

Data Sources and the Estimation of Military-owned Small Arms

While the weapons of state armed forces are not the largest major small arms category—civilian small arms appear to outnumber their military counterparts worldwide by over three to one—they are a serious factor in conflict and violence, and the focus of much international small arms diplomacy (Small Arms Survey, 2006, pp. 37–38). Military-owned small arms also constitute the world’s largest centrally controlled stockpiles, forming the content of massive transfers and raising vital control issues (Small Arms Survey, 2004, p. 54).

As this *Research Note* shows, despite their reputation for military secrecy, governments sometimes reveal their military small arms holdings. Based on these acknowledged holdings, estimating methods permit the calculation of approximate military-owned small arms totals for other countries. These sources and methods show that state militaries worldwide hold roughly 200 million small arms, out of a total of some 875 million firearms of all kinds worldwide (Small Arms Survey, 2007). Almost 25 per cent of the global military total belongs to just 2 countries, while 50 per cent belongs to 20 countries (see Figure 1 and Table 4).

The totals owned by particular countries have changed since 2007, with global military procurement of newly manufactured weapons apparently outstripping surplus destruction (Karp, 2010, p. 4). Consequently, these totals must be used with caution and updated where possible.

This *Research Note* complements others on estimations of civilian and law enforcement

small arms holdings (Small Arms Survey, 2011; 2012). The armed forces covered here are military services, typically under ministries of defence, not civilian law enforcement agencies or paramilitary agencies under other ministries. For comparability, this *Research Note* emphasizes military-owned small arms, as defined by the UN Panel of Governmental Experts (UNGA, 1997, para. 26). Light weapons are not included systematically, because estimating procedures remain more speculative, although some may creep into country totals due to idiosyncratic national reporting procedures and definitions.

Data on military-owned small arms

There is no standard reporting mechanism for official military small arms holdings. The UN Register of Conventional Arms (UNROCA) permits reporting on military small arms and many states use it to declare their official international small arms trade (Holtom, 2010; UNODA, 2009, pp. 22–23). Several countries use the register to report their military inventories of light weapons, especially man-portable air defence systems (UNGA, 2013). But only Argentina, Trinidad and Tobago, and Togo have used UNROCA to report their complete military small arms inventories (Small Arms Survey, 2006, p. 44; UNGA, 2011, pp. 43, 69). Reference works like *The Military Balance* report only major weapons systems (IISS, 2012), while others like *Jane’s Weapons: Infantry* list countries believed to possess particular small arms types, but usually not quantities (Jones and Ness, 2013).

Figure 1. The largest reported and estimated military-owned small arms inventories

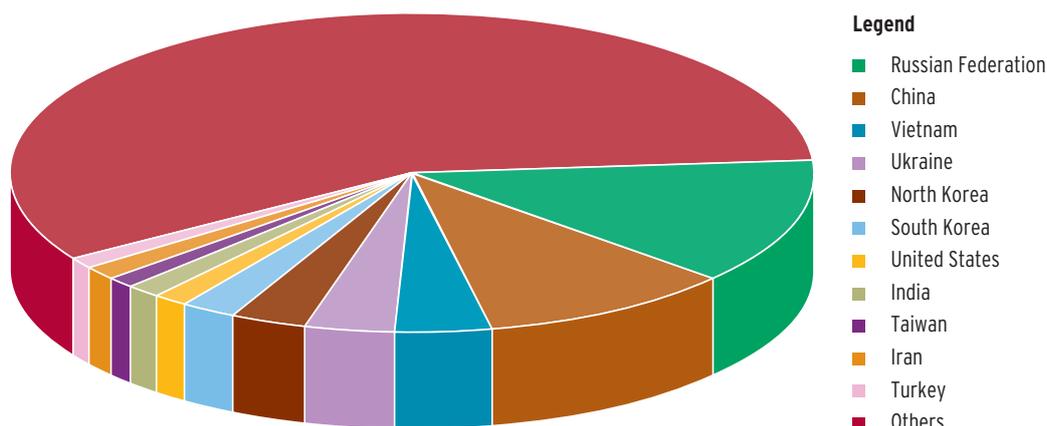


Table 1. Ratio of small arms per person in selected countries, by military service

Country	Base year	Total force	Air force	Army	Navy	Reserves
Brazil	2008	1.1	0.6	1.3	1.0	1.1
Colombia	2006	1.4	0.8	1.4	1.4	None
Czech Rep.	2011	8.9	0.3	12.1	None	None
Germany	2011	1.8	1.2	2.1	0.6	2.1
Montenegro	2011	1.8	1.4	1.8	1.9	None
Norway	2012	3.1	1.0	2.5	1.8	3.1
Average (rounded)		3.0	0.9	3.5	1.3	2.1

Source: Karp (2013)

Governments sometimes supply military small arms data when asked. Of 57 governments polled by the Small Arms Survey to date, eight reported their total military small arms inventories (Small Arms Survey, 2013). Another 12 supplied data independently or to other projects or researchers. Voluntary reports remain insufficient to revise older global estimates, but show that estimates for specific services require re-evaluation (see Table 1). Most governments still do not share such data: whether they are prevented by security prohibitions or by bureaucratic inertia is hard to say.

Variation among countries and services

The country reports given in Table 1 illustrate the great diversity in military small arms inventories, with national military weapons ratios (for all services combined) ranging from 1.2 to 8.9 small arms per person. Ground forces tend to have higher ratios of small arms, but some air forces and navies have more small arms per person.

Military-style small arms not belonging to the armed services

Any military small arms total should exclude military-style weapons not controlled by the armed services.

For example, the Russian Federation Ministry of the Interior has over 450,000 small arms for 200,000 domestic security troops (Barinov, 2012; IISS, 2012, p. 202). Afghanistan, Pakistan, and Yemen are well known for private ownership of Kalashnikov rifles, while countries like France have begun to see the illegal acquisition of comparable weapons (McPartland, 2012). Americans bought over 200,000 AR-15s, the civilian version of the M16/M4, in 2011 alone (Helmores, 2012).

Attrition

Any comprehensive total of military inventories must include acquisition and losses. Currently there is no systematic rule for estimating losses. The best reported are decommissioning through military exports and the destruction of surpluses. Least understood are military losses through breakage and pilferage.

The scale of the destruction of military surpluses can be large. Germany undertook the largest contemporary small arms destruction programme recorded when it eliminated 2,303,252 small arms between 1990 and 2009 (Germany, 2010, p. 19). The Russian Federation is planning to destroy more than 9 million military small arms, including 4 million Kalashnikovs (Russian Federation, 2010; Neef, 2012).

Table 2. Estimated ratio of small arms per person (ground forces), by military model

People's War militaries	Trinitarian militaries	Constabulary militaries	Reserve militaries
4.8	2.6	1.9	1.8

Source: Small Arms Survey (2006, pp. 46-52)

Estimating armed services' small arms inventories

Systematic estimation is used only when reliable small arms statistics are unavailable. The estimation of the number of military small arms in a particular country begins with the number of military personnel; this can usually be found in reference works. Many countries reduced their military personnel dramatically after the cold war (van Creveld, 2006, p. 197). Because most of their weapons appear to remain in existence, their largest recorded personnel numbers since the introduction of automatic weapons (typically the mid-1960s to the 1970s) are the most useful guide to total military inventories (Small Arms Survey, 2006, p. 61, note 6).

The ratio of weapons per person varies greatly, making a single ratio too crude a measure. More detailed estimates come from the national military doctrines of particular countries, which provide a guide to the kinds of conflicts their militaries are armed to fight (Posen, 1984, p. 13).

Four basic doctrinal categories are most relevant for estimating military small arms inventories (see Table 2). Ratios of small arms per total military personnel (air force personnel, sailors, soldiers, and reservists) are averaged from empirical examples for each category (Small Arms Survey, 2006, pp. 46-52).

- *People's War militaries* use mass infantry forces and large reserves chosen for political reliability. China was long the classic example.
- *Trinitarian militaries*, so named because of the integration of the state, citizens, and the military, stress heavily armed active-duty forces, reinforced by reserves. Examples include Australia and Canada.
- *Constabulary militaries*, organized primarily to maintain domestic order, are characterized by low ratios of weapons per soldier. India is a prominent example.
- *Reserve militaries* rely on the rapid expansion of their forces through the mobilization of reserves for territorial defence. They feature

Table 3. Typical proportions of military small arms categories

Assault rifles	Pistols	Machine guns	Other
72%	13%	6%	9%

Source: Small Arms Survey (2006, p. 56)

small full-time cadres and large reserve components. Examples include Finland and Switzerland.

National military doctrine is most useful for estimating the arms inventories of ground forces, generating overall firearm numbers at the time when modern forces were at their largest. For countries whose forces have shrunk, much of their equipment is surplus and may be in military storage, transferred abroad, or destroyed. This approach misses the subsequent procurement of new equipment.

Each service usually sets distinct requirements, resulting in distinct inventories (see Table 1). These averages for other services are used to

generate country totals in Table 4. Another problem is reserve forces. Sometimes huge, these can be a source of great uncertainty. Reserve small arms inventories are estimated here at one small arm per reservist, unless more information is available.

Estimating types of military small arms

An important refinement is the breakdown of small arms types in each country's total military arsenal. Empirical examples are few, but show some variation in the share of rifles, side arms, machine guns, and other small arms types (Table 3). Where official data is unavailable, a country

Table 4. Twenty largest military small arms inventories

Country	Total military small arms
Russian Federation	26,000,000
China	21,000,000
Vietnam	8,000,000
Ukraine	7,000,000
North Korea	6,200,000
South Korea	4,700,000
United States	2,700,000
India	2,600,000
Taiwan	2,600,000
Iran	2,500,000
Turkey	2,500,000
Pakistan	2,000,000
Poland	2,000,000
Spain	1,800,000
Egypt	1,600,000
Italy	1,600,000
Brazil	1,300,000
France	1,300,000
Indonesia	900,000
United Kingdom	900,000
Total	99,200,000

Source: Karp (2013)

with 1 million military small arms can be expected to have some 720,000 automatic or semi-automatic rifles and 130,000 side arms, for example.

The largest military arsenals

Table 4 lists the 20 largest known or estimated military small arms arsenals. Among the largest military small arms owners, only Ukraine and the United States provided total data. The rest are estimated using the procedures outlined here. Estimates are based on a country's largest number of armed forces personnel since the mid-1970s, not current figures that reflect subsequent personnel reductions. Collectively, these 20 countries control approximately 100 million of the world's estimated 200 million military-owned small arms.

Conclusion

For now, voluntary reports and responses to research requests elicit the most comprehensive information on small arms inventories available. Transfer, procurement, and destruction reporting is often more detailed, but not comprehensive.

Consequently there is no substitute for estimating most countries' total military small arms inventories. A standardized international reporting system would be a great advance for global transparency and policy-making. As more country reports become available, estimates will become less important and global insight more accurate. ■

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For more information about small arms stockpiles held by states, please visit: www.smallarmssurvey.org/armed-actors/state-security-forces.html

About the Small Arms Survey

The Small Arms Survey serves as the principal international source of public information on all aspects of small arms and armed violence, and as a resource centre for governments, policy-makers, researchers, and activists. In addition to Research Notes, the Survey distributes its findings through Occasional Papers, Special Reports, Working Papers, Issue Briefs, a Book series, and its annual flagship publication, the *Small Arms Survey*.

The project has an international staff with expertise in security studies, political science, international public policy, law, economics, development studies, conflict resolution, sociology, and criminology, and works closely with a worldwide network of researchers and partners.

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