USES, USERS, AND INSTRUMENTS:
RELEVANCE AND REPLICABILITY OF SMALL ARMS RESEARCH

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ABSTRACT

This PhD thesis uses aspects of a criminology framework to examine the extent to which research on small arms and light weapons (SALW) undertaken to support international policy is relevant and replicable beyond its immediate field of practice. Using a sample of six primarily field-research-based publications, I examine whether this research generated a greater understanding of the most problematic uses and users of SALW, and the role of these weapons as instruments of violence.

With respect to uses, the application of public health and mixed social science methods has helped to reduce knowledge gaps on the effects of SALW in developing and post-conflict societies. Estimates of the costs of violence in developing countries demonstrated the instrumentality of SALW—i.e. the more serious societal impacts of firearm violence than those of violence involving other instruments. SALW research on users contributed to expanding the agenda from an initial focus on international trafficking to supply insurgent groups to a more comprehensive examination of the patterns of SALW procurement, management, control, and use among a broad range of actors able to contest the state's monopoly of coercive force. My work on the instruments of violence contributed to an increasingly precise understanding of the most problematic types of SALW held by criminal, terrorist, and non-state armed groups in Africa and Europe. Finally, replicating field-based black-market price-monitoring techniques in conflict areas showed that ammunition prices and war-related fatalities can be strongly correlated, and provides an important lead for further examining the accessibility thesis—i.e. the link between SALW availability and levels of violence.

The present thesis provides several suggestions for moving the field of practice forward. Firstly, there is a need to consolidate the lessons learned from SALW researchers' extensive use of social science methods—including surveying—in post-conflict situations, and to analyse their implications for the measurement of SALW availability and the incidence of violence more broadly. Secondly, SALW researchers need to engage in scientifically robust evaluations of the impact of the most novel interventions, which would represent significant contributions to both SALW policy and academic research into gun violence. Finally, various streams of SALW research have highlighted the importance of ammunition supply in sustaining conflict and violence, a subject so far largely overlooked by those researching gun violence in developed countries. More expansive inquiry into ammunition flows and their relationship to violence has the potential to represent a major contribution to academic research into gun violence.

CONTENTS

* Note: Page numbers refer to those of the compiled submission (i.e. those placed at the center bottom of each page) rather than to those of the individual sampled publications. They are meant to facilitate the reader's access to the various published works

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This thesis is unusual in that it is the product of almost two decades of work, during which many people have helped me to grow professionally, academically, and personally. It would be impossible to thank all those involved in the limited space I have at hand, and I therefore apologize to the many friends and colleagues whom I do not list here. I am particularly and firstly grateful to my family—Jenny, Kiana, and Léon—and my parents, siblings, and family in law for their support and good humour as I undertook this new project, at times at the expense of my full attention to family life. I also wish to thank my supervisor, Prof. Peter Squires, for guiding me skilfully through the process and consistently reassuring me of the value of my published works. My co-authors for two of the pieces included in this portfolio—André Desmarais and Stéphanie Pézard—have my deepest appreciation, as do all the researchers who contributed in one way or another to this research. I am also grateful to my career mentors Ed Laurance, Keith Krause, Eric Berman, and Anna Alvazzi del Frate, whose trust was essential to entering this field of study and being able to make a contribution over the years. I finally wish to acknowledge the constructive and insightful feedback that Paul Holtom, Alaa Tartir, Alex Potter, Dennis Rodgers, Denis Werner, Elizabeth Ward, Pascal Bongard, and Anne-Marie Buzatu also took the time to provide.

DECLARATION

I declare that the research contained in this thesis, unless otherwise formally indicated within the text, is the original work of the author. The thesis has not been previously submitted to this or any other university for a degree, and does not incorporate any material already submitted for a degree.

Nicolas Florquin, 25 September 2020

CRITICAL APPRAISAL

ABBREVIATIONS AND ACRONYMS

BICC	Bonn International Center for Conversion
CDC	(United States) Centers for Disease Control and Prevention
DCAF	Geneva Centre for Security Sector Governance
DDR	Disarmament, demobilization, and reintegration
DRC	Democratic Republic of the Congo
EU	European Union
Firearms Protocol	Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition
GRIP	Groupe de Recherche et d'Information sur la Paix et la Sécurité
ICoC	International Code of Conduct for Private Security Providers
MOSAIC	Modular Small-arms-control Implementation Compendium
NGO	Non-governmental organization
PSC	Private security company
RMDS/G	Regional Micro-disarmament Standards and Guidelines
SAFTE	Studying the Acquisition of Illicit Firearms by Terrorists in Europe (project)
SALW	Small arms and light weapons
SDG	Sustainable Development Goal
SEESAC	South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons
UN	United Nations
UNDP	United Nations Development Programme
UNLIREC	United Nations Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean
UN PoA	United Nations Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects
USD	United States dollar(s)
WHO	World Health Organization

APPROACH

This Critical Appraisal provides a commentary on a developing programme of work. It attempts to 'curate' the portfolio of originally published work sampled for this submission and sets it within the wider context of my work and the developing field of small arms research and related scholarship. As you read this overview you will be guided at certain points to read relevant examples from the portfolio itself.

INTRODUCTION

Twenty years have passed since the international community adopted two major arms control instruments covering illicit trafficking in small arms and light weapons (SALW)[1] and firearms.[2] The 2001 United Nations Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects (UN PoA) was established as a comprehensive but politically binding agreement (UNGA, 2001a). In the same year states adopted the legally binding Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition (Firearms Protocol) (UNGA, 2001b)—one of three protocols attached to the 2000 UN Convention against Transnational Organized Crime (UNGA, 2000). In addition to establishing a regular diplomatic calendar for reviewing progress in their implementation, the two agreements also paved the way for other important international initiatives[3] that as a whole generated strong international demand for policy-relevant research and analysis on SALW and firearms.

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[1] The term 'small arms and light weapons' (SALW) is used in the UN PoA framework and more generally in the conflict and arms control literature. It covers both military-style small arms and light weapons, and commercial firearms (handguns and long guns) (UNGA, 1997). Small arms specifically include revolvers and self-loading pistols, rifles and carbines, sub-machine guns, assault rifles, and light machine guns. Light weapons include heavy machine guns, grenade launchers, portable anti-tank and anti-aircraft guns, recoilless rifles, portable anti-tank missile and rocket launchers, portable anti-aircraft missile launchers, and mortars of less than 100 mm calibre (see Jenzen-Jones and Schroeder, 2018, pp. 27–29).

[2] Firearms are the category of weapons referred to in the framework of the UN Firearms Protocol, and more generally in the fields of crime prevention and criminology. The term refers to revolvers and self-loading pistols, rifles and carbines, shotguns, sub-machine guns, and light and heavy machine guns—in other words, it includes all small arms and certain (but not all) categories of light weapons; see Jenzen-Jones and Schroeder (2018, pp. 27–29).

[3] For a review of the history, scope, and review mechanisms of these and other major international SALW and firearms control instruments, see McDonald (2015) and Parker and Wilson (2016).

Researchers from a range of disciplinary backgrounds supported the build-up to these international processes in the 1990s.[4] Because the UN PoA was born out of concerns over post-cold war trafficking in SALW and its impact on the intra-state conflicts of the 1990s, it was primarily experts in international arms control and conflict studies who provided the ground work to justify the treatment of SALW as a standalone international policy issue (Laurance, 2014, p. 32; Small Arms Survey, 2001, pp. 251–91; UNGA, 1997). The UN PoA encouraged a broad range of actors to supply the process with 'action-oriented research'.[5] Specialized—and mainly European-based—non-governmental research institutions such as the Small Arms Survey[6] and their partners in the field led the process and undertook a multitude of global and regional assessments and field-based case studies in data-scarce developing and post-conflict countries. On the other hand, criminologists and the UN secretariat provided the bulk of the research[7] supporting the development and implementation of the Firearms Protocol, which was itself inspired by efforts to tackle firearms trafficking in the context of transnational crime in the Latin American region.[8] The intertwined nature of the diplomatic processes and their global scope led to cooperation and information exchange among researchers and to the growth of an increasingly interdisciplinary 'SALW research' epistemic community, which applied concepts and methods from a range of fields, including conflict and development studies, public health, and criminology.[9]

In spite of significant output in the form of books and reports,[10] SALW researchers' footprint in the academic literature has been relatively sparse. In fact, scholars concerned primarily with the genesis, implementation, and impact of the abovementioned international instruments from the perspective of international relations, security studies, and international law have been the main

[4] See, for instance, Austin (1999), Laurance and Meek (1996), and Lumpe (2000).
[5] Including 'states, regional and subregional and international organizations, research centres, health and medical institutions, the United Nations system, international financial institutions and civil society' (UNGA, 2001a, art. III(18); Greene, 2014, pp. 259–61).
[6] Other important actors included the Bonn International Center for Conversion (BICC), the Groupe de Recherche et d'Information sur la Paix et la Sécurité (GRIP), International Alert, and Saferworld.
[7] The Convention against Transnational Organized Crime and its protocols provided the UN secretariat with an official role and mandate to supply 'services' to support the legally binding instrument (UNGA, 2000, art. 33). See, for example, UNODC (2020) and van Dijk, van Kesteren, and Smit (2007).
[8] Parker and Wilson (2016, p. 27); UN (1999); UNODC (2006, p. xxiv; n.d.).
[9] See Batchelor and Kenkel (2014) and Greene and Marsh (2012) for reviews of the evolution of SALW research in the first decade of the century.
[10] See, for instance, the chapters of the Small Arms Survey yearbooks cited in this Critical Appraisal (Small Arms Survey, 2001–07; 2010–15).

producers of the peer-reviewed literature dealing with SALW.[11] It is North American researchers who have produced the bulk of academic articles examining the central themes related to the relationship between firearms and violence, with a strong geographical focus on the United States (Greene and Marsh, 2012, pp. 82–83). US gun violence researchers have produced a wealth of quantitative studies to examine as central questions whether and how firearms availability influences the use of guns in crime and levels of misuse—the accessibility thesis—and how and why the type of weapon matters—the instrumentality thesis.[12] While SALW researchers have also been concerned with these questions,[13] there are only few examples of articles by SALW researchers that deal with the central debates of academic 'gun violence research', including the accessibility and instrumentality theses.[14]

Several reasons help to explain the relative absence of a broader range of SALW research outputs in the scientific literature. The first is the fact that SALW researchers needed and chose to publish through other vectors—mainly reports and books—to ensure the rapid dissemination of research and findings and maximize the chances of their uptake by SALW policy-makers and practitioners (Greene and Marsh, 2012, p. 81). Secondly, SALW field research in developing and post-conflict settings required the use of an interdisciplinary approach and mixed methods from several disciplines—including criminology, public health, and conflict and development studies—to overcome the dearth of existing data. While empirically rich and aimed at generating new baselines to inform policy-making, SALW research was therefore less suited for testing and discussing questions with strong theoretical underpinnings of the kind often expected in scientific journals.[15] Lastly, SALW researchers have had few opportunities to engage with and produce quantitative data analyses comparable to those of US gun violence researchers, given the latter's access to much more expansive and detailed firearm-related data than researchers from the rest of the world. Overall, and in spite of some attempts to build bridges between the SALW research community and broader academic disciplines,[16] the transfer of knowledge and lessons learned produced by SALW

[11] See, for instance, Bourne (2018), Carpenter (2011), Cooper (2006), Erickson (2013), Frey (2019), Garcia (2009), Greene (2000), Grillot (2011), and Stavrianakis (2011).
[12] For a historical account of the evolution and central themes of US gun violence research, see Cook (2013).
[13] See, for instance, Florquin and Wille (2004).
[14] See, for instance Marsh (2007; 2018) for discussions on the link between SALW availability and conflict and van Kesteren (2014) for international comparisons between developed countries.
[15] In practice most SALW researchers also lack the time adapt and frame SALW research for academic publication given the constraints associated with short-term project funding.
[16] See, for instance, the Guggenheim-supported Research Initiative on Small Arms and the European-funded COST Action 25 on European Small Arms and the Perpetuation of Violence,

researchers has therefore been rather limited.

This PhD thesis uses a gun violence research framework to examine the extent to which SALW research is relevant and replicable beyond its international field of practice. Specifically, it discusses the contributions of SALW researchers to three central dimensions of academic firearms research, as US criminologist Franklin Zimring conceptualized: uses, users, and instruments (Zimring, 1991, p. 52).[17] The SALW community's interest in this framework is not new; in fact, several SALW policy researchers have specifically referred to Zimring's 'formula' to conceptualize the SALW issue globally (Laurance and Meek, 1996, p. 27; Mack, 2014, p. 29).[18] This commentary therefore considers whether SALW researchers succeeded in generating a greater understanding of the most problematic SALW uses, users, and instruments. More specifically, the key questions raised are as follows (see also Annexe 1):

- Are the methods developed by SALW researchers to generate new data reliable and replicable? Have the most promising approaches been accepted more broadly across the social sciences?
- Has the expansion of case study research on SALW and their effects in data-scarce settings significantly improved our understanding of these issues?
- Do the conclusions offered by the SALW research community confirm or challenge the research of scholars working on SALW or firearms issues? To what extent are SALW researchers' contributions relevant to the central themes of academic gun violence research, notably the accessibility and instrumentality theses?
- Is there evidence that SALW research has impacted policy decisions both within and beyond the international SALW field?

This submission draws on six publications authored during the combined 14 years in which I have

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which led to cross-disciplinary meetings and summative publications such as HFG Foundation (2005) and Greene and Marsh (2012).

[17] The SALW research community's work has also contributed significant knowledge to other areas including SALW production, stockpiles, the authorized trade, transparency in arms exports, demand factors affecting SALW possession and use, and the implementation and impact of multilateral measures and programmes. See, for instance, the relevant chapters in the Small Arms Survey yearbooks cited in this commentary (Small Arms Survey, 2001–2007; 2010–15).

[18] Moreover, the 2015 module of the UN Modular Small-arms-control Implementation Compendium (MOSAIC) on 'National regulation of civilian access to small arms and light weapons' provides guidance for regulating the 'types and characteristics of small arms', 'civilian uses of small arms', and 'civilian users of small arms'. See Module 03.30 in UNODA (n.d.).

worked for the Small Arms Survey.[19] The Survey, established in 1999 in Geneva and hosted by the Graduate Institute of International and Development Studies, has been one of the leading producers of SALW research of the past 20 years. I joined the organization in my early career, motivated by a thirst to better understand the world's contemporary security challenges through the lens of SALW and the application of social science methods. Most of my work has focused on undertaking and coordinating field research in developing and post-conflict societies primarily in Africa, as well as in several countries in Latin America, South-east Europe, Central Asia, and—in the aftermath of the 2015–16 terrorist attacks—in Europe. The sampled publications were released between 2006 and 2018, and are therefore illustrative of some of the SALW research community's efforts to advance knowledge on the various dimensions of the SALW issue.[20] The portfolio highlights some of the lessons learned from the SALW research community's use of social science research methods and analytical frameworks from the fields of criminology, public health, and conflict and development studies—in primarily fragile and developing settings, where reliable data on SALW and violence is notoriously lacking. It also illustrates how SALW researchers have started replicating the approaches they developed in developing countries for analysing growing SALW-related threats in developed countries, notably in Europe since 2015.

This commentary is structured around three sections on uses, users, and instruments. Each section provides background and discusses the contributions and uptake of two of the sampled publications. The section on ***uses*** examines efforts to generate data on SALW misuse in data-scarce countries in the first decade of the 21st century. It includes a publication that piloted the use of new international guidelines to measure the public health and economic costs of SALW misuse in Latin America, and another that compiles and analyses a range of locally available indicators of armed violence in post-conflict Burundi. The second section, on ***users***, looks at the emergence of a research agenda on armed actors from the mid-2000s, in terms of which SALW researchers no longer considered the holders of SALW only as perpetrators, but also—in certain situations—as part of the solution. It includes a summative analysis of this developing agenda, as well as a chapter

[19] First as a researcher from 2002 to 2006, then as a senior researcher from 2010 to the present. I also worked for Geneva Call (an organization specializing in engaging with non-state armed groups on humanitarian issues, including the landmine ban) in the period 2006–10, and for the UN Panel of Experts that monitored compliance with the UN arms embargo on Liberia in 2007.

[20] The selected published works amount to 69,500 words in total, not including the present Critical Appraisal. As required, I provided the University of Brighton with statements of authorship signed by my two co-authors as well as a letter from the Small Arms Survey's lead editor regarding principal authorship of yearbook chapters. In addition to the sampled publications, the References section of this appraisal includes a complete list of my relevant publications, some written as early as 2003. In total, my relevant publications include more than 30 chapters, reports, and articles on SALW-related issues, totalling more than 300,000 words.

that delves into the holdings and use of SALW by private security companies (PSCs)—a growing challenge that emerged in the context of new forms of neoliberal governance. The third section, on ***instruments***, documents the increased precision with which SALW—and, crucially, the associated ammunition—have been monitored in situations of armed violence over the past 15 years. It includes an examination of the black-market prices of SALW and ammunition in Lebanon during the onset of civil conflict in neighboring Syria in 2011, and an analysis of the illicit firearms market in France in the wake of the 2015 terror attacks.

The use of aspects of a criminology framework to organize this portfolio makes it possible to critically discuss SALW research and its relevance beyond the confines of its international policy field. In doing so the dissertation aims to bridge the gap between policy and academic research on SALW and firearms. The conclusion reflects on these contributions and argues that the more systematic exchange of lessons learned between members of the SALW research community and academia is not only possible, but also potentially highly beneficial to both sides of the spectrum. In doing so, the thesis identifies opportunities to further mainstream the results of the SALW research community's work, while recognizing the need to sustain SALW researchers' ability to advance our understanding of the dynamics of SALW proliferation and armed violence.

USES: THE DIRECT AND INDIRECT EFFECTS OF SALW

What are the most problematic uses of SALW? And what is the specific impact and weight carried by SALW within the broader phenomenon of armed violence? During the diplomatic process leading to the adoption in 2001 of the UN PoA, policy-makers made frequent but 'unsystematic', 'watered down', and 'confined' references to the effects of SALW misuse in order to justify the growing international attention being focused on this category of weapons (Batchelor and Muggah, 2014, pp. 121–27). Early estimates of the human toll of SALW misuse suffered from the dearth of data in the most affected regions, which critics argued distorted the analysis and its policy interpretations.[21] In the early 2000s SALW researchers therefore focused particular attention on improving ways to measure the prevalence and effects of SALW misuse. My contributions to these efforts included estimating the number of firearms-related fatalities globally in non-conflict settings; estimating the cost of armed violence in developing countries, including the specific costs associated with the misuse of firearms; and using a mixture of social science methods to measure the impacts of SALW misuse country by country and expand the pool of empirical evidence.

[21] This criticism originated primarily from academics opposed to international SALW control efforts, such as Kopel, Gallant, and Eisen (2003).

Estimating global firearms-related fatalities

The first decade of the 21st century saw the expansion of the SALW research agenda on the negative effects of SALW proliferation. During this period the Small Arms Survey began to systematize data collection on SALW-related deaths by mapping out relevant data sources and compiling global datasets. This focus was meant to expand and update work carried out in the 1990s that had estimated that 200,000 people died annually from firearms-related violence in non-conflict situations (Cukier, 1998; Krause, 1999). Because these early estimates relied on a limited sample of 40 primarily developed countries, more representative datasets were needed to confirm the scope of the issue and ensure that estimates did not obscure important regional and cultural differences.

In one of my early contributions to the Small Arms Survey yearbook I assembled a combination of public health and criminal justice data[22] on firearm homicides and suicides covering 110 countries for at least one year since 1995, and applied conservative regional-level extrapolation techniques to generate a global estimate. I found that the figure of 200,000 deaths per annum was a credible estimate of the annual human toll of gun violence in non-conflict situations. In fact, my calculations suggested a range of 181,000–250,000 annual firearms-related deaths, including 144,000–199,000 from firearm homicides and 37,000–51,000 from firearm suicides (Florquin and Wille, 2004, Annexe 6.1). In 2005 United States-based public health researchers, using different estimation techniques, validated this conclusion by producing an estimated range of 196,000–229,000 global non-conflict-related firearm deaths for the year 2000 (Richmond, Cheney, and Schwab, 2005).[23] I estimated that at the time almost 40 per cent of all homicides involved the use of firearms (Florquin and Wille, 2004, p. 174).[24] The research also illustrated distinctive regional patterns, with firearm suicide a significant challenge for developed nations, while firearm homicide rates were by far the highest in Latin America and the Caribbean (Florquin and Wille, 2004, p. 178).

In contrast, the estimated annual toll of conflict-related deaths attributed to SALW was revised downwards from the 300,000 figure of the 1990s. Only about 52,000 direct conflict deaths were

[22] Including UN (1999), UNODC (n.d.), WHO (2002; n.d.), and a range of national statistics sources.
[23] Jackson and Marsh (2012, p. 106) similarly concluded that 'it is possible that 200,000 is too low a figure'. More recently, the Small Arms Survey estimated that 210,000 firearms-related violent deaths occurred in 2016, including 15 per cent of fatalities that occurred in conflict situations, but excluding firearms-related suicides (Mc Evoy and Hideg, 2017, p. 12).
[24] This proportion has slightly increased since, with the Small Arms Survey reporting 44 per cent of homicides being perpetrated with firearms in 2016 (Mc Evoy and Hideg, 2017, p. 48).

being recorded annually for the period 2004–07, although data limitations are particularly pronounced for conflict deaths, and these calculations did not include indirect conflict deaths due to malnutrition and disease (Geneva Declaration Secretariat, 2008, p. 2; Florquin and Wille, 2004, p. 175). In spite of these caveats, the updated figures clearly demonstrated the disproportionate global weight of SALW misuse occurring in non-conflict settings, and underscored the global significance of firearms homicides and therefore the central importance of engaging with the fields of crime prevention and public health when tackling global SALW-related violence. In the years that followed the Geneva Declaration Secretariat, with research support from the Small Arms Survey, initiated the *Global Burden of Armed Violence* series, whose three editions provided estimates and analysis for conflict- and non-conflict-related violent deaths (Geneva Declaration Secretariat, 2008). The Small Arms Survey continues to expand and maintain this Global Violent Deaths Database today (Small Arms Survey, n.d.). Monitoring violent mortality trends has gained new momentum with the adoption in 2015 of Target 16.1 of the UN Sustainable Development Goals (SDGs), which aims at achieving a significant reduction in violent deaths in both conflict and non-conflict settings.[25]

Estimating the cost of armed violence in developing countries

Between 2001 and 2006 SALW researchers also focused on developing conceptual frameworks and typologies to capture the multidimensional effects of SALW misuse (Batchelor and Muggah, 2014, pp. 121–27). The first three Small Arms Survey yearbooks, for instance, developed typologies of these effects, offering a distinction between the direct effects related to fatalities and injuries, and the indirect effects on public health, humanitarian aid, and development.[26] Studies that measured the economic costs of these effects also gained traction during this period. In 2000 a landmark study estimated that the total cost of gun violence in the United States amounted to USD 100 billion per year (Cook and Ludwig, 2000), and highlighted how costing studies could create momentum among policy-makers for investing in armed violence prevention programmes and strategies. In 2005–06 the World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC) started to cooperate with the Small Arms Survey to develop research guidelines and a *Manual for Estimating the Economic Cost of Injuries due to Interpersonal and Self-*

[25] SDG 16 aims to 'Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels', with Target 16.1 aiming to 'Significantly reduce all forms of violence and related death rates *everywhere'* (emphasis added) by 2030. See UNGA (2015).
[26] See, for instance, the chapters dedicated to the effects and impacts of SALW in Small Arms Survey (2001; 2002; 2003).

directed Violence (Butchart et al., 2008). As part of this process I wrote a chapter that is included in the portfolio of work for this thesis (Florquin, 2006), and was published in the 2006 Small Arms Survey yearbook. The chapter offers a typology for conceptualizing the economic costs of violence, and assesses the specific impact of firearms misuse on these costs. It also presents the results of case studies undertaken with the participation of local researchers and hospitals in Brazil and Colombia, which served to pilot the draft guidelines developed with the WHO and CDC.

NOW READ SAMPLED PUBLICATION NO. 1: Florquin, Nicolas. 2006. 'The Instrument Matters: Assessing the Costs of Small Arms Violence.' In Small Arms Survey. *Small Arms Survey 2006: Unfinished Business*. Oxford: Oxford University Press, pp. 188–213. 13,000 words; p. 55 of this thesis.

The chapter produced important new empirical data on the differentiated costs of violence perpetrated by different instruments in Brazil and Colombia. Consistent with previous research undertaken in developed nations, it found that the direct medical costs and indirect losses of productivity were higher for firearm-related injuries than for those inflicted by sharp instruments. These disproportionately high costs were notably due to the higher proportion of firearm-inflicted injuries that result in death or hospitalization (Florquin, 2006, pp. 199, 204, 206). These findings therefore challenge the substitution thesis, in terms of which some scholars have argued that if criminals could not access firearms, they would turn to other instruments, and their inability to obtain firearms would have no impact on overall levels of crime or violence.[27] On the contrary, the greater costs of firearms-inflicted injuries and fatalities compared with violence afflicted with bladed instruments support the instrumentality thesis—in other words, that the type of weapon used affects the severity of the violent outcome and, by extension, its costs to society.

The piloting of the WHO–CDC guidelines in Rio de Janeiro (Brazil), Bogotá, and Cali (Colombia) was also path breaking in that it demonstrated the applicability of gun violence costing methods in developing countries. The Small Arms Survey's growing network and its experience of working with civil society and public health institutions in violence-affected developing countries meant that the pilot studies could benefit from adapted tools and direct cooperation with relevant actors on the ground. With limited resources data could be compiled to allow for the calculation of both direct medical costs and productivity losses due to violently inflicted injuries. The WHO and CDC published the final version of the manual—which I co-authored—two years later, together with three

[27] See, for instance, Kleck (1991).

case studies on the costs of interpersonal violence in Brazil, Jamaica, and Thailand (Butchart et al., 2008). In Jamaica, notably, the initiative gained significant public policy utility and led to the regular monitoring of these costs and the integration of the data into national violence prevention policies (Ward et al., 2009; VPA, 2017). At the international level the 2008 *Global Burden of Armed Violence* report also adapted the methodological guidelines to generate a global estimate of the cost of lost productivity from armed violence, which amounted to USD 95–163 billion for 2004 (Geneva Declaration Secretariat, 2008, p. 89).

Expanding the knowledge base through country assessments

The expanding datasets and more transparent methodologies developed for estimating the effects of SALW misuse contributed to mapping out the availability of firearms-related data globally, using a combination of public health and criminal justice sources. These efforts similarly shed light on the scarcity of information in some regions, particularly in developing and post-conflict regions where the problems of SALW misuse were assumed to be the greatest. In the early 2000s international organizations such as the UN Development Programme (UNDP) were working to address SALW proliferation, misuse, and crime in fragile countries recovering from conflict, notably through voluntary weapons collection and disarmament, demobilization, and reintegration (DDR) programmes. These organizations began investing in evidence-based assessments of the nature and scope of SALW proliferation and misuse at the national level to guide their interventions.

In 2002 the UNDP contracted the Small Arms Survey to support its Illicit Small Arms Control project in post-conflict Kosovo. Working with seasoned local social science research partners, the research team formulated a research design that emphasized mixed methods and would subsequently become the standard in the field. The data collection phase, carried out in the space of three months in early 2003, comprised a 1,264-person face-to-face household survey; focus group discussions with representatives of the population's main ethnic, age, and gender groups; key informant interviews with former combatants, security personnel, and school teachers; and access to the databases of the Kosovo Police Service and Pristina University Hospital (Khakee and Florquin, 2003, p. 1). The study, for which I led the quantitative data analysis, was among the very first opportunities for SALW researchers to draw on a nationwide household survey and therefore replicate the previous efforts of prominent criminologists and public health researchers investigating gun violence in developed societies.[28] As the survey data that was produced was the

[28] See, for instance, Hemenway (2002), and Killias, van Kesteren, and Rindlisbacher (2001).

first of its kind for Kosovo, it was limited to the year of the study, and as such could not allow for in-depth longitudinal analyses of the relationship between SALW availability and violence. The results were nevertheless instructive, because the data made it possible to disaggregate perceptions of firearms, security, and security providers at the subnational level and by population groups, and to compare these measurements with the available crime and SALW seizure statistics. This enabled the study to generate aggregate indices that could inform the selection of locations that were best suited to benefit from planned UN-sponsored pilot interventions (Khakee and Florquin, 2003, pp. 62–63).

Demand for additional national 'baseline assessments' in the Western Balkans expanded. The UNDP's specialized regional branch, the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC), commissioned international NGOs, including the BICC, Saferworld, and the Small Arms Survey, to carry out additional assessments on Macedonia[29] and South Serbia in 2003–04.[30] During this time SEESAC also developed Regional Micro-disarmament Standards and Guidelines (RMDS/G) to support various streams of SALW control measures. These standards included RMDS/G 05.80 and its five associated protocols[31] for undertaking 'SALW surveys'—the new chosen term for national SALW baseline assessments in the region. The new regional standards drew heavily on the experiences and methods that the Small Arms Survey had developed in Kosovo and Macedonia, and called for a mixed-methods approach that assessed SALW distribution, impacts, perceptions, and capacities. In 2004 I co-authored the first SALW survey that followed the new standards in Montenegro (Florquin and O'Neill Stoneman, 2004).

Relative stability and the availability of trained local partners for undertaking qualitative and quantitative field research facilitated the rapid development of SALW surveys in the Western Balkans. In the mid-2000s, the procedures for carrying out such rapid yet empirically rich assessments in regions still transitioning from armed conflict and with weaker local research capacities were still relatively untested. In 2005–06 the UNDP and Oxfam-Novib[32] mandated the Small Arms Survey to undertake a national small arms assessment in Burundi, at a time when the country's government was still facing opposition from the rebel Palipehutu-FNL (Pézard and

[29] Renamed the Republic of North Macedonia in 2019.
[30] See the full list of national assessments published by SEESAC at <http://www.seesac.org/SALW-Surveys/>.
[31] Available on the SEESAC website at <http://www.seesac.org/Survey-Protocols/>.
[32] Oxfam-Novib is a Dutch affiliate of the international development and humanitarian NGO Oxfam.

Florquin, 2007). The Survey partnered with Ligue Iteka, a local human rights organization, to undertake the study. Talking about security and SALW possession with the general population and key informants from the government and NGOs is particularly sensitive and challenging in post-conflict settings. While it was possible to train local researchers to undertake a representative survey of households in a sample of the country's provinces, coverage was not national due to both security and budgetary constraints. Combined with public health data, UN security incident reports, and focus group discussions with former combatants, the study nevertheless helped to identify a range of policy-relevant trends in the distribution, perceptions, and impacts of SALW that ultimately facilitated the development of national policies to address these challenges. Parts of Pézard and Florquin (2007, pp. 1–12, 30–50), which are included in the portfolio of publications, illustrate the types of data sources used for the assessment and the main findings as they relate to the effects of SALW misuse in Burundi.

NOW READ SAMPLED PUBLICATION NO. 2: 'Summary' and 'Introduction' (pp. 1–12) and 'II. Impact and perceptions of the proliferation of arms' (pp. 30–50) in Pézard, Stéphanie and Nicolas Florquin. 2007. *Small Arms in Burundi: Disarming the Civilian Population in Peacetime.* Special Report. Bujumbura and Geneva: Ligue Iteka, Oxfam-Novib, Small Arms Survey, and UNDP. 10,400 words; p. 85 of this thesis.

The Small Arms Survey has subsequently undertaken similar national assessments in a number of additional countries, including in Central Asia,[33] Africa,[34] and Eastern Europe.[35] Peer organizations such as the BICC, GRIP, and Saferworld have also implemented similar studies. As of April 2020 SEESAC had produced 16 SALW surveys covering all the countries in the Western Balkans, including seven assessments published in 2019 alone[36]—illustrating the utility of these assessments in countries that are no longer affected by armed conflict, but are interested in curbing SALW-related crime and trafficking. While few such assessments have been undertaken in developed countries,[37]

[33] Including in Tajikistan (Torjesen, Wille, and MacFarlane, 2005) and Kazakhstan (Florquin, Aben, and Karimova, 2012).
[34] Recent efforts have included Kenya (Wepundi et al., 2012), Nigeria (unpublished), Somalia (unpublished), and South Sudan (Small Arms Survey, 2016).
[35] For Ukraine, see Schroeder et al. (2019).
[36] Available at <http://www.seesac.org/SALW-Surveys/>.
[37] The work of Hales, Lewis, and Silverstone (2006) and Squires with Grimshaw and Solomon (2008) in the United Kingdom are somewhat rare examples of mixed-methods country-level assessments undertaken in developed countries. Recent studies in France and Ukraine, while more limited in scope than fully fledged SALW surveys, illustrate the feasibility and utility of using

SALW surveys are now recognized internationally through a dedicated module in the UN's Modular Small-arms-control Implementation Compendium (MOSAIC), which is largely inspired by the SEESAC protocols.[38]

Overall, the development and standardization of methodologies for monitoring firearms-related mortality and undertaking SALW surveys has helped to reduce global knowledge gaps on the effects of small arms. As of 2019, for instance, the Small Arms Survey's Global Violent Deaths Database contained data for 209 countries and territories on firearm homicides for at least one year during the period 2010–18 (Small Arms Survey, n.d.). This is a significant improvement on the 105 country data points on firearm homicides that were available in 2004 (Florquin, 2004, p. 175). Moreover, my work showed that approaches initially pioneered by criminologists and public health researchers in developed countries can be applied—with adaptation—in both post-conflict settings and developing countries facing high levels of violent crime. In fact, my research on the costs of violence in developing countries directly supported the instrumentality thesis by demonstrating the more serious impacts and higher costs of firearm violence compared with those of violence using other instruments. These achievements led to several of these methods gaining recognition in international public health and SALW policy and research-guidance documents, and to certain findings ultimately influencing major international policy agendas such as the UN's SDGs.

USERS: FROM PERPETRATORS TO ARMED ACTORS

As SALW researchers gained access to a range of conflict and post-conflict situations for their fieldwork, they increasingly included groups of users—or holders—of SALW among the subjects of their inquiries. This access led to the elaboration of research questions placing armed actors that are directly relevant to Zimring's users framework at the centre of the SALW issue. Can interventions that target 'high-risk users' of SALW influence these groups' capacity, motivations, and incentives to resort to armed violence? Are SALW procurement, management, control, and use patterns consistent across different categories of weapons holders? Do typologies of users have the potential to generate more nuanced findings and policy responses, notably with respect to the movement of SALW into illegality? These questions are central to advancing the accessibility thesis, given that much lethal violence in highly impacted regions is 'carried out as part of an

mixed methods to rapidly diagnose key SALW-related issues in countries with strong existing research capacities (Florquin and Desmarais, 2018; Schroeder et al., 2019).

[38] See MOSAIC Module 05.10 on SALW Surveys, in UNODA (n.d.).

organized group or as an act of revenge or retaliation' (Marsh, 2018, p. 12).[39] My contributions to this discussion have included promoting a broader understanding of armed groups among SALW researchers, both in terms of the types of groups that could be researched and the SALW-specific research questions to be examined. As knowledge on armed groups and SALW in conflict areas expanded, I also became interested in the replicability of such research in analyses of other types of armed actors, notably urban gangs and PSCs.

Expanding the research agenda on armed groups

SALW researchers initially focused on documenting international transfers to insurgent groups, based on the belief that most armed groups in conflict areas obtained their weapons through brokers and international shipments.[40] While this focus succeeded in putting the SALW issue on the international agenda, it failed to capture important local dynamics related to the local sources of supply, internal structures, and rules of behaviour of various types of armed groups, as well as the contexts and purposes of their use of SALW. Moreover, while a vast literature has examined the organization of armed groups and its relationship to violence,[41] it has not specifically analysed how armed groups procure, manage, control, and use their weapons, and whether these practices may impact the scale and nature of violence.

My research has attempted to generate a broader, yet SALW-specific research agenda on armed groups. On the one hand, this involved adopting a broad definition inclusive of all 'groups equipped with [SALW] that have the capacity to challenge the state's monopoly of coercive force', including insurgents, pro-government militias, self-defence and vigilante groups, gangs, and PSCs (Florquin and Berman, 2005, p. 1). On the other hand, my research examined a broader range of SALW-related questions about these organizations' procurement, management, control, and use of

[39] For instance, using data from the UN Office on Drugs and Crime, Marsh calculates that only 1 per cent of homicides perpetrated in Asia and Europe—where homicide rates are low—are attributable to organized crime or gangs, while the proportion increases to 30 per cent in Latin America—where homicide rates are among the world's highest (Marsh, 2018, p. 13). Similarly, research in the United States has found that firearm violence—as it pertains to both victims and perpetrators—is usually concentrated in small 'social networks' that comprise members already exposed to gun violence; see Tracy, Braga, and Papachristos (2016); also noted in Marsh (2018, p. 14).

[40] See, for instance, Austin (1999) and Lumpe (2000). Similarly, some countries spearheading international SALW-related policy discussions in the 1990s considered non-state armed groups as illegitimate recipients of weaponry whose sources of supply needed to be curtailed. For instance, in the late 1990s Canada led an initiative to ban international arms transfers to non-state armed groups, which was ultimately unsuccessful (Capie, 2004, p. 10).

[41] See, for instance, Staniland (2017) and Weinstein (2006).

weapons. Florquin (2014b), which is included in the portfolio of publications, provides a summative analysis of this evolving research agenda until the early 2010s.

NOW READ SAMPLED PUBLICATION NO. 3: Florquin, Nicolas. 2014b. 'Armed Actors: A New Subject of Research.' In Batchelor, Peter and Kai Michael Kenkel, eds. *Controlling Small Arms: Consolidation, Innovation and Relevance in Research and Policy.* London: Routledge, pp. 102–17. 5,800 words; p. 135 of this thesis.

My early work on armed groups expanded empirical knowledge of insurgents', vigilante groups', and pro-government militias' patterns of acquisition of SALW, primarily in conflict settings in Africa. In Florquin and Berman (2005), we reviewed the SALW holdings and procurement patterns of 35 armed groups in West Africa, while my subsequent research examined these issues in Burundi, the Central African Republic, the Democratic Republic of the Congo (DRC), and Somalia.[42] Florquin and Pézard (2005) was among the first attempts to carry out field-based key informant interviews and focus group discussions with members of non-state armed groups to discuss SALW-related issues. As a whole, this research highlighted the importance of local sources of supply, such as battlefield capture and diverted state stockpiles, and therefore helped to generate a broader understanding of the multiple, context-specific, and dynamic sources of supply of the SALW that armed groups used in conflict situations—even when international transfers also took place (Khakee with Florquin, 2005). More recently I examined how groups outside of Africa—notably the perpetrators of terrorist attacks in France and members of right-wing movements in Ukraine (Florquin and Desmarais, 2018; Schroeder et al., 2019)—similarly sourced a significant part of their firearms locally.

This body of work helped to shift the SALW research and policy community's narrative from a focus on destabilizing international arms transfers to the recognition that a complex and fluid set of illicit arms and ammunition flows fuel conflict and violence. SALW scholars cited my research to argue that 'armed groups may change their acquisition strategies over time' (Marsh, 2007, p. 62). As Jackson (2010, p. 136) noted, my work also contributed to drawing attention 'to the misleading focus on international transfers at the expense of research on other sources of weapons', and to generating greater recognition of armed groups' reliance on locally sourced materiel. These conclusions also impacted the policy community. The African Union endorsed the findings and

[42] Florquin and Lombard (2006); Pézard and Florquin (2007); Florquin (2012); Debelle and Florquin (2015); Florquin and Seymour (2016).

recommendations of a regional study I recently coordinated that documented significant intra-regional sources of illicit SALW on the continent, including small-scale cross-border 'ant' trafficking, the diversion of national stockpiles, diversion from peace support operations,[43] the artisanal production of weapons,[44] and the illicit conversion of blank-firing weapons (Florquin, Lipott, and Wairagu, 2019, pp. 81–85). This is no small achievement, given that African leaders tend to favour a narrow interpretation of the SALW issue 'as one of authorised trade and illicit trafficking across international borders' (Muggah and Sang, 2013, p. 417). At the international level the shifting narrative was echoed by the consideration of a wider range of measures to tackle arms supplies in conflict zones, such as programmes to secure vulnerable state-held weapons and ammunition stockpiles.[45]

Several of the above studies also examined armed groups' internal regulations pertaining to their members' management, control, and use of weapons.[46] My early research on Mali, for instance, provided insight into the importance of ammunition supplies for armed groups and the intra-group policies they adopted to preserve their stocks. Malian former combatants explained how they would switch their automatic rifles to single-shot mode to avoid wasting cartridges, thereby also reducing the risk of stray bullets injuring civilians (Florquin and Pézard, 2005, p. 48). Drawing on these initial findings and on my experience at Geneva Call—where I took part in the mine action community's efforts to persuade armed groups to renounce the use of anti-personnel mines—I became increasingly interested in how groups' self-governance mechanisms affected the risk of SALW misuse (Florquin and Decrey Warner, 2008, pp. 20–22). I worked with experts in international humanitarian law to review weapons-related rules contained in armed groups' codes of conduct and other forms of internal regulations[47] and analyse these rules' relevance for preventing disproportionate, negligent, and accidental use of SALW, and for reducing the risk of accidental explosions in ammunition depots held by non-state actors (Florquin with Bongard and Richard, 2010, pp. 305–6). Research on armed groups' management, control, and use of SALW therefore generated a greater recognition of the roles the users of SALW could themselves potentially play

[43] See also Berman, Racovita, and Schroeder (2017).
[44] See also Nowak and Gsell (2018).
[45] Recent UN Secretary-General reports on SALW, for instance, have stressed the importance of weapons diversion and poor stockpile management in allowing 'rebels, gangs, criminal organizations, pirates, terrorist groups and other perpetrators to exponentially bolster their power' (UNSC, 2015, p. 1).
[46] Notably, Florquin and Pézard (2005), Florquin and Decrey Warner (2008), Florquin with Bongard and Richard (2010), Florquin (2012), and Debelle and Florquin (2015).
[47] For a detailed examination of insurgent armed groups' codes of conducts and other forms or self-regulation, see Bangerter (2012).

in preventing or reducing certain forms of SALW misuse.

In practice, engaging with armed groups on the issue of their weapons management policies is politically sensitive, and can be considered tantamount to providing them with illicit military support.[48] This is particularly problematic when considering armed groups designated as terrorist organizations (Florquin and Decrey Warner, 2008). Yet in some transitional contexts where disarmament is stalling—such as in Libya in 2012—the international community can have little choice but to work with armed groups to minimize the risks posed by the excessive amounts of SALW and unstable ammunition that these groups assembled during the conflict.[49] Similarly, in situations where security conditions remained volatile and where armed communities show no interest in surrendering their weapons—such as in Somaliland in the late 2000s—initiatives to secure these arsenals through the provision of gunlocks, for instance, appeared to help reduce arms theft and misuse by young community members (Florquin, Lynge, and Ljørring Pedersen, 2009). It is interesting to note here the relevance of this research for criminology, because the gunlock approach is in essence consistent with successful crime prevention strategies that have focused on reducing the opportunities for carrying out spontaneous crimes.[50]

With its peace support missions being increasingly confronted with complex scenarios, the UN began to recognize the need for 'second generation' DDR approaches, which in Afghanistan included the regulation of weapons management by certain armed groups rather than their disarmament (UNDPKO, 2010, p. 55). In 2018 the UN released a handbook on *Planning Effective Weapons and Ammunition Management in a Changing DDR Context* (de Tessières, 2018). Although it outlines a number of precautionary guiding principles, one of the handbook's units provides specific guidance for 'Supporting the [weapons and ammunition management] capacity of non-State armed groups' (de Tessières, 2018, p. 47). The recommended measures include moving armed groups' ammunition to secure storage areas located away from civilian dwellings and providing them with basic stockpile management advice to improve accountability with regard

[48] The DRC sanctions regime, for instance, forbids the 'provision of any assistance, advice or training related to military activities, to all foreign and Congolese armed groups and militias' (UNSC, 2003, para. 20).
[49] On the challenges of SALW control in post-2011 Libya, see McQuinn (2012) and Tartir and Florquin (forthcoming). On the wider imperative of 'talking to the enemy' for solving conflict, see Atran (2012).
[50] In Germany, for instance, the introduction in 1980 of fines for failing to wear a crash helmet contributed to a 60 per cent decrease in motorcycle thefts, which was not substituted by any noticeable increases in car or bicycle thefts (Mayhew, Clarke, and Elliott, 1989).

to their arsenals.[51] Another possible area of engagement with armed groups relates to preventing the use of explosive weapons in populated areas, which disproportionately victimizes the civilian population (Geneva Call, 2017). Armed groups may also consider specific arms control measures—ranging from the prohibition of the use of certain weapons to the withdrawal of weaponry from certain areas—in the context of humanitarian ceasefires, such as that called for by the UN Secretary-General during the COVID-19 pandemic (Yazgi, Giezendanner, and Shiutani, 2020). Given these policy developments and the ever-growing prevalence of conflicts—and post-conflict scenarios—involving non-state armed groups, the relevance of research on armed groups' SALW-related self-governance mechanisms can only be expected to grow.

Exploring replicability for urban gang research

An open question is whether the above advances in knowledge and practice on armed groups' acquisition, management, control, and use of SALW are of relevance to research and policy dealing with urban gangs. Weapons and firearms are in practice important instruments that gangs use to impose local forms of governance—or a 'sense of order and regularity onto a given social reality, context, or process' (Rodgers, 2020)—which often mirror the types of governance that states exercise. My early work noted that the symbolic attributes of firearms 'make them attractive for young men wishing to achieve power through association with or participation in violence' (Bevan and Florquin, 2006, p. 295), and can therefore represent a pull factor for joining and remaining in gangs. From the instrumentality perspective, reducing gang reliance on and use of firearms should yield positive results and could help to reduce the overall homicide rate, especially in locations where urban gangs account for most violence.[52]

In contexts not understood as war under international humanitarian law, the rationale for negotiating with gangs on their use of particular forms of violence and weapons is not straightforward. In the aftermath of the 2010 earthquake in Haiti, international humanitarian and development organizations negotiated with urban gangs, but such dialogue was limited to ensuring access to areas of Port-au-Prince controlled by these gangs to enable the delivery of aid (Florquin with Bongard and Richard, 2010, p. 308; Schuberth, 2017). Even such engagement of gangs on aid-related issues is contentious in the humanitarian field.[53]

[51] See de Tessières (2018, pp. 47–49).
[52] For a discussion, see Cook (2013, pp. 34, 52–54) and Marsh (2018, p. 13).
[53] See Bradley (2020).

In the United States interventions such as Boston's Operation Ceasefire in the 1990s used 'focused deterrence' strategies to prevent gang reliance on gun violence. These programmes subjected non-complying gangs to heightened and coordinated criminal justice responses and offered them carrots in the form of jobs and access to social services, and resulted in significant reductions of gang-related shootings (Braga, Hureau, and Papachristos, 2014). This approach involves heightened sanctions for firearms-related crime rather than the more inclusive types of negotiations taking place in conflict settings between practitioners and armed groups regarding the latter's behaviour and rules regarding the use of force and weapons. Public health approaches that focus on changing norms and social acceptance of gun violence among individuals involved with gangs may offer greater opportunities to influence gang rules and practices related to the control and use of firearms.[54]

Ethnographic gang research suggests that—at least in some cases—it is not just the weapons themselves gang members value, but rather possessing the skills to use them effectively. In Nicaragua the presence in gangs of individuals who had been trained in the use of firearms in the national military forces affected the evolution of both the structures of the gangs they joined and the types of violence that these organizations engaged in (Rodgers, 2017, p. 653). Generations of gangs that lacked internal firearms expertise were exposed to higher numbers of defective weapons and firearms-related accidents, while those that could most effectively deploy and use firearms were the most feared by their enemies (Rodgers, 2017, pp. 655–57).[55] While countering the symbolic and practical value of firearms for gang members is undoubtedly a significant challenge, more targeted research on the policy implications of the above findings would help to shed light on the utility of engaging with urban gangs with regard to their firearms-related self-governance mechanisms, as part of broader strategies to reduce and prevent gang violence.

Developing a research agenda on SALW and PSCs

The global growth of the private security sector in the first decade of the 21st century raised concerns among both the public and academia over its implications for security governance. PSCs' use of force and military-grade weaponry in conflict situations stirred controversy due to high-profile incidents, such as Blackwater personnel's killing of civilians in 2007 in Nisoor Square, Baghdad

[54] See, for instance, the Cure Violence model developed in Chicago (Butts et al., 2015).
[55] Similarly, research on Congolese gangs in Brussels has highlighted that the most feared and respected gang members were those who were trained and able to use their bladed weapons to injure without killing. In contrast, untrained 'children' who engaged in lethal stabbings were not equally respected (van Hellemont, 2015, p. 222).

(Scahill, 2007; Glanz and Lehren, 2010). During this period, and as a response to the downsizing of public security institutions, PSCs operating in stable societies were also increasingly being entrusted with security functions that were previously assigned to the state—including prison surveillance, airport security, and immigration control. While a rich literature focused on discussing the implications of such neoliberal forms of governance and implications for the state monopoly on coercive force,[56] it generally did not examine the specific issues surrounding PSCs' acquisition, management, control, and use of SALW.

In the early 2010s, in response to this gap, the Small Arms Survey endeavoured to map SALW issues related to the operations of PSCs. The types of weapons that PSCs deployed in conflict zones and the apparent lack of systematic regulatory controls over the SALW held by PSCs in both conflict and non-conflict settings were central concerns. As non-state actors that legally perform security functions and—in some jurisdictions—are allowed to hold and use firearms in their work, PSCs' SALW holdings might be misused or diverted to the illicit market if they are not adequately managed and regulated. Florquin (2011), which is included in the portfolio of publications and was published in the 2011 Small Arms Survey yearbook, assessed the scale of global PSC firearms holdings, as well as regulatory gaps relating to the acquisition, management, control, and use of these weapons. Methodologically, and consistent with the above approach to researching armed groups, it drew on key informant interviews with representatives of PSCs and members of their personnel, in addition to meetings with contracting governments, civil society groups, and academic experts working on PSC accountability. Follow-up chapters examined the stand-off that took place between Somali pirates and PSCs protecting ships at sea in the early 2010s, including the challenges associated with their use of force and firearms at sea, and PSCs' use of contentious and poorly monitored 'floating armouries' (Florquin, 2012, pp. 191–92; Chapsos and Holtom, 2015, p. 219).

NOW READ SAMPLED PUBLICATION NO. 4: Florquin, Nicolas. 2011. 'A Booming Business: Private Security Companies and Small Arms.' In Small Arms Survey. *Small Arms Survey 2011: States of Security*. Cambridge: Cambridge University Press, pp. 101–33. 13,700 words; p. 156 of this thesis.

This body of work highlighted important gaps in the regulation of firearms held by the private security industry and the relevance of the issue in both conflict and non-conflict settings. For the

[56] For instance, Abrahamsen and Williams (2009) and Krahmann (2009).

SALW control community it highlighted the disconnect between the private security sector's assurances that PSC personnel only perform defensive and protective functions and the undeniably offensive nature of some of the weapons deployed by personnel in conflict zones—including fully automatic machine guns and rocket-propelled grenade launchers. It also underscored previously under-documented ways in which legally held firearms were being diverted into the illicit markets due to theft, negligence, or PSCs' failure to properly dispose of weapons at the end of assignments (Florquin, 2011, pp. 119–24).

The research and dissemination of findings occurred in parallel to the elaboration and rollout of a multi-stakeholder self-governance mechanism for PSCs—the International Code of Conduct for Private Security Providers (ICoC). This development made it possible for me to engage with representatives of the industry, contracting governments, and civil society actors in a major process of policy formulation. Fifty-eight PSCs adopted the ICoC in November 2010, thereby committing to a set of common international principles that included general provisions governing the acquisition, management, control, and use of firearms by PSC personnel (FDFA, 2010, paras. 31–32, 56–62; Florquin, 2011, p. 125). By February 2020, 95 PSCs had become members of the ICoC Association (the ICoC's governance body) and were either already certified as complying or in the process of seeking certification of compliance with the standards (ICoCA, n.d.). Subsequent relevant normative developments have included the inclusion of firearms acquisition and management provisions in the UN *Guidelines on the Use of Armed Security Services from Private Security Companies*,[57] in the toolkit on *Addressing Security and Human Rights Challenges in Complex Environments*,[58] and in the international standard entitled *Management System for Private Security Operations—Requirements with Guidance for Use*.[59] As with any international or multi-stakeholder initiatives, the most acute future challenges lie in promoting implementation, monitoring compliance, and ensuring accountability. Documenting good practices in these three areas and supporting the exchange of lessons learned among the different initiatives would therefore help to assess their impact and the extent to which they help to reinforce state-led regulations.

The Florquin (2011) chapter also broke new empirical ground by documenting the growth of the PSC industry in non-conflict settings, including regions affected by high rates of firearms-related

[57] See UNDSS (2012).
[58] See DCAF and ICRC (n.d.).
[59] See ISO 18788:2015(en), available at <https://www.iso.org/obp/ui/#iso:std:iso:18788:ed-1:v1:en>.

crime. By 2011 the number of private security personnel had grown significantly to surpass that of police officers at the global level: Latin America in particular stood out due to its disproportionately high estimated ratio of 30–80 firearms per 100 private guards (Florquin, 2011, pp. 101–2, 115). In 2016 the UN Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean (UNLIREC) and the Geneva Centre for Security Sector Governance (DCAF) undertook a regional assessment of the challenges associated with PSC firearms in Latin America and issued detailed recommendations for addressing them, using my work as the baseline for gathering new data and information (Fleitas, Espinoza, and Perret, 2015; UNLIREC and DCAF, 2016). The two organizations subsequently implemented projects in the region 'to promote improved firearms and ammunition control by the private security sector on one hand, and on the other hand, to strengthen good governance, regulation and oversight by governments of this sector' (UNLIREC and DCAF, n.d.).

Overall, my research contributed to expanding the SALW community's agenda from an initial focus on international trafficking supplying insurgent groups to a more comprehensive examination of armed actors' patterns of SALW procurement, management, control, and use. My work also examined a broad range of actors able to contest the state's monopoly of coercive force, including gangs and PSCs operating outside conflict zones, thereby building further bridges with the fields of crime prevention and security sector governance. This shift impacted policy through the greater recognition of armed actors' local sources of SALW procurement and through the consideration of self-governance initiatives inclusive of the SALW users themselves—whether armed groups or PSCs—which can serve to complement the state-centric international SALW control framework.

INSTRUMENTS: THE DEVIL IS IN THE DETAIL

A common thread in research on SALW uses and users has been the demonstration that not all weapons carry the same risks and threats. The findings on the effects of violence highlighted the disproportionate costs to societies inflicted by firearms violence when compared with violence involving bladed instruments. Research on armed actors showed that users of SALW can self-regulate the management and use of their SALW stockpiles in ways that may reduce violence—applying, for instance, specific controls on the use of ammunition. Moreover, 'high-risk' actors—such as non-state armed groups, gangs, and PSCs—probably only hold and use a small fraction (less than 2 per cent) of the global firearms stockpile (Florquin, 2014b, p. 107). It is therefore not only justified, but also necessary to invest in research that can help to prioritize the types and sources of weapons that are more likely to fall into the hands of armed groups or lead to violent

outcomes.

What types of SALW have the most impact on the nature, scale, and effects of armed violence? This question has been at the centre of firearms-related academic and policy debates for decades. This is particularly true in the United States, where Zimring, for instance, compared the lethality of wounds inflicted by different types of firearms in the early 1970s, and found that the use of larger calibre firearms was also more likely to result in death than the use of other guns (Zimring, 1972). In the rest of the world, however, detailed data on the types, models, makes, and calibres of illicitly used firearms is scarce. Official nationwide firearm seizure statistics, for instance, are often just the tip of the iceberg and aggregate the seized equipment into broad categories that do not make it possible to identify the emergence of newly trafficked models of firearms (Karp, 2018, pp. 5, 7). Data on seized ammunition is barely reported and often lacks basic disaggregation by calibre. Improving the availability and quality of data on the volume and nature of illicit arms and ammunition flows is therefore critical for prioritizing policy-making with regard to SALW that are most ‘at risk’ of being misused.

In the past 15 years SALW researchers have devoted considerable effort to compiling detailed information on SALW that are trafficked, seized, or misused. My contributions, as summarized in this section, have focused on implementing innovative data collection methods in data-scarce countries. Specifically, I developed approaches to monitor arms and ammunition prices at illicit markets in conflict-affected areas, and generated detailed profiles of the arms and ammunition held by armed groups in Africa and terrorist networks in Europe.

Monitoring SALW and ammunition prices in conflict-affected areas

Monitoring the prices of firearms and ammunition on the black market is an important source of data for intelligence-led policing that relatively few academics have sought to exploit. In economic terms, prices are a factor of both supply and demand, and therefore can potentially shed important light on the availability of illicit arms and ammunition. Criminologists in the United Kingdom, for instance, analysed firearms and ammunition prices—obtained from interviews with convicted criminals—to map the country’s firearms black market, identify the types of weapons most in demand, and gauge the effects of various interventions and regulations on criminals’ access to firearms (Hales, Lewis and Silverstone, 2006, pp. 39–58). SALW researchers have also inquired about the illicit market prices for firearms in field research undertaken since at least the early

2000s.[60] Compiling data from such case study research and other open source information such as media reports, some economists have produced quantitative analyses comparing prices and their possible drivers across countries, focusing primarily on prices for AK-pattern rifles (Killicoat, 2007). Media sources, however, often tend to refer to a variety of AK-pattern rifles simply as 'Kalashnikovs', which fails to recognize that some 200 variants of the rifle have been produced in some 30 countries, and can be sold on a single illicit market at very different prices (Florquin and Krause, 2015; Florquin, 2014a). Information on the context of illicit transactions, the specific models and quantities of firearms involved, and their condition is often also absent from open sources. Finally, studies rarely covered ammunition prices, in spite of the importance of ammunition supplies for sustaining conflict-related violence.[61]

Inspired by the price-monitoring approaches used in criminology and intelligence-led policing, I became interested in applying a more systematic and field-based approach to collecting data on the prices of arms and ammunition in conflict environments. Access to detailed information on illicit market prices is generally challenging, but nevertheless possible in some regions affected by conflict and where the markets have become relatively open. In the early 2010s the Small Arms Survey was undertaking field research in several contexts affected by armed violence where local arms markets were both vibrant and relatively accessible. In an effort to address the knowledge and data gaps highlighted above, I worked with trusted local data collectors to systematically record price data on a bi-monthly basis in Lebanon, Pakistan, and Somalia during the period February 2011–September 2012. A comparative analysis of price trends in the three case studies was published in the 2013 Small Arms Survey yearbook (Florquin, 2013). In Florquin (2014a), which is included in the portfolio of publications, I provide more in-depth analysis of the Lebanon case study, which covered the price variations of 19 specific models of SALW and their associated ammunition. The Lebanon research was particularly significant in that the study period corresponded with the onset of civil war in neighbouring Syria, and therefore made it possible to statistically compare price data with reported levels of conflict-related violence in Syria.

NOW READ SAMPLED PUBLICATION NO. 5: Florquin, Nicolas. 2014a. 'Arms Prices and Conflict Onset: Insights from Lebanon and Syria.' *European Journal on Criminal Policy and Research*, Vol. 20, No. 3. May, pp. 323–41. 8,600 words; p. 194 of this thesis.

[60] See Demetriou (2002, pp. 15–17).
[61] See Florquin (2013, pp. 252–53; 2014a, pp. 324–26).

This research demonstrated the feasibility and utility of monitoring the prices of a variety of weapons models and their associated ammunition in regions affected by conflict. While systematic price monitoring may not be possible in countries where illicit markets are more covert, this research forms a useful starting point for future efforts. Price analysis has been mainstreamed and more detailed with respect to the models being priced in several studies, for instance in Europe (Duquet and Goris, 2018, pp. 126–28). Eurostat referenced the Lebanon research as part of its review of methodological options available for 'expanding the coverage of illegal economic activities' (Eurostat, 2019, p. 37). The techniques used are also relevant to researching and monitoring arms sales on the Dark Web,[62] given the high volatility of prices observed on its platforms (Broadhurst et al., forthcoming).

Importantly, the research found a strong association between SALW and ammunition prices, on the one hand, and rapidly escalating armed violence, on the other hand.[63] The increasing conflict in Syria created a dramatic shock affecting demand for SALW in Lebanon that seemed to trump the myriad other supply and demand factors that normally influence SALW markets. The findings therefore provide important nuance to previous assertions that the availability of cheap SALW—such as those remaining from previous conflicts—is a factor that often contributes to the onset of conflict (Killicoat, 2007; Collier et al., 2003, p. 70). Bara (2016, pp. 39–41) cited my pricing research to argue that

> 'although ongoing conflicts lead to the emergence of illicit arms markets in the first instance, the mere existence of these markets does not automatically translate into an increased availability of weapons, at least not until the end of a conflict leads to a market oversupply'.[64]

Indeed, the Lebanon and Syria study showed that prices for common weapons of war can be high even before the outbreak of violence, and confirms the conclusions of other case study research that observed the scarcity of weaponry in the early stages of some insurgencies.[65] As Marsh (2017)

[62] The Dark Web can be defined as self-regulated parts of the Internet accessible via specific protocols (for example, TOR or I2P). See Rhumorbarbe et al. (2019) and Rossy et al. (2018).
[63] Reports of similar price trends observed by war reporters in Syria confirm the validity of this observation (Chivers, 2012; Spleeters, 2013). This relationship is, however, not necessarily generalizable to contexts marked by longer-term but also more volatile insecurity, such as protracted conflicts; see Florquin (2013, pp. 270–73).
[64] See also Bourne (2012, pp. 33–34).
[65] Such as in northern Mali in the 1990s, and in Misrata, Libya, in 2011 (Pézard and Florquin, 2005; McQuinn, 2012). Interestingly, given the high rates of general civilian firearm ownership in the United States, ethnographic research in Chicago's South Side has similarly illustrated how

states, this suggests that the accessibility thesis, which claims that more SALW lead to more violence, is not necessarily linear in conflict zones, and contributes to dispelling the myth of a world flooded with vast amounts of SALW leading inexorably to violence and conflict, especially in the developing world.[66]

This research also helped to underscore the importance of ammunition supplies in fuelling conflict and violence—which has been an important and recurring theme for SALW researchers.[67] While both weapons and ammunition are in high demand during the onset of conflict, the price of weapons is expected to stabilize once armament levels have peaked, because SALW are durable, reusable goods. On the other hand, ammunition is expendable and likely to remain in high demand throughout the conflict. My research in Lebanon confirmed this theory, documenting how prices for FN FAL rifles started to decrease towards the end of the study period, while the associated 7.62 x 51 mm ammunition remained in high demand (Florquin, 2014a, Fig. 2). Moreover, as Krause (2017, p. 11) summarizes, my research showed how

> 'in some cases the value and price of weapons in the black market depended on availability of ammunition, not the intrinsic value of the weapon itself, and that in some cases the availability of ammunition (or its absence) could shape the tactics of non-state armed groups, making them less likely to 'waste' ammunition and in particular to attack civilians indiscriminately.'

These are significant findings, given that ammunition transfers remain poorly regulated at the international level when compared with those of weapons (Parker, 2014, p. 82).[68] The impact of ammunition flows is a subject that the academic gun violence literature has very seldom addressed,[69] and for which more sustained inquiries could yield meaningful advances in knowledge of relevance to the accessibility thesis.

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gangs' access to firearms is not straightforward, and how gang members relied on intermediary brokers for acquiring guns discreetly, but at prices that exceeded those on the legal market (Cook et al., 2007).

[66] Bourne (2007, p. 34) first referred to this myth as an 'amorphous image', stressing also the supposed role of arms brokers in facilitating access to these weapons for anyone able to purchase them.

[67] See, for instance, Anders (2006a; 2006b).

[68] Research on the impact of ammunition availability on levels of violence nevertheless remains highly relevant to ongoing international processes concerned with the diversion of ammunition, such as the 2020 UN Group of Governmental Experts on Problems Arising from the Accumulation of Conventional Ammunition Stockpiles in Surplus.

[69] Tita et al. (2006) and de Vries (2013) are notable exceptions.

Profiling illicit SALW and ammunition in Africa and Europe

In the last 15 years UN monitoring bodies, research organizations, war reporters, and activists have been documenting SALW and ammunition found in situations of armed conflict with increasing precision (Florquin and Leff, 2014, p. 179). Images of SALW and their markings often make it possible—in consultation with weapons experts—to identify several important characteristics of illicit SALW such the type, model, calibre, producer, and period of manufacture. This information can help build datasets or 'profiles' of the types and models of SALW and ammunition circulating in different areas or held by different groups.

Small Arms Survey researchers first developed protocols for profiling SALW ammunition in the mid-2000s in the context of case study research in eastern Africa that helped to document, for instance, local armed groups' access to government-issued cartridges (Bevan, 2008). In Florquin and Leff (2014) I collaborated with the Survey's South Sudan project coordinator to generate one of the first meta-analyses of ammunition profiles, which we had coordinated between 2011 and 2013 in seven countries and territories.[70] UN Groups of Experts monitoring arms embargoes also adopted the practice, and have become regular and important producers of detailed information on SALW held by armed groups in Africa.[71] Through the recent work of British firm Conflict Armament Research, weapons and ammunition profiling has been implemented at a quasi-industrial scale in the main conflicts in the Middle East and parts of Africa.[72] More discreet efforts have also taken place in Central America (UNLIREC, n.d.).

SALW profiling can be subject to important methodological caveats, notably limitations regarding the representativeness of the materiel being examined. In conflict areas researchers typically access equipment seized from specific armed groups that is then stockpiled by state security forces or other armed groups. Not only are these samples small parts of the full universe of illicit weapons, but there is also a risk that the forces controlling the equipment manipulate the samples that researchers have access to. Reporting the context in which the information was collected and acknowledging data limitations and caveats are therefore particularly important. When undertaken methodically, SALW profiles can nevertheless help to identify some of the armed groups' sources

[70] These profiles were compiled in Côte d'Ivoire, Libya, Mali, Somalia, South Sudan, Sudan, and Syria.
[71] See, for instance, the latest report of the UN Group of Experts on the DRC (UNSC, 2020).
[72] See, for instance, CAR (2017).

of supply and detect possible new illicit flows of SALW taking place between different regions or actors. For instance, my co-authored chapter revealed the ongoing prevalence of aging, decade-old ammunition across conflict zones, illustrating the importance of preventing the diversion of surplus state stockpiles to conflict actors. It also identified regional producers whose recently manufactured cartridges quickly found their way into the hands of armed groups (Florquin and Leff, 2014, pp. 180, 192). Such findings were important in that they further debunked the myth of a primarily imported SALW proliferation problem in Africa, and helped to draw more attention to local and regional sources of supply and diversion.

Researchers have undertaken comparatively little work of this kind in more resourced and stable regions such as continental Europe (Florquin and Krause, 2015). In fact, a recent assessment funded by the European Commission concluded that data on the 'availability of various types of weapons … and developments in this regard are generally fragmented or often even lacking' (Duquet and Goris, 2018, p. 162). Law enforcement agencies tend to prioritize the urgent need to identify and apprehend perpetrators over lengthier and more procedure-oriented investigations[73] into the sources of the firearms used in crime (Bowen and Poole, 2016, pp. 3–6). Moreover, the proportion of seized weapons and ammunition that is submitted to forensic laboratories for analysis varies considerably in Europe—in France, this ratio was estimated to remain below 50 per cent as of 2016 (Florquin and Desmarais, 2018, p. 173). In short, European law enforcement statistics on illicit firearms are meant to support crime solving, but are often not stored or shared in ways that can enable meaningful trend analysis [74]

Contrary to African countries in the conflict-ridden Sahel—where foreign experts and organizations are often the main actors producing weapons research[75]—European states can rely on a robust network of national forensic and ballistics experts with significant firearms expertise.[76] European gun violence research, which is often undertaken in cooperation with such experts, has been successful in identifying new proliferation trends, such as the growing prevalence and criminal use of converted firearms (Hannam, 2010; de Vries, 2012). Converted firearms are objects that look like firearms but were initially designed to be incapable of firing a projectile, and were subsequently

[73] Especially in international cases requiring international cooperation.
[74] See Duquet and Goris (2018, pp. 164–65), Florquin and King (2018, pp. 34–36), and Squires et al. (2020, p. 9).
[75] See Desmarais (2018).
[76] For instance, the European Network of Forensic Science Institutes Working Group on Firearms and Gunshot Residue.

illegally transformed into real and lethal firearms. They include, for instance, deactivated and a range of imitation firearms modified to fire live ammunition. I became involved in monitoring the evolution of this particular threat from 2016, including the emergence of new models of cheap and readily convertible firearms of Slovak origin—including so-called acoustic expansion weapons and firearms modified to fire poorly regulated 'Flobert' caliber ammunition[77]—and the proliferation of convertible Turkish-manufactured alarm handguns (Florquin and King, 2018). My research in this area allowed forensic scientists working in countries less exposed to the problem to better anticipate and understand the traces that such conversion processes may leave on spent ammunition retrieved at crime scenes.[78] At the policy level, the research helped to underscore inconsistent national regulations and specific regulatory gaps, which the UN, the European Union (EU), the Organization for Security and Co-operation in Europe, and other multilateral platforms have sought to address.[79]

In France there had been little academic inquiry into the illicit firearms market before the 2015–16 wave of jihadi terrorist attacks. The chapter by Florquin and Desmarais (2018), which is included in the portfolio of work, is in fact the first in-depth analysis of illicit firearms in France, the ways in which terrorist networks have been able to access firearms, and national policies that have been developed in response. The chapter was published in 2018 in a high-profile book produced in the framework of the EU-funded project on Studying the Acquisition of Illicit Firearms by Terrorists in Europe (SAFTE) (Duquet, 2018).[80] It draws on detailed crime gun and firearms crime data collected from a range of French institutions, including forensic laboratories.

NOW READ SAMPLED PUBLICATION NO. 6: Florquin, Nicolas and André Desmarais. 2018. 'Lethal Legacies: Illicit Firearms and Terrorism in France.' In Duquet, Nils, ed. *Triggering Terror: Illicit Gun Markets and Firearms Acquisition of Terrorist Networks in Europe.* Brussels: Flemish Peace Institute, pp. 171–237. 18,000 words; p. 217 of this thesis.

[77] Generally 4 or 6 mm rimfire.
[78] Author written correspondence with a forensic scientist, 20 August 2020.
[79] See EU (2017), OSCE (2018), and UNGA (2018, paras. A.3.b and c). In Europe the Small Arms Survey has also worked with the European Multidisciplinary Platform against Criminal Threats firearms platform to monitor the implementation of the new EU regulations (see Jongleux and Florquin, 2020).
[80] The SAFTE project also produced nine other case studies and a synthesis report coordinated by the Flemish Peace Institute (Duquet, 2018). In March 2019 the project received the Counter Terror Award in the category 'Counter Terrorism Project (International)' from the *Counter Terror Business* magazine. See <http://awards.counterterrorbusiness.com/>.

The chapter represents a rare effort to date to use forensic and ballistics data for profiling the weapons used in terror attacks—and crime more generally—in Europe. The detailed information we compiled on more than 50 firearms seized in the context of eight terrorism-related cases, for instance, highlighted the diversity of weapons models held by terrorist networks—ranging from antique and Second World War-era handguns, shotguns, and converted firearms to sub-machine guns and a variety of AK-pattern rifles (Florquin and Desmarais, 2018, Table 6). While the mainstream media were quick to point fingers at the Balkans region—and even Libya—as possible sources for the AK-pattern rifles used in the Paris attacks, the analysis of the materiel recovered and tracing information obtained pointed to the importance of more proximate sources. A significant number of the weapons originated from intra-European sources, including the trafficking in readily convertible and fully automatic acoustic expansion firearms from Slovakia, the theft of legally held handguns in Belgium and France, and purchases made on local black markets through the perpetrators' childhood acquaintances (Florquin and Desmarais, 2018, pp. 207, 210–12). The presence in the terrorist arsenals of firearms diverted from the civilian market—such as the stolen and antique firearms—contrasts with the situation in war zones, where national stockpile diversion, trafficking, donations from foreign sponsors, and battlefield capture are arguably more significant sources of weapons and ammunition for armed groups (Marsh, 2018, pp. 11, 15).

The terrorist use of converted firearms also extended beyond France and represents a significant challenge for firearms policy. In July 2016 the perpetrator of the Munich attack used a converted Glock pistol purchased on the Dark Web (Florquin and King, 2018, p. 38). On the one hand, the trafficking in these weapons in Europe underscores the importance of ensuring that firearm regulations are harmonized in regions where population movements are unrestricted. The fact that some European states allowed the sale of some types of firearms with few controls while others did not was a key factor in these weapons being converted and trafficked throughout Europe. This has also been a challenge in the United States, for instance, where the impact of handgun bans in some cities has been difficult to measure, given that residents could readily purchase firearms in neighboring jurisdictions (Cook, 2013, p. 52). On the other hand, this research demonstrates terrorists' and criminals' readiness to use cheap 'junk' firearms that can be acquired more discreetly and locally without needing to rely on high-profile transnational criminal networks.[81] Other manifestations of this trend include the use of a homemade—but thankfully deficient—'Luty' sub-

[81] Challenges associated with widely available cheap firearms in Europe are reminiscent of the 'Saturday night special' problem in the United States in the 1990s. These low-cost firearms were manufactured in the United States to standards that did not meet those applied to imported firearms, and were, at the time, three times more likely to be used in crime as other handguns (Wintemute, 1994).

machine gun by the perpetrator of the Halle synagogue attack in 2019 (TFB, 2019). Terrorist and criminal interest in such weapons—even if they remain for now generally less reliable than industrial products—is particularly concerning, given the rapid development of technologies enabling the production of 'desktop firearms' at home (Hays and Ivan with Jenzen-Jones, 2020).

Overall, my research on the instruments of violence contributed to a more precise understanding of the most problematic types of SALW in various contexts. I was able to replicate black-market price-monitoring techniques usually employed for policing in conflict areas, and found—of relevance to the accessibility thesis—that ammunition prices and conflict-related fatalities can be strongly correlated. Additional systematic and longitudinal field research on arms and ammunition prices in various settings has the potential to yield further insights into the nature of this relationship. The detailed profiles of SALW and ammunition I generated have consistently underscored the importance of local sources of weapons for armed, criminal, and terrorist groups. Particularly significant is the finding that many of them have turned to types of weapons previously considered 'junk', including converted and homemade firearms, posing significant challenges in regions with open borders yet inconsistent regulations. This is an area where gun violence academics and SALW researchers share complementary expertise, and where cooperation may yield more policy-relevant findings.

CONCLUSION

The SALW research community has generated knowledge of significance for both its international policy field and academic inquiry. The body of work included in this portfolio highlights significant and innovative personal contributions at the methodological, empirical, conceptual, and policy levels that—as documented in this statement—have been picked up by practitioners and policy-makers and are of relevance to scholars in public health, conflict and development studies, and criminology, among others (see Annexe 1).

With respect to uses, the application of public health and mixed social science methods has helped to reduce knowledge gaps on the effects of SALW in developing and post-conflict societies. Estimates of the costs of violence in developing countries demonstrated the instrumentality of SALW—i.e. the more serious societal impacts of firearm violence than those of violence involving other instruments. SALW research on users contributed to expanding the agenda from an initial focus on international trafficking to supply insurgent groups to a more comprehensive examination of the patterns of SALW procurement, management, control, and use among a broad range of

actors able to contest the state's monopoly of coercive force. My work on the instruments of violence contributed to an increasingly precise understanding of the most problematic types of SALW held by criminal, terrorist, and non-state armed groups in Africa and Europe. Finally, replicating field-based black-market price-monitoring techniques in conflict areas showed that ammunition prices and war-related fatalities can be strongly correlated, and provides an important lead for further examining the accessibility thesis—i.e. the link between SALW availability and levels of violence.

So, what next? In the face of an overwhelming global stockpile of more than one billion firearms (Karp, 2018), the prioritization of research into the most dangerous uses, users, and instruments appears to be an ineluctable necessity for the SALW community. This portfolio documented some of the SALW research community's successes in identifying some of the most problematic dimensions of the SALW issue. In spite of these advances, however, important gaps remain. The geographical expansion of global datasets on violent deaths, for instance, has not yet been matched by an improvement in the depth of the available data.[82] Research on engagement with armed actors on SALW-related issues is still emerging and often sensitive, especially with respect to urban gangs. Investigations into the instruments of violence have become technical, specialized, and increasingly secretive, at the risk of losing their academic objectivity and impact. Crucially, SALW researchers have generally shied away from discussing the central accessibility and instrumentality theses that assume causality between access to SALW and levels of violence. The contributions highlighted in this thesis suggest that SALW researchers can be bolder in engaging with these central academic—but also highly policy-relevant—questions. I would highlight three main areas for future focus that would assist the SALW research field to bridge the gap with academia and consolidate its relevance.

Firstly, there is a need to consolidate the lessons learned from SALW researchers' extensive use of social science methods, including surveying, and to analyse their implications for the measurement of the key variables concerned in the accessibility thesis—and, notably, SALW availability and the incidence of violence. US gun violence researchers regularly capitalize on the lessons they have learned in their research activities, and have highlighted methodological challenges and biases related to the use of household surveys that are relevant to the broader

[82] Indeed, the disaggregation of these statistics by basic variables such as victims' age and sex is still not possible for more than three-quarters of the world's countries (Alvazzi del Frate, Hideg, and LeBrun, 2020, p. 4).

social sciences.[83] SALW researchers have acquired considerable experience of implementing social science methods in challenging post-conflict and transitioning environments, and documenting the lessons they have learned would be of great interest to academia.

Secondly, SALW researchers need their own Boston Operation Ceasefire gun project experiment—a high-profile impact evaluation of interventions providing compelling measures of success or failure. While they have undertaken a number of baseline assessments and post facto, mainly qualitative evaluations of interventions,[84] SALW researchers have yet to engage in the same type of embedded cooperation with practitioners and authorities that US gun violence researchers have showed can take place. Engaging in scientifically robust evaluations of the most novel interventions—such as those focusing on the management of SALW by armed groups and gangs, or community-based efforts to reduce cross-border trafficking in SALW—would represent significant contributions to both the SALW policy field and gun violence research.

Finally, various streams of SALW research—including profiling and pricing studies, as well as inquiries among a range of armed groups—have highlighted the importance of ammunition flows to sustaining conflict and violence. US gun violence researchers have, however, largely overlooked the question of ammunition. Cooperation to increase knowledge in a broader range of settings on the types of ammunition used in violence, its black-market price variations, the main sources of supply, and the effects of its availability—and regulation—on levels of violence has the potential to represent a major contribution to the accessibility thesis discussion.

Moving forward on these priorities will require resources and continuing engagement from a range of actors to allow SALW researchers to think beyond the scope of the short-term projects they usually work on. Encouragingly, and in spite of constant funding constraints in the United States,[85] there is renewed appetite for harnessing the experiences and lessons learned from international SALW research, including within the public health community (Davis et al., 2018; Kurek, Ara Darzi, and Maa, 2020). Developing a more coherent global research agenda on SALW and ammunition is critical at a time of financial duress, when multiple crises highlight the ever-growing importance of sound evidence for policy-making in this field.

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[83] For instance, Cook (2013, pp. 22, 39) observed biases—including gender-related ones—relating to using surveys for estimating the prevalence of gun ownership, the incidence of gunshot wounds in assaults, and the frequency with which guns are used in self-defence. See also Kleck (2004) and Karp (2018).
[84] I have had the privilege of taking part in one of the early efforts—see Florquin and Ali (2004).
[85] See Cook (2013, fn. 2) and Everytown (2020).

Annexe 1. Summary of the contribution to knowledge made by the author's work

Type of contribution	Uses	Users	Instruments
Methodological	- Development of mixed-methods research protocols for country SALW assessments - Application of public health methods for estimating the costs of SALW violence in developing settings	- Development of research protocols for undertaking focus group discussions and key informant interviews with a range of non-state armed actors (armed groups, former combatants, extremist movements, PSCs)	- Application of intelligence-led policing approaches to monitor black-market SALW and ammunition prices in conflict regions - Use of forensic datasets to profile illicit firearms in Europe
Empirical	- Country assessments that expanded the knowledge base on SALW effects in developing and post-conflict countries (Kosovo, Montenegro, Burundi, Kazakhstan, Libya, and Ukraine) - Piloting of costing methodology in Brazil and Colombia	- Case studies on armed groups' procurement, management, and use of SALW in Africa (including fieldwork in Burundi, the DRC, and Mali) - Mapping study on the regulatory gaps surrounding PSCs' procurement, management, control, and use of SALW	- Black-market price analysis in Lebanon, Pakistan, and Somalia - Comparative analysis of illicit ammunition profiles in Africa and the Middle East - Detailed profiles of illicit weapons used by terrorist actors in France and models of converted firearms in Europe
Theoretical	- The differentiated costs—i.e. instrumentality—of firearms vs. other weapons as they affect the severity of violence in developing countries - The multifaceted impacts of SALW violence in developing settings	- The importance of local sources of SALW for non-state armed groups, contradicting previous misconceptions on the primacy of international trafficking - The potential for armed actors' self-governance measures to limit SALW diversion and misuse—of relevance to the accessibility thesis	- The importance of ammunition supplies in fuelling and sustaining conflict—of relevance to the accessibility thesis - The varied SALW arsenals of terrorist actors, not limited to 'Kalashnikovs', and their reliance on local sources - The global spread and increasing threat of 'junk'/converted firearms
Policy relevance	- Protocols for SALW surveys and costing violence feeding into the development of regional and global standards (SEESAC, MOSAIC, WHO) - UN member states taking the issue of armed violence in non-conflict settings forward in SDG 16	- Growing international focus on improving stockpile management to prevent the diversion of SALW - UN uptake of the need to address armed groups' management of arsenals in complex transitional settings - Inclusion in the International Code of Conduct and other regulatory mechanisms for PSCs of provisions on SALW acquisition, management, control, and use	- Continuing international interest in addressing gaps in regimes to regulate ammunition, despite political sensitivities - Expanding partnerships with African and European organizations for mapping regional illicit SALW and ammunition flows - Global awareness and uptake of the issue of firearms conversion (UN, EU, OSCE)

Type of contribution	Uses	Users	Instruments
Relevant author (co-) publications (selected portfolio in bold)	Khakee and Florquin (2003) Florquin and O'Neill Stoneman (2004) Florquin and Wille (2004) **Florquin (2006)** **Pézard and Florquin (2007)** Florquin, Aben, and Karimova (2012) Florquin, Kartas, and Pavesi (2014) Florquin and Pavesi (2015) Schroeder et al. (2019)	Berman and Florquin (2005) Florquin and Pézard (2005) Khakee with Florquin (2005) Bevan and Florquin (2006) Florquin and Decrey Warner (2008) Florquin, Lynge, and Ljørring Pedersen (2009) Florquin with Bongard and Richard (2010) **Florquin (2011)** Florquin (2012) **Florquin (2014b)** Debelle and Florquin (2015) Florquin (2019) Schroeder et al. (2019) Tartir and Florquin (forthcoming)	Demetriou and Florquin (2003) Khakee with Florquin (2005) Florquin and Pézard (2005) Florquin (2013) **Florquin (2014a;** 2014c) Florquin and Leff (2014) Debelle and Florquin (2015) Florquin (2018a; 2018b) **Florquin and Desmarais (2018)** Florquin and King (2018) Florquin, Lipott, and Wairagu (2019) Schroeder et al. (2019) Jongleux and Florquin (2020)

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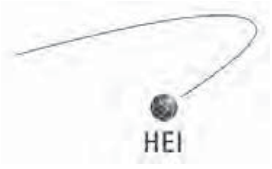

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CONTENTS

Physical therapists strap a gunshot victim to a robot-assisted walking device in Chicago in June 2005.
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The Instrument Matters

ASSESSING THE COSTS OF SMALL ARMS VIOLENCE

8

INTRODUCTION

> My life has not been easy the last few years. I've gone through three robberies and the death of my wife, who left me six children, including a baby. I was having a hard time paying for food and school. One day [. . .] a friend gave me FBU 15,000 [USD 14] to start a business making ropes. People thought I had a lot of money. [One evening], armed robbers attacked my house. [. . .] They came in and asked for money. I gave them what I had, but they still shot me. I had a wound and a broken thighbone.
>
> The following morning, people from the church took me to the Gitega hospital, where I spent several months. After a while, the nurses asked me for money even though I had nothing. After that, the nurses refused to treat me normally. My wound and broken bone got infected. No one wanted to change my bandages. The nurses put me away from the other patients in an isolated room as my wound was festering. [. . .] I was waiting for death.
>
> —Testimony by Déo, aged 47, Burundi[1]

There is more to armed violence than instant life or death for the individuals involved. Déo's experience illustrates how a weak public health system can eventually cost the wounded their lives. An entire family's well-being may also be deeply affected by the incapacitation of its main income provider.

This chapter examines the impacts of armed violence from an economic perspective by reviewing the medical costs of injuries; the productivity lost due to death, inactivity, and disability; and reductions in quality of life. It considers the following questions:

- How do the costs of gun violence compare to those of violence committed with other means, and what explains the difference?
- Which societies carry the highest costs?
- How can methodology be improved to increase our understanding of the global costs of gun violence?

Estimates of the costs of violence not only highlight the multiple effects of armed violence; they can also serve as key reference points for resource allocation and priority setting. In developed countries, high costs are frequently used to justify more spending on violence prevention. As Déo's case illustrates, however, developing countries that cannot afford to care for victims will probably spend less than they should. Comparing costs with levels of armed violence can thus help identify in which societies victims are the most vulnerable. The chapter's main conclusions are:

- Relatively low violence-related public health expenditures in developing countries do not necessarily mean that gun violence is less of a burden. Limited spending may actually point to unresponsive medical systems, which mean that gun injuries are less likely to be treated and more likely to be lethal.

- Small arms misuse accounts for an excessive proportion of the costs of violence. In Brazil and Colombia, the medical treatment of a firearm injury costs between 1.7 and 3 times more than that of a stabbing. Firearms injuries also tend to affect young, potentially productive segments of the population.
- The intent of small arms violence influences its lethality and cost. Accidental shootings and gun assaults are generally less fatal than suicide attempts, and therefore necessitate more medical expenses. On the other hand, premeditated killings and the high lethality of suicide attempts have important indirect effects, resulting, for instance, in significant losses of earnings.
- Misconceptions about the costs of violence abound, and methodologies need to be refined to gain a better understanding of the global costs of gun violence.

The chapter begins with an overview of the different types of costs and methodological approaches considered in the literature on the burden of violence. The second section focuses on the contribution of firearms to the overall costs of violence. It argues that a number of factors—including the nature of gun violence and the responsiveness of medical systems—are likely to influence the scope of the problem. The third section presents the results of three pilot studies that compare the costs of violence perpetrated with firearms and sharp instruments in Bogotá and Cali (Colombia), and Rio de Janeiro (Brazil). These studies followed draft methodological guidelines developed by the Small Arms Survey for the World Health Organization (WHO) and the US Centers for Disease Control and Prevention (CDC).

Small arms misuse accounts for an excessive proportion of the costs of violence.

All monetary results in this chapter have been converted to 2003 purchasing power parity (PPP) USD (hereafter PPP USD).[2] PPP values account for price differences across countries, allowing international comparisons of real output and incomes. PPP USD 1 has the same purchasing power in the domestic economy as USD 1 has in the United States.[3]

THE COSTS OF VIOLENCE: TYPOLOGIES AND COMPARABILITY ISSUES

Defining and ordering the various types of costs of violence following a coherent approach is essential for generating meaningful comparisons. This section introduces a framework to conceptualize the various costs associated with violence, drawing from previous work conducted by the Small Arms Survey and others.[4] It further highlights difficulties in comparing existing estimates due to the lack of a standardized methodological approach. When reviewing knowledge to date, the section also introduces a distinction between collective violence (i.e. conflict) and societal violence. The latter includes interpersonal violence—or violence that is directed against another person, such as assaults—and self-directed violence, including suicide attempts and self-mutilation.[5]

What types of costs?

Any attempt to highlight the impacts of violence must recognize that violence affects societies at all levels, as opposed to only victims and perpetrators. Accordingly, studies documenting the economic effects of violence have covered a broad range of costs (Table 8.1).

Analysts commonly make a distinction between direct and indirect costs.[6] Direct costs are those that arise directly from acts of violence and require actual payments by individuals or institutions. They can be further divided

Table 8.1 **A typology of the costs of violence**

Cost category	Type of cost	Components
Direct costs	Medical	In-patient costs (hospitalization, surgery, physician fees, drugs, laboratory tests) Out-patient costs Rehabilitation Ambulance fees
	Non-medical	Costs of policing and incarceration Costs of legal services Direct perpetrator control costs Costs of foster care Private security contracts Post-conflict reconstruction costs Care provided to displaced people
Indirect costs	Tangible	Productivity losses (earnings and time) Lost investments in social capital Life insurance costs Indirect protection costs Macroeconomic costs (reduced production, property values, tourist streams, and foreign investment)
	Intangible	Health-related quality of life (pain and suffering, psychological costs) Other quality of life (reduced job opportunities, access to schools, public services, and participation in community life)

Sources: Adapted from WHO (2004a, p. 6); Lindgren (2005, p. 5)

into medical and non-medical costs, given the importance the literature has given to documenting the costs of medical treatment (see WHO, 2004a; Waters et al., 2005). Direct medical costs generally comprise in-patient costs, including costs of hospitalization and surgery, physician fees, drugs, and laboratory tests; and the costs of out-patient visits, rehabilitation, and ambulance fees. Direct non-medical costs include those incurred by the criminal justice system, such as costs of policing and incarceration, legal services, direct perpetrator control, foster care, and private security contracts. In the case of conflict, the costs of rebuilding destroyed infrastructure and providing care to displaced people can be included (Lindgren, 2005, p. 5).

Indirect costs refer to lost resources and opportunities resulting from violence. Studies tend to focus on tangible costs such as reduced productivity or output. Other tangible costs include lost investments in social capital (e.g. the cost of education of the victim and perpetrator), life insurance costs, reduced productivity or output by the perpetrator, and macroeconomic costs (e.g. reduction in production, property values, tourist streams, and foreign investment due to violence and conflict). Also included are intangible costs such as reductions in quality of life. Generally speaking, quality of life includes many components such as job opportunities, access to schools, public services, and participation in community life. In the context of violence, it is usually associated with health-related quality of life, which includes the pain and suffering, both physical and psychological, that arise from violent incidents.

In sum, direct costs represent the actual economic burden imposed on society and indirect costs represent the potential loss in resources. Both direct and indirect costs are of concern, because they represent forgone monetary value to society that could have been invested in positive projects.

A Las Vegas coroner points at autopsy X-rays of self-inflicted gunshots in January 2004.
© Joe Cavareta/AP

Methodological approaches

Methodological approaches to quantify the costs of violence include *modelling, willingness to pay,* and *accounting*. Analysts seeking to document the economic impact of conflict have developed modelling techniques to determine how the economy could have developed in the absence of war (Lindgren, 2005, p. 4). This is done by comparing a conflict-affected country's gross domestic product (GDP) both to its pre- and post-war economic trends, and to the GDPs of similar countries—such as its neighbours—not affected by conflict. The differences will generate an estimate of the costs of conflict, which are usually measured in reductions of annual growth or investment. Modelling techniques can be useful for the study of conflict, but are more difficult to apply to the study of societal violence. Levels of interpersonal and self-directed violence are relatively stable when compared to conflict, which hinders the analysis of their impact before, during, and after violence.

Willingness to pay assumes that the cost of a violent incident is the total sum of what individuals are willing to pay for reducing the risk of becoming a victim. This approach, when properly designed, can capture direct treatment costs, indirect costs, and costs associated with pain and suffering. There are three ways to estimate willingness-to-pay values. One is through surveys of individuals' willingness to pay to avoid a given problem in hypothetical situations. The second involves observing 'averting behaviour'; i.e. actual cases where individuals undertake preventive measures to avoid exposure to or mitigate the effects of violence. Investments made in preventive measures are then used as a proxy for individual willingness to pay to avoid violence. The third way involves examining court decisions on damage payments. While willingness to pay has the potential of generating a more comprehensive picture of the indirect costs of violence, it remains to be tested in developing countries and conflict situations.

The accounting approach involves counting and adding up a selection of the costs identified above. This can be done by multiplying the number of violent incidents by the estimated average cost per incident, or by focusing on macro-level expenditures—both public and private—that may be linked to violence. Productivity losses are usually calculated by multiplying the time lost due to violence by the income that victims would be generating if they had not been injured. In the costing of conflict-related violence, indirect cost calculations will also include lost production and investment, and impacts on capital flows (Lindgren, 2005, p. 5).

While accounting produces relatively conservative estimates when compared with willingness-to-pay techniques, it remains the most common approach to date. Accounting estimates are also seen as more credible among non-specialists unfamiliar with economic models or survey methods (see Lindgren, 2005, p. 14), and are therefore likely to have a greater impact at the policy level.

Comparability issues

There are presently no standardized approaches to costing violence, resulting in wide-ranging and competing estimates among and even within countries. Comprehensive reviews of studies examining the costs of conflict and societal violence point to the lack of estimates that both use comparable methodological approaches and focus on the same set of costs.[7]

Reviewing 11 studies that provide 36 country-level estimates, Lindgren finds that civil war can account for anywhere between 0.3 per cent and 90 per cent of annual GDP (2005, p. 13). Different assumptions can result in dramatically different estimates, even for a single country. The estimated costs of civil war in Sri Lanka and Nicaragua, for instance, vary greatly. Depending on the person doing the costing, conflict in Sri Lanka cost 2.2–15.8 per cent of GDP per year. In Nicaragua, variations were even more pronounced: estimates range from 0.8 to 90 per cent of annual GDP (Table 8.2).

Table 8.2 **Differing estimates of the cost of civil war for Sri Lanka and Nicaragua**

Country	Author	Conflict years	Cost per year as % of GDP
Sri Lanka	Richardson and Samarasinghe (1991)	1983–88	11.3
	Grobar and Gnanaselvam (1993)	1983–91	2.2
	Harris (1997; 1999)	1983–92	8.8
	Kelegama (1999)	1983–94	10.9
	Arunatilake, Jayasuriya, and Kelegama (2001)	1984–96	10.8–15.8
Nicaragua	Fitzgerald (1987)	1980–84	15.4
	Stewart and Humphreys (1997)	1965–90	4.4
	DiAddario (1997)	1980–87	17.3–25.7
	Stewart, Huang, and Wang (2000)	1977–93	0.8
	Lopez (2000)	1978–79, 1981–88	90.0

Source: Adapted from Lindgren (2005, p. 13)

Analyses of the costs of societal violence can result in equally wide-ranging findings. In the United States, for example, figures for the direct medical costs of child abuse range from PPP USD 1,965 per child per year in Washington State to PPP USD 44,173 per child per year in West Virginia (Waters et al., 2005, p. 306). Estimates will also vary greatly depending on whether indirect costs are included.

Variations in estimates are accentuated across countries, as medical costs and wages are comparatively lower in low- and middle-income countries than in high-income countries. The average cost per homicide was estimated at PPP USD 55,000 in Cape Town, sharply lower than in Australia (PPP USD 910,000) or New Zealand (PPP USD 1,426,000).[8] Analysts also face the challenge of measuring impacts on the comparatively large—yet unrecorded—informal economy.[9] These lower costs, however, do not mean that violence is relatively less of a problem. On the contrary, rates of violent injuries are particularly high among developing countries (WHO, 2002, p. 11).

A child cries on the coffin of her father, a policeman who died of gunshot wounds in Colombia in August 2003. © Efrain Patino/ AFP/Getty Images

Estimates of the costs of societal violence also have limited geographical coverage, with studies being undertaken primarily in developed countries and Latin American states. This makes the global economic burden of violence more difficult to assess than that of road traffic accidents, for example, for which methodological guidelines have long been established (see TRL, 1995) and a large enough sample of comparable studies exists, allowing for worldwide and regional extrapolations (WHO, 2004b).

What do we know about the global costs of violence?

While methodological variations make it difficult to compare results across studies and settings, there is general consensus that violence imposes a significant economic burden on societies affected by it. Economic models using conflict data sets make it possible to measure the average impact of conflict on a country's GDP. Drawing on data for 92 countries, 19 of which faced civil war, Collier concludes that countries affected by internal conflict experience an annual decline in their GDP per capita of 2.2 per cent relative to their counterfactual (Collier, 1999, p. 181). A subsequent study of 211 countries found that wars of this type caused an average 2.4 per cent reduction in annual growth (Hoeffler and Reynal-Querol, 2003, p. 19). Other studies that account for various costs of conflict at the country level have usually found that civil wars have an even greater economic impact, averaging 10 per cent of annual GDP (Lindgren, 2005, p. 13).

Societal violence can impose an equally alarming burden. Costs for low-income countries may be underestimated, due to the small number of cases reviewed and the difficulty of comparing lost wages and income with those of high-income settings (WHO, 2004a, p. 14). The available evidence does suggest, however, that developing countries suffer more from violence than the industrialized world. Given the continent's high exposure to violence, the most

revealing comparative estimates originate from Latin America. A 1999 study, based on six country case studies, estimated that 20.9 per cent of Latin America's GDP was being consumed by violence in terms of destruction, diversion of resources, and loss of human and financial capital (Londoño and Guerrero, 1999, p. 3). By comparison, in the United States, despite relatively high rates of violence for an industrialized state, violence is estimated to cost between 3.3 and 6.5 per cent of GDP, even when including indirect costs such as lost earnings and psychological costs.[10]

Most studies demonstrate that direct medical costs represent only a small fraction of the total burden of violence, despite being the focus of the majority of studies. A study comparing six Latin American countries found that the direct non-medical costs of interpersonal and collective violence (including expenditures on police, security systems, and judicial services) exceeded medical costs across all case studies (Buvinic, Morrison, and Shifter, 1999, p. 20), with ratios of medical to non-medical costs ranging from 1:1.2 in El Salvador to 1:30 in Venezuela. Although it is difficult to compare indirect costs across settings, there is general agreement that indirect costs are much higher than direct costs (Waters et al., 2005, p. 305). This suggests that a comprehensive assessment of the impacts of violence should not focus only on direct expenditures to support victims and deal with perpetrators, but must also consider lost opportunities and the destruction of resources that would have otherwise been available in the future.

Studies have also sought to measure the cost of violence prevention initiatives when compared with their benefits—whether real or potential. A number of preventive interventions targeting child abuse, child crime, sexual and domestic violence, and crime in general were found highly cost-effective (see WHO, 2004a, pp. 28–29). Collier and Hoeffler conducted economic evaluations of five different instruments to prevent or reduce conflict by comparing their costs to their potential benefits (2004, pp. 21–22). They conclude that external military intervention under Chapter VII of the UN Charter was the most effective, and that aid—as part of conflict prevention, but not of post-conflict recovery—was the least.

Civil wars cause a 2.2 per cent reduction in annual growth in affected countries.

COSTING GUN VIOLENCE: AN OVERVIEW OF THE ISSUES

Small arms are a common instrument in both conflict and societal violence. Globally, they are estimated to be involved in 60–90 per cent of conflict deaths, 40 per cent of homicides, and 6 per cent of suicides (Small Arms Survey, 2005, p. 230; 2004, p. 175). Firearms are also a major vector in fatal injuries following conflicts and in countries affected by acute urban violence (Small Arms Survey, 2005, p. 270; CERAC, 2005, p. 74). This section discusses whether and how the use of such weapons has implications for the costs of violence, and outlines challenges and opportunities for advancing current knowledge of the global costs of gun violence.

The costs of gun violence

The literature on the contribution of small arms violence to conflict is nascent and provides only limited insights about the associated economic burden (see Small Arms Survey, 2005, pp. 228–65; ICRC, 1999). As small arms are involved in the overwhelming majority of conflict deaths, however, their contribution to the costs of conflict can only be significant. Studies examining the costs of gun violence generally adopt a public health approach and focus on the direct medical costs, productivity losses, and in a few cases the reductions in quality of life that can be attributed to societal gun violence. Geographical coverage is also extremely limited, with the majority of studies focusing on the United States. Rare exceptions include Canada, El Salvador, and South Africa.

Table 8.3 Average direct medical costs per firearm injury by severity, selected studies (2003 PPP USD)

Location and source	Sample	Year	Fatal	Serious (admitted)	Slight (emergency department only)
Canada (Miller, 1995, table 1)	National	1991	8,828 (CAD 8,591)	30,037 (CAD 29,228)	5,224 (CAD 5,083)
El Salvador (Paniagua et al., 2005, p. 191)	San Salvador (one hospital)	2003	n/a	5,500 + 370 per bed day	n/a
South Africa (Allard and Burch, 2005, p. 592)	Cape Town (one hospital), abdominal gunshot wounds only	2005	n/a	3,427 (ZAR 10,269)	n/a
US (Miller and Cohen, 1997, p. 335)	National	1993	25,038	35,202	5,987

Most studies outside the United States focus exclusively on the direct medical costs of hospitalized gun injuries (Tables 8.3 and 8.4). Even so, the estimated cost of treating one firearm injury between developed countries such as Canada and the United States can vary significantly. Unsurprisingly, unit costs appear to be significantly lower in developing countries such as El Salvador and South Africa.

Gun violence makes a significant contribution to the overall cost of violence. In the United States, the total costs of gun violence, including productivity losses and reduced quality of life, are estimated at PPP USD 115–144 billion per year (Table 8.4). In El Salvador, treating hospitalized firearms injuries consumes more than 7 per cent of the country's entire health budget (Paniagua et al., 2005, p. 191). Treating an abdominal gunshot wound in South Africa costs 13 times the government's per capita health spending (Allard and Burch, 2005, p. 591).

As with violence in general, the indirect costs of gun violence are significantly higher than direct medical costs (see Table 8.4). Cook and Ludwig (2000), using a willingness-to-pay survey, found that the total costs of gun violence in the United States amount to PPP USD 115 billion, which is much more significant than estimates taking into account only productivity losses and direct medical costs (less than PPP USD 35 billion; see Table 8.4). Direct to indirect costs ratios can be highly inconsistent, however, even between similar countries. In Canada in 1991, productivity losses and reductions in quality of life were, respectively, 25 and 78 times more costly than direct medical costs (Miller, 1995, table 3). A US study found that productivity losses and reductions in quality of life were, respectively, 12 and 28 times higher than direct medical costs (Miller and Cohen, 1997, table 8). Overall, these findings suggest that the greatest costs of firearms violence are intangible and have to do with issues of reduced quality of life, pain and suffering, and psychological impacts that affect society as a whole.

Relatively few studies have tried to justify gun violence prevention strategies through cost-effectiveness analyses. Based on a willingness-to-pay survey, Ludwig and Cook (1999) estimate that the American public believed initiatives that would successfully reduce the number of gun injuries by 30 per cent would be worth spending PPP USD 27.3 billion, or PPP USD 860,000 per injury. In Jamaica, analysts calculated that if gunshot injuries admitted at Kingston Public Hospital were blunt instrument injuries instead, the hospital would be saving JMD 2.13–3.56 million (PPP USD 60,749–101,533) per year in medical costs (Zohoori et al., 2002, p. 260). In other words, an intervention that suc-

Table 8.4 Total annual direct and indirect costs of gun violence, selected studies (2003 PPP USD)

Location and source	Sample	Direct medical costs	Productivity losses	Quality of life
US (Cook and Ludwig, 2000, pp. 70, 79, 115)	National sample, 1997	0.5–2.1 billion	22.3–30.5 billion	Total direct and indirect costs of 114.6 billion*
US (Max and Rice, 1993, p. 171)	National sample, 1990	2 billion	2.3 billion for non-fatal injuries and 24.5 billion for fatal injuries	n/a
US (Miller and Cohen, 1997, p. 337)	National sample, 1992	3.4 billion	42.4 billion	98.5 billion
Canada (Miller, 1995, table 3)	National sample, 1991	65.2 million (CAD 63.4 million)	1.6 billion (CAD 1.6 billion)	5.1 billion (CAD 5 billion)
El Salvador (Paniagua et al., 2005, p. 191)	National, extrapolated from one hospital in San Salvador (admitted only)	13.2 million	n/a	n/a
South Africa (Allard and Burch, 2005, p. 593)	National, extrapolated from one hospital in Cape Town (admitted abdominal gunshot wounds only)	66.8 million (ZAR 200 million)	n/a	n/a

* Using willingness-to-pay method; figure therefore includes direct and indirect costs.

ceeded in limiting the use of guns in violence—even if the overall number of injuries remained steady—would trigger net savings for the medical system. In Canada, while the costs of the new gun registration system largely exceeded forecasts, available estimates of the costs of gun violence for the country make the investment look much more cost-effective (Box 8.1).

Box 8.1 Putting numbers in perspective: the costs of controlling firearms in Canada

Comprehensive schemes to regulate firearms are costly and the subject of considerably more debate than other interventions aimed at reducing injury and death. Canada has had relatively strict controls on handguns and required restricted weapons permits and registration to possess them since the 1930s.[11] In 1995 new legislation known as Bill C-68, supported by police and public health groups, introduced licensing to possess any firearm and registration of all firearms, and prohibited a wider range of semi-automatic firearms, along with short-barrelled handguns. The bill was hugely controversial as it was expensive to implement, but even so, it appears to be considerably more cost-effective than previously believed when considering possible savings in terms of firearms violence reduction.

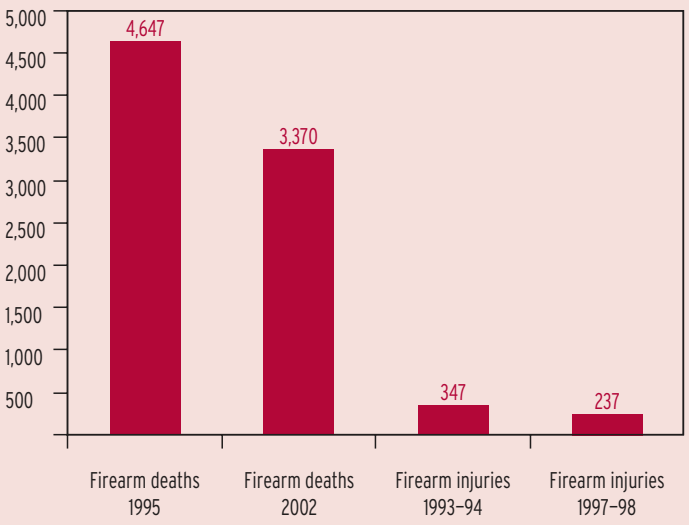
Since Canada passed Bill C-68 in 1995, the costs associated with licensing two million firearms owners and seven million firearms have dramatically exceeded initial estimates. Estimates in 1995 forecast a total additional cost for Bill C-68 of CAD 119 million (PPP USD 122 million), and the project anticipated collecting fees of CAD 117 million (PPP USD 120 million), a total additional net cost of CAD 2 million (PPP USD 2 million) (Canada, 2002).[12] In December 2002 the auditor general revealed that the firearms regulation programme would cost more than CAD 1 billion (PPP USD 0.85 billion) by 2004-05 (an average of CAD

100 million, or PPP USD 85 million per year) and collect only about CAD 140 million (PPP USD 119 million) in fees for the entire period since 1995 (Canada, 2002, para. 10.3).[13] However, the auditor general did not comment on the appropriateness of the expenditure or the effectiveness of the legislation.

One of the challenges in evaluating the impact of firearms legislation is the gap between the passage of the law and its implementation. In the case of Bill C-68, for example, the law was passed in 1995, but the deadline for licensing all firearms owners was 2001 and that for registering all firearms was 2003. Consequently, an evaluation of the bill's final impact must wait several years.

Although it is too early to attribute this trend to the passage of the legislation, firearms deaths have declined dramatically from 1,125 (3.8 per 100,000) in 1995 to 816 (2.2 per 100,000) in 2002, the last year for which there is data (Wilkins, 2005, p. 42). The most pronounced changes are in youth firearms suicide rates (Wilkins, 2005, p. 38). Firearms suicide and homicide rates decreased more rapidly than non-gun suicide and homicide rates, suggesting that the legislation may be a contributing factor, and that the substitution effect was only partial. Firearms injury information is not available beyond Fiscal Year (FY) 1997–98. At that time, there was a significant decline in injuries requiring hospitalization during the period as well: from 1,125 (3.9 per 100,000) in FY 1993–94 to 767 (2.6 per 100,000) in FY 1997–98, a reduction of 32 per cent (Hung, 2005). While other factors besides legislation contribute to changes in firearms death rates, mortality and morbidity figures suggest stronger controls do contribute.[14]

Figure 8.1 Estimated total annual costs of fatal and non-fatal gun violence in Canada (millions of 1993 CAD*)



Sources: Firearms injury and death data: Cukier and Sidel (2005); Hung (2005); Wilkins (2005); costing figures: Miller (1995, Table 1)

Note: * 1993 CAD 1 = 2003 PPP USD 1.03

Discussions to date generally focus on the costs of the legislation rather than its impact on the costs of firearms death and injury, even though these costs dwarf the investment of CAD 100 million (PPP USD 85 million) per year.[15] A 1995 study, for example, finds that gunshot wounds occurring in 1991 amounted to CAD 55.3 million (PPP USD 56.8) in direct medical costs, CAD 8.1 million (PPP USD 8.3 million) in mental health care, CAD 1.55 billion (PPP USD 1.59 billion) in lost productivity, and CAD 4.97 billion (PPP USD 5.1 billion) in lost quality of life, for a total cost of CAD 6.6 billion (USD PPP 6.8 billion) in 1993 CAD (Miller, 1995, table 3).

So how much did Canada gain for its CAD 100 million (PPP USD 85 million) annual investment in comprehensive firearms regulation? It is too early to say. On the basis of Miller's costing study (1995), however, the savings due to the decline in firearms injuries since 1995 appear to be significant. Applying Miller's cost estimates to available firearm mortality and morbidity data highlights the amplitude of potential savings. In 2002 the annual costs of fatal gun violence were potentially reduced by 1993 CAD 1.3 billion (PPP USD 1.3 billion) when compared with 1995. The costs of non-fatal gun violence also decreased dramatically, saving Canada some 1993 CAD 110 million (PPP USD 113 million) in FY 1997–98 when compared with FY 1993–94. In sum, the potential benefits of new legislation in terms of violence prevention and reduction far outweigh its implementation costs.

Source: Cukier (2005)

Do small arms contribute disproportionately to the costs of violence?

Violence committed with firearms generates higher costs than violence committed with other instruments. In Cape Town, South Africa, for instance, injuries due to sharp objects, such as stabbings, accounted for 43 per cent of homicides, while firearms accounted for 39 per cent. Stabbings and firearms were each responsible for 43 per cent of the total economic costs of violence (including direct medical costs and productivity losses), however, suggesting that firearms homicides were more costly than homicides committed with knives (Phillips, 1998, table 11). As Max and Rice sum up, 'firearm injuries are relatively more costly compared with both other injuries and other illnesses in general' (Max and Rice, 1993, p. 183).

The seriousness and lethality[16] of firearms violence result in significant indirect costs. As Table 8.5 illustrates, the average productivity losses and quality of life reductions attributed to an injury are much higher for deaths than for non-fatal injuries. This is because non-fatal injury survivors, although deeply affected, will be able to return to a productive activity and to their communities and families after recovery in a majority of cases. The proportion of gun injuries that are lethal is much higher for firearms than for cut/stab wounds, which increases their overall costs. In the United States, more than one in every five hospitalized firearms injuries results in death, while the ratio for cut/stab wounds is of one death for every 759 injuries (Miller and Cohen, 1997, table 7). Consequently, the average gunshot injury in the United States will cost PPP USD 937,000 compared to just PPP USD 19,000 for a cut/stab wound, a ratio of almost 50 to 1. When considering only non-fatal injuries, gunshots cost PPP USD 196,000 per victim versus PPP USD 14,000 for cuts and stabbings, a ratio of 14 to 1 (Miller and Cohen, 1997, p. 335).

The relative cost of gun injuries depends greatly on intent. Average direct medical costs per injury are generally higher for unintentional shootings (PPP USD 25,670) and interpersonal injuries (PPP USD 21,086) than for self-

Table 8.5 **Average costs per gunshot and cut/stab wound in the United States, by severity and category of cost (2003 PPP USD)**

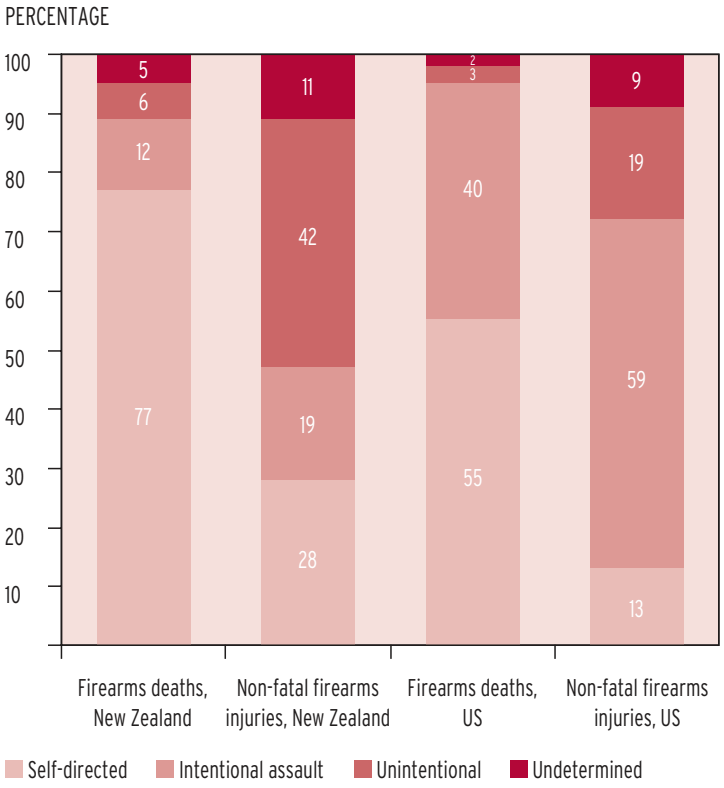
Cost category	Gunshot wound			Cut/stab wound		
	Fatal	Hospitalized	Emergency department only	Fatal	Hospitalized	Emergency department only (intended)
Direct medical*	25,038	35,202	5,974	25,038	21,059	3,723
Direct non-medical**	3,631	3,446	1,169	3,631	1,946	661
Productivity lost	1,166,767	56,255	2,617	1,249,487	41,478	2,351
Lost quality of life	2,370,841	222,823	82,763	2,444,691	193,538	34,378
Total	**3,566,277**	**317,726**	**92,523**	**3,722,847**	**258,021**	**41,113**

* Includes medical care, mental health care, and emergency transport.

** Includes police services and insurance administration.

Source: Adapted from Miller and Cohen (1997, table 4)

Figure 8.2 **Distribution of firearms deaths and hospitalized injuries by intent in New Zealand (1992–96) and the United States (1996–98)**



Source: Adapted from Spicer et al. (2005, p. 72)

inflicted injuries (PPP USD 6,200) (Cook and Ludwig, 2000, p. 65). As victims of firearms suicides die almost instantly, settings where a high proportion of firearms deaths are due to suicide will experience relatively fewer non-fatal firearms injuries than countries where the majority of deaths are due to gun homicides or accidents. Even where firearms suicides represent the majority of firearms deaths, injuries due to assaults and accidents involving firearms account for the vast majority of hospitalized injuries (Figure 8.2). High levels of unintentional and assault-related gun violence should therefore result in significant medical costs. When taking into account indirect costs (productivity losses and reduced quality of life), however, self-inflicted injuries generate the highest average costs, as they most often result in the death of the victim (Miller and Cohen, 1997, table 5).

Implications for the global costs of gun violence

Given the disparate nature of existing data, it is exceedingly difficult to render a global estimate of the economic burden of violence, much less gun violence. Generating a comprehensive estimate of the global costs of societal gun violence will require expanding the existing sample of country-level estimates, which remains too limited. The available evidence does make it possible, however, to generate a broad picture of which regions may suffer the greatest burden.

Costing usually involves multiplying the number of violent incidents by average unit costs. The number of firearms deaths and injuries is therefore seen as important information for producing a global cost estimate.

Although considerable gaps remain, knowledge about the global and regional distribution of fatal gun violence by intent is increasing.[17] The global incidence of non-fatal firearm injuries is less well documented. As discussed above, however, the intent of firearms violence—which is better documented worldwide—influences the lethality of gun injuries and thus the ratio of deaths to survivors of armed violence.

Contexts where violence is meant to be lethal experience relatively fewer gun injuries, which has implications for the costs incurred by such violence. In Bogotá, Colombia, the high lethality of firearms wounds has been attributed to the 'professionalizing' of violence—reflecting the large numbers of targeted, premeditated assassinations—and there is a high proportion of particularly lethal head and abdomen wounds (Beltrán et al., 2003, p. 12). Similarly, in conflict situations, there are few survivors when firearms are used against people who are immobilized, in a confined

space, or unable to defend themselves (Coupland and Meddings, 1999). Settings where a high proportion of gun violence is self-directed—such as North America—will also suffer relatively fewer non-fatal firearms injuries. In such contexts, the low numbers of injuries will translate into relatively low medical costs, while the indirect costs associated with mortality will be high.

Countries experiencing high levels of interpersonal gun violence—such as those in Latin America or Africa—should, theoretically speaking, be caring for large numbers of non-fatal injuries in their hospitals. Additional factors come into play, however. As Table 8.6 illustrates, gun injuries in Brazil and Colombia appear to be more lethal than in developed countries with high gun suicide rates such as Canada and the United States.[18] This may be the result of a strong intent to kill, as discussed above. It may also point to relatively unresponsive emergency medical systems in developing countries, which make firearms wounds less likely to be treated and more likely to be lethal. In such settings, victims of firearms violence may also refrain from going to hospitals, as they will be unable to pay for treatment. Medical expenditures therefore risk being lower than they should be among developing countries.

Table 8.6 **Incidence of firearms injuries, by severity**

Location and source	Sample	Year	Total fatal	Serious (admitted but survived)	Slight (emergency department only)	Ratio total fatal: serious	Ratio serious: slight	Ratio total fatal: non-fatal
Brazil*	National	2002	38,088	17,793	n/a	1:0.5	n/a	n/a
Canada (Miller, 1995)	National	1991	1,450	1,244	3,031	1:0.9	1:2.4	1:2.9
Colombia**	National	2005	14,762	5,546	n/a	1:0.4	n/a	n/a
El Salvador (Paniagua et al., 2005)	National	2003	1,697	2,580	n/a	1:1.5	n/a	n/a
US (Miller and Cohen, 1997)	National	1992	37,776	61,300	72,700	1:1.6	1:1.2	1:3.5
El Salvador (Paniagua et al., 2005)	One hospital (San Salvador)	2003	n/a	623	789	n/a	1:1.3	n/a
Nigeria (Solagberu, 2003)	One hospital (Ilorin)	September 1999–October 2001	n/a	27	39	n/a	1:1.4	n/a

*Brazilian Ministry of Health data processed by Instituto de Estudos da Religião (ISER), provided in written correspondence by Luciana Phebo of ISER, 8 December 2005.

** Colombian National Police data processed by Centro de Recursos para el Analisis de Conflictos (CERAC), provided in written correspondence by Katherine Aguirre of CERAC, 8 February 2006.

Estimating the costs of gun violence in different settings will, therefore, not only increase our understanding of the global scope and nature of gun violence, but will also highlight important policy deficiencies. Comparing rates of violence with public health expenditures, in particular, can help identify where victims are the most vulnerable. While most costing literature has been used to justify increased spending on prevention in developed countries, it also offers the opportunity for low- and middle-income countries to determine whether the victims of gun violence are appropriately taken care of.

A gunshot victim lies on a stretcher in Bonsucesso Hospital in Rio de Janeiro in January 2005.
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COSTING FIREARM VIOLENCE IN BRAZIL AND COLOMBIA

Working with the WHO and CDC, the Small Arms Survey has prepared a unique set of standardized guidelines to estimate the direct and indirect economic costs of interpersonal and self-directed violence (see Annexe 1 for an overview). The guidelines aim to enable low- and middle-income countries to generate robust estimates despite sometimes incomplete data. In order to test the applicability of the guidelines, the Small Arms Survey independently commissioned pilot case studies in Brazil (Rio de Janeiro) and Colombia (Bogotá and Cali) to measure the specific contribution of firearms to costs, as opposed to other means of violence.

The case studies reached conclusions that are consistent with those of similar costing work carried out in the United States and Canada. Extrapolated nationally, firearms injuries cost Brazil and Colombia's respective medical systems PPP USD 88 million (BRL 100 million) and USD 38 million (COP 29 billion) a year. The medical treatment for the average gunshot wound was between 1.7 and 3 times more expensive than that required for treating cuts or stabs, ranging

from PPP USD 4,500 to PPP USD 11,500 per injury. These average medical costs appear relatively consistent with those of other developing countries—i.e. El Salvador and South Africa—as reported in Table 8.3.

Interestingly, however, average medical costs were more expensive in both Colombian hospitals than in Rio de Janeiro, which is counterintuitive, as the standard of living—as measured by GDP per capita—is higher in Brazil than in Colombia (see UNDP, 2005). This may be partly due to the different price scales used to measure the costs of treatment. In Brazil, a national scale was used, while in Colombia, individual bills submitted to the public health system formed the basis of the estimate. Another explanation may be that the Brazilian public health system may not be as well equipped to deal with violent injuries as its Colombian counterpart. This explanation is supported by the fact that a greater proportion of victims died from their wounds in the Brazilian hospital than in the Colombian facilities.

Victims of firearms violence also lost more productive time than victims of violent cuts and stabs. Survivors of gun violence spent more days in hospital and were expected to remain inactive while convalescing longer than patients injured by sharp instruments. Consistent with other research on the victims of small arms violence (ANGRY YOUNG MEN), a particularly high proportion of patients treated for gun injuries were young men. This translates into considerable lost earnings, particularly as the average income earned in Brazil and Colombia is higher among men than women. When extrapolating results using national mortality and morbidity data, gun violence is threatening PPP USD 10 billion of future earnings (BRL 11.3 billion) in Brazil per year, and PPP USD 4 billion (COP 3,100 billion) in Colombia.

Methods and sampling

The pilot case studies involved surveying victims of violent injuries in key hospitals in both countries. These included the Hospital da Geral in Nova Iguaçu (HGNI), Rio de Janeiro, Hospital Santa Clara (HSC), Bogotá, and Hospital Universitario del Valle (HUV), Cali (see Table 8.7). Two local research institutes, ISER in Brazil and CERAC in Colombia, administered the field research. Drawing explicitly from the Small Arms Survey guidelines, the research teams elaborated standardized questionnaires to prospectively gather information from each victim of a violent act seeking care at the selected hospitals during a one-month period (12 November–12 December 2005).[19]

The research teams collected a wide variety of data, including, among others, information on the patient's demographic and socio-economic profile, the characteristics and severity of the injury, the type of care provided, and associated medical costs. In Brazil, costs for each type of treatment were calculated based on the Brazilian Medical

Table 8.7 **Distribution of violent injuries by instrument, 12 November–12 December 2005**

Instrument	HGNI, Rio de Janeiro	HSC, Bogotá	HUV, Cali
Firearm	25 (23%)	28 (19%)	71 (61%)
Sharp instrument	13 (12%)	83 (57%)	45 (39%)
Blunt instrument	68 (61%)	15 (10%)	0
Poisoning	2 (2%)	14 (10%)	0
Unspecified	3 (3%)	5 (3%)	0
Total	**111 (100%)**	**145 (100%)**	**116 (100%)**

Source: Small Arms Survey calculations based on ISER (2006b); CERAC (2006c)

Association payment scale and interviews with HGNI and Rio Fire Department personnel (ISER, 2006a; 2006b). In Colombia, costs were calculated based on the final medical expenses that hospitals sent to the public medical system for each patient (CERAC, 2006a).[20] Values are presented in 2003 PPP USD.[21]

Preliminary findings

All three pilot studies confirmed that firearms injuries trigger higher medical costs than injuries inflicted by bladed weapons. As Table 8.8 shows, the average gun injury cost the surveyed hospitals between 1.7 and 3 times more than a cut/stab wound. Treating the average firearm injury in Rio costs seven times Brazil's per capita public health spending; in Bogotá and Cali the costs of treating a single firearm injury reach 13 and 21 times Colombia's per capita medical expenditures.[22]

Predictably, the substantially higher medical costs of firearms injuries are primarily the result of their relative severity. Among the 12 patients that died on their way to or in the hospital as a result of their wounds, 10 were shot, while only 2 had been cut or stabbed. As Table 8.9 illustrates, in all three hospitals, the average length of stay (days spent in hospital) and the percentage of patients requiring blood transfusions were higher for victims of firearms violence than for those injured by bladed weapons.

A greater proportion of victims with firearms wounds in Rio required surgery than those wounded by sharp instruments, and operations lasted on average 1.5 hours longer. While fewer victims of firearms violence underwent surgery in Bogotá, operations were more complex for firearms wounds and cost the hospital on average 1.2 times more. Intriguingly, in both Colombian hospitals, a greater proportion of patients wounded by a bladed weapon used an ambulance than firearms violence victims.[23]

Table 8.8 **Average medical costs per injury by instrument (2003 PPP USD)**

	HGNI, Rio de Janeiro		HSC, Bogotá		HUV, Cali	
	Firearm	Sharp instrument	Firearm	Sharp instrument	Firearm	Sharp instrument
Ambulance	219	119	111	129	176	229
Bed*	2,044	702	0	0	2,470	1,355
Consultations	82	58	108	79	362	222
Examinations	195	161	681	337	1,229	384
Surgery	845	372	1,932	1,602	3,323	2,427
Medication	1,074	85	1,739	563	3,839	1,004
Transfusions**	37	8	0	0	0	0
Other*	24	24	2,233	1,291	4	7
Total	**4,521**	**1,529**	**6,804**	**4,001**	**11,403**	**5,628**

* In Bogotá, bed costs are included under 'Other'.

** In Bogotá and Cali, the costs of transfusions are included in other costs, such as those of surgery.

Source: Small Arms Survey calculations based on ISER (2006b); CERAC (2006c)

Table 8.9 **Where do firearms make a difference?**

	Instrument	HGNI, Rio de Janeiro	HSC, Bogotá	HUV, Cali
% deaths in hospital	Firearm	28	11	0
	Sharp instrument	0	2	0
% patients who used an ambulance	Firearm	44	32	51
	Sharp instrument	23	37	67
Average length of stay	Firearm	6.7	6	11
	Sharp instrument	2.3	4	5.2
% patients requiring consultations with specialists	Firearm	100	75	94
	Sharp instrument	96	57	96
% patients requiring examinations or tests	Firearm	80	93	99
	Sharp instrument	85	87	89
% patients requiring surgery	Firearm	52	75	100
	Sharp instrument	15	85	100
% patients requiring medication	Firearm	80	96	100
	Sharp instrument	92	95	100
% patients requiring blood transfusions	Firearm	32	25	37
	Sharp instrument	8	19	33
Estimated number of inactive days	Firearm	23	30	32.5
	Sharp instrument	7.8	21.5	22.1
Percentage permanently disabled	Firearm	8	4	10
	Sharp instrument	0	0	7
Average age of patient at time of injury (average number of productive life years lost)*	Firearm	28 (38)	29 (37)	28 (38)
	Sharp instrument	24 (42)	30 (36)	30 (36)
Percentage men	Firearm	90	96	96
	Sharp instrument	75	85	93

Note: Figures in red indicate instrument with worst impact.

* Assuming people can be 'productive' until the age of 65 in both countries.

Source: Small Arms Survey calculations based on ISER (2006b); CERAC (2006c)

Several key indicators were identified in the three pilot studies to evaluate the productivity losses of victims of violence. These include the number of days spent in hospital, the number of days they cannot work as they recover, and the number of productive life years lost due to death or disability. The surveys allowed for a comparison of the number of days spent in hospital, as well as the average ages of victims. Given the relatively short time frame of the pilot studies, however, the number of inactive days and the proportion of disabled patients are based primarily on

Table 8.10 Average productivity losses per injury, by severity and instrument (2003 PPP USD)*

	HGNI, Rio de Janeiro		HSC, Bogotá		HUV, Cali	
	Firearm	Sharp instrument	Firearm	Sharp instrument	Firearm	Sharp instrument
Non-fatal						
Time spent in hospital	265	83	196	124	360	168
Inactivity after discharge	910	281	982	664	1,063	712
Total non-fatal	**1,175**	**364**	**1,178**	**788**	**1,423**	**880**
Fatal or permanently disabled	325,045	311,406	268,835	250,291	272,779	260,823

* Productivity losses were calculated using the average PPP USD income for women and men in Brazil and Colombia, as reported in UNDP (2005). Figures also take into account informal economy income, which is estimated at 39.8 per cent of gross national product (GNP) in Brazil and 39.1 per cent in Colombia (Schneider, 2002, p. 11). Average income figures were then applied according to the gender distribution of victims treated at each selected hospital. For comparative purposes, researchers assumed that people are productive until age 65 in both Brazil and Colombia when calculating years of productive life lost due to death or disability. For productivity losses due to death or disability, a 3 per cent discount rate was applied (see Annexe 1).

Source: Small Arms Survey calculations based on ISER (2006b); CERAC (2006c); UNDP (2005); Schneider (2002)

Table 8.11 Extrapolated total costs of/losses from gun violence for Brazil and Colombia (2003 PPP USD)

Type of injury	Number of cases and type of cost	Brazil	Colombia
Non-fatal (admissions only)	*Number of cases (year)*	*19,534 (2002)*	*5,546 (2005)*
	Average medical costs	4,521	6,804
	Total medical costs	88,309,893	37,735,821
	Average productivity losses	1,175	1,178
	Total productivity losses	22,953,094	6,532,010
	Total non-fatal costs	**111,262,987**	**44,267,831**
Fatal	*Number of cases (year)*	*30,855 (2002)*	*14,762 (2005)*
	Average productivity losses	325,045	268,835
	Total fatal non-hospitalized costs	**10,029,249,309**	**3,968,538,684**
Total	**Total medical costs**	**88,309,893**	**37,735,821**
	Total productivity losses	**10,052,202,404**	**3,975,070,694**
	Total	**10,140,512,297**	**4,012,806,515**
	Total as % of national income*	**0.5**	**1.0**

* Percentage of national income calculated from PPP USD GDP figures (from UNDP, 2005) and the estimated ratio of informal income to GNP as reported in Schneider (2002, p. 11).

Sources: Costing data: Tables 8.6, 8.8, and 8.10 (for Colombia, average costs are those of HSC, Bogotá)

doctors' estimates at the time the victim was still at the hospital. The figures presented in Table 8.10 are therefore exploratory and would benefit from the further monitoring and surveillance of patients after discharge.

It appears that firearm injuries nevertheless generate higher productivity losses than cut/stab wounds in all pilot case studies. This is primarily because in most cases, victims of firearms violence lost more productive time (Table 8.10). In addition, a greater proportion of gun violence victims were men, for whom average earned income was also higher in both countries (see UNDP, 2005). This raises the importance of including the value of unpaid productive activities such as housework in such estimates, for which data was unfortunately not available for these pilot studies.

Implications for the costs of gun violence in Brazil and Colombia

Findings on the direct medical costs and productivity losses at the selected hospitals make it possible to produce a rough estimate of the costs of gun violence at the national level in Brazil and Colombia. Multiplying the number of fatal and non-fatal injuries by the average cost per injury illustrates the significance of the problem. Non-fatal injury data for Brazil and Colombia is incomplete, however, and only covers admitted patients. Actual medical costs would therefore be higher if they included information on patients receiving care at emergency departments.

Based on the available data, firearms injuries cost Brazil and Colombia's medical systems a combined PPP USD 125 million a year. Productivity losses are much more significant: they amount to PPP USD 10 billion a year in Brazil and PPP USD 4 billion in Colombia. When these two cost categories are combined, the costs of gun violence in Brazil and Colombia amount to 0.5 and 1 per cent of their respective annual national income.

Annual productivity losses amount to PPP USD 10 billion in Brazil and PPP USD 4 billion in Colombia.

CONCLUSION

Examining the impacts of gun violence from an economic perspective can serve as an essential component in the design, monitoring, and evaluation of violence prevention and reduction initiatives. It highlights how every gunshot wound has implications that go far beyond victim and perpetrator, and thus helps justify investment in gun violence prevention and reduction. Small arms violence affects society as a whole, inflicting material costs to survivors, family, and institutions; jeopardizing future output and productivity; and affecting mindsets and well-being.

Unfortunately, very few estimates of the costs of gun violence exist. Existing studies also have different purposes, do not focus on the same costs, rely on methods that have not yet been standardized, and result in findings that are difficult to compare. Systematic data gathering on the costs of gun violence, particularly in developing countries, would represent a significant step forward in our understanding of the impacts of small arms violence.

Despite these limitations, there is ample evidence that small arms make violence worse for societies by increasing the average cost of violent injuries. Small Arms Survey pilot studies in Brazil and Colombia confirm that this is not only the case in developed countries, but applies in other regions. Medical costs are significantly higher for gunshot wounds than for other violent injuries, and victims of gun violence are younger than the average victim of violence, resulting in many lost opportunities.

Countries and regions pay very different price tags, however. Indirect costs such as lost earnings are particularly high among countries affected by highly lethal forms of gun violence, such as assassinations, mass killings, and suicides. The total medical costs of gun violence in low- and middle-income countries tend to be lower than their high levels of small arms violence might suggest. In such settings, costing studies can help identify insufficiencies in

poorly resourced medical and rehabilitation systems. Improving the responsiveness of public health systems to gun violence is crucial, as it will both decrease the victims' suffering and increase their probability of surviving their wounds.

ANNEXE 1. MEASURING THE COSTS OF FIREARMS VIOLENCE: A MODEL

The Small Arms Survey, together with the WHO and CDC, is currently developing guidelines to estimate the economic costs of violence. The model is meant to enable researchers to generate estimates in developing countries. The basic formula for arriving at an estimate is the following:

Total costs = *number (incidence) of violent incidents* × *average unit cost per incident*

The costs considered include direct medical costs and loss of productivity due to injury and death. While this approach does not take into account all the costs incurred by small arms violence, it is particularly valuable to the study of firearms violence. Indeed, these cost categories help highlight the disproportionate costs of gun violence when compared with other forms of violence, as firearms injuries require more intensive medical treatment and generally affect young, potentially productive segments of the population.

Obtaining incidence data

For fatal violence, the absolute minimum data required to produce an economic cost estimate should include the total number of violence-related deaths available for the study area and the average age at death of the victims. A more meaningful estimate will be produced when the data is disaggregated by intent, age, and sex of the deceased and instrument of injury (for our purposes, firearms vs. other weapons).

Data on the incidence of non-fatal violence will generally be much more difficult to obtain than data on violence-related deaths. Hospitals are likely to be the most readily accessible source of data, but will only reflect incidents leading to injuries that result in hospital treatment. Rapid assessment procedures for estimating the total number and incidence of violence-related injuries, irrespective of severity, seen in hospitals, may be required (see Matzopoulos et al., forthcoming).

Obtaining costing data

In a majority of countries, even the minimum required costing data will probably not be available from an existing source. It will therefore be necessary to generate the costing data by studying costs for violence-related injuries treated in a small sample of facilities.

The first step involves selecting one or several medical facilities that are believed to be generally representative of the area under study. Costing data may then be obtained from registers or patient surveys to be administered by hospital staff in addition to their usual paper records, or by a trained team of researchers. The sampling strategy used in this chapter's three pilot studies involves capturing data on approximately 100 patients as they present themselves at the hospitals.

The following minimum information should be collected for each violent injury treated at the facility:

- sex and age of the patient;
- injury intent (interpersonal, self-directed, collective, unintentional, undetermined);
- injury severity (emergency treatment only, hospitalization only, death);
- instrument used to inflict injury (firearm, bladed weapon, other);
- length of hospital stay in days;
- use of ambulance;
- operations carried out on the patient;
- drugs given to the patient during and after the stay;
- number of examinations (e.g. X-rays) carried out on the patient;
- number of blood transfusions given to the patient;
- number and type of physicians consulted during the stay;
- estimated number of days the patient will be convalescing (i.e. not be able to work) after leaving the facility; and
- estimated number of out-patient visits the patient will undertake after leaving the facility.

The last two items may be requested from the personnel treating the patient. If time allows, however, conducting follow-up interviews with patients after they leave the facility would be preferable and more accurate.

In addition, a certain number of unit costs need to be obtained from the facility personnel. These include:

- average 'hotel cost' per bed day (excluding drugs, operations, and physicians);
- average ambulance costs;
- costs of the various drugs identified;
- average cost per type of operation, examination, and blood transfusion;
- average cost per physician consultation; and
- average cost per out-patient visit.

Extrapolating results

Based on the sample of injuries surveyed, it is possible to calculate average medical costs per violent injury. These average medical costs are then multiplied by the total number of injuries treated in the area under study to generate a rough estimate of total medical costs. Average costs may also be disaggregated by severity of injury or, as is done in this chapter, by instrument used. The latter option will produce the most revealing insights regarding the cost of firearms injuries when compared with those of wounds caused by other weapons.

Lost productivity is calculated by multiplying the amount of productive time lost due to injury or death by average earnings. Time lost is calculated from the average age at death from a violent injury, as well as the average number of convalescing days among survivors. In this chapter, average earned income figures were obtained from UNDP (2005). Values were adjusted according to the gender distribution of the sample of patients. Figures also included estimated income generated through the informal economy, based on country ratios included in Schneider (2002). Ideally, however, researchers will seek to determine the average income of victims of violence, as they may originate from lower social classes. Future loss of productivity—i.e. that due to death or permanent disability—must also be discounted to give its present value (see Corso and Haddix, 2003). This chapter used a discount rate of 3 per cent per year.

Productivity losses can therefore be calculated using the following formulas.

For non-fatal injuries: *Losses = number of non-fatal injuries × average number of days lost × average daily earnings*

For fatal injuries: *Losses = number of fatal injuries × average annual earnings x discount factor*

Where: *discount factor = 1/0.03 – 1/[0.03 × (1.03)^a]* (where: *a = years lost = 65 – average age at death + 1*)

LIST OF ABBREVIATIONS

BRL	Brazilian real
CAD	Canadian dollar
CDC	Centers for Disease Control and Prevention (US)
CERAC	Centro de Recursos para el Analisis de Conflictos (Colombia)
COP	Colombian peso
GDP	gross domestic product
GNP	gross national product
HGNI	Hospital da Geral in Nova Iguaçu (Brazil)
HSC	Hospital Santa Clara (Colombia)
HUV	Hospital Universitario del Valle (Colombia)
ISER	Instituto de Estudos da Religião (Brazil)
JMD	Jamaican dollar
PPP	purchasing power parity
USD	United States dollar
WHO	World Health Organization
ZAR	South African rand

ENDNOTES

1 Translated by the present author and adapted from MSF (2004, p. 3). Déo was eventually transferred to a free Médecins sans Frontières facility and survived. His case is not an isolated one, however. Many Burundians unable to pay their medical bills have been 'imprisoned' in hospitals (FIACAT, 2005). This situation prompted Françoise Ngendahayo, the Burundian minister in charge of national solidarity, to order the release of all such prisoners on 23 December 2005 (Netpress, 2005).

2 Unless stated otherwise, PPP USD values were computed using PPP conversion rates and the US consumer price index as reported in IMF (2005), with 2003 as the base year.

3 See UNDP (2005).

4 See Small Arms Survey (2002, p. 159; 2003, p. 131), WHO (2004a, p. 6), and Lindgren (2005, p. 5).

5 This typology is based on the WHO definition, which considers violence as '[t]he intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation' (WHO, 2002, p. 5).

6 See Waters et al. (2005), WHO (2004a), Rice (2000), and Fleurence (2003).

7 For a review of the limitations of existing studies, see Lindgren (2005), WHO (2004a), and Waters et al. (2005).

8 Phillips (1998), Walker (1997), and Fanslow et al. (1997), as reported in Waters et al. (2005, p. 305).

9 According to one study, the informal economy is equivalent to 42 per cent of GDP in Africa, 41 per cent in Central and South America, 29 per cent in Asia, 35 per cent in transition countries, 18 per cent in Western European Organization for Economic Co-operation and Development (OECD) countries, and 13.5 per cent in North American and Pacific OECD countries (Schneider, 2002, p. 45).

10 Miller, Cohen, and Wiersema (1996); Miller, Fisher, and Cohen (2001); as quoted in WHO, 2004a, pp. 13–14.

11 Over the past 30 years, a series of measures have progressively tightened controls over rifles and shotguns. In 1977 new legislation was introduced that required a Firearms Acquisition Certificate before purchasing rifles or shotguns. At the same time, fully automatic weapons were prohibited. In 1991 the screening processes associated with getting a Firearms Acquisition Certificate were tightened to include a range of risk factors associated with suicide and domestic violence. The 1991 bill also strengthened safe storage provisions and prohibited a wider range of military weapons, including semi-automatic variants.

12 These were the estimated additional costs over and above those paid by the federal government for the operation of the existing system, including restricted weapons registry and transfer payments to provinces for the administration of the Firearms Acquisition Certificates, but did not consider other costs at the local level.

13 The audit notes that this estimate does not include all financial impacts on the government, and these were, according to the Department of Justice, due to 'major delays in making regulations, provinces opting out of the Program, the need for additional initiatives, incorrect assumptions about the rate at which it would receive applications for licences and registrations, and an excessive focus on regulation and enforcing controls' (Canada, 2002, para. 10.4).

14 Researchers have undertaken studies to assess the impact of previous changes to firearms laws in Canada. Leenaars and Lester (1997; 2001) examined trends in firearms deaths following the passage of the 1977 law. According to their studies, firearms homicide rates for victims aged 15–34 and 45–74 decreased significantly after the introduction of Bill C-51 in 1977. The studies find that the overall homicide rates decreased significantly after the introduction of Bill C-51, even when taking into account a series of social factors that include birth, marriage, divorce rate, unemployment rate, family income, and the percentage of males aged 15–21 in the population. In a subsequent study of suicide in Canada, Leenaars et al. (2003) find that firearms suicide rates decreased significantly after Bill C-51. In addition, the percentage of suicides by firearms also decreased significantly, although the impact on specific age groups and genders differed.

15 It is also important to contextualize the expenditures. The Province of Quebec spent CAD 125 million (PPP USD 106 million) to inoculate citizens against meningitis in 2002 after 85 cases were reported. New Brunswick invested CAD 485 million (PPP USD 413 million) in a segment of highway referred to as 'Suicide Alley' where 43 people had died over five years (unpublished letter, Antoine Chapdelaine et al., 10 January 2003). No one knows how much is invested to keep highways safe—be it through licensing drivers, registering vehicles, and operating safety programmes—but it is well into the billions of dollars annually.

16 Serious injuries in this chapter are those that require hospital admission, as opposed to receiving care only in emergency departments. Lethality refers to the proportion of injuries that result in deaths.

17 See Richmond, Cheney, and Schwab (2005) and Small Arms Survey (2004, pp. 172–211; 2005, pp. 228–65).

18 For evidence of these high gun suicide rates in Canada and the United States, see Small Arms Survey (2004, pp. 199–200).

19 Table 8.7 reveals the distribution of a sample of patients treated at HGNI (111 cases), HSC (145), and HUV (116). HGNI and HSC are both city hospitals that treat primarily patients coming from their surrounding area, which in many cases belong to poor social classes. HUV is the region's largest referral hospital and treats primarily serious injuries. Thus it received a majority of patients injured by small arms (61 per cent), while the other two hospitals treated injuries caused by a wider range of instruments and included data on patients receiving emergency room treatment only. For comparative purposes, however, the analysis focuses on the costs of gunshot wounds versus those of sharp instrument injuries. In all cases where intent could be defined, firearms injuries were interpersonal. In all three hospitals combined, only 23 injuries were the result of suicide attempts and these involved sharp instruments (10 cases) or poisoning (13 cases), but no firearms.

20 Luciana Phebo of ISER, and Katherine Aguirre and Jorge Restrepo of CERAC also responded to numerous follow up queries in written correspondence, January–February 2006.

21 The rates used here were computed from UNDP (2005).

22 Using per capita public health expenditures as reported in UNDP (2005).

23 One plausible explanation is linked with the rapidity of reaction of Colombian ambulances. In Bogotá, for instance, it takes on average 11 minutes for an ambulance to reach an incident scene. Taxis, on the other hand, are easily available at every street corner. While a victim of a stabbing may be able to wait for an ambulance without endangering her/his life, a gunshot victim may be more likely to be rushed to hospital by taxi (written correspondence with Jorge Restrepo, CERAC, 13 February 2006).

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Special Report

Small Arms in Burundi

Disarming the Civilian Population in Peacetime

By Stéphanie Pézard and Nicolas Florquin

A study by the Small Arms Survey and the
Ligue Iteka with support from
UNDP–Burundi and Oxfam–NOVIB

Contents

List of abbreviations

AWEPA	Association of West European Parliamentarians
CBL	Centre pour blessés légers (Minor Injuries Centre) Kamenge (MSF-Belgium)
CEDAC	Centre d'encadrement et de développement des anciens combattants (Support and Development Centre for Ex-combatants)
CGL	Conférence des Grands Lacs (Great Lakes Conference)
CNDD	Conseil National pour la Défense de la Démocratie (National Council for the Defence of Democracy)
CNDD–FDD	Conseil National pour la Défense de la Démocratie–Forces de Défense de la Démocratie (National Council for the Defence of Democracy–Forces for the Defence of Democracy)
CNDRR	Commission Nationale chargée de la Démobilisation, de la Réinsertion et de la Réintégration des ex-combattants (National Commission with responsibility for the Demobilization, the Reinsertion and the Reintegration of Ex-combatants)
CPD	Colonie des Pionniers du Développement (Pioneers of Development Group)
DDR	Demobilization, disarmament, and reintegration
FAB	Forces armées burundaises (Burundian Armed Forces)
FAC	Forces armées congolaises (Congolese Armed Forces)
FAR	Forces armées rwandaises (Rwandan Armed Forces)
FAZ	Forces armées zaïroises (Zairese Armed Forces)
FDD	Forces pour la défense de la démocratie (Forces for the Defence of Democracy)
FDLR	Forces démocratiques de libération du Rwanda (Democratic Forces for the Liberation of Rwanda)

FDN	Force de défense nationale (National Defence Force)
FNL	Forces nationales de libération (National Liberation Forces)
FPR	Front patriotique rwandais (Rwandan Patriotic Front)
FROLINA	Front pour la libération nationale (National Liberation Front)
GoTB	Gouvernement de transition du Burundi (Burundian Transitional Government)
GP	Gardiens de la paix (Peace Guardians (Allied civil defence militias))
GRIP	Groupe de recherche et d'information sur la paix et la sécurité, Brussels (Group for Research and Information on Peace and Security)
HRW	Human Rights Watch
ISTEEBU	Institut de statistiques et d'études économiques du Burundi (Burundian Institute of Statistics and Economics)
MDRP	Multi-country Demobilization and Reintegration Programme (World Bank)
MIAB	Mission Africaine au Burundi (African Mission in Burundi)
MSF	Médecins sans frontières (Doctors without Borders)
Palipehutu–FNL	Parti de Libération du Peuple Hutu–Forces nationales de libération (Hutu People's Liberation Party—National Liberation Forces)
PMPA	Partis et mouvements politiques armés (armed parties and political movements)
PNB	Police nationale du Burundi (Burundian National Police Force)
PSI	Police de sécurité intérieure (Internal Security Police)
RECSA	Regional Centre on Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa
RPG	Rocket-propelled grenade (launcher)
TA SA-AVR	Technical Adviser on Small Arms and Armed Violence Reduction

UGL	Unité de Garde Lacustre (Lake Surveillance Unit)
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNITA	National Union for the Total Independence of Angola
UNHCR	United Nations High Commissioner for Refugees
UNOB	United Nations Operation in Burundi

Summary

Burundi is emerging from a long civil war which claimed the lives of hundreds of thousands of people. One of the consequences of the war has been the proliferation of small arms and light weapons among the civilian population, on a hitherto unprecedented scale. The government, civil society, and Burundi's partners are aware of this problem and believe that lasting peace will not be restored while these arms remain in the hands of civilians.

The Small Arms Survey (Geneva, Switzerland) and the Ligue Iteka (Bujumbura, Burundi), supported by the UN Development Programme, Burundi (UNDP) and Oxfam NOVIB (Dutch affiliate of Oxfam) (The Hague, Netherlands), decided to carry out an exhaustive study of the problems associated with small arms and light weapons in Burundi. The aim of this project is to contribute to the formulation of policy that the government intends to introduce to combat the proliferation of these weapons. The study is based on a number of different methodological tools, including a survey of 3,000 households in six provinces, and an analysis of statistics from the UN, the Ligue Iteka, and MSF-Belgium (medical statistics from its Minor Injuries Centre (the Centre des Blessés Légers, or CBL). Further information was drawn from a two-day workshop in which ex-combatants affiliated to seven former armed groups took part.

Results of the study

This study has made it possible to assess more accurately the problems associated with the possession and use of firearms in Burundi, and to draw the following conclusions:

The possession of arms by civilians

- There were great surges in the numbers of arms held by the civilian population in Burundi during the civil wars in 1972 and 1993–94. Burundian

households in general are heavily armed, but there are significant differences between provinces (Bujumbura-Mairie and Mwaro representing the two extremes).

- Nearly 100,000 Burundian households are thought to possess small arms and/or light weapons .[1] This finding appears to confirm the estimate made by the transitional government in May 2005 that 100,000 arms were being held illegally in Burundi (Niyoyita, 2005). This figure must, however, be viewed as a minimum, since some households may possess more than one weapon.
- The proliferation of arms among the civilian population is most marked in the capital. The provinces bordering the Democratic Republic of the Congo (DRC) are also particularly badly affected. Bujumbura-Mairie is the province with the greatest variety of arms, particularly handguns, whereas weapons of war represent the bulk of stocks in other parts of the country.
- Burundians holding arms justify themselves by citing the need to ensure their own personal safety, as well as that of their family and property. Boosting their self-image or respecting tradition are hardly ever mentioned, which shows that it must be possible to influence demand for arms by improving the security conditions under which people live.
- Most of the arms that were in the hands of combatants during the conflict are still in circulation today. From the 35,000 people who have been demobilized (February 2006 figure), barely 6,000 arms have been recovered.

The availability of arms

- The countries bordering Burundi, particularly the DRC and Tanzania, represent considerable reservoirs of arms. During the civil war Burundians drew on these heavily, and may well do so again if the domestic security situation begins to deteriorate once more.
- In the light of this observation, it is all the more crucial to control the movement of goods across Burundi's borders. At the present time, however, there is virtually no cooperation between the various authorities in charge of this problem, that is to say the army, the police, and customs.
- Regional cooperation on the issue of borders and border security is also lacking, although Burundi and her neighbours are confronted with the

same problems, particularly the existence of cross-border armed groups. It is to be hoped that the tripartite-plus initiative recently expanded to Burundi will help to focus more attention on these problems. In the context of the Nairobi Process, the ratification by Burundi on 15 March 2006 of the Nairobi Protocol and the willingness shown by the authorities to honour their commitments represents a significant step forward.

- The new remit of the army and the police following their reorganization must not cause us to lose sight of the value of a centralized register of arms listing information on all arms imported into Burundi and on their holders—including when government forces such as the army, the police, and customs are involved.
- The army does not have sufficient resources at the present time to destroy its obsolete or unusable arms under acceptable security conditions. The current method of arms disposal, by burning, carries the risk that the barrels may be recovered and reused in *mugobore*.[2]

The impact of arms and perceptions of security

- Even after the ceasefire of November 2003, small arms and light weapons continued to create many victims. More than 1,000 people wounded by them were admitted to the one and only Minor Injuries Centre in Kamenge between January 2004 and December 2005.
- Small arms and light weapons are involved in the majority of violent incidents in Burundi. Eighty-five per cent of victims of violence admitted to the Minor Injuries Centre during the period 2004–05 had been wounded by such arms.
- There are few opportunities for victims of armed violence to receive treatment and after-care, mainly due to the high cost of public medical services and the closure of the Minor Injuries Centre.
- The security situation is generally perceived to be improving, as might be expected in a country now almost entirely at peace, and where elections in 2005 took place without major incident. But here, too, there are significant variations in the way security is perceived in different provinces.
- While the overall level of violence is falling, there is considerable variation between provinces. The number of violent and criminal acts recorded in

the capital and in Bujumbura Rural is particularly high, and has even risen slightly since 2003.

- The root cause of the sense of insecurity felt by ordinary people varies from one province to another. In Bujumbura-Mairie, crime is a major problem, whereas Bujumbura Rural still has to face the residue of civil war, with sporadic confrontations between the army and the Hutu People's Liberation Party–National Liberation Forces (Palipehutu–FNL).
- Most criminal acts are committed with firearms, armed robberies coming top of the list of acts of violence against the civilian population. The increase in sexual offences, sometimes committed at gunpoint, is particularly worrying.
- There is a lack of confidence in the police and the army, who are perceived by some people as contributing to the general climate of insecurity.
- Ex-combatants seem to have reintegrated well into civilian life, and the population does not appear to show any particular suspicion or reserve towards them.

The need for civilian disarmament, and its associated risks

Conducted in six provinces, the survey shows that civilians have real expectations of effective action being taken by the government to bring about disarmament. These expectations arise partly from the disarmament of the Peace Guardians (Gardiens de la Paix (Allied civil defence)) and the Militant Combatants militias which was taking place while the survey was being carried out. An initiative launched by the governor of Muramvya to disarm civilians in his province showed that public sector workers who had arms in their possession were demanding BIF 100,000 (USD 100) in exchange—i.e. the same sum which had been allowed to the Peace Guardians and the Militant Combatants.[3] The arms collections organized by the Centre for the Support and Development of Ex-combatants (Centre d'encadrement et de développement des anciens combattants, CEDAC), with the support of the Ligue Iteka, also show that people are perfectly willing to surrender hand-made guns (*mugobore*) and munitions, but not commercially manufactured weapons such as Kalashnikov or FAL rifles—of which there are, however, far more in the hands of the civilian population than there are *mugobore*.

In spite of the stated expectations of the various civilian populations, many respondents have emphasized that an 'arms for money' type disarmament programme might prove to be counter-productive, as those receiving payments would be able to use the money to buy more arms and hence perpetuate the illegal arms trade. For the same reason, it could be equally counter-productive to offer goods in exchange for arms (see for example the recent 'arms for bicycles' programme in the DRC), because people could resell them to get cash and buy more arms.[4] Considering the number of arms in the nearby DRC, it is feared that the disarmament of Burundian civilians might create a market which would immediately be seized upon by arms dealers from these. If financial compensation were offered as part of a civilian disarmament programme, this would have to be lower than the current price of arms in the DRC and in Tanzania, in order not to cause or stimulate a revival in arms trafficking between these countries and Burundi. Disarmament would also have to be backed up by a serious effort to control the borders,[5] but it is hard to see how such control could be enforced with existing resources, or how it could be sustained in the long term.

The prospect of civil disarmament also raises other fears: the continuing threat of violent attacks by the Palipehutu–FNL, fear of another war, and a general sense of insecurity could discourage people from giving up their arms. While acts of violence are still being committed in provinces such as Bujumbura Rural, Bubanza, and Cibitoke, individuals holding arms will remain sceptical as to the wisdom of surrendering their weapons while the Palipehutu–FNL, which is still a threat, keep their own.

At Bujumbura-Mairie, continuing insecurity could lead some people to dispose of their weapons of war (assault rifles, grenades), but keep the pistols and revolvers they can use to defend themselves against criminals. [6] According to a customs source, handguns are currently more sought after than Kalashnikovs, a preference reflected in the price. [7]

Recommendations for civilian disarmament

Whatever approach is envisaged, any potential programme of civilian disarmament must take account of the distinctive features of the situation in Burundi as set out in this study:

- *Re-establish security as a preliminary to any arms collection initiative.* The disarmament of civilians must be achieved in tandem with clear efforts to re-establish a satisfactory security situation. Resolving the problem of the Palipehutu–FNL and tackling crime seriously will show people that the government is determined to make Burundi a safe place to live.
- *Set up an institutional and legal framework*. Efforts must be made within the institutional framework with the creation of a body able to devise and carry out disarmament missions and monitor the implementation of Burundi's international obligations (such as the Nairobi Protocol). The technical Commission recently established to disarm the civilian population and combat the proliferation of small arms and light weapons should be capable of fulfilling this role.
- *Target the provincial rather than the national level.* The level of security and the problem of arms proliferation vary from one province to another. There is no doubt that Bujumbura Rural and Bujumbura-Mairie will not be ready to disarm until there is an improvement in the security situation and an end to the threats that push the civilian population to keep their weapons or arm themselves. The situation in other provinces, like Bururi, Ruyigi, and Mwaro, on the other hand, is much more conducive to a successful disarmament programme. It would therefore be wise to develop pilot projects to test different approaches to collecting arms in areas where security has already been restored.
- *Make disarmament voluntary rather than enforced.* Voluntary disarmament can be presented as an amnesty period to be followed by compulsory disarmament. The failure of initial efforts to disarm following the adoption of the Decree of 5 May 2005 shows that no one will give up their arms in the absence of a sufficiently strong climate of confidence. From a strategic point of view, another fear is that certain sponsors may oppose compulsory disarmament and refuse to give financial support to such an initiative.[8]

From this perspective, an assessment of the voluntary disarmament initiative begun in April 2006 is urgently needed.

- *Back a public information and awareness campaign.* Laws must be translated into Kirundi.[9] In a recent local disarmament initiative in Muramvya, the local heads of the Internal Security Police were involved in raising awareness of these issues among civil servants and local district administrators.[10] Similar activities have also been initiated by civil society, particularly by ex-combatants' associations who have organized collections of arms from the civilian population.
- *Boost confidence in institutions responsible for security.* Security incidents involving uniformed men could pose serious difficulties during any process of civilian disarmament, despite the enthusiasm shown by the public for the authorities to collect arms (an enthusiasm which seems to owe more to possible financial compensation than to any real confidence in the police and the army). Establishing a greater degree of confidence between the civilian population and the new military and police forces must be an important element in any disarmament strategy.
- *Strengthen the capacity of the police and customs services to combat arms trafficking.* Arms trafficking, which has diminished since the Arusha Accord, could well resume if, having given up their arms, people felt the need to defend themselves once more. Better coordination between the various agencies (the police, customs, the navy), as well as the creation of structures for dialogue between Burundian agencies and their counterparts in neighbouring countries (mainly the DRC and Tanzania), would be welcome.

Introduction

Burundi is emerging from a long civil war which claimed the lives of hundreds of thousands of people. One of the consequences of the war has been the proliferation of firearms within the civilian population on a hitherto unprecedented scale in the country's history. The government, civil society, and Burundi's partners are aware of this problem and believe that lasting peace will not be restored while these arms remain in the hands of the civilian population. From this perspective, a civilian disarmament strategy needs to be developed based on a clear and precise understanding of the problems associated with small arms and light weapons in Burundi.

National context

The signing on 28 August 2000 of the Arusha Peace and Reconciliation Agreement, then, on 16 November 2003, of a general ceasefire agreement between the transitional government of Burundi and the main rebel movement, the CNDD–FDD (National Council for the Defence of Democracy–Forces for the Defence of Democracy (Conseil national pour la défense de la démocratie–Forces pour la défense de la démocratie)), marked the end of a ten-year crisis that caused the deaths of 300,000 people and displaced nearly a fifth of the country's population (United Nations Economic and Social Council, 2004, para. 26 and 30). The African Mission in Burundi (Mission Africaine au Burundi (MIAB)) ensured compliance with the provisions of the Arusha accord and maintained peace and security in Burundi for a year; it also prepared for the forthcoming demobilization, disarmament, and reintegration (DDR) process by carrying out various tasks such as the pre-cantonment of ex-combatants. The mission was replaced in May 2004 by UNOB (United Nations Operation in Burundi), whose mandate covered monitoring the transition to democracy, the security of elections, the DDR process, and the control of the flow of arms. The transitional period in Bu-

rundi came to an end in August 2005, with the election of Pierre Nkurunziza, former head of the CNDD–FDD and member of the transitional government, to the Presidency of the Republic, and the installation on 30 August 2005 of a government made up of Hutu and Tutsi ministers in almost equal numbers, in accordance with the new constitution adopted by referendum in February 2005.

The first moves towards civilian disarmament were made by the transitional government and by UNOB; these initiatives involved ex-combatants, some of whom were demobilized, and others integrated into the new army, the FDN (National Defence Force (Force de la Défense Nationale)), and also the militias (the 'Peace Guardians' and the 'Militant Combatants').

It is nevertheless difficult to assess whether this disarmament can be considered a success, given the number of arms recovered in the course of operations; all the evidence suggests that a great many small arms remain in the hands of the civilian population, whether ex-combatants, former militiamen, or ordinary civilians who armed themselves during the war for their own protection—and who have kept their weapons to defend themselves from attack by the last rebel group still active, the Palipehutu–FNL, or by criminals, the crime rate having been on the increase since the outbreak of the war.

There is currently no reliable estimate for the number of arms in circulation in Burundi, nor of their types, their origin, or the uses to which they are put. Estimates of the number of illegal arms in circulation range from 100,000 (Niyoyita, 2005) to 300,000 (assault rifles, grenades, and rocket-propelled grenades, or RPGs) (United Nations Security Council, 2005a, para. 171). It is nevertheless impossible to know from which sources these estimates are derived.

In addition to straightforward statistics on the arms themselves, it is essential to obtain information on the owners: who they are, why they need an arm, and above all, whether they would be prepared to get rid of it. On what conditions would they agree to give up their arm, and to whom would they be prepared to surrender it? The answers to these fundamental questions will form the basis of any realistic strategy to disarm the civilian population. This study was undertaken with the hope of helping to provide such answers.

Partners in the study

The Small Arms Survey (Geneva, Switzerland) and the Ligue Iteka (Bujumbura, Burundi), supported by the UNDP and Oxfam-Netherlands/NOVIB (The Hague, the Netherlands), have conducted an exhaustive study into the problems associated with small arms in Burundi. The aim of the project is to contribute to the formulation of a policy to combat the proliferation of small arms and light weapons which the government intends to introduce.

Methodology

This study, for which field work began in November 2005, is based on the following methodological tools:

a) A survey of households in six provinces

This survey, which was conducted in 3,060 households in the provinces of Bujumbura-Mairie, Bujumbura Rural, Bururi, Cibitoke, Mwaro, and Ruyigi, focused on various issues, principally perceptions of security related or unrelated to arms, an assessment of the quantity of arms in circulation, and the feasibility of disarming the civilian population. The survey, consisting of a questionnaire in two versions, one in French, the other in Kirundi, was carried out between 23 November and 21 December 2005.[11] The provinces chosen were selected for the following reasons:

- Bujumbura-Mairie: for its strategic importance as the country's capital.
- Bujumbura Rural: because of the continuing conflict between the government and the last rebel group, the Palipehutu–FNL.
- Bururi: relatively little affected by the conflict, Bururi is nevertheless believed to have a relatively high proportion of arms in circulation due to the political tensions which have characterized the history of the province.
- Cibitoke: this province was chosen for the same reasons as Bururi, and because firearms still fuel a fairly strong sense of 'residual' insecurity.
- Ruyigi: bordering on Tanzania, this province was chosen for similar reasons to Bururi.
- Mwaro: this province acts as a 'witness', to the extent that it has experienced few firearms-related incidents. The inclusion of Mwaro enables us to see

whether the responses collected from households in this province are consistently different to those collected in other provinces with greater security problems.

The households surveyed were chosen on the basis of demographic information dating from 1998 and 2002, and made available by the Burundi Institute of Statistics and Economic Studies (Institut de statistiques et d'études économiques du Burundi (ISTEEBU)). Emmanuel Nindagiye, a statistician at the Institute, drew up a random sample of six sous-collines per district[12], which gave a total of 312 sous-collines to study. Ten households were chosen at random in each sous-colline. In the case of Bujumbura-Mairie, the base unit chosen was the enumeration area of each urban district.

b) A two-day workshop with representatives of seven former armed groups

This workshop was organized by CEDAC with the support of the Ligue Iteka. An ex-combatants' association founded in Bujumbura in September 2005, CEDAC now has branches in every province of Burundi. The workshop addressed issues such as the availability of arms and munitions, the monitoring and use of arms within armed groups, perceptions of security and the possession of arms, and the disarmament process for ex-combatants. There were eight participants, all ex-combatants and members of CEDAC, who came originally from the following combatant groups: CNDD–FDD, Palipe-Agakiza (Party for the Liberation of the (Burundian) People-Agakiza (Parti Libérateur du Peuple Burundais-Agakiza)), Kaze-FDD (Kaze-Forces for the Defence of Democracy (Kaze-Forces pour la défense de la démocratie)), FNL-Icanzo (National Liberation Forces-Icanzo (Forces nationales de libération-Icanzo)), CNDD (National Council for the Defence of Democracy (Conseil National Pour la Défense de la Démocratie)), FROLINA (National Liberation Front (Front de Libération Nationale)), and FAB (Burundi Armed Forces (Forces armées burundaises)). The workshop was led by Mr Eric Niragira of CEDAC. Mr Celcius Barahinduka and a note taker, both from the Ligue Iteka, and the authors of this report were also present during the discussions.

c) A series of discussions with representatives of the Burundian authorities, international organizations, and NGOs present in Burundi

Between 29 January and 4 February 2006, the two researchers from the Small Arms Survey (Nicolas Florquin and Stéphanie Pézard) were able, with the assistance of Mr Mody Berethe of the UNDP–Burundi and Mr Celcius Barahinduka of the Ligue Iteka, to speak to representatives of the Burundian authorities (the government, the army, the police, the CNDDR (National Commission for Disarmament, Demobilization, and Reintegration (Commission Nationale de Désarmement, Démobilisation, et Réinsertion)), as well as members of international organizations (UNOB, UNICEF, UNHCR), the diplomatic corps, NGOs present in Burundi (the Ligue Iteka, MSF-Belgium, Lucopafe), and a private security firm.

d) An analysis of statistical data from the Burundian authorities and from the United Nations security unit in Burundi and other UN organizations on the use of small arms and light weapons in security incidents

The United Nations security unit in Burundi has been writing weekly reports on security incidents since July 2000. More than 4,500 security incidents have been recorded in this way. The United Nations Operation in Burundi has its own databases on incidents linked to the conflict as well as to crime and human rights violations, which have been analysed for the year 2005.

e) An analysis of data from the NGO MSF-Belgium regarding the impact of small arms and light weapons on public health, and from the Ligue Iteka on human rights violations

MSF-Belgium has made available to the team the medical statistics on patients admitted to the Minor Injuries Centre in Kamenge between 2001 and 2005. These statistics make it possible, among other things, to determine the type of arms responsible for injuries. The data in the different annual reports of the Ligue Iteka has also been analysed.

II. Impact and perceptions of the proliferation of arms

II.A. The arms

II.A.1. History of the presence of arms in Burundi

Before the 1970s, the proliferation of small arms in Burundi was not a problem. The Burundian civil population began to acquire arms during the crisis in 1972, when the Hutu rebellion and the subsequent repression caused tens of thousands of deaths and pushed nearly 300,000 people to leave the country, mainly for Tanzania (ICG, 2003, p. i). A second wave of arms acquisition took place from 1993–94[75] with major purchases being made in 1996 in particular.[76] These waves of acquisition by the civil population partially explain the problems of criminality now facing Burundi.[77]

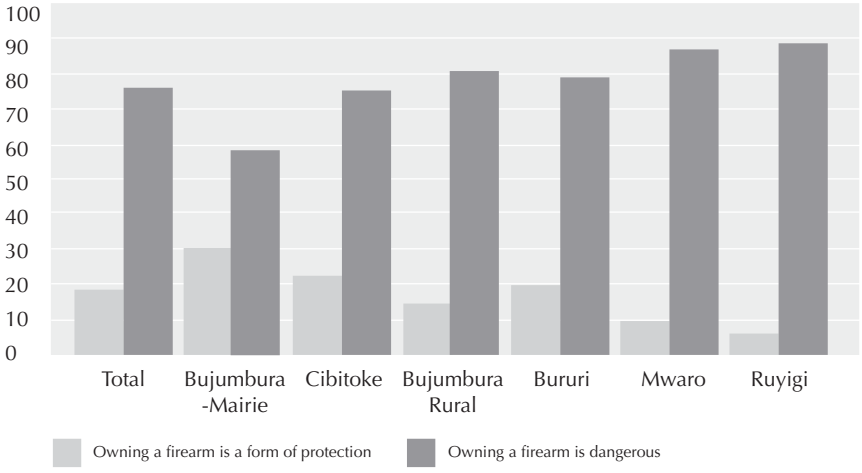
II.A.2. Burundian attitudes to the possession of arms

According to a survey of attitudes, when asked why people (other than soldiers and police officers) in their neighbourhood/colline possessed arms, respondents cited the desire for personal protection (33.7% over all the six provinces) as the main reason, especially in Bujumbura-Mairie where this reason was cited by 48.7% of persons interviewed. The desire to protect one's family was also much higher in Bujumbura-Mairie than in the other provinces, being cited by 34% of respondents in the capital against less than 10% in each of the five other provinces. Tradition, social pressure, and reasons of prestige hardly figure among the explanations as to why the population holds arms. These results seem to confirm those of the survey published by GRIP in 2006 of around 300 people in the provinces of Bujumbura Rural, Cibitoke, and Bubanza. The great majority of the 138 people interviewed in 2004 who admitted to possessing an arm, cited the need for personal protec-

tion, the protection of goods or of the family, as justification (Ntibarikure, 2006, p. 24).

It is interesting to note that the population as a whole seems to have a rather negative image of arms. When people were asked if firearms 'help to protect' or were 'dangerous', more than three-quarters of respondents, in all provinces combined, chose the latter. The number of people who thought that arms were more dangerous than reassuring was very high in Bujumbura Rural (80.9 %) and very low—in comparison with other provinces—in Bujumbura-Mairie (58.8 %), which may come as a surprise, as both these provinces have major problems of armed violence (relating to the continuing civil war in Bujumbura Rural and a high level of criminality in Bujumbura-Mairie). The fact that citizens of Bujumbura-Mairie constitute nearly a third (of the respondents) who view firearms as protection confirms the fact that these people are more inclined to arm themselves for personal protection (see above), while the population of Bujumbura Rural, who live in a war zone, possibly see themselves more as potential victims of the rebels and have little hope in (the value of) an individual armed response. This also explains why

Graph 2
Respondents' opinions about the possession of firearms (per cent)



Source: Nindagiye, 2006

the survey of households shows that handguns (pistols and revolvers, which are often perceived as protective arms) are available only in the capital and not in the five other provinces studied.

II.B. Violence and security

II.B.1. The impact on public health

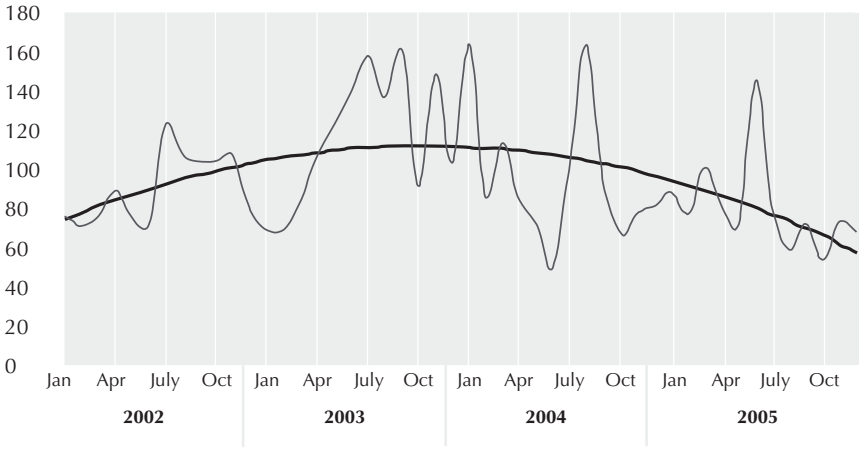
Armed violence has a particularly dramatic impact on the health of Burundians, many of whom are not able to access medical services. Burundians unable to pay their medical bills can be 'imprisoned' in the country's hospitals, without receiving the necessary care, until their families have sufficient money to get them out (FIACAT, 2005; MSF-Belgium, 2004). Faced with this alarming situation, on 23 December 2005 Françoise Ngendahayo, the minister with responsibility for national solidarity, ordered these unfortunate patients to be discharged (Netpress, 2005). The position of those suffering from bullet wounds in Burundi nevertheless remains worrying, particularly due to the closure of the MSF-Belgium Minor Injuries Centre, which offered free care for many victims of armed violence until February 2005.

The research team was not able to see Burundian hospitals' admissions registers. However, it is unlikely that the data reflects the real health situation, as the majority of Burundians do not have access to public health infrastructures.

The statistics obtained from the Minor Injuries Centre in Kamenge (district on the edge of Bujumbura), however, reveal certain trends. The centre, which was opened by MSF-Belgium in 1995, treated those injured in the war free of charge and almost continuously from 1995 to February 2006, when it closed. Not having a real operating theatre, it was only able to treat those suffering from minor injuries; patients requiring surgery were taken to a hospital.[78] The centre gathered statistics about patients admitted between August 2000 and December 2005. The data for 2000 and 2001 can hardly be considered representative: the centre was forced to operate in semi-secrecy for security reasons until 2001, and it was only after 2002 that it was widely known among the population. Most of the patients treated by the Minor Injuries Centre were

from Bujumbura Rural, a major conflict zone that did not have a hospital. The other wounded generally came from Bujumbura-Mairie, Bubanza, and Cibitoke.[79] Data on the causes of injuries, particularly per type of arm, are available for 2004 and 2005.

Graph 3
Number of admissions to the MSF-Belgium Minor Injuries Centre (CBL), 2002–05 (per month)

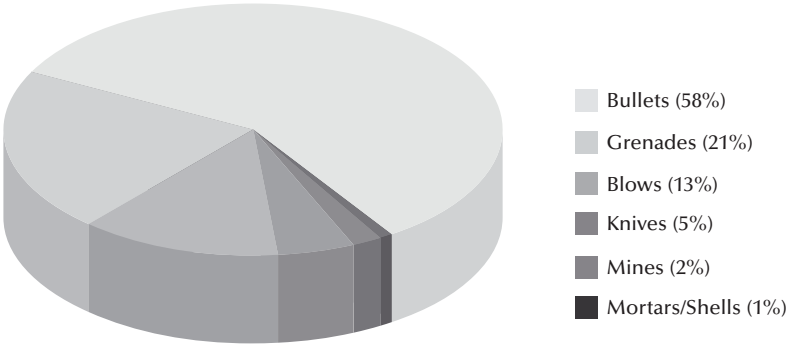


Source: MSF-Belgium, 2001–05

The Minor Injuries Centre statistics show a continuous decline in the number of patients from the beginning of 2004, even if the number of admissions remains high after that date: in 2004, the centre treated 760 new victims of violence, against 538 in 2005 (MSF-Belgium, 2001–05). This trend suggests that peace was restored to some extent after the ceasefire of 16 November 2003. However, this observation must be qualified. Two spikes of violence, the first relating to the massacre of refugees in Gatumba in August 2004, and the second due to tensions surrounding the local elections in June 2005, coincided with a large number of admissions to the Minor Injuries Centre.[80]

Thanks to the available data it is possible to distinguish between the various arms that caused the 1,298 injuries due to violence that were treated at the Minor Injuries Centre in 2004 and 2005. Nearly 60% were bullet wounds.

Graph 4
Causes of violence-related injuries among patients treated at the Minor Injuries Centre



Source: MSF-Belgium, 2001–05

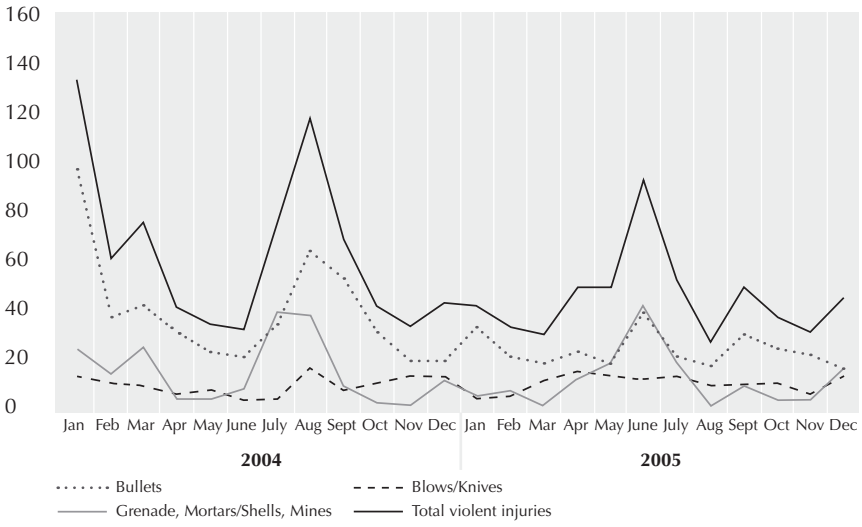
Grenades were responsible for 22% of admissions. If mines and mortars/shells are added, we find that 85% of all violent injuries admitted to the Minor Injuries Centre were caused by small arms. Given that some of the most seriously wounded patients died before arriving at the Centre, these results suggest that an even higher percentage of the violence in Burundi is committed using small arms. Only 15% of injuries treated were inflicted by physical force or with knives.

Small arms are also clearly responsible for spikes of violence. The monthly distribution of admissions to the Minor Injuries Centre shows that the number of injuries caused by knives or physical force remained stable and relatively low from month to month. The variations in the number of patients admitted were therefore due entirely to variations in the frequency of injuries caused by bullets, grenades, mortars, and mines. This shows that small arms are the weapons most used during spikes in the violence.

II.B.2. The impact on security

Various sources confirm the relative return to security since the end of 2003, as suggested by the Minor Injuries Centre statistics. Graph 6 compares the

Graph 5
Monthly distribution of admissions to the Minor Injuries Centre, per cause (2004–05)

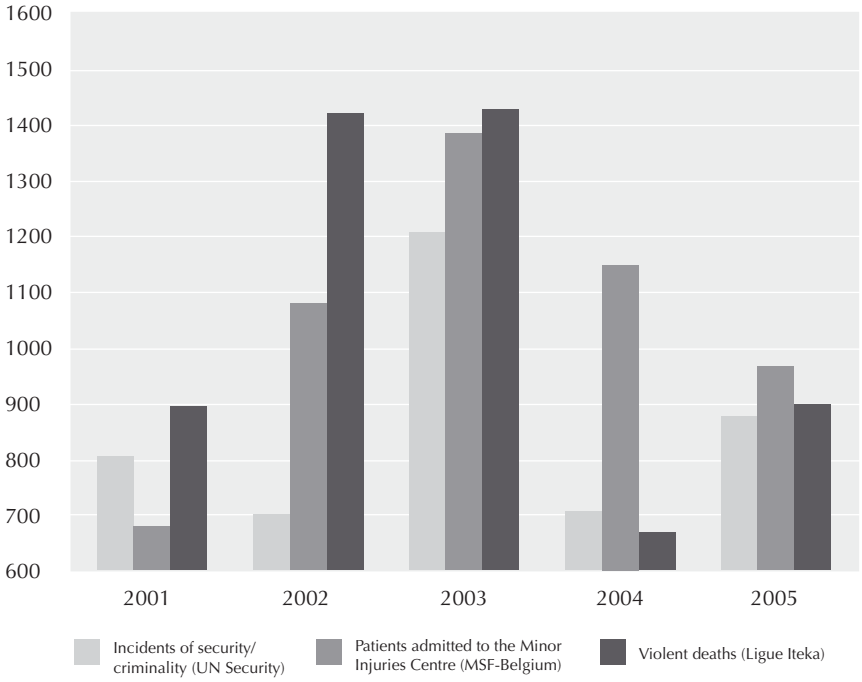


Source: MSF-Belgium, 2001–05

number of admissions to the centre with: (1) the number of fatal assaults (i.e. violent deaths such as murders) recorded in the Ligue Iteka annual reports for 2004 and 2005 (Ligue Iteka, 2005, p. 3; 2006); and (2) the number of security and criminality incidents recorded by the United Nations security unit. Curiously, the number of incidents reported by the Ligue Iteka and the United Nations security unit for 2004 is much lower than the number of casualties admitted to the Minor Injuries Centre. This difference can be explained by the fact that the United Nations counts 'incidents', each of which can lead to several casualties. The three sources nevertheless agree that there was a spike in the violence in 2003, and that the security situation improved in the following two years.

The household survey also confirms this trend towards greater security. In the six provinces covered by the survey, the feeling of security has clearly increased in the last two years. In Cibitoke, Bururi, Mwaro, and Ruyigi, more than 90% of respondents considered the situation more secure now than it

Graph 6
Variations in the levels of violence per source, 2001–05

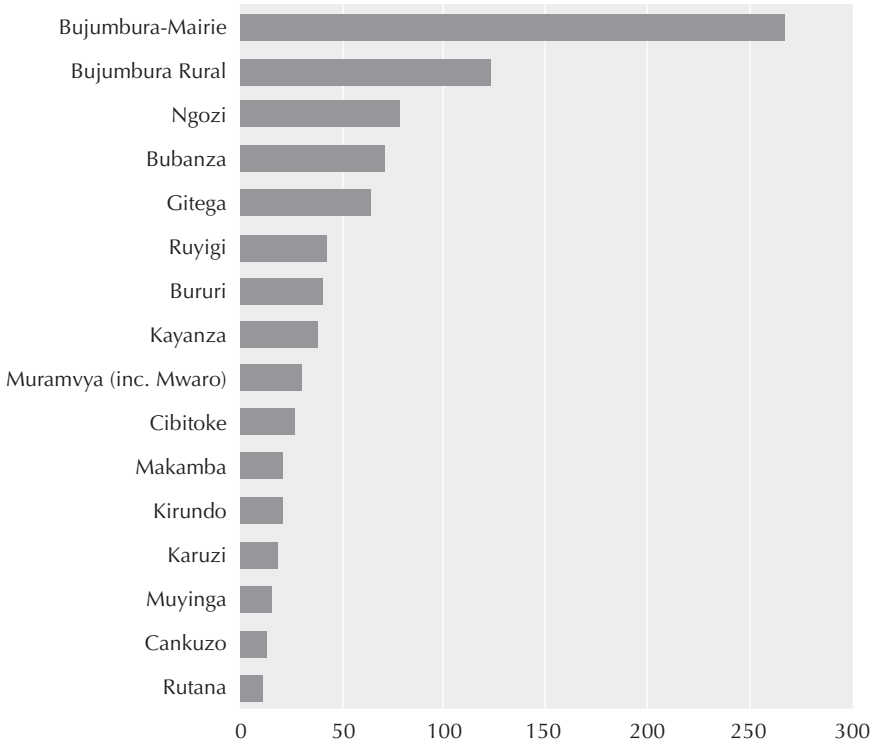


Sources: MSF-Belgium, 2001–05; Ligue Iteka, 2005, 2006; authors' calculations based on the weekly reports of the UN security unit for the period 2001–05

was two years ago. The increase in security is lower but nevertheless still important in Bujumbura-Mairie (80.8%). However, it is much less marked in Bujumbura Rural (63%), reflecting the fact that the war continues in this province with the presence of the Palipehutu–FNL. 6.1% of people interviewed in Bujumbura-Mairie and 12.1% of those interviewed in Bujumbura Rural even consider that the security situation has got worse over the last two years.

These perceptions, combined with the relative improvement in the security situation over the last two years, show that the situation is still difficult in several provinces. The UN security unit reports, for 2005, a significant number of incidents in the capital and in Bujumbura Rural; the other prov-

Graph 7
Number of security and criminality incidents recorded by the UN security unit, per province (2005)

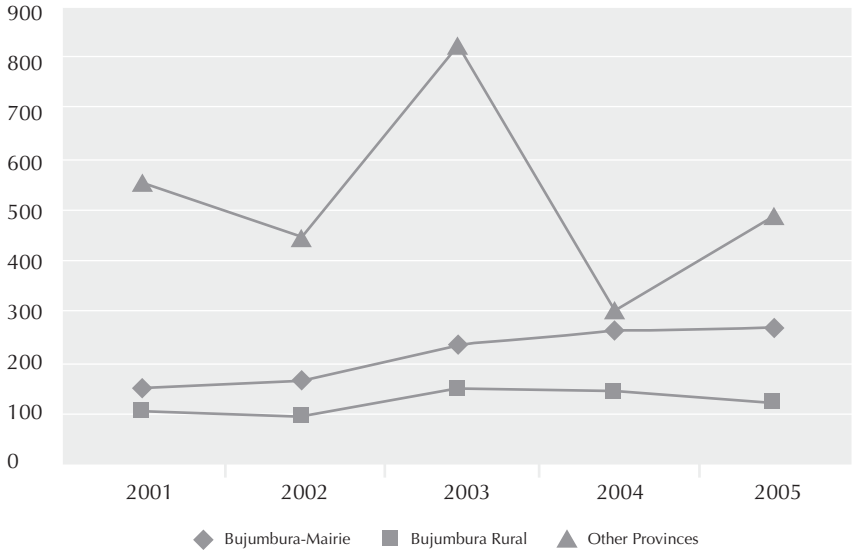


Source: Authors' calculations based on the weekly reports of the UN security unit for the period 2001–05

inces particularly affected by security incidents are Ngozi, Bubanza, and Gitega (see Graph 7). While the number of incidents recorded in the rest of the territory varied from year to year, but was overall lower than in 2003, it remained stable or increased in Bujumbura Rural and in the capital (see Graph 8).

The results of the household survey confirm these disparities. In Bujumbura Rural, for example, the majority of respondents (31.5%) do not feel 'at all' secure, and only 14.8% feel 'totally' secure. The situation in Bujumbura-Mairie is also worrying, although less so. Here the percentage of respondents

Graph 8
Evolution in the number of incidents recorded by the UN security unit, 2001–05



Source: Authors' calculations based on the weekly reports of the UN security unit for the period 2001–05

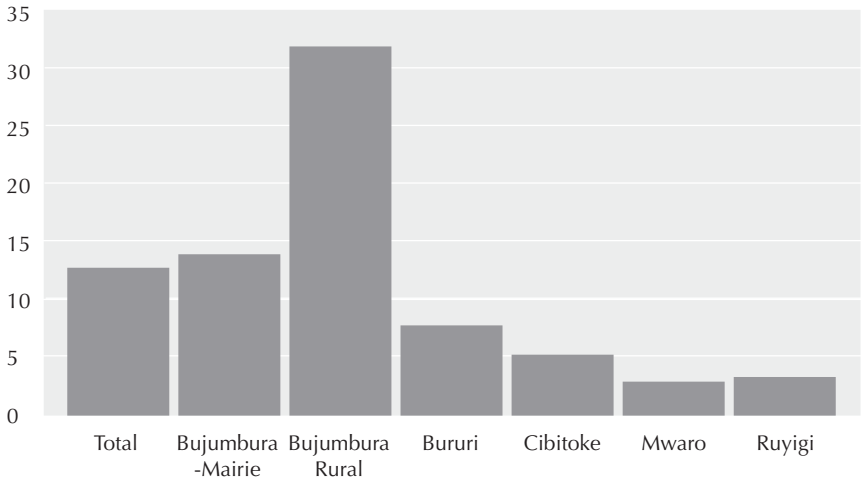
who feel 'not at all' or 'only a little' secure exceeds the percentage of those who feel 'very' or 'totally' secure (41.6% against 34.7%). However, the security situation seems to be fairly good in Cibitoke, Bururi, Ruyigi, and especially Mwaro, where more than 50% of respondents say they feel 'totally' secure. With respect to the question of how secure people feel, men and women replied in almost exactly the same way, which seems to show that each individual feels equally vulnerable or safe.

The distribution of households where at least one member has been a victim of violence (Graph 10) shows some differences, with less variation between the provinces. Once again, however, the rates are very low in Bururi, Mwaro, and Ruyigi (less than 8%) and higher in Bujumbura-Mairie and Bujumbura Rural (13.8% and 13.2% of respondents, respectively).

The types of violence cited by respondents are, in decreasing order, and for all provinces, armed robbery, gangs, alcohol-related nuisance, fights, and

Graph 9

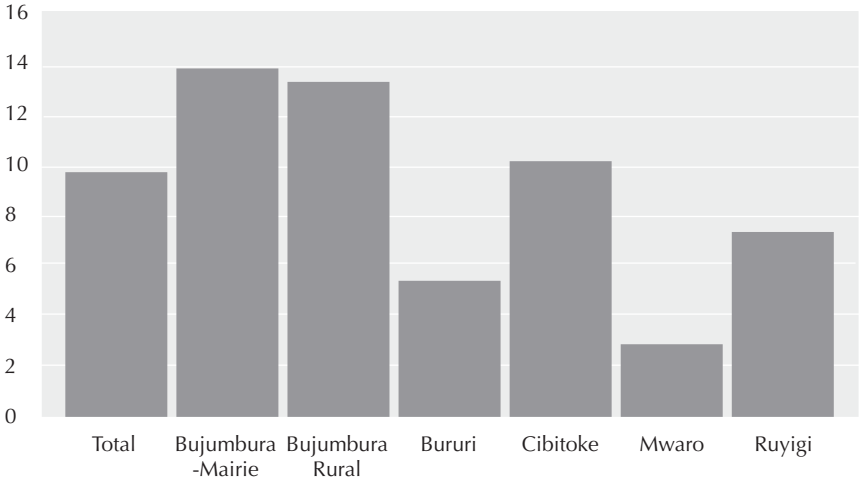
Percentage of respondents per province who say they 'do not feel at all' secure



Source: Nindagiye, 2006

Graph 10

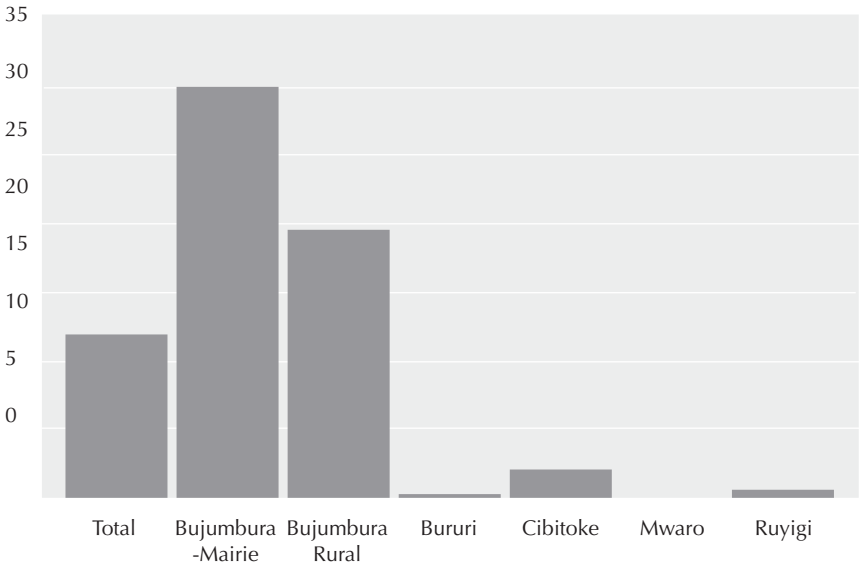
Percentage of respondents per province who say that they have at least one victim of violence in their household



Source: Nindagiye, 2006

Graph 11

Percentage of respondents per province who say that they have heard shots at least once a week



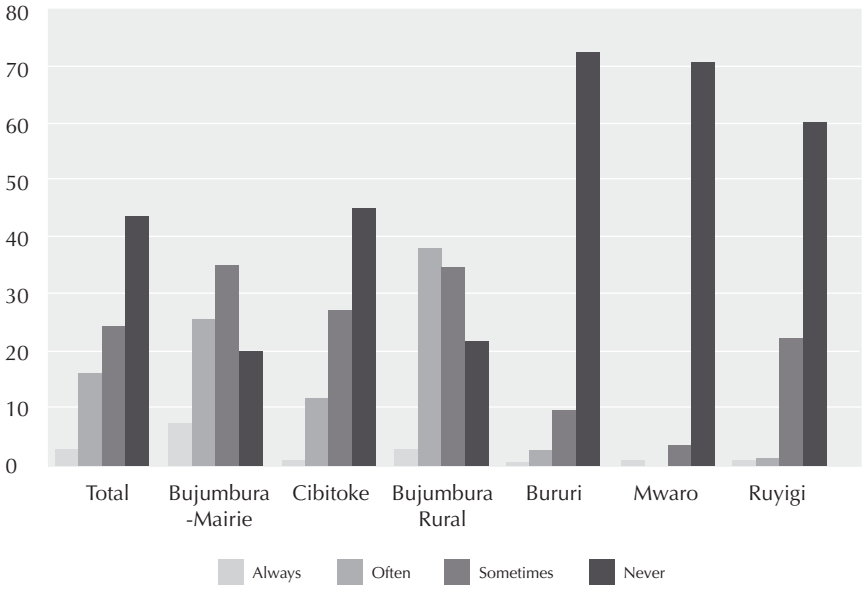
Source: Nindagiye, 2006

murders. Armed robbery is particularly frequent in Bujumbura-Mairie, while murders are most prevalent in Bujumbura Rural, reflecting the different threats (criminal or rebel) that affect these two provinces. Gangs head the list of those responsible for the violence suffered by people known to the respondents in the provinces of Bururi, Mwaro, and Ruyigi.

In the places where the feeling of insecurity is predominant, it seems to be strongly associated with the use of small arms. As Graph 11 shows, shots are heard more frequently in Bujumbura-Mairie and Bujumbura Rural, with the capital having a particularly high score.

These two provinces also seem to be the places where violence is committed most often with firearms: 32.4% of respondents in the capital and 40.3% of respondents in Bujumbura Rural said that violence was often or always committed with small arms, against only 18.6% for the whole sample (see Graph 12).

Graph 12
Use of firearms in acts of violence



Source: Nindagiye, 2006

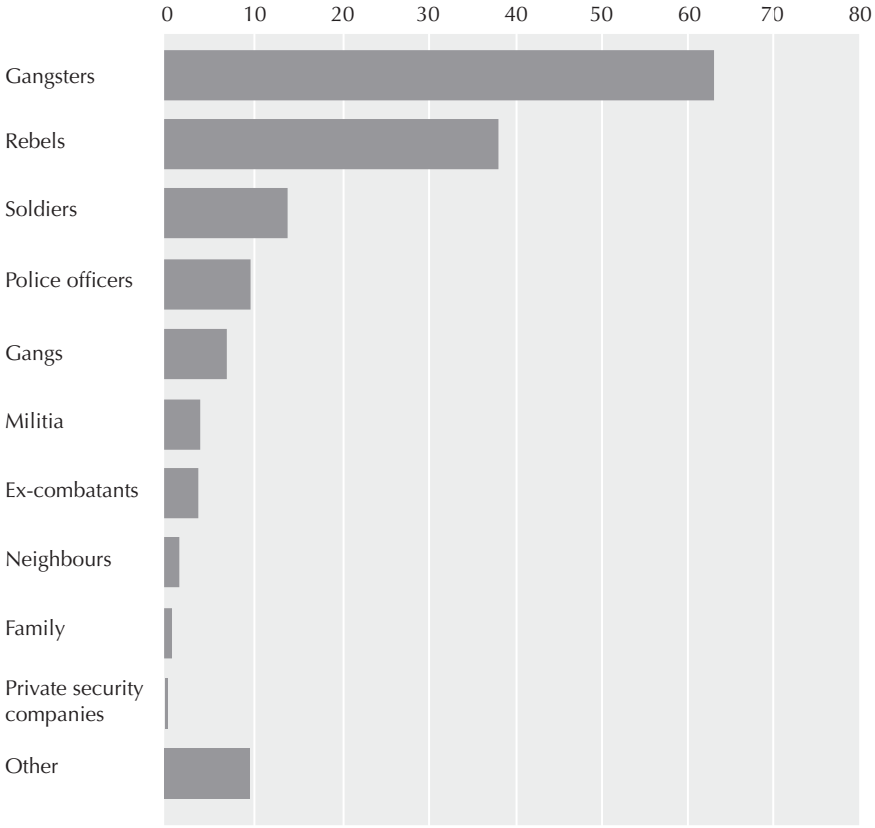
II.B.3. The contexts of insecurity and the people involved

People involved in insecurity

In all the provinces, except Bujumbura Rural, gangsters are cited by a high proportion of respondents as a source of insecurity, while rebels, unsurprisingly, head the list in Bujumbura Rural. The rebels are also a source of anxiety in the two other provinces where troubles persist, Bujumbura-Mairie and Cibitoke (30.9% and 31.7% of respondents, respectively, cited them as a source of insecurity).

Soldiers and the police are classified after rebels as a source of insecurity. This reveals a worrying situation, in which forces supposed to ensure the security of the population represent, on the contrary, a source of insecurity. Depending on the province, sometimes it is the police and sometimes the army which has the highest score (see Graph 14). In provinces still torn by

Graph 13
Sources of insecurity identified by respondents



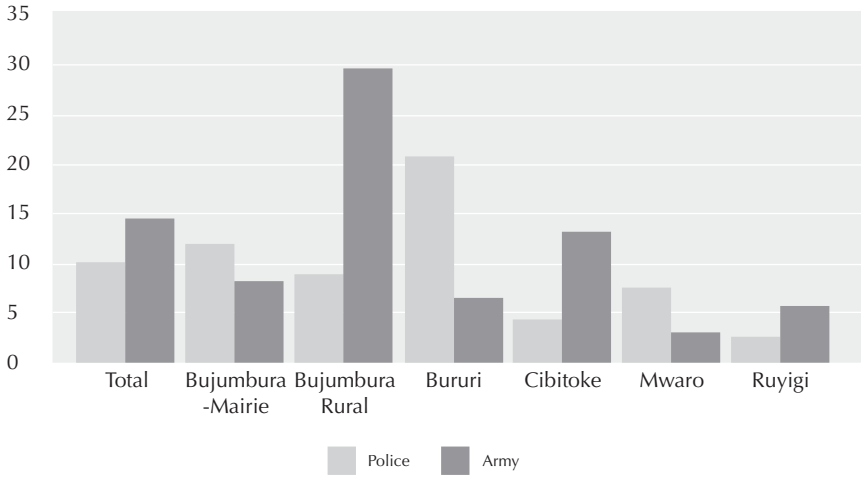
Note: The figures represent the percentage of respondents who gave the reply cited. The total is more than 100 as the respondents could choose several replies.

Source: Sources of insecurity identified by respondents

civil war, and where there is a strong military presence, it is the army more than the police which represents a source of insecurity: soldiers are cited by nearly a third of respondents in Bujumbura Rural (against 8.8% for the police) and by 13.1% of the population in Cibitoke. This also applies in Ruyigi, but at very low rates which cannot be compared with the two other provinces. In the three other provinces, police inspire less confidence than soldiers, with a

Graph 14

Percentage of respondents per province who identified the army or the police as a source of insecurity



Note: The figures represent the percentage of respondents who gave the reply cited. The total is more than 100 as the respondents could choose several replies.

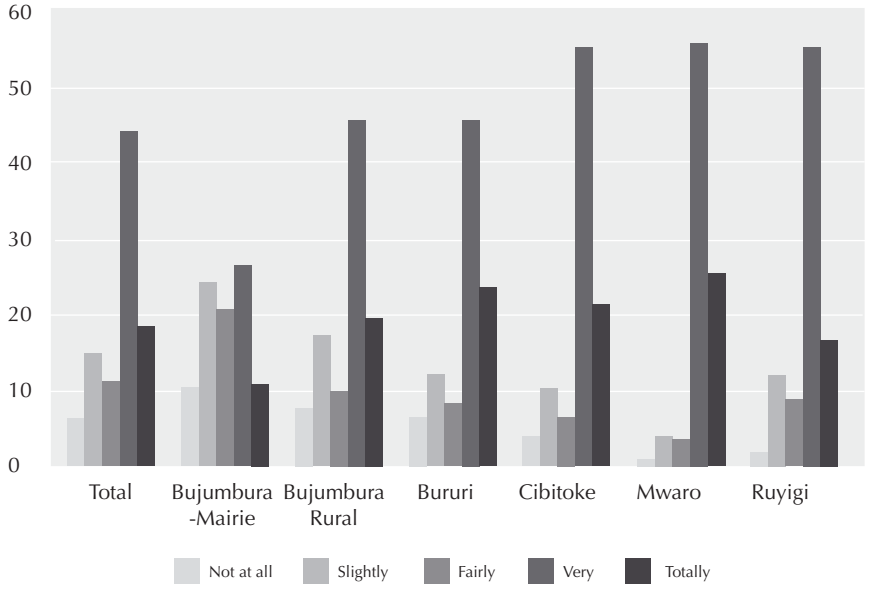
Source: Nindagiye, 2006

particularly worrying situation in the province of Bururi, where 20.7% of respondents say that they consider the police to be a source of insecurity.

Paradoxically, it seems that the police and the army also represent a source of *security* (Graph 15). Asked about their feelings regarding the effectiveness of the police and army in dealing with crime, a majority of respondents in all provinces surveyed replied 'very' (effective). This feeling is particularly strong in Cibitoke, Mwaro, and Ruyigi (more than 50% of respondents) and only a little less so in Bujumbura Rural and Bururi (between 40% and 50% of respondents). The exception is Bujumbura-Mairie, where replies are much more evenly distributed: one respondent in ten chose the options at the top and bottom end of the scale ('not at all' or 'totally'), while one in four replied 'slightly' or 'very', and one in five 'fairly'.

These results highlight the persistence of the problem of criminality in Bujumbura, and mixed feelings about the effectiveness of the law enforce-

Graph 15
Perceptions of respondents about the effectiveness of public authorities in dealing with crime



Note: Each column shows the percentage of respondents who gave that reply.

Source: Nindagiye, 2006

ment agencies. In the case of Bururi, the police and the army are thought to be very effective in dealing with crime but are also considered to be an important source of insecurity. These apparently contradictory results may possibly be explained by the fact that this province has seen serious land ownership disputes since the exile, in 1972, and then return of part of its population.[81] Both the police and soldiers in Bururi are sometimes personally involved in land ownership disputes, which explains why they can be thought to be effective in carrying out their functions and also arouse distrust.[82] This situation is aggravated by the fact that a large number of police officers in Bururi were armed by the government of the time, and some of them, apparently, were involved in organized crime, creating a feeling of insecurity among the population.

Meanwhile ex-combatants are rarely cited as a source of insecurity. As they are more numerous in Bujumbura-Mairie, it follows that that is where they are most often cited (6.6% of respondents). In the other provinces, they are cited by less than 3% of the population. This finding is reassuring, as it shows that ex-combatants are not stigmatized by the population, which is not particularly wary of them. It also shows that, in popular perception, ex-combatants are not equated with gangsters, and that problems of criminality not linked with them. The situation is a little different, however, in the case of the militias. These are cited as a source of insecurity by a large proportion of the population (relative to other provinces) in Bururi (9.7%)—where, as we have seen, they are particularly numerous—and in Cibitoke (8.6%). In the four other provinces they are cited by less than 4% of the population surveyed.

The integration of ex-combatants in the FDN is seen by a majority of the population (55.1% of respondents) as a factor which helps improve security. This feeling is shared by the majority in all the provinces, with particularly high rates in Ruyigi (72.6%), Mwaro (69.4%), and Cibitoke (63.2%). In addition, very few individuals are sceptical about the usefulness of integrating ex-combatants in the FDN, with the option 'not at all' (useful) receiving the lowest number of replies (apart from 'don't know'). The integration of ex-combatants is therefore well perceived overall and considered as useful in improving the security of the whole population. Their disarmament in particular was welcomed: 80.8% of respondents say that they feel 'totally' or 'rather more' secure since certain ex-combatants were disarmed, with very high scores in Cibitoke, Bururi, Mwaro, and Ruyigi. Therefore there seems to be a real association between disarmament and improved security.

Among the other sources of insecurity cited, family members and neighbours were given an abnormally high score in Bururi and, to a lesser extent, in Mwaro (2.3% and 3.7% respectively for family and neighbours in Bururi, and 1.5% for each group in Mwaro, against 0.2% and 0.8% for all of the six provinces). Nevertheless, these scores remain low overall. Finally, security companies do not seem to constitute a threat to anybody: they are only cited, overall, by 0.4% of the population, with a maximum of 1.2% in Bujumbura-Mairie, where they are also more numerous.

Insecurity related to the continuing civil war

The results of the survey, which show that police officers and soldiers are often cited as sources of insecurity, highlight the fact that, in spite of the recent overhaul of the police and the army, many problems remain, sometimes involving acts of violence against the population (Human Rights Watch (HRW), 2006). This violence is more frequent in provinces still torn by civil war, such as Bujumbura Rural, where many among the population suffer both rebel reprisals if they refuse to cooperate and reprisals by the army if they give in to the racketeering and threats made by the Palipehutu–FNL. Members of the FDN have also been guilty of extortion, arbitrary arrests, and attempted murder of presumed members of the Palipehutu–FNL (UNOB, 2006a).

It is alarming that a third of the population of a province at war (Bujumbura Rural) cites the soldiers who are supposed to end the conflict and protect the population, as a source of insecurity. This general distrust of the security forces may also explain why a large part of the population holds arms and relies on self-defence to protect themselves, their goods, and their families. Finally, these results confirm the reports that some police officers and soldiers are involved in certain criminal acts, and also human rights violations.[83]

Insecurity relating to criminality

The results of the survey also show that criminality is the primary source of insecurity in all the provinces (63.5% of respondents citing 'gangsters' as a source of insecurity, followed a long way behind by 'rebels', cited by 38.1 %). The province of Bujumbura Rural, where sporadic fighting between the rebels of the Palipehutu–FNL and government forces continues, is quite understandably the only province to think that rebels are a more serious source of insecurity than gangsters. During the interviews, many people stressed the degree of criminality in Burundi since the end of the war, particularly in Bujumbura-Mairie. According to another source, this type of criminality increases regularly.[84] These testimonies are echoed in a report by the United Nations Economic and Social Council, dated 2004, which noted '(…) acts of gangsterism and a climate of impunity, in addition to the corruption which appears to have got much worse in recent years' (United Nations Economic and Social Council, 2004, para. 24). Furthermore, the fact that the

Palipehutu–FNL is still active, which means that the war is not over, has led to chaos. It seems that many acts of gangsterism are carried out under cover of the Palipehutu–FNL, with some criminals passing themselves off as members of the rebel group in order to hold to ransom and terrorize the population.[85]

Many sources have established a link between the problems of criminality that Burundi is suffering and the excessive number of arms held by the population, as numerous offences are committed with firearms.[86] According to the director of a private security company, approximately a quarter of the incidents which his officers have to deal with involve the use of an arm.[87] Grenades are often used in acts of violence; for example, they caused 22% of injuries treated at the MSF-Belgium Centre in Kamenge. This can be explained by the fact that grenades are, without doubt, the easiest arms to conceal on account of their small size. Also, a man in possession of a grenade who does not wish to return it to his military superior or the authorities in charge of DDR, can always claim to have used it, and keep it for himself.[88]

The police keeps up-to-date crime statistics, which are sent to its information centre.[89] The most serious offences, particularly those involving the use of a firearm, are recorded in a day-to-day security file.[90] The information is sent to the headquarters of the national police force.[91] Police sources confirm that most criminal acts (thefts, armed robberies, settling of scores) are committed with firearms.[92] Police statistics indicate that aggravated thefts (which, according to police sources, involve a firearm in eight cases out of ten) represent on average between a quarter and a fifth of all offences recorded. This amounts to between 30 and 60 cases per month for the criminal police (*police judiciaire*) alone. However, the merger in November 2005 of the criminal police, the police dealing with internal security, the border police (PAFE), and the former members of the gendarmerie has made it possible to have a better view of all cases (which used to be dealt with by each police division (*unité*)), which amount to about 100 aggravated thefts per month. This represents about 80 cases of theft involving a firearm per month, across the whole territory.[93]

This insecurity relating to criminality has created a vicious circle, as it encourages people to arm themselves. According to police sources, a large proportion of shopkeepers and public sector employees in Burundi are

armed. In some cases they acquired arms in order to protect themselves; in others, the arms were distributed by the authorities when civil defence groups were set up.[94] In order to protect themselves and their possessions, some individuals do not hesitate to acquire powerful weapons such as assault rifles.[95] It is important to note, in this context, that it is in Bujumbura-Mairie, the province which is most affected by criminality, that people are least likely to think that the public authorities are effective in dealing with crime (26.3% of respondents replied 'very' (effective) against 44.2% for the whole of the six provinces).

The problem of sexual violence

While rates of criminality are falling, crimes involving sexual violence have markedly increased: 1,675 rapes were reported in 2004, against 983 in 2003 (Ligue Iteka, 2005, p. 50).[96] The household survey shows that among respondents who say that their household includes at least one victim of violence, in one case out of ten the crime was a rape, with the rate being nearly twice as high in Bujumbura Rural. The abnormally high rate of rape in Bujumbura Rural seems to be directly linked to the continuing conflict in that province. In some provinces, such as Ruyigi, rapes are often committed under armed threat, especially from hand-made rifles or *mugobore* (Rackley, 2005, pp. 20–21).

The statistics should not, however, conceal the fact that it is difficult to assess how far this is due to an increase in the number of rapes committed or an increase in the number reported to the authorities. Edward B. Rackley, the author of a recent study on small arms and armed violence, writes that 'all the women interviewed stressed the fact that rape has existed for a long time in Burundi and dates from the pre-war period, but it is only in the last five years that the extent of the problem has been made public. This is due, we were told, to the joint efforts of local and international organizations and women's associations to educate and increase awareness among the majority, with an increase in medical and psychological assistance for the victims' (Rackley, 2005, p. 21). Even if the social stigmatization persists to a great extent,[97] more and more women complain and seek medical aid, and associations of Burundian women provide help for the victims.

Nevertheless, it is also quite plausible that there has been a real increase in the number of cases of sexual violence. This seems to be linked to the fact that Burundi is now in a post-war situation: victims are often people thrown into a precarious situation by the war, such as war widows or orphans.[98] A report by the Economic and Social Council noted that 'due to the war, 30% of Burundian households are led by women (…) More than 600,000 others [children] are war orphans' (United Nations Economic and Social Council, 2004, para. 27).

The security of the refugees

The worst security incident to have occurred in a refugee camp in Burundi was the massacre, on 13 August 2004, of more than 150 refugees at Gatumba, near the border with the DRC. According to witness accounts, 'most [of the assailants] carried individual firearms, but they also had at least one heavy weapon. Some of them were child soldiers' (HRW, 2004, p. 14). Among the 152 people who died, 138 were Banyamulenge and 14 Babembe; these figures, along with various witness accounts, indicate that the Banyamulenge were specifically targeted (HRW, 2004, p. 18). Responsibility for the massacre was claimed by the Palipehutu–FNL, which said that the camp was harbouring individuals who were preparing attacks against them.[99]

The total number of security incidents which occurred around refugee camps in 2005 has been estimated at 395.[100] These incidents include arbitrary arrests and detention, rapes, and murders.[101] Often involving firearms, they result from disputes between civilians or between the police and civilians.[102]

On the other hand, it seems that no incidents have yet occurred that would suggest the presence of firearms within the refugee camps.[103] If combatants and ex-combatants are able to receive humanitarian assistance, they are not authorized to set up home in refugee camps, where security is provided by the Burundian army and police.[104] It is nevertheless probable that there are arms inside the camps. The Gasorwe camp in Muyinga, for example, shelters Rwandan asylum seekers who are suspected of being used as FDLR combatants. A certain number of precautionary measures are therefore taken inside the Gasorwe camp: the refugees are searched, people are monitored on entry and exit, and the camp must be fenced in order to prevent infiltration. There

is also a fear that armed Congolese groups might come and seek recruits in this camp or the camp at Gihinga (Mwaro).[105] It seems that such recruiters have been seen in the north of Burundi, and a member of the Interahamwe was arrested in Gatumba.[106]

Notes

1 This estimate takes into account all small arms and light weapons, and also grenades, which are usually classified with explosives or munitions.
2 Hand-made firearms.
3 Interview between the UNDP Technical Adviser on Small Arms and Armed Violence Reduction (TA SA-AVR) and national actors, January 2006.
4 Interview with an international source, Bujumbura, January 2006.
5 Ibid.
6 Ibid.
7 Interview between the UNDP TA SA-AVR and national actors, September 2005.
8 Interview between the UNDP TA SA-AVR and international actors, December 2005.
9 Interview between the UNDP TA SA-AVR and national actors, September 2005.
10 Interview between the UNDP TA SA-AVR and national actors, January 2006; and information received from an international source, April 2006.
11 The questions were asked by pollsters recruited by the Ligue Iteka, who had been given prior training in Bujumbura by Mr Janvier Nkurunziza, independent consultant of the Economic Commission for Africa (Commission économique pour l'Afrique (CEA)).
12 In Burundi provinces are divided into districts (*communes*) which are themselves divided into smaller units known as *collines* and *sous-collines*.
13 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006; interview with Burundian official sources, Bujumbura, February 2006.
14 Interview with Burundian ex-combatants, Bujumbura, 1 February 2006.
15 The figures relating to the number of households per province come from ISTEEBU, 2004.
16 Interview between the UNDP TA SA-AVR and national actors, January 2006; correspondence with an international source, March 2006.
17 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
18 Interview with a Burundian source, Bujumbura, February 2006.
19 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
20 Ibid.
21 Ibid.
22 Ibid.
23 Ibid.
24 Sources: CNDRR, 2006; UNOB, 2006b; correspondence with an official Burundian source, March 2006; interviews with Burundian ex-combatants, Bujumbura, 1 February 2006; Info-Burundi.net, 2005; interview with an international source, Bujumbura, February 2006; interviews with two international sources, Bujumbura, January 2006.
25 For information: this arms ratio has been aligned with that of the CNDD–FDD.
26 Interview with an official Burundian source, Bujumbura, January 2006.

27 Interview with a Burundian source, Bujumbura, January 2006.
28 Ibid.
29 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
30 Ibid.
31 Interview with an official Burundian source, Bujumbura, January 2006.
32 Interview with an official Burundian source, Bujumbura, January 2006; interview with a Burundian source, Bujumbura, January 2006; interview with an ex-combatant of the CNDD–FDD, Bujumbura, 31 January 2006.
33 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
34 Ibid.
35 Ibid.
36 Ibid.
37 Interview with an official Burundian source, Bujumbura, January 2006; interview with an official Burundian source, Bujumbura, February 2006.
38 Information received at the workshop validating this study, Bujumbura, 29 May 2006.
39 Interview with the UNDP TA SA-AVR and national actors, January 2006.
40 Average of six estimates from six different sources.
41 Average of 11 estimates from 11 different sources.
42 Interview with an international source, Bujumbura, January 2006.
43 Interview with an international source, Bujumbura, February 2006.
44 Interview with a Burundian source, Bujumbura, January 2006.
45 Interview with an international source, Bujumbura, January 2006.
46 Interviews with former Burundian fighters, Bujumbura, 1 February 2006.
47 Ibid.
48 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
49 Interview with an international source, Bujumbura, February 2006.
50 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
51 Ibid.
52 Interview with an international source, Bujumbura, January 2006.
53 Ibid.
54 Information received from a Burundian source, April 2006.
55 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
56 Ibid.
57 Ibid.
58 Ibid.
59 Interview between the UNDP TA SA-AVR and national actors, September 2005.
60 Ibid.
61 Interview between the UNDP TA SA-AVR and national actors, January 2006.
62 Interview between the UNDP TA SA-AVR and national actors, September 2005.
63 United Nations agencies' security briefing, Bujumbura, 30 January 2006.
64 Interview between the UNDP TA SA-AVR and national actors, January 2006.
65 Ibid.
66 Interview between the UNDP TA SA-AVR and national actors, September 2005.

67 Interview between the UNDP TA SA-AVR and national actors, January 2006.
68 Ibid.
69 Ibid.
70 Information gathered from Burundian officials at the workshop organized to validate this study, Bujumbura, 29 May 2006.
71 Interview with an international source, Bujumbura, January 2006.
72 Interview with an official Burundian source, Bujumbura, January 2006; interview between the UNDP TA SA-AVR and national actors, September 2005.
73 Interview between the UNDP TA SA-AVR and national actors, September 2005.
74 Ibid.
75 Interview with a Burundian source, Bujumbura, January 2006; interviews with former Burundian fighters, Bujumbura, 1 February 2006.
76 Interview between the UNDP TA SA-AVR and national actors, December 2005.
77 Interview with an international source, Bujumbura, January 2006.
78 Interview with an international source, Bujumbura, February 2006.
79 Ibid.
80 Interview with an international source, Bujumbura, February 2006.
81 See for example ICG, 2003.
82 The particular case of Bururi can possibly be explained by the fact that the police presence is itself a new phenomenon: previously there were only two police posts in the province, one in Bururi and the other in Rumonge, and their activity was very limited. Most crimes were therefore dealt with by authorities other than the police. The new PNB has been introduced throughout the territory of the province and deals with all crimes directly (information gathered at the workshop organized to validate this study, Bujumbura, 29 May 2006).
83 Interview with an international source, Bujumbura, February 2006; HRW, 2006.
84 Interview with an international source, Bujumbura, February 2006.
85 Interview with the UNDP TA SA-AVR and national actors, December 2005.
86 Interview with an official Burundian source, Bujumbura, January 2006; interview with a Burundian source, Bujumbura, February 2006.
87 Interview with a Burundian source, Bujumbura, January 2006.
88 Interview with an official Burundian source, Bujumbura, February 2006.
89 Interview between the UNDP TA SA-AVR and national actors, September 2005.
90 Ibid.
91 Ibid.
92 Interview with an official Burundian source, Bujumbura, February 2006.
93 Ibid.
94 Ibid.
95 Interview with a Burundian source, Bujumbura, January 2006.
96 Out of 1,675 cases recorded by the Ligue Iteka, 1,372 were collected from MSF-Belgium (Ligue Iteka, 2005, p. 50).
97 Edward B. Rackley writes that, 'while rape itself is not really considered as a taboo act, it is taboo to talk about it openly. […] When it becomes known, women who have survived

rape are harshly criticized, banished or abandoned by their husbands and families' (Rackley, 2005, p. 20).

98 Interview with an international source, Bujumbura, February 2006. In 43% of cases studied by the Ligue Iteka, rape victims were minors (Ligue Iteka, 2005, p. 50).

99 Interview with an international source, Bujumbura, January 2006.

100 Ibid.

101 Ibid.

102 Interview with an international source, Bujumbura, January 2006.

103 Ibid.

104 Ibid.

105 Interview with an international source, Bujumbura, January 2006.

106 Ibid.

107 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.

108 Ibid. There is not, however, any monitoring or inspection of holders of firearms licences. It is therefore likely that many of these people are now dead (information received at the workshop organized to validate this study, Bujumbura, 29 May 2006).

109 Ibid.

110 Interview with an official Burundian source, Bujumbura, January 2006; interview between the UNDP TA SA-AVR and national actors, January 2006.

111 Interview between the UNDP TA SA-AVR and national actors, January 2006.

112 Information received at the workshop organized to validate this study, Bujumbura, 29 May 2006.

113 Interview between the UNDP TA SA-AVR and national actors, January 2006.

114 Ibid; correspondence with an international source, March 2006.

115 Interview between the UNDP TA SA-AVR and national actors, January 2006.

116 Ibid.

117 Interview between the UNDP TA SA-AVR and national actors, January 2006.

118 Interview between the UNDP TA SA-AVR and national actors, September 2005.

119 Interview with an official Burundian source, Bujumbura, January 2006.

120 Interview between the UNDP TA SA-AVR and national actors, September 2005.

121 Correspondence with an international source, March 2006.

122 Interview between the UNDP TA SA-AVR and national actors, September 2005.

123 Ibid.

124 Interview with an international source, Bujumbura, January 2006.

125 Information received at the workshop organized to validate this study, Bujumbura, 29 May 2006.

126 Interview with an official Burundian source, Bujumbura, February 2006.

127 Interview with an official Burundian source, Bujumbura, January 2006.

128 Interview between the UNDP TA SA-AVR and national actors, January 2006.

129 Information received from an international source, April 2006.

130 Interview between the UNDP TA SA-AVR and national actors, January 2006.

131 Ibid.

132 Ibid.

133 Ibid.
134 Ibid.
135 Source for this paragraph: correspondence with the UNDP TA SA-AVR, August 2006.
136 Interview with an international source, Bujumbura, January 2006.
137 The difference between 3,028 and 3,015 is due to children who have disappeared or died.
138 UNOB, 2005a and confidential document. Sum of the arms collected from the ex-members of armed political movements during the process of direct integration (GoTB/FDN) and during the process of formal integration (UNOB) (see Table 5).
139 Interview with an official Burundian source, Bujumbura, February 2006.
140 UNOB, 2005a; interview with an official Burundian source, Bujumbura, February 2006.
141 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
142 Interview with an international source, Bujumbura, January 2006.
143 Interviews with Burundian ex-combatants, Bujumbura, 1 February 2006.
144 This total does not include 775 magazines for assault rifles. It is not known if they were full, partially full, or empty.
145 Confidential document.
146 Interview with an international source, Bujumbura, February 2006; interview with an international source, Bujumbura, January 2006.
147 Interview with an international source, Bujumbura, February 2006.
148 Interview with an official Burundian source, Bujumbura, February 2006.
149 Ibid.
150 Ibid.
151 Interview with an official Burundian source, Bujumbura, February 2006.
152 Ibid.
153 Ibid.
154 Interview between the UNDP TA SA-AVR and national actors, January 2006.
155 Interview with an international source, Bujumbura, January 2006.
156 Ibid.
157 Confidential document.
158 Interview with an official Burundian source, Bujumbura, January 2006.
159 Ibid.
160 Ibid.
161 Interviews between the UNDP TA SA-AVR and national actors, September 2005 and January 2006.
162 Interview between the UNDP TA SA-AVR and national actors, January 2006.
163 Interview with an official Burundian source, Bujumbura, January 2006.
164 Interview between the UNDP TA SA-AVR and national actors, September 2005.
165 Ibid.
166 Ibid.
167 Correspondence with an international source, March 2006.
168 Correspondence with an official Burundian source, July 2006.
169 Correspondence with a Burundian source, March 2006.
170 Correspondence with an international source, March 2006.

171 Correspondence with a Burundian source, March 2006.
172 Correspondence with an international source, March 2006.
173 Interview with an official Burundian source, Bujumbura, February 2006.
174 Interview between the UNDP TA SA-AVR and national actors, September 2005.
175 Interview with an official Burundian source, Bujumbura, February 2006.
176 Ibid.; interview between the UNDP TA SA-AVR and national actors, September 2005.
177 Information received during the workshop organized to validate this study, Bujumbura, 29 May 2006.
178 Interview with an official Burundian source, Bujumbura, February 2006.
179 Ibid.; interview between the UNDP TA SA-AVR and national actors, September 2005.
180 Interview with an official Burundian source, Bujumbura, February 2006.
181 Sources: CNDRR, 2006; confidential documents; UNOB, 2005a and 2006c.
182 5,305 former gendarmes have also been integrated into the PNB (UNOB, 2005a).
183 UNOB, 2005a.
184 Sixty-four are out of use.

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5 Armed Actors: A New Subject of Research

Nicolas Florquin

Armed groups[1] have long been a favoured subject of research for think tanks, academics, and students of security studies, counterterrorism, international humanitarian law, and political science.[2] Most of this analysis is relevant to the small arms process mainly in that it increases general understanding of the motivations and structures of armed groups, weighs the significance of their role in armed conflict, and discusses the relevance of international law in addressing the challenges they pose. But these efforts usually do not tackle the more fine-grained nexus between small arms and armed groups in great detail.[3] As a result, researchers working more directly within the framework of international small arms control processes have progressively developed their own research agenda on armed groups, extending it to encompass more diverse types of users of small arms, both state and non-state, and referred to here as armed actors.[4]

The small arms community's research on armed actors has evolved greatly in scope and coverage since 1999. At that time, the international community was gearing up for multilateral action on small arms, yet was unsure how to deal with the thorny issue of transfers to non-state armed groups. As international attention to small arms issues increased from the early 2000s, researchers undertook pioneering field research in the context of arms embargoes, and began replicating their efforts in other geographical areas, generating broader knowledge on how armed groups procure and use weapons. In parallel, research on armed violence made it clear that the impact of small arms is also significant in non-conflict settings, leading researchers to gradually become more interested in a wider array of armed

actors, including state security forces, civilians, private security companies (PSCs), armed groups, and gangs.

This chapter documents this evolving research agenda, and provides an assessment of the progress achieved and challenges faced by researchers in the last ten years. Its principal conclusions are the following:

- Until 2001, research on armed actors focused primarily on documenting illicit transfers to, and the types of arms held by, conflict actors – typically state forces and rebel movements – operating in areas under arms embargoes.
- Since 2001, the research community started to pay closer attention to the arms held and obtained by other armed actors, including state security forces, civilians, PSCs, and gangs.
- In the last ten years, researchers have improved research methods and expanded their access to primary sources of data on armed actors' stockpiles, internal controls, and sources of weapons.
- The study of gangs' small arms, and gaining a more thorough understanding of armed actors' internal arms control mechanisms, are among the research gaps identified.

The present chapter is divided into three sections. It first assesses the way researchers examined armed actors ten years ago, before highlighting main developments in the research agenda and methods used over the last decade. The chapter then makes an assessment of the current state of knowledge and identifies future research priorities.

Armed Actors and Small Arms, 1999-2001

This section examines the state of research on small arms and armed actors during the run-up to the 2001 United Nations (UN) Small Arms Conference, the period during which the international small arms process was being put in place. Much of the relevant research at the time focused on arms transfers to actors operating in areas subject to arms embargoes. Researchers also began exploring the global distribution of small arms holdings among broad categories of armed actors.

Transfers to Conflict Actors

The 1990s saw a dramatic increase in the number of sanctions imposed by the UN Security Council (UNSC). While the Council had sanctioned only two countries prior to 1989, 14 countries were targeted between 1990 and 2003, and arms embargoes were the most common type of sanction used (Vines, 2003, p. 247). Significantly, several UN embargoes specifically targeted non-state armed groups such as the Taliban, UNITA (National Union for the Total Independence of Angola), as well as non-governmental forces in Rwanda and Sierra Leone (SIPRI, 2012).

As arms embargoes multiplied, the Council gradually developed tools to monitor compliance with them as a means to make them more effective. In 1995, for instance, the Council formed an International Commission of Inquiry to investigate violations of the arms embargo on Rwanda (UNSG, 1996; 1998). The commission's reports set the stage for the more systematic monitoring of sanctions by UN-mandated Panels of Experts in the late 1990s and early 2000s, including related to Angola, Liberia, and Sierra Leone (Vines, 2003, p. 248). Since the appointment of the first Panel of Experts on UNITA in 1999, additional panels or similar mechanisms were established to monitor sanctions in 10 countries, producing more than 80 public reports in the process (Table 5.1).

Table 5.1: Reports published by Panels of Experts and similar ad-hoc mechanisms mandated by the UN Security Council to monitor compliance with international sanctions

Name of panel	Years during which panel reports were published	Number of reports
Panel of Experts on Sierra Leone	2000	1
Panel of Experts on UNITA	2000	1
Monitoring Mechanism on UNITA	2000-2002	6

Panel of Experts on Liberia	2001-ongoing	25
Monitoring Group on Somalia	2003-2010	10
Group of Experts on the Democratic Republic of the Congo	2004-ongoing	16
Group of Experts on Côte d'Ivoire	2005-ongoing	15
Panel of Experts on Sudan	2006-ongoing	7
Panel of Experts on the Democratic People's Republic of Korea	2010-ongoing	1
Monitoring Group on Somalia and Eritrea	2011-ongoing	1
Panel of Experts on Libya	2012-ongoing	1

Source: UNSC (2012)

UN Panels of Experts produced a wealth of information on international arms transfers to armed actors operating in areas under embargo, including governments but also non-state groups such as UNITA (Vines, 2003). One of the Panels' strengths was the weight accorded them in Security Council mandates, which enabled them to submit tracing requests to member states and document arms shipments with state-issued paperwork such as end-user certificates and export licenses. Panel members investigated in great detail specific arms transfers to conflict parties, tracing back arms' serial and lot numbers found in the countries affected by conflict back to the country of manufacture, and identifying the many intermediaries and transport agents involved.

This made it possible to identify key arms brokers, the involvement of airfreight companies, and the complicity of corrupt officials in providing false documentation.[5] This investigative work contributed to raising awareness of global 'gun-running' patterns in the aftermath of the Soviet Union's collapse. Preventing small arms from getting in the hands of unauthorized users such as criminal organizations and rebel movements appeared to be, at least rhetorically, one of the initial goals of international efforts to control the weapons.[6]

The scope of the Panels' reports was at the same time constrained by their UN mandate. Due to their arms embargo monitoring focus, Panels were generally meant to strictly monitor international transfers of arms to sanctioned territories and entities and paid less attention to domestic sources of weaponry. Furthermore, Panels' research only covered those areas under UNSC sanctions, with the associated geographical bias: as Table 5.1 illustrates, with the exception of North Korea, all UN-mandated panels focused on African countries, while important conflicts at the time in the Middle East, Latin America and Asia were ignored.

Stockpile Distribution by Armed Actor

In the run-up to the 2001 UN Small Arms Conference, researchers began mapping out the global distribution of firearms by broad category of armed actor. The stated aim was to establish how many small arms existed in the world and who owned them (Small Arms Survey, 2001, p. 59). The first estimate released at the 2001 UN Conference found a world total of at least 550 million known global firearms, excluding illegally held firearms (Small Arms Survey, 2001, p. 89). The assessment relied on available statistics on 'strength', or numbers of individuals comprising each category of armed actor. Estimated ratios of arms per individual – based on information obtained from official statistics in some countries, anecdotal reports, and case studies – were then applied to each category of armed actor. This led to the finding that 55 per cent of the world's 550 million firearms were held by private individuals. 41 per cent were held by military forces, three per cent by police, and less than one per cent by insurgent forces (Small Arms Survey, 2001, p. 89).

While global stockpiles estimates were revised and updated over the years, the main implication remained the same: quantitatively speaking and from a global stockpile perspective, the arms of insurgents and other non-state armed groups were, by all means, just

a drop in the ocean. This effectively pointed to the fact that the 'small arms issue' could not be tackled effectively by focusing only on illicit transfers to conflict actors. Another consequence was the realization that 'civilians', or private individuals, were by far the largest category of firearm owners, outgunning in numbers the world's military and police combined.

The emerging work on armed actors' stockpiles was instrumental in shifting researchers' and the diplomatic community's attention away from just trafficking to conflict actors. Yet the first estimates were speculative on many fronts, relying on available statistics on armed actors' composition and broad ratios of arms per individual. Significantly, the estimates focused primarily on firearms and did not capture the distribution of more sophisticated and dangerous military and light weapons. The global estimate also did not yet capture regional disparities and was to a great extent influenced by the situation in the US, where a record 98 per cent of the country's 230 million firearms were held by civilians (Small Arms Survey, 2001, p. 66).

The Main Developments, 2001-2013

As the UN Programme of Action (PoA) process moved forward, research on small arms issues acquired new depth. Field studies covered a wider range of countries and contexts, and new research methods and tools were developed. As far as research on armed actors was concerned, greater field exposure meant that researchers were able to collect more detailed information, sometimes originating directly from members of armed groups and other fighting forces. In practice, this meant an increased use of techniques such as direct observation, interviews, focus groups, and surveys of active and former members of not just state security forces, but also private security firms, armed groups, and gangs.

Arms and Ammunition Sources for Armed Actors

While international arms transfers to entities subject to arms embargoes remained a focus for UN Panels and NGOs, researchers were also able to investigate conflict settings not necessarily subject to sanctions. This contributed to broadening the sample of conflict-affected areas under study, allowing for more nuanced conclusions on the nature of arms trafficking in war zones. A review of disparate conflicts in Africa, the Americas, Central Asia and the Caucasus, for instance, revealed diverse and sophisticated small arms procurement patterns by the actors involved (Small Arms Survey, 2005, p. 159). While international transfers played an important role in some cases, the study also highlighted the importance of the 'ant trade' ('a small but steady trickle of weapons that can produce large accumulations overtime') as well as government stockpiles (through theft, corruption, free distribution, and sale) as important sources of arms for conflict actors (Small Arms Survey, 2005, p. 159).

Research also revealed that regions affected by conflict produced arms and ammunition locally – for instance in Africa where at least 17 countries are known to have hosted arms and/or ammunition factories between 1997 and 2006 (Berman, 2007, p. 9). Homemade craft weapons have also been used in several conflicts in Africa. Such findings provided an important nuance to the traditional view that the South's conflicts were fuelled directly by the North's weapons.

As field research projects multiplied, researchers increasingly interviewed armed group leaders and combatants/ex-combatants, gaining important perspectives on arms issues, and securing more frequent access to detailed information on the arms and ammunition in their possession (Chivers, 2012a, 2012b; Spleeters, 2012). There has been particular attention on identifying the types of guided missiles (including man portable air defence systems and anti-tank guided weapons) held by armed groups. Available information suggests that as

many as 60 non-state armed groups in some 45 countries have possessed these sensitive weapon systems between 1998 and 2012 (Small Arms Survey, 2012).

Toolkits were developed in the second half of the 2000s that made it possible to compare the year and country of manufacture of ammunition cartridges held by different armed actors, for instance (Bevan, 2008a). As similar 'profiles' of ammunition were found among different armed actors, evidence emerged to demonstrate the circulation, leakage, and 'sharing' of materiel between different local armed groups, and between state forces and non-state groups – for instance state security forces and Turkana pastoralist communities in Kenya (Bevan, 2008b, p. 18).

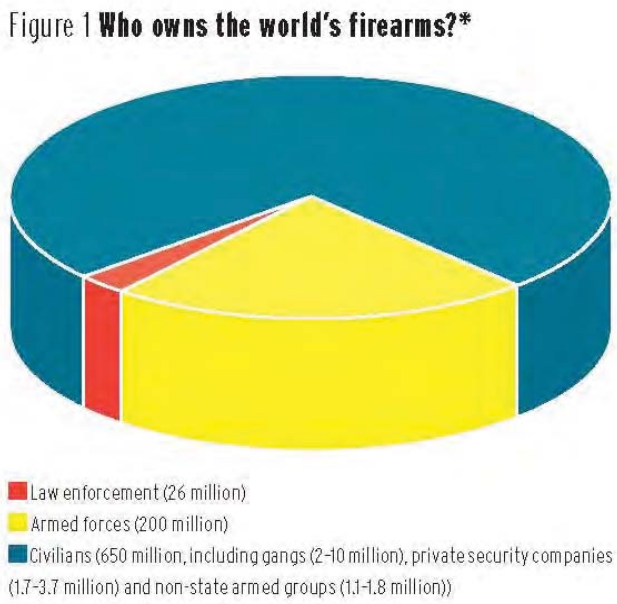
Significantly, these methods were replicated in 'non-conflict settings', with Pablo Dreyfus himself the architect of a study showing correlations between the ammunition used by gangs and the police in Rio de Janeiro, Brazil. His research documented gangs' access to restricted-use assault rifle ammunition held primarily by the police. It also showed that the date of manufacture of some 5.56x45mm and 7.62x51mm rounds seized from gangs coincided with the years during which the police purchased large quantities of the same ammunition (Small Arms Survey, 2007, p. 310). These findings contributed to raising awareness about the problem of weapons and ammunition diversion from domestic sources, and the importance of enhancing controls over state-held stockpiles in order to prevent illicit trafficking.

From Global to Local Distribution

Research on the global arms holdings of armed actors also progressed after 2001, as illustrated by revised and updated global estimates, as well as efforts to examine regional dynamics. Starting in 2006, researchers began to examine specific categories of armed actors. This included studies focusing on the weapons held globally by state security forces (2006),

civilians (2007), military forces (with a focus on surplus firearms) (2008), armed groups and gangs (2010), and PSCs (2011) (Small Arms Survey, 2005-2011, stockpile chapters).[7] In depth analysis of the holdings of various armed actors made it possible to refine the initial worldwide estimates and to include new categories of armed actors, such as gangs and PSCs, in the breakdown. By the early 2010s, the global firearm estimate had been revised upwards to reach at least 875 million units, with 650 million held by 'civilians' (including 2-10 million by gangs, 1.1-1.8 million by armed groups, and 1.7-3.7 million by PSCs), 200 million by armed forces, and 26 million by law enforcement (Figure 5.1).

Figure 5.1 Who owns the world's firearms?



Source: Karp (2011)

The increasingly robust understanding of armed actors' stockpiles was made possible by the multitude of country level studies undertaken over the years. Particularly important have been country-level 'small arms baseline assessments', also referred to as 'small arms and light weapons (SALW) surveys'. These studies, often supported by UN agencies such as

the UN Development Programme, used increasingly standardized research frameworks and methods.

In the Balkans, the South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC) worked with Small Arms Survey to design 'SALW Survey protocols' that were then used in studies by a variety of international and local research institutions throughout the region, including the Bonn International Center for Conversion (BICC), the Groupe de Recherche et d'Information sur la Paix et la Sécurité (GRIP), and Saferworld.[8] Key components of the protocols included detailed assessments of state and non-state actors' arms stockpiles, using a variety of tools such as household surveys, focus groups, and statistical modelling. Similar surveying efforts were subsequently undertaken in some particularly affected countries in Africa and Asia, contributing to filling a research gap in areas where reliable statistics on gun registration and holdings were often scarce.[9] Such national level data on the arms holdings of state and non-state actors fed into, and helped improve over the years, the global estimates.

Beyond Sources and Stocks: Internal Controls

Stockpile research made it clear that armed groups and gangs, despite the primary role they play in armed conflict and crime, possess a fraction of the world's small arms. As a result, researchers became increasingly interested in better understanding the 'demand' factors that lead different actors to resort to more or less violence (Atwood, Glatz, and Muggah, 2006). This led to growing attention to the motivations of armed groups and gangs, as well as the conditions and processes that facilitate their disarmament and demobilization.[10]

A new strain of research began focusing on the internal regulations of armed groups, with a view to determine how such controls and structures relate to their use of arms. Studies examined armed groups perpetrating gross human rights abuses such as the Lord's Resistance

Army, and those exercising more restraint such as Tuareg rebels in Mali in the 1990s, with a focus on understanding if and how internal arms management and accounting procedures contribute to exacerbating or curtailing such violence (Florquin and Pézard, 2005, pp. 46-77; Small Arms Survey, 2006, pp. 272-293). Research on internal weapons controls was also carried out with respect to other types of armed actors, including state security forces, civilians, and PSCs (CoESS, 2012; Small Arms Survey, 2008, pp.42-75; 2011; pp. 119-126; Wilton Park, 2012). There were also some rare attempts to examine the internal workings of gangs and how the latter organized and controlled their supply and use of firearms, notably in Rio de Janeiro (Dowdney, 2003).

Methodologically, some of this research was pioneering in its use of tools such as interview questionnaires and focus group guides that helped researchers solicit information and data directly from members of armed structures. Researchers also progressively gained access to a growing number of internal documents produced by armed groups, PSCs, and state forces, including codes of conduct, standing orders, disciplinary codes, rules of engagement, and rules on the use of firearms.[11] The latter led to a greater understanding of the procedures in place, and the identification of gaps and areas where they could be help prevent small arms misuse.

Research on armed actors' internal weapons controls illustrated how different armed groups exercised various levels of control over their fighters and weapons, and how these controls have implications for the respect of humanitarian standards, including the protection of civilians (Bangerter, 2012a; Small Arms Survey, 2010, pp. 304-333). While some actors such as the LRA undoubtedly used strict arms control measures to facilitate the carrying out of atrocities, it also became clear that groups that are more committed to protecting civilians, but do not have such controls in place, would face great challenges in ensuring their forces do not commit abuses with their weapons.

Current State of Information

In the ten years that followed the adoption of the UN Programme of Action, research on small arms and armed actors has gained in scope and geographical reach. From an initial focus on arms embargo violations and the global distribution of small arms, researchers broadened their agenda both in terms of actors and issue areas. Broadly speaking, armed actors under consideration comprised (a) state security forces, (b) civilians, (c) PSCs, (d) armed groups (including pro-government, insurgent, and 'vigilante' groups), and (e) gangs. The initial focus on arms trafficking and global arms distribution also gave way to an examination of a much broader range of small arms issues, including (1) arms holdings and sources, (2) internal controls, (3) threats (such as arms diversion and misuse), and (4) interventions (that address the identified small arms threats). Field research and methodological innovations now make it possible to gather information directly from armed actors as opposed to just secondary sources and global statistics. Information gathered in the field has trickled back into global estimates and analyses of issues, contributing to a more nuanced and realistic assessment of problems and policy options.

Not all categories of armed actors and issue areas have received the same attention, however. Table 5.2 synthesizes the current state of research on armed actors and small arms, based on the author's personal assessment of small arms research initiatives. It identifies areas where research is

- *limited:* there is no or only anecdotal research being undertaken;
- *emerging:* research comprises only a few initiatives, such as case studies or a general, global overview;
- *established:* research benefits from an in-depth global overview informed by a number of case studies.

Based on this categorization, Table 5.2 also uses a scoring system to help identify research gaps by type of armed actor and issue area. Each cell marked with 'established' is

given 2 points, ‘emerging’ 1 point, and ‘limited’ 0 point. Row and column totals thus help highlight the understudied themes and actors.

Table 5.2: State of Research on Armed Actors and Small Arms in the Early 2010s

	Holdings and sources	**Internal controls**	**Threats**	**Interventions**	**Points**
State security forces	Established	Established	Emerging	Established	7/8
Civilians	Established	Emerging	Established	Established	7/8
PSCs	Emerging	Emerging	Limited	Emerging	5/8
Armed groups	Established	Emerging	Emerging	Established	6/8
Gangs	Emerging	Limited	Established	Established	5/8
Points	8/10	5/10	6/10	9/10	n/a

Legend:
- Established: Global overview and several field studies
- Emerging: Global overview only or very few field studies
- Limited: No or anecdotal studies

This admittedly subjective ranking exercise does help identify what should be more widely recognized areas requiring more research. While additional research is always needed on most topics, based on the above so-called ‘priority areas’ can be grouped around the below three main themes.

Non-state Actors

It should come as no surprise that the weapons of state security forces have been better studied than those of non-state actors. Our understanding of civilians, or private gun owners, does benefit from official gun registration and crime statistics, household surveys,

and numerous gun culture studies carried out across the world.[12] More studies on PSCs and gangs are needed, however, to expand the geographical coverage and document important issue areas, such as stockpiles, internal controls and interventions.[13] Armed groups engaging in terrorist attacks would also benefit from small arms-focused research.[14]

Internal Controls

Arguably none of the armed actors under study have benefited from a comprehensive assessment of internal small arms controls. This would require an examination of regulations 'on paper', together with field assessments of actual practice, in a variety of locations. Access and security are undeniably concerns for researchers, but strides made with armed groups, for example, do give food for thought.[15] A major gap here is gangs, as the research community has published little if anything on their internal weapons control procedures, and arms-related studies that benefit from the insights of actual gang members have been anecdotal thus far.[16]

Breaking Down the Large Civilian Category

While the actor 'civilians' scored fairly well overall, such ranking is deceiving. With an estimated 650 million firearms held, this category holds roughly three quarters of the world's small arms. Researchers need to break down the civilian category to further understand what it means, beyond the current general knowledge. A first step may be to disaggregate civilian gun-owners by motivation, which may include protection, hunting, sports-shooting, collection, and 'illegal' purposes. Studies should not only focus on the numbers of gun held by each sub-category, but also the presumably very varied threats they pose in terms of diversion and misuse, and what type of initiatives gun owner associations have taken to mitigate risks. Official gun registration data, as well as household surveys, may provide important data points. It also seems essential to gain a more profound understanding

of the types of firearms owned by civilians. Finally, research must go beyond national averages of firearms per capita and examine the concentration of firearms per average gun owner.

While the above provides an overview of research gaps by actor and theme, it is also clear that certain regions and countries remain mysteries for small arms researchers, including with respect to their understanding of armed actors. Small arms research is relatively well advanced in the Western world and Latin America as these regions benefit from the presence of relatively-resourced local criminologists, political scientists, and epidemiologists.

Areas affected by conflicts that attract media and international attention, particularly in parts of Africa, Asia, the Balkans, and Central Asia, have also come under the scrutiny of researchers, although typically during the period of hostilities and its immediate aftermath. More research appears essential to better understand armed actors misusing small arms in developing countries not necessarily affected by traditional forms of armed conflict.[17] With increased international attention on the 'Arab Spring', more information is emerging on armed actors and their weaponry in the Middle East, a region which remained understudied in the past.[18] Given the magnitude of the arms proliferation that has resulted from some of these conflicts, chiefly in Libya and Syria, researchers need to carefully monitor movements of arms and armed actors in this region.[19]

Conclusion: Armed Actors as Agents of Change?

Research on armed actors and their small arms took unexpected turns in the last decade. From a focus on illicit trafficking of arms to fighting forces involved in conflict, a much more comprehensive research agenda has emerged over the years. One of its overarching trends was the placing of the armed actors themselves at the centre of the

research process and the hypotheses it aims to test. Small arms researchers began to document actors' motivations and internal small arms control procedures. They interviewed and surveyed weapon holders, turning fighters and ex-fighters into one of their main sources of information. From 'demonized' end users of small arms, armed actors became actual subjects of study and possible agents of change, as researchers sought to understand how actors' own procedures for the management and use of small arms may impact security.

What caused such a drastic change in the research agenda? One explanation may lie in the political sensitivity of focusing solely on arms transfers to armed groups. Diplomats' attempts to regulate such transfers in the late 1990s and early 2000s met with failure, mainly because some states valued support to armed groups as a foreign policy instrument, while some NGOs feared that such action would contradict the right for people to fight oppressive regimes.[20] A Canadian led-initiative in the late nineties to ban transfers to non-state armed groups was unsuccessful, while the PoA did not explicitly include take up such transactions into its scope due to pressure from key states (Capie, 2004, p. 10; Small Arms Survey, 2002, p. 220).

The lack of international consensus on how to deal with arms transfers to armed groups appears to have pushed the international community to focus on less sensitive issues in its efforts to address small arms. To some extent, researchers followed this trend by broadening their research agenda, although a core of specialists continued to document transfers issues.

A number of other, parallel international processes also placed armed actors as potential agents of change, with some success, possibly providing inspiration to the small arms control community. Humanitarian actors working on the promotion of international humanitarian law, the anti-personnel mine ban, and the protection of children in armed conflict have brought non-state armed actors to the forefront of their efforts in the 2000s.

Initiatives have included direct engagement and humanitarian dialogue with armed groups, and efforts to obtain formal humanitarian declarations from groups' leadership and monitor their behaviour (Geneva Call, PSIO and UNIDIR, 2008; Small Arms Survey, 2010, pp. 308-310). A participatory process involving key 'contracting' governments, the private security industry, and human rights groups has also led to the adoption of an international code of conduct (ICoC) by more than 550 PSCs as of December 2012. The ICoC includes standards for the use and management of firearms by PSCs, and envisions the creation of an oversight mechanism for the accreditation of signatory companies and the monitoring of their compliance (Rosemann, 2008).[21]

Compared with these inclusive processes, international small arms processes are still cautious about how to deal with non-state armed actors. Nevertheless, some recent strides need to be acknowledged here. In his 2011 report on small arms, the UN Secretary General recommended the Security Council

> 'to further identify ways to increase compliance by non-state armed groups with international norms relating to the use and stockpiling of weapons and ammunition in times of conflict' (UNSC, 2011, p. 18, recommendation 6).

NGOs are increasingly targeting armed actors as part of micro-disarmament initiatives. Projects in Somaliland, for instance, involved working with clans at the community level to educate members about firearm risks and safety principles, and providing them with safe firearms storage devices designed to prevent diversion and misuse (Small Arms Survey, 2010, pp. 320-321).

The events of the Arab Spring have put the issue of the legitimacy of arming certain armed groups back on the table (see, for instance, Cohen, 2012). Researchers can make meaningful, technical contributions to such debates by exposing armed groups' humanitarian records and, importantly, their ability – or inability – to control and manage the equipment they could be receiving in ways that do not contradict international standards (UNIDIR, 2009, pp. 4-5). On this matter, it is important to note that the International Committee of the

Red Cross, in its guidelines for arms transfers decisions, argues that arms exporters should carry out thorough assessments of the risk that transferred arms will be used to violate international humanitarian law, including an inquiry into:

> the recipient's **capacity** to ensure that the arms or equipment transferred are used in a manner consistent with international humanitarian law and are not diverted or transferred to other destinations where they might be used for serious violations of this law (ICRC, 2007, p. 9).

Researchers' emerging efforts to document armed actors' internal structures and weapons control mechanisms, and to analyse the conditions under which these measures are successful, are particularly relevant in this context. Establishing sound methodologies to generate such information, ensuring satisfactory access in difficult field conditions, and the imperative of adopting a neutral and fact-based stance, are among the major challenges that the research community will need to face if it wants to make a significant impact. Yet the experience of the last ten years shows that researchers can shed unexpected light on important and sensitive aspects of armed actors' small arms.

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[1] Armed groups are defined as armed organizations that challenge states' monopoly on legitimate coercive force (Policzer, 2005). In this chapter the term is used to refer to three main categories of such organizations: opposition and insurgent movements, pro-government militias, and community-based vigilante groups.

[2] See *inter alia* the Harvard Programme on Humanitarian and Conflict Research <http://www.hpcrresearch.org/>, the Geneva Academy of International Humanitarian Law and Human Rights <http://www.adh-geneva.ch/the-academy/about-us/mission>, as well as the University of Calgary's Armed Groups Project <http://larc.ucalgary.ca/current-projects/armed-groups-project>.

[3] An exception is the Armed Groups Project, which did make contributions that explicitly targeted small arms control processes; see Capie (2004); Policzer and Yankey-Wayne (2009).

[4] Here, the term 'armed actor' refers to the broader spectrum of users of small arms, including not just armed groups but also state security forces (military and law enforcement), civilians, private security companies, and gangs. For a discussion on the benefits of a broader definition of non-state armed groups, see Krause and Milliken (2009).

[5] In contrast, investigations of arms transfers to countries under embargo in the 1990s mainly relied on testimonies by local witnesses and other evidence from the field (HRW, 1996).

[6] The 1997 Report of the Panel of Experts on Small Arms stated, for instance, that '[s]mall arms and light weapons have been or are the primary or sole tools of violence in several of the armed conflicts dealt with by the United Nations, particularly where fighting involves irregular troops among the conflicting parties' (UNGA, 1997, para. 15). The 2001 UN Firearms Protocol focuses on preventing illicit transfers of an international nature and involving an 'organized criminal group' (UNGA, 2001, art. 4.1).

[7] In addition to the Small Arms Survey's global estimates, other organizations have also started documenting firearm stockpiles by armed actors at the regional level. For PSC firearms across European states, for instance, see CoESS (2012).

[8] See the protocols at http://seesac.org/resources/survey-protocols/1/ and the list of studies at <http://seesac.org/publications/salw-surveys/1>

[9] See, for instance, GRIP and BICC (2010); MacFarlane, Torjesen, and Wille (2004); Pézard and Florquin (2007); Wille (2006).

[10] Humphreys and Weinstein (2008); Small Arms Survey (2005, pp. 266-302; 2010, pp. 208-253).

[11] Bangerter (2012a; 2012b); Geneva Call (2012); McQuinn (2012, pp. 43-55); Small Arms Survey (2010, pp. 304-333; 2011; pp. 119-126).

[12] The numerous 'SALW Surveys' provide a wealth of data on civilian gun ownership. See for instance the reports supported by the South Eastern and Eastern Europe Clearinghouse for the Control of SALW (SEESAC) at <http://seesac.org/publications/salw-surveys/1/>

[13] Several chapters in the 2010 Small Arms Survey yearbook, which was centred on gangs and armed groups, as well as Dowdney (2003), provide a strong basis for additional research on gang stockpiles and internal controls over firearms.

[14] The main efforts on this topic have been undertaken by war reporters such as Chivers (2010). An analysis of arms cache data from Iraq and Afghanistan provides one of the first quantitative analysis of 'terrorist' group arms holdings (Small Arms Survey, 2012, pp. 314-355).

[15] Bangerter (2012b) provides the first detailed analysis of armed groups' internal regulations and how these relate to weapons control, based on a comprehensive review of available armed group documents (see also Geneva Call, 2012). McQuinn (2012) includes a review of the internal weapons control procedures of armed brigades in Misrata, Libya, based on extensive field research and visits at the arms depots of six brigades.

[16] Dowdney (2007) is an exception.

[17] A recent example of such research focusing on Kazakhstan can be found in Florquin, Aben and Karimova (2012).

[18] Prior to the events of the 'Arab Spring', most field research on small arms in the Middle East focused on Yemen. See, for instance, Miller (2003).

[19] Chivers (2012a; 2012b); McQuinn (2012); Spleeters (2012).

[20] For a presentation of competing perspectives on the right to self-defence under international law, see Small Arms Survey (2004, p. 181).

[21] For updates on this process, see <http://www.icoc-psp.org>

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A private security guard looks out into a shopping centre in Quito, Ecuador, 2001. © Rhodri Jones/Panos Pictures

A Booming Business

PRIVATE SECURITY AND SMALL ARMS

4

INTRODUCTION

In August 2010, President Hamid Karzai issued a decree requiring private security companies (PSCs) to cease all operations in Afghanistan by December 2010, calling them unwelcome 'parallel structures' and a 'cause for insecurity' (Afghanistan, 2010; Rubin, 2010). With billions of dollars in Afghan-based development programmes that require constant protection, donor governments reacted by placing intense pressure on Karzai to withdraw the decree. The deadline was ultimately extended, and some PSCs were exempted from the ban, but the president stood by his decision. The case illustrates how deeply embedded PSCs have become in some contexts.

PSCs have come under increased international scrutiny in the 2000s due to the central roles they have been granted in the conflicts of Afghanistan and Iraq, as well as concerns over the perceived lack of accountability for action taken by private personnel. Incidents such as the killing of 17 civilians by Blackwater personnel in September 2007 in Nisoor Square, Baghdad, have significantly tarnished the industry's image (Glanz and Lehren, 2010).

The highly publicized involvement of international PSCs in contemporary conflicts tends to overshadow the much wider trend of security privatization across society as a whole, particularly in non-conflict settings. Around the globe, individuals, communities, local businesses, government agencies, large corporations, and powerful militaries are increasingly outsourcing aspects of their security to private entities. The growing reliance on PSCs in conflict is just one aspect of a global phenomenon that must be assessed in its entirety to be properly understood.

This chapter attempts to shed light on a poorly documented aspect of the global private security industry: its use of arms. While much attention has been devoted to debating the legitimacy of PSCs undertaking what may be considered state functions, less effort has gone into documenting the types of small arms used by PSCs and potential gaps in their control. The chapter examines the scale of the private security industry at the global level, calculates the extent to which it is armed, and asks whether PSC equipment contributes to or threatens security.

Main findings include:

- Based on a review of 70 countries, this study estimates that the formal private security sector employs between 19.5 and 25.5 million people worldwide. The number of PSC personnel has grown at a fast pace since the mid-1980s and exceeds the number of police officers at the global level.
- PSCs hold between 1.7 and 3.7 million firearms worldwide, an estimate based on extrapolations from reported inventories. If undeclared and illegally held weapons were to be included, the global PSC stockpile would undoubtedly be higher.
- Globally, PSC firearm holdings are just a fraction of the stockpiles held by law enforcement agencies (26 million) and armed forces (200 million).

- While several states ban the use of small arms by PSCs, private security stockpiles in some conflict-affected areas amount to more than three weapons per employee.
- Outside of armed conflict settings, PSCs are most armed in Latin America, with ratios of arms per employee about ten times higher than in Western Europe.
- PSCs working in Afghanistan and Iraq have been equipped with fully automatic assault rifles, machine guns, sniper rifles, and, in some cases, rocket-propelled grenade launchers (RPGs), raising questions about their stated 'defensive' roles.
- Some PSCs have been involved in illegal acquisition and possession of firearms, have lost weapons through theft, and have used their small arms against civilians although they were unprovoked. Available information remains anecdotal, however, and makes it challenging to measure PSC performance over time or compare it to that of state security forces.
- The rapid growth of the private security sector has outpaced regulation and oversight mechanisms. International initiatives to tackle regulatory gaps remain in their infancy.

Several states ban the use of small arms by PSCs.

This chapter focuses on PSCs, using the term in its widest possible sense to include all legally registered business entities that provide, on a contractual basis, security or military services, regardless of whether they operate in situations of conflict. Security and military services may include protecting persons, guarding objects (such as convoys or buildings), the maintenance and operation of weapons systems, prisoner detention, the provision of advice or training for security forces and personnel, and associated surveillance and intelligence operations.[1]

The chapter begins by providing an overview of factors that contribute to the growing role of PSCs and documents the scale of the phenomenon worldwide. The second section focuses on the weaponry used by PSCs worldwide, with reference to both quantity and type. The last section assesses the extent to which the existing regulatory regime as well as ongoing initiatives can prevent incidents of small arms misuse by private security personnel. In addition to desk research and interviews with industry representatives and other stakeholders, the chapter relies on a number of original expert contributions commissioned by the Small Arms Survey.

THE PRIVATIZATION OF SECURITY

The private security spectrum is extremely broad and diverse. While the media spotlight has focused on international PSCs operating in the conflict zones of Afghanistan and Iraq, private security is employed in virtually all societies.[2] PSCs are often portrayed as protecting property and people, in contrast to private military companies (PMCs), which provide offensive services meant to have military impact,[3] yet analysts argue that such a distinction is misleading (Holmqvist, 2005, p. 5). Indeed, a single company can perform a variety of services encompassing both defensive and offensive support. Furthermore, what can be termed protective services in peacetime—such as the protection of public institutions—can have military and offensive implications in situations of conflict. Additional analysis of the sector according to company size, level of compliance with standards, and proximity to the state would undoubtedly move the discussion forward. Yet since this chapter is a first attempt to shed light on the small arms used by the industry as a whole, it refers to PSCs in a broad sense.

Scale

The private security sector has been booming since the mid-1980s and continues to grow steadily (van Dijk, 2008, p. 217). Recent estimates show that the security market is worth about USD 100–165 billion per year, and that it has been growing at an annual rate of 7–8 per cent.[4] The scale of growth is further illustrated by significant increases in the number of personnel employed over time and across regions:

- In France, the sector expanded from just over 100,000 employees in 1982 to 160,000 in 2010 (Ocqueteau, 2006, p. 65; CoESS and APEG, 2010, p. 12).
- Japanese PSC personnel increased from just over 70,000 guards in 1975 to nearly 460,000 in 2003 (Yoshida and Leishman, 2006, p. 232).
- In South Africa, the number of registered security officers more than tripled in the space of 13 years, from about 115,000 in 1997 to nearly 390,000 in 2010 (Berg, 2007, p. 5; PSIRA, 2010, p. 4).

PSC size varies from a dozen to several hundred thousand employees.

The main impediment to accounting for the total number of PSC employees in the world is the lack of global data collection and monitoring systems. Nevertheless, this chapter is able to present recent figures on PSC personnel in 70 countries (see Table 4.1); the sources for this data are various, including regional reviews of the industry, academic articles examining the industry at the country level, and media reports.[5] While different sources may rely on varying definitions of PSC personnel, this study focuses on active PSC employees registered by a national government body or a private security industry association. Where possible, multiple and multi-year sources have been cross-checked to obtain the most plausible figure.

Table 4.1 shows that the private security sector employs a reported 19.5 million people in the 70 countries. An extrapolation from this figure yields a global range of registered PSC personnel of 19.5–25.5 million.[6] The size of individual companies varies greatly, ranging from a dozen employees to several hundred thousand. For example, G4S has 530,000 staff in 115 countries, while Securitas employs 260,000 people in 40 countries (Abrahamsen and Williams, 2009, p. 2; Securitas, n.d.). Countless smaller firms are also active; about 30,000 companies are registered in the Russian Federation, while South African PSCs numbered nearly 7,500 in 2010 (Modestov, 2009; PSIRA, 2010, p. 4).

Taken together, PSC personnel employed in the 70 countries covered in Table 4.1 outnumber police officers by a ratio of 1.8 to 1. These countries employ a combined 19.5 million PSC personnel (a rate of 435 per 100,000) compared with fewer than 11 million police officers (240 per 100,000), suggesting an even greater imbalance than previously thought.[7] Global private security dominance in terms of personnel does not apply systematically across countries, however. More than half (39) of the countries listed in Table 4.1 actually employ more police officers than PSC personnel, but their effect on global numbers is negated by the situation in larger PSC markets, such as China, India, and the United States.

It is beyond the scope of this chapter to document the number of people participating in informal security arrangements; however, the figures reportedly hover around 50,000 in Argentina, between 670,000 and 1,000,000 in Brazil, and from 240,000 to 600,000 in Mexico (Godnick, 2009; Arias, 2009, pp. 26–27). In Francophone African countries, some communities seek to fill the state security vacuum by establishing informal neighbourhood militia groups, while young men faced with economic hardship provide free bodyguard services to businessmen in exchange for food—activities that are reported by neither industry nor governments (Kougniazondé, 2010, pp. 6, 8). Informal security schemes, ranging from neighbourhood watch to armed vigilante groups, can be found across the globe and provide additional evidence of a global demand for security that exceeds what states can offer.

Table 4.1 **Private security personnel in 70 countries**

Country	Year	Private security personnel	Police officers	Population	Ratio of private security to police	Private security per 100,000	Police per 100,000
Afghanistan	2010	26,000	115,500	24,507,000	0.23	106	471
Albania	2004	4,092	11,987	3,111,000	0.34	132	385
Angola	2004	35,715	17,000	16,618,000	2.10	215	102
Argentina	2007	150,000	120,000	38,732,000	1.25	387	310
Australia	2008	114,600	52,400	20,395,000	2.19	562	257
Austria	2009	11,200	20,500	8,372,930	0.55	134	245
Belgium	2009	18,609	47,000	10,827,519	0.40	172	434
Bolivia	2002	500	19,365	9,182,000	0.03	5	211
Bosnia and Herzegovina	2009	4,207	10,589	4,590,310	0.40	92	231
Brazil	2005-07	570,000	687,684	186,075,000	0.83	306	370
Bulgaria	2009	56,486	47,000	7,576,751	1.20	746	620
Chile	2008	45,020	35,053	16,297,000	1.28	276	215
China	2010	5,000,000	2,690,000	1,312,253,000	1.86	381	205
Colombia	2005-07	190,000	119,146	43,049,000	1.59	441	277
Costa Rica	2008	19,558	12,100	4,328,000	1.62	452	280
Côte d'Ivoire	2009	50,000	32,000	19,245,000	1.56	260	166
Croatia	2009	13,461	19,000	4,697,548	0.71	287	404
Cyprus	2009	1,700	3,000	801,851	0.57	212	374
Czech Republic	2009	51,542	46,000	10,512,397	1.12	490	438
Denmark	2009	5,250	10,000	5,547,088	0.53	95	180
Dominican Republic	2008	30,000	29,357	9,533,000	1.02	315	308
Ecuador	2005-07	40,368	42,610	13,063,000	0.95	309	326
El Salvador	2008	21,146	16,737	6,059,000	1.26	349	276
Estonia	2009	4,283	6,000	1,340,274	0.71	320	448
Finland	2009	10,000	8,000	5,350,475	1.25	187	150
France	2009	160,000	250,000	64,709,480	0.64	247	386
Germany	2009	170,000	250,000	81,757,600	0.68	208	306
Greece	2009	30,000	50,000	11,306,183	0.60	265	442

Country	Year	Private security personnel	Police officers	Population	Ratio of private security to police	Private security per 100,000	Police per 100,000
Guatemala	2008	120,000	19,974	12,710,000	6.01	944	157
Honduras	2005-07	60,000	12,301	6,893,000	4.88	870	178
Hungary	2009	105,121	40,000	10,013,628	2.63	1,050	399
India	2010	7,000,000	1,406,021	1,130,618,000	4.98	619	124
Iraq	2008	35,000	153,000	28,238,000	0.23	124	542
Ireland	2009	21,675	12,265	4,450,878	1.77	487	276
Italy	2009	49,166	425,000	60,397,353	0.12	81	704
Jamaica	2010	15,000	8,441	2,668,000	1.78	562	316
Japan	2003	459,305	246,800	127,449,000	1.86	360	194
Kenya	2005	48,811	36,206	35,817,000	1.35	136	101
Kosovo	2005	2,579	6,282	2,000,000	0.41	129	314
Latvia	2009	8,000	10,600	2,248,961	0.75	356	471
Lithuania	2009	10,000	20,000	3,329,227	0.50	300	601
Luxembourg	2009	2,200	1,573	502,207	1.40	438	313
Macedonia, former Yugoslav Republic of	2009	5,600	14,500	2,114,550	0.39	265	686
Malta	2009	700	1,904	416,333	0.37	168	457
Mexico	2005-07	450,000	495,821	105,330,000	0.91	427	471
Moldova	2000	10,000	13,431	3,386,000	0.74	295	397
Montenegro	2005	1,900	4,227	660,000	0.45	288	640
Morocco	2010	20,000	48,394	30,495,000	0.41	66	159
Netherlands	2009	30,936	49,000	16,576,800	0.63	187	296
Nicaragua	2008	19,710	9,216	5,455,000	2.14	361	169
Nigeria	2005	100,000	360,000	140,879,000	0.28	71	256
Norway	2009	6,700	8,500	4,854,824	0.79	138	175
Panama	2008	30,000	15,255	3,232,000	1.97	928	472
Peru	2005-07	50,000	90,093	27,836,000	0.55	180	324
Poland	2009	165,000	100,000	38,163,895	1.65	432	262
Portugal	2009	38,874	50,000	10,636,888	0.78	365	470
Romania	2009	107,000	55,000	21,466,174	1.95	498	256

▶▶

Country	Year	Private security personnel	Police officers	Population	Ratio of private security to police	Private security per 100,000	Police per 100,000
Russian Federation	2009	800,000	601,000	143,170,000	1.33	559	420
Serbia	2009	28,500	34,000	10,100,000	0.84	282	337
Sierra Leone	2005	3,000	9,300	5,107,000	0.32	59	182
Slovakia	2009	17,200	21,500	5,424,057	0.80	317	396
Slovenia	2009	7,554	7,500	2,054,119	1.01	368	365
South Africa	2010	387,273	150,513	48,073,000	2.57	806	313
Spain	2009	86,000	227,250	46,087,170	0.38	187	493
Sweden	2009	13,500	19,000	9,347,899	0.71	144	203
Switzerland	2009	13,075	16,000	7,760,477	0.82	168	206
Trinidad and Tobago	2010	5,000	6,500	1,318,000	0.77	379	493
Turkey	2009	257,192	201,064	74,816,000	1.28	344	269
United Kingdom	2009	120,000	140,000	62,041,708	0.86	193	226
United States	2007	2,000,000	883,600	302,741,000	2.26	661	292
Total		19,545,308	10,799,059	4,496,715,554	1.81	435	240
Median					0.83	298	311

Source: Annexe 4.1

Table 4.2 Public perception of private security providers in seven African countries

Percentage of survey respondents who answered 'yes' to the question, 'Do you think that policing functions performed by private security is a good development?'

	Year	Percentage	Survey sample size
Ghana	2009	93	1,560
Uganda	2007	88	2,147
Tanzania	2008	81	1,888
Rwanda	2008	65	2,100
Egypt	2008	64	3,126
Cape Verde	2008	62	1,844
Kenya	2010	57	2,777

Source: Small Arms Survey elaboration of unpublished UNODC victimization survey data, 30 June 2010

Reasons for growth

The global trend towards downsizing government, including public security institutions, has contributed to the growth of the private security sector. Previously core state functions—such as prison surveillance, immigration control, and airport security—have increasingly been outsourced in order to save financial and human resources within government agencies (Abrahamsen and Williams, 2009, pp. 3, 4).

The gap left behind by downsized public sectors is being felt across the globe, and PSCs represent one of the ways to fill it. As Table 4.2 illustrates, the involvement of PSCs in policing is rather well accepted by the majority of the public in seven African countries, reflecting local demand for the services—and possibly for the employment opportunities—offered by PSCs. Multinational corporations, international organizations, peacekeeping missions, non-governmental organizations, and the general population, in addition to government, are among the clients (Holmqvist, 2007, p. 8; Baker and Pattison, 2010; MULTINATIONAL CORPORATIONS).

It would be too simplistic to claim that shortcomings of the public security sector alone are responsible for the growth and scale of private security. Analysts have shown that per population rates of PSC personnel are not statistically related to rates of police officers, and that more complex political and economic factors contribute to the size of private security in a given context (van Dijk, 2008, p. 216).

Industry leaders attribute the continued growth of the sector to clients' greater awareness of security risks as well as their increased demand for technology. Alarm and electronic

Security cameras for China's closed-circuit television system in Beijing, China.

surveillance systems have permitted costs to drop and the reliability of private security services to increase by allowing constant surveillance and better incident recording (Securitas, 2009, pp. 28–29). Western armies' increasing use of high-tech weaponry has made them reliant on levels of technological expertise that appear impossible to maintain within the ranks, pushing them to outsource aspects of maintenance and training to PSCs (Cusumano, 2009, p. 2). This is especially true with respect to 'robotic' weapons such as unmanned drones.[8]

Some major Western militaries and government agencies, such as the US Department of Defense, have gradually institutionalized the outsourcing of functions other than combat in order to free up uniformed personnel for fighting (USDOD, 2001, p. 53). Some states contracting PSCs argue that the private sector can be hired and fired faster than uniformed personnel and can therefore be deployed more flexibly, which is more affordable in the long run than maintaining a permanent in-house capability (Schwartz, 2010, p. 2). As a result, the proportion of non-military personnel contracted by the US military has increased over time; while it represented 1/20 of the size of regular US forces during World War I, this ratio grew to 1/7 during World War II and 1/6 in Vietnam, to reach and even exceed parity in the conflicts of the Balkans, Afghanistan, and Iraq (Fontaine and Nagl, 2010, p. 9).[9]

A side effect of reductions in state security personnel has been the creation of a vast supply of available and trained individuals, many of whom secured jobs in PSCs or created their own. An estimated 5–6 million soldiers were demobilized worldwide between 1985 and 1996 (Renou, 2005, p. 289; Holmqvist, 2007, fn. 17). If reservists are included, military downsizing from the 1980s to 2007 resulted in more than 30 million trained personnel leaving military positions worldwide (Karp, 2008). A number of demobilized public security personnel and fighters in post-conflict societies such as Sierra Leone found employment as PSC employees (Abrahamsen and Williams, 2005b, p. 12). Companies such as Military Professional Resources, Inc., reportedly maintained a list of 12,500 'on-call' recruits, and Blackwater (now known as Xe Services) had its own database of 21,000 names (Scahill, 2007, p. xviii; Singer, 2003, p. 120).

Plainclothes Blackwater contractors take part in a firefight as demonstrators loyal to Muqtada al-Sadr attempt to advance on a facility defended by US and Spanish soldiers, Najaf, Iraq, 4 April 2004. © Gervasio Sanchez/AP Photo

The perils of growth[10]

One of the principal concerns regarding the private security sector is that, like other commercial services, only those who are able and willing to pay will benefit from it (Holmqvist, 2005, p. 12). This dynamic runs the risk of exacerbating disparities between the wealthy—protected by increasingly sophisticated systems—and the poorest, who may need to resort to informal and sometimes illegal means to secure their safety.

Another crucial question concerns the legitimacy of outsourcing activities that some consider an inherently governmental function (Cusumano, 2009, p. 18). The use of PSCs redistributes the control over the use of force, and drawing a line on the types of services that PSCs can perform has been the subject of continuing debate. Reports that the Central Intelligence Agency hired Blackwater to carry out a plan to assassinate al-Qaeda operatives caused significant controversy (Marlowe, 2010). The possible use of PSCs to conduct internationally mandated peacekeeping operations and humanitarian interventions is similarly contentious (Baker and Pattison, 2010). While very few firms currently undertake offensive combat missions, PSCs generally do not have policies ruling out this possibility. A voluntary industry code of conduct, for instance, does not exclude taking on offensive missions if 'mandated by a legitimate authority under international law' (ISOA, 2009, art. 8.2.).

Insufficient oversight of PSC performance and a lack of accountability in cases of alleged abuse represent a third set of concerns. Privileged links between private security personnel and current or former government and law enforcement agencies

Box 4.1 PSCs in armed conflict: debates in international law

Considerable debate surrounds the legal implications of the use of PSCs in areas affected by armed conflict. Yet the view that PSCs operate in a 'legal vacuum'[11] is somewhat misleading.[12] In situations of armed conflict, international humanitarian law (IHL) and international criminal law govern the activities of PSC employees. Serious violations they commit or order to be committed may be prosecuted in national or international courts, such as the International Criminal Court (ICC).[13] Both IHL and international human rights law also apply to states that hire PSCs (contracting states), states where they operate, and those where they are incorporated.[14]

Much of the discussion surrounding private contractors and their relationship to IHL has focused on determining whether these individuals have status as combatants or civilians. As combatants, PSC personnel would represent legitimate targets of attacks at all times,[15] but they would also have the right to directly participate in hostilities. If captured, they would be entitled to prisoner-of-war status and would not be prosecuted for having taken part in hostilities.

Various criteria must be met for an individual to qualify as a legal combatant, most of which arguably would not apply to PSCs as they are currently structured. The great majority of private contractors and civilian employees active in armed conflicts have not been incorporated into state armed forces and assume functions that clearly do not involve their direct participation in hostilities on behalf of a party to a particular conflict. Accordingly, under IHL, PSC personnel are generally defined as civilians and are (legally) protected against direct attack, except if and when they directly participate in hostilities (Melzer, 2009, pp. 39, 49).

The notion of direct participation in hostilities has, in fact, been the subject of ongoing debate among members of academia, government, and industry, specifically with reference to the type of work PSC personnel should be permitted to perform. For a specific act to qualify as 'direct' participation in hostilities, some scholars maintain that it must have a close causal relation to the resulting harm (Melzer, 2009, p. 52). Legal experts have argued that PSC participation in combat operations can include guarding military bases against attacks from the enemy,[16] gathering tactical military intelligence,[17] and operating weapons systems in combat operations (Heaton, 2005, p. 202). While participating in these activities, contractors would lose their protection against enemy attack. But as the acts that constitute direct participation are not yet codified, PSC employee participation in hostilities must be examined on a case-by-case basis (Gillard, 2006, p. 539).

International human rights law, applicable to situations of armed conflict (with limited scope for derogation),[18] is also relevant to PSC activity. It imposes an obligation on states to ensure that private parties, including PSCs, not infringe on the human rights of persons in any state's territory or within its jurisdiction. For this purpose, states are required to adopt appropriate legislative and other measures that serve to prevent, investigate, and provide remedies for human rights abuses.

Despite the existence of clear legal obligations and a well-established network of national and international courts with potential jurisdiction over serious IHL violations, proceedings against PSC employees are rare (Gillard, 2006, pp. 542–43). The problem lies less with the applicable norms, although some aspects of the law require clarification, than with a lack of oversight, accountability, and enforcement, including the inherent difficulties associated with gathering evidence of abuses in settings affected by conflict.

Sources: Richard (2010); Bushnell (2010)

can contribute to reducing oversight of PSC activities (Richards and Smith, 2007, p. 4). The possibility of links between the private security sector and criminal networks also worries analysts (Godnick, 2009). A large PSC firm in Tanzania, for example, found that as many as 30 per cent of its employees had criminal records.[19]

There is particular concern over perceived gaps in the accountability of PSC personnel operating in conflict situations. While aspects of international law apply to PSC personnel operating in contexts of warfare (see Box 4.1), enforcement is often difficult because of the specific features of PSC contracting and operation. In cases such as Iraq, where PSCs were granted immunity from Iraqi law between 2004 and 2009, accountability rested with the contracting states. Bringing to justice private security personnel operating overseas also entails obtaining evidence and initiating proceedings in the theatre of operations (Bailes and Holmqvist, 2007, p. iii). Furthermore, conflicts of interest can emerge if a contracting state takes on the roles of both client and watchdog (Cockayne and Speers Mears, 2009, p. 3). For these reasons and others, very few cases of alleged PSC abuse against civilians in Iraq have been prosecuted.[20]

Trainees take aim at each other during an anti-piracy drill aboard a ship in Haifa, Israel, June 2009.
© Baz Ratner/Reuters

THE PRIVATE SECURITY ARSENAL

The quantities and types of firearms at the disposal of PSCs vary greatly across settings, depending largely on the activities they perform and on national legislation. This section reviews available information on the quantities and categories of small arms available to PSCs in different situations.

Estimating arms holdings[21]

National legislation is a major factor influencing the extent to which PSCs arm themselves. A number of countries prohibit—at least on paper—the use of firearms by PSCs operating on their territory, including the Bahamas,[22] Denmark, Japan, Kenya, the Netherlands, Nigeria, Norway, and the UK.[23] Elsewhere, PSCs are allowed to use firearms only for very specific activities. In China and France, for instance, PSC personnel may legally carry firearms only when escorting money to and from banks ('cash-in-transit') (CoESS, 2008; Trevaskes, 2008, p. 38).

Restrictions on the transfer of arms to PSCs as non-state actors appear to be relatively common in countries that are in the midst of, or have recently emerged from, conflict. For example, the Sierra Leone National Security and Intelligence Act 2002 allows PSCs to hold arms in principle; however, the 1998 UN arms embargo prevented the sale of arms to non-state actors until 2010 (Abrahamsen and Williams, 2005b, p. 7). Yet Sierra Rutile, a rutile and bauxite mine in Sierra Leone, obtained permission by way of a specific decree to operate the only armed private security force in the country, despite the embargo on sales (p. 10). In Afghanistan, only the Afghan government, foreign military, and embassies are permitted to import a limited number of firearms for use by their international staff. As a result, there is no official weapons market in Afghanistan for PSCs to legally access firearms. PSCs can circumvent these restrictions by hiring local people who have their own weapons, and turning a blind eye to how they were obtained (Joras and Schuster, 2008, p. 14; Karimova, 2010a).

In practice, PSCs provide a number of services that do not require the use of firearms, such as risk analysis and advisory services. In non-conflict settings, PSCs are most likely to use arms when guarding sensitive industrial, government, and bank sites, performing mobile patrols and emergency interventions (in case an alarm system is activated), or protecting convoys (such as cash-in-transit) and people (acting as bodyguards).[24] In areas affected by conflict, PSCs may need weapons when escorting military supply convoys, protecting government and expatriate personnel, guarding military and government facilities, and training local security forces.[25] Maritime protection—of both ships and ports—may also require armed guards.[26]

Table 4.3 **Reported armed PSC personnel in selected settings**

Location or company	Total PSC personnel	Personnel authorized to carry firearms*	Armed vs. total personnel ratio	Source
Croatia	16,000	300	0.02	CoESS (2008)
G4S in India	141,488	2,912	0.02	Author correspondence with a G4S representative, 12 October 2010
Sweden	13,500	300	0.02	CoESS (2008)
Germany	173,000	10,000	0.06	CoESS (2008)
One PSC in the Canton of Geneva, Switzerland	860	85	0.10	Author interview with private security representative 1, Geneva, 19 August 2010
Slovenia	4,500	1,000	0.22	CoESS (2008)
Turkey	158,839	35,263	0.22	CoESS (2008)
Russian Federation	850,000	196,266	0.23	Abrahamsen and Williams (2009, p. 2), citing Volkov (2002)
Spain	83,000	20,000	0.24	CoESS (2008)
Bulgaria	58,700	23,400	0.40	CoESS (2008)
Dominican Republic	30,000	24,000	0.80	Godnick (2009)
Colombia	200,000	170,000	0.85	Arias (2009, p. 48)

Note: * The number of personnel authorized to carry firearms in Bulgaria is calculated based on the country's reported total PSC personnel and its reported ratio of armed vs. total personnel.

PSC personnel are therefore not all licensed or authorized to be armed, as reflected by variations in the proportion of armed guards vs. total PSC personnel across settings. Table 4.3 illustrates that as few as two per cent of PSC personnel are armed in Croatia and in an international firm with significant presence in India, while more than 80 per cent of employees are armed in the Dominican Republic and Colombia. In Bosnia and Herzegovina, national legislation states that one-fifth of personnel may carry short-barrel firearms in the Federation of Bosnia and Herzegovina, while one-half of employees may do so in Republika Srpska (Page et al., 2005, p. 22).

PSC personnel who are authorized to carry firearms often do not each have their own weapon, nor do they always carry one. Guns may be stored in a central armoury and shared by employees from shift to shift. A PSC operating in the Canton of Geneva in Switzerland, for instance, explained that while ten per cent of personnel were licensed to carry firearms, the number of firearms in inventory amounted to just six per cent of the total number of employees.[27]

Reported PSC firearm stockpiles in 16 situations are presented in Table 4.4. They illustrate a wide range of PSC stockpile levels, starting at less than one firearm for ten employees in the above-mentioned Geneva company, to

Table 4.4 Reported number of firearms held by PSCs in selected settings

Location or company	PSC personnel	PSC firearms	Firearms per PSC personnel	Source
One PSC in the Canton of Geneva, Switzerland	860	50	0.06	Author interview with private security representative 1, Geneva, 19 August 2010
Serbia	28,000	2,395	0.09	CoESS (2008); Page et al. (2005, p. 93)
Moscow	157,138	22,294	0.14	Falalyev (2010); Karimova (2010b, pp. 1-2)
Russian Federation	800,000	116,000	0.15	Modestov (2009); Karimova (2010b, p. 1)
Albania	4,093	938	0.23	CPDE and Saferworld (2005, p. 38)
South Africa	248,025	58,981	0.24	Gould and Lamb (2004, p. 185)
Bosnia and Herzegovina	4,207	1,075	0.26	Krzalic (2009, p. 34, fn. 38)
Angola	35,715	12,087	0.34	Joras and Schuster (2008, p. 46)
Nicaragua	19,710	6,799	0.34	Godnick (2009)
Costa Rica	19,558	8,884	0.45	Godnick (2009)
Brazil	570,000	301,526	0.53	Dreyfus et al. (2010, p. 100); Carballido Gómez (2008, slide 9)
Colombia	120,000	82,283	0.69	UNODC (2006, p. 59)
São Paolo	330,000	255,000	0.77	Wood and Cardia (2006, p. 156)
El Salvador	21,146	18,125	0.86	Godnick (2009)
35 PSCs in Afghanistan	1,431	4,968	3.47	Joras and Schuster (2008, p. 15)
Sandline operation in Papua New Guinea	42	160	3.81	PNG and Sandline (1997, pp. 8-9)

almost four small arms for every Sandline International employee in the 1997 Papua New Guinea operation. Together with Table 4.3, this information makes it possible to establish broad estimates of the level of PSC armament according to region and context (for example, exposure to armed conflict). Applying these ratios to reported numbers of PSC personnel contained in Table 4.1 generates a first global estimate of PSC firearm stockpiles (see Table 4.5).

It should be noted that any estimate risks under-representing actual levels of armament of PSCs as reports on PSC weapons are scarce and unlikely to take into account personnel who carry personal, or illegal, weapons on duty. For instance, while Kenya currently prohibits PSC firearm use, industry sources admit that some companies arm small elite units responsible for protecting important people and high-value facilities (Mbogo, 2010). In countries that prohibit the arming of private personnel, PSCs are nevertheless able to provide an armed service through arrangements with the public security forces. This is the case in Nigeria, where Mobile Police officers are permanently seconded to most PSCs and equipped with fully automatic weapons, usually AK-47s or FN assault rifles (Abrahamsen and Williams, 2005a, p. 11). Improved reporting, data collection, and transparency on PSC firearm holdings are therefore required to fully understand its scope.

Overall, and based on available information, Latin America stands out as the region where PSCs are the most armed, with ratios of arms to personnel ranging from 0.34 firearms in Nicaragua to 0.86 in El Salvador (see Table 4.4). A range of 0.3 to 0.8 firearms per PSC employee is therefore applied to other known PSC staff in the region in Table 4.5.

Latin America stands out as the region where PSCs are the most armed.

Even though data on African countries is scarce, industry representatives argue that Angola's 0.34 ratio of arms to personnel and South Africa's 0.24 rate (see Table 4.4) should not differ greatly from the situation in other African countries that allow PSC firearm use. PSCs probably have fewer weapons elsewhere on the continent, however.[28] For these reasons, a 0.05–0.30 range is applied to reported African PSC personnel.

Despite high rates of personnel, Eastern European PSCs are less equipped than their Latin American counterparts, with less than 0.1 firearm per employee in Serbia and up to 0.26 in Bosnia and Herzegovina (see Table 4.4). A 0.05–0.20 range is therefore applied to documented PSC personnel in the region.

Western European rates are believed to be particularly low. Countries such as Norway and the United Kingdom do not allow PSCs to possess weapons at all (CoESS, 2008). The Geneva PSC's rate of 0.06 firearms per employee[29] and information revealing that only two per cent of Swedish PSC employees are authorized to use firearms (CoESS, 2008) point to low levels of PSC armament even in countries where the use of firearms by PSCs is allowed. Some countries in the region may be home to larger PSC stockpiles, however. In Spain, for instance, more than 20 per cent of PSC personnel may be armed (see Table 4.3). As a result, 0.02–0.15 is the ratio applied to reported PSC personnel in Western European states.

Patterns of armament among PSCs in China, India, and the United States, with combined PSC personnel of more than 14 million, have a significant impact on a global estimate. Very little research exists on China's PSC industry. While Chinese PSC personnel can carry firearms only when escorting cash-in-transit (Trevaskes, 2008, p. 38), experts argue that up to several hundred thousand guards may be armed, although often illegally.[30] A minimal ratio of 0.01–0.05 is therefore applied to China to reflect low PSC arming.

Most private security guards in India are unarmed or carry only batons or long sticks (lathis) (Karp, 2010b). So equipped, they are able to perform little more than surveillance roles (Thottam and Bhowmick, 2010). While the total number of legally armed private security guards cannot be estimated systematically, it appears to be relatively low, in the range of one to three per cent (Karp, 2010b).[31] Similarly, about two per cent of the roughly 140,000 G4S guards in India are authorized to be armed (see Table 4.3). For these reasons, a low range of 0.01–0.05 is also applied to India's seven million PSC staff.

Table 4.5 **Estimated global PSC firearm holdings**

Group of countries	Combined PSC personnel (see Table 4.1)	Low firearm per employee ratio	High firearm per employee ratio	Low PSC firearms estimate	High PSC firearms estimate
Countries with reported PSC personnel and firearm holdings (see Table 4.4): Albania, Angola, Bosnia and Herzegovina, Brazil, Colombia, Costa Rica, El Salvador, Nicaragua, Russian Federation, Serbia, South Africa	2,080,201	0.29	0.29	609,093	609,093
Countries with reported PSC personnel and estimated firearms ratios in Latin America: Argentina, Bolivia, Chile, Dominican Republic, Ecuador, Guatemala, Honduras, Jamaica, Mexico, Panama, Peru, Trinidad and Tobago	995,888	0.30	0.80	298,766	796,710
Countries with reported PSC personnel and estimated firearms ratios in Africa: Côte d'Ivoire, Morocco, Sierra Leone	73,000	0.05	0.30	3,650	21,900
Countries with reported PSC personnel and estimated firearms ratios in Eastern Europe: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Kosovo, Latvia, Lithuania, Macedonia (former Yugoslav Republic of), Moldova, Montenegro, Poland, Romania, Slovakia, Slovenia	565,726	0.05	0.20	28,286	113,145
Countries with reported PSC personnel and estimated firearms ratios in Western Europe: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Portugal, Spain, Sweden, Switzerland	626,699	0.02	0.15	12,534	94,005
Australia: reported PSC personnel and estimated firearms ratio	114,600	0.02	0.15	2,292	17,190
China: reported PSC personnel and estimated firearms ratio	5,000,000	0.01	0.05	50,000	250,000
India: reported PSC personnel and estimated firearms ratio	7,000,000	0.01	0.05	70,000	350,000
United States: reported PSC personnel and estimated firearms ratio	2,000,000	0.20	0.30	400,000	600,000
Turkey: reported PSC personnel and estimated firearms ratio	257,192	0.15	0.20	38,579	51,438
Afghanistan and Iraq: reported PSC personnel and estimated firearms ratios	61,000	3.00	4.00	183,000	244,000
Countries where PSC employees are not allowed to carry firearms: Denmark, Japan, Kenya, Netherlands, Nigeria, Norway, United Kingdom	771,002	0	0	0	0
Rest of the world: estimated PSC personnel and firearms ratios	Between 0 and 6,000,000	0	0.10	0	600,000
World total				**1,696,200**	**3,747,481**

Source: estimates and calculations based on Tables 4.1, 4.3, and 4.4

Among countries with large numbers of PSC personnel, the United States appears to stand out with a relatively high proportion of armed guards. Typical functions for US PSCs include patrolling businesses and protecting gated communities. But there is no official information on what percentage of personnel normally carry a gun. Most US security guards do not carry a firearm; their functions are essentially those of watchmen and gatekeepers, with instructions to call the police in case of danger. A reasonable estimate of the proportion of PSC personnel armed while on duty would be one-quarter to one-third (Karp, 2010a). Since guards may share firearms between shifts, a ratio of 0.2–0.3 is thus applied to the two million US private security personnel.

A range of 0.15–0.20 is applied to Turkey, given information that 22 per cent of its private guards are armed (see Table 4.3). Western Europe's ratio of 0.02–0.15 is also applied to Australia, given that the proportion of armed PSC personnel in that country has dropped from 10–30 per cent in 2003–04 to 4–5 per cent in 2010 (Prenzler, 2005, p. 61).[32] Finally, a conservative ratio of 0.0–0.1 is applied to countries for which PSC personnel figures are estimated but not reported.

While the ratio of arms per PSC employee is usually lower than 1:1 in societies not affected by armed conflict, it is common for PSC personnel to carry more than one firearm in more hostile settings. PSC staff in Afghanistan and Iraq are typically equipped with two weapons: a handgun and an automatic rifle, with additional weaponry kept in vehicles and company armouries.[33] As illustrated by Table 4.4, individual PSC employees had access to more than three firearms each in Afghanistan and Sandline International's 1997 operation in Papua New Guinea. A high ratio of 3–4 firearms per employee is therefore applied to reported PSC staff in Afghanistan and Iraq.

Based on the above assumptions, it appears that PSCs worldwide hold somewhere between 1.7 and 3.7 million legal firearms. While the dearth of information explains such a broad range, this estimate remains significant in that PSCs hold only a small proportion of the global firearm stockpile of at least 875 million units. PSC holdings are comparable to the quantities of small arms held worldwide by gangs and armed groups (2 to 11 million units), but much lower than those of law enforcement (26 million), armed forces (200 million), and civilians (650 million) (Small Arms Survey, 2010, p. 103).

A private contractor guards a NATO convoy armed with a machine gun in Ghazin, Afghanistan, October 2010. © Rahmatullah Naikzad/AP Photo

Types of firearms[34]

National legislation usually leaves very little discretion to PSCs when it comes to the types of weapons they can use.[35] A survey of the industry across 34 European states reveals, for instance, that the vast majority of PSCs are only allowed to use handguns (pistols and revolvers) (CoESS, 2008). Smoothbore firearms (such as shotguns) are authorized in few countries, and almost all European countries prohibit PSCs from using automatic firearms. Fully automatic firearms and other types of military weapons are also generally banned from PSC use in other settings, including in Argentina, Brazil, Guatemala, Peru,[36] and South Africa.[37] In the Philippines, PSCs are not allowed to possess:

> *high caliber firearms considered as military-type weapons such as M16, M14, cal .30 carbine, M1 Garand, and other rifles and special weapons with bores bigger than cal .22, to include pistols and revolvers with bores bigger than cal .38 such as cal .40, cal .41, cal .44, cal .45, cal .50, except cal .22 centerfire magnum and cal .357 and other pistols with bores smaller than cal .38 but with firing characteristics of full automatic burst and three-round burst* (RoP, 2005, rule VII, sec. 2).

Many exceptions exist, however. In Turkey, for instance, PSCs may use MP5 sub-machine guns and G3 rifles for the protection of oil refineries, oil wells, and power plants (CoESS, 2008). Although Russian law seems to only allow PSCs to use pistols, revolvers, and other self-defence weapons, some company websites list sub-machine guns among the weapons available to their staff (Karimova, 2010b).[38] In some cases, legislation does not provide clear definitions of the weapons that PSCs may not use, resulting in broad interpretation and application. For example, under Angolan law, PSC staff are allowed to use and bear only 'defensive' firearms, for which they are required to undertake regular arms training. In practice, however, PSCs continue to use AK-47s and similar 'weapons of war', seen by the population as especially intimidating (Joras and Schuster, 2008, pp. 40, 56).

PSCs operating in hostile conflict environments rely on a greater variety of weapons, with Afghanistan and Iraq representing extreme examples. Although PSCs operating in these two countries procure mainly 9 mm handguns and assault rifles of calibre 7.62 mm or smaller,[39] reports show access to a broad range of small arms and light weapons, including general-purpose machine guns, sniper rifles, and, in some cases, RPGs (see Table 4.6).[40] Sandline International personnel, controversially recruited by the government

Table 4.6 Examples of small arms and light weapons reportedly held by PSCs in Afghanistan and Iraq

Weapon category	Afghanistan	Iraq
Handguns	• GLOCK (9 x 19 mm) • Smith & Wesson Sigma (9 x 19 mm)	• Beretta (9 x 19 mm) • Browning (9 x 19 mm) • Colt M1911 (.45) • CZ (9 x 19 mm) • GLOCK 17 (9 x 19 mm) • GLOCK 19 (9 x 19 mm) • Walther PPK (9 x 17 mm/.380 ACP)
Shotguns	• Remington 12-gauge	• 12-gauge
Sniper rifles	• Unspecified type	• Dragunov (7.62 x 54 mm R)
Semi- and fully automatic rifles	• AK-47 (7.62 x 39 mm) • AMD-65 (7.62 x 39 mm) • HK G36 and G36K (5.56 x 45 mm) • M4 (5.56 x 45 mm) • SIG 556 (5.56 x 45 mm)	• AK-47 (7.62 x 39 mm) • AR-M9 (5.56 x 45 mm) • HK G3 (7.62 x 51 mm) • HK G36 (5.56 x 45 mm) • M4 (5.56 x 45 mm) • M16 (5.56 x 45 mm) • SIG 552 (5.56 x 45 mm)
Machine guns	• PKM (7.62 x 54 mm R) • RPK (7.62 x 39 mm)	• Beretta M12S SMG (9 x 19 mm) • FN Minimi/M-249 (5.56 x 45 mm) • HK MP5 (9 x 19 mm) • M-240 (7.62 x 51 mm) • PKM (7.62 x 54 mm R) • RPK (7.62 x 39 mm) • SMG Sterling (9 x 19 mm or 7.62 x 51 mm)
Portable anti-tank weapons	• Unspecified RPG	• Unspecified RPG • AT4 (84 mm)

Sources: Isenberg (2009); JASG (2008); Joras and Schuster (2008, p. 14); Miller and Roston (2009); USASC (2010); USHR (2007, pp. 3, 8); author interviews with private security representatives 2, 3, 4, 5, 6, and 8

of Papua New Guinea to quell the Bougainville secessionist movement in 1997, were equipped with 60 mm and 80 mm mortars as well as AGS-17 30 mm automatic grenade launchers, in addition to pistols, AK-47 assault rifles, and PKM light machine guns (PNG and Sandline, 1997, p. 9).

Few companies have internal policies that specify restrictions on the arms their personnel may carry. Responsible PSCs undertake risk assessments to determine the level of threat involved in each operation; they adapt their equipment accordingly. The risk of collateral damage can be part of such assessments. One British company, for instance, systematically advises clients against using armed guards on ships, arguing that the presence of arms can only increase the likelihood of use of force by potential hijackers.[41]

Reported PSC use of sniper rifles, machine guns, and, in some cases, RPGs in Afghanistan and Iraq seems contradictory to PSC and contracting states' claims that private security personnel play an essentially protective, defensive role, and do not get involved in combat operations.[42] While light weapons and fully automatic assault rifles clearly give PSCs offensive capabilities, industry representatives argue that maintaining weapon capabilities at least equal or superior to potential attackers' is crucial for the purpose of suppressing enemy fire in case of attacks.[43] Rate of

fire is particularly important when responding to an ambush while in a moving vehicle, and machine guns are commonly deployed for this purpose during convoy escorts.[44] The choice of weapon is also driven by the environment and 'local norms' where PSCs operate. The widespread availability of the AK-47 in Afghanistan and Iraq means that PSCs seek to carry similar or more advanced weapons systems in order to repel attacks. The type of weapon and its calibre will usually be determined and authorized by the host government.[45]

Contracts with clients sometimes specify the types of weapons PSCs may use.

Contractual arrangements with clients sometimes specify the types of weapons PSCs may use. Standard operating procedures (SOPs) agreed by PSCs and clients usually indicate the allocation of firearms, ammunition, and magazines for each function, including the team leader, personnel protection officer, shooter, and driver.[46] Western-made weapons were reportedly popular at the outset of war among diplomatic outposts in Iraq, as proof that PSC equipment was in line with that of coalition forces rather than that of insurgents.[47] In Iraq, clients could sometimes be identified solely based on the type of arms carried by PSC personnel.[48] As Iraq progressively moved into a post-conflict phase, some PSCs preferred the AK-47 to the M4 as a symbol of return to normalcy and adherence to local norms.[49]

PSCs in Afghanistan and Iraq use standard ball, full metal jacket ammunition; expanding and exploding bullets are not permitted.[50] The amount of ammunition carried depends on the threat level a PSC team expects to encounter. Operators often carry smoke grenades, used to provide a screen behind which personnel can withdraw to safety. Industry sources explain that PSCs may use incendiary grenades only to destroy their own vehicles, such as when these are disabled by roadside improvised explosive devices, and to deny insurgents access to their contents.[51]

TACKLING MISUSE

Incidents of armed violence against civilians perpetrated by PSC personnel, particularly in Afghanistan and Iraq, have come under intense international scrutiny. Less attention has been devoted to the role that weapons, and gaps in regulations covering them, have played in such situations. This section reviews apparent loopholes in controls over PSC acquisition, management, and use of firearms and discusses the extent to which current initiatives may help address them.

Arms misuse by PSCs[52]

Arms acquisition

In most countries where the rule of law prevails, PSCs purchase their weapons locally through a registered dealer.[53] If firearms are not available locally, PSCs work with government arms procurement agencies or dealers to obtain an import licence from their country of operation, as well as an export licence from the country from which the arms are to be shipped.[54]

Reports of illicit firearm acquisition and use by PSCs suggest that such procedures are either not systematically followed or do not exist in all countries. In Brazil, for instance, the federal police recorded 760 cases of illicit arms possession by PSC personnel from January 2001 to September 2003 (FPB, 2009). In Tanzania, illegally produced 'home-made' guns called *magobori* feature among PSC weapons.[55] In 2010 in North Bengal, Indian intelligence seized illegal firearms and forged licences from PSC personnel, who had reportedly bought them from former soldiers (Das, 2010).

Due to increased media and government monitoring, several cases of illicit arms acquisition and possession by PSCs in Afghanistan and Iraq have been documented. One company was found to have procured firearms from US Army-

guarded Afghan National Police stockpiles without proper authorization, for instance (USASC, 2010). In February 2009, US and Iraqi government officials found unauthorized 9 mm hollow-point ammunition, as well as unregistered MP5s, during random inspections of PSC armouries (MNF–I, 2009). In a separate inspection, Iraqi authorities raided the headquarters of a foreign security firm in Baghdad and seized unregistered arms and ammunition, including 20,000 rounds of ammunition and 400 rifles (al-Ansary, 2010). On 18 August 2010, Xe Services (formerly Blackwater) entered into a civil settlement with the US Department of State for 288 alleged violations of the International Traffic in Arms Regulations involving the unauthorized export of defence articles and provision of defence services to foreign end users in several countries between 2003 and 2009 (USDOS, 2010).

While negligence and criminal intent may explain several cases, it appears that regulatory constraints sometimes lead PSCs to break laws to acquire firearms. In the early days of the operations in Iraq, for instance, the time required to obtain the necessary authorization to import weapons into Iraq was such that some PSCs chose to procure arms illegally on the local market in order to be able to execute their contracts on time (Bergner, 2005; Miller and Roston, 2009). Faced with similar constraints, some companies in Afghanistan hired staff that already possessed weapons, turning a blind eye to the origins of their firearms (USHR, 2010, p. 2). Bureaucratic delays are no excuse for breaking laws, but improving procedures for the legal acquisition of arms by PSCs, including enhanced transparency and oversight, might have prevented some of the above-mentioned incidents.

A Pakistani officer inspects unlicensed weapons confiscated from a local security firm, Islamabad, September 2009.
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Stockpile management

National legislation rarely provides details on how PSCs should secure firearm stockpiles from theft or diversion, or how to account for ammunition issue and expenditure (da Silva, 2010). When it does, the law tends to focus on whether personnel may keep their weapons at home when off duty. In Europe, for instance, PSC weapons must usually be secured in armouries (CoESS, 2008).

Stockpile security is crucial to preventing PSC arms from leaking to criminal networks through theft or loss. In Australia in 2007, for instance, gangs repeatedly targeted armed PSC employees in at least 11 attacks to seize not just the money they were escorting, but also their firearms (Gee and Jones, 2007). In South Africa, criminals have reportedly attacked—and killed—armed PSC personnel for the sole purpose of stealing their weapons (Gould and Lamb, 2004, pp. 192–93). Accountability of PSC small arms seems particularly problematic in maritime security operations. Some armed guards protecting ships from Somali pirates, for instance, reportedly dump weapons offshore before reaching countries' territorial waters in order to evade arms transfers regulations, save time, and cut costs (Hope, 2011).

In practice, the specifics of managing and securing PSC stockpiles are usually left to the companies themselves. Some large international PSCs have developed lengthy SOPs—up to several hundred pages—that contain detailed firearm policies and procedures for arms management.[56] Partly because SOPs are often required in client tenders, companies usually consider these documents proprietary information and keep them confidential. Making SOPs public would allow smaller, less well-resourced companies to simply reproduce existing written procedures and compete unfairly without necessarily being able to implement such regulations.[57] While large companies argue that their arms management procedures are strict and based on military standards,[58] lack of transparency makes an objective evaluation difficult. Controls over ammunition appear particularly critical. As industry sources admit, it is virtually impossible for PSCs—and state armed forces—to account for every round, even when every effort is made to do so.[59]

A lack of transparency regarding internal PSC procedures makes objective evaluation difficult.

Where detailed regulations on PSC stockpile management are in place, setting up monitoring and enforcement is critical for these measures to be effective. Examples suggest that governments have been reactive rather than active in enforcing regulations and imposing oversight. In Iraq, for instance, despite the existence of detailed firearm-related regulations since the early days of operations, effective enforcement mechanisms were only put in place following Blackwater's killing of 17 Iraqi civilians at Nisoor Square in Baghdad in 2007 (Glanz and Lehren, 2010; Isenberg, 2010b). The Armed Contractor Oversight Division, for instance, was only established in November 2007. The Division has since carried out random inspections of PSC personnel and compounds, confiscating unrecorded weapons and ammunition from several companies (MNF–I, 2009).

Another issue concerns the disposal of firearms once a PSC no longer uses them. In most countries, PSCs have a long-term presence and simply renew their licences periodically.[60] For PSCs operating in conflict environments, however, weapons are often procured only for the duration of specific contracts. At the end of an assignment, PSCs may destroy their stockpiles and produce a government-issued destruction certificate, transfer weapons to their operations in another country, or return weapons to the original procurement agent or dealer.[61] The latter two options require PSCs to obtain the relevant export and import licences and are rarely implemented in practice. Resale to the host government or other PSCs operating locally is generally the favoured option.[62]

Use of force and firearms

Abusive use of force by PSCs has been the most controversial and publicized aspect of their activities, especially in Iraq and Afghanistan. Human Rights First documents that contractors in Iraq have discharged their weapons thousands of times, and hundreds of times against civilians, without facing investigation (HRF, 2008, p. 3). A RAND Corporation

study also finds that more than one-fifth of US Department of State personnel in Iraq had first-hand knowledge of armed contractors mistreating civilians (Cotton et al., 2010, p. xv). The US Department of Defense reports that from May 2008 to February 2009, PSC personnel in Iraq discharged their weapons 109 times, of which more than one-third were categorized as 'negligent' (Isenberg, 2010b, citing CONOC, 2010).

The extent to which a PSC team will use its weapons also depends greatly on the type of operation. One company providing close protection services to government officials in Iraq reported that personnel only fired weapons five times in more than six years of operations.[63] In contrast, PSCs entrusted with protecting military convoys may fire their weapons on a daily basis, as their roles render them much more exposed to enemy attack.[64]

PSC use of force is regulated by international and national law (see Box 4.1). According to the Swiss criminal code, for instance, personnel can only use firearms in self-defence, and each firearm discharge must trigger a police investigation.[65] Moreover, standard rules for the use of force are an integral part of contracts with clients such as US government agencies.[66]

Some large PSCs develop their own rules, which they then validate with national authorities and clients.[67] The level of threat required to legitimize the use of force can vary greatly from company to company. Some PSCs require an imminent threat to life to justify the use of force by employees[68] (see Box 4.2). Other PSCs reportedly legitimize the use of force to protect not only life, but also infrastructure and materiel they are hired to guard.[69]

While regulations on the use of force and firearms do exist, their effectiveness is difficult to evaluate. Data on weapons discharge incidents by PSC personnel is improving in Iraq, but such progress is far

Box 4.2 Excerpts from internal PSC rules for opening fire in Iraq[70]

General rules

- In all situations you are to use the minimum force necessary. Firearms must only be used as a last resort.
- Your weapon must always be made safe; that is, no live round is to be carried in the breech [. . .] unless you are authorized to carry a live round in the breech or are about to fire.

Challenging

- A challenge must be given before opening fire unless:
  - To do so would increase the risk of death or grave injury to you, the client or other [company] personnel.
  - You, the client or other [company] personnel in the immediate vicinity are being engaged by hostile forces.
- You are to challenge by shouting: 'Security: Stop or I fire' or words to that effect.

Opening fire

- You may only open fire against a person:
  - If s/he is committing or about to commit an act likely to endanger life to you, the client or other [company] personnel and there is no other way to prevent the danger. The following are some examples of acts where life could be endangered, dependent always upon the circumstances:
    - Firing or being about to fire a weapon.
    - Planting, detonating or throwing an explosive device.
    - Deliberately driving a vehicle at a person [. . .] where it is assessed there is no other way of stopping him/her.
  - If you know that s/he has just killed or injured the client or other [company] personnel by such means as s/he does not surrender if challenged and presents a clear and hostile threat to you, the client or other [company] personnel.
- If you have to open fire you should:
  - Fire only aimed shots.
  - Fire no more rounds than are necessary.
  - Take all reasonable precautions not to injure anyone other than your target.

from universal. Furthermore, existing data provides no basis for assessing the performance of PSC personnel compared with state security officers, for instance. Complicating matters further, even the best-intentioned firms keep their internal rules on the use of force confidential, which prevents any external assessment or monitoring of their implementation.

Training requirements

Training of PSC personnel in the use of firearms is another area that appears not to be systematically controlled. Some countries do not require any level of training or competence for individuals employed in the private security sector. For example, in Sierra Leone, governmental regulations relating to the qualifications and training of security personnel are non-existent, and there are no minimum training standards specified for PSCs, nor any requirements relating specifically to firearms (Abrahamsen and Williams, 2005b, p. 11). In the Democratic Republic of the Congo, there is no training requirement for PSCs at all (de Goede, 2008, p. 48). In the United States, there are no federal laws governing the domestic PSC industry. State laws with regard to training of PSC guards vary: 16 US states do not require background checks before someone can be hired by a PSC; 30 states do not require training; 20 states provide for mandatory training, but the requirements vary between 1 and 48 hours; in 22 states, private security services do not have to be licensed (da Silva, 2010).

Armed guards from a private security company practice firing 9 mm pistols at a shooting range, Johannesburg, South Africa, June 1997.

Even when legal requirements exist regarding the vetting and training of PSC sector workers, they often merely indicate that the PSC is responsible for ensuring that employees are properly trained (da Silva, 2010). Under the Private Guards Act in Nigeria, for instance, the training syllabus and instruction notes of every licensed PSC must be submitted to and approved by the Minister of Internal Affairs. These are not, however, assessed against a set of common standards. As a consequence, the quality and duration of training varies greatly among PSCs (Abrahamsen and Williams, 2005a, p. 8).

Specific requirements for training in the use of arms are rare. For example, Colombian Decree 356 of 1994 states that responsibility for the training of personnel lies with the PSC, but it makes no specific mention of training in the use of arms (Colombia, 1994, art. 64). In Angola, PSC employees are legally required to undertake regular arms use training (RoA, 1992, art. 11); however, Angolan law does not establish training standards. Few states actually require accredited firearms training. South Africa appears to be an exception. The Firearms Control Act 2000 requires that security industry employees produce a competence certificate before a firearm can be issued to them. In order to acquire such a certificate, the individual must already have been trained at an accredited training facility (South Africa, 2000, ch. 5, sec. 9.1).

Overall, training in firearms for PSC personnel lacks standardization and accreditation. As a result, designing the content of training modules is often left to companies, resulting in disparate standards. Training programmes used by large international firms are often based on recognized systems, such as the British Army small arms instructors' course. They sometimes require personnel to practice on ranges more frequently than the military—more than once every three months.[71] Poor weapons handling performance can result in additional training to the satisfaction of a weapons instructor.[72] Little is known, however, about any training packages that may be available to the employees of the many other PSCs.

International initiatives[73]

Several international initiatives have emerged in recent years to increase accountability of PSCs and establish standards against which to measure their performance. Initiated by the Swiss government and the International Committee of the Red Cross, the Montreux Document on Pertinent International Legal Obligations and Good Practices for States Related to Operations of Private Military and Security Companies during Armed Conflict[74] was adopted in 2008 and had the support of 35 countries at this writing. Responding to a need for clarification, it summarizes contracting and hosting states' legal obligations

Tim Spicer, representing the Aegis Group, signs the International Code of Conduct for Private Security Providers in Geneva, Switzerland, on 9 November 2010.
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under international humanitarian and human rights law with respect to PSCs, while also compiling good practices. Although the Montreux Document applies primarily to the activities of PSCs in contexts of armed conflict, it contains several firearm-specific recommendations that are relevant to the broader operations of the private security industry (see Box 4.3).

Building on the Montreux Document, the Swiss government, with support from the Geneva Centre for the Democratic Control of Armed Forces and the Geneva Academy of International Humanitarian Law and Human Rights, has worked with industry, civil society, private sector clients, and governments—principally the UK and United States—to develop an International Code of Conduct for Private Security Providers (ICoC). Like the Montreux Document, the ICoC is based on international human rights and humanitarian law, but it speaks directly to the private security industry by establishing common international principles that will guide PSC work.

The ICoC was formally adopted in Geneva on 9 November 2010 by 58 companies, including market leaders Aegis, G4S, DynCorp, Triple Canopy, and Xe Services (FDFA, 2010).[75] Significantly, key contracting government agencies—including the US Department of Defense and the British Foreign Office—have announced their intent to favour companies that sign up to the ICoC when allocating contracts, providing important incentives for companies to comply with it in practice.[76] The next step in the Swiss-led process involves the creation of governance and oversight mechanisms that

Box 4.3 Firearm-specific recommendations contained in the Montreux Document

States, when hiring a PSC, should take into account:

- the past conduct of the PSC and its personnel, including whether any of its personnel, particularly those who are required to carry weapons as part of their duties, have a reliably attested record of not having been involved in serious crime or have not been dishonourably discharged from armed or security forces (part two, paras. 6, 32);
- whether the PSC maintains accurate and up-to-date personnel and property records, in particular with regard to weapons and ammunition, available for inspection on demand (paras. 9, 34);
- whether the PSC's personnel are adequately trained, including with regard to rules on the use of force and firearms (paras. 10(a), 35(a));
- whether the PSC:
  - acquires its equipment, in particular its weapons, lawfully;
  - uses equipment, in particular weapons, that is not prohibited by international law;
  - has complied with contractual provisions concerning return and/or disposition of weapons and ammunition (para. 11);
- whether the PSC's internal regulations include policies on the use of force and firearms (para. 12).

Contracting states should also include in contracts with PSCs:

- a clause confirming the PSC's lawful acquisition of equipment, in particular weapons (para. 14);
- a requirement that the PSC respect relevant national regulations and rules of conduct, including rules on the use of force and firearms, such as using force and firearms only when necessary in self-defence or defence of third persons, and immediate reporting to and cooperation with competent authorities in the case of use of force and firearms (para. 18).

States where PSCs are operating should, in addition to incorporating the above provisions into their licensing laws, establish appropriate rules on the possession of weapons by PSCs and their personnel, such as:

- limiting the types and quantity of weapons and ammunition that a PSC may import, possess, or acquire;
- requiring the registration of weapons, including their serial number and calibre, and ammunition, with a competent authority;
- requiring PSC personnel to obtain an authorization to carry weapons that is to be shown upon demand;
- limiting the number of employees allowed to carry weapons in a specific context or area;
- requiring the storage of weapons and ammunition in a secure and safe facility when personnel are off duty;
- requiring that PSC personnel carry authorized weapons only while on duty;
- controlling the further possession and use of weapons and ammunition after an assignment is completed, including return to point of origin or other proper disposition of weapons and ammunition (para. 44).

Sources: FDFA and ICRC (2009); Parker (2009, pp. 10–11)

will certify PSCs and monitor their compliance, although the parameters of such mechanisms remain to be negotiated in 2011 (FDFA, 2010, p. 6).

The ICoC contains several clauses relating to arms management and use; these are largely derived from those contained in the Montreux Document. As such, the ICoC has the potential to address some of the regulatory gaps highlighted above, if implemented. Firearms-related provisions remain vague when it comes to establishing specific standards for the acquisition of firearms, the use of force, accounting and record-keeping of weapons, and training requirements, however. A significant challenge for future oversight and governance mechanisms involves developing more detailed operational guidelines to facilitate the implementation of firearms-related provisions, including technical standards and training modules. As highlighted throughout this chapter, increased industry transparency on arms holdings, use, and regulations, as well as systematic data collection on incidents of weapons discharges, would facilitate monitoring of compliance with the code. Furthermore, although human rights aspects of the ICoC apply to all situations, the key audience of the initiative remains large international PSCs operating in conflict environments, which, as illustrated by this chapter, represent only a fraction (yet one that is well armed) of PSC personnel worldwide.

Other initiatives include proposed negotiations for a new international convention on PSCs, on the basis of draft text prepared by the independent experts of the UN Working Group on the Use of Mercenaries.[77] This legal instrument would apply to all situations, armed conflict or not. Mandated by the Human Rights Council and the General Assembly of the United Nations, the draft text would require states to develop national regimes for the licensing, regulation, and oversight of PSC activities and calls for the establishment of an international register of PSCs (Gómez del Prado, 2010). While the proposed convention has the potential to improve the regulation of PSC activities, it is only at the expert consultation stage. It thus remains unclear how much political support it will receive from concerned governments.

CONCLUSION

The private security industry has grown to a significant size across the globe, employing more personnel than the police in many countries. PSCs include small local outfits as well as large multinational firms that carry out contracts for diverse clients such as governments, international corporations, local businesses, and private households. While they operate overwhelmingly in countries considered at peace, they are often more conspicuous in conflict contexts, where their actions can raise concerns.

While debates on the legitimacy and inequality of the industry continue, identifiable trends in PSC personnel employment, industry forecasts, and government contracting suggest that the industry will keep expanding into the foreseeable future. As the industry develops, the controls designed to regulate it are not keeping pace. States are generally lagging behind in developing effective oversight mechanisms of PSCs, and they appear to take necessary measures only to respond to, as opposed to prevent, violations.

This chapter reveals that the level of regulatory control exercised over the firearms held by PSCs is no exception to this rule. Little is reported or known about the actual quantities and types of firearms held by PSCs. In many countries, official standards for the management and safeguarding of PSC weapons, as well as for the training of PSC personnel, are non-existent. More worrying, the monitoring of PSCs' firearm holdings and use has progressed only in isolated cases and in response to highly publicized abuses. Lack of effective regulation has meant that the industry

has to a great extent developed its own firearm-related standards, which only the largest companies are able and willing to implement. Confidentiality of internal PSC regulations has meant that these standards have not been disseminated widely or shared within the industry, resulting in different PSCs abiding by different rules.

The ongoing effort to regulate the private security industry at the international, national, and industry levels following adoption of the Montreux Document has potential due to the buy-in of both industry and concerned states as well as the intent to create independent oversight mechanisms. Assessing its effectiveness will require increased transparency and information sharing on PSC personnel qualifications, levels of training, and incidence of abuses. Similarly, more information is required to assess whether controls of PSC firearms are actually being implemented and enforced.

Requiring greater transparency from PSCs with respect to their firearm holdings and discharges would significantly enhance the ability to measure progress and hold the industry to international standards. For the industry the stakes are potentially high: failing to provide evidence of compliance with acceptable standards would expose them to public criticism, lost business, and, ultimately, drastic government response, such as occurred in Afghanistan.

ABBREVIATIONS

ICC	International Criminal Court
ICoC	International Code of Conduct
IHL	International humanitarian law
ISOA	International Stability Operations Association
PMC	Private military company
PSC	Private security company
RPG	Rocket-propelled grenade (launchers)
SOP	Standard operating procedure

ANNEXE

Online annexe at <http://www.smallarmssurvey.org/publications/by-type/yearbook/small-arms-survey-2011.html>

Annexe 4.1. Private security personnel in 70 countries

In addition to reproducing the figures shown in Table 4.1, this table provides a comprehensive list of sources.

ENDNOTES

1 Definition adapted from FDFA and ICRC (2009, p. 9).

2 See Abrahamsen and Williams (2009).

3 Some analysts have even proposed typologies to distinguish between different types of PMCs. Singer, for instance, proposes a typology based on a company's proximity to the frontline, classifying PMCs as military provider firms, military support firms, and military consultant firms (Singer, 2003, pp. 91–93).

4 See, for example, Abrahamsen and Williams (2009, p. 1); Holmqvist (2005, p. 7); Rosemann (2008, p. 9); and Singer (2004, p. 524).

5 The sources, a comprehensive list of which appears in Annexe 4.1, include Arias (2009); CoESS (2008); CoESS and APEG (2010); Page et al. (2005).

6 The 70 countries listed in Table 4.1 represent a total population of 4.5 billion. The median rate of PSC personnel for these countries is 298 per 100,000 people. Assuming that these 70 countries are documented because the scale of their PSC industry is significant, it is highly unlikely that the overall PSC personnel rate in the rest of the world will exceed this 298 per 100,000 median. Based on available world population figures (UN, 2008), countries for which there is no PSC personnel data available represent a population of two billion. Applying the median rate of PSC personnel from documented countries to this 'undocumented' population would mean that there could be a maximum of 2 billion x 298 / 100,000 = 6 million PSC personnel in undocumented countries, producing an upper-end estimate of 25.5 million PSC personnel.

7 Based on data for 20 countries, van Dijk suggests a global PSC personnel rate of 348 per 100,000 compared with 318 police officers per 100,000 (van Dijk, 2008, pp. 215, 368–69). Van Dijk's data does not cover China or India, however.

8 Author correspondence with Scott Horton, contributing editor, *Harper's* magazine, 31 October 2010.

9 Private contractors hired by the US government perform a variety of non-security related tasks, such as medical and laundry services and transportation. As of 30 September 2010, for instance, only 13,101 of 88,448 contractors (15 per cent) employed by the US Department of Defense, US Department of State, and US Agency for International Development in Iraq were classified as PSC personnel (SIGIR, 2010, p. 55).

10 This section draws partly from Richard (2010).

11 See, for example, Singer (2004, p. 521); Walker and Whyte (2005, pp. 651–87).

12 See, for example, Gillard (2006, pp. 527–28); Sossai (2009, p. 1); Bailes and Holmqvist (2007, p. 7).

13 Prosecution by the International Criminal Court requires that an individual's actions meet criteria for a crime under the ICC Statute. The ICC has jurisdiction over individuals only, not corporations (Schabas, 2007, p. 211). This means that the Court has jurisdiction over the managers of PSCs for negligence in the prevention of the commission of crimes by their employees.

14 Companies, as private entities, have no legal status under international humanitarian law.

15 Regardless of their legal categorization, the reality on the ground is that contractors in Afghanistan and Iraq are regularly subjected to attacks, with contractor casualties even exceeding military deaths for the period January–June 2010 (Isenberg, 2010a; Miller, 2010).

16 See, for example, Schmitt (2005, pp. 538–39); Doswald-Beck (2007, p. 129).

17 See, for example, Dinstein (2004, p. 27); Sossai (2009, p. 14).

18 The International Court of Justice, among other international bodies, has addressed the applicability of international human rights law during armed conflicts—both international and non-international. The Court first affirmed the applicability in its 1996 *Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons* (ICJ, 1996, para. 25). This was then confirmed in the *Advisory Opinion on the Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory* (ICJ, 2004, paras. 106–13) and subsequently in the binding judgement, *Armed Activities on the Territory of the Congo* (ICJ, 2005, para. 216). See also IACHR (2000, para. 20); UNHRC (2004, para. 11).

19 Author correspondence with Kennedy Mkutu, Dar es Salaam Business School, 11 August 2010.

20 See HRF (2008).

21 In this section, analysis of national legislation is derived from da Silva (2010).

22 Author correspondence with William Godnick, UN Regional Centre for Peace, Disarmament and Development in Latin America and the Caribbean (UN-LiREC), 21 October 2010.

23 CoESS (2008); da Silva (2010, p. 2); van Steden and Huberts (2006, p. 23); Yoshida and Leishman (2006, p. 228).

24 Author interview with private security representative 1, Geneva, 19 August 2010.

25 Author interviews with private security representatives 4 and 5, London, 14 July 2010.

26 Author correspondence with private security representative 2, 26 August 2010.

27 Author interview with private security representative 1, Geneva, 19 August 2010.

28 Author interview with private security representative 3, Geneva, 2 October 2010.

29 Author interview with private security representative 1, Geneva, 19 August 2010.

30 Author correspondence with Aaron Karp, 13 October 2010.

31 This ratio was confirmed during an interview by Sonal Marwah with Kunwar Vikram Singh, chairman, Central Association of Private Security Industry–India, Delhi, 20 October 2010.

32 Correspondence with Bryan de Caires, chief executive officer, Australian Security Industry Association Limited, 3 December 2010.

33 Author interviews with private security representatives 4 and 5, London, 14 July 2010.

34 In this section, analysis of national legislation is derived from da Silva (2010).

35 Author interview with private security representative 1, Geneva, 19 August 2010.

36 See Arias (2009, p. 79).

37 See South Africa (2000, ch. 2, sec. 4.1).
38 See photos of sub-machine guns on the website of the Russian company Alfa-Inform (n.d.).
39 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
40 Greystone Limited, a Blackwater subsidiary, reportedly asked prospective employees to check off their qualifications regarding the use of a variety of weapons, including the AK-47, GLOCK 19, M16, M4, machine guns, mortars, and shoulder-fired weapons such as RPGs and light anti-armour weapons (Scahill, 2007, p. 59).
41 Author interview with private security representative 5, London, 14 July 2010.
42 Industry and government representatives made this assertion consistently during author interviews and research for this study.
43 Author interview with private security representative 3, Geneva, 2 October 2010.
44 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
45 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
46 Author correspondence with private security representative 2, 26 August 2010.
47 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
48 Author correspondence with private security representative 2, 26 August 2010.
49 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
50 Author correspondence with former private security representative 6, 6 August 2010.
51 Author correspondence with former private security representative 6, 6 August 2010.
52 Examples of PSC arms misuse in Iraq are drawn primarily from Isenberg (2010b).
53 Author interview with private security representative 1, Geneva, 19 August 2010.
54 Author interview with private security representative 5, London, 14 July 2010.
55 Author correspondence with Kennedy Mkutu, Dar es Salaam Business School, 11 August 2010.
56 Author interview with private security representatives 4 and 5, London, 14 July 2010.
57 Author interview with Doug Brooks, president, International Stability Operations Association (ISOA), Geneva, 2 October 2010.
58 Author interview with private security representative 5, London, 14 July 2010.
59 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010; author correspondence with private security representative 2, 26 August 2010, and with former private security representative 6, 6 August 2010.
60 Author interview with private security representative 5, London, 14 July 2010.
61 Author interview with private security representative 5, London, 14 July 2010.
62 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
63 Author interview with private security representative 5, London, 14 July 2010. In addition, Blackwater head Erik Prince testified before the US Congress that his company's weapons were discharged in less than one per cent of 6,500 diplomatic escorts in 2006, and less than three per cent of 1,873 diplomatic escorts from January to October 2007 (Prince, 2007, p. 4).
64 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
65 Author interview with private security representative 1, Geneva, 19 August 2010.
66 Author correspondence with former private security representative 6, 6 August 2010.
67 Author correspondence with former private security representative 6, 6 August 2010.
68 Such policies are consistent with the UN Basic Principles for the Use of Force and Firearms by Law Enforcement Officials, for instance. These state that: 'Law enforcement officials shall not use firearms against persons except in self-defence or defence of others against the imminent threat of death or serious injury' (UN, 1990, para. 9).
69 Author interview with private security representative 5, London, 14 July 2010.
70 Author correspondence with private security representative 5, 14 July 2010.
71 Author interview with Christopher Beese, private security industry commentator, London, 14 July 2010.
72 Author correspondence with former private security representative 6, 6 August 2010.
73 Parts of this section draw from Richard (2010).
74 For details, see FDFA and ICRC (2009); FDFA (2009).
75 It should be noted that the industry began developing standards in the early 2000s, if not before. The US-based ISOA worked with human rights lawyers and NGOs to develop a code of conduct as early as 2001, and has revised it 12 times since. Version 12 contains three paragraphs on arms control, committing member companies to undertake responsible accounting, control, and disposal of weapons; to refrain from using unauthorized weapons; and to acquire weapons exclusively through legal channels (ISOA, 2009, paras. 9.4.1–9.4.3). The ISOA code also calls on companies to develop rules on the use of force that are in compliance with international humanitarian and human rights law (para. 9.2.2). The company has received a total of about 20 complaints since its code of conduct was established. In cases of credible allegations, the ISOA's

standards committee—composed of industry representatives—has required violators of the code to take measures to redress wrongdoing (author interview with Doug Brooks, president, ISOA, Geneva, 1 October 2010). The significance and effectiveness of such measures cannot be assessed, however, since the outcome of investigations is kept confidential. The only exception is the ISOA's initiation of an independent review to determine whether Blackwater—an ISOA member at the time—had violated the ISOA code of conduct during the 2007 Nisoor Square shootings. Blackwater withdrew its membership from ISOA a few days after the inquiry began (Fontaine and Nagl, 2010, p. 28; Rosemann, 2008, p. 35).

76 Author interviews with private security representatives 3 and 7, who were involved in the drafting of the ICoC, Geneva, 1–2 October 2010.

77 At the Human Rights Council's 15th session in September 2010, states voted to establish an open-ended intergovernmental working group to consider the possibility of elaborating an international regulatory framework on PSCs, including the option of a legally binding instrument (UNHRC, 2010).

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Arms prices and conflict onset: Insights from Lebanon and Syria

Nicolas Florquin

Abstract

What drives the prices of arms and ammunition sold at illicit markets? Do the prices of illegal arms soar during episodes of marked insecurity, such as conflict onset? This article seeks to advance knowledge on the dynamics and determinants of weapons prices through the quantitative analysis of illicit arms market price data in Lebanon for the period February 2011 to September 2012. The article also examines the relationship between arms and ammunition prices in Lebanon, and reported conflict fatalities in Syria, as the period under study overlapped with the onset of conflict in the latter country. Key results include strong, statistically-significant correlations between the prices of arms and the prices of ammunition in Lebanon, as well as between the prices of arms and ammunition in Lebanon and reported conflict fatalities in neighbouring Syria. These findings highlight the value of monitoring illicit arms market prices, including prices for a diverse range of weapons and ammunition, to improve our understanding of both illicit markets and conflict dynamics. The strong correlations observed in the article also suggest that crowdsourcing methodologies used by organizations monitoring killings during the Syrian conflict can capture conflict intensity over time.

1. Introduction

Analysts have long referred to the price of illicit arms as an indicator of their availability, "demonstrating whether or not they can be easily obtained" (Karp 2002, 65). As a result, high firearm prices are usually seen as a policy objective – reflecting the difficulties of acquiring illegal weapons, and the effectiveness of interventions to tame illicit markets (Cook *et al* 2005). Rapid price increases over time also regularly spur speculation that the local security situation will deteriorate (Petty 2012).

Despite continuing interest in the study of arms prices, existing analysis has been constrained by the inherent difficulty in gathering information from illicit arms markets. Quantitative research, while insightful, has been limited and has often relied on prices quoted in secondary sources, which tend not to provide precise information on the location of the transactions, their scope, and the profile of buyers and sellers (see Killicoat 2007). The use of such data poses methodological problems, especially with respect to the comparability of the information over time and across locations. Lastly, information and analysis on prices for illicitly sold ammunition is particularly scarce.

This article seeks to advance knowledge on the subject by providing in-depth analysis of illicit arms market price data in Lebanon collected by the Small Arms Survey for the period February 2011 to September 2012. In order to maximize comparability, the data was collected from the same sources, with checks and balances, during the entire study period. The price data covers 19 models of weapons – including several models of pistols, military rifles, a general-purpose machine gun, a heavy machine gun, and a grenade launcher – and ten types of ammunition. The article also examines the relationship between arms and ammunition prices in Lebanon, and reported conflict fatalities in Syria, as the period under study overlapped with the onset of conflict in the latter country.

A preliminary, partial analysis of this data, based on data for six types of weapons and six types of ammunition, was published by the Small Arms Survey (2013). It found that arms prices in Lebanon, ammunition prices in Lebanon, and monthly conflict fatalities in Syria, increased substantially during the first 19 months of the armed conflict in Syria. These three variables were correlated in relation to each other with high levels of statistical significance. This article builds upon these findings by expanding the analysis to cover all models and types of arms and ammunition whose prices were monitored by the Small Arms Survey. Doing so makes it possible to go beyond general trends and to disaggregate findings by calibre groupings. The article also relies on more detailed sources of information on conflict fatalities in Syria, which can be disaggregated by cause.

The additional analysis presented in this article confirms and refines the findings published in the 2013 Small Arms Survey. It highlights the value of monitoring illicit market prices, including prices for a diverse range of weapons and ammunition, to improve our understanding of both illicit markets and conflict dynamics. It finds that ammunition prices were particularly correlated to conflict fatality figures in Syria. While these two variables generally increased markedly and throughout the study period, prices for some types of military rifles stabilized over time. This suggests that the market for these specific weapons saturated as the conflict escalated, while

demand and use of ammunition and other types of weapons remained high. Finally, the strong correlations between illicit market prices in Lebanon and fatalities in Syria suggest that crowdsourcing methodologies used by organizations monitoring the Syrian conflict reliably capture conflict mortality trends over time.

2. Arms prices and conflict: literature review

Although scarce, the existing literature has generally considered arms prices through supply and demand models derived from economic theory. This body of work suggests that low gun prices at illicit markets increase the likelihood that individuals will purchase and misuse them. Killicoat, for instance, in the context of a cross-country study of one particular weapon family – Kalashnikov rifles – finds that "cheaper weapons prices lead to an increased risk of civil war, independently of other conflict risk factors" (2007, 258). In contrast, analysts argue that high firearm prices at illicit markets are desirable because they should help limit the demand for and acquisition of illegal guns, and by extension, their use. Brauer and Muggah, for example, explain that effective law enforcement can raise the price of "illegal acquisition, possession, carrying, and gun use, misuse, or abuse" (2006, 145).

Consequently, available research often seeks to identify policy interventions that may result in higher arms prices. Killicoat identifies higher levels of effectiveness of a country's regulations,[1] greater controls over borders, and decreases in the military spending of neighbouring countries as firearms "supply-side" factors resulting in higher prices for Kalashnikov-pattern assault rifles (Killicoat 2007, 257–58). Cook *et al.* also outline a number of policies that can help further increase the "transaction costs and price mark-ups" prevailing in Chicago's underground gun market, including undercover police operations to reduce gun availability at the street level, strategies that hold gangs as a whole accountable for illegal gun possession or misuse by members, as well as limiting gun storage options for youth (2005, 23-25).

Economists have been less successful in statistically establishing which "demand" factors effectively impact weapons prices. In his study, Killicoat notes that "all proxy measures for motivation proved insignificant for explaining weapons prices" (2007, 266).[2] The tested proxies included lagged income growth, the proportion of young men in the population, civil war onset, and homicide rates. These variables, according to existing theory, should affect the demand for illicit weapons and therefore impact their prices (Brauer and Muggah 2006; Atwood, Glatz, and Muggah 2006; Killicoat 2007, 264).

Yet a number of qualitative observations and informed media reports suggest that rapidly deteriorating security conditions can substantially increase demand for firearms, and as a result drive arms prices upward. Several war reporters and field-based observers have noted that arms prices typically increase dramatically in the early stages of an armed conflict. According to them, expectations of continuing and increasing violence in countries such as Afghanistan, Iraq, or

[1] This study used global indices of government effectiveness and democratic accountability to measure governments' regulations generally and, by extension, their ability to implement small arms control legislation (Killicoat 2007, 264, 266).
[2] The demand side of the model was adapted from Brauer and Muggah (2006).

Syria increase the local demand for firearms and contribute to rising arms prices (Petty 2012; Chivers 2012; Barr 2007). Sometimes, events in a neighbouring country reportedly contribute to an increase in firearms demand across the border – this was reportedly the case, for instance, for prices in Jordan as a result of civil war in Syria (Hattar 2014). This suggests that individuals will be motivated to buy illicit weapons due to their anxieties for the future and their personal safety, which exercises pressure on weapons demand and prices.

Analysis is less conclusive in contexts of longer-term, protracted instability. A study of the arms markets in the Federally Administered Tribal Areas of Pakistan for the period February 2011-September 2012, for instance, found no correlation between arms and ammunition prices at the surveyed illicit markets, and surrounding levels of violence, suggesting that insecurity related demand does not explain alone arms price variations in this context (Small Arms Survey 2013, 272-273). Local arms dealers interviewed as part of the study cited a variety of supply and demand factors impacting prices, including the exchange rate of the Pakistani Rupee with the United States Dollar (with a declining Rupee resulting in higher prices for weapons smuggled from Afghanistan, for instance), the implementation of local gun-buy-back initiatives, and celebratory shooting during Ramadan and Eid (Small Arms Survey 2013, 270). The multitude of factors that seem to influence prices in such a context makes their analysis more challenging, and perhaps less useful from a policy standpoint.

Overall, existing analysis provides a number of useful conceptual frameworks and reference points on the supply and demand factors that theoretically influence arms prices. Yet efforts to measure empirically the relative strength of specific variables have been limited. The quantitative analysis discussed above suggests supply-side factors play the most part. Yet measurable indicators for demand variables, such as the intensity of conflict and violence, remain imperfect.[3] Moreover, qualitative observations suggest deteriorating security conditions can cause substantial price hikes. Further analysing the relationship between such demand factors and arms prices can yield important policy implications: climbing arms prices may prove to be a useful early warning indicator of deteriorating security conditions and of the urgent need for action to stabilize a particular situation.

Further complicating interpretation of arms prices are the inherent difficulties in collecting reliable, comparable price data from illicit markets for firearms. Existing quantitative analysis has relied on secondary sources of information gathered by a variety of informants, research institutions, and reporters (see Killicoat 2007, 259-260). Prices collected from such a mix of data collectors may refer to different – and often unknown – quantities, types of sellers, and types of buyers, all of which can influence the reported prices. Analysis has also focused on the prices of weapons, often the Kalashnikov rifle broadly defined, neglecting the insights that could be possibly gained from a study of prices for a greater diversity of weapons. Indeed, an emerging literature shows that prices for different types of weapons can fluctuate in sometimes opposite directions.[4] In short, the little we currently know about arms prices may only be true for the particular weapon models being studied.

[3] See for instance, Geneva Declaration Secretariat (2011, 71), on the ongoing debates about and shortcomings of existing methodologies to estimate conflict-related deaths.

[4] In Libya, rifles such as the FN FAL sold for just USD 500–800 in February 2012, a sharp decrease when compared with the thousands of dollars it was worth at the height of the 2011 conflict (Spleeters 2012a, 16–17). In contrast,

Significantly, virtually nothing is known about factors influencing the prices of ammunition, despite it being an essential complement to weapons. Some qualitative and theoretical research suggests that scarcity of specific types of ammunition reduces the demand for the associated weapons; it may also force fighters to fire their weapons more diligently and, as a result, reduce unintended or accidental use (Chivers 2012a; Florquin and Pézard 2005, 54–55; Greene 2006, 3; Spleeters 2012b). Analysing the prices of ammunition at illicit markets may therefore also bring important insights into the state of, and constraints over, this trade. Given their consumable nature, ammunition prices also have the potential of being better indicators of levels of armed violence or conflict than prices for weapon, which have a longer shelf life.

In this article, we examine the relationship between arms and ammunition prices and conflict onset. In doing so, we seek to address two gaps in the above literature. First, we examine how prices for different types of arms and ammunition evolve over time, thereby improving our understanding of factors influencing prices for different materiel. Second, using statistical correlations, we attempt to demonstrate a relationship between arms prices and a specific demand factor – the rapidly deteriorating security conditions associated with the early stages of an armed conflict.

Our hypothesis is that in this context of conflict onset, arms and ammunition prices initially increase, but after some time take different paths. The initial increase of prices for both arms and ammunition results from a strong increase in demand, which the actual use of this materiel by fighters, but also anxieties about personal or community safety among the local population, help fuel. As time goes by, however, most potential buyers will have armed themselves with commonly available weapons. The market for them will thus saturate and result in a stabilization or even the progressive reduction of firearm prices. In contrast, demand and prices for ammunition, which is consumed rapidly in times of conflict, will remain high or increase for longer periods of time. The article examines this hypothesis by analysing data collected through interviews with the same arms sellers over time, addressing some of the concerns about comparability raised in previous studies.

3. Case study background and methods

This article uses a case study to examine the evolution of arms prices – including a variety of weapon models and their associated ammunition – in Lebanon during conflict onset in neighbouring Syria. It uses quantitative analysis to test correlations between arms and ammunition prices at the illicit markets in Lebanon, as well as between these prices and conflict fatalities in Syria. This section presents the data sources used to do so as well as background on the case study countries.

more concealable handguns such as the Browning HP pistol sold for USD 2,400–3,200 in Libya in February 2012, even though they were hardly in demand at all in 2011 (Jenzen-Jones 2013, 15; Spleeters 2012a, 17).

Illicit market prices in Lebanon

Lebanon has long been home to a vibrant underground arms market, and press reports of arms dealers openly selling a variety of items working from home or in the street abound (Blanford 2011 2014; Ibrahim 2008; Prothero 2010; Qassem 2012). While such arms trading dates back to at least the 1975-1990 civil war, it appears to have regained particular momentum following the outbreak of conflict in Syria in March 2011. Observers suggest a rapid and spectacular increase in arms prices in Lebanon during the early stages of the conflict, as Syrians began crossing the border to purchase arms in Lebanon (Alami 2011; Blanford 2012; Lutz 2013, 18-19; Qassem 2012). Meanwhile, the Syrian conflict also had spill over effects on the security situation within Lebanon, resulting in growing sectarian violence between supporters of Hezbollah – a strategic ally to the Syrian government – and Lebanese Sunni who supported the Syrian rebels (*Al Jazeera* 2012; *Reuters* 2012). As a result, and particularly from mid-2012, Syrian fighters were reportedly selling weapons on the Lebanese market, either in support of their allies or to benefit from the high prices being offered (Qassem 2012; Blanford 2014). The underground arms market in Lebanon has therefore been closely connected to the current crisis and growing arms availability in Syria; weapons have flown both ways (Nichols, 2012).

This article analyses arms and ammunition price data collected in Lebanon from February 2011 to September 2012, a period that overlaps with the first 19 months of the Syrian civil war as well as growing internal tensions in Lebanon. Throughout this period, a trusted data collector interviewed two underground arms sellers, who operated in the Bekaa Valley and South Beirut, on a monthly basis. The purpose was to generate a dataset of arms and ammunition prices, based on a consistent data collection mechanism, to enable sound comparisons and analysis.

The data collection process followed a series of methodological principles. A trusted data collector inquired on prices on a regular basis, preferably twice a month. He checked prices with two local dealers to allow for the cross-verification and averaging of the information. The data was further cross-checked using open source reporting on arms prices, which is common in Lebanon (see, for instance, Alami 2011; Blanford 2011; Qassem 2012). While media reports did not make it possible to fact-check prices for all materiel and throughout the period under study, they at least provided confidence that the prices ranges submitted by the data collector were generally consistent with other sources. The data collector reported monthly minimum and maximum prices in United States Dollar (USD – a currency actually used to trade weapons in Lebanon). The raw minimum and maximum prices for each type of weapon and ammunition were computed into monthly averages, as shown in Table 1, which serve as the basis for the following analysis.

The prices collected referred to small transactions, consisting typically of one or very few weapons. According to the surveyed sellers, their typical customers included local individuals and businessmen acquiring weapons for self-defence, protection, and other purposes, as well as intermediaries and small resellers. Dealers recognized however that some of the sold weapons may have ended up with armed groups or other organizations through intermediaries. Yet the important observation is that the prices reviewed here do not refer to large, wholesale purchases by organized armed actors. With respect to ammunition, while the prices shown in Table 1 are provided per unit, cartridges were usually sold in packages of 50.

Table 1: Arms and ammunition prices in Lebanon, February 2011-September 2012, monthly averages (USD)

Data collection covered a broad selection of the available weapons and their corresponding ammunition. In total, 19 models of weapons were grouped under the following nine calibre categories, each corresponding to one type of ammunition: five 9x19mm pistols (Browning, Glock, Beretta 92FS, and CZ 75 BD); one .45 pistol (Colt); three 7.62x39mm military rifles (Kalashnikov/AK "group 1 variants" of reported Russian or Polish manufacture, AK "group 2" variants of reported Chinese, East German, or Bulgarian manufacture, and the Vz. 58); one 5.45x39mm military rifle (AKS-74U); two 7.62x51mm military rifles (FN FAL- and HK G3-pattern); five 5.56x45mm military rifles (M16A1, M16A2, M16A4, M4, and M4 with M203 grenade launcher); one 7.62x54mmR general purpose machine gun of calibre (PKM); one 12.7x108mm heavy machine gun (DShK-pattern); one grenade launcher (RPG-7). These groupings make it possible to test correlations between weapons and ammunition within the same calibre category. In addition, prices for hand grenades (unknown model but standard fragmentation, probably of Eastern bloc design) were treated as ammunition prices with no link to a particular weapon.

Distinguishing between weapon models based on the limited information provided by the dealers sometimes proved challenging. This was particularly true for 7.62x39mm Kalashnikov-pattern rifles, which can encompass a number of variants. The surveyed dealers explained that they sold Russian and Polish Kalashnikovs at a different price than Bulgarian, Chinese, and East German variants, which they grouped together. Aside from Kalashnikov-pattern rifles, many of the other models of weapons under consideration are produced by a number of different countries. While the data collector had sufficient technical knowledge to ensure that the main weapon models were accurately identified and recorded, it was not possible for him to physically inspect each weapon to verify with certainty the country of manufacture. This means that the weapon models listed above refer to their general weapon designs but cannot be interpreted as inferring a particular country of production.[5]

Lebanese authorities' crackdown on local dealers and escalating tensions in Syria in 2012 made the regular consulting with sellers more difficult. This resulted in incomplete data for the period February-September 2012. Only four reports were received during that period, providing price averages for late February–early March, late March–early April, late May–early June, and September 2012.

Conflict fatalities in Syria

This article uses data on conflict fatalities to measure conflict intensity in Syria. Syria faces a particularly deadly conflict since March 2011, with in excess of 30,000 related deaths recorded during the study period alone (VDC 2012). The two sources for conflict fatalities in this article are the Center for the Documentation of Violations (VDC 2012) and Syria Tracker (ST 2013), which both produce data that can be broken down on a monthly basis. VDC relies on a network of local informants to record and cross-check reports of conflicts casualties. Syria Tracker is part

[5] FN FAL-pattern rifles, for instance, have been produced in Belgium and as many as seven other countries. See Spleeters (2013, 1)

of a broader Humanitarian Tracker project, and relies on an online crowdsourcing platform that allows reports to be filed in English and Arabic and cross-checked to avoid double-counting (De Juan and Bank 2013). The Syria Tracker data also makes it possible to disaggregate fatalities by cause. In this article, three particular causes of death are examined: gun shots, sniper, and bombings, with remaining fatality causes grouped together as "other."

The total monthly fatality figures from both sources are presented in Table 2. To enable comparisons with the Lebanon illicit market price data, when price data overlapped over two months, the average of the corresponding two months of reported conflict fatalities in Syria was calculated and used in the following analysis.

Table 2: Conflict fatalities in Syria, March 2011-September 2012

Total monthly fatality figures reported by the two sources are seldom identical (Table 2), illustrating challenges in precisely accounting for the number of conflict-related deaths more generally.[6] Furthermore, datasets that rely on crowdsourcing mechanisms may be subject to a number of limitations, including a bias towards the Syrian opposition, under-reporting in areas affected by high-intensity conflict or with little connectivity, as well as bias over time (i.e. reporting increasing overtime as the mechanisms become better known to people on the ground) (De Juan and Bank 2013, 14). Yet De Juan and Bank express confidence in these data sets and found a high correlation (Pearson R=.90) between them for the period March 2011 – November 2012 (De Juan and Bank 2013, fn 10). Regardless of the limits of conflict fatality data in Syria and elsewhere, it is also noteworthy that the Lebanon arms and ammunition price data described above was collected independently from the Syria fatality data. Testing correlations using these two datasets, as this article does, may therefore bring additional insights into their reliability.

As described above, sectarian clashes also erupted within Lebanon, causing dozens of fatal casualties during the study period. These events arguably may also have influenced underground market prices in Lebanon, yet the article is not able to statistically examine such a relationship due to the lack of aggregate data on fatalities in Lebanon during the study period, which consists mainly of press reports. Indeed, at the time of writing, the author did not have knowledge of any organisation compiling, verifying, and publishing data on fatalities in Lebanon up to the standards of what ST and VDC undertake in Syria. Should such information become available, researchers should be encouraged to include it in further analyses of arms prices in Lebanon.

4. Results: Relationship between arms and ammunition prices

This section examines the relationship between arms and ammunition prices in Lebanon. Correlations are tested at two levels:

- Arms and ammunition by calibre. When several weapons have the same calibre, a price index was calculated for these weapons in order to compare it with the price of the associated ammunition. Indices were calculated by (1) translating monthly price values

[6] See Price, Klingner, and Ball (2013) for an analysis of discrepancies and double-counting between seven sources of fatality data on Syria, including VDC.

for each weapon model into standardized Z scores,[7] and then (2) calculating the average monthly Z score for weapons belonging to the same calibre.

- All surveyed arms and ammunition, computed as two indices. The overall ammunition index is the average monthly Z score for all surveyed ammunition. The overall weapons index is the average monthly Z score for all weapons calibre groups.

Overall weapons and ammunition price indices show a strong positive correlation ($R=0.845$; $p<0.001$), with both arms and ammunition prices increasing markedly throughout the study period (Figure 1). This confirms the findings of the study by Small Arms Survey (2013, 263), which, based on a subset of the data analysed here, also found that weapons and ammunition price indices increased and correlated strongly in Lebanon during the period under study ($R=0.87$, $p<0.001$).

Figure 1: Overall arms and ammunition price trends, Lebanon, February 2011-September 2012

Breaking down results by calibre provides additional support for a generally strong relationship between the prices of arms and those of the corresponding ammunition. Weapons and ammunition prices are statistically correlated for six of the nine calibre groupings reviewed here (Table 3). The correlation is stronger for three calibres – AKS-74U-pattern 5.45x39mm rifles, RPG-7 launchers, and 7.62x39mm rifles – all of which have correlations significant at the $p<0.001$ level with R values superior to 0.800. In addition to these three calibres being of former Eastern bloc standard, weapons such as 7.62x39mm rifles (primarily Kalashnikov variants) and RPG-7 launchers are generally considered as among the most frequently used weapons in conflict situations in this part of the world, including in Syria.[8] Two calibre groupings of Western standard – 9x19mm pistols and 5.56x45mm rifles - showed weaker correlations, statistically significant at the $p<0.05$ level and R values in the 0.600 range. It is interesting to note that ammunition of Western standard seems to be less prevalent than the above mentioned former Eastern bloc calibres in neighbouring Syria (Jenzen-Jones 2014).

Table 3: Correlations between weapons and associated ammunition prices, Lebanon, February 2011-September 2012

The lack of correlation for two Western-standard calibres (7.62x51mm rifles and .45 pistols) and one former Eastern bloc calibre (12.7x108mm DShK heavy machine gun) and their associated ammunition shows there are exceptions to the rule. While they may simply be anomalies, the case of 7.62x51mm rifles is in fact interesting, and consistent with our hypothesis that the market for some types of weapons tends to saturate over time. As Figure 2 illustrates, the prices of rifles (FN FAL- and HK G3-pattern rifles) and ammunition of 7.62x51mm calibre experienced similar trend lines until at least December 2011. After that date, 7.62x51mm ammunition prices experienced a strong and accelerating increase, while 7.62x51mm rifle prices stabilized and then began collapsing after May-June 2012. The decline in 7.62x51mm rifle prices from May-June

[7] A standardized Z score indicates by how many standard deviations an observation is above or below the mean.
[8] A preliminary review of small calibre ammunition documented in Syria suggests 7.62x39mm is the calibre most used in the recent conflict (Jenzen-Jones 2014).

2012 is also inconsistent with the general upward trend observed for the overall weapons and ammunition price indices as shown in Figure 1.

Figure 2: 7.62 x 51mm ammunition and 7.62 x 51mm rifles price trends, Lebanon, February 2011-September 2012

A variety of supply and demand factors could explain the sudden and unusual drop in the prices of these rifles. Consistent with our hypothesis, saturation of certain segments of the "rifle market" in Syria is a possible explanation. Media reports in Lebanon, based on testimonies by local dealers, suggest armed parties in Syria could rely on a variety of sources for acquiring rifles in the fall of 2012 (Qassem, 2012). More abundant supplies Syria means that demand for rifles in Lebanon decreased, also impacting prices. Another factor may lie in reports of Hezbollah moving its Syria-based stocks to Lebanon during that period, fearing a demise of Bashar al-Assad which would put its arsenals at risk (Lutz 2013, 21) – such an action would have contributed to saturating the Lebanese weapons market itself. This contextual information is also consistent with our assumption that weapons supply and demand in Syria had a direct impact on prices in Lebanon.

The case of the 7.62x51mm rifle price drop is also revealing in light of the reported scarcity of the associated ammunition in the region. Reports indicate that 7.62x51mm ammunition was particularly expensive and hard to come by in neighbouring Syria in 2012, reaching USD 3 per cartridge and making rifles such as the FN FAL "useless" to fighters (Spleeters 2012b). Some Syrian combatants reportedly even used commercial .308 Winchester ammunition in their FN FAL-pattern rifles as replacement, despite the heightened risk of case failure (Jenzen-Jones 2014). As supplies of the weapons increased, and ammunition of the corresponding calibre quickly exhausted over the same period, it therefore appears natural that prices for 7.62x51mm rifles in Lebanon quickly collapsed while its ammunition remained expensive.

Weapons and ammunition prices are generally strongly correlated, in Lebanon and, as previous research as shown, also in Pakistan and Somalia (Small Arms Survey 2013, 263-264). Yet this finding does not mean that monitoring prices for a diverse set of weapons and ammunition is unnecessary. Understanding the general trend also makes it possible to single out outliers, which in turn, with additional research, reveals important market dynamics related to specific weapons or ammunition. Specifically, prices for common 7.62x51mm rifles ultimately stabilized and then declined. This is consistent with our assumption that, during conflict onset, once the weapons market becomes saturated, prices for at least some weapons stabilize while ammunition remains in high demand. As a result, ammunition prices may be better indicators of conflict intensity than weapons prices, a subject we delve deeper into in the next section.

5. Results: Relationship between illicit firearm market prices in Lebanon and conflict fatalities in Syria

This section examines the relationship between arms and ammunition prices in Lebanon on the one hand, and conflict fatalities in Syria on the other hand. As in the previous section, it first looks at general trends before looking at more specific correlations, distinguishing by calibre of weapon and ammunition as well as cause of death. In the analysis, monthly fatality totals are

computed into standardized Z scores, which make it possible to visualize them together with arms and ammunition price trends on a single scale. Data collection on weapons and ammunition prices in Lebanon began in February 2011, a month before the start of hostilities in neighbouring Syria, providing an unexpected yet important opportunity to examine the relationship between the two phenomena.

Table 4: Correlations between illicit market prices in Lebanon and conflict fatalities in Syria, February 2011-September 2012

Overall, weapons and ammunition price indices in Lebanon showed strong positive correlations with both the VDC and ST total fatality figures for Syria, with all four indices increasing substantially during the period under review (Table 4). The ammunition price index had stronger correlations with both the ST and VDC fatality data (R=.896 and .941, respectively) than the weapons index (R=.743 and .816). A closer look at these variables' trend lines seems to confirm the existence of a more sustained relationship between ammunition price data and conflict fatalities, illustrating the value of monitoring ammunition prices (Figure 3). The largest increases in fatalities in Syria and in ammunition prices in Lebanon seem to have occurred between December 2011 to September 2012. In contrast, the most aggressive increase in weapons prices in Lebanon seems to have occurred early on between February and December 2011. After that period, weapons prices remained more steady before picking up again in May-June 2012. These general trends are consistent with our assumption that, in situations of conflict onset, demand for weapons is likely to stabilize over time, at least in contrast with demand and prices for ammunition that should remain high.

Figure 3: Conflict fatalities in Syria vs. arms and ammunition price trends in Lebanon, February 2011-September 2012

An analysis of correlations between arms and ammunition prices in Lebanon by calibre, and total fatalities in Syria, supports these general trends. The vast majority of the 19 weapons and 10 ammunition calibre groupings under review were correlated to total fatalities in Syria (Table 4). The five strongest correlations, in relation to both the ST and VDC datasets, can be attributed to five types of ammunition: 7.62x54Rmm, RPG-7 rounds, 5.45x39mm, 7.62x51mm, and .45 – all with R values superior to .800. This again suggests a generally stronger relationship between ammunition prices and conflict fatalities, than between weapons prices and conflict fatalities.

Interestingly, prices for 7.62x51mm rifles were not correlated to the total conflict fatality indices, while 7.62x39mm rifles, a calibre grouping comprised mainly of Kalashnikov-pattern rifles, were not correlated to total fatalities in Syria as measured by ST. This is unsurprising given our previous analysis that rifles faced reduced demand in Lebanon from mid-2012, most likely as the result of market saturation in Syria. Importantly, it suggests that prices for Kalashnikov-pattern rifles, which are often the focus of journalists and researchers, may not be a particularly revealing indicator of levels of conflict intensity especially as time goes by.[9]

[9] The fact that 12.7x108mm ammunition prices are the only variable not correlated to any conflict fatality indicator also stands out, although it is unclear why that is the case. It seems to be due to a sharp decrease in the price of 12.7x108mm ammunition in April 2011 after particularly high prices (more than USD 4 per round) reported in February and March 2011. Probing the issue with the arms dealers yielded no correction of the data or plausible

An examination of correlations between prices and fatalities disaggregated by cause is less conclusive. While sniper fatalities in Syria seemed particularly correlated with ammunition prices in Lebanon, bombing fatality levels generally had stronger correlations with weapons prices. The fact that correlations were in general less significant with respect to gunshot fatalities is counterintuitive. Given that these fatalities were likely to have been caused by the types of weapons and ammunition whose prices were monitored in Lebanon, one would have expected a particular strong relationship between these variables. It should be noted, however, that a number of gunshot fatalities may in fact be recorded in the "other" category in the ST dataset, as deaths of unspecified causes often tend to have been caused by gunshots.[10] Another explanation may lie in the fact that the fatalities observed here occurred in a different country than the one where the arms and ammunition prices were monitored. As a result, it may be that perceptions of insecurity across the border play as important, or bigger a role in influencing demand for arms and ammunition, than the actual use of weapons and ammunition across the border.

Overall, the results confirm the correlation between arms and ammunition prices in Lebanon and conflict fatalities in Syria published by the Small Arms Survey (2013, 272). Although not necessarily definitive, they give additional weight to our hypothesis that while illicit market prices tend to increase sharply in the early stages of an armed conflict, this increase tends to be more pronounced and last longer for ammunition prices. Because the market and conflict being examined are located in two different countries, it is revealing that degrading security perceptions in Lebanon resulting from the deterioration of the situation in Syria appear strong enough to influence local demand and contributed to an increase in arms and ammunition prices. While one cannot exclude that other factors – including the deterioration of the situation within Lebanon – may also be at play, the strength of the relationship between conflict fatalities in Syria and prices in Lebanon is statistically remarkable.

6. Conclusions

By testing quantitatively the relationships between arms and ammunition prices in Lebanon and conflict fatalities in Syria, the analysis presented in this article adds important insights to our understanding of firearm prices. The generally strong correlation observed between these two sets of variables represents the first statistically-significant evidence of a relationship between a firearms "demand" variable – conflict onset – and firearm prices. The relationship stands strong at the aggregate level, but also when disaggregated by calibre and cause of death. This correlation also suggests that efforts to monitor conflict fatalities in Syria seem to be effective in measuring conflict intensity over time, and provides justification for the use of crowdsourcing methodologies for tracking conflict fatalities.

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explanation for the unusual decrease. The prices for this ammunition were more stable after April 2011, with an increase from March-April 2012, which is more consistent with the general patterns observed with the other materiel under review (Table 1).

[10] Correspondence with Taha Kass-Hout, Syria Tracker (a project of the Humanitarian Tracker), 13 July 2013.

The analysis also sheds new light on how prices for different types of weapons and ammunition evolve during rapidly deteriorating security conditions. Generally speaking, in our case study, the prices for most of the weapons types and that of their associated ammunition increased similarly and markedly. Yet, in the case of 7.62x51mm rifles, for instance, arms and ammunition prices were not correlated. After an initial increase, prices for these rifles collapsed, while the corresponding ammunition kept getting more expensive. Overall, while further research is required to confirm our hypothesis of ammunition remaining expensive for longer periods than weapons prices, this is consistent with our hypothesis. A more extended study period may have revealed additional cases similar to the 7.62x51mm rifles – as would additional similar research.

The findings of this article nevertheless need to be placed in context. They are based on a two-country case study, including a well-documented underground arms market, and a particularly deadly armed conflict. Additional case studies in a more diverse set of situations – geographically, but also beyond the initial phase of conflict onset – will be required to assess whether the trends observed here are generalizable, but they might not always be feasible. This article nevertheless offers additional reference points, both in terms of theory and methodology, for future research on illicit arms market prices. It is particularly relevant to the work of war reporters and conflict researchers. While monitoring the prices of weapons in deteriorating security situations is useful, expanding this coverage to also include ammunition prices may provide additional insights into the intensity of conflict and the evolution of illicit arms markets.

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Figure 1: Overall arms and ammunition price trends, Lebanon, February 2011-September 2012
X axis: Months; Y axis: Price indices

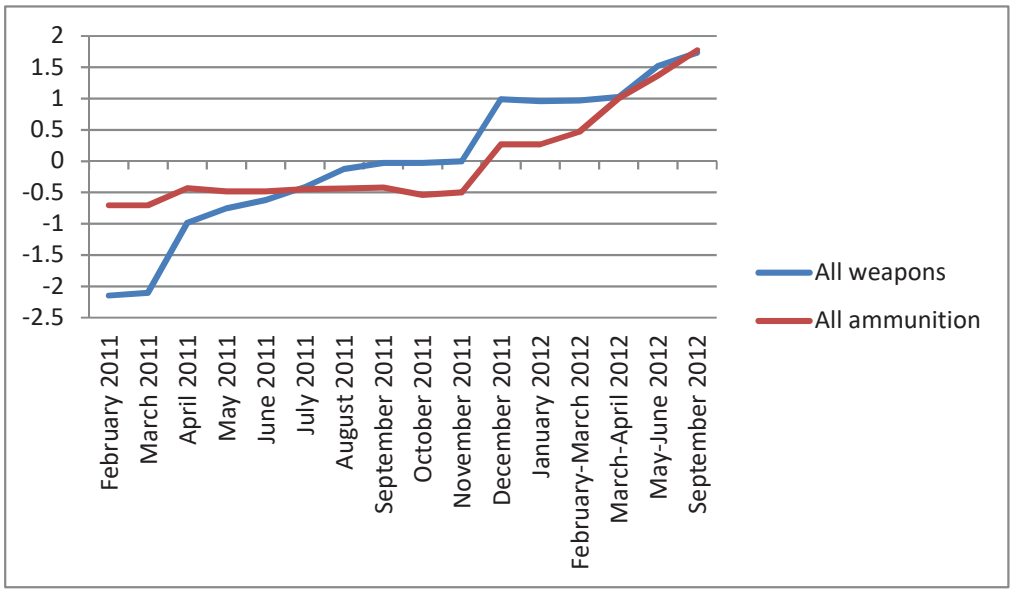

Figure 2: 7.62 x 51mm ammunition and 7.62 x 51mm rifles price trends, Lebanon, February 2011-September 2012
X axis: Months; Y axis: Prices expressed as standardized Z scores

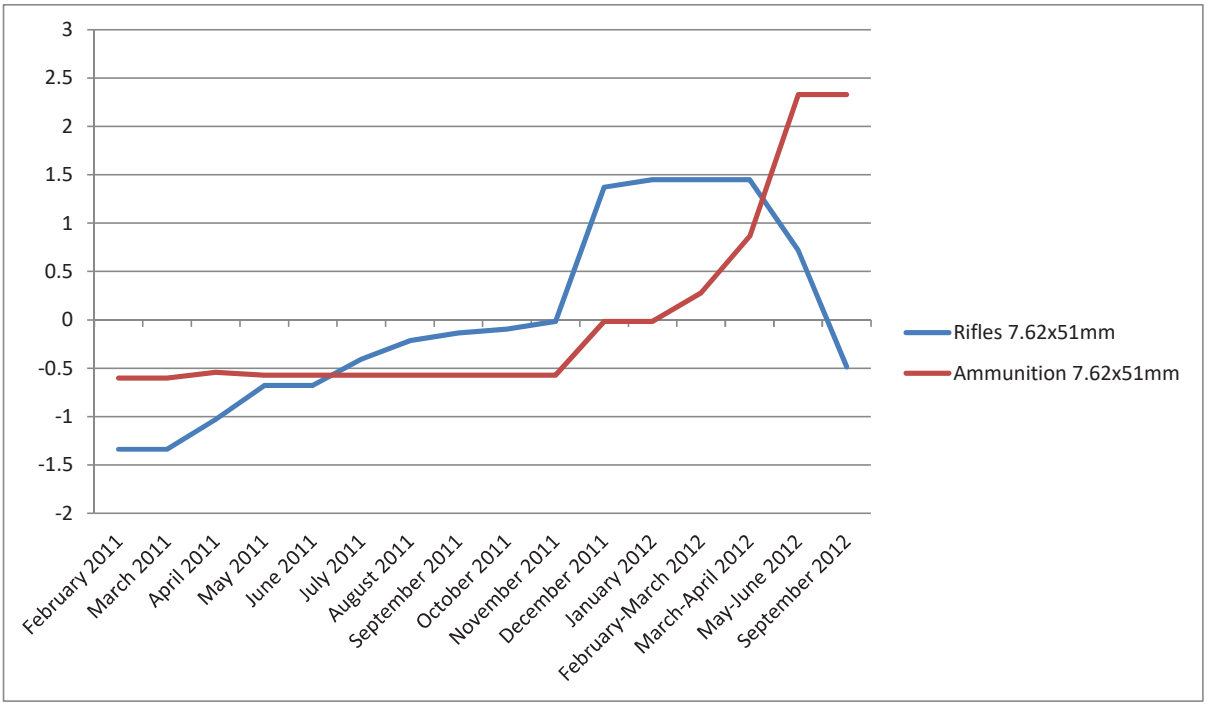

Figure 3: Conflict fatalities in Syria vs. arms and ammunition price trends in Lebanon, February 2011-September 2012
X axis: Months; Y axis: Price indexes and fatalities expressed as standardized Z scores

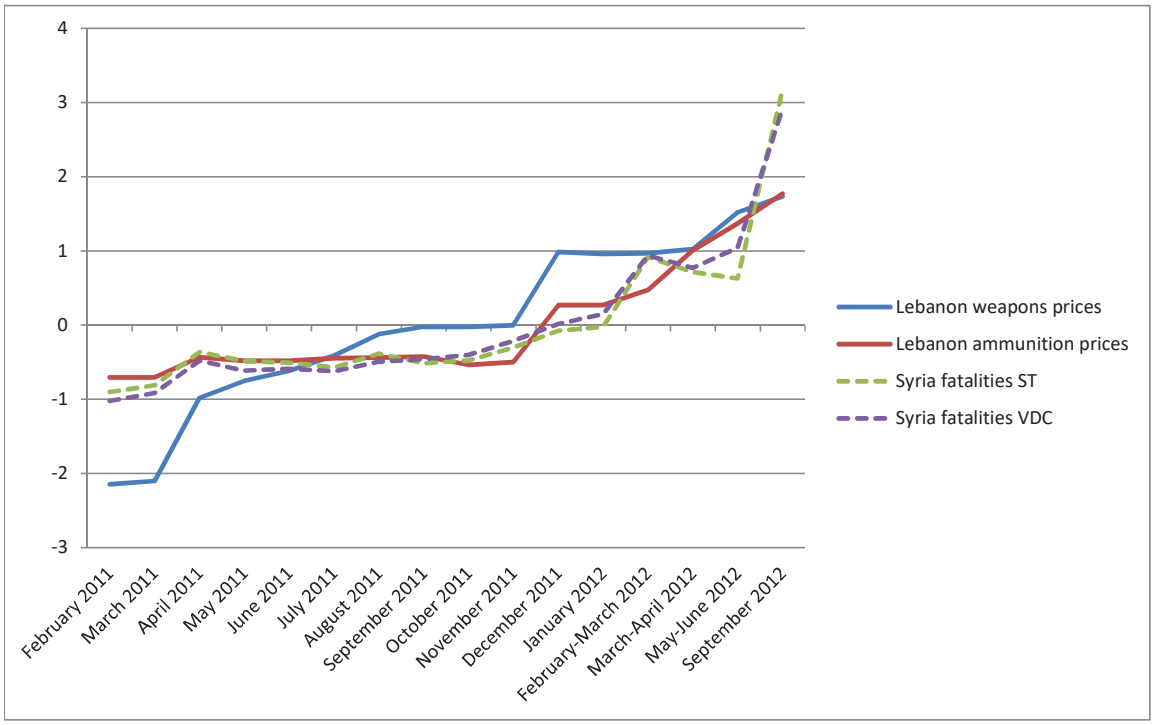

Table 1: Arms and ammunition prices in Lebanon, February 2011-September 2012, monthly averages (USD)
Note: Columns highlighted in yellow show prices for the ammunition used in the weapon/s listed in the preceding column/s

	Pistols						
Month	Browning	Glock	Beretta 92FS	CZ 75 BD	9x19mm	Colt	0.45
February 2011	1500	2250	3000	2250	0.80	1250	1.00
March 2011	1500	2250	3000	2250	0.80	1250	1.00
April 2011	1750	2350	3000	2400	1.30	2000	1.00
May 2011	1825	2450	3150	2400	1.00	1900	1.10
June 2011	1875	2550	3250	2400	1.00	1900	1.10
July 2011	1950	2550	3350	2400	1.00	1975	1.10
August 2011	1950	2675	3400	2500	1.00	2050	1.10
September 2011	1950	2750	3500	2500	1.00	2050	1.10
October 2011	1925	2750	3500	2500	1.00	2000	1.00
November 2011	1900	2750	3500	2500	1.00	2000	1.00
December 2011	2250	2750	3750	2650	1.10	2000	1.10
January 2012	2250	2900	3750	2500	1.10	2050	1.10
February-March 2012	2250	2900	3750	2500	1.10	2050	1.15
March-April 2012	2250	3000	3750	2500	1.30	2050	1.15
May-June 2012	2250	3000	3750	2600	1.20	1900	1.20
September 2012	2750	3000	3750	2750	1.32	2000	1.32
Mean	**2008**	**2680**	**3447**	**2475**	**1.06**	**1902**	**1.10**

	Military rifles (Eastern bloc calibres)					
Month	AK (group 1 variants)	AK (group 2 variants)	Vz. 58	7.62x39mm	AKS-74U	5.45x39mm
February 2011	1150	775	775	0.77	2900	0.77
March 2011	1150	775	775	0.77	2900	0.77
April 2011	1550	1000	825	0.83	3625	1.45
May 2011	1800	1100	825	1.00	3750	1.45
June 2011	1900	1100	875	1.00	3750	1.45
July 2011	2000	1200	925	1.00	3875	1.45
August 2011	2100	1325	950	1.00	3875	1.50
September 2011	2150	1350	1000	1.05	3875	1.50
October 2011	2150	1400	1050	1.05	3875	1.50
November 2011	2250	1425	1100	1.05	3750	1.50
December 2011	2150	1500	1500	1.50	4750	1.50
January 2012	2200	1500	1500	1.50	4750	1.50
February-March 2012	2200	1500	1500	1.65	4750	1.50
March-April 2012	2250	1525	1525	1.90	4750	1.55
May-June 2012	1650	1350	1350	1.67	5000	2.00
September 2012	1775	1400	1250	1.32	5000	3.00
Mean	**1902**	**1264**	**1108**	**1.19**	**4073**	**1.52**

	Military rifles (Western calibres)								
Month	FN FAL	HK G3	7.62x51mm	M16 A1	M16 A2	M16 A4	M4 w/ M203	M4 w/o M203	5.56x45mm
February 2011	500	500	0.50	1550	2000	2750	13000	5000	0.77
March 2011	500	500	0.50	1550	2000	2750	14000	5500	0.77
April 2011	600	600	0.52	1900	3000	3500	14500	5500	0.73
May 2011	775	650	0.51	1950	3000	3500	14250	6250	0.73
June 2011	775	650	0.51	1950	3000	3500	14750	6250	0.73
July 2011	875	725	0.51	1900	3000	3500	14750	6250	0.73
August 2011	900	825	0.51	1900	3100	3650	15000	6450	0.73
September 2011	950	825	0.51	1900	3100	3650	15000	6550	0.73
October 2011	1000	800	0.51	1900	3100	3650	15500	6550	0.73

November 2011	1050	800	0.51	1950	3100	3650	16000	6750	0.73
December 2011	1400	1350	0.70	2150	3100	3750	16000	6750	1.00
January 2012	1400	1400	0.70	2150	3100	3750	16000	6750	1.00
February-March 2012	1400	1400	0.80	2150	3100	3750	16000	6750	1.05
March-April 2012	1400	1400	1.00	2150	3100	3750	16000	6750	1.50
May-June 2012	1250	1075	1.50	2850	4250	4500	15000	7000	1.55
September 2012	775	775	1.50	3150	4000	4000	16500	6750	1.32
Mean	**972**	**892**	**0.71**	**2066**	**3066**	**3600**	**15141**	**6363**	**0.93**

	Machine guns				Grenades/grenade launchers		
Month	**PKM**	**7.62x54mmR**	**DShK**	**12.7x108mm**	**RPG-7**	**RPG-7 round**	**Hand grenade**
February 2011	3250	0.46	3000	4.17	875	95	12.5
March 2011	3250	0.46	3000	4.17	875	95	12.5
April 2011	3625	0.53	4000	1.25	1000	150	20
May 2011	3750	0.50	4000	1.25	1000	137.5	20
June 2011	3750	0.50	4000	1.25	1025	137.5	20
July 2011	3875	0.50	4000	1.25	1075	137.5	25
August 2011	3875	0.50	4000	1.25	1150	137.5	25
September 2011	3875	0.50	4000	1.25	1150	137.5	25
October 2011	3875	0.50	4000	1.25	1150	137.5	25
November 2011	3875	0.50	4000	1.25	1150	150	30
December 2011	3875	0.70	4750	1.25	1900	400	50
January 2012	3875	0.70	4750	1.25	1900	400	50
February-March 2012	3875	0.80	4750	1.25	1950	450	50
March-April 2012	3875	1.05	4750	1.30	1950	500	50
May-June 2012	5500	1.05	7250	2.00	1900	750	50
September 2012	5750	1.50	6250	2.00	2100	775	50
Mean	**3984**	**0.67**	**4406**	**1.71**	**1384**	**287**	**32**

Table 2: Conflict fatalities in Syria, March 2011-September 2012

Month	Total fatalities VDC	Total fatalities ST	Gunshot fatalities ST	Sniper fatalities ST	Bombing fatalities ST	Other fatalities ST
February 2011	0	0	0	0	0	0
March 2011	115	119	8	0	0	111
April 2011	600	722	85	13	0	624
May 2011	450	558	68	12	0	478
June 2011	482	528	38	6	3	481
July 2011	441	441	57	6	1	377
August 2011	584	691	103	14	14	560
September 2011	623	521	84	11	3	423
October 2011	685	570	66	24	11	469
November 2011	895	801	108	41	1	651
December 2011	1148	1107	86	18	65	938
January 2012	1300	1177	41	42	11	1083
February-March 2012	2172	2438	87	49	135	2168
March-April 2012	1985	2167	207	59	306	1595
May-June 2012	2289	2049	730	132	656	531
September 2012	4369	5465	2605	270	1601	989

Sources: ST (2013); VDC (2012)

Table 3: Correlations between weapons and associated ammunition prices, Lebanon, February 2011-September 2

Significance levels	Weapons and ammunition prices correlations (R value)
p<0.001	AKS74U5.45x39 and Ammo 5.45x39 (.887)** RPG-7 launcher and RPG-7 round (.877)** **AllWeapons and AllAmmo (.845)*** Rifles7.62x39 and Ammo7.62x39 (.816)*
p<0.01	PKM7.62x54R and Ammo7.62x54R (.717)**
p<0.05	Pistols9x19 and Ammo9x19 (.689)* Rifles5.56x45 and Ammo5.56x45 (.674)*
No correlation	Rifles7.62x51 and Ammo7.62x51 (.375)* Colt45 and Ammo.45 (.326)** DShK12.7x108 and Ammo12.7x108 (-.015)**

* Pearson

** Spearman's Rho

Table 4: Correlations between illicit market prices in Lebanon and conflict fatalities in Syria, February 2011-September 2012

Significance levels	Total fatalities VDC	Total fatalities ST	Bombing fatalities ST	Gunshot fatalities ST	Sniper fatalities ST	Other fatalities ST
p<0.001	Ammo7.62x54R (.969)* AmmoRPG-7 (.944)** **AllAmmo (.941)*** Ammo5.45x39 (.920)** Ammo7.62x51 (.902)* Ammo.45 (.872)* RPG-7 (.845)* Pistols9x19 (.835)* DShK12.7x108 (.827)* **AllWeapons (.816)*** PKM7.62x54R (.815)** AKS74U5.45x39 (.810)* Rifles5.56x45 (.804)* HandGrenades (.793)* Ammo5.56x45 (.791)*	AmmoRPG-7 (.960)** Ammo7.62x54R (.955)* **AllAmmo (.896)*** Ammo.45 (.867)* Ammo7.62x51 (.855)* Ammo5.45x39 (.833)** RPG-7 (.783)* Pistols9x19 (.771)*	AKS74U5.45x39 (.933)** RPG-7 (.932)** Pistols9x19 (.924)** **AllWeapons (.920)**** Rifles5.56x45 (.916)** Ammo5.45x39 (.905)** DShK12.7x108 (.872)** HandGrenades (.867)* PKM7.62x54R (.852)** Ammo7.62x39 (.850)** Ammo7.62x51 (.818)** Ammo7.62x54R (.818)** **AllAmmo (.816)**** Ammo.45 (.809)** AmmoRPG-7 (.795)**	Ammo5.45x39 (.847)** AmmoRPG-7 (.799)** **AllWeapons (.780)****	Ammo7.62x54R (.928)* AmmoRPG-7 (.925)** Ammo5.45x39 (.917)** Ammo7.62x51 (.900)* **AllAmmo (.864)*** Ammo.45 (.824)* PKM7.62x54R (.807)** DShK12.7x108 (.796)*	AmmoRPG-7 (.890)** RPG-7 (.805)* Ammo7.62x39 (.803)* HandGrenades (.803)*
p<0.01	Ammo9x19 (.736)* Ammo7.62x39 (.665)*	DShK12.7x108 (.749)* **AllWeapons (.743)*** AKS74U5.45x39 (.738)* Rifles5.56x45 (.733)* Ammo5.56x45 (.721)* HandGrenades (.715)* Ammo9x19 (.712)* PKM7.62x54R (.701)**	Rifles7.62x39 (.716)** Rifles7.62x51 (.695)** Ammo5.56x45 (.678)** Ammo9x19 (.671)** Colt45 (.504)**	PKM7.62x54R (.752)** Ammo7.62x51 (.748)** Ammo7.62x54R (.748)** RPG-7 (.737)** Rifles5.56x45 (.733)** **AllAmmo (.727)**** Pistols9x19 (.725)** Ammo9x19 (.716)** DShK12.7x108 (.715)** HandGrenades (.709)** AKS74U5.45x39 (.666)** Ammo7.62x39 (.658)** Rifles7.62x39 (.524)**	Rifles5.56x45 (.712)* Pistols9x19 (.702)* Ammo5.56x45 (.699)* **AllWeapons (.669)*** RPG-7 (.669)* AKS74U5.45x39 (.641)*	Rifles7.62x51 (.764)** AKS74U5.45x39 (.761)* Rifles7.62x39 (.754)* Ammo5.45x39 (.730)** **AllWeapons (.725)*** Pistols9x19 (.705)* Colt45 (.659)** **AllAmmo (.646)*** Ammo9x19 (.634)*
p<0.05	Colt45 (.552)** Rifles7.62x39 (.517)*	Ammo7.62x39 (.575)* Colt45 (.552)**		Ammo.45 (.614)**	Ammo9x19 (.625)* HandGrenades (.604)** Colt45 (.526)**	Rifles5.56x45 (.608)* Ammo7.62x54R (.604)* Ammo5.56x45 (.578)* PKM7.62x54R (.575)** Ammo.45 (.542)*
No correlation	Rifles7.62x51 (.431)* Ammo12.7x108 (-.004)**	Rifles7.62x39 (.439)* Rifles7.62x51 (.330)* Ammo12.7x108 (-.036)**	Ammo12.7x108 (.087)**	Rifles7.62x51 (.495)** Colt45 (.458)** Ammo5.56x45 (.422)** Ammo12.7x108 (.018)**	Ammo7.62x39 (.439)* Rifles7.62x39 (.288)* Rifles7.62x51 (.166)* Ammo12.7x108 (.018)**	DShK12.7x108 (.469)* Ammo7.62x51 (.461)* Ammo12.7x108 (-.176)**

* Pearson

** Spearman's Rho

Triggering Terror

Illicit Gun Markets and Firearms Acquisition of Terrorist Networks in Europe

Nils Duquet (ed.)

Co-funded by the Internal Security Fund of the European Union

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Lethal legacies: Illicit firearms and terrorism in France

Nicolas Florquin and André Desmarais[I]

This chapter analyses the illicit firearms market in France, the ways in which terrorist networks have been able to access firearms, and the national policies that have been developed to combat (terrorist access to) the illicit gun market. Particularly since 2015, France has by far been the European country most affected by terrorist attacks involving the use of firearms. The use of fully automatic rifles in the January and November 2015 Paris attacks took an unprecedented human toll, with 147 deaths in those events alone.[1] In 2015 the French authorities made 424 terrorism-related arrests, compared to 238 in 2014 and 225 in 2013.[2]

The recent attacks have created a push to reform the country's intelligence and security forces in order to adapt to, anticipate and better respond to these threats.[3] The government has also identified a series of measures to tackle the issue of illicitly held firearms: the Ministry of the Interior's National Action Plan was launched on 13 November 2015, just hours before the attack on the Bataclan theatre started.[4] Yet these efforts can only rely on limited information on and analysis of the extent and nature of the illicit arms market in France, owing principally to the fact that levels of gun violence in France were previously moderate, if not low by international standards.

This study constitutes an unprecedented effort to present and analyse data and information on illicit firearms and their acquisition by terrorist actors in France. Indeed, the literature on the illicit firearms market in France is particularly scarce, with only a few notable exceptions. To overcome this lacuna, this study uses a combination of quantitative and qualitative methods (see Box 1).

I The authors would like to thank their colleagues at the Small Arms Survey for supporting this research, particularly Anna Alvazzi del Frate for her overall guidance, as well as Moshe Ben Hamo Yeger for his research assistance.

Box 1: Research design

Several methods were used to analyse the illicit gun market in France, terrorist access to this market and the policy that has been developed to combat this security phenomenon.

Firstly, desk research was conducted in which scientific literature, data from earlier studies, policy and legislative documents, and open-source media reports were studied.

Secondly, the research team collected and analysed quantitative data from several state services, including statistics on legally registered firearms, weapons seizures, crime forensic and ballistics analyses, gun-related crime and morgue examinations.

Lastly, more than 25 in-depth interviews with key actors involved in combating (terrorist access to) the illicit firearms market in France were conducted between March and May 2017. The research further drew from other research undertaken by the Small Arms Survey in France since late 2016 on the specific but related issue of illicitly converted firearms. Unless specified otherwise, representatives from the institutions listed below were met in person, with interviews often followed by additional written communications and data sharing. The names and affiliations of several informants are kept anonymous in the text through the use of interview codes. This list does not include a number of informants and experts with specific knowledge who were interviewed in their personal capacities.

Central and regional state services

- Direction Générale des Douanes et Droits Indirects (DGDDI), Bureau D3, Lutte contre la fraude, Montreuil
- Direction Nationale du Renseignement et des Enquêtes Douanières (DNRED), Ivry-sur-Seine
- Tribunal de Grande Instance de Paris, by phone
- Section Centrale des Armes, Explosifs, et Matières Sensibles (SCAEMS), Direction Centrale de la Police Judiciaire (DCPJ), Nanterre
- Service Central des Armes (SCA), Nanterre
- Sous-Direction Anti-Terroriste, DCPJ, by phone
- Pole Judiciaire de la Gendarmerie Nationale, Cergy Pontoise
- Institut de Recherche Criminelle de la Gendarmerie Nationale (IRCGN), Cergy Pontoise
- Service Central d'Identité Judiciaire, DCPJ, Ecully

- Institut National de la Police Scientifique (INPS), Ecully
- Direction Interrégionale de la Police Judiciaire, Marseille
- Centre de Déminage, Marseille
- Unité Médico-Légale, Marseille

Municipal-level security actors

- Communauté d'Agglomération Melun Val de Seine, Dammarie-lès-Lys
- Association Nationale des Cadres Territoriaux de la Sécurité, Saint Etienne

Research and training institutions

- Observatoire National de la Délinquance et des Réponses Pénales (ONDRP), Paris
- Ecole Nationale Supérieure de la Police, Saint-Cyr-Au-Mont-d'Or

Other actors

- Banc National d'Epreuve, Saint Etienne
- Chambre Syndicale des Armuriers, by phone

The report consists of three main sections and a conclusion. The first section examines French national policy established in the wake of the 2015 terrorist attacks to combat the illicit firearms market. In doing so, it identifies the main actors involved, the data management tools being developed, the state of international cooperation and remaining challenges identified by interviewed stakeholders. The second section analyses the characteristics of the illicit firearms market in France. It discusses the size of this market, the general typology of illicit firearms in France, black market prices, and the main sources of supply of and actors involved in the illicit firearms market.

The third section focuses on terrorist actors' access to the illicit firearms market in France. It starts with an overview of terrorist activities and attacks involving firearms in France since the early 1990s. This is followed by an analysis of the typology and acquisition of firearms used by terrorist networks in France. Due to the secrecy surrounding ongoing terrorism-related investigations, official information was not available on the proximate sources of supply for firearms used in recent jihadist attacks. French services have nevertheless provided detailed unpublished data on the models of firearms and types of ammunition used in several incidents, as well as on the status of their tracing efforts. Combined with available open-source reporting, this information makes it possible to draw some important conclusions on the links between terrorist acquisition of firearms and organised crime.

1. National policy to fight (terrorist access to) the illegal firearms market

The recent wave of terrorist attacks in France have created a push to accelerate reform of the country's intelligence and security forces in order to adapt to, anticipate and better respond to these threats.[5] France declared a state of emergency on the night of the November 2015 attacks in Paris, which was extended until new anti-terror legislation entered into force on 1 November 2017.[6]

In parallel, the government has also identified a series of measures to specifically tackle the issue of illicitly held firearms. The Ministry of the Interior's National Action Plan on illegally held weapons was launched on 13 November 2015, only hours before the start of the November 2015 Paris attacks that killed 130 people.[7] The plan includes a set of 20 measures, grouped under five core pillars. The French customs service devised its own action plan containing 14 measures that focus on giving the institution the judiciary, operational and intelligence means to address the issue.[8] Regular coordination meetings are organised to ensure the coherence and complementarity of the two plans.[9]

The following section reviews efforts to address each of the five pillars identified in the Interior Ministry's action plan on firearms. In doing so, it identifies the main actors involved, the data management tools being developed, the state of international cooperation and remaining challenges identified by interviewed stakeholders.

1.1 Reinforcing knowledge on trafficking routes and actors

This set of measures includes improving the collection and analysis of intelligence, including the development of a database of seized, recovered and found firearms. It also envisions making the ballistics testing of firearms systematic in all judiciary investigations. The plan further notes the need to improve general knowledge of firearms and of the relevant legal regulations among police officers, gendarmes, and local state officials.[10]

The following sections of this report will draw largely from law enforcement agencies' data management systems. The SCAEMS at the DCPJ in Nanterre centralises data on seized, recovered, found and lost weapons recorded by both the police and gendarmerie. Data for 2015 can be disaggregated by legal weapons category and *département*. However, the SCAEMS noted that the current system does not allow

these statistics to be broken down by type of crime or offence, or users to determine the proportion of seized weapons that are or were previously registered.[11] Developing these capabilities would help to provide a more detailed understanding of the sources and uses of illicit weapons. It would also be in line with international commitments to reduce illicit arms flows under Target 16.4[I] of the UN's Sustainable Development Goals.[12]

The Fichier National d'Identification Balistique (FNIB, a ballistics database) is hosted by the INPS in Ecully and is based on the Evofinder system.[13] Created in early 2016, as of 31 December 2016 it included 16,576 ballistics entries from both the police and gendarmerie, including new cases entered since the inception of the system, as well some old cases that could be transferred from the previous CIBLE database. Open cases for which the crime weapon has not been retrieved are also being re-entered into the new system. The system remains in its infancy, however, with less than 50% of seized weapons currently being examined by the laboratories. This proportion has been growing following internal guidelines requesting the security services to systematically submit recovered firearms to forensic analysis, as well as the establishment of 'proximity ballistics' (*balistique de proximité*) facilities across France since 2010.[14]

The FNIB database holds promise for improved ballistics analysis in France and for facilitating ballistics information exchanges with other European partners, especially if its coverage can expand to include all seized firearms. In 2016 alone the system identified 60 ballistic 'hits', establishing links between different criminal cases where the same weapon was used. Several of these hits had been missed by the previous CIBLE database.[15] Given the FNIB database's technical focus, its utility for generating analysis on the nature of arms trafficking could still be improved: while the system allows for disaggregating data by type of offence or crime, many offences are grouped under a catch-all category entitled '*infraction à la legislation sur les armes*' (breaches of the firearms law), which would merit further disaggregation. Furthermore, determining whether examined weapons were previously registered in the Application de Gestion du Répertoire Informatisé des Propriétaires et Possesseurs d'Armes (AGRIPPA database) and future Système d'Information des Armes (SIA database) would help better ascertain the origins of the seized weapons.

Police and gendarmerie officials noted the need to train officers in the field to enhance their understanding of the significance of firearms in criminal investigations and improve the quality of their recording of information on seized

I As of May 2017 the proposed indicator for monitoring progress towards this target is the 'Proportion of seized, found or surrendered arms whose illicit origin or context has been traced or established by a competent authority in line with international instruments'.

weapons.[16] They also highlighted the importance of encouraging and supporting officers to investigate firearms retrieved in the context of other crimes, such as drug trafficking. In such cases, investigators tend to prioritise the forensic investigation of the drugs over that of the firearms.[17] Initiatives are under way in security agencies to address these concerns. The gendarmerie, for instance, created the Plateau d'Investigation eXplosifs et Armes à Feu (PIXAF), a team of four gendarmes working closely with the IRCGN that, among other duties, assists and serves as a resource for field officers by facilitating forensic analysis of the firearms that are retrieved and by disseminating strategic guidance notes on emerging trafficking trends.[18]

1.2 Reinforcing targeted interventions to destabilise trafficking actors

The National Action Plan includes a number of measures related to combating internet trafficking; undertaking operations that target specific trafficking sources, actors and hotspots; coordinating controls at the country's points of entry; and reinforcing controls over gun shops and arms fairs.[19]

Both the gendarmerie, through PIXAF, and customs, through the DNRED, monitor and investigate the online market in small arms, including the dark web, with particular focus on francophone sites. In 2016 alone PIXAF identified 160 illicit online firearms transactions.[20] Since June 2016 these bodies have also been authorised to organise undercover purchase operations and use online avatars to investigate cases. The first such investigation was in progress at PIXAF in late March 2017.[21]

Both institutions also monitor arms fairs, targeting suspicious attendees identified by undercover officers.[22] The customs action plan also envisions the creation of teams using dogs trained to detect firearms that will support units that perform controls on roads, at railway stations, and in postal and courier centres.[23]

1.3 Modernising the regulatory regime on arms trafficking

The French government first adopted legislation classifying weapons into eight categories in 1939.[24] Despite numerous amendments over the years,[25] this classification system formed the bedrock of the country's firearm legislation until 2013, even though European Council Directive 91/477/EEC of 1991 called for greater harmonisation within the European Union (EU) by January 1993.[26] Between 1991 and

2013 a number of decrees were passed to reclassify specific weapons of concern[I] and to strengthen the background checks required for obtaining firearms subject to authorisation.[II] On 6 September 2013 France passed new arms control legislation[27] that effectively moved away from the 1939 eight-category system towards the EU classification system based on four categories of firearms (categories A, B, C and D).

The 2013 legislation has been further strengthened following the 2015 wave of terror attacks. This has included the adoption of decrees to reclassify certain types of replica and deactivated firearms:

- In 2016 blank-firing Zoraki R1 and Ekol Voltran Arda revolvers and other firearms with similar characteristics were classified in Category B.[28] In practice, individuals who owned these weapons before the decree was passed had to place them in the custody of a registered firearms retailer and had one year to obtain the required authorisation from the authorities.[29] Alternatively, they could surrender them to the authorities for destruction or have them deactivated at the Banc d'Epreuve (proof house) in Saint Etienne.
- Since May 2017 firearms modified to fire blank ammunition in order to create a noise effect ('*armes de spectacle*', which include the 'acoustic expansion weapons' discussed later in this chapter) are to be classified under their pre-modification legal category. In addition, all firearms – including alarm and signal weapons – that are produced and modified in or introduced or imported into France must be tested by the Banc d'Epreuve in Saint Etienne and must be officially classified by the Interior Ministry before being introduced onto the French market.[30]

Moreover, as foreseen in the National Action Plan, in 2016 prison terms for illicitly acquiring, holding and selling Category A and B weapons were increased from three to five years, and to ten years when such offences were orchestrated by two or more individuals.[31]

I In 1997, for example, the non-lethal MR35 repeating pistol was classified in the former fourth category (now Category B) (Decree of 16 September 1997 on the classification of some specific firearms and ammunitions in the fourth category, *Journal Officiel* 224, p. 13985), while in 1998 slide-action shotguns, and single-shot, rimfire handguns of an overall length greater than 28 cm became classified in the former fourth category (now Category B) (Decree 98-1148 of 16 December 1998, *Journal Officiel* of 17 December 1998, p. 19048).

II In 2003, for example, 'any person applying for the issue or renewal of an authorisation for the acquisition or possession of weapons or ammunition of the 1st and 4th categories … must present a medical certificate attesting that his or her physical and mental health is not incompatible with the possession of such devices' (Law 2003-239 of 18 March 2003 on internal security, *Journal Officiel* 66 of 19 March 2003, pp. 4761ff).

On 12 January 2017 the Minister of the Interior inaugurated the new SCA in Nanterre to coordinate the ministry's policy on arms control.[32] A key task for the new service – staffed with 41 employees as of March 2017 – involves transitioning from the AGRIPPA registry of legally held firearms to the new SIA database. The SIA will allow the tracing of every legally held firearm throughout its life cycle, based on its serial number. Exchanges of information will be possible with the relevant civilian actors, including firearms producers, importers, hunting and sports shooting associations, and the Banc d'Epreuve, in order to keep track of all successive legal owners from a weapon's manufacture or importation to its deactivation, destruction or export. The SIA will be rolled out according to the time lines set under the new EU firearms directive.[33] The SCA acts as the coordinating body and as a resource for local state agencies when they implement the firearms legislation. The SCA is also responsible for establishing the technical norms for firearms deactivation and for certifying firearms as deactivated in France in accordance with EU Regulation 2015/2403 of 15 December 2015.[34]

1.4 Improving international cooperation

Following the 2015 attacks, and in accordance with the National Action Plan,[35] France applied strong pressure on its European partners to fast track the ongoing reform of the EU firearms directive and the development of the new EU regulation on firearms deactivation.[36] Officials expressed frustration at the time required to adopt the new instruments; specifically, the reopening of technical negotiations on the new deactivation regulation has further delayed this measure. France appears to be one of only a few countries that have started to implement the deactivation regulation, despite its entry into force in April 2016.[37]

The key international partners being engaged by French agencies include Interpol, Europol (including EMPACT[I] firearms) and the European Firearms Experts group.[38] The French police meet their European counterparts physically every six months, but also communicate regularly with them more frequently to exchange information.[39] The SCA in particular takes part in ongoing meetings and working groups dealing with the exchange of information on denials of requests to authorise the ownership of Category A and B firearms, alarm and signal pistols, and deactivation.[40]

Through the SCA, France is until October 2018 the current rotating chair of the Permanent International Commission for Firearms Testing (CIP), the body that provided technical guidance for the EU firearms deactivation regulation.[41] At the request

I European Multidisciplinary Platform against Criminal Threats.

of the European Commission, the CIP has also established a working group to support work on a definition for alarm pistols.[42]

In addition to cooperating with neighbouring states, France has also established special cooperation programmes with states in the Balkans, notably in Bosnia and Serbia, to support governments in the region in tracking and stemming illicit firearms proliferation. This has included, for instance, deploying *attachés de sécurité intérieure* (internal security attachés) to these countries and mobilising them to work on this issue.[43] A cooperation programme with Serbia has led to monthly meetings between the two countries' police, customs, justice, and administrative officials, as well as the creation of a permanent intelligence unit with Serbia and the carrying out of joint operational initiatives.[44] The French police have also visited their counterparts in Slovakia to investigate the issue of easily retro-convertible deactivated firearms sold as blank-firing firearms (acoustic expansion weapons) and 6 mm Flobert by Slovakian companies.[45]

With regard to the United States, French police authorities are also in regular contact with the Bureau of Alcohol, Tobacco, Firearms and Explosives, the Federal Bureau of Investigation, and liaison officers, while the SCA maintains contacts with the Sporting Arms and Ammunition Manufacturers Institute. Through the EU, contacts are being initiated with countries in the Middle East and North Africa. There are no contacts with Turkey, however.[46]

1.5 Developing interventions for French citizens

Based on the observation that burglaries represent the majority of cases of stolen firearms, and drawing from pilot interventions carried out in French overseas territories, the National Action Plan envisions campaigns to encourage owners of firearms to surrender them voluntarily at police and gendarmerie stations.[47] There was no publicly available information or statistics about the implementation of such voluntary weapons surrender campaigns at the time of writing.

Several interviewed experts and officials noted the strength of the gun lobby in Europe (and on some specific issues in France), and the politicised nature of the civilian arms control debate, which according to them hindered the implementation of the needed pragmatic reforms.[48] Some pointed to the recent appearance of groups advocating for looser restrictions on firearms, especially those dealing with the carrying of firearms by private citizens, on the basis that arming responsible citizens may help to deter or counter future terrorist attacks.[49] In the tense security situation currently prevailing in France it appears that some individuals prefer to

keep weapons at home out of anxiety for the future, while others decide to acquire firearms illicitly for self-defence.[50] These dynamics and perceptions need to be taken into consideration or they will hinder the success of any voluntary weapons collection campaign.

2. Characteristics of the illicit firearms market in France

2.1 Size of the illicit firearms market

Assessing the size of the illicit firearms market in any country is fraught with challenges. Generally speaking, weapons are considered illicit when they are produced, transferred, held, or used in violation of national or international law.[51] Estimating their volume is therefore not a straightforward task and requires examining the various ways in which weapons become illicit throughout their life cycle. Officials interviewed for this study were reluctant to provide official estimates of the total number of illicit firearms circulating in France, citing methodological concerns.[52] Key informants state that illicit weapons in France include not just firearms smuggled into the country and used by criminal actors,[53] but also firearms left behind after the Second World War, as well as hunting and other firearms that are inherited from generation to generation but never declared. In line with previous EU-focused studies,[54] available indicators of the extent of the illicit firearms market in France reviewed in this report include estimates of legal and illicit holdings, information on weapons seized by the authorities, and data on the use of firearms in violent crime.

2.1.1 Estimates of legal and illegal firearms possession

Assessing illicit arms holdings in France requires an understanding of the linkages between legally and clandestinely held weapons. Indeed, analysts note that the majority of firearms held or sold illicitly in the country do not originate from foreign sources such as the Balkans or Eastern Europe, but are stolen from legal owners or have been held for generations in France without being declared to the authorities.[55] Indeed, thousands of firearms are reported stolen every year in France, including 10,572 in 2015 alone.[56]

According to the SCA, as of 30 March 2017 a total of 4,501,235 firearms were registered in the AGRIPPA database. They include 1,221,667 firearms in Category B (firearms subject to authorisation), 3,050,083 in Category C (firearms subject to

declaration) and 229,485 in Category D (this figure refers specifically to sub-category D1a: shoulder-fired, single-shot, smoothbore firearms registered since December 2011).[57] In addition, the SCA notes that an estimated 2-3 million firearms that belong to sub-category D1 (single-shot, smoothbore, shoulder-fired weapons and shotguns) are not subject to declaration, because they were held or acquired before the declaration requirement introduced in December 2011.[58] The reliability of this estimate of legally held but unregistered firearms is difficult to assess.[59] Moreover, this situation hinders the tracing of such unregistered firearms if and when they are used for criminal purposes, and affects the reliability of statistics on both legal and illicit firearms in France.

The pools of illicit firearms are possibly significant, but difficult to estimate. For instance, according to the president of the Syndicat des Armuriers, based on the number of arms typically held by hunters, France's 1-1.5 million holders of hunting permits can be estimated to own about 6 million hunting rifles and shotguns, both registered and unregistered.[60] The AGRIPPA register currently does not make it possible to determine how many of the almost 3.3 million registered Category C and D shotguns and rifles are owned by hunters, however.[61] As a result, estimating unregistered hunting firearms is currently difficult.

Some insights into overall gun ownership can be gained from representative household surveys and opinion polls that ask respondents if they or their household own a firearm. Generally, survey methodology is likely to result in the under-reporting of firearms ownership – especially illegally held weapons.[62] Yet it provides important comparative data to supplement existing official data and expert knowledge. According to the most recent survey carried out in the EU, France has the eighth-highest rate of gun ownership in Europe, suggesting significant total holdings. In 2013, 7% of respondents declared that they personally owned a firearm to the Flash Eurobarometer 383 survey.[63] Extrapolating these results to France's population of aged 15 or more of 52.7 million in 2015,[64] this suggests that there are 3.7 million individual gun owners in France who each own one or several firearms.

Expert estimates' on the total number of firearms in France are rather scarce and tend to vary greatly. In 2017, for instance, the president of the Syndicat des Armuriers reiterated earlier assessments that the total of civilian-held firearms stands at about 10 million, based on his above-mentioned calculation of the rifles and shotguns owned by hunters.[65] Other experts have given numbers as high as 20 million in the past, but no details are available on the methodology used to arrive at this figure.[66]

The wide range of estimates of total civilian firearm holdings in France highlights the current challenges in assessing gun ownership more generally in the country.

The ongoing reform of the national AGRIPPA register, additional polling, and research into gun ownership patterns among the principal categories of gun owners are needed to shed further light on both undeclared and illicit holdings in France.

2.1.2 Seizures of firearms

Data collated from official and media sources show that the police and gendarmerie regularly seize thousands of firearms every year (Table 1). The extent to which aggregated seizure data reflect the size of the illicit firearms market is subject to caveats, however. An increase in the number of weapons seized may instead be the result of the authorities' dedicating more resources to seizing illicit weapons, or of changes in data-recording practices. The SCAEMS – which keeps track of firearms seized by the police and gendarmerie – notes that reforms implemented in 2002 and 2006, followed by the adoption of new software in 2010, contribute to the variations in reported annual seizures. Moreover, the apparent surge in the number of weapons seized in 2016 is to be nuanced by the fact that at the time they were cited by the minister of the interior, the 2016 data had not been fully cleaned and verified by the SCAEMS and may include cases of double counting.[67]

Table 1: Firearms seized by the police, gendarmerie and customs, available years

Year	Police and gendarmerie[68]	Customs[69]
2000	8,500	N/A
2005	4,400	N/A
2006	4,000	N/A
2007	3,400	N/A
2008	4,000	N/A
2009	1,463	N/A
2010	2,722	N/A
2011	3,910	N/A
2012	N/A	401
2013	N/A	823
2014	5,300	828
2015	6,145	1,158
2016	9,845	860

Moreover, not all of the seized weapons were necessarily trafficked: they could also have been seized as a result of their links with other types of criminal offences, or because of administrative violations, such as the lack of a licence or the failure to register a weapon.[70] While the SCAEMS reported that 1,300 firearms (about 20%) were seized in 2015 in the context of drug-related cases,[71] current software limitations do not make it possible to further break down the number of seizures by the specific type of crime and offence.[72] Moreover, current record-keeping by officers in the field does not allow the SCAEMS to determine the proportion of seized weapons that feature in the AGRIPPA database of registered firearms.[73]

In addition to the French police and gendarmerie, French customs officers annually seize several hundred firearms being imported, exported or transiting illicitly in the country (see Table 1). Customs officials seize these firearms not only at the country's ports of entry, but in fact primarily in people's homes or vehicles (during traffic control checks) and throughout the national territory.[74] When seizures are linked to other offences, the majority of cases relate to drug-related charges, with a more marginal number of cases of counterfeiting and forgery. Weapons seized by customs are not systematically cross-checked with the AGRIPPA register of legally held firearms; in cases where registered weapons were seized, they were usually held legally, but were confiscated together with illicit firearms.[75]

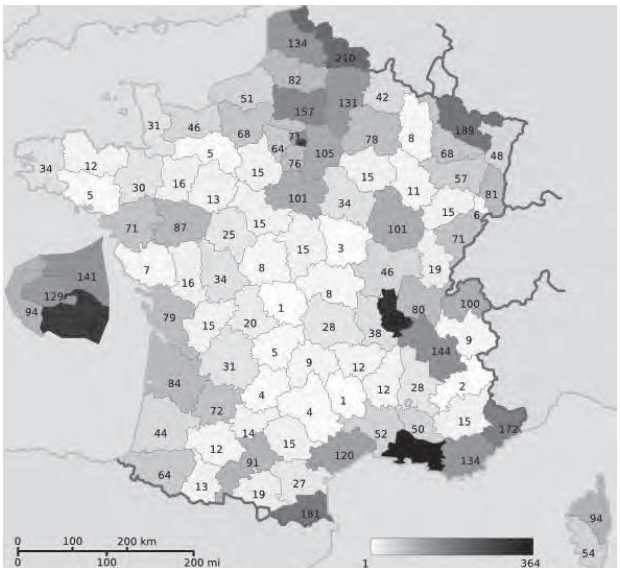
Officials explain that the peak in customs seizures observed in 2015, when almost 1,200 firearms were seized, is primarily due to one exceptional incident.[76] They consider the overall number of arms seizures to have remained stable since 2014, noting even a decrease in the number of Category A firearms seized between 2015 and 2016. In contrast, customs seizures of ammunition increased significantly from 67,848 units in 2014, to 110,649 in 2015, to 412,624 in 2016.[77] Much of this increase is attributable to a sharp rise in seizures of Category D ammunition, and in particular 12-gauge shells. While 12 gauge is the most common firearms calibre in France, customs officials could not identify a specific reason for its increased prominence in ammunition seizures.[78]

It appears clear that many weapons are seized by the police and gendarmerie in the context of violations of the country's firearms legislation. The IRCGN, which performs forensic analyses for the gendarmerie, for instance, reports that 82% of the 930 firearms[79] it examined between November 2015 and October 2016 were linked to cases of violations of firearms legislation (coded as 'ILA'). The remainder are distributed among attempted acts of violence, homicides and attempted homicides; participation in a criminal association; and armed robberies.[80] Category ILA can include a variety of offences, ranging from the possession of an illicit weapon to the illicit carrying or use of an otherwise perfectly legal firearm. More detailed data

would be helpful for determining more precisely the circumstances of the seizures and for excluding cases of minor administrative violations that do not constitute trafficking (e.g. failure to register an inherited firearm).

Bearing these caveats in mind, the geographical distribution of police and gendarmerie seizures in 2015 is presented in Map 1. Seizures appear to be concentrated in large population centres, including Paris and its surrounds, the north-eastern regions bordering Belgium and Germany, Lyon and its surrounds, and the Mediterranean coast. The picture is slightly different when taking into account population density: Corsica (46 firearms seized per 100,000 people) and the Pyrénées Orientales (39 per 100,000) stand out as the *départements* with the highest rates of seized firearms per 100,000 people (Map 2).[81] In the case of Corsica, the high rates of seizures correspond to an average homicide rate of 6.45 per 100,000 people for the period 1996-2015, which far exceeds those seen in the large cities of Marseille (3.81) and Paris (2.77).[82] The high seizure rate for the Pyrénées Orientales, located on the Spanish border, is more unusual, and appears to be the result of a single seizure involving dozens of firearms during 2015.[83] Taking these observations into consideration, it appears clear that firearms seizures are mostly concentrated in the north-eastern border regions, Paris, Lyon, the Mediterranean coast and Corsica.

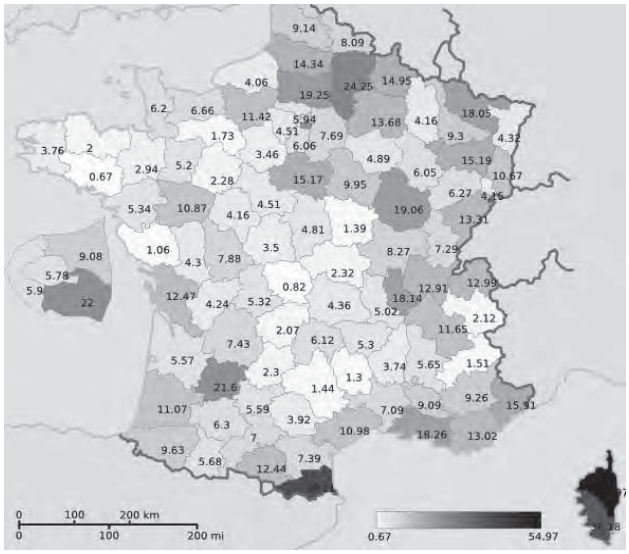
Map 1: Number of firearms seized by police and gendarmerie in 2015, by départementI



Source: SCAEMS[84]

I The zoomed in departements on the left-side of the map are those of the 'Ile de France region'

Map 2: Rate of firearms seized by police and gendarmerie per 100,000 people in 2015, by département[I]



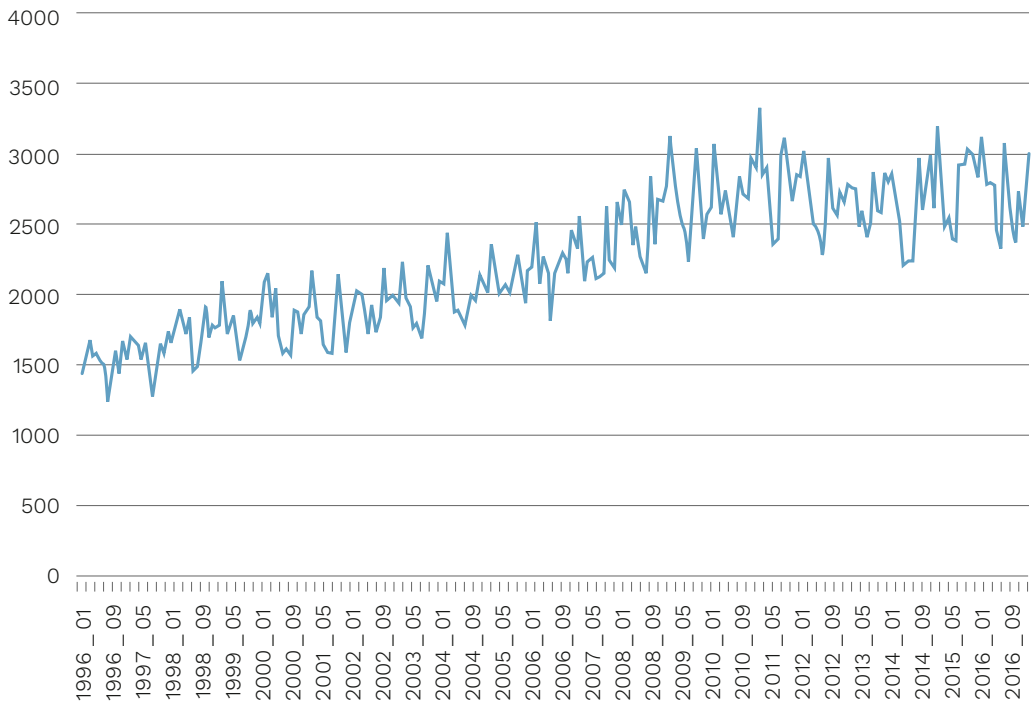
Sources: SCAEMS, INSEE[85]

2.1.3 Illicit use of firearms

The Ministry of the Interior publishes statistics on the number of offences related to 'carrying or holding prohibited weapons'. These are incidents recorded by police and gendarmerie units in each *département* and compiled in the so-called 'Etat 4001' database. Not all these cases involve firearms, however: an undetermined proportion involve the illicit carrying of blunt weapons, teargas self-defence weapons and electric batons.[86] Figure 1 shows a steady increase in these offences between 1996 and 2010, after which they stabilised until early 2017 above 2,500 incidents per month. Disaggregating these available data by type of weapon would help shed further light on trends in prohibited firearms carrying or holding.

I The zoomed in departements on the left-side of the map are those of the 'Ile de France region'

Figure 1: Monthly incidents of carrying or holding prohibited weapons, January 1996-March 2017



Source: Data.gouv.fr[87]

What is clearer is that, compared with other European states, the use of firearms in lethal violence in France is relatively moderate. Homicide rates in France have been decreasing in the last 20 years, from more than 1,500 in 1996 to less than 1,000 in 2014.[88] Significantly, the proportion of homicides in Paris that involved the use of a firearm decreased from 30% for the period 1994-2003 to 24% for 2004-2013.[89] For the period 2010-2015, about 17% of intentional homicides in all of France involved the use of a firearm, slightly lower than the 21% Western European and 24% European average.[90] France experienced an average of 138 firearm homicides per year for the period 2010-2015, or a rate of 0.2 per 100,000 people. This is roughly equal to the average in Western European states more generally and only about half the average rate for all European states.[91] Data on the types of firearms used to perpetrate homicides are not available nationally, however. Moreover, it is not currently possible to access statistics on the proportion of guns used in homicides that were registered and those that were illicit.

While nationwide statistics on the extent of the use of firearms in lethal violence are generally encouraging, the way these weapons are used can illustrate situations of extreme violence in specific regions. The Institut Médico-Légal in Marseille provided autopsy data on 105 cases of firearm homicides that occurred in the city and its surrounds in the period 2011-2017. This dataset reveals that in 15% of cases the injuries were caused by not one but two firearms (often a 9 x 19 mm firearm together with a shotgun or a 7.62 x 39 mm AK-pattern rifle). The data also make it possible to calculate the number of bullet paths per case, revealing how many shots hit each victim. As Table 2 illustrates, on average there were 10.5 bullet paths per body for each case involving 7.62 x 39 mm firearms, 7.1 for cases involving 9 x 19 mm guns, and 2.3 for cases involving shotguns. Moreover, it could be determined that in at least 19 of these 105 cases, one or more shots were fired from a distance of less than 2 metres from the victim.[92]

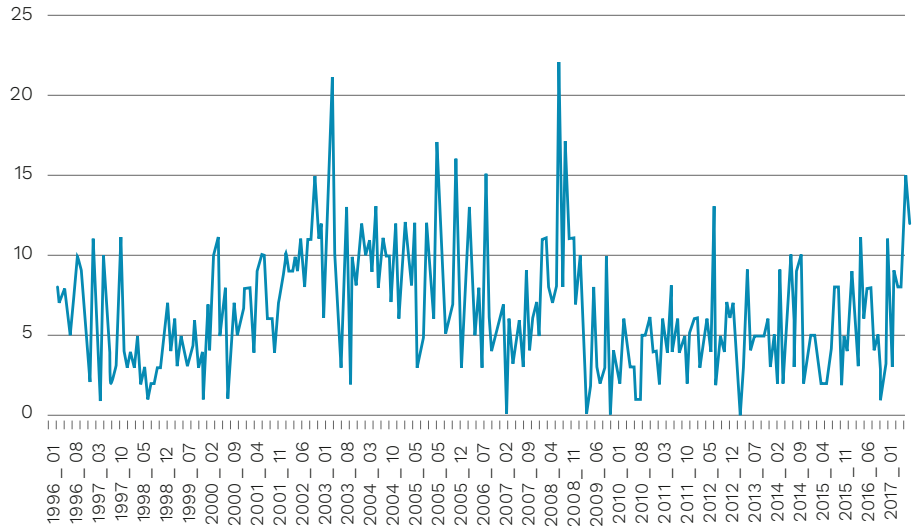
Table 2: Number of bullet paths on victims of firearm homicides examined at the Institut Médico-Légal in Marseille, by calibre, 2011-2017

Calibre	Number of cases	Average number of bullet paths per body
7.62 x 39 mm	21	10.5
9 x 19 mm	18	7.1
Shotgun	14	2.3

Source: Institut Médico-Légal, Marseille[93]

Indicators for other types of violent crime involving the use of a firearm highlight inconsistent trends. One such indicator is the number of *'règlements de compte'*, or incidents of score settling between criminals, most of which involve the use of a firearm.[94] As Figure 2 illustrates, while the monthly incidence of such score settling appears to have increased in late 2016-early 2017, current levels remain much lower than the previous peaks experienced in 2002 and 2008.

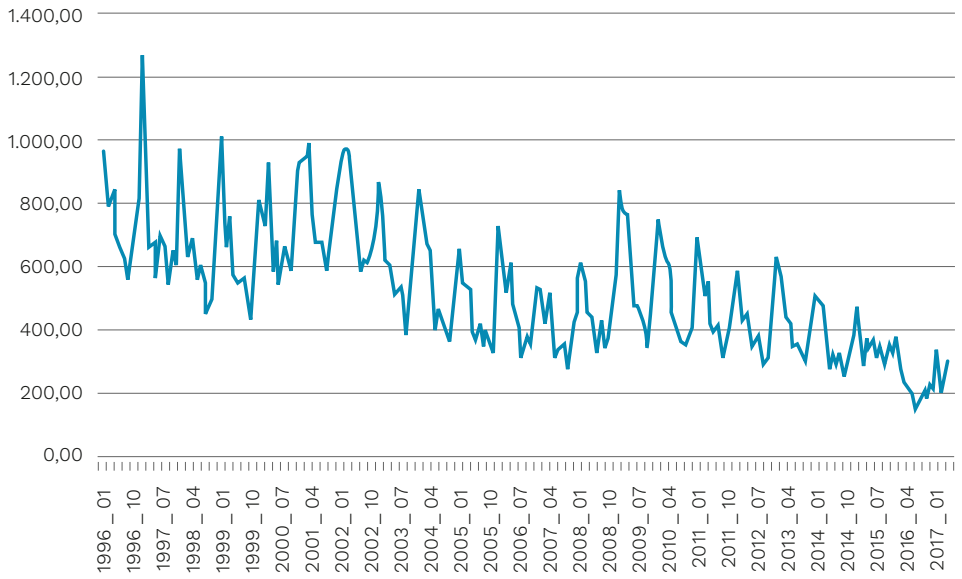
Figure 2: Monthly incidents of score settling by criminals, January 1996-March 2017



Source: Data.gouv.fr[95]

On the other hand, monthly armed robbery statistics reveal a steady decline since 1996 (Figure 3). According to the ONDRP, the reduction in robberies involving a firearm observed since 2013 can be seen across categories of victims. Yet it has benefited businesses (especially jewellery shops, petrol stations and tobacco shops) more than private individuals, who represented 45% of armed robbery victims in 2015.[96]

Figure 3: Monthly incidents of armed robberies, January 1996-March 2017



Source: Data.gouv.fr[97]

Overall, indicators point to relatively moderate levels of illicit firearms use in France, which appear relatively stable, or in several cases to be even decreasing. Similar to weapons seizures, however, rates of violence are unevenly distributed on the national territory, with the Corsica, Marseille and Paris areas emerging as 'hotspots' for firearms crime.[98] Furthermore, available data show that when firearms are used, they can involve significant violence and the firing of multiple shots at the victims.

2.2 Typology of available illicit firearms

Given the seemingly large pool of illicit firearms circulating in France (see above), it is crucial to examine the types most commonly encountered in the illicit sphere. What appears clear from the available firearm seizure data is that only a minority of illicitly held firearms can be considered 'weapons of war'. The vast majority of illegal firearms in France belong to categories that are legally accessible to the general population, but are not adequately registered with, declared to, or authorised by the authorities. The following paragraphs will elaborate on this finding by presenting the available seizure data from customs, the police and the gendarmerie; forensic and ballistics data; and autopsy data. From the analysis of these different types of available datasets it can be concluded that the primary calibre for illicit firearms is 12 gauge (in use with shotguns), followed in varying order of importance, depending on the nature of the dataset, by 9 x 19 mm ammunition (typically in use with handguns and some submachine guns), .22LR (a popular calibre for rifles in France), and 7.65 mm Browning (a popular pistol calibre). Converted replica firearms are of concern, and appear more prominently in the reviewed datasets than reactivated firearms, although the importance of the latter may be under-represented, given their resemblance to original firearms. Also of note is the absence of 7.62 x 39 mm (that of standard AK-pattern assault rifles) in the top calibres of several datasets, although its use is more prominent in the context of the most serious crimes and offences.

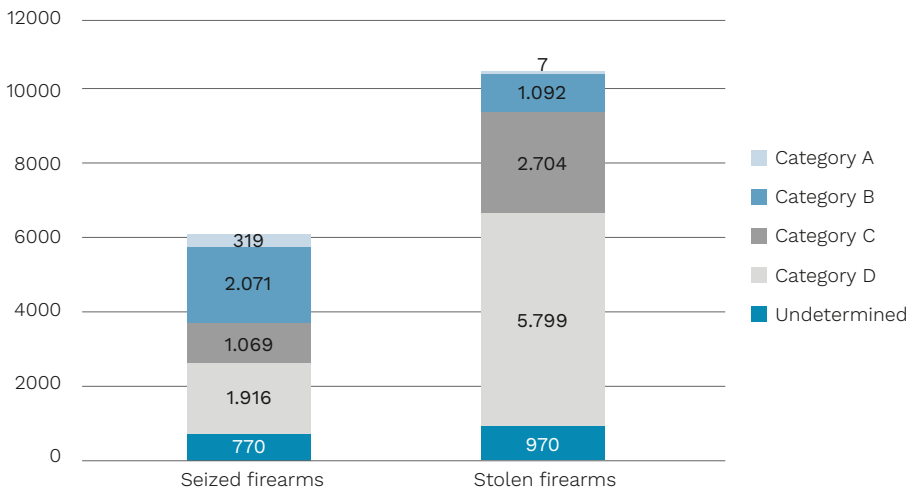
2.2.1 Seizure data

According to customs officials, the most prominent illicit firearms are, by order of importance, single-shot hunting shotguns, semi-automatic hunting rifles, pistols and revolvers.[99] In 2016, 38% of customs seizures involved Category B firearms (firearms subject to authorisation, including semi-automatic handguns and semi-automatic shoulder-fired weapons with a magazine capacity greater than three rounds), 31% were in Category C (firearms subject to declaration, including semi-automatic firearms with a magazine capacity of less than three rounds), 22% were in Category D (other firearms, including single-shot, smoothbore, shoulder-fired weapons, antiques

and deactivated firearms). Only 9% of custom seizures of firearms involved Category A firearms (prohibited weapons, including automatic firearms).[100]

A similar result can be observed when analysing the data provided by the SCAEMS. These data show that among the 6,145 firearms seized by the police and gendarmerie in 2015, only 5% belonged to Category A. In contrast, 34% belonged to Category B, 31% to Category D, and 17% to Category C, with the remainder unspecified.[101] Categories D (55%) and C (26%) also dominate the statistics for firearms reported stolen, although these also include a significant number of Category B weapons (10%) (Figure 4). The fact that weapons stolen in 2015 outnumbered those that were seized by the authorities suggests that the pool of illicit arms is growing, even more so if one adds undetermined numbers of weapons entering the country illicitly. It is nevertheless more encouraging that seizures for the more restricted categories of firearms – A and B – vastly outnumber thefts by a ratio of two to one.

Figure 4: Number of firearms seized by and reported stolen to the police and gendarmerie, 2015, by category



Source: SCAEMS[102]

2.2.2 Forensic and ballistics data

The French forensic laboratories of the gendarmerie and police examine almost half of all weapons seized by these agencies. The information they collect is particularly useful because firearms confiscated due to administrative violations are less likely to be included in forensic datasets, which tend to be more representative of

actual 'crime guns' – although there are exceptions to this rule.[103] The data – shown in tables 3 and 4 – illustrate the prominence of 12 gauge and .22LR among the observed firearms, which are common calibres for shotguns and sports-shooting rifles that can be legally held in France. It also reveals the presence of calibres in use with replica firearms (8 and 9 mm alarm) as well as makes of replica or trauma firearms (Baïkal, Bruni, Reck, Umarex). The presence of replica firearms in forensic datasets suggests that they were either used in crime or illicitly converted to fire live ammunition. It is also interesting to note the presence of calibres such as 6 mm '*à bille*' that are not considered firearms under French law, but whose presence in seizure data suggests they were used in criminal acts.

Table 3: The 20 most common calibres among the firearms examined by police and gendarmerie forensic laboratories, 2014-2015

Calibre	Number of firearms	Percentage
12 gauge	2,352	15.2
.22LR	1,540	9.9
4.5 mm (*métal*)	811	5.2
9 mm alarm	643	4.2
9 x 19 mm	419	2.7
7.65 mm	362	2.3
16 gauge	317	2.1
Other 9 mm (e.g. Mauser, Winchester Magnum)	272	1.8
6 mm ('*à bille*' – airguns)	256	1.7
9 mm Annulaire Flobert	216	1.4
6.35 mm	184	1.2
7.65 mm Browning (.32 ACP)	180	1.2
.45 ACP	176	1.1
.357 Magnum	175	1.1
7.62 x 39 Kalashnikov (AK-47)	172	1.1
12/50 SAPL	165	1.1
8 mm Alarm	145	0.9
.38 Special	111	0.7
12 mm	99	0.6
14 mm	88	0.6

Source: SCAEMS[104]

Table 4: The 20 most common makes among the firearms examined by police and gendarmerie forensic laboratories, 2014-2015

Make	Number of firearms	Percentage
Beretta	284	1.8
Winchester	276	1.8
Browning	249	1.6
Baïkal	245	1.6
Smith & Wesson	220	1.4
Mauser	206	1.3
Manufrance	196	1.3
Remington	192	1.2
MAS	181	1.2
Bruni	178	1.2
CZ (Ceska/Ceskoslovenska Zbrojovka)	172	1.1
Verney-Carron	169	1.1
Kimar	164	1.1
Colt	152	1.0
Glock	139	0.9
Gamo	136	0.9
Walther	133	0.9
SAPL	132	0.9
Reck	121	0.8
Umarex	109	0.7

Source: SCAEMS[105]

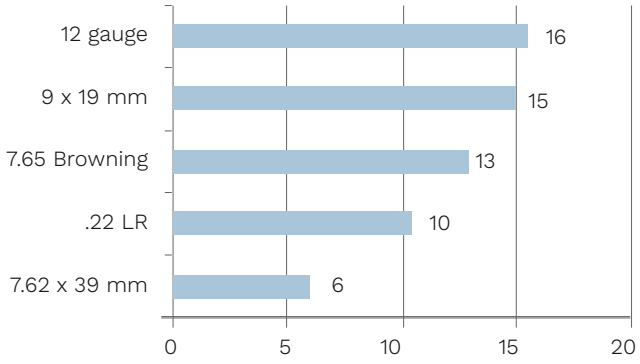
Nationwide ballistics data provide further insights into the main calibres of firearms involved in or collected at the scenes of various crimes and offences.I The FNIB, created in early 2016, centralises ballistics information collected by the forensic laboratories of the Gendarmerie Nationale, Police Nationale and Police Judiciaire. As of 31 December 2016 the database included 16,576 ballistics entries[106] associated with

I This includes information on both:
- 'retrieved firearms', which are weapons that were found at crime scenes or during the subsequent investigations, and with which the laboratories perform ballistics testing; and
- 'inferred firearms', meaning weapons that were not recovered, but were nevertheless entered into a ballistics database on the basis of the unique marks they left on spent ammunition retrieved at the crime scene.

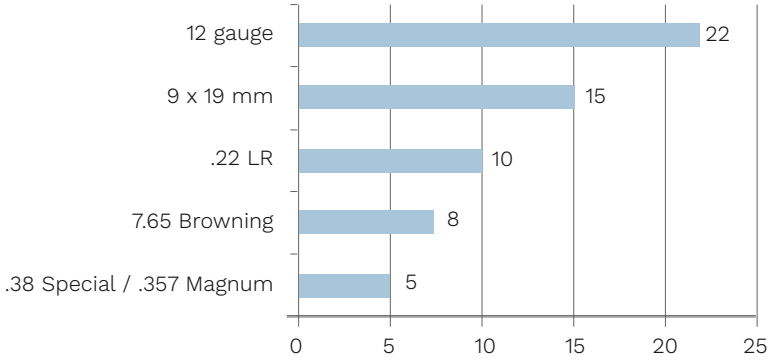
4,764 cases ('saisines'). Among these, 4,870 ballistics entries are associated with 1,451 cases that were opened in 2016. Sixty per cent of the 2016 cases relate to offences, 84% of which are categorised as 'ILA' (violations of the firearms legislation). The remaining 40% were associated with crimes, mainly acts of violence committed with a firearm (30%), homicides (25%) and attempted homicide (25%).[107] In 2016 the most commonly identified calibres in FNIB were 12 gauge, 9 x 19 mm, 7.65 Browning, .22LR, 7.62 x 39 mm, and .38 Special/.357 Magnum (Figure 5).

Figure 5: The five calibres most commonly observed in the FNIB ballistics database in 2016 (%)

Among both retrieved and inferred firearms[I]



Among retrieved firearms only[II]



Source: INPS[108]

I For this bar graph cases were taken from the FNIB database and correspond to a unique firearm that was either retrieved and examined by the laboratories or not retrieved but uniquely identified (or inferred) through traces left on spent ammunition found at the crime scene (written communication with the INPS, 29 May 2017).

II For this bar graph entries were taken from the FNIB database and correspond to a unique firearm that was retrieved either at the crime scene or subsequently as part of the investigation.

The Ministry of the Interior notes that while 12 gauge dominates the entire FNIB dataset, 9 x 19 mm is the most prominent calibre for cases of delinquency/criminality. Moreover, the proportion of FNIB cases involving 7.62 x 39 mm ammunition (for use with AK-pattern rifles) is increasing, and these entries relate primarily to cases of ILA (31%), homicides (19%) and terrorism (13%).[109] Also of note is the presence of seven entries for 5.56 x 45 mm weapons in the 2016 dataset. This is the calibre for newer-generation AK-74-pattern rifles, which were previously very rarely seen in France.[110]

2.2.3 Autopsy data

Autopsy data provided by the Institut Médico-Légal in Marseille concerning 105 cases of firearm homicides that occurred between 2011 and 2017 make it possible to determine the calibre of the crime guns used in 89 of these cases. 7.62 x 39 mm calibre weapons were involved in 28% of the cases, 9 x 19 mm also in 28%, shotgun ammunition in 23% (12, 16 and 36 gauge, or 12 mm), and revolver ammunition in 9%, with the remaining calibres comprising 7.62 x 25 mm, .32 ACP and .45 ACP.[111] Although these data are only representative of the Marseille region, they suggest that AK-pattern rifles, 9 mm handguns and shotguns are common firearm types used in homicides in this part of France.

2.3 Black market prices

Selected black market prices gleaned from media sources, key informant interviews and online trading platforms provide a sense of the prices of different types of weapons that can be accessed on illicit or informal markets (see Table 5). Overall, pricing data reveal lower prices for weapons belonging to categories that are legally accessible to the public, as well as converted, modified or reactivated firearms.

12-gauge shotguns, which constitute the primary category of weapons seized in France, are generally available for €300-1,000, depending on the type and model. On the other hand, 9 x 19 mm handguns, also common in seizures, are more costly, with reported prices ranging between €1,000 and €3,000. Of note is that converted replica handguns sell for much lower prices than regular models, mostly in the €300-550 range, representing an affordable alternative to lethal-purpose pistols and revolvers. On the other end of the scale, prohibited Category A 'weapons of war' such as automatic rifles and rocket launchers top the price list. While prices for AK-pattern rifles in the last five years tend to oscillate between €1,000 and €2,500, some sources point to a great disparity of prices according to the location, with some variants quoted as low as €300-500 in parts of Marseille or on online

platforms. Sub-machine guns also tend to be priced between €1,000 and €3,000, with a reactivated model selling for under €1,000. Other weapons of war, such as rocket launchers, are priced at several thousands euros.

Table 5: Black market and online prices for selected firearms (in euros)

Weapon (calibre)	Year	Black market prices in media and research sources	Black market prices estimated by key informants	Prices on online platforms[112]
Automatic rifles				
Arsenal SLR-106UR (5.56 x 45 mm)	2014			1,150[113]
Unspecified AK-pattern (7.62 x 39 mm)	2002	150[114]		
	2007	500[115]		
	2009		1,000-3,000[116]	
	2011	400-2,000[117]		
	2012	1,000-2,000[118]		
	2013	2,500[119]		
	2015	250-3,000[120]		
	2017		300 (e.g. Marseille), 1,500 (e.g. Lozère)[121]	
AMD 65 (7.62 x 39 mm)	2014			500-1,100[122]
M70 AB2 (7.62 x 39 mm)	2017		2,000-2,500[123]	
vz.58 (reactivated, 7.62 x 39 mm)	2014	600-800[124]		
	2015		1,500[125]	
Sub-machine guns				
Sten MK II (9 x 19 mm)	2014-2017			1,000-1,500[126]
Uzi (9 x 19 mm)	2009	2,500[127]		
vz.61 (7.65 mm Browning)	2009	2,500[128]		
	2011	700[129]		
	2013		3,000[130]	

	2015		1,500[131]	
	2014-2016			525-1,200[132]
v z.26 (reactivated, 9 x 19 mm)	2016			850[133]
Shotguns (12 gauge)				
Pump-action	2014			650-850[134]
	2015			375-1,000[135]
	2016			415-600[136]
	2017			900[137]
Self-loading	2014			700[138]
	2016			300-650[139]
	2017			520-700[140]
Double barrel side-by-side	2016			320[141]
	2017			230-350[142]
Double barrel over-under	2017			340-500[143]
Sawn-off	2016			500[144]
Handguns				
Beretta (e.g. models 92FS, PX4, 9 x 19 mm Parabellum)	2014-2016			1,000-2,000[145]
CZ 75 (9 x 19 mm Parabellum)	1996	1,200-1,700[146]		
Glock (9 x 19 mm)	1996	1,850[147]		
	2009	1,500[148]		
	2014-2016			1,400-3,000[149]
	2017		1,500[150]	
Intratec Tec 22 (.22LR)	2015			900[151]
Rohm RG5S (converted from 8 mm blank to 6.35 mm Browning)	2015			45[152]
Bruni Gap and Mini-Gap (converted 9 mm PAK)	2015-2016			200-450[153]
Atak Stalker (converted 9 mm PAK)	2016			350[154]
Tanfoglio GT28 (converted from 8 mm blank to 6.35 mm Browning)	2016			300[155]

Zoraki (models M906, M914, M925, converted from 9 mm PAK to fire modified, 6.35 mm or 7.65 mm Browning rounds)	2016-2017			200-550[156]
Zoraki R1 (6 mm Flobert)	2016-2017			220-350[157]
Other weapons				
Single-use anti-tank rocket launcher	2002	3,000[158]		
M80 Zolja 64 mm anti-tank rocket launcher	2002	3,800[159]		
RPG-7 (with one rocket)	2009	4,500[160]		
Pen gun (converted, .22LR)[161]	2015-2016			150-200[162]
Inserts to convert calibre 4 military flare pistols into smaller-calibre firearms	2011			60
	2017			70

It was only possible to gather limited time-series price data for this project gleaned from different sources. As a result, no solid conclusions can be drawn as to changes in the prices of specific weapons models over time. Additional research and the more systematic monitoring of the prices of both arms and ammunition have the potential to illuminate the relative accessibility of specific weapons over time and across regions, as has been done elsewhere.[163]

2.4 Sources of supply of and actors in the illicit gun market

The SCAEMS identifies three main categories of sources of illicit firearms in France: international trafficking from outside the EU, intra-European trafficking and domestic sourcing.[164] The main sub-components of these trafficking streams are reviewed below, together with specific cases to illustrate the actors involved.

2.4.1 International trafficking from outside the EU

'Ant trade' from (post-)conflict areas

The trafficking of 'weapons of war' from neighbouring regions, including from formerly conflict-affected countries in the Balkans such as Albania, Bosnia, Croatia (before 2013) and Serbia, is a trafficking route commonly cited in media sources, in academic reports[165] and by officials.[166] Weapons manufactured in the former Yugoslavia, such as the M70AB2 AK-pattern rifle, often feature in organised crime- and terrorism-related seizures (see section 3 of this chapter). However, they are often models produced before the conflicts of the Balkans of the 1990s, and as a result it can be difficult to determine whether they were smuggled into France recently or ten or 20 years ago. Interestingly, associated 7.62 x 39 mm ammunition observed by the authorities tends to be equally old.[167]

Officials speak of current trafficking from the Balkans as an 'ant trade': small transactions occurring 'on demand', often involving less than six firearms that are mainly transported by road (in private vehicles or on board buses) and that accumulate over time.[168] In a recent case tried in Marseille in 2013 two French legionnaires from the Aubagne regiment and with personal connections in the Balkans were found guilty of smuggling 14 Skorpion vz.61 sub-machine guns, 24 magazines and ammunition from Croatia. They transported the weapons by car and intended to sell them in France for €3,000 per unit.[169] Beyond reports of such cases, it is difficult to assess the true extent and volume of trafficking from the Balkans.

Interestingly, officials also cited the risks posed by the ongoing conflicts in North Africa, the Sahel, the Middle East and Ukraine as potential sources of illicit firearms in the future, once these conflicts have abated and the weapons are no longer in demand.[170]

Convertible Turkish-origin replica firearms

Replica firearms (e.g. blank-firing, alarm and trauma guns) can be used in their original state to perpetrate certain crimes; some can also be easily converted to fire live ammunition.[171] Turkish-origin replicas have been of particular concern in recent years. Out of the 72 seized blank-firing firearms examined by the gendarmerie's IRCGN between November 2015 and October 2016, most were of Turkish origin (57%), and primarily of the Zoraki and Ekol makes. In addition to their cheaper market prices, the gendarmerie notes that Turkish handguns' small size and weight, as well as their superior structural strength, make them particularly attractive to criminals.[172]

Some replica firearms are illicitly converted in France: an internal gendarmerie memo states that clandestine conversion workshops are regularly dismantled on the national territory.[173] Others are converted abroad in workshops run by local organised crime groups, notably in Albania, Kosovo and Macedonia. Once smuggled into France, they tend to be seized in the context of road checkpoints, drug seizure operations or online sales.[174]

Replica firearms can usually be sold in France without restrictions – sellers only need to ask for an ID to ensure that buyers are aged 18 or more, but they are not required to keep records of each buyer's identity.[175] In response to the ease with which specific models could be converted, a 2016 decree classified Turkish-origin blank-firing Zoraki R1 and Ekol Voltran Arda revolvers – as well as other models featuring similar characteristics – in Category B, making them subject to authorisation (see section 1.3). Other models of Turkish replicas, including fully automatic types, are not currently restricted, however. In addition, the Banc National d'Epreuve in Saint Etienne does not proof Turkish-origin blank-firing firearms, making their direct legal importation from Turkey to France difficult.[176] These weapons may nevertheless be imported by and proofed in other states with which France has proofing reciprocity agreements,[177] such as the Czech Republic,[178] before being lawfully transferred to France.

Trafficking in components from the United States

A third international source of illicit firearms is the trafficking in firearm components from the United States. This includes trafficking in essential parts for the AR-15 rifle, such as upper and lower receivers.[179] In a case tried in Boston in 2015, for instance, a US citizen was indicted for exporting firearms components to other countries without the required licence or written authorisation from the State Department. The items he exported or attempted to export to France in March 2012 included four AR-15 lower receivers, four M16/AR-15 5.56 x 45 mm barrels and two M16/AR-15 flash suppressors. He organised the sales through Gunbroker.com, a popular auction website based in Atlanta that specialises in the sale of firearms, components and accessories.[180] According to French customs officials, barrels for Glock pistols are also trafficked from the United States to supplement other parts acquired in Europe.[181]

2.4.2 Intra-European trafficking

The intra-European trafficking of firearms is strongly connected to differences in legislation. Not surprisingly, intra-European sources of illicit firearms destined for France include neighbouring countries with looser firearms regulations,[182] such as Belgium and Switzerland. One Swiss case referred to by the police in Marseille involved a French national who trafficked some 400 handguns from 2012 onwards, which he smuggled in small numbers by visiting his supplier near Geneva twice a month. He was arrested in 2016 on drug-dealing charges, which revealed his firearms-smuggling operation.[183] Trafficking from Belgium has received prominent attention in the context of the 2015 terror attacks in France (see section 3). Interlocutors met further stressed the smuggling of sports-shooting ammunition, given the fewer restrictions in Belgium placed on the quantities of ammunition an individual can legally buy (in France, this may not exceed 2,000 rounds per year for each Category B firearm held, for instance).[184] A further source of illicit firearms is the trafficking in essential firearms components that are classified as restricted in France but easier to access in other European countries. Officials note, for instance, that it is possible to purchase the slide for a Glock pistol in Austria, its receiver in Luxembourg and the barrel in the United States. Firearms parts are typically shipped using regular mail and courier services, concealed in packages that contain old electronics material. Their lower weight makes them harder to detect.[185]

A key intra-European source of illicit firearms are weapons that were deactivated in other European countries and then reactivated illicitly before their transfer to or use in France. Reactivated weapons are of particular concern, because they include not only handguns, but also automatic rifles and sub-machine guns. Recent attention has focused on trafficking in so-called acoustic expansion weapons of Slovakian origin, and notably Arrow PS97 pistols, Vz.58 rifles and Vz.61 sub-machine guns. These firearms, many of which originated from surplus military stocks, were modified in Slovakia to function as blank-firing weapons and therefore sold without restrictions, including on Slovakian gun retailers' websites. The ease with which they could be reconverted to fire live ammunition led to the trafficking of hundreds – and possibly thousands – of these weapons in Europe,[186] as well their use in recent terrorism cases in France (see section 3). Intelligence sources state that AFG Security – one of the Slovakian companies that sold such firearms online – sent more than 4,000 packages to 24 EU member states between January 2013 and November 2014, including more than 740 to France. These figures are difficult to interpret, however, because it is possible that some packages only contained accessories, while others may have included several firearms.[187]

In the last decade traffickers have exploited similar gaps in deactivation standards in several other European countries. From 2008, for instance, easily convertible Walther and Norinco pistols were being sourced in Austria at a gun shop.[188] According to police sources, the company bought as many as 2,900 firearms – primarily from Czech surplus stocks – including some 300 automatic weapons. While the retailer sold these weapons as deactivated ones, in reality the deactivation measures were either insufficient or even non-existent.[189] The first high-profile case involving such a weapon was the use of a reactivated Walther P22 pistol in the murder of a Swedish student outside Paris in April 2008.[190]

While the countries cited above have taken measures to address the issue, and in spite of the entry into force of a new EU regulation on deactivation, officials noted that reactivated acoustic expansion weapons of Slovakian origin were still entering French territory.[191] The IRCGN and SCAEMS also expressed concern over the recent appearance of firearms that are modified to fire 6 mm Flobert ammunition – notably in Slovakia – and which may be easily reactivated.[192] Converting weapons to this unregulated calibre means that they can be sold without restriction – a loophole that traffickers could potentially exploit.

2.4.3 Domestic sources

While much attention is commonly paid to foreign sources of firearms, it is clear that a significant share of illicit arms in France are procured nationally. Prohibited Category A firearms, including AK-pattern rifles, that currently circulate in France were not all necessarily trafficked recently from abroad. Instead, in Marseille some have been held and used for years by various individuals linked to the same gang.[193] Analysts have noted an upsurge in the use and pooling of local firearms arsenals rather than a constant growth in their numbers.[194] Ballistics data for 2016 tend to support this assessment: when a single firearm is found to be used in two separate criminal cases, the average distance between the crime scenes is only 7 km, and the average time that elapsed between the two cases is less than one year (274 days on average).[195]

The three main domestic sources for the firearms that ended up on the black market in France are theft, the conversion of replica and deactivated firearms, and online sales.

Theft

Gun theft from legal owners probably represents the most significant domestic source of illicit firearms in France, with 10,572 weapons reported stolen in 2015 alone (Figure 4). Among them, almost three-quarters (7,800) were stolen from individual gun owners and gun shops.[196] Statistics show that the majority of stolen weapons belong to categories D and C, indicating a large proportion of thefts of hunting rifles and shotguns. Gun thefts are not limited to hunting weapons, however: more than 1,000 Category B weapons, which include semi-automatic handguns and higher capacity rifles, were reported stolen in 2015 (Figure 4).

Gun-theft statistics need to be treated with caution, however. Indeed, officials note that there have been cases of 'embezzlement' whereby legitimate firearm owners decide to declare certain weapons as lost in order to keep them illicitly, especially following the adoption of new regulations aimed at reclassifying and 'over-restricting' certain models.[197] Quantifying the extent of this practice is difficult, but it appears to also exist in other European countries such as Belgium (see section 2.3.5 in the chapter on Belgium).

Reports of thefts from legal gun retailers are relatively frequent. In February 2017, for instance, a 15- and 17-year-old used a stolen pick-up vehicle to break into a gun shop in Arandon-Passins, a town in Isère, and stole more than forty hunting shotguns and rifles and ammunition.[198] Officials further noted that thefts can occur at arms fairs.[199] Associations of hunters, sports shooters, and First and Second World War memorial and municipal associations organise more than 300 arms fairs in France annually. According to the gendarmerie, there are frequent reports of local criminals stealing some of the firearms on display at such events, while some sellers have been caught displaying prohibited Category A firearms, including magazines and grenades.[200] Recent cases have also highlighted cases of theft and the improper storage of firearms held by movie companies, which have included AK-74 rifles, PPSH41 sub-machine guns, Famas rifles and pistols.[201]

Individual gun owners with sizeable collections represent another possible source of high-calibre firearms for criminal groups. In June 2011, for instance, near Toulouse, well-informed thieves stole two crates from a professional sports shooter, one containing more than 80 kg of firearms, the other filled with ammunition. Among the stolen goods was the Colt .45 pistol that Mohamed Merah used during the 2012 attacks in Toulouse and Montauban (see section 3).[202] The sometimes excessive and illegal arsenals accumulated by so-called 'compulsive collectors' also represent valuable loot for gun thieves. Many official press releases and media reports relate cases of seizures of caches of several dozens of weapons – including

prohibited items such as rocket launchers and mortars – stashed in the homes of individuals presenting themselves as avid collectors or sports shooters.[203]

Lastly, media reports show that criminals also target the security forces to steal their weapons. For instance, on 2 February 2017 two assault rifles and ammunition were stolen from an unmarked military vehicle in Isère. The small truck, part of a convoy of several military vehicles, was parked at a restaurant while the drivers were having lunch inside.[204] In another case in Essonne a gendarme was found to loan service weapons to local armed robbers, replacing them in his unit's armoury after use.[205] In the absence of nationwide statistics, the scale of such diversion from the national stockpile is difficult to assess, however.

Conversion of replica and deactivated firearms

Sizeable reactivation workshops have been discovered on French territory. In June 2007, for instance, such a workshop run by three men aged 20, 30 and 50 and that reactivated and sold 15-20 Eastern European weapons per week was dismantled in the Hauts-de-Seine.[206] In October 2014 the 49-year-old owner of a firearms business was found guilty of reactivating firearms and selling them to individuals linked to Corsican organised crime, including AK-pattern rifles and a Skorpion sub-machine gun.[207] In another case, a Marseille-based retiree was sentenced to four years in jail in 2014 for purchasing 132 deactivated handguns – including 75 Glock pistols – from a shop in Barcelona, Spain, over several years. He reactivated the guns at home by simply replacing the barrels with others purchased online from the United States and sold them to individuals linked to criminal circles. Several of these reactivated firearms were subsequently used in murder cases.[208]

The Banc National d'Epreuve in Saint Etienne is the only institution authorised to deactivate firearms in France, and already implements the new European deactivation regulation. While it deactivates thousands of firearms per year (including 3,046 in 2016), the authorities seize very few – in the range of 60-80 per year – in reactivated form.[209] A recent case nevertheless illustrates how ingenious individuals can reactivate firearms at home – even weapons that were deactivated according to reputedly stringent standards. On 25 April 2013 a 19-year-old man shot three people dead in Istres using a Romanian AIM AK-pattern-rifle that had been deactivated in Germany – a country known for its high deactivation standards. The investigation revealed that the perpetrator had purchased the rifle for €267 through a German website in 2012,[210] and that he reactivated the rifle himself using a hydraulic press and instructions he found on specialised online forums.[211] He used ammunition he reloaded himself using old East German primered steel cases that he purchased from another German website.

Internet

Online sales of firearms are legal in France when the gun is an antique weapon (which can be traded without restriction)[212] or when the seller is a registered retailer.[213] Online sales of Category B firearms between individuals are strictly prohibited, as such purchases must be made in the presence of a law enforcement official who must keep a record of the transaction and check that both buyer and seller have all the required documents.[214] Individuals can sell Category C and D1 firearms online, however. In such cases they are themselves responsible for ensuring that they have the proper documentation and must subsequently inform the authorities of the transaction.[215]

Several cases mentioned above have shed light on the use of the internet for selling and buying firearms, including restricted models and components. Research for this report has revealed the presence of numerous posts offering such firearms for sale – many without adequate reference to the relevant regulatory requirements – on several open trading platforms (see Table 5). A range of deactivated firearms (including Vz.58 rifles, CETME 7.62 x 51 mm rifles and Vz.61 sub-machine guns), replica firearms (some converted) and tools for modifying firearms are also found on display. For instance, one post dated July 2016 offered a reactivated blank-firing Sa. vz.26 sub-machine gun for €850.[216]

Customs and gendarmerie experts state that they closely monitor these platforms to identify suspicious individuals and build up files on the main protagonists. Generally speaking, the authorities claimed to be satisfied with the cooperation they received from the companies running these websites. Customs and the gendarmerie also monitor the dark web. While it is potentially an increasing source of illicit firearms, officials currently consider the dark web to be mainly a space where contacts for acquiring firearms can be found, and where technical knowledge and advice are shared, for instance for modifying or converting firearms.[217]

2.4.4 France as a transit country for trafficking to other destinations

While France is mainly a destination country for trafficked weapons, some weapons and ammunition are also smuggled from or transit through the country to other destinations, mainly the United Kingdom (UK). This includes, for instance, the regular shipping or smuggling of small quantities (a few dozen at a time) of Category B ammunition across the Channel, where handgun ammunition in particular is tightly regulated.[218]

A prominent case of illicit firearms transiting through France is the August 2015 seizure of 22 Czech-made vz.58 automatic rifles, nine vz.61 sub-machine guns, 58 magazines, more than 1,000 rounds of ammunition, and two silencers near Kent in the UK. The seized weapons had been sold in the previous year as acoustic expansion weapons in Slovakia, converted back to live-firing firearms, and transported overland from Eastern Europe to Boulogne-sur-Mer, France, where they were then transported by ship to the UK (for more details, see section 2.3.4 of the chapter on the UK).[219]

In addition, the gendarmerie highlighted the smuggling since 2012 of sub-machine guns from Croatia to the UK, transiting through Slovenia, Austria, Germany, Belgium, the Netherlands and France. Marked with the name of a seemingly fictitious company, 'R9-ARMS CORP USA', it appears that the weapons were produced illicitly in Croatia. In early 2015 Croatian authorities arrested two truck drivers who worked for a Croatian transport company in the possession of bags containing 14 of these 9 x 19 mm pistols; they were scheduled to drive a refrigerated truck to deliver cosmetics in the UK. In France, these weapons were seized in the context of two judicial cases in 2015.[220]

3. Access by terrorists to firearms on the illegal market in France

Under the French Penal Code, acts of terrorism refer to cases of breaches of the law – including killings, kidnappings, hijackings, providing support to combat groups, weapons-related offences and money laundering – that are undertaken with the purpose of disrupting public order through intimidation or terror.[221] Within this broad definition, terrorism has taken a number of different forms and inflicted a heavy toll in France in the last 25 years. Not all terror events in France have involved the use of firearms,[I] yet firearms have nevertheless been a recurring tool used by a variety of perpetrators of acts that aimed at causing maximal civilian casualties or disrupting symbols of the French state. Some were claimed by foreign jihadi armed groups, or linked to Corsican nationalist or Basque separatist organisations. Others were perpetrated by social outcasts, some of whom adhered to left-wing ideologies. A non-exhaustive list of terrorist attacks with firearms since the 1990s can be found in Box 2.

I The terrorist incidents that did not involve firearms were not necessarily less deadly. In 1995 a wave of bombings was attributed to the Groupe Islamiste Armé in retaliation for French support of the Algerian government. The 25 July 1995 attack involved the detonation of a makeshift bomb that killed eight people and injured 117 at the Saint Michel RER train station in Paris. See, for example, 'Retour sur 35 ans d'attentats en France', *Libération*, 15 July 2016 and 'Charlie, Bataclan, Nice ... et maintenant une église: le (très) lourd bilan du terrorisme en France', *Capital*, 15 July 2016.

Box 2: High-profile terrorist attacks with firearms in France in the past 25 years

In Paris on 4 October 1994 two anarchist activists, Florence Rey and Audry Maupin, killed three police officers and a taxi driver using pump-action shotguns, one of which they bought in a department store. The attackers initially targeted the armed guards of a car pound in order to steal their revolvers, which they intended to use to carry out bank robberies to fund their activities. In the car chase that followed they killed the driver of the taxi they had car-jacked and three police officers.[222]

In Ajaccio on 4 February 1998 Yvan Colonna, a member of the Front de Libération Nationale Corse (FLNC), killed the local *préfet*, Claude Erignac, using an MAS G1 pistol that had been previously stolen during an attack on a gendarmerie station. The victim was shot in the back at close range.[223]

In Nanterre on 26 March 2002 Richard Durn, a 33-year-old who lived off social benefits at his mother's house, opened fire during a city council meeting, killing eight and injuring 19 councillors. He used a Glock pistol and a Smith & Wesson revolver that he had bought legally, but for which the licences had expired.[224]

In Cap-Breton on 1 December 2007 Mikel Carrera Sarobe, a member of the Basque separatist group Euskadi Ta Askatasuna (ETA), killed two undercover Spanish Guardia Civil officers in their car after encountering them 'by chance' in a restaurant. He used a Smith & Wesson MP9 pistol that had been reported stolen from a firearms import company together with some 400 other handguns.[225]

In a series of shootings that took place in the period 11-19 March 2012 Mohamed Merah killed three French soldiers in Toulouse and Montauban, as well as three students and a teacher at a Jewish school in Toulouse.[226] Among the firearms used by the shooter was a Colt .45 pistol that had been reported stolen the previous year from a professional sports shooter's home.[227]

On 15 November 2013 a man armed with a shotgun entered the hall of news channel BFM-TV and threatened its staff. Three days later the same individual burst into the office of the *Libération* newspaper and shot and injured an assistant photographer, before firing random shots in the La Défense district and hijacking a vehicle.[228] While the crime weapon was never found, video

recordings of the incident show a pump-action shotgun, with the buttstock either sawn off or replaced by a pistol grip. Two spent 12-gauge ammunition cases were retrieved by the police, with ballistics marks matching those of a Winchester Defender shotgun.[229] The shooter, born in 1965, had previously been involved in the 1994 Rey and Maupin case (see above), helping the perpetrators to acquire one of their shotguns.[230]

Between 7 and 9 January 2015 several connected terrorist shooting incidents took place in and around Paris, resulting in 17 deaths. The brothers Saïd and Chérif Kouachi, armed with East European automatic rifles, killed 11 people at the French satirical magazine *Charlie Hebdo* editorial office, as well as a police officer. During the search for the Kouachi brothers, Ahmédy Coulibaly, armed with vz.58 automatic rifles and Tokarev 33TT pistols, entered a Jewish Hypercacher supermarket at the Porte de Vincennes, shot four people dead and held hostage more than 20 people for several hours. Coulibaly had previously shot a young female police officer dead and wounded another person in the street in Montrouge.[231]

On 13 November 2015 terrorist attacks resulted in 130 people being killed and more than 400 wounded in Paris. Ten perpetrators divided into three teams coordinated attacks targeting the Stade de France, busy restaurant terraces in the 10th and 11th *arrondissements*, and the Bataclan theatre. While the suicide bombings at the Stade de France were largely unsuccessful, the two other teams used automatic rifles and claimed all but one victim. Several of the perpetrators had fought in Syria and/or Iraq; they were also later found to have ties with the perpetrators of the March 2016 attacks on Brussels Airport and metro in Belgium, which resulted in 32 deaths (see the chapter on Belgium).[232]

Since 2015, and the deadly assaults carried out in that year under the banner of radical Islam, terrorism has taken on a new dimension in France and become primarily associated with religiously motivated mass killings. France is by far the Western European country most affected by the recent wave of jihadi terrorism: from 2013 to 2016 it was the target of ten such terrorist attacks (out of 24 for all of Western Europe), four failed attacks (out of six), and 28 plots (out of 64).[233] A total of 147 people were killed and hundreds injured in the context of the 7-9 January and 13 November 2015 Paris incidents,[234] which were claimed by foreign terrorist groups al-Qaeda and the so-called Islamic State. Firearms – primarily automatic AK-pattern assault rifles and handguns acquired from intra-European criminal sources

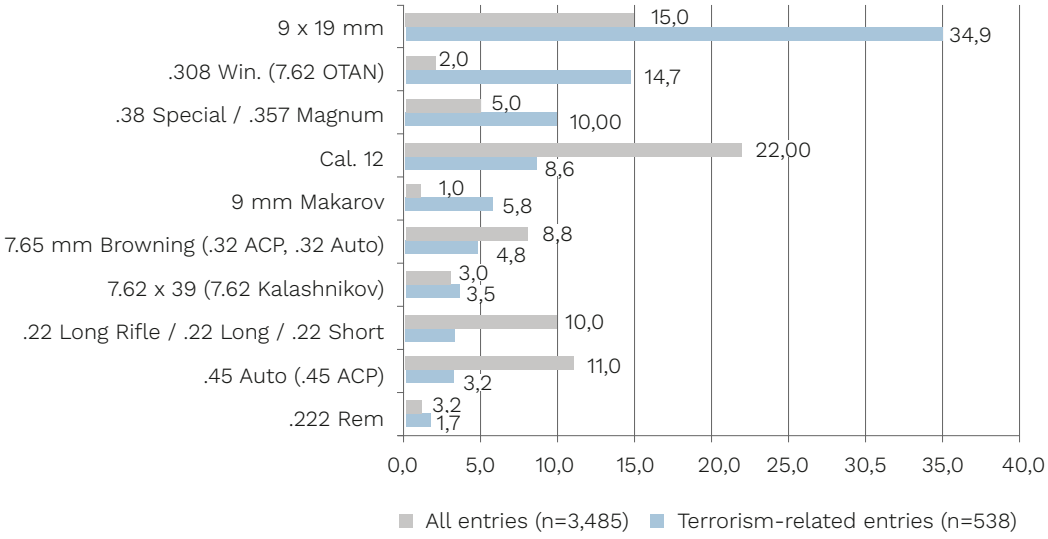
– caused the vast majority of these casualties.[235] In the aftermath of these attacks acts of right-wing terrorism targeting Muslim targets increased, including some involving the use of firearms. Although no fatalities were recorded, shots were fired at six mosques in various French localities following the January 2015 attacks, for instance.[236]

Recent events have underscored the devastating effects of terrorist attackers wielding fully automatic AK-pattern rifles in crowded venues. Yet as the listed events in Box 2 illustrate, attackers have also relied on handguns and shotguns in a number of high-profile incidents, suggesting access to a more diverse arsenal than typically portrayed.

Ballistics data from the national FNIB database contain information on the calibre of firearms and ammunition observed by French forensic laboratories in the context of terrorism-related cases. These may be firearms or ammunition used in actual attacks, or seized from the caches of armed organisations and during arrests of their members. As such, the data are potentially illustrative of the wider range of firearms used in terrorist activities and are not limited to high-profile events. While most recent terrorism-related ballistics evidence collected nationally is entered into the FNIB, it currently remains in its infancy and its scope is so far mainly limited to cases that occurred in 2015 and 2016.[237]

These caveats in mind, 2016 FNIB data provide a diverse picture of the main calibres linked with terrorism (538 database entries in total). Particularly striking is the fact that 9 x 19 mm and especially 7.62 x 51 mm ammunition comprise the highest proportion of entries (Figure 6). According to officials, this is explained by the seizure of a large ETA arms cache containing 7.62 x 51 mm CETME assault rifles, 9 x 19 mm MAT 49 and Sten sub-machine guns, and GP35 pistols.[238] Other prominent calibres for terrorism-related entries include .357 Magnum, 12 gauge and 9 mm Makarov. Interestingly, 7.62 x 39 mm ammunition – for AK-pattern rifles – is only the seventh most prominent calibre among the 2016 terrorism-related entries. Also of note are the significantly smaller proportions occupied by 12 gauge and .22LR in the terrorism dataset compared with the full dataset.

Figure 6: The ten calibres most commonly observed by French ballistics laboratories in 2016, in percentages for all entries and terrorism-related entries (retrieved firearms only)



Source: INPS[239]

Although the FNIB dataset remains in its infancy, it illustrates the wide-ranging diversity of calibres linked to terrorist activity as it is defined in France. Furthermore, terrorism-related calibres differ only partially from those used in other crimes and offences, suggesting that at least in some cases terrorist actors rely on firearms and ammunition that are locally available. Unfortunately, it was not possible for this study to disaggregate the FNIB data by type of terrorist actor, a task that would further illuminate these findings, but it would require time, resources and official clearance to retrieve this information from the associated judicial files.

Because investigations into most of the recent jihadi terrorism cases are still ongoing, interviewed French officials were not able to provide detailed information on the proximate sources of firearms used to arm these attackers.[240] A number of pieces of the puzzle have nevertheless emerged from open-source investigative media reporting. Because they have been ably summarised elsewhere,[241] they are only succinctly reviewed here. The following paragraphs use open-source information and previously unpublished official data on the specific models of firearms used in a number of jihadi terrorist attacks and the status of tracing efforts, and on the firearms that have been seized from Basque separatist and Corsican nationalist networks. The final part of this section will draw some general conclusions on the extent of linkages between organised crime and terrorist acquisition of firearms.

3.1 Firearms and recent jihadi terrorist attacks

Open-source information on recent terror attacks in France demonstrates links between jihadi terrorism and organised crime. According to media reports, Mohamed Merah, the perpetrator of the 2012 attacks in Toulouse and Montauban, was previously involved as a 'go-fast' driver with an organised criminal group smuggling cocaine between Spain and France.[242] These connections likely helped him to acquire the .45 Colt pistol he used in the 2012 attack. This claim is supported by the observation that the pistol was part of two crates of arms and ammunition that were stolen from a professional sports shooter in 2011,[243] and other weapons from these stolen crates were also retrieved during the arrest of other Toulouse-based drug traffickers.[244] Yet how Merah procured the other six firearms at his disposal remained unknown at the time of research (see Table 6).

More recently, investigative reporting revealed that the weapons used by Ahmédy Coulibaly in Paris in January 2015 were reactivated firearms from Slovakia. The two vz.58 rifles, reportedly produced in the 1960s, and six Tokarev pistols, manufactured in the 1940s and 1950s, had been modified as acoustic expansion weapons by Slovakian companies such as KolArms between 2013 and 2014. They were then sold without restrictions as blank-firing firearms in the Slovakian gun shop AFG Security on the simple presentation of an ID card. A Belgian national is reported to have bought one of the rifles subsequently used by Coulibaly, as part of 170 weapons he purchased from AFG Security between 2013 and 2014. Although he denied supplying Coulibaly directly, in May 2014 Belgian police had found materiel in his house that could be used to reconvert such firearms to fire live ammunition.[245] The other vz.58 rifle and two of the pistols were bought in 2014 by Claude Hermant, a right-wing French national who lived in Belgium and owned a survival shop in Lille in northern France. He was reportedly also an informer for the gendarmerie, and played a role in an undercover investigation into illicit arms trafficking.[246] He imported dozens of deactivated firearms from AFG Security before reconverting them into lethal-purpose weapons and reselling them to local criminal circles, although he denied selling the weapons directly to Coulibaly.[247] Another Frenchman from Pas de Calais, who had previously worked for Hermant, as well as two Montenegrin and Serbian nationals, were arrested in April 2016 in Malaga, Spain. The French national was identified by Spanish police as the person responsible for the network that provided firearms to Coulibaly. All these suspects have denied providing weapons directly to Coulibaly, however.[248]

Some information has also surfaced regarding the firearms used in the Bataclan attacks of November 2015. The Zastava M70 rifle was produced in Kragujevac, former Yugoslavia, and delivered in May 1981 to Bosnian self-defence forces that

subsequently became the regular Bosnian Army. The Type 66-1 assault rifle was of Chinese origin, but was produced under licence in Albania and formed part of that country's national stockpile. The third AK-pattern rifle was manufactured in Bulgaria in 1985. While little is known about when and how these rifles were smuggled to Western Europe, Belgian courts suspect the El Bakraoui brothers, two of the March 2016 suicide bombers at Brussels Airport, were involved in supplying the firearms to the November 2015 Paris attackers, several of whom were Belgian nationals or lived in Belgium (see the chapter on Belgium).[249]

A more recent case highlighted the possibility of suspected terrorists using legally owned firearms. On 19 June 2017 Adam Lofti Djaziri attempted to attack a police convoy on the Champs Elysées in Paris. His car immediately burst into flames and he died a couple of minutes later, inflicting no victims among the police. A search of his car revealed the presence of a gas cylinder, 9,000 rounds of ammunition and a – reportedly Israeli – assault rifle.[250] While searching his house, the police also found a Glock and a SIG Sauer pistol, a carbine, and seven Category C firearms.[251] Although Djaziri featured on France's terrorist suspect watch list – '*fichier S*' – he held the appropriate authorisation for the two Category B pistols and the shooting licence required for the Category C weapons. It appears that this situation was not due to administrative oversight; rather, Prime Minister Edouard Philippe stated that when Djaziri requested the renewal of his shooting licence in late 2016, the Direction Générale de la Sécurité Intérieure (France's internal intelligence service) was informed, but opted to grant the request in order not to arouse Djaziri's suspicion that he was being monitored.[252] Nevertheless, President Emmanuel Macron called for a thorough review of such procedures after the incident.[253]

For this study, French officials contributed data on the specific models of firearms used or seized in connection with several attacks and attempted recent attacks, providing the most comprehensive official and publicly available account to date of the arsenals at the disposal of jihadi terrorists in France. The data are useful for generating a typology of the weapons types and models used by jihadi terrorist groups, as well as for illustrating the challenges involved in tracing these firearms. Table 6 summarises data provided by the Interior Ministry's SCAEMS on 52 firearms retrieved or seized in relation to eight terrorism cases that occurred between 2012 and 2016. Not included in Table 6 are the three AK-pattern rifles (one Chinese Type 56-1, one Bulgarian AKKS and one Serbian M70 AB1)[254] used by attackers during the 13 November 2015 attack at the Bataclan theatre in Paris, which resulted in 89 deaths; AK-pattern rifles were also used during the coordinated attacks on restaurants and terraces in Paris on the same day, but no further details were available at the time of research.[255]

Table 6: Firearms seized in recent attacks inspired by radical Islamist ideologies

Make, model and country of manufacture	Calibre	Legal category[256]	Specific information	Tracing requests
Mohamed Merah (Toulouse and Montauban attacks, 11-19 March 2012)				
Franchi Spas 12 shotgun, Italy	12 gauge	B-2°		Yes, unsatisfactory results
ROF Sten MK II sub-machine gun, UK	9 x 19 mm	A-2-1°		Yes, unsatisfactory results
Micro-UZI sub-machine gun, Israel	9 x 19 mm	A-2-1°	Altered serial number	
Colt Python revolver, United States	.357 Magnum	B-1°		Yes, unsatisfactory results
Remington 1911 A1 pistol, United States	.45 ACP	B-1°		Yes, unsatisfactory results
Remington 1911 A1 pistol, United States	.45 ACP	B-1°	Firearm assembled from parts of several other weapons	Yes, firearm reported stolen
LLama Max-II pistol, Spain	.45 ACP	B-1°	Reactivated – had been deactivated in Spain	Yes, unsatisfactory results
Mehdi Nemmouche (attack on Jewish Museum, Brussels, 24 May 2014; arrested in Marseille on 30 May 2014)				
Zastava M70 automatic rifle, Serbia	7.62 x 39 mm	A-2-1°		Yes, unsatisfactory results
LLama Scorpio revolver, Spain	.38 Special	B-1°	Altered serial number	Yes, unsatisfactory results
Saïd and Chérif Kouachi (Charlie Hebdo attack, Paris, 7-9 January 2015)				
Two Zastava M70 automatic rifle, Serbia[257]	7.62 x 39 mm	A-2-1°		Yes, unsatisfactory results
Two Zastava M57 pistols, Serbia	7.62 Tokarev	B-1°		Yes, unsatisfactory results
RBR M80 rocket launcher, Serbia	64 mm rockets	A-2-4°		Yes, unsatisfactory results (traceable only by lot number)

Ahmédy Coulibaly (Fontenay-aux-Roses, Montrouge and Hypercacher attacks in Paris, 7-9 January 2015)				
vz.58 Compact automatic rifle, Czech Republic	7.62 x 39 mm	A-2-1°	Reactivated acoustic expansion weapon from Slovakia	Yes, sold by AFG Security in Slovakia
vz.58 Sub-compact automatic rifle, Czech Republic	7.62 x 39 mm	A-2-1°	Reactivated acoustic expansion weapon from Slovakia	Yes, sold by AFG Security in Slovakia
Six Tokarev TT33 pistols, Soviet Union	7.62 Tokarev	B-1°	Reactivated acoustic expansion weapon from Slovakia	Yes, three were sold by AFG Security in Slovakia, three were deactivated by KolArms in Slovakia
Tula Nagant 1932 revolver, Soviet Union	7.62 Nagant	B-1°	No deactivation mark from KolArms	Yes, unsatisfactory results
Sid Ahmed Ghlam (alleged 19 April 2015 murder of Aurélie Châtelain and planning of attack on a church in Villejuif)				
Four Zastava M70 automatic rifles, Serbia	7.62 x 39 mm	A-2-1°		
Sphinx AT 2000 pistol, Switzerland	9 x 19 mm	B-1°		Yes, firearm reported stolen
SIG Pro 2022 pistol, Germany	9 x 19 mm	B-1°		Yes, firearm reported stolen
Ayoub El Khazzani (Thalys train attack, 21 August 2015)				
Mpi kM-K automatic rifle, former East Germany	7.62 x 39 mm	A-2-1°	Firearm assembled from parts of several other weapons[258]	Yes
Luger FEG M80 pistol, Hungary	9 x 19 mm	B-1°	Erased serial number[259]	Impossible
Four Zastava M70 automatic rifles, Serbia	7.62 x 39 mm	A-2-1°		One unknown firearm, three unsatisfactory results

Kazanlak AKS 47 automatic rifle, Bulgaria	7.62 x 39 mm	A-2-1°		Yes, unsatisfactory results
Norinco Type 56-1 automatic rifle, China	7.62 x 39 mm	A-2-1°		Yes, unsatisfactory results
Browning GP35 pistol, Belgium	9 x 19 mm	B-1°	Altered serial number	Impossible
Reda Kriket (arrested on 24 March 2016 in Boulogne Billancourt for allegedly planning an attack during Euro 2016)				
Five AK-pattern automatic rifles	7.62 x 39 mm	A-2-1°		
ZAGI-M91 sub-machine gun, Croatia	9 x 19 mm	A-2-1°		
SIG Pro 2022 pistol, Germany	9 x 19 mm	B-1°		Yes, reported stolen in Belgium
Glock 19 pistol, Austria	9 x 19 mm	B-1°		Yes, reported stolen in Belgium
Remington 1911 pistol, United States	.45 ACP	B-1°		
Colt 1911 A1 pistol, United States	.45 ACP	B-1°		
MAB pistol, France		B-1°		
Walter P99 pistol, Germany	9 x 19 mm	B-1°		
Smith & Wesson Model 29 revolver, United States	.44 Magnum	B-1°		
Mohammed Laouej Bouhlel (Nice attack, 14 July 2016)				
Unique pistol, France	7.65 Browning	B-1°		Yes, firearm reported stolen

Source: SCAEMS[260]

The data in Table 6 indicate that semi-automatic handguns of various calibres (legal Category B) represent 50% of the weapons, compared with 40% for automatic rifles (mainly 7.62 x 39 mm AK-pattern rifles). Sub-machine guns represent only 6% of the sample, with the remainder comprising a pump-action shotgun and a rocket launcher. The fact that handguns are more prominent – even if slightly – in this

dataset than fully automatic weapons is noteworthy, and somewhat contradicts common perceptions of terrorist arsenals being composed primarily of AK-pattern rifles. Semi-automatic handguns were actually used to a greater extent than fully automatic weapons in several of the associated attacks, including those in Toulouse, Montauban and Villejuif.[261] Despite this observation, it is clear that fully automatic rifles were widely used, including in the most deadly attacks. In fact, 7.62 x 39 mm (the calibre for AK-pattern rifles) is the most common calibre in Table 6 (40%), followed by 9 x 19 mm (19%), 7.62 x 25 mm Tokarev (15%) and .45 ACP (10%).

Officials stress the difficulty of tracing the firearms used in these attacks.[262] As noted in Table 6, while tracing efforts were made in most cases, those that generated the most useful results involved pistols that were reported stolen in France (four cases) and Belgium (two cases), as well as the two reactivated 7.62 x 39 mm vz.58 rifles and six reactivated Tokarev pistols that were sold as blank-firing firearms in Slovakia. In the majority of cases, however, tracing requests yielded only unsatisfactory results. This is true for a number of handguns and automatic rifles, and particularly so for older weapons produced in the Balkans before the conflicts of the 1990s. Producers provided information on the last known legal end user of the firearms, generally former armed forces of the Yugoslav Republic in the early 1990s. In those cases, tracing was of little use in determining how and when these weapons ended up in France, because too many parts of a potentially long chain of custody are missing.[263] A similar observation can be made regarding the tracing of the ammunition that was found. Markings on 7.62 x 39 mm cartridge cases retrieved at the scene of the Bataclan and Thalys attacks reveal the use of old ammunition manufactured before the mid-1990s primarily in East and South East European countries, including Bosnia and Herzegovina (between 1974 and 1991), Bulgaria (in 1967 and 1988) and Czechoslovakia (in 1991), as well as in Iran (in 1992 and 1993) and China (in 1963 and 1964).[264]

3.2 Firearms and Basque separatism

While Basque separatist group ETA carried out most of its violent attacks in Spain,[265] the 2007 killing of two Guardia Civil officers in Cap Breton served as a reminder of its clandestine armed activities in France.[266] The group declared the end of its armed struggle in 2011 and began disarming in 2016. In April 2017 it surrendered eight arms caches containing 3.5 tonnes of arms, ammunition and other materiel to the French authorities.[267] Consequently, the number of investigations opened in France related to ETA decreased from 159 in 2007 to 26 in 2013.[268] While ETA no longer represents a significant armed threat,[269] its past arms procurement patterns are an interesting illustration of the ways in which a group – which featured on the EU's

list of terrorist organisations until 2009 – was able to acquire and maintain an arsenal in south-western France.

ETA favoured local sources of firearms supplies, and initially relied to a great extent on weapons it looted from the stocks of regular security forces (including Spanish service handguns such as the Astra pistol).[270] ETA engineers also produced home-made sub-machine guns in the 1980s and 1990s that were inspired by the Israeli Uzi.[271] Even though these weapons were known for their high failure rate, the group appears to have manufactured several hundred units.[272] These weapons usually had 'ETA' marked on the right side of the receiver, as well as 'RTS' or 'ARS' fire selector markings.

Firearms held by the group in the last ten years involved mainly those stolen in 2006 from a local firearms retailer. On 24 October 2006 an ETA commando stormed into the facilities of the SIDAM gun shop in Vauvert, in Gard *département*.[273] The team of three seized 400 handguns – mostly in 9 x 19 mm and .357 Magnum calibres, including new Smith & Wesson MP9 and CZ pistols – and 60,000 rounds of ammunition.[274] They also took older weapons that were being repaired in the shop, including a Luger P08 pistol.[275] Ballistics analysis of the cartridge cases left behind at the 2007 Cap Breton crime scene revealed the murder weapon to be a Smith & Wesson MP9 pistol that had been stolen from SIDAM. Firearms originating from this source have also been regularly seized from arrested ETA members – they were easily traced because the serial numbers were left intact.[276]

Caches that ETA recently surrendered as part of its disarmament process generally contained some 50 firearms each, stored in plastic containers. A cache examined at Louhossoa on 16 December 2016 contained a combination of Arminius revolvers, SIDAM-origin handguns, former Spanish Army firearms with milled serial numbers, SIG- and FN-manufactured firearms, and homemade 'Uzi' sub-machine guns.[277] A number of Spanish-produced 7.62 x 51 mm CEMTE rifles have also been recovered.[278]

Most of the ammunition held recently by ETA was also stolen from SIDAM. However, ETA also reloaded a significant proportion of its ammunition (especially in calibres .357, 9 x 19 mm and .45), representing about 10-15% of what has been recovered in recently surrendered caches.[279]

3.3 Firearms and Corsican nationalism

Since 1976, as part of its campaign for Corsican independence, the Front de Libération Nationale Corse (FLNC) has carried out a number of attacks on and bombings of symbols of the French state, both on the island and in southern France.[280] The violent activities of Corsican nationalists have diminished in recent years, however: the number of investigations opened in France related to terrorism in Corsica decreased from 248 in 2006 to 26 in 2013,[281] and in 2016 the group announced the end of its armed campaign.[282] The situation nevertheless remains fragile, and organised crime contributes to the island's high homicide rate.[283] Police sources note that 12 gauge is currently the most predominant calibre in use in crime in Corsica.[284] Score settling between organised crime gangs tends to involve pump-action or hunting shotguns.[285] Such groups also have access to automatic firearms, however. In October 2014 the 49-year-old owner of a firearms business was found guilty of reactivating firearms and selling them to individuals linked to Corsican organised crime. The weapons he supplied to them included ten AK-pattern rifles, a Skorpion sub-machine gun and a Walther PPK semi-automatic pistol.[286]

Corsican nationalists' holdings and procurement of firearms provide additional insights into how clandestine organisations acquire weapons in France. Weapons they displayed during their 1990s propaganda efforts suggested international sources of supply. In January 1996 the FLNC invited tens of journalists to a press conference in a forest. There, some 600 militants, dressed in black combat clothing and their faces covered, could be seen carrying a variety of firearms. The diverse weapons they displayed at this and other events typically included Uzi sub-machine guns, Steyr AUG and M16 rifles, rocket launchers, machine guns, and CZ 75 pistols.[287] Corsican nationalists have also used automatic weapons in particular to spray bullets at state symbols such as gendarmerie stations.[288] Little information is available, however, on the criminal networks used to acquire these diverse firearms. One rare documented example involved the smuggling of Austrian police Glock pistols in the mid-1990s. Four Austrian police officers forged documentation to collect unclaimed service pistols that were reserved for retired officers who requested them. They then sold the firearms to local criminal networks, as well as about 20 units to Corsican militants they were personally acquainted with.[289]

Corsican nationalists also sourced weapons locally, including through theft from law enforcement services. On 6 February 1998 Préfet Claude Erignac was shot first in the neck then twice in the head on his way to meet his wife at the theatre in Ajaccio. The killer left the firearm close to the scene. Tracing efforts revealed that the 9 x 19 mm MAS G1 pistol – a copy of the Beretta 92FS manufactured under licence in Saint Etienne – was one of two pistols that had been stolen during the

assault on a gendarmerie post in Pietrosella on 6 September 1997.[290] The investigation found that Yvan Colonna, a man connected to the FLNC, was the attacker. He was sentenced to life in prison.[291]

3.4 Links between organised crime and the acquisition of firearms by terrorist groups

Due to the secretive nature of ongoing investigations, interviewed officials were not at liberty to share information on the specific proximate criminal networks used by terrorist organisations to acquire firearms. Forensics specialists met for this study nevertheless observed that, to date, not a single firearm examined in relation to terrorism has been linked through ballistics testing to other criminal cases or offences.[292] While this statement should be weighed against the fact that France's nationwide ballistics network remains in its infancy, the fact remains that clearly documenting a link between terror actors and organised criminal groups is challenging.

While investigations may reveal more information as they unfold, some observers suggested that connections between the criminal and jihadi terrorism spheres in particular may be limited for a reason. Organised criminal groups would put themselves at greater risk of harassment by the authorities by supplying terrorists, and may in fact be trying to limit such ties.[293] Moreover, other groups have openly expressed their discontent with the jihadi networks. Following the July 2016 jihadi attack in Nice, for instance, the FLNC publicly threatened jihadi terrorists with retaliation should they attempt to carry out attacks in Corsica.[294]

Overall, with the exception of Mohamed Merah, most jihadi attack perpetrators appear to have been involved in low-level criminality rather than organised crime. As Europol noted, *"foreign terrorist fighters (FTFs) and their facilitation networks are predominantly self-funding (for example, from their employment income, support from family and friends, social welfare and/or bank loans). ... the perpetrators of the January [2015] Paris attacks were not in employment at that time; they made use of a consumer loan obtained with forged documents and cashed out, they had the proceeds of the sale of a car, and had cash linked to the sale of counterfeit goods."*[295]

This suggests the discreet and small-scale involvement of jihadi terror cell members in low-level criminal activities with the purpose of financing their activities.

The information reviewed in this report illustrates a wide range of and flexibility in the procurement methods used by terrorist organisations. Indeed, where tracing

was successful, information points mainly to local sources, including thefts from gun shops, lawful individual gun owners, and state security forces, as well as craft production. Little is known about the origins of the AK-pattern rifles used in the deadly November 2015 attacks. While some could be traced back to the Balkans in the early 1990s, their more proximate chains of custody are unclear. Available reporting suggests that the attackers' personal networks in Belgium played a part,[296] but when and through which route these firearms were smuggled from the Balkans remain unclear.

4. Conclusions

France has faced several waves of terror attacks in its history, but the violence and human toll of those perpetrated since 2015 is unprecedented. Firearms were the primary weapon used in the most deadly attacks. Data on 52 firearms used or seized in connection with eight recent terror cases show that handguns, followed by automatic rifles, have been the main types of weapons held and used by jihadi terrorists.

Owing to the legacy of the Second World War, a tradition of tolerance towards unregistered rifles and shotguns, and more recent dynamics of cross-border trafficking, France hosts a sizeable pool of illicit firearms. While difficult to quantify, the available estimates suggest that they may number several million, with hunting rifles and shotguns representing the largest share. In fact, the number of illicit guns circulating even appears to be growing – in 2015 firearms that were reported stolen outnumbered those seized by the authorities. Shotguns and handguns are the weapons types most frequently examined by the country's forensics experts. While cases of the illicit possession or use of automatic rifles have increased slightly in recent years, comparatively speaking they remain much less frequent than those involving shotguns and handguns. When used, automatic rifles can inflict particularly devastating violence, however. In the region of Marseille, for instance, homicide victims are shot on average more than ten times when the weapon used is an AK-pattern rifle.

Illicit firearms in France originate from a variety of domestic and foreign sources. Domestically, they include primarily theft from private legal gun owners, gun shops, arms fairs and other actors. Criminal networks exploit differences and gaps in European countries' national legislation and the private networking offerings of the internet to import categories of weapons that are prohibited or heavily restricted in France, including automatic rifles, sub-machine guns, handguns and their

essential components. These are the most expensive types of arms on the black market, with prices that can reach several thousand euros. Experts and officials expressed concern over a growing trade in easily convertible replica firearms, as well as retro-convertible deactivated firearms. These weapons originate from other EU countries or transit through them before reaching French territory. Once converted – in France or abroad – to lethal-purpose weapons, these firearms represent a cheap alternative to real guns and an opportunity for criminals to generate profit.

Tracing the origins of firearms used in terrorism is particularly difficult, and especially so when the weapons are ageing automatic rifles. The AK-pattern rifles used in recent attacks were typically produced in the Balkans in the 1980s. Apart from identifying their last legal owner – often South East European national armed forces before the conflicts of the 1990s – tracing efforts yielded unsatisfactory information about the weapons' more recent chains of custody. On the other hand, the tracing of the reactivated vz.58 rifles helped build momentum to address the trafficking that had developed around easily convertible Slovakian acoustic expansion weapons. While most investigations into the recent attacks are still ongoing, currently available information suggests that some terrorist cells acquired illicit firearms locally and in neighbouring countries. This is notably the case in Belgium, from where several of the Paris attackers originated. Links between the November Paris attackers and the March 2016 Brussels Airport suicide bombers are also strongly suspected, including in terms of firearms procurement.

As governments intensify their efforts to curtail the trafficking of weapons, organised crime groups may feel increasingly reluctant to supply terrorist groups, and terrorists' use of other methods such as trucks, cars and bombs for attacks in France and other European countries may indicate that sources of supply are becoming more limited. Other organisations previously engaged in terrorist activity in France, such as ETA and the FLNC, have demonstrated the ability of clandestine organisations to adapt to such circumstances and identify discreet and local sources of weaponry, such as theft from private actors and even craft production. While addressing the cross-border trafficking of automatic firearms remains essential, efforts should also take into consideration the local sources of supply that jihadi and other terrorists could still seek to exploit.

In response to the recent wave of terrorist attacks, the French government has endeavoured to accelerate reform of the country's intelligence and security forces, and put in place plans of action and a series of associated measures to tackle illicitly held firearms. A key component of these efforts is the improvement of data collection and analysis methods. While the new tools put in place remain in their infancy, this study has showed that centralised SCAEMS and customs data on weapons

seizures and thefts and the networked FNIB ballistics system already help to provide important indicators of the nature and extent of illicit arms flows in the country. Sustaining and building on these efforts would allow for more detailed data analysis of specific patterns of arms trafficking.

In parallel, efforts to reinforce the capacities of police and gendarmerie officers to investigate and record illicit firearms are under way. France adopted new firearms legislation in 2013, increased penal sanctions associated with illicit firearms possession and is working to improve its registry of civilian-held weapons. Following the 2015 attacks, it has also pushed its European partners to accelerate the adoption of the new EU firearms directive and firearm deactivation regulation. Interviewed officials have consistently expressed concern over the slow and uneven implementation of some minimum European standards, including those related to firearms deactivation. Different legislation within the EU regarding the classification of essential parts of firearms means that these components remain easily accessible in a number of EU member states, and are therefore a potential source for weapons traffickers. Indeed, many of the efforts undertaken by France may prove futile unless other member states follow suit.

ENDNOTES

1 Fenech, G. and Pietrasanta, S., (2016), *Rapport fait au nom de la Commission d'enquête relative aux moyens mis en œuvre par l'Etat pour lutter contre le terrorisme depuis le 7 janvier 2015*, no, 3922, Assemblée Nationale, p27.

2 *Europol*, 2016, *European Union Terrorism Situation and Trend Report (TE-SAT) 2016*, The Hague, p.10.

3 See, for instance, Fenech, G. and Pietrasanta, S., (2016), *Rapport fait au nom de la Commission d'enquête relative aux moyens mis en œuvre par l'Etat pour lutter contre le terrorisme depuis le 7 janvier 2015*, no, 3922, Assemblée Nationale.

4 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte-contre-les-armes-illegalement-detenues

5 See, for instance, Fenech, G. and Pietrasanta, S., (2016), *Rapport fait au nom de la Commission d'enquête relative aux moyens mis en œuvre par l'Etat pour lutter contre le terrorisme depuis le 7 janvier 2015*, no, 3922, Assemblée Nationale.

6 Faure, S. and Alonso, P., (2017), 'Etat d'urgence: des travers dans l'Etat de droit.' Liberation, http://www.liberation.fr/france/2017/06/21/etat-d-urgence-des-travers-dans-l-etat- de-droit_1578625; *Les Echos*, (2017), 'Loi antiterroriste: ce qui va changer dès mercredi,' 30 October, 9 https://www.lesechos.fr/politique-societe/societe/ 030806875 450-loi-antiterroriste-ce-qui-va-changer-des-mercredi-2126353.php

7 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte- contre-les-armes-illegalement-detenues

8 This action plan is not available publicly. Written communication with the DGDDI, 12 May 2017.

9 Written communication with the DGDDI, 12 May 2017.

10 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte- contre-les-armes-illegalement-detenues

11 Written communication with the SCAEMS, 22 May 2017.

12 See McDonald, G., (2017), 'Revised Indicator 16.4.2: A useful, but limited, step towards 2030,' Talking Target 16.4 Blog, Small Arms Survey, 10 March, http://www.smallarmssurvey.org/de/salw/blog-events/talking-target-164.html

13 INPS (Institut National de Police Scientifique), (2016), *FNIB – Bilan 2016*, Ministry of Interior, p2.

14 Written communication with the SCAEMS, 29 May 2017; Written communication with source CS1, 29 May 2017; Le Progrès, (2011), 'Lyon et Ecully: l'unité balistique de la police suit les armes à la trace,' 28 March, http://www.leprogres.fr/societe/2011/03/28/lyon-et-ecully-l-unite-balistique-de-la-police-suit-les-armes-a-la-trace

15 INPS (Institut National de Police Scientifique), (2016), *FNIB – Bilan 2016*, Ministry of Interior, p2.

16 Verbal communication with source CS2, 28 March 2017; Verbal communication with source CS17, 30 March 2017.

17 Verbal communication with source CS17, 30 March 2017.

18 Verbal communication with source CS17, 30 March 2017.

19 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte- contre-les-armes-illegalement-detenues

20 Verbal communication with source CS17, 30 March 2017.

21 Verbal communication with source CS9, 11 May 2017; Verbal communication with source CS17, 30 March 2017.

22 Verbal communication with source CS17, 30 March 2017; Written communication with the DGDDI, 12 May 2017

23 Written communication with the DGDDI, 12 May 2017.

24 Decree-Law of 18 April 1939 fixing the regime of war materials, arms and ammunition.

25 See Ministerial circular of 21 November 1960, Journal officiel (JO) of 1st December 1960, page 10764; . Decree n° 95-589 of 6 May 1995, JO n°108 of 7 May 1995, page 7458; Decree n° 73-364 of 12 March 1973, Journal Officiel of 30 March 1973.

26 Council Directive of 18 June 1991 on control of the acquisition and possession of weapons (91 /477/EEC), Official Journal of the European Communities No L 256/51.

27 Law n° 2012-304 of march 6th, 2012, on the the establishment of a modern, simplified and preventive arms control, *Journal officiel de la république française (JO)* n°0057 du 7 mars 2012 pages 4200 and following.

28 Decree of 5 January 2016, on the classification of some specific firearms and ammunitions, in category B, *JO* n° 0010, text n° 23.

29 Written communication with source CS3, 12 June 2017.

30 Articles R. 311-1 and R. 311-3 of Décret n° 2017-909 du 9 mai 2017 relatif au contrôle de la circulation des armes et des matériels de guerre.

31 Art. 222–52, text n° 23 of the Penal Code, https://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006070719&idArticle=LEGIARTI000032632509

32 Ministry of Interior (2017), *Discours de M. Bruno Le Roux, prononcé à l'occasion de l'inauguration du service central des armes, à Nanterre*, 12 January, http://www.interieur.gouv.fr/Archives/Archives-ministre-de-l-interieur/Archives-Bruno-Le-Roux-decembre-2016-mars-2017/Interventions-du-ministre/Inauguration-du-service-central-des-armes

33 Written communication with source CS3, 12 April 2017.

34 Written communication with source CS3, 12 April 2017.

35 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte-contre-les-armes-illegalement-detenues

36 Verbal communication with source CS2, 28 March 2017.

37 Verbal communication with source CS2, 28 March 2017; Verbal communication with source CS16, 21 April 2017

38 Verbal communication with source CS2, 28 March 2017.

39 Written communication with source CS2, 12 June 2017.

40 Written communication with source CS3, 16 June 2017.

41 Verbal communication with source CS3, 28 March 2017.

42 Verbal communication with source CS16, 21 April 2017.

43 Verbal communication with source CS2, 28 March 2017; Verbal communication with source CS17, 30 March 2017.

44 Written communication with source CS2, 12 June 2017.

45 Written communication with source CS2, 13 April 2017.

46 Written communication with source CS2, 12 June 2017; Written communication with source CS3, 16 June 2017.

47 Ministry of Interior (2015), *Plan national de lutte contre les armes illégalement détenues*, 13 November, http://mobile.interieur.gouv.fr/Presse/Dossiers-de-presse/Plan-national-de-lutte-contre-les-armes-illegalement-detenues

48 Verbal communication with source CS2, 28 March 2017; Verbal communication with source CS26, 20 April 2017.

49 See for instance the Association pour le Rétablissement du Port d'Arme Citoyen at http://arpac.eu/ . Verbal communication with source CS26, 20 April 2017.

50 Verbal communication with source CS23, 29 March 2017.

51 Schroeder, M., (2013), 'Captured and Counted: Illicit Weapons in Mexico and the Philippines,' in Small Arms Survey, *Small Arms Survey 2013: Everyday Dangers*, Cambridge University Press, p. 284.

52 Verbal communication with source CS2, 28 March 2017; Verbal communication with source CS3, 28 March 2017. See also Antoine, J.C., (2012), *Au Coeur du Trafic d'Armes: Des Balkans aux Banlieues,* Vendémiaire, pp78-80.

53 For instance, Police sources were quoted stating the number of illegal firearms in circulation in the banlieues amounted to 30,000 or more in 2008. Leclerc, J-M., (2009), 'Au moins 30.000 armes à feu illégales en France,' *Le Figaro*, 17 December, http://www.lefigaro.fr/actualite-france/2009/12/16/01016-20091216ARTFIG00693-les-armes-a-feu-dans-le-collimateur-.php

54 See Centre for Strategy and Evaluation Services (2014), *Study to Support an Impact Assessment on Options for Combatting Illicit Firearms Trafficking in the European Union*, Brussels: European Commission, Directorate General Home Affairs, https://ec.europa.eu/home-affairs/sites/homeaffairs/files/e-library/documents/policies/organized-crime-and-human-trafficking/general/docs/dg_home_-_illicit_fireams_trafficking_final_en.pdf

55 Antoine, J.C., (2012), *Au Coeur du Trafic d'Armes: Des Balkans aux Banlieues,* Vendémiaire, p78.

56 Written communication with source CS2, 13 April 2017.

57 Written communication with source CS3, 12 April 2017.

58 Written communication with source CS3, 12 April 2017.

59 Written communication with source CS2, 29 May 2017.

60 Verbal communication with source CS4, 16 May 2017.

61 Written communication with source CS3, 29 May 2017.

62 Duquet (N.) and Van Alstein (M), (2015), *Firearms and Violent Deaths in Europe,* Flemish Peace Institute, June, p6, http://www.flemishpeaceinstitute.eu/sites/vlaamsvredesinstituut.eu/files/files/reports/firearms_and_violent_deaths_in_europe_web.pdf

63 European Commission, (2013), *Flash Eurobarometer 383: Firearms in the European Union*, Report, October; Duquet (N.) and Van Alstein (M), (2015), *Firearms and Violent Deaths in Europe,* Flemish Peace Institute, June, pp9,11, http://www.flemishpeaceinstitute.eu/sites/vlaamsvredesinstituut.eu/files/files/reports/firearms_and_violent_deaths_in_europe_web.pdf

64 The Eurobarometer survey was administered to a sample of the population aged 15 or more. The data on the French population aged 15 or more in 2015 is taken from UN Population Division,(2017), Quinquennial Population by Five-Year Age Groups - Both Sexes., https://esa.un.org/unpd/wpp/Download/Standard/Population/

65 Verbal communication with source CS4, 16 May 2017.

66 Desmoulières, R.B., (2008), 'Combien d'Armes à Feu Circulent en France,' *Le Monde*, 1 October.

67 As of June 2017, the SCAEMS reported having verified 5,959 seizures for 2016, but noted that some firearms seized under the state of emergency may not have been fully accounted. Written communication with the SCAEMS, 12 June 2017.

68 These were the sources for the following years:
2000: Karoutchi, R., (2002), Question écrite n° 35161. Réponse du ministère: Intérieur, Journal Official du Sénat, 17 January, https://www.senat.fr/questions/base/2001/qSEQ010935161.html, p 156.
2005-2008: Leclerc, J-M., (2009), Au moins 30.000 armes à feu illégales en France, Le Figaro, 17 December, http://www.lefigaro.fr/actualite-france/2009/12/16/01016-20091216ARTFIG00693-les-armes-a-feu-dans-le-collimateur-.php
2009: DCPJ, (2012), Response to 'National Small Arms Questionnaire,' Administered by the Small Arms Survey.
2010: Ministry of Interior (2017), Discours de M. Bruno Le Roux, prononcé à l'occasion de l'inauguration du service central des armes, à Nanterre, 12 January, http://www.interieur.gouv.fr/Archives/Archives-ministre-de-l-interieur/Archives-Bruno-Le-Roux-decembre-2016-mars-2017/Interventions-du-ministre/Inauguration-du-service-central-des-armes
2011: Carvounas, L., (2012), Question écrite n° 01246. Réponse du Ministère de l'Intérieur, Journal Official du Sénat, 30 August, https://www.senat.fr/questions/base/2012/qSEQ120801246.html, p 1907.
2014: Ministry of Interior (2015), Plan national de lutte contre les armes illégalement détenues, 13 November, http://www.interieur.gouv.fr/Archives/Archives-des-actualites/2015-Actualites/Plan-national-de-lutte-contre-les-armes- illegalement-detenues, p 2
2015: Written communication with source CS2, 13 April 2017.
2016: Ministry of Interior (2017), Discours de M. Bruno Le Roux, prononcé à l'occasion de l'inauguration du service central des armes, à Nanterre, 12 January, http://www.interieur.gouv.fr/Archives/Archives-ministre-de-l-interieur/Archives-Bruno- Le-Roux-decembre-2016-mars-2017/Interventions-du-ministre/Inauguration-du-service-central-des-armes.

69 Douanes et Droits Indirects, (2012-2016), *Douanes résultats*, annual activity reports.

70 United Nations Office on Drugs and Crime, (2015), *UNODC Study on Firearms 2015*, p15

71 SCAEMS presentation at an Institut de Relations Internationales et Stratégiques (IRIS) seminar, Paris, 21 January 2017.

72 Written communication with the SCAEMS, 3 May 2017.

73 Written communication with the SCAEMS, 22 May 2017.

74 Written communication with source CS9, 31 May 2017.

75 Written communication with source CS9, 31 May 2017.

76 Written communication with source CS5, 12 May 2017.

77 Written communication with source CS5, 12 May 2017.

78 Written communication with source CS5, 12 June 2017.

79 By way of comparison, the Gendarmerie seized a total of 1,915 in 2015, suggesting almost half of firearms seized by the Gendarmes are sent to the IRCGN for analysis. Written communication with source CS6, 2 December 2016; Written communication with source CS2, 3 May 2017.

80 Written communication with source CS6, 2 December 2016.

81 Interestingly, data on firearms seized during the period 2010-2015 collected from media sources and analysed by the EU-funded 'FIRE' project does not identify the north-eastern border or Corsica as 'seizure hotspots'. Transcrime, (2017), *Fighting illicit firearms trafficking routes and actors at European level*, p52-53.

82 *Corse-Matin*, (2015), 'La Corse: l'île aux homicides,' 23 October, http://www.corsematin.com/article/derniere-minute/la-corse-lile-aux-homicides.

83 The weapons, seized at an individual's home in March 2015, included a home-made 'cannon,' several sub-machine guns, about forty shoulder weapons and a hundred handguns. Ferri, M., (2015), Un canon et une centaine d'armes saisis chez un habitant de Thuir, *France Bleu Roussillon,* 6 March, https://www.francebleu.fr/infos/faits-divers-justice/un-canon-et-une-centaine-d-armes-saisis-chez-un-habitant-de-thuir-1425656465

84 Source: Written communication with the SCAEMS, 13 April 2017.

85 Source for seizures: Written communication the SCAEMS, 13 April 2017. Source for population figures: INSEE, 2013, *Populations légales*, https://www.insee.fr/fr/statistiques/2119468?sommaire=2119504, consulted on 14 april 2017

86 Verbal communication with source CS7, 28 March 2017.

87 Using data from all services (Police and Gendarmerie), for France metropolitaine, as contained in Data.gouv.fr, (2017), *Chiffres départementaux mensuels relatifs aux crimes et délits enregistrés par les services de police et de gendarmerie depuis janvier 1996*, version updated 6 April 2017, https://www.data.gouv.fr/fr/datasets/chiffres-departementaux-mensuels-relatifs-aux-crimes-et-delits-enregistres-par-les-services-de-police-et-de-gendarmerie-depuis-janvier-1996/

88 Available data sources do not make it possible to calculate the proportion of homicides carried out with firearms over this timeframe on the entire national territory, however. See Auffret, S., (2015), Marseille et Paris, capitales de la carte du crime, *Le Monde,* 15 October 2015, http://www.lemonde.fr/les-decodeurs/article/2015/10/15/le-ministere-de-l-interieur-livre-enfin-les-chiffres-de-la-delinquance_4790212_4355770.html; and Data.gouv.fr, (2017), *Chiffres départementaux mensuels relatifs aux crimes et délits enregistrés par les services de police et de gendarmerie depuis janvier 1996*, version updated 6 April 2017, https://www.data.gouv.fr/fr/datasets/chiffres-departementaux-mensuels-relatifs-aux-crimes-et-delits-enregistres-par-les-services-de-police-et-de-gendarmerie-depuis-janvier-1996/

89 Besson, J.L., (2015), Les Homicides Volontaires Diagnostiqués par l'Institut Médico-légal de Paris de 1994-2014, Note Statistique n. 9 de l'Observatoire National de la Délinquance et des Réponses Pénales, Avril, p18.

90 Small Arms Survey, (n.d), Database on Violent Deaths, as of 1 August 2016, http://www.smallarmssurvey.org/?id=1253

91 Western European and European averages are calculated using data for the respectively 9 and 46 states categorized as such in Small Arms Survey, (n.d), Database on Violent Deaths, as of 1 August 2016, http://www.smallarmssurvey.org/?id=1253

92 Written communication with the Institut Médico-Lécal of Marseille, 3 May 2017.

93 Written communication with the Institut Médico-Lécal of Marseille, 3 May 2017.

94 Verbal communication with source CS7, 28 March 2017.

95 Using data from all services (Police and Gendarmerie), for France metropolitaine, as contained in Data.gouv.fr, (2017), *Chiffres départementaux mensuels relatifs aux crimes et délits enregistrés par les services de police et de gendarmerie depuis janvier 1996*, version updated 6 April 2017, https://www.data.gouv.fr/fr/datasets/chiffres-departementaux-mensuels-relatifs-aux-crimes-et-delits-enregistres-par-les-services-de-police-et-de-gendarmerie-depuis-janvier-1996/

96 Scherr, M., (2016), *Les Dynamiques Récentes des Vols à Main Armée*, FlashCrim no.8, ONDRP, June.

97 Using data from all services (Police and Gendarmerie), for France metropolitaine, as contained in Data.gouv.fr, (2017), *Chiffres départementaux mensuels relatifs aux crimes et délits enregistrés par les services de police et de gendarmerie depuis janvier 1996*, version updated 6 April 2017, https://www.data.gouv.fr/fr/datasets/chiffres-departementaux-mensuels-relatifs-aux-crimes-et-delits-enregistres-par-les-services-de-police-et-de-gendarmerie-depuis-janvier-1996/ 'Armed robberies' in this chart is the sum of indices 15-19 in the above data source.

98 Auffret, S., (2015), 'Marseille et Paris, capitales de la carte du crime,' *Le Monde,* 15 October 2015, http://www.lemonde.fr/les-decodeurs/article/2015/10/15/le-ministere-de-l-interieur-livre-enfin-les-chiffres-de-la-delinquance_4790212_4355770.html

99 Verbal communication with source CS9, 12 May 2017.

100 Written communication source CS5, 12 May 2017.

101 Written communication with the SCAEMS, 13 April 2017.

102 Written communication with the SCAEMS, 13 April 2017.

103 In the other cases, judges may opt to request forensics analysis by private experts. Written communication with the SCAEMS, 29 May 2017; Written communication with source CS1, 29 May 2017.

104 Written communication with source CS1, 15 April 2017.

105 Written communication with the SCAEMS, 13 April 2017.

106 Each entry corresponds either to a cartridge case, a bullet, or a firearm.

107 INPS (Institut National de Police Scientifique), (2016), *FNIB – Bilan 2016*, Ministry of Interior, p2.

108 INPS (Institut National de Police Scientifique), (2016), FNIB – Bilan 2016, Ministry of Interior, p2; Written communication with the INPS, 16 May 2017.

109 INPS (Institut National de Police Scientifique), (2016), *FNIB – Bilan 2016*, Ministry of Interior, p2.

110 Written communication with source CS1, 16 May 2017; Written communication with the INPS, 16 May 2017.

111 Written communication with the Institut Médico-Lécal of Marseille, 3 May 2017.

112 With the exception of shotguns and flare pistol inserts, online prices are based on a review of about 400 posts displaying firearms for sale on the www.natuxo.com online trading platform. The review was performed between February and April 2017, and identified 84 suspicious attempted sales (i.e. cases that appeared to circumvent the firearms legislation) that were posted on the site between July 2014 and April 2017. Online prices for shotguns were collected from three websites (www.natuxo.com, www.marche.fr, and www.annonces.france-chasse.com) in May 2017, focusing on 21 posts that failed to specify the legal category of the weapons and the regulatory requirements in place for the acquisition of these firearms. Online prices for flare pistol inserts were observed on the site www.delcampe.net.

113 Based on one attempted sale.

114 Tourancheau, P., (2002), 'Armes de guerre dans la ligne de mire,' *Libération,* 10 April, http://www.liberation.fr/evenement/2002/04/10/armes-de-guerre-dans-la-ligne-de-mire_399775

115 Mandraud, I.,(2007), 'Artillerie lourde en banlieue', *Le Monde,* 21 November, http://www.lemonde.fr/societe/article/2007/11/21/des-banlieues-francaises-tres-armees_980865_3224.html

116 Verbal communication with source CS11, 14 october 2009.

117 *Atlantico.fr*, (2011), 'Kalachnikov à 400 euros : « Un petit investissement pour un gros business »,' 3 December, http://www.atlantico.fr/decryptage/kalachnikov-marseille-attaques-fabrice-rizzoli-laurent-appel-237270.html

118 *Midi Libre*, (2012), 'Armes de guerre: 15 000 Kalachnikov seraient en circulation dans les banlieues', 2 July, http://www.midilibre.fr/2012/07/02/armes-de-guerre-15-000-kalachnikov-seraient-en-circulation,527102.php

119 *Bfmtv,* (2013), 'Qui achète et qui vend des kalachnikovs, comment et à quel prix?,' 9 September, http://www.bfmtv.com/societe/achete-kalachnikovs-a-prix-598948.html

120 Bourdier, M., (2015), 'Un plan contre le trafic d'armes: les chiffres à connaître sur la circulation des armes à feu en France,' *Huffington Post,* 13 November, http://www.huffingtonpost.fr/2015/11/13/armes-a-feu-france-trafic-armes-france-chiffres-bernard-cazeneuve-plan-ministere-interieur_n_8553006.html

121 The source stressed that these prices are estimates, vary according to supply and demand, and that it is generally easier, so cheaper, to acquire firearms in urban centers than in rural areas. Verbal communication with source CS9, 11 May 2017.

122 Based on two attempted sales in 2014.

123 Compared with EUR 150-250 in Serbia, and EUR 10,000 in the UK. Verbal communication with source CS2, 28 March 2017.

124 Duquet, N., (2016), *Armed to kill: An exploratory analysis of the guns used in public mass shootings in Europe*, Flemish Peace Institute, June, p21

125 Verbal communication with source CS12, 18 April 2017.

126 Based on three attempted sales.

127 *Le Point*, (2009), 'Des armes au marché noir,' n° 1914, 20 May, http://www.lepoint.fr/actualites-societe/2009-05-20/des-armes-marche-noir/920/0/345160

128 *Le Point*, (2009), 'Des armes au marché noir,' n° 1914, 20 May, http://www.lepoint.fr/actualites-societe/2009-05-20/des-armes-marche-noir/920/0/345160

129 Le Parisien, (2011), 'Il voulait se défendre avec un pistolet-mitrailleur,' 5 October, http://www.leparisien.fr/trappes-78190/il-voulait-se-defendre-avec-un-pistolet-mitrailleur-05-10-2010-1095475.php

130 Verbal communication with source CS13, 18 April 2017.

131 Verbal communication with source CS12, 18 April 2017.

132 Based on three attempted sales.

133 Based on one attempted sale.

134 Based on two attempted sales (from cheapest to most expensive, models Maverick 88 and Rapid Manufrance).

135 Based on three attempted sales (from cheapest to most expensive, models Armscor, Maverick 88, and Fabarm).

136 Based on two attempted sales (from cheapest to most expensive, models Fabarm 7 rounds + 1, and Winchester Defender).

137 Based on one attempted sale (model Maverick 88).

138 Based on one attempted sale (model Verney Carron).

139 Based on two attempted sales (from cheapest to most expensive, models Fabarm and Breda).

140 Based on two attempted sales (from cheapest to most expensive, models Benelli Super 90 and Browning Phoenix).

141 Based on one attempted sale (model Hardy Bros).

142 Based on three attempted sales (from cheapest to most expensive, models Manufrance Robust, Helice, and Baikal IJ43).

143 Based on three attempted sales (from cheapest to most expensive, models Franchi Falconet, Fabarm, and Browning B425).

144 Based on one attempted sale (sawed off double barrel over-under shotgun).

145 Based on 4 attempted sales.

146 Euro amounts are converted from the former French Franc values quoted in the source. Antoine, J.C., (2012), *Au Coeur du Trafic d'Armes: Des Balkans aux Banlieues,* Vendémiaire, p107.

147 Euro amount is converted from the former French Franc value quoted in the source. Benhamou, G., (1996), 'Des ripoux autrichiens,' *Libération,* 23 January, http://www.liberation.fr/france-archive/1996/01/23/des-ripoux-autrichiens-arment-le-flnc_159403

148 *Le Point*, (2009), 'Des armes au marché noir,' n° 1914, 20 May, http://www.lepoint.fr/actualites-societe/2009-05-20/des-armes-marche-noir/920/0/345160

149 Based on nine attempted sales of Glocks 17, 19 and 34.

150 Verbal communication with source CS9, 11 May 2017.

151 Based on one attempted sale.

152 Based on one attempted sale.

153 Based on eight attempted sales. Sold with modified 9 mm PAK rounds

154 Based on one attempted sale.

155 Based on one attempted sale.

156 Based on eight attempted sales.

157 Based on three attempted sales. Two were not modified and priced at EUR 110-250, but their sale should have been restricted following a January 2016 Decree that upgraded this firearm to Category B. The modified version was sold in 2016 for EUR 350.

158 Tourancheau, P., (2002), 'Armes de guerre dans la ligne de mire,' *Libération,* 10 april, http://www.liberation.fr/evenement/2002/04/10/armes-de-guerre-dans-la-ligne-de-mire_399775

159 Tourancheau, P., (2002), 'Armes de guerre dans la ligne de mire,' *Libération,* 10 april, http://www.liberation.fr/evenement/2002/04/10/armes-de-guerre-dans-la-ligne-de-mire_399775

160 *Le Point*, (2009), 'Des armes au marché noir,' n° 1914, 20 May, http://www.lepoint.fr/actualites-societe/2009-05-20/des-armes-marche-noir/920/0/345160

161 Two models of pen-flares are commonly converted to pen-guns. These are the Erma SG67E and DNS, both designed to propel 15 mm flares. By replacing the flare with a cylinder that is screwed at the end of the pen, these firearms can shoot .22 LR ammunition. Molinié, W., (2014), 'Armes dissimulées: Quand des armes dangereuses sont cachées dans des objets de la vie courante,' *20 Minutes*, 31 March, http://www.20minutes.fr/societe/1338569-20140331-armes-dissimulees-quand-armes-dangereuses-cachees-objets-vie-courante

162 Based on two attempted sales. Modified to fire .22 LR cartridges.

163 See Florquin, (N), 2013, 'Price Watch: Arms and Ammunition at Illicit Markets,' in Small Arms Survey, (2013), *Small Arms Survey 2013: Every Day Dangers*, Cambridge University Press.

164 Written communication with source CS2, 13 April 2017.

165 See, for instance, Antoine, J.C., (2012), *Au Coeur du Trafic d'Armes: Des Balkans aux Banlieues,* Vendémiaire, p95.

166 Written communication with source CS2, 13 April 2017; Verbal communication with source CS9, 11 May 2017.

167 Written communication with source CS1, 15 April 2017.

168 Verbal communication with source CS9, 11 May 2017; Verbal communication with source CS14, 21 April 2017; Verbal communication with source CS13, 18 April 2017. See also Baumgartner, C., and Felkay, M, (2012), 'Le traffic d'armes dans les Balkans occidentaux,' *La Revue du GRASCO,* no. 2, 2 July, pp.39-41, http://www.larevuedugrasco.eu/documents/revue_n3_octobre_2012.pdf

169 The Vz.61s were in their original state and not modified or reactivated. Verbal communication with source CS13, 18 April 2017. See also *Le Monde*, 2013, 'Deux légionnaires écroués à Marseille pour trafic d'armes,' 4 July, http://www.lemonde.fr/societe/article/2013/07/04/trafic-d-armes-dans-la-region-marseillaise-six-interpellations_3442447_3224.html#qr2t312rGwD9Y5Zd.99

170 Written communication with source CS12, 13 April 2017.

171 *Europe 1*, (2015), 'Saisie de 92 pistolets d'alarme transformés en armes létales, 3 December, http://www.europe1.fr/faits-divers/92-pistolets-dalarme-transformes-en-armes-letales-saisies-en-region-parisienne-2630441

172 PIXAF (Plateau d'Investigation eXplosifs et Armes à Feu), 2016, *L'arme à blanc modifiée : arme factice, menace réelle*, Veille Stratégique, Gendarmerie Nationale, 30 December.

173 PIXAF (Plateau d'Investigation eXplosifs et Armes à Feu), 2016, *L'arme à blanc modifiée : arme factice, menace réelle*, Veille Stratégique, Gendarmerie Nationale, 30 December.

174 PIXAF (Plateau d'Investigation eXplosifs et Armes à Feu), 2016, *L'arme à blanc modifiée : arme factice, menace réelle*, Veille Stratégique, Gendarmerie Nationale, 30 December.

175 Written communication with source CS3, 21 June 2017.

176 Verbal communication with Patrice Renaudot, Director, Banc National d'Epreuve, Saint Etienne, 20 April 2017.

177 These include the 13 other members of the Permanent International Commission for Firearms Testing (CIP). See http://www.cip-bobp.org/fr

178 For an example of a Czech-proofed Turkish replica sold online in France, see http://www.boutique-sd-equipements.fr/pistolet-d-alarme/687-revolver-viper-chrome-9mm-380-rk.html

179 Verbal communication source CS9, 11 May 2017; Verbal communication with source CS14, 21 April 2017.

180 United States District Court of Massachussets, (2015), United States of America vs. David L. Maricola and Arto Laatikainen, Indictment criminal action no. 15cr40023, p1,22-23, obtained courtesy of Matt Schroeder, Small Arms Survey.

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