

The Availability Puzzle: Considering the Relationship between Arms and Violence Taking Place within States[†]

By NICHOLAS MARSH*

Weapons have an intimate relationship with violence – they are tools which multiply human capacity to cause injury. However, the global distribution of weapons does not help to explain the global distribution of violence. High levels of civilian armament are found in some of the most peaceful countries, and conflict initiation occurs in contexts where arms are comparatively scarce. A solution to this apparent paradox can be found by examining weapons acquisition by armed groups operating in the world’s most violent areas; and looking at whether a lack of arms inhibits their capability to carry out their objectives. Armed groups have many potential sources of arms such as trafficking, theft from the state, or donations and so arms may be easily acquired even if are comparatively scarce in the population at large. Arms present in society may not be used to kill, injure, or intimidate if their possessors are not motivated to commit acts of violence.

This paper presents an inquiry into the relationship between weapons and armed violence taking place within states (specifically homicide and civil conflict). It focuses upon non-state actors, their possession of weapons and acts of violence they perpetrate. It analyses the published literature on weapons and both civil conflict and crime. The first part of the paper presents a puzzle concerning the nature of the relationship between arms and violence. It highlights the intimate relationship between weapons and violence, and then discusses two themes from published research. The ‘amorphous image’ wrongly asserts that illicit arms can easily be obtained by people across the globe. In fact, research has shown that access to weapons is highly variable and illicit markets are local in character. A second part of the puzzle concerns research on domestic arms availability and homicide. Publications have hypothesized that higher levels of firearms ownership lead to higher levels of homicide. There is some good evidence from individual countries (especially the United States [US]) that there is a correlation between levels of ownership and homicide. However, cross-national research shows that the states with the highest levels of homicide

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also have comparatively low levels of firearms ownership (and many states with high levels of firearms ownership also have low levels of homicide). Similarly, a large proportion of recent cases of conflict initiation have occurred in states with comparatively low levels of civilian arms availability. This leads to the puzzle – if weapons are so closely connected to violence, but more arms do not equal more violent deaths, then what is the relationship between arms and violence?

The second part of this paper provides an answer to this puzzle. It highlights research which suggests that high levels of homicide are associated with the activities of gangs and organized groups. Endemic homicide is therefore similar, in some ways, in character to armed conflict. In both, the key armed actors are armed groups (be they gangs or rebels) and the key factor explaining the relationship between arms and violence is the ease or difficulty by which those armed groups can obtain weapons. Arms acquired lawfully or not by the civilian population are just one source of weapons for armed groups (and perhaps not the most useful source). Other sources, that may provide more, or more powerful, weapons are illicit trafficking, theft, or corrupt purchase from government stocks, or donations from other parties.

The article concludes with a suggested answer to the puzzle. It is likely to be that within developed countries such as Finland that paradoxically have high levels of civilian possession and low levels of violence, governments are able to limit illicit arms acquisition (e.g. losses from state arms stockpiles and donations of weapons to armed groups). Governments of such developed countries are therefore able to govern the remaining source of weapons for armed groups – lawful possession and civilian ownership of firearms – via enacting and implementing laws and regulations. Within that group of states, differences in laws concerning civilian possession and actual levels of ownership are likely to affect levels of homicide. In contrast, in developing countries where high levels of violence take place, many governments are unable to prevent significant flows of weapons to armed groups via one or more of illicit trafficking, losses from state arsenals or donations.

A fruitful area of research will be to focus upon weapons acquisition by armed groups (and nascent groups prior to their obtaining weapons) and to examine the extent to which those armed groups' activities are curtailed by an inability to obtain adequate weapons. For the armed group, weapons owned by the civilian population or lawful acquisition, are just two sources – as important are obtaining arms via illicit trafficking, or from state stocks or donations. States, with low levels of arms ownership in the general population (e.g. because they are expensive or people fear punishment for unlawful possession), may still face a severe armed violence problem if armed groups can easily obtain arms through other methods.

I

The relationship between arms and violence has been the focus of a long and politically charged debate focused upon firearm regulations in the US. Latour summarised the debate over 20 years ago, and the contours of the two positions have not changed significantly since. He argues that:

'Guns kill people' is a slogan of those who try to control the unrestricted sale of guns. To which the National Rifle Association replies with another slogan, 'People kill people, not guns.' The first slogan is materialist: the gun acts by virtue of material

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components irreducible to the social qualities of the gunman. On account of the gun, a good guy, the law abiding citizen, becomes dangerous. The NRA, on the other hand, offers (amusingly enough, given their political views) a sociological version more often associated with the Left: for the NRA, the gun does nothing in itself or by virtue of its material components. The gun is a tool, a medium, a neutral carrier of will.¹

Latour's summary points to a debate on the role of weapons in violence. The 'people kill people' argument is entirely concerned with intentions and motivations. It assumes that someone who wants to kill (or injure and intimidate) will be able to do so, and finding the means is a trivial task. Conversely, a materialist view of the role of weapons ignores the role of intentions or motivations – and while not as explicit, the 'amorphous image' of the relationship between arms and violence (which is described below) is implicitly based upon a presumption that widespread availability of arms causes widespread violence.

Different sides of the debate in the US and some other countries such as Australia, Brazil, or Canada have used research to variously argue for: the existence, or not, of correlations between levels of homicide and crime and the level of civilian ownership of arms or stricter; the effect, or not, of changes in firearms regulations on homicide or crime rates; and whether or not carrying firearms reduces violence.²

Latour finds both the 'materialist' and 'sociological' views to be unsatisfactory and instead offers a synthesis between such strictly materialist or sociological interpretations of the relationship between weapons and violence.³ He states that:

If I define you by what you have (the gun), and by the series of associations that you enter into when you use what you have (when you fire the gun), then you are modified by the gun – more or less so depending upon the weight of the other associations that you carry. This translation is wholly symmetrical. You are different with a gun in hand; the gun is different with you holding it. You are another subject because you hold the gun; the gun is another object because it has entered into a relationship with you. The gun is no longer the gun-in-the-armory or the gun-in-the-drawer or the gun-in-the-pocket, but the gun-in your-hand aimed at someone who is screaming. What is true of the subject, of the gunman, is as true of the object, of the gun that is held. A good citizen becomes a criminal, a bad guy becomes a worse guy; a silent gun becomes a fired gun, a new gun becomes a used gun, a sporting gun becomes a weapon.⁴

For Latour, together the gun and the person form a hybrid, the person has been changed by their acquisition of the weapon. Or as Bowyer Bell writing about insurgency states '[t]he very word gunman is a meld that makes the armed struggle work'.⁵

Latour's synthesis is preferable, but consequence of taking account of both intentions and capabilities is that the relationship between arms and violence must be complex. Weapons increase the capacity of someone to commit acts of violence; but even if weapons are present, acts of violence will not take place if people are not motivated to do so.

¹ Latour, 'On technical mediation', pp. 30-1.

² For summaries of the debate see Jackson and Marsh, 'Guns and deaths'; Squires, *Gun crime*, pp. 129-94; Wellford, Pepper, and Petrie, *Firearms and violence*.

³ Latour, 'On technical mediation', pp. 31-4.

⁴ *Ibid.*, p. 34.

⁵ Bell, *The Dynamics of the armed struggle*, p. 138.

II

Research upon weapons⁶ and violence⁷ presents a puzzle. There is clearly an intimate relationship between the tools of violence and the act itself. Nevertheless, two popular conceptualizations of the relationship between arms and violence do not explain the relationship in the developing countries which are most violent. As will be shown below, there is not a ‘amorphous’ global black market that supplies arms to all that want them, and the highest levels of homicide actually occur in areas with comparatively low levels of civilian ownership of firearms.

It is important to note here that it has long been recognized that contemporary armed conflict and high levels of homicide are almost all located in low and middle income countries.⁸ The World Bank’s World Development Report summarizes that ‘[l]ower GDP per capita is robustly associated with both large-scale political conflict and high rates of homicide’.⁹ Such an uneven distribution of violent death has been found over a long period, for example, a World Health Organization report published earlier similarly states that concerning all forms of violence ‘[t]he vast majority of these deaths occurred in low- to middle-income countries. Less than 10 % of all violence-related deaths occurred in high-income countries’.¹⁰

III

Weapons or arms are specialized tools whose purpose and effect is to multiply or transcend human strength. The destructive potential of an individual or group is enhanced through the acquisition of a weapon, such as a pistol; and it can further be enhanced by acquiring a more destructive weapon (such as a machinegun). Weapons make it possible for individuals or small groups of people to coerce larger numbers.¹¹ As mentioned by Latour (above) a human is modified by the acquisition of a weapon – they now possess a greatly enhanced capacity to injure or kill another.

Weapons can therefore be examined within the framework of opportunity and willingness suggested by Most and Starr and used concerning arms by Sislin and Pearson who presumably build upon Most and Starr.¹² Arms directly affect ‘opportunity’, which is described by Most and Starr as concerning the possibilities for action afforded by the environment in which actors operate. Opportunity is closely linked to the capabilities of parties, and Most and Starr describe how the existence and distribution of technology, and

⁶ In this paper the terms ‘weapons’ and ‘arms’ will be used interchangeably. Weapons or arms are defined as any specialized instrument which has been designed with the primary purpose of inflicting non-consensual injury. A weapon can be made in a factory or by produced by artisans; and a new weapon can be produced by combining or adapting existing items (such as by making a bomb by combining ammonium nitrate fertilizer, diesel fuel, and a detonator). In some cases people have used non-specialized items – for example by brandishing kitchen knives or by throwing rocks – they are defined as being ‘improvised weapons’.

⁷ There is a long running discussion concerning the definition of violence which ranges from physical force through to concepts of structural, institutional, or cultural violence that impede people’s potential for development and self-actualization (for a summary see Imbusch, ‘The concept of violence’). Here, a ‘brute force’ definition is used. Violence is defined as being: the actual or threatened use of non-consensual physical force that causes injury to another person or damage to an object. Such a narrow definition lies at the centre of other wider understandings of violence. See Imbusch, ‘The concept of violence’, p. 23.

⁸ For example Collier et al., *Breaking the conflict trap*, p. x.

⁹ World Bank, *World development report 2011*, p. 6.

¹⁰ Krug et al., *World report on violence*.

¹¹ For longer descriptions see Arendt, *On violence*, pp. 41-56; Clausewitz, *On war*, pp. 127-8.

¹² Most and Starr, *Inquiry, logic and international politics*, pp. 23-46; Sislin and Pearson, *Arms and ethnic conflict*, pp. 63-88; idem, ‘Arms and escalation’, pp. 140-1.

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especially weapons, is a key element of those capabilities.¹³

Globally, firearms are the most common weapon used in homicide. Places with higher levels of homicide are characterized by a much larger proportion of murders being carried out using specialized weapons. A United Nations Office on Drugs and Crime (UNODC) report on global homicide states that '[n]ot all homicides involve them, but weapons do play a significant role in homicide. With their high level of lethality, firearms are the most widely used weapons, accounting for 4 out of every 10 homicides at the global level'.¹⁴ Furthermore, in the Americas, the region with the highest level of homicide, 'firearms are the most prevalent killing mechanism' while in Oceania, the region with the lowest level of homicide, sharp objects are the most widely used weapons in homicides.¹⁵ Nowak similarly highlights that at a global level there appears to be a threshold effect, in which the highest national levels of homicide are most often associated with high levels of use of firearms.¹⁶ Among 23 states with 20 or over homicides per 100,000, in 13 states firearms were used in 70 per cent or more of homicides, and in a further five states firearms were used in over 40 per cent of homicides. Nevertheless, the picture is much more complex with lower levels of homicide, in which there are found both high and low proportions of firearms used.¹⁷

IV

Discussion on arms and violence includes two widespread but incomplete views. The first is an assumption that there is a vast stock of illicit weapons freely available around the world, which contributes to similarly large numbers of deaths every year. This view ignores the great variability of arms availability around the world. The second view takes such variability into account, but assumes that there is a linear relationship between weapons dispersed in society and the level of violence. Such a relationship may well be present in some cases. But again one cannot generalize across all conflicts and violent situations – wars are reputed to have been started with a single gun, and some of the most violent places in the world have apparently low levels of firearm possession.

Numerous examples of scholarship and activism have advanced what Bourne referred to as the 'amorphous image'.¹⁸ This image is best summed up by the numerous tales of a Kalashnikov being available for the price of a chicken,¹⁹ and it assumes that the world (and especially developing countries) have been flooded with illicit small arms and light weapons and those freely available weapons cause an enormous death toll.²⁰ In particular, several scholars studying 'New Wars' have stated that a novel characteristic of civil war after 1990 has been very large illicit arms flows to non-state groups.²¹ Bourne states that due to concerns about small arms and light weapons (SALW) flows to conflict:

A dominant image of arms flows to conflict actors, particularly to rebel groups, has been superimposed against a backdrop of amorphous complexity. This image construes arms flows to conflicts as being a function of:

¹³ Most and Starr, *Inquiry, logic and international politics*, pp. 31-3.

¹⁴ United Nations Office on Drugs and Crime, *Global study on homicide 2013*, p. 15.

¹⁵ *Ibid.*, p. 65.

¹⁶ Nowak, 'Lethal violence update', pp. 72-80.

¹⁷ Nowak, 'Lethal violence update', pp. 78-80.

¹⁸ Bourne, *Arming conflict*; *idem*, 'SALW spread and conflict'.

¹⁹ For example see Kahaner, *AK-47: The Weapon that changed the face of war*, p. 2.

²⁰ For a summary see Bourne, *Arming conflict*; *idem*, 'Small arms and light weapons spread and conflict'.

²¹ For a summary see Marsh, 'Tools of insurgency', pp. 23-4; Jackson, 'From under their noses'.

- A vast global stock of SALW;
- A vibrant globalized illicit trade; and
- A shadowy array of nefarious arms brokers.

This focus articulates implicit explanation and analysis that reinforces the view of amorphous, uncontrollable, open access to arms for anyone with the money to pay for them.²²

This ‘amorphous image’ has been challenged by researchers who have examined the dynamics of arms proliferation.²³ As Bourne points out, there are two problems with the amorphous image. First, it inevitably limits analysis of the relationship between governance, arms and violence – if weapons are everywhere people want them then acquiring weapons is just a matter of motivation. Such a limiting of inquiry is compounded by the second problem – that it is incorrect. As is shown below the ease by which arms can be acquired is highly variable and the number of deaths they cause has been exaggerated. Research that examines illicit trafficking finds that there is not an amorphous global illicit market, and instead illicit arms flows and presence are highly variable and localized; and embedded into regional patterns of conflict or illicit activity.²⁴ Similarly, research on injuries caused by weapons shows that some often quoted estimates of the number of casualties have been imprecise or inaccurate, and more importantly that there is great variation in the type of weapon used to cause injury in conflict.²⁵ Such variation similarly suggests that arms availability is highly localized.

So sum up, while it has considerable rhetorical salience the amorphous image described by Bourne is not reflected in research on arms trafficking or conflict deaths. Instead of a vast global illicit arms market and consequent casualties, there is considerable variation in illicit arms trafficking and in the injuries caused by weapons.

The existence of variation in both the availability of arms and of casualties caused by weapons frequently lends its self to assumptions that the relationship between the presence of arms in society and violence is basically linear, that as asserted by Cukier and Sidel ‘more guns equal more deaths’.²⁶ Research has consistently found such a relationship between civilian arms availability and suicide, to the extent that suicide by firearm serves as a useful proxy for levels of firearm ownership.²⁷

The relationship between firearms availability and homicide, conflict and other forms of violence is much more complex. By far the greatest part of research has been on the US and to a lesser extent on other developed countries.²⁸ Some findings do show a correlation between the level of firearms ownership and of homicide.²⁹ However, the relationship between ownership and homicide is not apparent in cross-national studies that include the countries with the highest levels of violence.

Several authors have found a positive relationship between firearms availability and

²² Bourne, *Arming conflict*, p. 34.

²³ Bourne, *Arming conflict*; idem, ‘Small arms and light weapons spread and conflict’; Jackson, ‘From under their noses’; Jackson and Marsh, ‘Guns and Deaths a Critical Review’; Marsh, ‘Firearms seizures and trafficking’.

²⁴ See Bourne, *Arming conflict*; Marsh, ‘Conflict specific capital’; idem, ‘Firearms seizures and trafficking’.

²⁵ Kreutz and Marsh, ‘Lethal instruments’.

²⁶ ‘More guns equal more deaths’ is the title of chapter 3 in Cukier and Sidel, *The global gun epidemic*.

²⁷ See for example the review by Jackson and Marsh, ‘Guns and deaths’.

²⁸ Greene and Marsh, eds., *Small arms, crime and conflict*, pp. 79-104.

²⁹ For example in the US see Hepburn and Hemenway, ‘Firearm availability’; Miller, Azrael, and Hemenway, ‘State-level homicide’; and in Australia Chapman, Alpers, and Jones, ‘Association between gun law reforms’.

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absolute levels of homicide in groups of between 14 and 36 developed states;³⁰ other studies of developed countries only find a relationship with female deaths (an explanation being that the presence of firearms in a household affects the lethality of domestic violence);³¹ and one study did not find a relationship in a sample of 14 developed countries.³² Even among relatively small samples of developed states the cross-national relationship is not clear. When one examines much larger samples (of 168 or 169 states) which include the very developing countries which have, by far, the highest levels of violence, then the relationship becomes negative – higher firearm ownership is associated with lower levels of homicide.³³ The negative cross-national relationship is shown in Figure 1.

Firearms availability may explain some of the variation in homicide within a group of fairly homogeneous developed states (that also have quite similar homicide rates), though not consistently in all studies. The few studies to look at firearms availability in a large sample of developing and developed states, with much larger variations in levels of homicide, and which also include control variables, do not find a statistically significant relationship between firearms availability and the national homicide rate. Nowak similarly notes that ‘attempts to identify relationships between firearm violence and firearm possession through cross-national comparisons have yielded inconclusive results’.³⁴ Nowak also notes the ‘comparatively low’ civilian possession in Central America, South America and the Caribbean (the regions with the highest homicide levels) and ‘much higher’ possession in Western Europe (which has low homicide rates).³⁵ Wolf, Gray, and Fazel provide an explanation for the finding that there is a negative relationship between homicide and firearms possession when they state that ‘gun ownership was associated with higher income, which itself was associated with lower homicide levels’.³⁶ The most developed countries have both low levels of homicide and affluent populations that can afford to buy lots of firearms (purchased for hunting, sport, and recreation).

The relationship between estimates of the number of firearms in civilian possession in a country and the level of homicide is shown in Figure 1.

Arms used in conflict also presents a puzzle. Collier et al., for example, refer to arms as being essential ‘conflict specific capital’ that is usually very difficult to obtain.³⁷ They make the plausible suggestion that the often observed frequent reoccurrence of warfare after it has subsided (e.g. during a peace process) is partly explained by the presence of large stocks of arms available to non-state groups in conflict-affected countries. Killicoat provides some support for this view with his finding that comparatively low prices for Kalashnikovs (which are assumed to be an indicator for availability) are a risk factor for conflict onset.³⁸

However, relatively high levels of arms possessed outside of state institutions are clearly not a necessary condition for conflict onset. Unfortunately, Karp’s 2007 estimates of

³⁰ Altheimer and Boswell, ‘Reassessing the association’; Killias, ‘International correlations’; Hemenway and Miller, ‘Firearm availability’; Hoskin, ‘Armed Americans’.

³¹ Killias, Kesteren, and Rindlisbacher, ‘Guns, violent crime and suicide’; Hemenway, Shinoda-Tagawa, and Miller, ‘Firearm availability and female homicide’.

³² Smith and Stevens, ‘A cross-national investigation’.

³³ See Kontya and Schaeferb, ‘Small arms mortality’ and Wolf, Gray, and Fazel, ‘Violence as a public health problem’ who respectively examine 168 and 169 countries; and Altheimer and Boswell, ‘Reassessing the association’ who examine 46 developed and middle-income countries.

³⁴ Nowak, ‘Lethal violence update’, p. 80.

³⁵ *Ibid.*

³⁶ Wolf, Gray, and Fazel, ‘Violence as a public health problem’, pp. 225-6.

³⁷ Collier et al., *Breaking the conflict trap*, pp. 70, 88.

³⁸ Killicoat, ‘What price the Kalashnikov’.

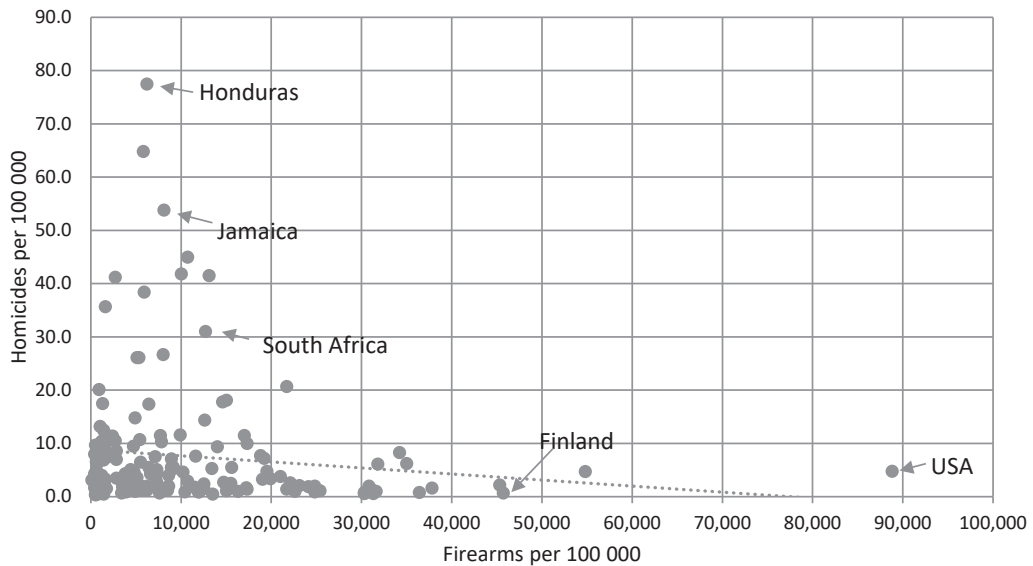


Figure 1. *Firearms Homicide and Civilian Firearms Possession*³⁹

Sources: Karp, ‘Completing the count’; United Nations Office on Drugs and Crime, *Global study on homicide 2011*.

civilian firearms ownership are the only available comprehensive measure. The conflicts initiated during and after 2007 are examined in Figure 2, and two points are apparent.⁴⁰ First, none of the cases had exceptionally high levels of firearm possession. Lebanon is the highest, perhaps due to a legacy of prior conflicts, but it is only ranked 28th highest for firearms possession. Second, seven of the 12 countries included in Figure 2 had exceptionally low levels of estimated firearm possession at below 5000 per 100,000. Egypt and Syria were ranked, respectively, at 115 and 112 in the world. For comparison, Karp estimates civilian firearm possession at 88,200 per 100,000 in the US, 45,700 in Switzerland and 31,600 in Sweden.⁴¹

To sum up this part of the paper, both the amorphous image and the linear relationship present what are materialist conceptions of the relationship between weapons and violence. Violence is caused by there being more weapons – either because the world is assumed to be flooded with them; or because places with more arms in civilian possession are assumed to experience more homicide, conflict, and crime. However, such a materialist conception ignores the role of intention. For a linear relationship to exist in general, the intent to commit acts of violence would need to remain relatively constant and then the arms availability variable would affect the lethality of violence. An explanation for the above cross-national findings is that among largely similar developed states intentions to commit

³⁹ Data on firearms possession from Karp, ‘Completing the count’ and on homicide from United Nations Office on Drugs and Crime, *Global study on homicide 2011*.

⁴⁰ Data on conflict onset drawn from Uppsala Conflict Data Program, *Updated UCDP/PRIO armed conflict dataset codebook*.

⁴¹ Karp, ‘Completing the count’.

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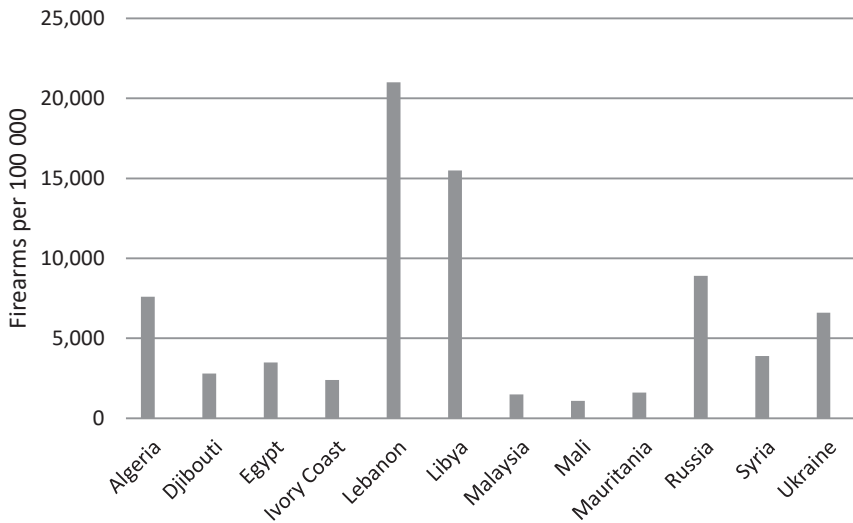


Figure 2. *Firearms Possession in Countries With Conflict Onset During or After 2007*

Source: Karp, 'Completing the count'.

violence do not vary significantly (and so variations in arms availability may have an effect). When samples are enlarged they start to include much more different states which experience very different forms of violence (e.g. with organized crime playing a much greater role). Furthermore, it is possible for intentions to act violently to change quickly – for example as a result of talks which result in a truce (which can concern organized crime and gangs as well as warring parties).

The lack of a linear relationship presents a puzzle – how should the relationship between arms and violence be conceived? The next part of this article presents a solution.

V

This article presents a solution to the puzzle by focusing upon the groups that are responsible for killings in high violence countries. Marsh points out that arms owned by the civilian population may not be a useful source for an armed group engaged in warfare.⁴² The weapons are likely to be widely dispersed geographically, may be of types designed for sport rather than combat, and could be possessed by parts of the population not sympathetic to the group. Instead, Marsh suggests focusing upon groups that are motivated to commit acts of violence and 'the extent to which a group's objectives are not constrained by a lack of specific weapons and ammunition'.⁴³ Such a focus upon groups may well be self-evident concerning civil war – those groups are doing the fighting. The next section argues that a focus upon armed groups is also a useful means to understand homicide.

⁴² Marsh, 'Conflict specific capital', pp. 60-2.

⁴³ *Ibid.*, p. 60.

VI

The actions of groups have a central role in research into armed conflict. For example, the UCDP-PRIO conflict dataset defines a conflict as being between a state and any ‘non-governmental group of people having announced a name for their group and using armed force to influence the outcome of the stated incompatibility’.⁴⁴ Sustained campaigns of political violence require that participants be organized, and the nature of that organization has been the subject of much study by scholars.⁴⁵

A focus upon the role of groups in homicide requires more explanation. The remainder of this section summarises the sometimes nascent research on the role of groups in explaining why some areas experience much higher levels of violence than others. Eisner suggests several differences between societies with high and low levels of homicide.⁴⁶ In the latter, the relatively few homicides that are committed are mostly related to personal animosity, emotional crisis or are committed by people who commonly display high levels of aggression and poor impulse control. They usually occur in private, and use those instruments that were immediately to hand. The high proportion of domestic killings means that in countries with the lowest levels of homicide women usually constitute a closer proportion of victims to men. In contrast, in societies with high levels of violence, homicides are more likely to be instrumental (in that they are pre-meditated and carried out as part of an organized group or as an act of revenge or retaliation, and in order to provide the perpetrator with a social or economic advantage). Those instrumental murders, usually involve men as both murderers and victims, are committed in the public sphere, and involve specially designed weapons.

An illustration of the role of instrumental violence in explaining high levels of homicide can be found from decades of research from Criminology on gender differences and homicide. In the early 20th Century Veli Verkko showed that in general ‘the proportion of female homicide victims is higher when the homicide rate is low, and vice versa’.⁴⁷ For example, during 2010 or 2011 in Japan, Norway, and Germany the homicide rate was below 1 per 100,000 and the proportion of female victims was, respectively 53 per cent, 51.6 per cent, and 52 per cent; whereas in the countries with some of the highest levels of violence the proportion of female victims is 7 per cent in Honduras, 15 per cent in South Africa, or 10.5 per cent in Jamaica.⁴⁸ Countries with higher levels of homicide overall also have higher levels of female victims, but they are outnumbered by a far higher level of male victims.

Moreover, in such high violence countries the male victims are concentrated among ages 15-44 (especially 15-29).⁴⁹ In countries with low levels of homicide (and high proportions of female victims), and where data is available, the majority of female victims were killed by intimate partners or were victims of other forms of domestic violence.⁵⁰ For example, in Germany during 2007-2012 about 67 per cent of female homicide victims were killed by an intimate partner, whereas in Honduras only four per cent of female victims were killed by an intimate partner.⁵¹

⁴⁴ Uppsala Conflict Data Program, *Updated UCDP/PRIO armed conflict dataset codebook*.

⁴⁵ For example see Staniland, ‘Armed politics’; Weinstein, *Inside rebellion*; and on the relationship between arms and groups in conflict see Marsh, ‘Conflict specific capital’.

⁴⁶ Eisner, ‘What causes large scale variation’, pp. 141-48.

⁴⁷ Verkko, *Homicides and suicides*; Dobash and Dobash, *When men murder women*, p. 4.

⁴⁸ Statistics from the Homicide Monitor. <http://homicide.igarape.org.br/> (accessed on 13 May 2018).

⁴⁹ United Nations Office on Drugs and Crime, *Global study on homicide 2013*, pp. 28-37.

⁵⁰ See Racovita, ‘Lethal violence’, pp. 109-13.

⁵¹ *Ibid.*, p. 107.

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Domestic and intimate partner violence is very rarely organized (if at all) and is often a spontaneous act. In contrast males are far more likely to be victims of instrumental violence (e.g. motivated by economic gain). Instrumental homicide and other violence committed by people who are members of groups, or are involved in other forms of criminal activity, is much more likely to be organized and prepared (or at least anticipated to the extent that individuals routinely carry weapons in public). A large scale United Nations study summarizes that:

There is a regional and gender bias towards male victims in homicide related to organized crime and gangs, but interpersonal homicide in the form of intimate partner/family-related homicide is far more evenly distributed across regions and is, on average, remarkably stable at the global level.⁵²

The study later shows that there is an apparent relationship between higher national levels of homicide, and the involvement by victims directly in organized criminal groups, or other forms of criminal activity (such as drug sales or robbery).⁵³ For example, where data is available, in Europe and mostly low homicide Asia an average of about one per cent of homicides are linked by governments to organized crime or gangs, whereas in generally high homicide Latin America the average is around 30 per cent. Importantly, the study notes that the simple prevalence of organized crime groups did not explain high levels of homicide. Instead violence is often 'linked to competition between involved parties, such as organized criminal groups, or between them and the State, with regard to control over territory or illicit activities, including trafficking' whereas criminal groups in other areas went about their business without engaging in such high levels of violence.⁵⁴

Research suggests that there may be a relationship between high levels of homicide and with gangs, guns and a low likelihood of prosecution. Importantly, ownership by gang members of firearms has been found to be much higher than in the general population.⁵⁵ Researchers in the US have long found such a relationship between guns and gang members, and similar findings have been made more recently by: Katz, Maguire, and Choate who find that firearm possession among gang members is twice as high as the general population in the US, and eight times higher in Trinidad and Tobago;⁵⁶ Glaister describes a similar relationship between gangs and firearms in Jamaica, and Lemard and Hemenway point out that over 1998-2002 94 per cent of drug or gang related homicides in that country used firearms;⁵⁷ similar findings can be found concerning gangs in Nicaragua and Guyana.⁵⁸

Malby points to high national levels of homicide, particularly in Latin America and the Caribbean, being linked to an interaction between gang violence, use of firearms and low conviction rates for homicide.⁵⁹ Gangs are in conflict with each other and the state, and use lethal means when they fight (a shootout is far more likely to involve death than a punch-up). He notes that the 'ubiquitous involvement of firearms' in gangs or organized crime is

⁵² United Nations Office on Drugs and Crime, *Global study on homicide 2013*, p. 13

⁵³ *Ibid.*, pp. 39-48.

⁵⁴ *Ibid.*, pp. 42-3.

⁵⁵ Karp, 'Elusive arsenals', pp. 109-13.

⁵⁶ For example see Blumstein, 'Youth violence', p. 30; Miller, *Crime by youth gangs*, pp. 115-8; Lizotte et al., 'Patterns of illegal gun carrying', p. 338; Katz, Maguire, and Choate, 'A cross-national comparison'.

⁵⁷ Glaister, *Confronting the don*; Lemard and Hemenway, 'Violence in Jamaica'.

⁵⁸ Rodgers and Rocha, 'Turning points'; Owen and Grigsby, *In transit*.

⁵⁹ Malby, 'Characteristics of armed violence'.

‘well established’ in countries in which there are high levels of homicide (in contrast, in low homicide countries members of gangs do not habitually carry firearms).⁶⁰ In particular, he notes that in countries ‘where more than half of all homicides are committed by firearm, the average proportion of gang- or organized crime-related homicides tends to be higher’ than in countries where firearms account for a minority of homicides.⁶¹ Similarly Tracy, Braga, and Papachristos review 16 studies which find high concentrations of gun violence in small social networks (in particular exposure to a victim or perpetrator of violence in social networks increases the risk of individual being a victim or a perpetrator).⁶²

To sum up this section, in both countries affected by warfare, and in countries affected by high levels of homicide, the killings committed by non-state actors are mainly carried out by armed groups (rather than by individuals acting independently). The most common perpetrator is the ‘gunman’, and that man is usually acting as part a group.

VII

When the focus of inquiry is shifted toward the groups that perpetrate violence in conflict or in countries affected by high levels of homicide a solution to the puzzle presented above becomes apparent. The key question is not how many weapons are there in civilian possession in a country, but does a difficulty in acquiring weapons constrain whether a group can achieve its objectives?

To reiterate the point made above, fragile and conflict prone areas that experience high levels of violence often do not contain large numbers of privately owned firearms even if they have high levels of violence. For example, Kolbe and Muggah present the results of a household survey in Port-au-Prince, the capital of Haiti, which shows that 2.3 per cent of households contained firearms.⁶³ Such a level of firearms ownership resembles that found in several low violence countries such as England and Wales, Poland, or Japan, nevertheless, the 2012 reported homicide rate in Haiti was 10 per 100,000, while it was at 1 per 100,000 or lower in those three countries.⁶⁴ Similarly, Atwood, Glatz, and Muggah reiterate that ‘a small number of weapons can have a devastating impact’ when they point to 2004 estimates that in the whole of the Solomon Islands there were only an estimated 3,500 firearms – in a country that had been wracked by ethnic violence from 1998-2002 that led to 20,000 people being internally displaced. Instead of arms being widely dispersed throughout society, all that is needed is that it is relatively easy for groups intending to commit acts of violence to obtain arms.⁶⁵

Arms acquired lawfully or possessed by the civilian population are one source of weapons for an armed group. But there are several others. The various sources are:

- Lawful purchase (e.g. for a licensed gun dealer).
- Obtaining weapons possessed by the general civilian population (e.g. through theft, or purchase).
- Illicit trafficking.
- Theft or corrupt purchase from government stocks.

⁶⁰ Ibid., p. 100.

⁶¹ Ibid., pp. 100-1.

⁶² Tracy, Braga and Papachristos, ‘The transmission of gun’.

⁶³ Kolbe and Muggah, ‘Securing the state’.

⁶⁴ van Kesteren, ‘Revisiting the gun ownership’, p. 7.

⁶⁵ Atwood, Glatz, and Muggah, *Demanding attention*, p. 43

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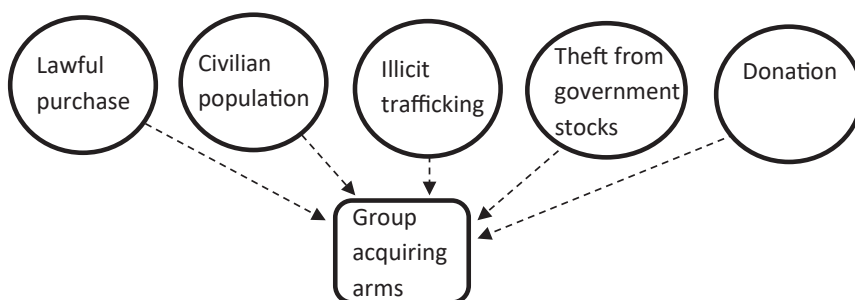


Figure 3. *Potential Sources of Arms Acquisition*

- Donation (by a foreign government, elements with the home government or by another group or organization).

These different sources are summarized in Figure 3.

As mentioned above, lawful purchase or arms present in the civilian population may not be the most useful source for an armed group. Lawful purchase will usually require that the group member making the purchase identifies themselves. Arms are widely dispersed among civilians and they often own weapons that are relatively less useful for fighting against another group or government forces. Shotguns, for example, are widely used for hunting but are difficult to conceal (unlike handguns), are only lethal against humans at limited ranges (unlike rifles) and versions usually owned by civilians are not capable of rapid fire (unlike automatic weapons).

The other methods of acquisition may be more useful. Their main drawback is that they are (almost always) illegal. The risk of prosecution will often prevent normal members of the public from, say, acquiring arms via traffickers or looting state arsenals. But armed groups engaging in criminal or political violence are already outlaws. A group that uses illicit channels has a greater likelihood of being able to obtain arms (and associated ammunition) in greater quantity than could easily be obtained from civilian owners, and crucially, arms that are more powerful or otherwise useful (such as automatic or semi-automatic rifles, handguns that can easily be concealed, or more powerful weapons such as grenade launchers).

An important distinction between the mostly developed countries with low levels of violence (and comparatively successful governance of arms) and the developing countries with high levels of violence (associated with warfare, criminality, or both), is that the developed low violence countries have been able to limit illicit sources of arms acquisition. In contrast, countries experiencing high levels of violence generally also experience limited control over one or more of the above methods. The following examples suggest that countries that experience fragility and are affected by high levels of violence are also places where groups can obtain weapons from illicit sources with greater ease than is found in low-violence countries.

A key characteristic of many high violence countries is that while the absolute number of firearms in the country may be relatively low, there are a high proportion of illicit arms. For example, concerning Brazil, Dreyfus et al. note that for all firearms in the country

including state holdings, ‘the proportion of legal to illicit holdings is almost 40:60 per cent. More than half of the circulating firearms are in the hands of either criminals or private citizens in the informal market’.⁶⁶ Dreyfus et al. note that with the exception of one state, in Brazil handguns ‘are the predominant type of weapon seized by police’ something consistent with the guns being acquired for anticipated violent encounters rather than for hunting or recreation.⁶⁷ Concerning Mexico, McDougal et al. note that Mexico has highly restrictive firearms laws, and Mexican armed forces estimate that ‘only one-third of 1% of firearms in Mexico is legally registered, and 90% of all firearms are used for criminal purposes’.⁶⁸

A clue as to the pervasiveness of unlawful ownership can be found from Karp who provides data on the number of registered firearms and estimates of unregistered firearms for 46 countries.⁶⁹ National laws differ and an unregistered firearm is not always with an unlawful firearm (see below) and some countries, particularly the US, do not have a registration system in place at all. Nevertheless, Parker’s analysis of 42 jurisdictions finds that outside the US only two do not register firearms or require individual licenses to possess firearms.⁷⁰

An assessment of Karp’s data shows that in 28 countries a majority of firearms were likely to have been unregistered, and of those all but four were among the 40 least developed countries (according to the 2007/8 Human Development Index index).⁷¹ The four developed countries with higher levels of unregistered firearms are France, Germany, Greece, and New Zealand, and some explanation is appropriate. Unusually, New Zealand does not require registration for shotguns and rifles used for hunting by civilians, and in Germany and France registration of types of sporting guns was not required for many decades during the 20th Century, and so large quantities of lawfully acquired sporting guns were not registered.⁷² Conversely, among 18 states in which the number of registered firearms was higher than the estimate for unregistered, all but seven were among the 40 most developed countries in 2007/8.⁷³ The proportions apparent from Karp’s data show a clear preponderance in his sample that in developing countries a majority of firearms are unregistered (and vice versa in developed).⁷⁴ Certainly, one should be aware of caveats concerning differences in national regulation and the quality of estimates of unregistered firearms. Nevertheless, the most plausible explanation is that the members of the sample included in the 40 most developed states (with a few exceptions) are able to register the majority of firearms within their territories, whereas a clear majority of developing states were not. The minority of registered firearms in developing countries is indicative of an inability of the state to govern access to weapons; something not found in most of the low violence developed countries.

⁶⁶ Dreyfus et al., *Small arms in Brazil*, p. 130.

⁶⁷ *Ibid.*, p. 147.

⁶⁸ McDougal et al., ‘The way of the gun’, p. 302.

⁶⁹ Karp, ‘Completing the count’, pp. 1.

⁷⁰ Parker, ‘Balancing act’, pp. 13-4.

⁷¹ Watkins, *Human development report*, pp. 229-232. Included if the ‘low’ estimate for unregistered firearms is higher than the number of registered firearms: Afghanistan, Albania, Bangladesh, Brazil, Colombia, Croatia, Ecuador, El Salvador, France, Germany, Greece, Guatemala, Haiti, Honduras, India, Indonesia, Jamaica, Jordan, Macedonia, Mexico, New Zealand, Panama, Paraguay, Peru, Philippines, Sri Lanka, Tajikistan, Tanzania, Thailand, Turkey.

⁷² Karp, ‘Fewer blanks’, pp. 69-70; Marsh, ‘Firearms seizures’; Thorp, *Review of firearms control*.

⁷³ Included if the ‘low’ estimate for unregistered firearms is lower than the number of registered firearms: Australia, Belgium, Canada, England and Wales, Finland, Georgia, Israel, Moldova, Montenegro, Netherlands, Norway, Poland, Russia, Serbia, South Africa, Spain, Sweden, and Uruguay.

⁷⁴ Karp, ‘Completing the count’.

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Existing research suggests that illicit flows of arms are much more common in high violence states. Due to lack of resources, poor motivation, or actual corruption, police, customs, border guards and other agencies are unable to prevent illicit flows of weapons. Borders are often described as being porous, enabling traffickers to transport arms over national boundaries. For example trafficking arms out of Libya after the 2011 civil war took place in desert and sparsely populated areas that are difficult for governments to monitor or control due to the limited capacities of the governments in the Sahel.⁷⁵ Killicoat finds that after analysing prices overall '[c]ountries with more porous borders tend to have lower weapons prices. This is especially the case in Africa, where porous borders allow the supply of weapons to meet potential demand more readily'.⁷⁶ In areas with the lowest levels of government control, illicit arms are openly traded. For example, Schroeder and King state that '[u]ntil 2007, arms were openly sold in Yemen in at least 18 arms markets; however, arms control campaigns in 2007 and 2009 shut down most of the arms markets'.⁷⁷

Theft, corrupt purchase, or other losses from government stocks are also reported to be far more common in high violence countries. State law enforcement or military forces are not able to secure their own stocks of weapons and ammunition. Large scale diversion from state stocks occurs during wars and in countries not at war, and from both military arsenals and weapons held by law enforcement and the judiciary. Research examining state stockpiles and losses from them emphasises that they are often a significant source of weapons for non-state groups.⁷⁸ Jackson summarises that:

In many conflicts, opposition groups' most important source of arms is the government they are fighting. The importance of this supply channel is borne out by evidence from numerous internal conflicts throughout the world. Rather than importation, or by producing weapons themselves, rebel groups prefer to acquire arms from the government forces they oppose because this method is frequently the easiest, yields high returns for relatively little effort or cost, and does not require any external supporter or the development of a war economy.⁷⁹

Capture of arms depots during warfare is the most dramatic example, but in many parts of the world there are also important losses from judicial and law enforcement stocks. For example, the South African Police Service has stated that between 2009-13 its officers had reported the loss of 8,614 firearms that had been issued to individual officers.⁸⁰ Similarly, through analysis of seized ammunition in Rio de Janeiro and of ammunition samples collected from pastoralists in the Karamoja region of Uganda, Bevan and Dreyfus present evidence that large quantities of ammunition were lost, stolen, or corruptly sold from military or police stocks and ended up in the hands of non-state groups (in particular criminal organizations in Rio de Janeiro and people involved in cattle raiding in Karamoja).⁸¹ International forces can also be a source of arms, for example Berman and Racovita outline how peacekeeping troops in Sudan and South Sudan were the source of arms and

⁷⁵ Marsh, '*Brothers came back*', p. 80.

⁷⁶ Killicoat, *What price the kalashnikov*.

⁷⁷ Schroeder and King, 'Surveying the battlefield', p. 347.

⁷⁸ For example Jackson, "From under their noses"; Karp, 'Introduction: inconspicuous disarmament'; Marsh and Dube, *Preventing diversion*.

⁷⁹ Jackson, 'From under their noses', p. 131.

⁸⁰ Marsh and Dube, *Preventing diversion*, pp. 6-7.

⁸¹ Bevan and Dreyfus, *Enemy within*.

ammunition circulating in those markets.⁸²

The provision of arms by states to proxies fighting in civil wars in foreign states has received previous scholarly attention.⁸³ External arms supplies can provide a significant boost to a rebel group's military capacity, especially if they receive weapons (such as anti-aircraft missiles) that they could not obtain otherwise.

Another source of donations of arms are political and business leaders who provide, or encourage the provision of, arms to groups of supporters. For example, Staniland observes that in many areas there are 'multiple armed political actors' in which people are 'trained and equipped with weaponry under the control of a leadership group'.⁸⁴ Hazen and Horner describe how Nigerian politics 'has been militarized, with violence becoming an ordinary tool of elections and a part of the political culture' and that the procurers of arms include 'individuals, communities, or community leaders for community arsenals, and vigilante groups and ethnic militias'.⁸⁵ Greene and Macaspac examine the links between armed gangs and business or political elites in the Philippines and show how local notables who are active in both business and politics equip groups of supporters with arms in order to intimidate rivals or other actors (such as journalists or trade unionists).⁸⁶ Similarly, Leslie describes 'Dons' in Jamaica who are men that exercise control over a gang or community, are often involved in politics, and use violence in the course of providing services to and disciplining the communities they lead.⁸⁷ They are involved in equipping armed gangs.

In particular, the use of violence by political or business leaders is often particularly apparent during elections as rival gangs seek to intimidate support for their leader's opponents.⁸⁸ Duquet, Hazen, and Horner note that prior to elections in Nigeria politicians across the country recruited and armed groups made up of local youths.⁸⁹

VIII

The relationship between arms and violence within states can better be understood by first taking into account the role of intention as well as the presence (or not) of arms. Weapons are tools which multiply human strength. But use of that tool in an act of violence also requires intention. Even high levels of arms present in a society can be managed and not be used to kill, injure, or intimidate if violent intentions can be reduced. Second, understanding the role played by arms in affecting global variations in the level of violence requires that the level of analysis be moved away from national level and toward variables and indicators that shed light on the acquisition by armed groups. Instead of examining the total quantity of firearms in society, the relationship can better be examined by focusing upon the ease or difficulty by which groups can acquire arms (including via illicit trafficking, theft from government stocks and donations). The important question is then whether lack of weapons limits an armed group's capabilities and so prevents it from achieving its objectives.

⁸² Berman and Racovita, *Under attack*.

⁸³ For example see Mumford, *Proxy warfare*.

⁸⁴ Staniland, 'Armed politics', p. 460.

⁸⁵ Hazen and Horner, *Small arms, armed violence, and insecurity in Nigeria*, pp. 10-1, 48.

⁸⁶ Greene and Macaspac, 'Arms, private militias'.

⁸⁷ Leslie, *Confronting the don*.

⁸⁸ See Birch and Muchlinski, *Electoral violence patterns*; Burchard, *Electoral violence in sub-Saharan Africa*.

⁸⁹ Duquet, 'Arms acquisition patterns'; Hazen and Horner, *Small arms, armed violence*.

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References

- Altheimer, I. and Boswell, M., 'Reassessing the association between gun availability and homicide at the cross-national level', *American Journal of Criminal Justice*, 37 (2012), pp. 682-704.
- Arendt, H., *On violence* (New York, 1970).
- Atwood, D., Glatz, A. K., and Muggah, R., *Demanding attention: addressing the dynamics of small arms demand* (Geneva, 2012).
- Bell, J. B., *The dynamics of the armed struggle* (1998).
- Berman, E. and Racovita, M., *Under attack and above scrutiny?: arms and ammunition diversion from peacekeepers in Sudan and South Sudan, 2002-14* (Geneva, 2012).
- Bevan, J. and Dreyfus, P., 'Enemy within: ammunition diversion in Uganda and Brazil', in E. Berman, K. Krause, E. LeBrun and G. McDonald, eds., *Small arms survey 2007: guns and the city* (Cambridge, 2007).
- Birch, S. and Muchlinski, D., 'Electoral violence patterns and trends', in *Electoral integrity and political regimes* (2012).
- Blumstein, A., 'Youth violence, guns, and the illicit-drug industry', *Journal of Criminal Law and Criminology*, 86 (1995), pp. 10-36.
- Bourne, M., *Arming conflict: the proliferation of small arms* (Basingstoke, 2007).
- Bourne, M., 'Small arms and light weapons spread and conflict', in O. Greene and N. Marsh, eds., *Small arms, crime and conflict: global governance and the threat of armed violence* (2012), pp. 29-42.
- Burchard, S., *Electoral violence in sub-Saharan Africa: causes and consequences* (Boulder, CO, 2015).
- Chapman, S., Alpers, P., and Jones, M., 'Association between gun law reforms and intentional firearm deaths in Australia, 1979-2013', *JAMA*, 316 (2016), pp. 291-9.
- Clausewitz, C.V., *On war*, edited and translated by M., Howard and P. Pare (Princeton, 1976).
- Collier, P., Elliott, V. L., Hegre, H., Hoeffler, A., Reynal-Querol, M., and Sambanis, N., *Breaking the conflict trap: civil war and development policy* (Washington, D.C., 2003).
- Cukier, W. and Sidel, V., *The global gun epidemic: from saturday night specials to AK-47s* (Westport, CT, 2006).
- Dobash, E. and Dobash, R., *When men murder women* (Oxford, 2015).
- Dreyfus, P., Lessing, B., Nascimento, M. S., and Purcena, J. C., *Small arms in Brazil: production, trade, and holdings* (Geneva, 2010).
- Duquet, N., 'Arms acquisition patterns and the dynamics of conflict: lessons from the Niger delta', *International Studies Perspectives*, 10 (2009), pp. 169-85.
- Eisner, M., 'What causes large scale variation in homicide rates', in H. Kortüm and J. Heinze, eds., *Aggression in humans and other primates: biology, psychology, sociology* (Munich, 2012).
- Greene, O. and Macaspac, A., 'Arms, private militias and fragile state dynamics', in O. Greene, O. and N. Marsh, eds., *Small arms, crime and conflict: global governance and the threat of armed violence* (London, 2012), pp. 138-59.
- Hazen, J. and Horner, J., *Small arms, armed violence, and insecurity in Nigeria: the Niger delta in perspective, Small Arms Survey Occasional Paper*, 20 (2007).
- Hemenway, D. and Miller, M., 'Firearm availability and homicide rates across 26 high income countries', *The Journal of Trauma, Injury, Infection, and Critical Care*, 49 (2000), pp. 985-88.
- Hemenway, D., Shinoda-Tagawa, T., and Miller, M., 'Firearm availability and female homicide victimization rates among 25 populous high-income countries', *Journal of the American Medical Womens Association*, 57 (2002), pp. 100-4.
- Hepburn, L. and Hemenway, D., 'Firearm availability and homicide: a review of the literature', *Aggression and Violent Behavior*, 9 (2004), pp. 417-40.
- Hoskin, A., 'Armed Americans: The impact of firearm availability on national homicide rates', *Justice Quarterly*, 18 (2001), pp. 569-92.
- Imbush, P., 'The concept of violence', in W. Heitmeyer, and J. Hagan, eds., *International handbook of violence research* (Berlin, 2003), pp. 13-39.
- Jackson, T., 'From under their noses: Rebel groups' arms acquisition and the importance of leakages from state stockpiles', *International Studies Perspectives*, 11 (2010), pp. 131-47.
- Jackson, T. and Marsh, N., 'Guns and deaths a critical review', in O. Greene and N., Marsh, eds., *Small arms, crime and conflict: global governance and the threat of armed violence* (2012), pp. 105-21.
- Kahaner, L., *AK-47: The weapon that changed the face of war* (Hoboken, 2007).
- Karp, A., 'Fewer blanks: global firearm stockpiles', in P. Batchelor and K. Krause, eds., *Small arms survey 2003: development denied* (Oxford, 2003), pp. 57-95.

- Karp, A., 'Completing the count civilian firearms', in E. Berman, K. Krause, E. LeBrun, and G. McDonald, eds., *Small arms survey 2007: guns and the city* (Cambridge, 2007), pp. 38-71.
- Karp, A., 'Elusive arsenals: gang and group firearms', in E. Berman et al., eds., *Small arms survey 2010: gangs, groups, and guns* (Cambridge, 2010), pp. 100-27.
- Karp, A., 'Introduction: inconspicuous disarmament', in A. Karp, ed., *The politics of destroying surplus small arms inconspicuous disarmament* (2010), pp. 1-14.
- Katz, C., Maguire, E., and Choate, D., 'A cross-national comparison of gangs in the United States and Trinidad and Tobago', *International Criminal Justice Review*, 21 (2011), pp. 243-62.
- van Kesteren, J., 'Revisiting the gun ownership and violence link: a multi-level analysis of victimisation survey data', *British Journal of Criminology*, 54 (2013), pp. 53-72.
- Killias, M., 'International correlations between gun ownership and rates of homicide and suicide', *Canadian Medical Association Journal*, 148 (1993), pp. 1721-25.
- Killias, M., van Kesteren, J., and Rindlisbacher, M., 'Guns, violent crime and suicide in 21 countries', *Canadian Journal of Criminology*, Oct. (2001), pp. 429-48.
- Killicoat, P., 'What price the Kalashnikov? The economics of small arms', in E. Berman, K. Krause, E. LeBrun, and G. McDonald, eds., *Small arms survey 2007: guns and the city* (Cambridge, 2007), pp. 257-87.
- Kolbe, A. and Muggah, R., 'Securing the state: Haiti before and after the earthquake', in E. Berman et al., eds., *Small arms survey 2011: states of security* (Cambridge, 2011), pp. 228-59.
- Kontya, M. and Schaefer, B., 'Small arms mortality: access to firearms and lethal violence', *Sociological Spectrum*, 32 (2012), pp. 475-90.
- Kreutz, J. and Marsh, N., 'Lethal instruments: small arms and deaths in armed conflict', in O. Greene and N. Marsh, eds., *Small arms, crime and conflict: global governance and the threat of armed violence* (2012), pp. 43-76.
- Krug, E., Dahlberg, L., Mercy, J., Zwi, A.B., and Lozano, R., *World report on violence and health* (Geneva, 2002).
- Latour, B., 'On technical mediation - philosophy, sociology, genealogy', *Common Knowledge*, 3 (1994), pp. 29-64.
- Lemard, G. and Hemenway, D., 'Violence in Jamaica: an analysis of homicides 1998-2002', *Injury Prevention*, 12 (2006), pp. 15-8.
- Leslie, G., *Confronting the don: the political economy of gang violence in Jamaica* (Geneva, 2010).
- Lizotte, A., Howard, G., Krohn, M., and Thornberry, T., 'Patterns of illegal gun carrying among urban males', *Valparaiso University Law Review*, 31 (1997), pp. 375-93.
- Malby, S., 'Characteristics of armed violence', in K. Krause, R. Muggah, and E. Gilgen, eds., *Global burden of armed violence 2011* (Cambridge, 2011), pp. 87-122.
- Marsh, N., 'Conflict specific capital: the role of weapons acquisition in civil war', *International Studies Perspectives*, 8 (2007), pp.54-72.
- Marsh, N., 'Tools of insurgency: a review of the role of small arms and light weapons in warfare', in O. Greene and N. Marsh, eds., *Small arms, crime and conflict: global governance and the threat of armed violence* (2012), pp. 13-28.
- Marsh, N. and Dube, G., *Preventing diversion: the importance of stockpile management* (Oslo, 2014).
- Marsh, N. 'Firearms seizures and trafficking: a «local» phenomenon', *Strategic Trade Review*, 1 (2015), pp. 73-87.
- Marsh, N., 'Brothers came back with weapons: the effects of arms proliferation from Libya', *PRISM*, 6 (2017), pp. 79-96.
- McDougal, T., Shirk, D., Muggah, R., and Patterson, J., 'The way of the gun: estimating firearms trafficking across the US-Mexico border', *Journal of Economic Geography*, 15 (2014), pp. 297-327.
- Miller, W., *Crime by youth gangs and groups in the United States* (Washington, D.C., 1992).
- Miller, M., Azrael, D., and Hemenway, D., 'State-level homicide victimization rates in the U.S. in relation to survey measures of household firearm ownership, 2001-2003', *Social Science and Medicine*, 64 (2007), pp. 656-64.
- Most, B. and Starr, H., *Inquiry, logic and international politics* (Columbia, 1989).
- Mumford, A., *Proxy warfare* (Hoboken N.J., 2013).
- Nowak, M., 'Lethal violence update', in A. A. del Frate, K. Krause, and M. Nowak, eds., *Global burden of armed violence 2015: every body counts* (Cambridge, 2015), pp. 49-86.
- Owen, T. and Grigsby, A., *In transit: gangs and criminal networks* (Geneva, 2012).
- Parker, S., 'Balancing act regulation of civilian firearm possession', in E. Berman, K. Krause, E. LeBrun,

The Availability Puzzle

- and G. McDonald, eds., *Small arms survey 2011: states of security* (Cambridge, 2011), pp. 261-309.
- Racovita, M., 'Lethal violence against women and girls', in K. Krause and M. Nowak, eds., *Global burden of armed violence 2015: every body counts* (Cambridge, 2015), pp. 87-210.
- Rodgers, D. and Rocha, J., 'Turning points gang evolution in Nicaragua', in E. LeBrun et al., eds., *Small arms survey 2013: everyday dangers* (Cambridge, 2013), pp. 46-73.
- Sislin, J. and Pearson, F., *Arms and ethnic conflict* (Oxford, 2001).
- Sislin, J. and Pearson, F., 'Arms and escalation in ethnic conflicts: the case of Sri Lanka', *International Studies Perspectives*, 7 (2006), pp. 137-58.
- Smith, T. and Stevens, B., 'A cross-national investigation of firearm availability and lethal violence', *The European Journal of Psychiatry*, 17 (2003), pp. 34-7.
- Squires, P., *Gun crime in global contexts* (2014).
- Staniland, P., 'Armed politics and the study of intrastate conflict', *Journal of Peace Research*, 54 (2017), pp. 459-67.
- Tracy, M., Braga, A. A., and Papachristos, A. V., 'The transmission of gun and other weapon-involved violence within social networks', *Epidemiological Reviews*, 38 (2016), pp. 70-86.
- Uppsala Conflict Data Program (UCDP). *UCDP/PRIO armed conflict dataset codebook*, Version 17.2. (undated) <http://ucdp.uu.se/downloads/ucdprio/ucdp-prio-acd-172.pdf> (accessed 13 May 2018).
- United Nations Office on Drugs and Crime (UNODC). *Global study on homicide 2011* (Vienna, 2011).
- United Nations Office on Drugs and Crime (UNODC). *Global study on homicide 2013* (Vienna, 2013).
- Verkko, V., *Homicides and suicides in Finland and their dependence upon national character* (Copenhagen, 1951).
- Watkins, K., *Human development report 2007/2008* (New York, 2007).
- Weinstein, J., *Inside rebellion: the politics of insurgent violence* (Cambridge, 2006).
- Wellford, C., Pepper, J., and Petrie, C., *Firearms and violence: a critical review* (Washington, D.C., 2005).
- Wolf, A., Gray, R., and Fazel, S., 'Violence as a public health problem: an ecological study of 169 countries', *Social Science & Medicine*, 104 (2014), pp. 220-7.
- World Bank, *World development report 2011* (Washington, D.C., 2011).