gunshot victims would have required medical services at some point over their lifetime if they had not been shot. If one subtracts the estimated lifetime medical costs that victims would have incurred had they not been shot from the costs that they actually incurred as a result of their wounds, the net costs of gun violence to the medical system are on the order of \$400 million to \$1.2 billion. While this is not a trivial sum, these net medical expenditures represent only a small share of the overall costs of gun violence. The lesson is that the cost-of-illness approach understates the benefits to society from reducing gunshot injuries.

## Where to Next?

Past investments in reducing gunshot injuries have had modest effects. However, the net benefit to society of these modest effects offers possible direction when evaluating gun legislation. Data from the Kansas City Gun Experiment suggest that police patrols targeted against illegal gun carrying may be effective in reducing gun violence (Sherman, Shaw and Rogan, 1995). Unfortunately the exact magnitude of the program's effects remain somewhat unclear. The treatment and comparison neighborhoods in the "experiment" may differ in other dimensions aside from receipt of the targeted police patrols. But under the most optimistic scenario, an investment of under \$200,000 in additional police resources may have produced a reduction in gun violence with benefits of up to \$22 to \$100 million to society.

Our review also suggests that sentence enhancements for crimes committed with firearms appear to produce benefits in excess of costs, and that new gun regulations need to have only modest effects in order to generate net benefits to society. For example, one of the more promising regulations is to require that all new handguns be manufactured and sold with "personalized" technology, which makes the weapon inoperable by unauthorized users. This technology has the potential to save lives by making guns inoperable to children, despondent teens, or the criminals who are responsible for around 500,000 gun thefts each year (Cook and Ludwig, 1996).

The idea of mandating personalized gun technologies has been criticized in part because they will add to the price of new handguns. But if the personalized gun technology adds \$100 to the purchase price of a new gun, this regulatory requirement will generate benefits that outweigh costs so long as the technology is able to prevent only one shooting per 10,000 units sold. Our best guess is that the effects of personalized gun technology should easily clear this bar, given that currently it appears that every 10,000 handguns sold are involved in about 3,000 robberies and assaults and 100 homicides (Roth and Koper, 1997).

Our bottom line is that we accept as a general principle the notion that some gun-oriented interventions may not be worthwhile even if they save lives. But in practice the costs of gun violence to society appear to be large enough to justify additional investments in reducing gunshot injuries.

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- Jens Ludwig, Ph.D., is an Assistant Professor of Public Policy at the Georgetown Public Policy Institute. Philip J. Cook, Ph.D., is the Director of Duke University's Terry Sanford Institute of Public Policy and Chair of the Department of Public Policy Studies.*