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# Police deadly use of firearms: an international comparison

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## ABSTRACT

Under strictly defined conditions based on principles of necessity and proportionality, police may use firearms to achieve a lawful policing objective and not violate fundamental human rights. However, surprisingly little is known about how often the police kill members of the public in the line of work and especially how this prevalence compares across countries. For this study, the authors collected data from 11 countries from all continents on deaths caused by police use of firearms. Finding reliable data proved to be highly challenging as many police agencies either do not keep such statistics or are unwilling to make them public. This lack of transparency feeds into the belief that their use of lethal force may not have been fully justifiable. The authors then correlated police killing rates with homicide rates for each country. The findings confirm that the overall rate of killings by police using firearms strongly correlates with the overall homicide rates in a country. This paper argues that more transparency about police use of firearms is needed in order to gain better understanding of when and why police resort to the use of firearms, and develop more effective measures to prevent loss of life.

## ARTICLE HISTORY

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## 1. Introduction

In recent years, the type of force used by police, its frequency and the appropriateness with which it is used, has come under increasing scrutiny. Where police action results in death, and especially when there is reason to question the lawfulness of the use of lethal force, this often leads to a public outcry. However, not much research has been done in the public domain on police killings, whether based on official records or otherwise, and where research has been carried out it is usually confined to single countries. Indeed, there are very few comparisons of how countries fare against one another. Though we know that some countries have remarkably few shooting incidents while others have many, we know little about the scale and scope of these differences, nor whether or how they relate to differences in the levels of the violent crimes encountered, and hence whether the police use of force is related to the violence encountered.

The mandate to use force in order to enforce the law, maintain order and protect human rights is one of the central characteristics of the police. Police have discretion with regards to the use of force: despite the abundance of legal norms and professional protocols, police officers all over the world make decisions, regarding complex and diverse situations that arise while on duty, sometimes in split-seconds, which cannot be predicted or prescribed in a police manual, no matter how detailed. Hence, officers must decide whether the use of force is warranted in a particular situation and, if so, how and to what level it should be exerted.

The extraordinary powers accorded to police coupled with the discretionary nature of their work makes police work very sensitive, as the use of force can result in serious injury and even loss of life. For this reason, national and international standards have been developed to regulate and/or restrain the use of force. The main international instruments for that purpose are the 'UN Code of Conduct for Law Enforcement Officials' (UN Code of Conduct)<sup>1</sup> and the 'Basic Principles on the Use of Force and Firearms for Law Enforcement Officials' (Basic Principles).<sup>2</sup>

According to these standards, law enforcement officials shall, in carrying out their duty, apply non-violent means as far as possible before resorting to the use of force. They may use force only if other means remain ineffective. Indeed, force should only be used where it is necessary to achieve a lawful policing objective and to a degree that is proportional to the threat encountered. With regard to using firearms, Principle 9 of the Basic Principles establishes that firearms can only be used 'in self-defence or defence of others against the imminent threat of death or serious injury', and 'intentional lethal use of firearms may only be made when strictly unavoidable in order to protect life'. The right to life is termed a foundational human right, as all other rights are dependent on its respect and protection. The fundamental principle, which is reaffirmed by the former UN Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns,<sup>3</sup> is that life can only be taken when it is absolutely necessary to protect life. Hence, using lethal force merely to protect property or other less valuable rights is deemed unacceptable.

As recognised by the Basic Principles, whenever police do use firearms, they are obliged to minimise damage, to seek medical assistance for the victims and to inform the victim's relatives. They must account for such use by detailed recording and reporting of incidents causing deaths or serious injury in order to allow for proper administrative review and independent judicial control (Principle 22). It is considered good practice that such an investigation is conducted independently, or at least carried out by a unit other than the one that was involved in the incident. Should the use of force be found to have been arbitrary or excessive, measures should be taken not only with respect to individual officers but also with respect to those in command, in order to establish whether they have been negligent in preventing it. In terms of general prevention of abuse of force, the Basic Principles emphasise careful officer selection, proper training and availability of non-lethal incapacitating weapons. All these precautions arise from the notion that unlawful use of firearms should be prevented at all times.

Many countries have adopted these principles and incorporated them into their legislation. Brazil, for instance, adopted federal guidelines (Portaria Interministerial No. 4.226, of December 31, 2010) on the use of force and firearms, which should be applied by law enforcement officials according to the principles of legality, necessity, proportionality, moderation and convenience; Peru issued a law in 2015 for the purpose of incorporating

the Basic Principles (Decreto Legislativo No. 1186 published in August 2015) which enumerates the principles of legality, necessity and proportionality; and Kenya included the Principles in the Sixth Schedule of the National Police Service Act, which deals with the use of force and firearms.

Against this normative background, the practice of actual use of firearms by police around the world is diverse and often quite distant from the abovementioned standards. Human rights groups such as Amnesty International and Human Rights Watch accuse police in various countries of committing extra-judicial killings and of being notoriously unable or unwilling to investigate such cases properly. Unlawful killings are often attributed to technical (lack of training or equipment) or organisational (lack of effective oversight) shortcomings. In some countries, extra-judicial killings are the outcome of a more or less deliberate tendency to exercise a punitive style of policing; this is particularly prevalent in contexts where the criminal justice system is inefficient, or perceived to be so, leading to police taking justice into their own hands and intentionally killing suspects rather than taking them to court.<sup>4</sup> This punitive aggressive style of policing is sometimes condoned or even stimulated by members of the public, when they share the lack of confidence in the criminal justice system. In Brazil, for instance, a national survey conducted by the Federal Secretary of Human Rights concluded that 44% of the population agreed, to some degree, with the sentence that 'a good criminal is a dead criminal'.<sup>5</sup> In Rio de Janeiro, police commander Marcus Jardim declared in 2008 that the Military Police could be conceived as 'the best social insecticide' whose task would be to get rid of those individuals who are allegedly detrimental to society.<sup>6</sup>

Countries where police regularly resort to the use of firearms are, almost by definition, also countries where independent investigations of such incidents are deficient or non-existent and reporting requirements are minimal. In such contexts, it often suffices for a police officer to say that the use of firearms was needed because the suspects carried firearms. Hence, due to the absence of an independent review mechanism it is impossible to know whether the use of force was based on lawful grounds or whether it could have been avoided. Assessing the lawfulness of the use of force, and particularly the use of firearms, requires a thorough, independent investigation, which in practice often does not take place at all, or is jeopardised because police fail to secure the scene of the incident or otherwise fail to cooperate in the investigation. Sometimes, police officers even actively seek to avoid such an investigation, for example by not reporting their use of force, by tampering with the evidence at the scene of the incident, or by harassing or intimidating witnesses and investigators.

In the absence of effective administrative or judicial mechanisms to hold the police accountable for their use of force, Chevigny proposed several indicators in order to evaluate overall use of force, rather than separate incidents, and to assess whether overall use of force is 'excessive'.<sup>7</sup> Such indicators include the ratio of suspects killed to police officers killed in shootouts; the ratio of suspects killed to suspects injured; and the proportion of total homicides due to police interventions. Each of these indicators has its own challenges.

Given that police officers are trained, tend to work in groups and often carry protective gear, the number of suspects killed is expected to exceed the number of police officers killed in shootouts. Yet, when the imbalance is very high, this is a sign of excessive use of force. Chevigny<sup>8</sup> argues that for the United States overall, a ratio of roughly 7:1 is to

be expected and that when it is much higher in a certain country, this is an indication that police in that country use excessive force which is employed for purposes other than the protection of life.

Second, whenever police resort to using a firearm, they should do so attempting to avoid loss of life, even when taking life would be legally acceptable. So, even when police officers use firearms, there should be more people injured than killed. This is sometimes referred to as the 'lethality index' that results from dividing the number of dead suspects by the number of wounded suspects, by firearm, in armed encounters with the police.<sup>9</sup> Its value should be below one if one is to discard the possibility of excessive use of force by state agents. Values over one, meaning more people are killed than injured, are considered to be strong indications of excessive use of force and of the occurrence of summary executions by police officers.<sup>10</sup>

Third, given that police should only use firearms in order to preserve life, it would be troubling to find that a significant proportion of homicides in a certain area are due to police interventions. Cano<sup>11</sup> compared the values in several countries and established that in cities where there were no allegations of excessive use of force by the police, the proportion of homicides attributed to police actions did not exceed 5%; and in cities where there were allegations of police committing summary executions, it reached 10% and above.

## 2. Explaining police reliance on force

Research on excessive use of force by police is limited and relatively recent. Police abuse of force is attributed to a wide variety of factors, which can be classified in different ways, either focusing on the characteristics of the particular incident in which force was applied, to structural elements or to organisational factors.

With regard to incident-based research, Klahm and Tillyer reviewed 28 multivariate studies published in peer reviewed journals between 1995 and 2008 and identified 212 variables potentially associated with the intensity of use of force, clustered in categories related to either offender, encounter or officer characteristics.<sup>12</sup> The authors found that 'few suspect and encounter characteristics are highly influential in determining use of force by police',<sup>13</sup> that most variables are poor predictors (including the officer's gender and race, and whether there were other citizens present) and that findings are mixed (this applies, for example, to the race or ethnicity of the suspect, suspect gender, suspect age and presence of a weapon).

Clark studied police violence in the metropolitan area of São Paulo. Apart from the obvious possibility that individual police officers respond to the level of aggression that they themselves suffer in particular incidents, he entertained other more structural explanations to account for police violence.<sup>14</sup> The first conceives police violence as a tool that officers apply in order to contain crime by any means necessary, and he refers to measures such as the lethality index, discussed above, to assess the levels of violence employed for this purpose. The second is that police use of force happens in response to the levels of (violent) crime in the area, such as assault and violent robbery. Interestingly, Clark found no support for the so-called 'threat models', despite findings by others<sup>15</sup> that police violence is used by the police against certain social groups that are perceived as a

threat to social order or to the elites: the poor, the marginalised, and ethnic and other minorities.

Another group of theories focuses on organisational factors, where police violence is explained as resulting from organisational policy and procedures or the lack thereof. Smith splits these theories into two: those explaining police violence as the result of lack of professionalism (most notably supervision, training and entry education requirements); and those focusing on the absence of efficient bureaucratic controls, such as accountability mechanisms.<sup>16</sup> Note that it is these type of measures, aimed at enhancing accountability, that human rights organisations generally advocate for, such as reporting and recording procedures, mandatory review of shooting incidents and internal or external oversight. Smith did find support for the hypothesis that the establishment of restrictive policies leads to fewer police killings.<sup>17</sup> He suggested, however, that this might have a limited effect, in that such policies would only work to a certain extent, after which the impact of community violence would take a more important role. As such, he combined theories focusing on structural factors with those based on organisational factors, exploring four hypotheses to account for police killings in cities in the USA: (a) reaction to violence in the environment; (b) response to groups seen as threats by society or by the ruling elite (the 'threat theory'); (c) the quality of police training; and (d) the existence of institutional controls for the use of force. This work reflects the difference between scholars and practitioners who tend to see excessive use of force as a problem of training and monitoring, i.e. as a 'technical deficiency', and others who think abuse of force fulfils certain social and institutional roles so that no amount of training could effectively eliminate it. For instance, authors inspired by a Marxist paradigm tend to consider police an instrument of class oppression, serving the elite and maintaining the status quo.

Most studies seeking to explain the use of force, as reported in journals on policing, have been carried out in the USA, and their results may not be easily extrapolated to other cultural, political, historical and economic contexts. In countries like Brazil and Argentina, which underwent long periods of dictatorship in the second half of the twentieth century, several authors interpret police abuse of violence as a lingering consequence of authoritarian times and as a signal of incomplete processes of democratisation.<sup>18</sup> Glanc found that violence was used frequently and systematically as a result of institutional shortcomings and a permissive operational culture, and concluded that 'the institutional background and legal framework of the police enabled the force to move within a framework fertile to the generation and reproduction of violence'.<sup>19</sup>

In Africa, on the other hand, excessive use of police force is often interpreted as proof that the police have failed to decolonise (see for example Ruteere on Kenya; Tankebe on Ghana).<sup>20</sup> Furthermore, Tankebe argued that police in Ghana acquire legitimacy from factors other than those found in Anglo-American studies and that legitimacy is based on a utilitarian rationale regarding (expected or perceived) effectiveness.<sup>21</sup> Beek and Göpfert, for their part, carried out ethnographic fieldwork with police in Ghana and Niger and found that managers would be sufficiently vague in their instructions so that these could be interpreted as permitting the use of (excessive) force, while at the same time allowing them to distance themselves from it when needed.<sup>22</sup> However, the force used was rarely lethal and did not usually involve the use of firearms.

Most studies opt to work either on an individual (officer) level or at an organisational or structural level. Yet some studies attempt to incorporate more than one level. For instance,

Magaloni and Cano studied the use of lethal force by police officers in Rio de Janeiro<sup>23</sup> and found, beyond the individual profiles associated with a higher or lower use of force, that officers whose superiors rewarded them for apprehending drugs tended to use more force, which is attributed to the power of the 'war on drugs' model, to elicit and amplify use of force.

### 3. Objectives of this study

This paper has two main objectives. The first is descriptive and attempts to show how deaths as a result of police use of firearms, measured in rates per 100,000 inhabitants, are distributed around the world. It should be noted that data in this area is scarce and fragile, as will become apparent in later sections, so we must consider this a preliminary exploration of the field with the intention of encouraging more research and the demand for better information.

In addition, this study intends to explore to what extent police killings are correlated with violent crime, not on incident-level, but rather to assess overall use of firearms. In fact, this correlation is an indirect test, at an aggregated level, of the principle of proportionality. This paper uses homicides in general and firearm homicides in particular as an indicator of violent crime, which could be considered a parallel phenomenon to deaths caused by police use of firearms.<sup>24</sup> Thus, we can relate deaths caused by the police to deaths caused by others.

If firearms are used by police officers in proportion to the threat encountered, we can expect a strong correlation between rates of deaths due to police intervention in every country and homicide rates, especially firearm homicide rates.<sup>25</sup> Thus, if a country experiences high levels of violent crime, and particularly if armed violence is common, police can be expected to make more use of firearms, whether in order to protect themselves and others or simply because it may have become more normalised to do so, in comparison to countries experiencing lower levels of armed violence. The correlation between these rates is not likely to be perfect, given that prevailing violence is not the only cause of police violence, but it should be quite high. If, on the other hand, the correlation between both rates is low, this means police use of firearms is unrelated to the level of violence they (may) encounter. In short, a strong correlation could be taken to mean that the sum of the level of violence used by police, is related, and indeed proportional, to the sum of violence they encounter. As such, this could be taken as an aggregate measure of proportionality.

However, this analysis does not assess the lawfulness of police violence in any particular incident nor the necessity or proportionality of use force in each incident, i.e. whether the use of firearms was necessary to protect life and proportional to the specific threat in that incident, as this would require analysing the specific situations in which the firearms were used, which is beyond the scope of this study.

### 4. Methodology

In order to collect data on the number of people killed by police use of firearms, we used three strategies. The first was to extract data from the (few) international studies available. The second was to use publications and reports issued by police oversight bodies



containing such information. In some cases, statistics were provided by civil society groups and academics rather than by the authorities. And third, we contacted police officers and police institutions, requesting data for the study, both in order to acquire new data and to corroborate the information already obtained. Our aim has been to ensure the data is as reliable as possible: whenever possible statistics have been checked against alternative sources and through correspondence with experts (police officers, academics and independent actors). Obtaining reliable data turned out to be a huge challenge, as many police agencies either do not keep the information or are unwilling to share it.

We used the last year for which we found available data. In some cases, sources contained annual data based on an average of a number of years. As such, the data should be regarded as giving an indication of the volume of killings but some range of imprecision is to be expected.

Data about homicides was obtained from the UNODC 'Global Study on Homicide 2013'.<sup>26</sup> The data in the UNODC study run until 2012, which is the year we have used for all the countries, apart from Australia where we used the data from 2011, because that is also the last year we have data on police killings. For England and Wales, given that the UNODC study covers the United Kingdom as a whole, data was obtained from the British Office for National Statistics for the year 2015.<sup>27</sup> Firearm homicides were estimated based on the data provided by the UNODC report (the report gives the total number of homicides and the percentage of homicides committed by a firearm; with these figures we estimated the number of firearm homicides). In the case of Brazil, for which the UNODC homicide report does not have the proportion of homicides committed with firearms, we obtained this figure from the Ministry of Health's data on homicides, which is based on death certificates.<sup>28</sup>

National population data was obtained from the United Nations Department of Economic and Social Affairs, Population Division,<sup>29</sup> which has a population estimate by country by year. We chose the closest year to the one for which violence data was available in order to estimate the rate.

## 5. Data considerations

For this study, we considered deaths that resulted from police use of firearms. The focus on deaths rather than serious injuries is because death is concrete and much simpler to determine than the evaluation of the severity of injuries. Moreover, protecting (the right to) life should be the priority of law enforcement. Finding data about deaths as a result of police use of firearms has been very challenging, as noted above, yet data on injuries due to police interventions is even harder to come by.

We focused on deaths that resulted from police use of firearms, regardless of whether the police action was lawful, unlawful or simply accidental. This is for two main reasons. First, as a matter of principle, police should at all times try to prevent death whenever they have to intervene, since police ought to protect life in all circumstances. Second, data does not always distinguish between the different categories (legal, illegal or accidental) and even when it does, there may be doubts as to the validity of this attribution since there is not always an independent investigation to establish the facts of the incident. Hence, for our study we do not know whether the police use of firearms was justified or not, nor do we know the situation in which it took place or the profile of the victims. As



such, it should be noted that this study does not measure extra-judicial killings, or unlawful killings. Rather, the focus is on all killings caused by police use of firearms, regardless of the circumstances.

We focused on data on police killings committed with firearms, since this represents an extreme in the continuum of use of force and also because it is a clear criterion for international comparison. However, we are conscious that deaths by firearms are by no means the only way in which citizens lose their lives in relation to action or inaction by law enforcement officials. For example, the Independent Police Investigative Directorate in South Africa (IPID) reported that 640 people lost their lives as a result of police action in the 2014/15 financial year, of whom 396 died as a result of police action and the other 244 died in custody (two of whom were shot with a service firearm prior to being taken into custody).<sup>30</sup> Of the 396, 305 died after they were shot with a service firearm; of the others, 38 died as a result of traffic accidents, 17 were shot by police but with a private firearm and 14 deaths were categorised as suicides. The remaining 22 died due to 'assault'.

England and Wales presents an even more extreme example. The Independent Police Complaints Commission (IPCC) reported that only one of the 142 deaths associated with law enforcement in the 2014/2015 financial year was due to gunshots.<sup>31</sup> Of the others, 14 were road traffic fatalities, 17 deaths in or following police custody, 69 were apparent suicides following police custody<sup>32</sup> and there were 41 other deaths following police contact that were subjected to an IPCC independent investigation.

Available data generally fails to show whether firearms were used while the officer was on- or off-duty and also whether the firearm involved was provided by the institution or was a private firearm (South Africa is an exception to this: IPID does distinguish between deaths by service or private firearms). It would be very interesting to differentiate between these circumstances but unfortunately most countries have no such information.

Statistics shown in [Table 1](#) refer to deaths that occurred as a result of police use of firearms. They do not reveal whether these people died immediately or at a later point in time (for example, a victim who was injured as a result of the shooting and died the next day). To illustrate this, India reported 41 people who lost their lives and 104 people who were injured as a result of police firearms. However, some of these 104 may have died at a later moment as a result of the shooting. Some countries include deaths when they occur within 24 or 48 hours following police action (for example England and Wales), but others do not.

We included all deaths resulting from the intervention of police forces, even when in some cases they may have been engaging in counterinsurgency or otherwise war-like activities. However, no victims of interventions by armies or military organisations were contemplated.

Another relevant observation is that national figures often blur wide variations within the country in the number of deaths resulting from police action. For example, according to Bruce the province of Kwazulu-Natal accounted for 35% of all police killings in South Africa from 2008 to 2011, whereas it accounted for only 20% of the country's population.<sup>33</sup> Likewise, the prevalence of lethal use of force in Brazilian states such as Rio de Janeiro and São Paulo tends to be well above the national average.

Also, the data does not give information about who exactly is responsible for the deaths. In many countries some police units are notorious for their killings, whereas others will probably seldom use their firearms. For example, Bruce suggested that killings in

**Table 1.** Number of people killed by police use of firearms, by country.

	Deaths as a result of police use of firearms	Population	Year	Source
England and Wales	2	56,171,000	2011	IPCC report over 2011/2012. <sup>a</sup>
	1	57,885,400	2014/15	IPCC report over 2014/2015. <sup>b</sup>
India	107	1,295,291,543	2014	National Crime Record Bureau, 2015; Government of India, Ministry of Home Affairs, 2015. <sup>c</sup>
Germany	6	80,424,665	2011	Timmer and Pronk (2011).
	10	80,688,545	2015	CILIP data, for 2015, of intentional use of firearms. <sup>d</sup>
Australia	6	22,542,371	2011	Australian Institute of Criminology (2013). <sup>e</sup>
Chile	8	17,762,647	2014	Carabineros de Chile. Policía de Investigaciones. <sup>f</sup>
	15	17,948,141	2015	Carabineros de Chile. Policía de Investigaciones.
Russian Federation	197	143,456,918	2015	Rusebola website. <sup>g</sup> Note that this figure includes deaths in prisons and detention centres, so the real number should be lower.
USA	1,000	321,773,631	2015	Various sources, see note. <sup>h</sup>
South Africa	331	54,490,406	2014/15	IPID annual report 2014/2015.
Brazil	3,022	206,077,898	2014	Forum Brasileiro de Segurança Pública. <sup>i</sup>
Jamaica	115	2,793,335	2014	INDECOM statistics 2014 (press release). <sup>j</sup>
	98		2015	INDECOM press release. <sup>k</sup>
El Salvador	320	6,127,000	2015	El Faro newspaper, from official police sources after a request under the Freedom of Information Act. <sup>l</sup>

<sup>a</sup>IPCC, Annual Report and Statement of Accounts 2011/12 (London: IPCC, 2012); Jaap Timmer and Guido Pronk, 'Comparing [sic] of Police Use of Firearms in the EU', in *Eigensicherung & Schusswaffeneinsatz bei der Polizei. Beiträge aus Wissenschaft und Praxis* 2011, ed. Clemens Lorei (Frankfurt: Polizei und Wissenschaft, 2011), 181–92. Timmer and Pronk find a similar number as an average from 1995 to 2005.

<sup>b</sup>IPCC, *Deaths During or Following Police Contact*, 3.

<sup>c</sup>National Crime Record Bureau, *Crime in India 2014* (New Delhi: Ministry of Home Affairs, 2015), <http://ncrb.nic.in> (accessed 22 October 2016); Ministry of Home Affairs, *Annual Report 2014–15* (New Delhi: Government of India, 2015). The National Crime Record Bureau is an independent government body, releasing annual reports online (<http://ncrb.nic.in>), where all statistics can be found. The official police statistics for 2014 refer to 41 killings. This seems quite low, compared to the size of its population and indeed the data may be incomplete, as not all police stations send in their statistics. Upon contacting a retired senior Indian police officer to check the validity of the data, we were informed that the reason for the low figure might be that firearm use in India is generally low, both by offenders as well as by police. In crowd control or criminal arrest situations, a large majority of police involved may not be carrying firearms. This is not to say use of force is low, but that it tends not to be fatal. In addition to the 41, the Ministry of Home Affairs in their annual report for the 2014/15 financial year, reports that the 'Central Reserve Police Force' have killed 66 Maoists/Militants (137), which we have added to the 41, hence the total number of 107. The number does not include the use of firearms by military and para-military forces engaged in anti-insurgency operations or anti militancy operations.

<sup>d</sup>Otto Diederichs, 'Polizeiliche Todesschüsse 2015', *Bürgerrechte & Polizei/CILIP*, No. 111 (Oktober 2016), <http://www.cilip.de/zeitschrift/2015-2019/2016-2/111-oktober-2016-die-neue-fremdenpolizei/> (accessed 21 October 2016). CILIP, an independent website ([www.cilip.de](http://www.cilip.de)) and research collective that reports on the police and secret service, internal security and civil rights, provided us with the statistics of police deaths as a result of intentional use of firearms from 1963 to 2015 (Diederichs, 'Polizeiliche Todesschüsse 2015'). The highest was 23 deaths (1983); the lowest was one (1967). Over the past 10 years (from 2006 to 2015), the highest number has been 12, the lowest 5; the mean is 8 per year. This is somewhat higher than the study done by Timmer and Pronk, *Comparing of Police Use of Firearms*, 190, which provided the data over 1995 to 2004.

<sup>e</sup>Australian Institute of Criminology, 'Police Shootings of People with a Mental Illness', *Research in Practice*, no. 34 (Canberra: Australian Institute of Criminology, May 2013). Timmer and Pronk, 'Comparison of Police Use of Firearms', find the same number on average over 1990 to 2004.

<sup>f</sup>The figure for Chile contains data both for the Military Police (Carabineros de Chile) and for the Investigation Police 'Policía de Investigaciones', compiled by the 'Ministerio del Interior y Seguridad Pública', obtained by the authors after a specific official request.

(Continued)

**Table 1.** Continued.

<sup>9</sup><http://rusebola.com/statistics/> (accessed 4 April 2017).

<sup>h</sup>There is sufficient information to take an average of 1,000 deaths per year as a reliable figure:

- (1) Duren Banks et al., *Arrest-Related Deaths Program Assessment: Technical Report* (Washington: US department of Justice, Bureau of Justice Statistics, NCJ 248543, March 2015); Carl Bialik, *A New Estimate of Killings by Police is Way Higher — And Still Too Low, FiveThirtyEight*, 6 March 2015, <http://fivethirtyeight.com/features/a-new-estimate-of-killings-by-police-is-way-higher-and-still-too-low/#fn-2> (accessed 21 October 2016); Patrick Ball and Kristian Lum, *BJS Report on Arrest-Related Deaths: True Number Likely Much Greater*, Human Rights Data Analysis Group, 4 March 2015, <https://hrdag.org/2015/03/04/bjs-report-on-arrest-related-deaths/> (accessed 22 October 2016). The Bureau of Justice Statistics of the US department of Justice stated in a technical report released in March 2015 that, based on their research, probably around 927 people lose their lives in 'arrest related deaths' per year (Banks et al., *Arrest-Related Deaths*). The report does not specify how these people die, but does state: 'The vast majority of all law enforcement homicides resulted from a firearm, with no difference in the proportion of homicides resulting from other means (e.g. other weapon) across data sources' (21). Bialik, *A New Estimate of Killings*, refers to correspondence with one of the authors of the BJS report who stated that the real number is likely to be in the range of 1,240 deaths a year 'if you assume that local law enforcement agencies that don't report any killings have killed people at the same rate as agencies that do'. Also, the Human Rights Data Analysis Group wrote a critique of this report, arguing that the number must be much higher: 'the estimated annual average of 928 police homicides per year should be understood as a bare minimum. The true number is likely to be much greater': Ball and Lum, *BJS Report on Arrest-Related Deaths*.
- (2) The *Washington Post* is compiling a database of all fatal shootings by the police in the USA. According to this source 987 people were fatally shot by the police in 2015. See: <https://www.washingtonpost.com/graphics/national/police-shootings/> (accessed 4 April 2017).
- (3) The Guardian U.S. started a project named 'The Counted', with the aim of (according to their website) 'working to count the number of people killed by police and other law enforcement agencies in the United States throughout 2015, to monitor their demographics and to tell the stories of how they died'. The Counted reports there were 1,139 deaths in 2015; these deaths include deaths caused by means other than firearms. See: <http://www.theguardian.com/us-news/ng-interactive/2015/jun/01/the-counted-police-killings-us-database> (accessed 21 October 2016). For 2016, up to 21 October 2016, the *Guardian* counted 865 deaths.
- (4) Note that with regards to the USA, Timmer and Pronk, 'Comparison of Police Use of Firearms', have much lower statistics, but thanks to enhanced scrutiny following several killings that attracted massive media attention, it is now clear that the USA has a serious underreporting problem, as shown for example by the project by the *Guardian* (see above), which is now acknowledged by the authorities. See for example Tom McCarthy, Jon Swaine and Oliver Laughland, 'FBI to Launch New System to Count People Killed by Police Officers', the *Guardian*, December 9, 2015, <https://www.theguardian.com/us-news/2015/dec/09/fbi-launch-new-system-count-people-killed-police-officers-the-counted> (accessed 21 October 2016).

<sup>i</sup>Fórum Brasileiro de Segurança Pública, *Anuário Brasileiro de Segurança Pública 2015* (São Paulo: Fórum Brasileiro de Segurança Pública, 2015), [http://www.forumseguranca.org.br/storage/9\\_anuario\\_2015.retificado\\_.pdf](http://www.forumseguranca.org.br/storage/9_anuario_2015.retificado_.pdf) (accessed 1 March 2017). The figures provided are compiled from all 27 Brazilian states by *Forum Brasileiro de Segurança Pública*, a Brazilian NGO, through the use of Freedom of Information Act official requests. Even though the figures do not specify the instrument through which the deaths occurred, it is safe to assume that an overwhelming majority of them occurred through gunfire.

<sup>j</sup>INDECOM, *Statistics 2014*, February 4, 2015; INDECOM, 'INDECOM's Statistics on Security Force Related Fatalities – 2013', released 14 January, 2014, <https://www.facebook.com/INDECOMJAMAICA/posts/921888184502395> (accessed 4 April 2017) (accessed 22 October 2016). Note that all data is from The Independent Commission of Investigations (INDECOM) and is based on reports by the public and the police. INDECOM claims there have been no incidents that the police failed to report. The numbers dropped from 2014 onwards. In 2013 there were still 258 deaths.

<sup>k</sup>INDECOM, 'JCF-Involved [sic] Fatal Shootings Below 100', press release January 27, 2016, <http://www.indecom.gov.jm/test/Press%20Release%20-01-27-2016.pdf> (accessed 22 October 2016). The statistical report refers to 101 deaths, but three of these were related to the Jamaica Defence Force and 98 to the Jamaica Constabulary Force.

<sup>l</sup>Roberto Valencia, 'Casi que Guardia Nacional Civil', *El Faro*, October 3, 2016, <http://www.elfaro.net/es/201610/salanegra/19277/Casi-que-Guardia-Nacional-Civil.htm> (accessed 1 March 2017). Data for El Salvador was obtained by the newspaper *El Faro* through an official request based on the Freedom of Information Act (Valencia, 'Casi que Guardia Nacional Civil'). Such data refers only to the deaths of 'pandilleros', i.e. members of organised criminal groups. Yet they are widely considered to be the vast majority of all deaths due to police intervention and they are, practically all of them, committed with firearms.

KwaZulu Natal were largely committed by certain members of the Organised Crime Unit, acting as a *de facto* covert 'death squad'.<sup>34</sup> As an Independent Complaints Directorate (ICD) investigator told Bruce:

the typical organised crime shooting [...] involved going into a house; if there was a potential witness in the house, the witness would be taken outside. Then the suspect would be taken to a bedroom, where he would be reported to have 'gone for his firearm' – and be shot.

An additional piece of information that would have allowed a deeper understanding of police use of force is the number of incidents in which these deaths took place, since a high number of casualties resulting from a few episodes clearly is a different scenario than if one has the same number of deaths but in a high number of incidents. The former would be more indicative of abuse of force than the latter. Unfortunately, information on the number of incidents is seldom available.

Another troubling methodological challenge for this kind of research is that there is probably a difference in reporting discipline across countries. A reasonable hypothesis would be that countries where police use of lethal force is intensive or excessive will be less inclined to report such deaths and injuries and hence tend to have less reliable statistics.<sup>35</sup> In addition, those countries with lower levels of force tend to have active independent media and it may be less likely that a police killing goes unnoticed. Should these hypotheses turn out to be true, this would artificially deflate real differences between countries so that the real gap would in fact be even higher than available data might show. In Nigeria, for example, a report by the Open Society Justice Initiative (OSJI) and the Network on Police Reform in Nigeria (NOPRIN) refers to a statement by the acting Inspector General (IGP), Mr Mike Okiro, who rather proudly reported that the police had killed 785 individuals in his first one hundred days as IGP, apparently believing this was an indication of their hard work and effectiveness. This would translate into a yearly estimate of 2,865 police killings for Nigeria.<sup>36</sup> However, official police data as released in the police annual reports claims that police killed between 252 and 857 people a year, from 2005 until 2009. A similar phenomenon is seen in Kenya, where police heavily under-report their use of force, even though there is statutory duty to do so under both the Independent Policing Oversight Authority Act as well as the National Police Service Act.<sup>37</sup> Over the first six months of 2015, the Independent Policing Oversight Authority (IPOA) reported having received nine notifications from the police about police killings, whereas the Independent Medico-Legal Unit, an independent NGO working on extra-judicial killings and torture, reported that police killed 199 people in 2014 and 126 in 2015.<sup>38</sup> Yet even those numbers are likely to be a strong underestimation (Osse and van Stapele found that the Kenyan media report an average of roughly 300 deaths, caused by police use of firearms, per year).<sup>39</sup>

In general, the suspicion that official police-generated data may underestimate the number of people killed by police is well founded, for while there may be strong motives for the police not to report all the deaths they cause, there is, on the other hand, no good reason why they would want to over-report their use of force.<sup>40</sup> In many countries it seems fair to assume that individual police officers may be tempted not to report their use of force because they are aware that if they do, this may set off an accountability trail, i.e. their actions might be subjected to an investigation to determine whether the force applied was excessive, arbitrary or otherwise unwarranted, which might in turn

lead to disciplinary or penal consequences. Indeed, Bruce suggests that when police can be fairly confident that they can get away with not reporting, they are likely to opt not to do so.<sup>41</sup> This reasoning could also be applied to the senior leadership: if the true numbers of fatal shootings were to be known, this might lead to questions about police professionalism and, hence, the quality of police leadership. In fact, it is not uncommon for human rights organisations to document cases where police actively sought to cover up their killing or somehow alter the evidence.<sup>42</sup>

A final word of caution concerns the statistics with regards to homicides. Just as there may be a wide variation within countries with regards to police killings, there may equally be a wide variation within countries with regards to homicides. This study ignores those variations as we often simply do not have the data for different localities within a country.

It is also possible that countries under-report the number of homicides happening in their countries, just like they might under-report police killings, whether to deliberately deflate the statistics, or simply as a result of bad record-keeping. Yet, similarly to what was argued with respect to police killings, it is less likely that countries would over-report homicides, as there is simply no incentive to do so. In any case, under-reporting, if it occurs, should not necessarily have an impact on the correlation between police killings and homicides, as both numbers would most likely be under-reported.

## 6. Results

**Table 1** summarises the data on people killed by police use of firearms for every country for which we were able to gather reliable figures, together with the corresponding population. Countries are ordered according to the number of killings, compared to their respective populations, from the lowest to the highest.

**Table 2** shows the data on killings caused by police use of firearms, and overall killings caused by firearms ('gun homicides'), together with corresponding rates and the proportion of the former over the latter. We present the last year for which it was possible to obtain full information on both phenomena.<sup>43</sup>

In **Table 1** we have sometimes given data for more than one year. For **Table 2** however, we have only used the data for the last year available. The fifth column of **Table 2**, 'Rate of firearm police killings by 100,000 inhabitants', allows us to see how the different countries compare when it comes to people losing their lives as a result of police use of firearms (we have ranked the countries from lowest to highest). The seventh column, 'Homicide rate by 100,000 inhabitants', allows us to compare levels of lethal violence, that is people killed by someone other than a police officer.<sup>44</sup> The eighth column looks at homicides using a firearm. As we can see, in some countries most homicides are committed with a firearm (for example, Brazil and Jamaica, but also El Salvador and USA) but in others people are killed using various other means (for example, in England and Wales, and also in India, only a small number of all homicides are committed using firearms).

The last column gives insight into the proportion of deaths by a firearm that was caused by a police officer. In order to calculate this proportion, firearm homicides and police firearm homicides are added and the proportion of the latter is calculated from this total. As we can see, in El Salvador, 17% of all killings using a firearm are carried out by police, whereas in England and Wales and India this figure is around 3%. The USA, Jamaica, Australia and, particularly, El Salvador are above the 10% threshold, which is

**Table 2.** Homicides, firearm homicides and people killed annually by police use of firearm, by country.

	Country	YEAR	Number of people killed annually by police use of firearms	Rate of firearm police killings by 100,000 inhab.	Number of Homicides	Homicide Rate per 100,000 inhab.	Percent of Homicides Committed with firearms (%)	Estimated Number of Firearm Homicides	Firearm Homicide Rate per 100,000 inhab.	Proportion of firearm homicides due to police intervention (%)
1	England and Wales	2014/2015	1	0.002	534	0.92	7	37	0.06	3
2	Germany	2011	6	0.007	662	0.82	24	159	0.20	4
3	India	2014	107	0.008	43355	3.35	7	3035	0.23	3
4	Australia	2011	6	0.027	244	1.08	17	41	0.18	13
5	Chile	2014	8	0.045	550	3.10	27	149	0.84	5
6	Russian Federation	2015	197	0.137	13120	9.15				
7	USA	2015	1000	0.311	14827	4.61	60	8896	2.76	10
8	South Africa	2014/15	331	0.607	16259	29.84	33	5365	9.85	6
9	Brazil	2014	3022	1.466	50108	24.32	75	37561	18.23	7
10	Jamaica	2014	115	4.132	1087	39.05	70	761	27.34	13
11	El Salvador	2015	320	5.223	2594	42.34	62	1608	26.25	17

an indication of excessive use of force, as discussed in the introduction. Brazil and South Africa score under the 10% threshold.

## 7. Discussion

The first and obvious conclusion is that international data on the lethal outcome of police use of firearms is lacking, given that only a handful of countries provide such information in the public domain. Indeed, in some cases it was only possible to access data through specific requests. Clearly, figures on police killings should be available to the public so that the phenomenon can be monitored. This lack of transparency may be attributed either to the deficiency of appropriate information systems and procedures to record and process incidents in police institutions, or to a deliberate effort to avoid scrutiny, or both.

In fact, many countries that have been accused by human rights organisations of excessive use of force publish no relevant information on that issue. If, as authorities argue, the deaths of suspects occur as a result of legal and proportionate response of law enforcement officers against crime, then one would expect them to release the relevant information willingly. However, advocates of tough policing are often opposed to public accountability and indeed, it tends to be human right groups and civil society who demand scrutiny and occasionally decide to count police killings themselves. In the USA, for instance, it is precisely the evidence accumulated by civil society and the media, that has forced authorities to admit that official figures involved a major underestimation of the phenomenon.

Table 2 contains data from some countries with low homicide rates, such as European countries and Australia, others with medium rates, such as India, the USA and Russia, and a few with high rates, like Brazil, South Africa, Jamaica and El Salvador. Likewise, rates of people killed by police also vary enormously, with several low figures (below 0.1 per 100,000 inhabitants), some mid-rates (between 0.1 and 1) and a few high rates. It should be noted that in some countries the number of people killed by police per 100,000 inhabitants exceeds the overall homicide rate in other countries.

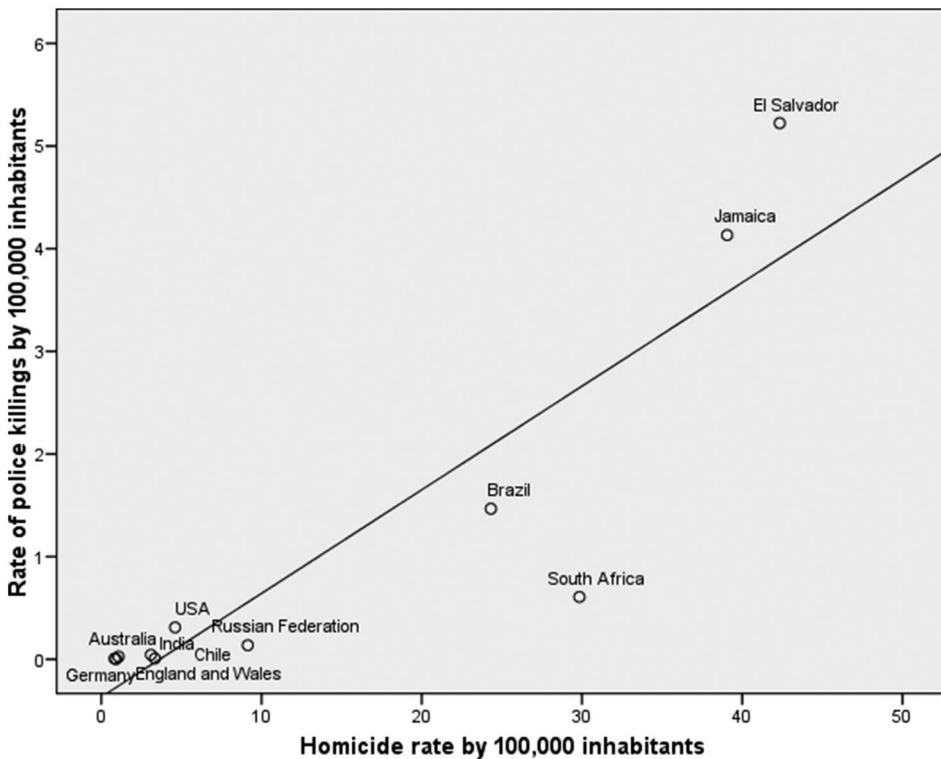
Indeed, the correlation between both rates is high, i.e. countries with high homicide rates also tend to be countries with high police killing rates. The Pearson correlation between both indicators, even though the number of cases is too low for a reliable estimate, is equal to 0.890, i.e. very high.<sup>45</sup>

Figure 1 presents the correlation, as it shows how countries are displayed according to both indicators, one in each axis. It can be observed that Jamaica and particularly El Salvador have a very high police killing rates, even when compared to their, also very high, homicide rates. In geometrical terms, these countries are above the linear regression line,<sup>46</sup> i.e. the line that represents the relationship between both dimensions.

In short, there is a strong correlation between police killing rates and homicide rates, which seems to support the hypothesis that police violence is closely related to prevailing violence in the country.

If, rather than overall homicides, we match police firearm killings to firearm homicides, the comparison might become more precise and we could expect an even stronger correspondence between both dimensions. The problem, however, is that firearm homicides, unlike total homicides, were estimated rather than counted (as was explained above), and as a result, are somewhat less reliable than the overall homicide rates. Also, we lose





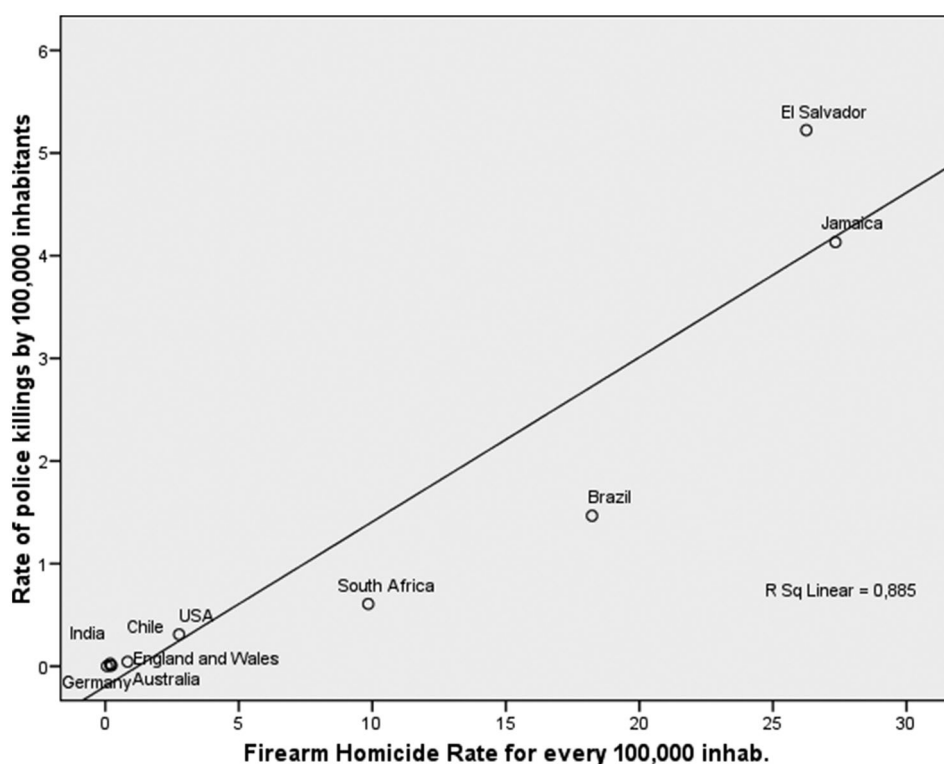
**Figure 1.** Police firearm killing rates against homicide rates, by country.

the Russian Federation for this analysis since we do not have that proportion for that country.

Figure 2 shows police firearm homicides against overall firearm homicides.

In this case, the correspondence between both dimensions appears to be, as predicted, even higher than before. Indeed, the Pearson coefficient between both variables goes up to 0.941, i.e. is almost perfect.<sup>47</sup> El Salvador remains well above the regression line, which means that the level of police killing in that country is higher than would be expected from its (already very high) firearm homicide rate.

However, there is another way to assess police killings, which is to analyse the proportion of police firearm killings within the overall number of firearm killings, as shown in the last column of Table 2. We can see, despite the caveats that apply as a result of the fragility of the data, that there are some countries where this proportion is quite high, and above the 10% threshold referred to above. According to Cano, cities with no complaints of excessive use of force tended to reveal values not higher than 5%,<sup>48</sup> so these values indicate that El Salvador, Jamaica, the USA and – somewhat surprisingly – Australia, are very high. With regards to Australia, this country scores as high as it does because its homicide rate is relatively low (in the range of Germany and England and Wales), so, in proportion, the number of people killed by police use of firearms is on the high side. If overall firearm homicides are very few, then we would expect a very low number of police killings (such as in Germany and in England and Wales) and that does not happen in Australia.<sup>49</sup>



**Figure 2.** Police firearm killing rates against firearm homicide rates, by country.

In short, several indicators reveal that Jamaica, and particularly El Salvador, are countries with consistent signs of excessive use of police force. On the other hand, based on the indices applied, South Africa and Brazil seem to be less problematic than may have been expected. One reason for this may be found in the geographical variation in police use of force within these countries. So, while there are areas in these countries where use of force is very low, in others it is excessively high. For example, in Brazil, Human Rights Watch reported that police have killed 8,000 people in the last 10 years in Rio de Janeiro alone, on average 800 a year, which translates into a quarter of all killings in the country, whereas Rio's population represents less than a tenth of the entire population of Brazil.<sup>50</sup> At the same time, we know that for those areas the number of homicides is high as well, which in fact confirms our hypothesis. For future studies it would be useful to study the data, both homicides as well as police killings, for those areas that are known to suffer from excessive use of police force as well as high levels of violent crime, so for example for Rio de Janeiro or São Paulo specifically, as it is likely the results would be more extreme than they are for the entire country.

As stated before, it could be argued that the statistics give an indication of whether the use of firearms by police is proportional use of force at an aggregated, macro-level, but it is by no means an evaluation of whether the force applied was proportional in that particular situation, nor does it confirm the necessity or even the legality of the force employed. There is a moral and legal obligation on the police to minimise their reliance on use of

firearms. Obviously it is not enough for police to claim, as they often do, that they must use their firearms because the ‘criminals’ do so as well. Rather, in situations involving an abundance of firearms and violent crime, police should be better trained and operationally prepared, including having access to intelligence, in order to deal with these risky situations so as to prevent an over-reliance on the use of firearms. Indeed, this should lead to a call for more and better training, for more diverse equipment including for self-defence, for acquiring useful intelligence ahead of operations, and so forth, rather than lowering the threshold to resort to the use of firearms.

Note that even though our results do find a strong correlation between homicides and police killings, they do not prove causality. We cannot say whether the police use of firearms is the direct result of high levels of violent crime, or whether there is another factor at play. For example, countries (or areas) experiencing high levels of crime may be more tolerant to police violence, and may accept lower levels of scrutiny, which in turn may lead to more frequent use of firearms by police officers. Further research is needed to test these causal links.

## 8. Conclusion

This paper aimed to explore the fatal outcomes of police use of firearms in countries from all continents. The scarcity of reliable data in this field is a serious obstacle for transparency and accountability. Hence we wish to call on police authorities to disclose their data and allow independent research as well as case-based reviews. If police use of force is indeed lawful, there should be no reason not to disclose these data. Indeed, the very fact that authorities shy away from sharing these figures feeds into the widely shared belief that police in many countries rely excessively on force and firearms and refuse to account for it. On a similar note, we kindly invite our colleagues to share any data they may have, including corrections of the data provided in this article, so that we can build a reliable database over time.

In this paper, we matched the rates of people killed by police with firearms to homicide rates and firearm homicide rates. The correlations between such rates are indeed very high, which supports the idea that police reliance on firearms is related to the violence experienced in a given country. However, there are countries such as Jamaica and El Salvador where deadly use of firearms by police is excessive, even in view of the high levels of violent crime. These countries are also flagged using a different indicator, i.e. the proportion of people who lose their lives due to police use of firearms, as a proportion of all people who are killed by firearms.

In any case, an evaluation on whether the force used was proportional in a particular incident and whether it was used in a legal or legitimate way can only be assessed by conducting an independent review of each incident of use of force and disclosing the findings afterwards. Indeed, we have to rely on such indirect indices as the ones presented, since there are serious concerns about states’ ability, as well as willingness, to investigate individual cases thoroughly in order to detect and punish abuses, and take preventative measures.

In order to know what measures to prevent excessive, arbitrary or otherwise unlawful use of force are likely to have most impact, we need to know when and why police use their firearms. Measures to address excessive reliance on firearms may target the legal

framework, to ensure it accords with international standards, or focus on organisational factors, such as training, equipment and supervision, as well as setting up mechanisms to ensure effective independent review of cases of use of force that have resulted in death or serious injury.

Nonetheless, it all starts with data. We need to be able to access data on police use of force, especially when this results in death, in order to hold police accountable, but also to learn how an over-reliance on the use of firearms, causing death and serious injury, can be avoided, including in those countries where police are confronted with excessive levels of violent crime. Comparative data may allow for police agencies to learn lessons from other jurisdictions. Police should make a constant effort to prevent loss of life, at all times. This can best be done through an open debate about when and why police use force.

## Notes

1. Adopted by General Assembly Resolution 34/169 of 17 December 1979.
2. Adopted by the 8th UN Congress on the Prevention of Crime and the Treatment of Offenders, Havana, Cuba, 27 August to 7 September 1990 and reaffirmed by the General Assembly, A/RES/45/166, during the 69th plenary meeting on 18 December 1990.
3. See for example his report of 2014: Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions, Christof Heyns. A/HRC/26/36, 1 April 2014.
4. Timothy W. Clark, 'Structural Predictors of Brazilian Police Violence', *Deviant Behavior* 29, no. 2 (2008): 85–110.
5. Ignacio Cano, 'Direitos Humanos, Criminalidade e Segurança Pública', in *Direitos Humanos: Percepções da opinião pública, análises de pesquisa nacional*, ed. Gustavo Venturi, (org.) (Brasília: DF, 2010), 65–75.
6. Malu Toledo, 'Nove morrem em ação do Bope; coronel diz que PM do Rio é "o melhor inseticida social"', *Folha de S. Paulo*, 16 April 2008. <http://www1.folha.uol.com.br/cotidiano/2008/04/392620-nove-morrem-em-acao-do-bope-coronel-diz-que-pm-do-rio-e-o-melhor-inseticida-social.shtml> (accessed 21 October 2016). Translation by the authors.
7. Paul Chevigny, 'Police Deadly Force as Social Control: Jamaica, Argentina, and Brazil', *Criminal Law Forum* 1, no. 3 (1990): 389–425, 395.
8. Chevigny, 'Police Deadly Force', 396.
9. R.M. Coupland and D.R. Meddings, 'Mortality Associated With Use of Weapons in Armed Conflicts, Wartime Atrocities, and Civilian Mass Shootings: Literature Review', *British Medical Journal* 14, no. 319 (7207), 1999: 407–10. As a comparison, Coupland and Meddings, 'Mortality', found that in wars the number of people wounded is at least twice the number killed and may be 13 times as high.
10. Chevigny, 'Police Deadly Force', 396.
11. Ignacio Cano, *Letalidade da Ação Policial no Rio de Janeiro* (Rio de Janeiro: ISER, 1997), 33. See also Chevigny, 'Police Deadly Force', 397: 'According to one estimate, 3.6 percent of all homicides in the United States in the years 1971–1975 were by police officers. I do not mean to suggest that the percentage in other countries need be that low; when the number of police killings becomes a very large percentage of the total homicide rate, however, we can infer that the police are not so much reacting to incidents within a violent society as using violence for purposes of social control.'
12. Charles Klahm and Rob Tillyer, 'Understanding Police Use of Force: A Review of the Evidence', *Southwest Journal of Criminal Justice* 7, no. 2 (2010): 214–39.
13. Klahm and Tillyer, 'Understanding Police Use of Force', 227.
14. Clark, 'Structural Predictors', 85–110.
15. Michael J. Mitchell and Charles H. Wood, 'Ironies of Citizenship: Skin Color, Police Brutality, and Challenge to Democracy in Brazil', *Social Forces* 77, no. 3 (1998): 1001–20.

16. Brad W. Smith, 'Structural and Organizational Predictors of Homicide by Police', *Policing: An International Journal of Police Strategies & Management* 27, no. 4 (2004): 539–57.
17. Smith, 'Structural and Organizational Predictors'.
18. Paulo Sérgio Pinheiro, 'Police and Political Crisis: The Case of the Military Police', in *Vigilantism and the State in Modern Latin America*, ed. Martha K. Huggins (New York: Praeger, 1991), 167–88; Laura Glanc, 'Caught between Soldiers and Police Officers: Police Violence in Contemporary Argentina', *Policing and Society* 24, no. 4 (2014): 479–96.
19. Glanc, 'Caught between Soldiers and Police', 490.
20. Mutuma Ruteere, 'More Than Political Tools', *African Security Review* 20, no. 4 (2011): 11–20; Justice Tankebe, 'Colonialism, Legitimation, and Policing in Ghana', *International Journal of Law, Crime and Justice* 36 (2008): 67–84.
21. Justice Tankebe, 'Public Cooperation with the Police in Ghana: Does Procedural Fairness Matter?', *Criminology* 47, no. 4 (2009): 1265–93.
22. Jan Beek and Mirco Göpfert, 'Police Violence in West Africa: Perpetrators' and Ethnographers' Dilemmas', *Ethnography* 14, no. 4 (2012): 477–500.
23. B. Magaloni and I. Cano, *Determinantes do Uso da Força pela Polícia do Rio de Janeiro* (Rio de Janeiro: Editora da Universidade Federal do Rio de Janeiro, 2016).
24. UNODC, *UNODC Global Study on Homicide 2013* (Vienna: UNODC, 2014). As UNODC notes in its study on homicides: 'homicide is, in certain circumstances, both a reasonable proxy for violent crime as well as a robust indicator of levels of security within States' (9).
25. Actually, another way to test the correspondence between police violence and the threat they encounter, would be to correlate the rate of deaths due to police interventions with the rate of police officers killed in the line of duty, and by calculating the ratio between both figures, as suggested earlier. This would allow the comparison of casualties originated by police officers with the risks they themselves are facing in their work. Nevertheless, data on police officers killed, and particularly on the circumstances of those killings, is even harder to come by than figures on civilians killed by police.
26. UNODC, *Global Study on Homicide 2013*.
27. See <https://www.ons.gov.uk/>.
28. <http://datasus.saude.gov.br/informacoes-de-saude/tabnet> (accessed 4 April 2017).
29. Since this source offers data only for the United Kingdom as a whole, population data for England and Wales was taken from the British Office for National Statistics: <https://www.ons.gov.uk/> (accessed 4 April 2017).
30. IPID, *Annual Report 2014/2015* (Pretoria: IPID, 2015). IPID is the new name of the Independent Complaints Directorate (ICD), following a change in legislation.
31. IPCC, *Deaths During or Following Police Contact: Statistics for England and Wales 2014/15* (London: IPCC, 2015).
32. 'Apparent suicides' are defined as those that happen within two days of release from police custody. This category also includes apparent suicides that occur more than two days after release where the time spent in custody may be relevant to the death: IPCC, *Deaths During or Following Police Contact*, 2.
33. David Bruce, 'Why Does KZN Lead in Police Killings?', *Mail and Guardian*, May 8, 2015, <http://mg.co.za/article/2015-05-07-why-does-kzn-lead-in-police-killings> (accessed 4 February 2016). In its Annual Report 2014–15, IPID reported that KwaZulu-Natal accounted for 27% of all deaths as a result of police action, the same as Gauteng.
34. Bruce, 'Why Does KZN Lead'.
35. Obviously, there are many other factors at play here. Some of the countries that have adopted more violent policing strategies rely on a more authoritarian style of government with less press freedom and less independent scrutiny.
36. Open Society Justice Initiative and Network on Police Reform in Nigeria, *Criminal Force, Torture, Abuse, and Extrajudicial Killings by the Nigeria Police Force* (New York: Open Society Institute, 2010).
37. Anneke Osse, 'Police Reform in Kenya: A Process of "Meddling Through"', *Policing & Society* 26, no. 8 (2016): 907–24, doi: 10.1080/10439463.2014.993631.

38. IPOA, *Performance Report January–June 2015* (Nairobi: IPOA, 2015), 20; IMLU, *Guns: Our Security Our Dilemma* (Nairobi: IMLU, 2015); IMLU, *Report on Deaths from Police Bullets from January to December 2015* (Nairobi: IMLU, 2016).
39. Anneke Osse and Naomi van Stapele, *Police Killings in Kenya* (in press).
40. An exception to this general rule may occur when authorities reward police officers for their use of lethal force, as happened in Rio de Janeiro between 1995 and 1997 (see Cano, *Letalidade da Ação Policial no Rio de Janeiro*).
41. David Bruce, 'An Acceptable Price to Pay? The Use of Lethal Force by Police in South Africa' (Criminal Justice Initiative Occasional Papers Series, 8, Open Society Foundation for South Africa, Pinelands, 2010). Contrasting official data with newspaper reports, Bruce infers that it is likely that police in South Africa do not report all deaths as a result of police action to the ICD: 'It might therefore be reasonable to make the inference that deaths as a result of police action are likely to be reported if (i) the police involved are sure of being exonerated of any criminal liability for the death, or (ii) there are survivors or civilian witnesses who have identified the perpetrators as police officers. However beyond this point it is a matter of speculation as to whether deaths as a result of police action reported to the IC reflect all of (or even the vast majority of) deaths relating to the use of lethal force by police in South Africa' (26).
42. Anneke Osse, *Understanding Policing: A Resource for Human Rights Activists* (Amsterdam: Amnesty International – Dutch section, 2006).
43. Note that Germany has now jumped to the second place, because we used the data for 2011, instead of 2015, because 2011 is closer to the year for which we have homicide data.
44. The UNODC statistics concern 'intentional homicides', defined as 'unlawful death purposefully inflicted on a person by another person' (9). The data excludes killings directly related to war or conflicts, suicides, killings due to legal interventions or justifiable killings (such as self-defence), and those deaths caused when the perpetrator was reckless or negligent but did not intend to take a human life (non-intentional homicide).
45. The maximum correlation coefficient is 1.0 and this is only possible if one variable is exactly proportional to the other.
46. The linear regression line is a statistical estimate that tries to represent the linear relationship between two or more dimensions. Its angle and its starting point are calculated so as to minimise the distance between the line and the data points in the graphic. In our case, it could be understood as a general reference of the degree of proportionality between homicide rates and police killings. This proportionality is not established on a normative basis but it is rather calculated from the data itself. Thus, cases above the line show a level of police killings above what could be expected from their homicide rates. This expectation is established from the average of all countries. Likewise, cases below the line register a rate of police killings below what could be anticipated from their homicide rates.
47. Again, the maximum possible value for the Pearson correlation coefficient is 1.0, which is attained only when one variable is perfectly proportional to the other.
48. Cano, *Letalidade da Ação Policial no Rio de Janeiro*, 33.
49. From a methodological point of view, a caveat would be that a low frequency of police homicides (6) means that each case has a great impact on the index, so that one additional death or one less death would have a powerful impact on the indicator.
50. Human Rights Watch, 'Good Cops Are Afraid': The Toll of Unchecked Police Violence in Rio de Janeiro, July 7, 2016, <https://www.hrw.org/report/2016/07/07/good-cops-are-afraid/toll-unchecked-police-violence-rio-de-janeiro> (accessed 18 March 2017).

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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