



TRACKING THE GUNS:

*International diversion of small arms
to illicit markets in Rio de Janeiro*

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Since 1993, Viva Rio, an NGO based in Rio de Janeiro, has worked to combat a growing wave of urban violence—a problem that affects mainly young people—in Brazilian cities. Viva Rio undertakes campaigns for peace and against the proliferation of small arms, as well as projects aiming to reduce criminal behavior and armed violence. Viva Rio also carries out activities to confront problems associated with the proliferation and misuse of firearms which are conducted at the local, national, and international levels. The organization has three main objectives: reducing the demand for guns (actions to sensitize civil society to the risks involved with using or carrying of firearms and to respond to the gun industry lobby); reducing the supply of guns (curb illicit arms trafficking and control the production, sales, exports, and imports of small arms and ammunition); and improving stockpile controls (destruction of excess guns and improvement of secure storage facilities). www.vivario.org.br / www.comunidadsegura.org

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International Peace Research Institute, Oslo (PRIO)

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Executive summary

This report outlines some of the possible means by which foreign made small arms and light weapons were diverted from legal trade into illicit markets in Brazil. It starts with some of the first analysis of the database of illegal weapons seized by the Rio de Janeiro police. The majority of seized weapons were manufactured in Brazil. However, many were produced abroad. These foreign made weapons offer a unique opportunity to examine possible diversion points because Brazil imposed strict import restrictions on many types of small arms and light weapons. It is therefore possible to discern the most likely purchasers in Brazil (in instances where the restrictions were relaxed) or the neighboring country to which the weapons were first exported to before they were diverted.

When licensing arms exports, governments should rigorously assess the risk that the weapons may be diverted into illicit ownership. This report highlights numerous instances where transfers of weapons to Brazil's neighbors were the most likely source of the arms seized by the police in Rio de Janeiro.

- Many weapons, including sub-machine guns and assault rifles, were diverted into criminal possession from Brazilian government controlled stockpiles and from private ownership by collectors.
- Lax regulations in Paraguay in particular allowed that country to act as an open door for arms smugglers into illicit markets in Brazil. For years, arms exports from the USA and Western Europe flooded into Paraguay and many were then illicitly diverted into Brazil.
- Lack of control over gun shops, and the sale of weapons, in Venezuela, Argentina and Uruguay may have also facilitated the diversion of thousands of weapons.
- The overwhelming majority of weapons seized were not previously registered by the police. They were therefore either illicitly trafficked into Brazil from abroad, were registered in States other than Rio de Janeiro, or were purchased by parties that were not required to register their arms with the police (such as collectors).

These findings naturally promote the following policy recommendations: In importing countries, there needs to be strict control over the sale of arms and measures to ensure that they are only sold to authorized parties that will own them responsibly. Furthermore, in order to prevent diversion, governments need to insist upon strict control over official stockpiles (especially of surplus weapons); and over private holdings of weapons (especially by collectors).

Exporting countries need to thoroughly evaluate the risk of diversion when considering an export license. This should include *inter alia*: the national laws and regulations of the importing country – particularly those relating to the sale of weapons; control over official stockpiles; and the ability of a country to implement its laws and policies. Most importantly, governments should not look at an export license in isolation. They need to evaluate a license application in the light of recent trade flows of arms in, and out, of the prospective importer. This report indicates that such an analysis is possible.

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1. Introduction and aims:

Brazil, a country which is not at war and has no internal armed conflicts, is nevertheless a very violent place. It ranks first in the world for absolute numbers of small arms related deaths and fifth in terms of firearm related death rates. Most of the weapons used in crimes in Brazil are domestically made; however, there are an important proportion of foreign made small arms, especially high caliber handguns and assault weapons. Every year since the early 1980s, they have been seized by the police in violent urban cities affected by drug trafficking and related violence. However, in order to protect its domestic firearm industry, Brazil, for the last 30 years, has had strong restrictions on firearm imports, which are only sporadically authorized. How then do these weapons reach criminal outfits in Brazil?

In order to answer this question this project cross references police information on 26,170 foreign made weapons seized in Rio de Janeiro from 1974 to 2004 with the information from small arms trade flows contained in the Norwegian Small Arms Trade Initiative (NISAT) database. This information is geo-referenced and represented in graphs, maps and figures to highlight the possible paths followed by these weapons before they reached their criminal users in Brazil. This study focuses on exports to South America and highlights the likely points where weapons were diverted into illicit hands. The research is necessarily tentative. All research into illegal activities has many significant methodological challenges, and this study is no different.

Governments license arms exports, and in doing so they have a responsibility to ensure that their country's arms are not sent to recipients that are likely to divert the weapons into illegal markets. This responsibility has been accepted by exporting states through several international agreements – not least the UN Programme of Action (UN PoA) on the illicit trade in small arms. Several regional and international agreements which cover most of the world's major exporters of small arms and light weapons also underline exporters' responsibilities not to license transfers of weapons if there is a risk that they may be subsequently re-transferred into the possession of criminals or into black markets.

However, these commitments are weak and replete with caveats. Most importantly, all but one just represents political declarations – there are no sanctions (save public censure) for breaking them. Moreover, they employ restrictive definitions of small arms and light weapons that exclude many of the arms seized in crime settings like the violent areas of Rio de Janeiro in Brazil.

A responsible small arms export policy would, as the international agreements outlined below recommend, involve a rigorous assessment of the risk of diversion before a weapon was licensed for export. This report outlines numerous cases in which governments do not appear to have lived up to this responsibility. It is therefore necessary to step up efforts to strengthen national policy and reinforce, develop and tighten international agreements.

Background

Since the end of the Cold War, the problems associated with illicit trafficking in small arms and light weapons have received considerable international attention from governments, international organizations and civil society.¹ Illicit trafficking is, of course, an inherently international problem which cannot be addressed by one state alone. Instead, preventing trafficking requires that all states accept responsibility for implementing the necessary laws, regulations and procedures to ensure that all parts of the supply chain are adequately controlled.

Governments have recognized the need for concerted action. After considerable pressure from civil society, they have committed themselves to numerous international agreements whose aim is to coordinate laws and policies aimed at preventing the illicit trafficking of small arms and light weapons. These agreements range from the legally binding 1997 EU Joint Action on small arms and light weapons to political declarations such as the 2000 OSCE document on small arms and light weapons.

Many of these agreements have specifically addressed the risks that small arms and light weapons could be diverted from licensed trade into illicit markets and criminal possession. Indeed, such controls over the trade in small arms and light weapons form a key part of international attempts to control arms trafficking.²

Governments license exports by arms producing and trading companies and in doing so they play a key role in attempts to control the global spread of small arms. By employing strict licensing criteria and ensuring that exports would not be authorized if there was a risk that the arms might be illicitly diverted they restrict the supply chain of weapons into black markets. Indeed, the primary responsibility of governments to 'prevent, combat and eradicate' the illicit trade in small arms was explicitly stated in the UN Programme of Action's preamble;³ which also called upon governments to promote "responsible action by States with a view to preventing the illicit export, import, transit and retransfer of small arms and light weapons."⁴

¹ Trafficking, of course, existed during the Cold War, but illicit movements of small arms and light weapons were not such great concern as during the post-Cold War period. This may be partly explained by overarching fears of nuclear (or conventional) war between the Superpowers, a focus upon the technological competition between Nato and the Warsaw Pact, and that many leading countries were actively engaged in large scale arms trafficking themselves (such as the arms pipeline to Afghanistan operated under the auspices of the USA). During the Cold War the main export control regime among Nato members was COCOM, which was concerned with preventing Western technology being transferred to Warsaw Pact countries. After the Cold War, Cocom was transformed into the Wassenaar arrangement, which, among other things, has concerned itself with regulatory measures to prevent or restrict illicit trafficking in small arms and light weapons.

² Other measures include areas such as stockpile control and marking of weapons and ammunition.

³ UN Programme of Action to Prevent, Combat, and Eradicate the Illicit Trade in Small Arms and Light Weapons, in All Its Aspects Section 1 paragraph 13

⁴ UN Programme of Action *op. cit* Section 1 paragraph 22 (e)

Leaving aside Brazilian made weapons, the Firearms and Explosives Control Division (DFAE) of the Rio de Janeiro Police has a database of seized small arms which contains data on weapons manufactured in the following countries: United States, Argentina, Italy, Germany, Spain, Austria, Czech Republic, Belgium, China, France, Israel, Russia, United Kingdom, Switzerland, Chile, Egypt, Poland, Sweden, Japan, Yugoslavia, South Korea, Denmark, Philippines, Romania, Canada and Finland. However, only the weapons originating in the countries underlined above were analyzed as these were the most sensitive transfers (either by volume or the type of weapon seized). It is very important to note that the underlined countries are parties to one or more of the international agreements concerning the diversion of small arms listed below.

Table 1:

Country	UN Programme of Action	European Union	Wassenaar Arrangement	Organization for Security and Cooperation in Europe
Argentina	X		X	
Austria	X	X (joined in 1995)	X	X
Belgium	X	X	X	X
China	X			
Czech Republic	X	X (joined in 2004)	X	X
Germany	X	X	X	X
Israel	X			
Italy	X	X	X	X
Russia	X		X	X
Spain	X	X (joined in 1986)	X	X
Switzerland	X		X	X
United States	X		X	X

UN Programme of Action⁵

The UN Programme of Action to Prevent, Combat, and Eradicate the Illicit Trade in Small Arms and Light Weapons, in All Its Aspects (henceforth the UN PoA) was agreed as a consensus document by all UN member states after much negotiation in 2001. It is a non-binding document which contains numerous recommendations that governments should follow in order to prevent illicit trafficking in small arms and light weapons. In addition to the text in the preamble (see above), the UN PoA includes specific points concerning export licensing, in which it calls upon governments:

“To assess applications for export authorizations according to strict national regulations and procedures that cover all small arms and light weapons and are consistent with the existing responsibilities of States under relevant international law, taking into account in particular the risk of diversion of these weapons into the illegal trade.”⁶ [..]

Concerning the re-export of small arms, the UN PoA also states that states should:

“put in place and implement adequate laws, regulations and administrative procedures to ensure the effective control over the export and transit of small arms and light weapons, including the use of authenticated end-user certificates and effective legal and enforcement measures.”⁷

⁵ In addition to the four agreements outlined in this section, many of the selected states are also party to other documents aimed at preventing small arms trafficking. These include the Inter-American Convention Against The Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials; the CICAD Model Regulations for the Control of the International Movement of Firearms, Their Parts and Components and Ammunition; and the Protocol Against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime.

These agreements have not been considered in depth because they concern regulatory and legislative procedures for export control rather than criteria which should be used to judge whether a country or party is, or is not, an appropriate recipient of a state's exports of small arms and light weapons.

The distinction is very important. It is likely that the vast majority of weapons described in this report were lawfully exported to Brazil, or its neighbors such as Paraguay, in full compliance with existing regulations. However, it is not enough to endure that the right documentation has been submitted or the correct bureaucratic procedures followed. As recommended in the four agreements highlighted in this section, an assessment of the risk of diversion must also take place.

If a country has weak national laws and regulations concerning who can purchase firearms (particularly purchases by foreign nationals), has lax control over its borders, or cannot secure the weapons held in official arsenals, then it poses a risk of being a diversion point. The strength of the purchasing country's national laws, and the extent to which they are implemented, are two vital factors which are not explicitly considered in the CICAD model regulations, the Inter-American convention and the UN Firearms Protocol. It is for this reason that they have not been directly considered in this section, even though these international agreements do provide a very valuable framework in other contexts.

⁶ UN Programme of Action *op. cit* Paragraph 2 paragraph 11

⁷ UN Programme of Action *op. cit* Paragraph 2 paragraph 12

And also to:

“make every effort, in accordance with national laws and practices, without prejudice to the right of States to re-export small arms and light weapons that they have previously imported, to notify the original exporting State in accordance with their bilateral agreements before the retransfer of those weapons.”⁸

In addition to the Programme of Action, other regional and multilateral agreements cover states covered by this report. They also highlight the need for a government to consider the risk of diversion before issuing an export license and are outlined below.

The European Union

The EU Code of Conduct (henceforth the Code) was launched in 1998 and remains one of the world’s most ambitious documents aiming to govern the authorized trade in arms. It is a non-binding agreement between EU member states. At the time of writing (November 2006) discussions were still ongoing regarding making the Code a legally binding document. The Code contains eight criteria which EU members⁹ should use when evaluating an export license application. As it is a politically binding document EU-member states are not legally obligated to follow its strictures. However, they are obliged to confidentially inform each other of license denials, and should consult each other in the event that one state intends to issue a license for an ‘essentially identical’ export that another state has previously denied. In addition, other (non-EU) states have made political declarations that they would follow the Code’s criteria (though they are generally excluded from the information sharing mechanism) – these include Norway, Belarus and accession candidates to the EU such as Romania. The Code’s criteria concern fields such as armed conflict, respect for human rights and arms embargoes. Criteria number seven specifically concerns avoiding diversion, and recommends that when assessing license applications EU members should evaluate:

“The existence of a risk that the equipment will be diverted within the buyer country or re-exported under undesirable conditions.

⁸ UN Programme of Action *op. cit* Paragraph 2 paragraph 13

⁹ EU Member States are: Joined in 2004 Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia. Joined in 1995 Austria, Finland, Sweden. Joined in 1986 Portugal, Spain. Joined in 1981 Greece. Joined in 1973 Denmark, Ireland, United Kingdom. Founder members Belgium, France, West Germany, Italy, Luxembourg, the Netherlands

In assessing the impact of the proposed export on the importing country and the risk that exported goods might be diverted to an undesirable end-user, the following will be considered:

- (a) the legitimate defense and domestic security interests of the recipient country, including any involvement in UN or other peace-keeping activity;
- (b) the technical capability of the recipient country to use the equipment;
- (c) the capability of the recipient country to exert effective export controls;
- (d) the risk of the arms being re-exported or diverted to terrorist organizations (anti-terrorist equipment would need particularly careful consideration in this context).¹⁰

Criteria number seven clearly obliges governments to consider whether arms might be diverted toward illicit possession, or re-exported to parties that would use them illicitly, when assessing export license applications. Therefore, EU member states, when exporting weapons to Brazil, or its neighbors, *should* have evaluated the risk that the arms could have been diverted before licensing an arms export.

The EU Code built upon the 1991 EU Council Declaration on Non-Proliferation and Arms Exports which included seven common criteria for assessing potential arms exports (which were similar in nature to those of the Code of Conduct). One of the common criteria concerned “the existence of a risk that the equipment will be diverted within the buyer country or re-exported under undesirable conditions.”¹¹ In a similar fashion to the EU Code, the 1991 EU Council Declaration was just a political declaration, and had no legal force.

However, it is important to note several caveats concerning Criteria Seven and the EU Code in general. First, it is noticeable that the language is quite weak – it merely requires that governments consider the risks of diversion. It does not prohibit them from making such a transfer if there is a strong likelihood that weapons could be diverted. This is in contrast to Criterion Two concerning the respect for human rights which states unequivocally that Member States will “not issue an export license if there is a clear risk that the proposed export might be used for internal repression.”

Second, for the first four years of its existence, it was unclear exactly what types of equipment were covered by the Code. As many governments define types of small arms and light weapons as being ‘civilian’ in nature (such as pistols or shotguns) and therefore not subject to the same controls as ‘military’ equipment this is a very important issue. They may have taken the view that the Code didn’t

¹⁰ The Council of The European Union. 1998. *European Union Code Of Conduct On Arms Exports*. 8675/2/98. Available at < <http://consilium.europa.eu/uedocs/cmsUpload/08675r2en8.pdf> > accessed 16 November 2006.

¹¹ *Council Declaration on Non-Proliferation and Arms Exports* Text available at < http://www.sipri.org/contents/expron/eu_criteria.html#anchor394281 > accessed 16 November 2006.

apply to such 'civilian' transfers. The EU Common List of Military Equipment was agreed upon in 2002, and from then on the Code applied to all equipment included in it. It is noticeable that the Common List specifically excludes "smooth-bore weapons used for hunting or sporting purposes. These weapons must not be specially designed for military use or of the fully automatic firing type", and "weapons using non-centre fire cased ammunition and which are not of the fully automatic firing type." Therefore, sporting shotguns and non-automatic small arms using rim-fire ammunition are not covered by the Code of Conduct (though individual governments may in practice control exports of them using the Code's criteria).¹²

The 1998 EU Joint Action¹³ on small arms (which surpassed the EUs 1997 Programme for Preventing and Combating Illicit Trafficking in Conventional Arms) also contains text regarding the risk that licensed exports could be diverted into criminal possession. The Joint Action, which EU-member states are legally obliged to implement, states in its preamble that "it is required to take comprehensive measures for the elimination of uncontrolled circulation of small arms;" This general obligation is followed up in article one which states that the objectives of the Joint Action are to:

- combat and contribute to ending the destabilizing accumulation and spread of small arms,
- to contribute to the reduction of existing accumulations of these weapons to levels consistent with countries' legitimate security needs, and
- to help solve the problems caused by such accumulations."¹⁴

However, the Joint Action only focuses a small part of its attention upon licensed arms exports,¹⁵ article 3: b states the EU should aim at building:

"a commitment by exporting countries to supply small arms only to governments (either directly or through duly licensed entities authorized to procure weapons on their behalf) in accordance with appropriate international and regional restrictive arms export criteria, as provided in particular in the EU code of conduct, including officially authorized end-use certificates or, when appropriate, other relevant information on end-use,"¹⁶

¹² The EU Common List also excludes antique weapons, and their modern reproductions.

¹³ Council of the European Union. 1999. *Joint Action of 17 December 1998 adopted by the Council on the basis of Article J.3 of the Treaty on European Union on the European Union's contribution to combating the destabilizing accumulation and spread of small arms and light weapons*. Official Journal of the European Communities. 1999/34/CFSP

¹⁴ Council of the European Union. 1999. *op. cit.*

¹⁵ This is perhaps unsurprising as that subject is the purview of the EU Code of Conduct.

¹⁶ Council of the European Union. 1999. *op. cit.*

The commitment to only supply small arms to governments should be viewed in the light of the restrictive definition of small arms and light weapons used by the Joint Action. In its annex it states that it only covers equipment “specially designed for military use”, such as machineguns or automatic rifles. It therefore does not cover much of the weapons used by criminals in Brazil.

The Wassenaar Arrangement

The Wassenaar Arrangement comprises 40 of the world’s leading arms exporters.¹⁷ Its aim is to coordinate their activities and act as a forum for discussion and information exchange. It has concerned itself with transfers of small arms and light weapons, most notably concerning man portable air to air missiles (MANPADS) and the 2002 *Best Practice Guidelines for Exports of Small Arms and Light Weapons*. Although this is a non-binding document, it does advise against transfers where there is a risk of diversion. In particular, it recommends that when assessing export licenses, governments should *take into account*:

- “(a) The need to avoid destabilizing accumulations of arms, bearing in mind the particular circumstances of the recipient country and its region;
- (b) The internal and regional situation in and around the recipient country, in the light of existing tensions or armed conflicts and details of the recipient within that country; [...]
- (d) The nature and cost of the arms to be transferred in relation to the circumstances of the recipient country, including it’s legitimate security and defense needs and to the objective of the least diversion of human and economic resources to armaments; [...]
- (i) The risk of diversion or re-export in conditions incompatible with these Guidelines, particularly to terrorists.”¹⁸

¹⁷ Members of the Wassenaar Arrangement in May 2006 are: Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, and the United States.

¹⁸ Wassenaar Arrangement. 2002. *Best Practice Guidelines for Exports of Small Arms and Light Weapons (SALW)* Adopted by the Plenary of 11-12 December 2002. Available at < http://www.wassenaar.org/publicdocuments/2002_SALW.html > downloaded 16 November 2002.

Moreover, the Wassenaar Arrangement best practice guidelines suggest that governments should *avoid* transfers where there is a clear risk that the arms in question might:

- (f) Endanger peace, create an excessive and destabilizing accumulation of small arms, or otherwise contribute to regional instability;
- (g) Contrary to the aims of this document, be either re-sold (or otherwise diverted) within the recipient country, re-produced without license, or be re-exported; [...]
- (i) Facilitate organized crime; [...]
- (k) Be used other than for the legitimate defense and security needs of the recipient country.”¹⁹

Last, the members of the Wassenaar Arrangement agreed to ensure that:

“as far as possible, without prejudice to the rights of States to re-export SALW that they have previously imported, that the original exporting Participating State, in accordance with bilateral agreements, will be notified before re-export/re-transfer of those weapons.”²⁰

And that:

“Participating States will take especial care when considering exports of SALW other than to governments or their authorized agents.”²¹

While non-binding in nature, the Wassenaar best practice guide certainly provides member states with ample reason to consider the risks associated with exporting small arms to Brazil or its neighbors.

In addition to the best practice guidelines on small arms, the Wassenaar Arrangement’s 2000 *Best Practices For Effective Export Control Enforcement* also recommends behavior designed to avoid the diversion of arms exports into illicit hands. Concerning ‘preventive enforcement’, governments should:

- “1 . Use threat assessment techniques and procedures for evaluating parties involved in a proposed export transaction, paying particular attention to those considered to be suspicious, unreliable, or presenting a high risk of diversion.
2. Maintain a list of problem end-users to identify license applications deserving closer scrutiny. [...]
4. Obtain assurances regarding the end-use and non re-export of licensed items, as appropriate.”²²

¹⁹ Wassenaar Arrangement. 2002. *op. cit.*

²⁰ Wassenaar Arrangement. 2002. *op. cit.*

²¹ Wassenaar Arrangement. 2002. *op. cit.*

²² Wassenaar Arrangement. 2000. *Best Practices For Effective Enforcement* Agreed at the WA Plenary, 1 December 2000. Downloaded from < http://www.wassenaar.org/publicdocuments/2000_effectiveenforcement.html > accessed 16 November 2006.

Neither of the Wassenaar Arrangement's best practice documents provides an exact definition of the small arms and light weapons. However, it should be noted that the Wassenaar Arrangement's list of military equipment contains similar caveats to the EU's list (see above).²³ Therefore, members of the Wassenaar Arrangement may take the view that its best practice guidelines do not cover exports of some types of small arms.

The Organization for Security and Cooperation in Europe

The Organization for Security and Cooperation in Europe (OSCE) comprises the countries of the European continent, the USA and Canada, and Central Asian former Soviet republics.²⁴ It has also agreed upon several documents which refer to the prevention of small arms trafficking. The most important is the OSCE *Document on Small Arms and Light Weapons* (henceforth referred to as the Document), which was agreed at the 308th Plenary Meeting of the OSCE Forum for Security Co-Operation in November 2000. It is therefore is a political commitment rather than a legally binding document.

Section three of the Document concerns arms export control. In a similar vein to the EU Code of Conduct, it includes a set of criteria that should be used when assessing an export license application. Section three's preamble notes that the criteria are informed by the OSCE members' shared objective of "preventing the destabilizing accumulation and uncontrolled spread of small arms".²⁵ Several criteria are relevant to the risk that arms could be diverted into illicit channels following exportation. The Document recommends that states should *take into account* when assessing export license applications:

"(ii) The internal and regional situation in and around the recipient country, in the light of existing tensions or armed conflicts;

²³ This is because the EU's common list of military equipment is based upon the Wassenaar munitions list.

²⁴ At May 2006 OSCE member states were: Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Holy See, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, San Marino, Serbia and Montenegro, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom, United States of America, Uzbekistan.

²⁵ Organization for Security and Co-operation in Europe. 2000. *Document on Small Arms and Light Weapons*. Document adopted at the 308th Plenary Meeting of the OSCE Forum for Security Co-operation on 24 November 2000. FSC.JOUR/314.

- (iii) The record of compliance of the recipient country with regard to international obligations and commitments, in particular on the non-use of force, and in the field of non-proliferation, or in other areas of arms control and disarmament, and the record of respect for international law governing the conduct of armed conflict;
- (iv) The nature and cost of the arms to be transferred in relation to the circumstances of the recipient country, including its legitimate security and defense needs and to the objective of the least diversion of human and economic resources to armaments;²⁶

Furthermore, the OSCE document recommends that states should *avoid* licensing exports if there is a clear risk that the arms might:

- “(vi) Endanger peace, create an excessive and destabilizing accumulation of small arms, or otherwise contribute to regional instability;
- (vii) Be either re-sold (or otherwise diverted) within the recipient country or re-exported for purposes contrary to the aims of this document; [...]
- (x) Facilitate organized crime;
- (xi) Be used other than for the legitimate defense and security needs of the recipient country.”²⁷

Again, it is important to note that the OSCE Document does not cover all types of small arms. Instead, it defines the arms covered by the Document as being:

“small arms and light weapons are man-portable weapons made or modified to military specifications for use as lethal instruments of war. [...] They include revolvers and self-loading pistols; rifles and carbines; sub-machine guns; assault rifles; and light machine guns.”²⁸

This definition certainly excludes shotguns or rifles not designed to military specifications (such as those defined as being for hunting or sport shooting).

²⁶ Organization for Security and Co-operation in Europe. 2000. *op. cit.*

²⁷ Organization for Security and Co-operation in Europe. 2000. *op. cit.*

²⁸ Organization for Security and Co-operation in Europe. 2000. *op. cit.*

In addition to the agreements already mentioned, governments and NGOs have also called for a legally binding Arms Trade Treaty (ATT). This report makes a strong case that the risk of diversion should be given a prominent role in criteria to be included in an ATT when it is negotiated. Certainly, the 2002 Draft Framework Convention on International Arms Transfers included reference to states considering the risks that weapons transfers could be diverted into illicit hands.²⁹ The authors recommend that any future ATT should include strong language aimed at preventing the diversion of small arms and light weapon exports into illicit markets.

Despite the text found in the preceding four international agreements, this report contains numerous examples highlighting instances in which licensed small arms exports were illicitly diverted. It is therefore necessary to call for strengthened international rules restricting exports to diversion points and to governments whose military firearms stockpiles are not properly secured. This study demonstrates how existing agreements have not been sufficient to prevent widespread diversion of licensed exports. Policy-makers should evaluate and strengthen their export authorization procedures, and develop existing regional and international mechanisms, in order to prevent diversion.

²⁹ *Draft Framework Convention on International Arms Transfers*. Accessed at <<http://www.armstradetreaty.com/att/aboutatt.php>> 16 November 2006.

2. The situation in Brazil and the case of the State of Rio de Janeiro³⁰

Brazil has a serious armed violence problem. According to a recent Brazilian Ministry of Health research, in 2004, 36,091 people were killed by firearms- by homicide, suicide or unintentional injuries.³¹ In absolute numbers, this is higher than other countries with serious small arms related problems, such as Colombia, El Salvador and South Africa, ou the United States. Relative to its population this figure represents the fourth highest rate of gun related death in the world, at 20.3 per 100,000 people.³² The great majority of firearm related deaths in Brazil (90 percent) are homicides; 3.6 percent are suicides; 5.6 unknown intention and 0.8 accidents. At the same time, 64 percent of homicides are committed with firearms.³³ In 1982, the firearm-related homicide rate was 7.2 per 100,000, and in 2002, it increased to 21.8 deaths per 100,000 people. The increase was constant and regular over these twenty-one years. The total cost of hospitalization due to firearms-related injuries was estimated in 2002 as between US\$ 36,129,756 and US\$ 38,926,899 per year.³⁴

Violent crime grew rampantly from the 1980s and was associated with the expansion of drug trafficking and small arms availability. Since the late 1970s, and with state support and protection, Brazil developed a competitive small arms industry. That development, however, was not paralleled by the development of efficient and strong control laws and institutions. Only in 1980 did registration

³⁰ Unless otherwise specified or quoted information from this section draws from the following sources: Phebo, Luciana, "Impacto da arma de fogo na saúde da população no Brasil" in Fernandes, Rubem César, *Brasil: as armas e as vítimas*, Rio de Janeiro, 7 Letras and ISER, pp. 9-37; Iooty Dias, Carolina, "Legislação para controle de armas leves no Brasil: de Vargas a Lula", in Fernandes, op.cit., pp. 37-63; Rivero, Patrícia, "O Mercado Ilegal de Armas de Fogo na Cidade do Rio de Janeiro", in Fernandes, op.cit., pp. 197-267; Dreyfus, Pablo; Lessing, Benjamin and Purcena, Julio Cesar, "A Indústria Brasileira de armas leves e de pequeno porte: Produção e Comércio Legal", in Fernandes, op.cit., pp.64-125; Dreyfus, Pablo and de Sousa Nascimento, Marcelo, "Posse de Armas de Fogo no Brasil: Mapeamento das armas e seus proprietários", in Fernandes, op.cit., pp.126-196; Dreyfus, Pablo and Bandeira, Antônio Rangel, *Vecindario Bajo Observación: un estudio sobre las "transferencias grises" de armas pequeñas y munición em las fronteras de Brasil con Paraguay, Bolívia, Uruguay y Argentina*, Rio de Janeiro, Viva Rio, Proyecto Control de Armas de Fuego, Documento de Trabajo N° 2, 2006; Dowdney, Luke, *Children of the Drug Trade: a Case Study of Children in Organized Violence in Rio de Janeiro*, Rio de Janeiro, 7 Letras, 2003; Lessing, Benjamin, "Demanda por Armas de Fogo no Rio de Janeiro", in Fernandes op.cit. pp.268-292.; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246

³¹ Ministério da Saúde-MS Secretaria de Vigilância em Saúde-SVS, Impacto da Campanha do Desarmamento no Índice Nacional de Mortalidade por Arma de Fogo, Brasília, August, 2005, p.2

³² Ibid.

³³ Phebo, op.cit, pp. 9-36

³⁴ Ibid.

become mandatory (through a regulation of the Ministry of the Army) and the very first comprehensive federal law establishing regulation for all small arms related aspects (trade, foreign, trade, carrying, possession, and related crimes) was voted in 1997. That law however was inconsistent regarding the centralization of data and arms control in a federal country of about 170 million inhabitants, a massive geographical area, and 27 states each with two, for the most part uncooperative, police corps (a the military police is a uniformed preventive police force and a civilian police, which has an investigative role). To make things worse, until recently at the Federal level there was a compartmentalization of control mechanisms and information regarding small arms markets. On one hand, the Brazilian Army controlled the production, import, export, and wholesale of weapons and ammunition; as well as the registration of small arms owned by members of the Armed Forces, collectors, hunters, and sport shooters; and information concerning the Brazilian Army and local police stockpiles. The Federal Police, on the other hand, was responsible since 1997 for centralizing the information about small arms registered by private users (leaving aside the arms owned by the groups controlled by the Army) as well as information on seized weapons. In order to perform this function the Federal Police would rely on cooperation with the Civilian Police of each State through a system known as the National Firearms System (SINARM). Local police corps had the prerogative of granting permits to carry and/or possess small arms at the State (provincial) level and they had to share that information with SINARM. In practice, because of technical and cooperation problems, the sharing of information was very incomplete and inconsistent; as was the communication between the Army and the Federal Police. Under these conditions it was, and still is, extremely difficult to systematically trace and disrupt small arms diversion and trafficking. Identifying illegal trade routes and points of diversion is very important in a country which has a rather closed domestic small arms market. In fact, since 1936, through a decree enacted by the Army (and regularly updated and since then), the importation of controlled products (including firearms) already produced by Brazilian industry should not, in principle, be allowed. This explains in part why in violent mega-cities such as Rio de Janeiro and São Paulo, the overwhelming majority of small arms seized by the police are Brazilian made handguns of authorized calibers (the main commercial product of the national industry). Drug traffickers (and other criminals) however need greater firepower in order to keep up business – particularly to control drug retailing territories and trafficking routes. This is where restricted use weapons (high caliber semi-automatic pistols, assault rifles and sub-machine guns) which, by law, can not be purchased in gun shops come into play.

However, in Rio de Janeiro, for example, when restricted- use weapons are analyzed separately; there is a predominance of foreign made weapons. Foreign-made weapons are clearly predominant among restricted-use semiautomatic pistols as well as among seized assault rifles. Although automatic weapons do not represent more than four percent of the weapons seized in that city, these weapons have a qualitative importance because of their rate of fire and power. Although assault weapons were just three per cent of the total number of arms seized in the past decade, these kinds of high power small arms have been increasingly procured and used by rival drug trafficking factions in the densely populated favelas located in the northern and western parts of the city. Assault weapons in the hands of criminal groups in Rio de Janeiro have a qualitative rather than a quantitative importance linked to their firepower and potential to cause damage, and their symbolic significance vis à vis rivals and the police).³⁵

³⁵ See: Rivero, Patricia, *op.cit.*

Box 1: Technical note on “permitted-use” and “restricted-use” small arms and ammunition in Brazil :

According to Brazilian legislation handguns with a muzzle energy superior to 407 Joules and long barrel small arms with a muzzle energy superior to 1355 Joules, such as for example: .357 Magnum, 9 mm Luger, .38 Super Auto, .40 S&W, .44 SPL, .44 Magnum, .45 Colt; .45 Auto; .22-250, .223 Remington, .243 Winchester, .270 Winchester, 7 mm Mauser, .30-06, .308 Winchester, 7,62 x 39, 7.62x51mm; 5.56x45mm; .357 Magnum, .375 Winchester and .44 Magnum caliber weapons, are considered to be of “restricted-use”. This category also includes automatic weapons as well as weapons with similar designs and features as those used by the armed forces. The use and possession of these kinds of weapons are restricted to the armed forces, law enforcement agencies and in certain cases to sport shooters, hunters and small arms collectors. Restricted-use weapons and ammunition can not be sold in gun shops; they can only be purchased directly from the factory or directly imported with a special authorization from the Brazilian Army.³⁶

On the other hand, small arms and ammunition of the following calibers are considered “permitted-use” weapons: .22 LR; .32S&W; .38SPL; .380 Auto; 7.65mm Browning (.32ACP); .25 Auto; 32-20; 38-40; 44-40 and up to 12 gauge for shotguns. These weapons can be purchased by civilians in gun shops if licensing procedures are followed and legal requisites are fulfilled.³⁷

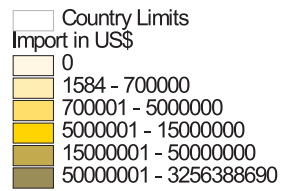
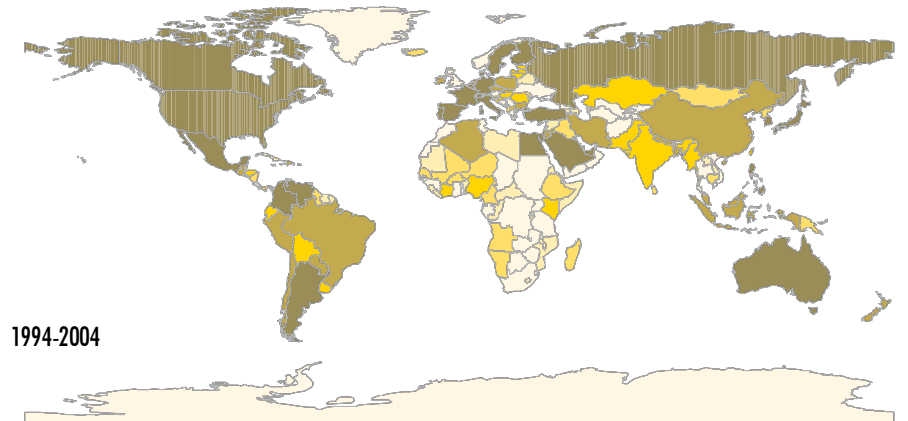
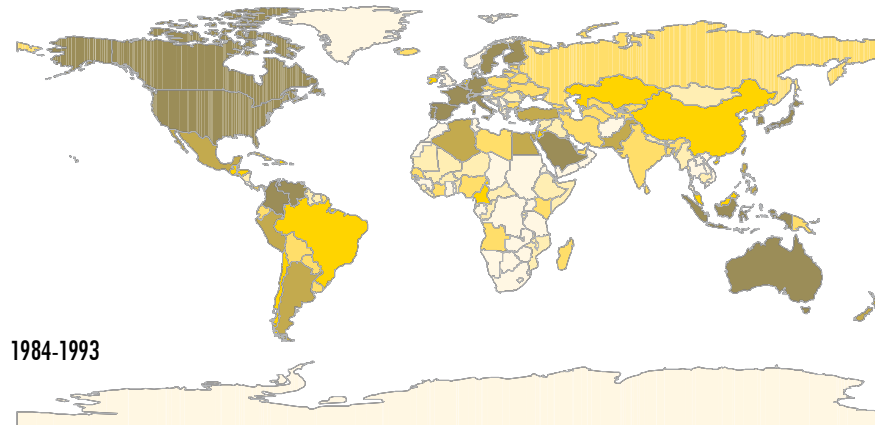
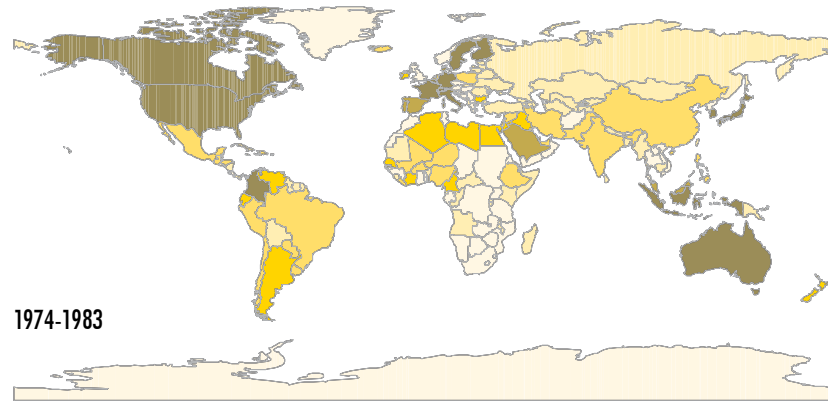
According to the Small Arms Survey, in 2006, Brazil ranked in fifth place among the world’s six largest small arms exporters (the others being: the Russian Federation, the United States, Italy, Germany and China). However as Map 1 shows, unlike the other major small arms exporters, Brazil is not at the same time a big small arms importer. Although its consumption grew over the last three decades its domestic import market remains relatively small when compared to other “big players” in the small arms business; and also when compared to Argentina, another (although smaller) relevant South American small arms producer.³⁸

³⁶ See: Presidência da República, Casa Civil, Subchefia para Assuntos Jurídicos, Decreto Nº 3665 de 20 de Novembro de 2000, Da nova redação ao Regulamento para Fiscalização de Produtos Controlados (R-105), articles 3, 15, 16 and 17. <http://www.dfpc.eb.mil.br/paginas/index.html>

³⁷ Ibid. 12 gauge caliber shotguns are considered to be of “restricted use” when their barrel is shorter than 24 inches.

³⁸ Higher imports in Colombia would be of course explained by Government imports due to the internal armed conflict. In Venezuela, demand can be explained by: lax domestic small arms control regulations; the high purchasing power of part of society; the rise of public security problems and the polarization and radicalization of politics between the Government and the opposition.

World Small Arms Imports by decade 1974-2004. In current US\$.



Source: NISAT. Analysis: Viva Rio/ISER/PRI0

A brief technical comment on maps:

The maps and graphs in the following pages have been created using a slightly different methodology. To allow comparison across regions within decades the maps are in current USD. Conversely, in order to allow comparison of trends over several decades the graphs found in the following pages use constant USD using a chained US GDP deflator (see page 90)

This does not mean however that there is not a relevant legal small arms market in Brazil. According to the Brazilian Stocks and Securities Commission (CVM), in 2005, for example, Forjas Taurus (the leading small arms companies) had sales of USD 59.7 million Reais of which USD 11.5 million (20%) were sales to the domestic civilian market and USD 12.3 million Reais to State institutions. Previous studies such as the book "Brazil: the Arms and the Victims" (see footnote 30), show that holdings in Brazil were estimated at 17 million small arms, of which about 1.7 million are State holdings (armed forces and security forces) and 15.2 million in private hands of which 6.7 million are legally registered and 8.5 million are estimated to be illegally held weapons (about 4.6 million non-registered small arms not necessarily in the hands of criminals and 3.8 million weapons in held by criminals). Due to protectionist regulations and practices however Brazil's domestic market is almost closed to foreign imports. The question that remains then is where foreign made small arms used by Brazilian criminals come from. In order to answer this question it is first necessary to understand the problem of small arms trafficking in South America.

Previous research demonstrates that the lack of harmonization in domestic small arms legislation, institutional corruption and poorly controlled borders favors the diversion of legally imported weapons from one country to another. This was the case for example during the 1990s with weapons legally imported by Paraguay that were then diverted to criminal users in Brazil through purchases in gun shops located in the Paraguayan side along the border with Brazil. Until 2002 the Paraguayan legislation allowed foreign tourists to buy small arms and ammunition with just the presentation to local police authorities of a photocopied ID. That problem was particularly serious concerning Brazilian made weapons that were exported to Paraguay but also with US, European and Argentine made weapons. The problem was eventually reduced by a change in the Paraguayan legislation forbidding the purchase of small arms and ammunition by non-resident foreigners and also by bilateral and unilateral decisions by some countries not to export small arms to Paraguay (the United States banned sales in 1996, and Brazil in 2000 agreed a moratorium with Paraguay). Also, Paraguayan authorities decided to reduce imports of small arms to the domestic market (Paraguay is a poor country with no more than 6 million inhabitants).

In 2001 the Brazilian Ministry of Industry Development and Foreign Trade enacted a resolution that established a 150% tax on exports to neighboring countries (with the exception of Chile and Ecuador which do not share borders with Brazil, and Argentina which at the time was believed to have strict domestic sales controls).³⁹ That measure led to the decrease of imports of Brazilian weapons by neighboring countries, thus leading to a reduction the number of Brazilian small arms exported to neighboring countries that then returned illegally. However, recent field research along Brazilian borders demonstrates that the risk of diversion persists. This issue is particularly worrying because Brazil changed its legislation in 2003 and since then the Government has adopted stricter domestic sales requirements, centralizing registration and permits to carry firearms at the federal level, and also integrating the information held by the Army and the Federal Police. Efforts are also being made to reduce the quantity of weapons in circulation, in fact between July 2004 and October 2005, about 460,000 were collected in a national buyback campaign which, together with other control measures (such as banning civilians from carrying small arms), led to an 8% decrease in small arms related deaths.⁴⁰

Some weapons were collected, seizures are increasing and it is increasingly difficult to buy Brazilian made weapons in the domestic market and in most neighboring countries. However, criminals, and their demand for weapons remain, as well as the potential to purchase in neighboring countries what they can not obtain at home. It is particularly worrying for example that countries such as Argentina, Paraguay and Venezuela allow the commercial sale in gun shops of weapons that are restricted in Brazil – such as 9mm pistols or high caliber semi-automatic rifles. Another disquieting problem which has also been demonstrated in previous research, is the diversion of assault weapons from military and police stockpiles. For these reasons this study focus on the study of small arms transfers to South America as well as (excluding Brazilian exports) between South American countries.

With the exception of Colombia and its internal conflict, no South American countries are currently at war, have internal conflicts or have a central government that systematically violates human rights, nor are any of the countries of the region subject to embargos. Leaving aside Colombia and Venezuela because of their polarization between government and opposition, at least on the surface all the rest of the countries of the region would at first sight currently qualify as legitimate small arms recipients. This work however will show that reality is somewhat different and that meticulously considering the possibility of diversion to crime and conflict areas should be carefully considered before authorizing exports.

³⁹ The measure also applies to Central American and Caribbean Countries.

⁴⁰ Ministério da Saúde, Secretaria de Vigilância em Saúde SVS, *Impacto da Campanha do Desarmamento no índice Nacional de Mortalidade por Arma de Fogo*, Ministério da Saúde, Brasília, 2005 and Waiselfisz, Julio Jacobo, *Vidas Poupadas*, Ministério da Justiça, Ministério da Saúde, UNESCO, Brasília, 2005.

3. Methodology and Data:⁴¹

This work is an exploratory study that combines two quite different sets of data - seized weapons and foreign trade flows of small arms - in order to observe the possible routes followed by foreign weapons used by criminals in Rio de Janeiro.

DFAE's Database:

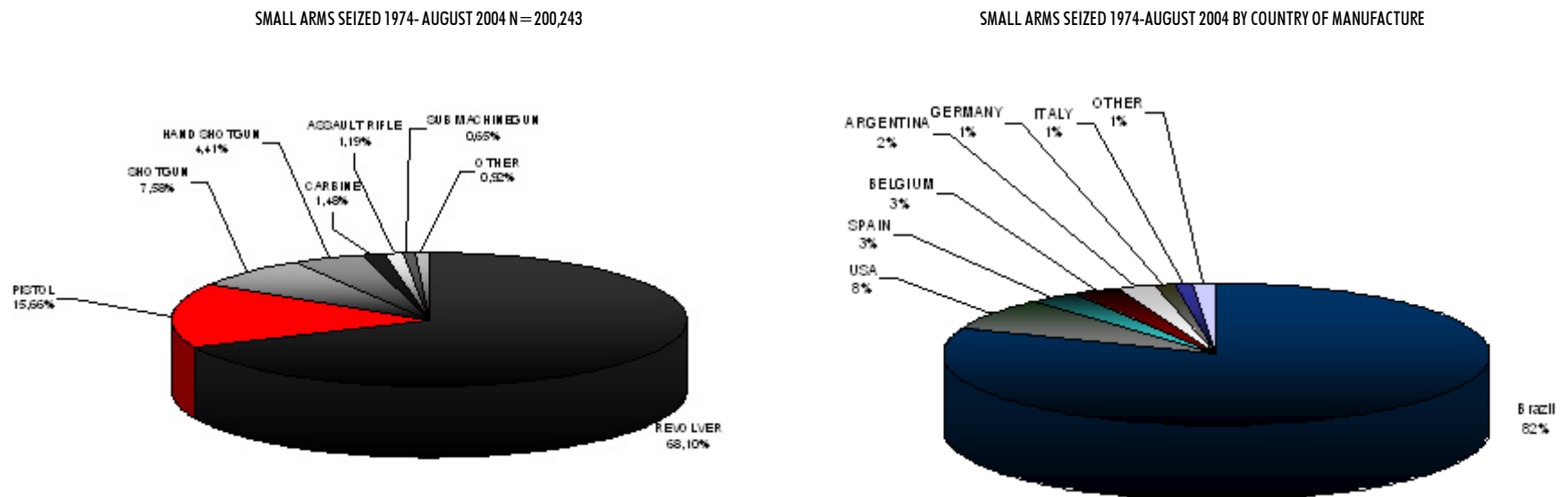
This report used analysis of the database of seized small arms operated by the Civilian Police of Rio de Janeiro's Firearms and Explosives Control Division (DFAE). Through a cooperation agreement with the Government of the State of Rio de Janeiro, Viva Rio, an NGO specialized in the reduction of urban violence, has since 1999 helped to systematize and organize this data which was originally in paper files. The database was digitalized from 1999 to 2001 and then systematically reviewed, corrected and used for analysis. The DFAE's database contains records of 249,027 small arms seized between 1951 and 2004. However, only 216,733 records had enough complete information to accurately identify the weapon. Cases for this study were selected from that smaller universe. Weapons are classified by type, serial number, make, manufacturer, country of manufacture, and caliber. Unfortunately until recently the police did not accurately input, or input at all, the model of the weapons seized. This omission is being corrected from 2004 onward as a result of the analysis of the DFAE's database.⁴²

⁴¹ Unless otherwise specified or quoted information, from this section draws from the following sources: Iooty Dias, Carolina, "Legislação para controle de armas leves no Brasil: de Vargas a Lula", in Fernandes (Coordinator), op.cit., pp. 37-63; Rivero, Patricia, "O Mercado Ilegal de Armas de Fogo na Cidade do Rio de Janeiro", in Fernandes, op.cit., pp. 197-267; Dreyfus, Pablo; Lessing, Benjamin and Purcena, Julio Cesar, "A Indústria Brasileira de armas leves e de pequeno porte: Produção e Comércio Legal", in Fernandes, op.cit., pp.64-125; Dreyfus, Pablo and de Sousa Nascimento, Marcelo, "Posse de Armas de Fogo no Brasil: Mapeamento das armas e seus proprietários", in Fernandes, op.cit., pp.126-196; Dreyfus, Pablo and Bandeira, Antônio Rangel, *Vecindario Bajo Observación: un estudio sobre las "transferencias grises" de armas pequeñas y munición em las fronteras de Brasil con Paraguay, Bolivia, Uruguay y Argentina*, Rio de Janeiro, Viva Rio, Proyecto Control de Armas de Fuego, Documento de Trabajo N° 2, 2006; Dowdney, Luke, *Children of the Drug Trade: a Case Study of Children in Organized Violence in Rio de Janeiro*, Rio de Janeiro, 7 Letras, 2003; Lessing, Benjamin, "Demanda por Armas de Fogo no Rio de Janeiro", in Fernandes op.cit. pp.268-292.; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246; Small Arms Survey, *Small Arms Survey 2001: Profiling the Problem*, Oxford, Oxford University Press, 2001; Small Arms Survey; *Small Arms Survey 2004: Rights at Risk*, Oxford, Oxford University Press, 2004; Hogg, Ian and Weeks, John, *Pistols of the World, Fully Revised 3rd Edition, A Comprehensive Illustrated Encyclopedia of the World's Pistols and Revolvers from 1870, to the Present Day*, Northbrook, IL, DBI Books, Inc, 1992; Hogg, Ian, *Jane's Guns Recognition Guide*, Glasgow, Harper Collins, 2000; *Gun Trader's Guide, Twenty-Sixth Edition*, Stoeger, 2003; Craig, Philip, *The World's Great Small Arms*, New York, Barnes and Noble, 1993; Departamento del Tesoro, Dirección de Alcohol, Tabaco y Armas de Fuego (ATF); *Manual de Campo para la Identificación Registro y Fotografía de Armas de Fuego, Explosivos y Artillería Militar*, Washington D.C., ATF, no date; Gander, Terry J. and Cutshaw, Charles Q., *Jane's Infantry Weapons, Twenty-fifth Edition 1999-2000*, London, Jane's Information Group, 1999.

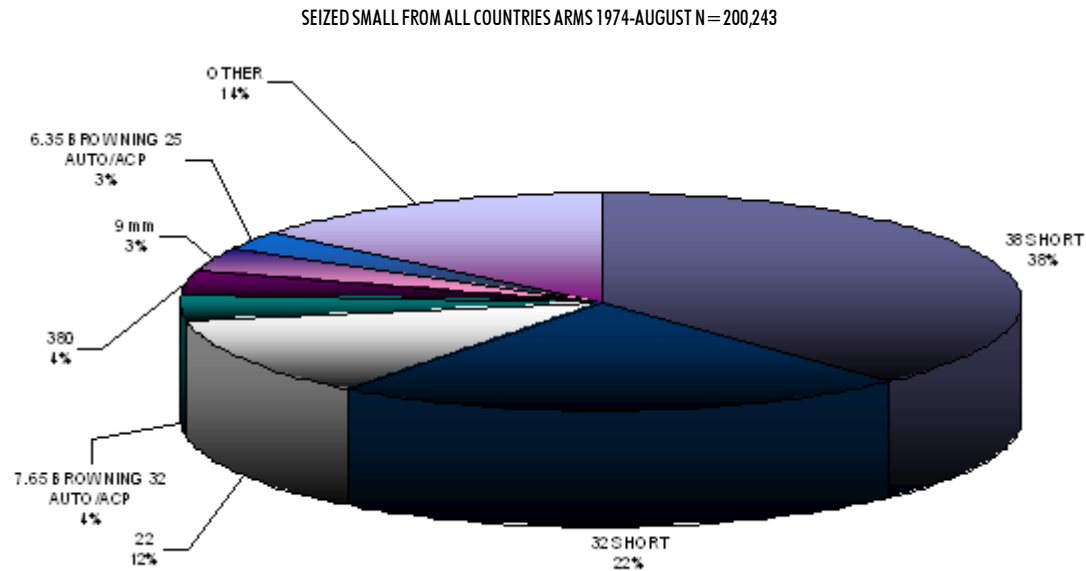
⁴² In cooperation with Viva Rio the Delegacia Legal Programme of the Civilian Police of Rio de Janeiro developed in 2003 a small arms classification manual which is in use today for training police agents.

The sample size was further reduced. First, only weapons seized from 1974 onward were considered for this study. The reason being that two significant phenomena overlap in the mid 1970s, namely, the growth and consolidation of the domestic Brazilian small arms industry (and thus the restrictions on commercial imports of small arms) and the rise of drug trafficking related organized crime in Rio de Janeiro (first in association with the trafficking and retail of marijuana (1970s) and then related to cocaine trafficking and retailing since the 1980s). As shown in graphs 1, 2, and 3 below. The universe for 1974 to August 2004 (the last year made available by the Police) is composed of 200,243 seized weapons predominately made in Brazil (82%). The predominant types are permitted use handguns (revolvers -68%- and pistols -16%) mainly manufactured by two Brazilian companies, Taurus (41%) and Amadeo Rossi (25%).

Graphs 1, 2 and 3. Small Arms Seized in the State of Rio de Janeiro from 1974 to August 2004, by type, country of manufacture and caliber.

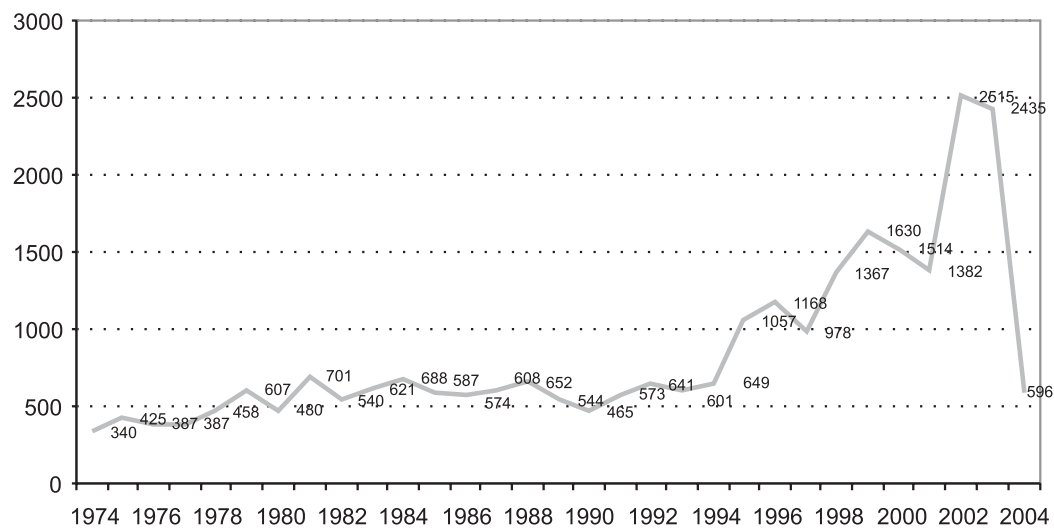


N= 216,733. Source: DFAE, Analysis: Viva Rio/ISER



From that sample, 26,170 foreign made weapons were selected for analysis. The criteria followed for this selection was to exclude (gathering all the available data in the database) weapons identified as manufactured more than 30 years ago. This would exclude from the sample weapons imported at the time when there was no relevant local manufacture, that is, before the mid 1970s, that may have been legally imported and then diverted to illicit markets through theft, loss or illicit sales. The goal of this selection was to make sure that the sample was composed of weapons that due to import restrictions could have only reached Brazil through either illicit trafficking, imported during periods when restrictions were exceptionally relaxed, or via exceptional imports such as purchases by the police, armed forces or small arms collectors.⁴³ The general characteristics of the selected 26, 170 weapons are displayed in the graphs and tables below.

⁴³ For example, handguns manufactured up to the 1960s in the Eibar region of Spain, low caliber Belgium pistols like the FN Baby which were very popular in the 1920s, 30s and 40s; old models of German made pistols (Lugger, Mauser) . During the gun collection campaign (2004-2005) it was possible to detect large numbers of these kind of weapons which were handed over by men over 60 years old.



Selected foreign small arms by year seizure (1974- august/2004)

Note: the decrease in 2004 does not necessarily mean an improvement in the situation, but is rather related to incomplete data series (up to august 2004)

Source: DFAE, Analysis: Viva Rio/ ISER

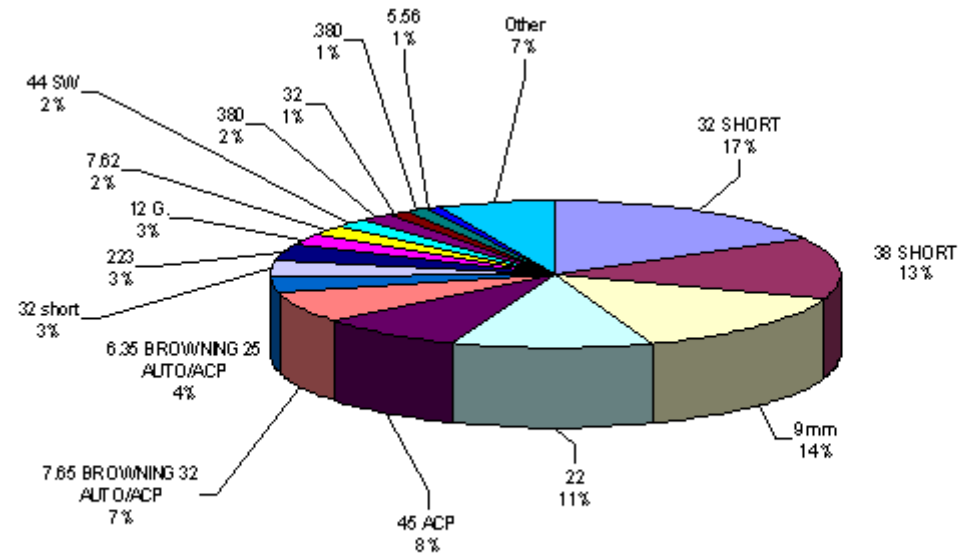
Table 2. Selected Manufacturing countries (in grey):

Manufacturing country	N	%
USA	14335	54,8
Argentina	4074	15,6
Italy	1899	7,3
Germany	1162	4,4
Spain	1080	4,1
Austria	854	3,3
Czech Republic	744	2,8
Belgium	657	2,5
China	490	1,9
France	342	1,3
Israel	282	1,1
Russia	82	under 1%
United Kingdom	71	" "
Switzerland	31	" "
Chile	19	" "
Egypt	9	" "
Poland	8	" "
Sweden	8	" "
Japan	4	" "
Yugoslavia	4	" "
Korea	3	" "
Denmark	3	" "
Korea	3	" "
Philippines	2	" "
Rumania	2	" "
Canadá	1	" "
Finland	1	" "
Total	26170	100,0

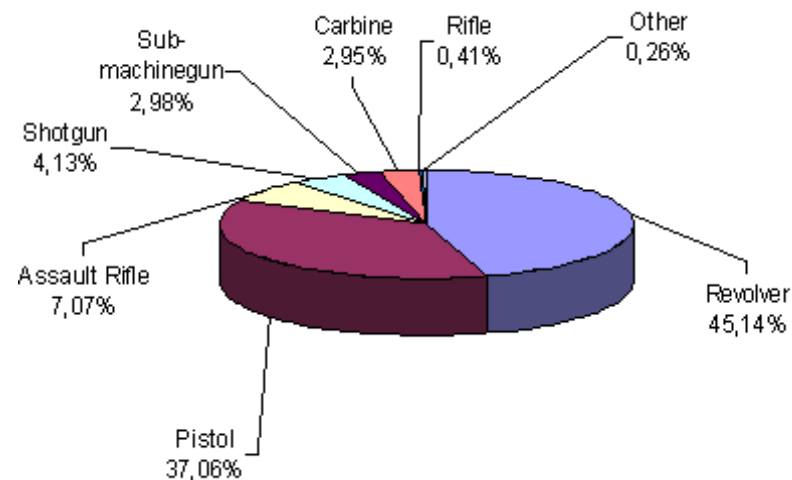
Table 3. Selected foreign made small arms by make:

Make	N	%
Smith & Wesson	7121	27,2
Colt	3516	13,4
Beretta	1720	6,6
Italo	1023	3,9
Winchester	767	2,9
Glock	750	2,9
Ruger	750	2,9
CZ	744	2,8
Walther	690	2,6
Llama	684	2,6
Doberman	631	2,4
Bersa	488	1,9
FN	487	1,9
Norinco	483	1,8
Other	6316	24,1
Total	26170	100,0

Graph 3. Selected small arms by type:



Graph 4. Selected small arms by type, n= 26,170



Source: DFAE, Analysis: Viva Rio/ ISER

Among the selected foreign made weapons it is possible to notice a clear majority of U.S. made small arms, followed by Argentinean made weapons. This is not surprising as the U.S. is a very influential power in the region, is the primary small arms producer in the Western Hemisphere and its products are exported to most of the countries of the region (especially those which do not have a local small arms industry). Also, when foreign weapons are analyzed in isolation it is possible to notice a high proportion of military firearms such as assault rifles and sub machineguns (10%), semi-automatic pistols (37%) and restricted use calibers (9mm, 45ACP, .223; 5.56x45mm ; 7.62mm and .44 S&W). This is because restricted use weapons can not be purchased in gun shops in Brazil, whose domestic commercial market is dominated by permitted use Brazilian made small arms. Criminal organizations are deliberately acquiring military style, and restricted, small arms from foreign sources.

Countries marked in grey in table 2 are the ones selected for analysis because of their quantitative importance (the top ten –up to Israel-) or because of the qualitative importance of the seized weapons in terms of their firepower – China, Israel, Russia, Switzerland. In these latter cases, most of the seized weapons (if not all of them) are military style firearms (assault rifles and/or sub-machine guns). Another criterion was whether or not weapons from a given country are still in production or of they were produced until recently (up to the end of the last decade).⁴⁴

Up to December 2003, when registration was federalized, private small arms owned by individuals with residence in the State of Rio de Janeiro had to be registered at DFAE. The data on seized small arms was then cross-referenced with DFAE´s database of registered small arms in order to evaluate the quantity of foreign made weapons that had previously been registered at DFAE before being seized. This gives some indication of the proportion of small arms that were legally imported by Brazil and then diverted to illicit users (or used in a crime by its legal owner).

⁴⁴ For example, France and Great Britain are not included in the analysis because the majority of the seized small arms are handguns from companies that were still producing handguns at the beginning of the analyzed period, their lines of production revolvers and pistols were interrupted in the early 1980s. The companies are Manurhin and MAB (Bayonne) from France and Webley and Scott from of Great Britain.

The NISAT database of authorized transfers of small arms and light weapons:

This study downloaded, systematized and analyzed data from the NISAT database of small arms transfers (it is the world's only such resource). It contains over 800.000 records detailing transfers between some 250 states and territories over the period 1962-2005. The procedure consisted of downloading data on exports from the 12 countries selected for study from DFAE's database to each South American country (all of which, with the exception of Ecuador and Chile, share borders with Brazil). All export data was mirrored with the import data from the receiving country, this was done in order to cover possible gaps in the data due to misreporting. Differences between import and export data may arise from a lack of reporting on certain categories. Some countries do not report exports or imports of military firearms such as assault rifles and machineguns for national security reasons. Similarly, ammunition destined for the armed forces or police agencies of a country may not be reported. In addition, some major producers such as Belgium or Austria do not report their exports for certain categories such as pistols, and some others like Israel, South Africa, Russia and China do not report at all or only report on a minority of their exports.⁴⁵ Differences between import and export information may also arise because import information is presented as 'CIF' (Cost Insurance Freight) which includes transportation and insurance costs, and exports are represented as 'FOB' (Freight on Board) which exclude these items. In addition, there may be differences caused by time lags in compilation of trade data (the difference between the shipment of the goods and the arrival at the destination).⁴⁶

⁴⁵ On this issue see: Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, pp. 68-82

⁴⁶ On these issues see: International Trade Centre (UNCTAD/World Trade Organization), *Reliability of trade statistics: Indicators of consistency between trade figures reported by countries and their corresponding mirror estimates*, Geneva, Market Analysis Section, 2005.

The NISAT database presents data from several sources, however the most universal and complete is data provided by the United Nations Commodity Trade database (COMTRADE) which is used for this study. Small arms and light weapons are aggregated by NISAT into the following categories:

Table 4.

PRIO_Weapons Code	Description
100	Small Arms, Light Weapons, Ammunition, Explosives, Missiles, Parts & Accessories
150	Small Arms & Light Weapons
200	Small Arms
210	Pistols & Revolvers
220	Rifles/Shotguns - Sport
230	Rifles/Shotguns - Military
240	Machine Guns - Sub & Light
250	Military Weapons
300	Light Weapons
310	Machine Guns - Heavy
320	Cannon
330	Mortars < 100mm
340	Missile & Rocket Launchers - Man Portable
400	Ammunition, Explosives & Missiles
405	Ammunition - all categories
410	Small Arms and Cannon Ammunition
350	Grenade Launchers
415	Small Arms Ammunition
420	Grenades
430	Missiles & Rockets
440	Landmines
450	Military Explosives
500	Parts & Accessories

Of those, the following codes were searched and systematized for this study, with its equivalences in the various international customs positions classification systems used during the period under study:

Table 5.

PRIO_Weapons Code	Description	SITC.1	SITC.2	SITC.3	HS 1992	HS 1996	HS 2002
210	Pistols & Revolvers	95105	95105	89114	9302	930200	930200
220	Rifles/Shotguns - Sport	89431	89461	89131	930320/930330	930320/930330	930320/930330
230	Rifles/Shotguns - Military	95102	95102	89112	9301	930100	930190
240	Machine Guns - Sub & Light	95102	95102	89112	9301	930100	930190
250	Military Weapons	95102	95102	89112	9301	930100	n.a.

These categories in table 5 were selected in order to be represented in the maps: handguns, military firearms (assault rifles and sub machineguns) and shotguns. The category military weapons corresponds to the customs category '930100' which does not differentiate between light weapons, some artillery pieces and military style small arms. This problem was mitigated however through cross referencing with the Stockholm International Peace Research Institute dataset of transfers of major conventional weapons. The category 'Sporting Rifles', (930330) was also analyzed because other sources such as data from the Paraguayan foreign trade consultant company "OCIT Comercio Exterior" and the Uruguayan on-line foreign trade database URUNET (www.urunet.com.uy) indicate that some countries declare the import of semi-automatic versions of assault rifles as "sporting rifles" by customs. Before 1992, sporting rifles were classified by customs codes together with shotguns. The movement of shotguns has been also represented in the maps for the 1994-2004 period. However, the analysis concentrate handguns and military firearms because they correspond to the most relevant types of foreign made weapons seized in Rio de Janeiro during the period under study. Handguns are quantitatively relevant. Within the sample of foreign made weapons, they also have a qualitative value because of the high percentage (22%) of restricted caliber weapons (such as 9mm and .45). Although military firearms represent 10% of the sample, the qualitative value of these weapons is very high because of the rate and range of fire of these types of weapons.

The NISAT database presents the data in current US\$ values, and it is possible to classify the data by country of origin and type of weapon. URUNET (which covers all South America with the exception of Guyana, Suriname and Venezuela) provides data about quantities and in the case of Chile, Uruguay and Argentina about the make, model and calibers of the imported weapon. OCIT provides the same data for Paraguay's imports. These two sources were used to control and clarify the data provided by NISAT.

The data from NISAT was aggregated and geo-referenced in maps that represent legal trade flows to South American countries. Seized small arms are represented with dots equivalent to 10 weapons. In this way it is possible to cross-reference trade flow data with the number of weapons from the exporting country seized in the State of Rio de Janeiro over three consecutive decades.

Trade flows by type of weapon are represented by time series graphs representing mirrored international trade by each South American country (imported by country X from country Y and exported from country Y to country X). These time series graphs were contrasted with seizure statistics provided by the DFAE. This allows an analysis of the time lag between importation by a given country and the seizure of that type of weapon in the State of Rio de Janeiro. It also allows observation of whether or not that weapon type was imported before or after the seizure, something that it could not be shown in a map. The statistical information is complemented by data gathered during field research for previous research by Viva Rio's research team, and by interviews and the analysis of primary sources including a study of the national small arms legislation.

The goal of this research is not to estimate a mathematic correlation between imports and seizures, but to graphically display the routes by which could have been diverted from legal trade and ownership into criminal possession. In most cases, the findings of this study are tentative. It is very difficult to find definitive proof of how a seized weapon was transported to Rio de Janeiro. Instead, this report presents the most likely mechanisms by which the guns were diverted.

4. Smoking guns: following trade flows⁴⁷

This section analyzes the information on small arms manufactured in the selected countries. The analysis cross-references DFAE data on seized and registered small arms and NISAT data on the legal trade in small arms. All foreign trade data is mirrored, that is, charts represent information on a country's imports and on the reported exports to it. Concerning the maps, the higher value of the two data sources was chosen to be geo-referenced.

The analysis is based on the observation of statistics and the background knowledge of both authors on the nature of the region's trade and on arms controls in the region; on additional secondary sources; and on field research carried out in the course of previous research on the issue. Conclusions and observations are not solely taken from the observation of the graphs and maps. Only relevant foreign data series have been chosen for analysis according to the values traded but also to the timing of the imports, that is, if high volumes of imports were made immediately before or during the periods of increasing seizures in the Rio de Janeiro. These two indicators were considered more relevant for weapons that have been intensively traded in civilian markets such as handguns. In the case of military firearms, given the extent of the problem of diversion of military and police surplus in the region, short time lags between imports and seizures were not considered that relevant because improperly managed surpluses and stockpiles of military weapons can be stored for decades before they start leaking in to illegal markets.

⁴⁷ Unless otherwise specified or quoted information, from this section draws from the following sources: Iooty Dias, Carolina, "Legislação para controle de armas leves no Brasil: de Vargas a Lula", in Fernandes, op.cit., pp. 37-63; Rivero, Patrícia, "O Mercado Ilegal de Armas de Fogo na Cidade do Rio de Janeiro", in Fernandes, op.cit., pp. 197-267; Dreyfus, Pablo; Lessing, Benjamin and Purcena, Julio Cesar, "A Indústria Brasileira de armas leves e de pequeno porte: Produção e Comércio Legal", in Fernandes, op.cit., pp.64-125; Dreyfus, Pablo and de Sousa Nascimento, Marcelo, "Posse de Armas de Fogo no Brasil: Mapeamento das armas e seus proprietários", in Fernandes, op.cit., pp.126-196; Dreyfus, Pablo and Bandeira, Antônio Rangel, *Vecindario Bajo Observación: un estudio sobre las "transferencias grises" de armas pequeñas y munición em las fronteras de Brasil con Paraguay, Bolivia, Uruguay y Argentina*, Rio de Janeiro, Viva Rio, Proyecto Control de Armas de Fuego, Documento de Trabajo N° 2, 2006; Dowdney, Luke, *Children of the Drug Trade: a Case Study of Children in Organized Violence in Rio de Janeiro*, Rio de Janeiro, 7 Letras, 2003; Lessing, Benjamin, "Demanda por Armas de Fogo no Rio de Janeiro", in Fernandes op.cit. pp.268-292.; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246; Small Arms Survey, *Small Arms Survey 2006: Unfinished Business*, Oxford, Oxford University Press, 2006, pp.65-94 and 215-246; Small Arms Survey, *Small Arms Survey 2001: Profiling the Problem*, Oxford, Oxford University Press, 2001; Small Arms Survey; *Small Arms Survey 2004: Rights at Risk*, Oxford, Oxford University Press, 2004; Hogg, Ian and Weeks, John, *Pistols of the World, Fully Revised 3rd Edition, A Comprehensive Illustrated Encyclopedia of the World's Pistols and Revolvers from 1870, to the Present Day*, Northbrook, IL, DBI Books, Inc, 1992; Hogg, Ian, *Jane's Guns Recognition Guide*, Glasgow, Harper Collins, 2000; *Gun Trader's Guide, Twenty-Sixth Edition*, Stoeger, 2003; Craig, Philip, *The World's Great Small Arms*, New York, Barnes and Noble, 1993; Departamento del Tesoro, Dirección de Alcohol, Tabaco y Armas de Fuego (ATF); *Manual de Campo para la Identificación Registro y Fotografía de Armas de Fuego, Explosivos y Artillería Militar*, Washington D.C., ATF, no date, Gander, Terry J. and Cutshaw, Charles Q., *Jane's Infantry Weapons, Twenty-fifth Edition 1999-2000*, London, Jane's Information Group, 1999; Dreyfus, Pablo; Godnick, William; Iooty, Carolina; Lessing, Benjamin, *Control de Armas Pequeñas em el MERCOSUR, Serie América Latina, N°3*, Rio de Janeiro/ London, Viva Rio and International Alert, 2003.

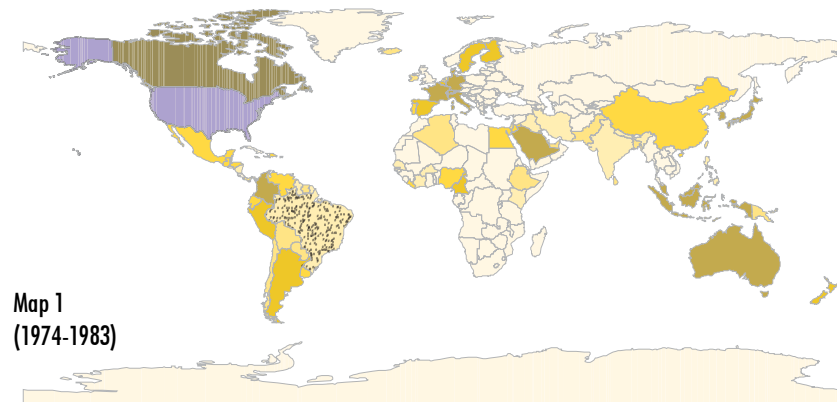
In all graphs representing time series, the scales are similar, although values differ from one case to another. The reader should then pay particular attention to the values in the Y axis, which are represented in constant year 2000 US Dollars. As explained before, differently from import and export series represented in charts, which have been deflated using the US Gross Domestic Product evolution as a deflator, all maps in this report were made in US\$ current dollars the reason for that is to have a static picture of which were the imports from a given country during a particular decade and not to make comparisons across decades. Whereas the goal of maps is tracking down seizures and imports in a given decade, graphs and charts are meant to follow the evolution and trends of seizures in the State of Rio de Janeiro, and patterns of trade along time. In each map, the darker a country map gets, the were higher imports during that decades. Each tone of color represents a range in terms of current US\$. The exporting country is represented in blue. Weapons seized during a given decade in the State of Rio de Janeiro are represented by black dots over the map of Brazil. Each dots represents 10 weapons.

Colombia deserves a special mention. Because of its internal conflict and drug trafficking problems, this country is likely to be a net recipient of small arms through illicit channels. Weapons flow illicitly into Colombia and not out of the country. Moreover, since 1993 when a new small arms control regulation was put in place, it is extremely difficult to purchase small arms in that country. To begin with, there are no private gun shops in Colombia. Weapons and ammunition can only be purchased at INDUMIL, the State's arms company, which is, at the same time, the only authorized importer. There are INDUMIL commercial desks in several military units in the country however, trade is not open to the public and requires very strict licensing procedures. The main problem is with non-registered weapons purchased before 1993, and with illegal weapons trafficked in to Colombia. Estimates of illicit weapons in Colombia range from 800,000 to 3 million, which are used by criminals within Colombia. For these reasons commercially imported weapons are not be considered as a likely source of diversion to Brazil. However, the possibility of diversion, theft and capture of police and military stockpiles will be considered, as will its trade with drug trafficking groups based in Rio de Janeiro. This is why in this section particular attention is given to transfers to Colombian State institutions. This possibility is relevant because of the proven links between the FARC and drug trafficking factions based in Rio de Janeiro, involving the exchange of cocaine from Colombia for Brazilian made small arms and ammunition.

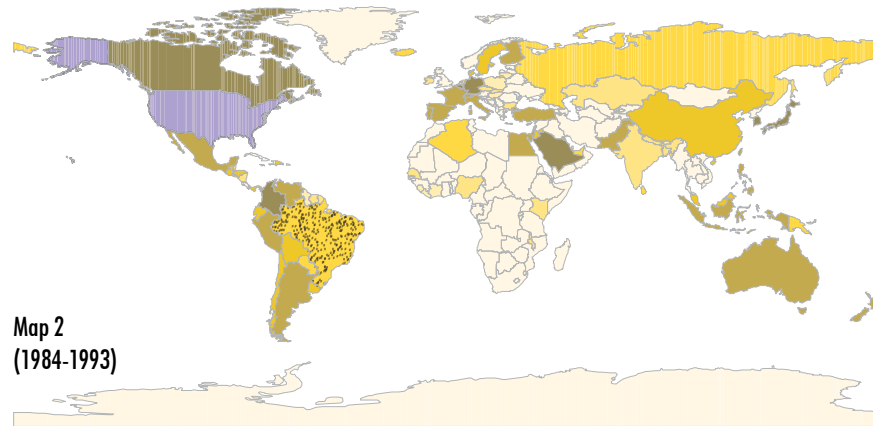
These flows of weapons are directed toward Colombia, however, it is also possible that diverted, stolen or captured Colombian police and military surplus could also be sent by traffickers to Brazil.⁴⁸

⁴⁸ See: Small Arms Survey 2006, pp.222-223; Ávila Camacho, Daniel, " Interrelación entre el tráfico de drogas y el tráfico ilícito de armas en América centra y el norte de América del Sur", in Gasparini, Alves, Péricles and Cipollone, Dainana Belinda (Editors), *Represión del Tráfico Ilícito de Armas Pequeñas y Tecnologías Sensibles: Una Agenda Orientada hacia la Acción*, New cork and Geneva, United Nations Institute for Disarmament Research,, 1998, pp.51-57; Cragin, Kim and Hoffman, Bruce; *Arms Trafficking and Colombia*, Santa Monica,, Rand Corporation, 2003 http://www.rand.org/pubs/monograph_reports/2005/MR1468.pdf; Câmara dos Deputados, Departamento de Taquigrafia, Revisão e Redação, Núcleo de Redação Final em Comissões, Texto com Redação Final, Transcrição IPSIS VERBIS, CPI, Tráfico de Armas, N° 1978/05, Brasília, Câmara dos Deputados, 2005.

United States



Map 1
(1974-1983)

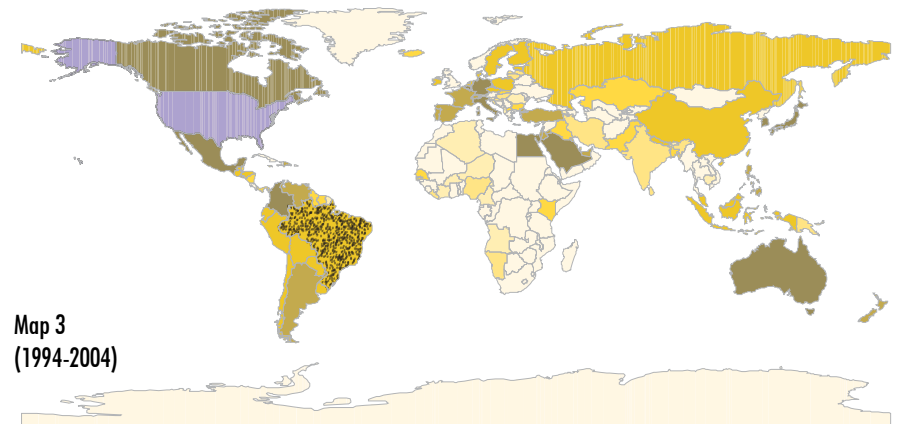


Map 2
(1984-1993)

Maps 1, 2 and 3. Small Arms legally transferred from the United States and US made weapons seized in Rio de Janeiro (1974-2004)

Type of seized weapon 1974 - August 2004	Total
Revolver	8.803
Pistol	2.626
Assault Rifle	1.106
Shotgun	761
Carbine	678
Sub-machine gun	245
Rifle	87
NO DATA	11
Other	18
Total	14.335

Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 10000
10001 - 100000
100001 - 500000
500001 - 2000000
2000001 - 10000000
10000001 - 50000000
50000001 - 395703353



Map 3
(1994-2004)

According to the Small Arms Survey 2006, United States ranks second among the top ten world exporters of small arms and light weapons. This country has a big, old and well established small arms industry composed of several companies commercially selling products that range from handguns to semi-automatic versions of assault rifles and machineguns. It is unsurprising that the United States ranks first as the source of foreign small arms seized in the State of Rio de Janeiro.

Maps 1, 2 and 3 indicates that there have been significant transfers of small arms to Brazil and its neighbors, *and* that there have been significant numbers of seizures of US made small arms. This pattern of sales to the region and concomitant seizures is repeated in all three decades highlighted.

Handguns:

The number of seizures of US made handguns, particularly pistols, increased during the mid-1990s, especially after 1996 (graphs 1 and 2). That period was characterized by conflict between rival drug trafficking factions for the control of cocaine retailing in different parts of Rio de Janeiro. In addition, the period was marked by an escalation of violence between the police and the traffickers.

There were moderate imports by Brazil of US origin weapons during 1993 to 1998 (graph 7). The period is coincident with the “Real Plan”, a monetary policy starting in 1994 that maintained a Real/US Dollar parity until 1999. This exchange rate favored imports, and may have contributed to the authorization of imports of models or types of pistols not produced in Brazil.

However, there are three reasons why the main source of the seized US origin pistols is unlikely to have been direct imports by Brazil from the US:

First, the number of seized weapons with previous legal registration (shown in green in Graphs 1 and 2) is minimal when compared with the guns without previous registration (shown in red). This indicates that most of the weapons had been illicitly acquired or possessed.⁴⁹

Second, most of the seized pistols in the period 1994-2004 have ‘restricted use’ calibers (.45 and 9mm - graph 3). A likely source of these restricted weapons would have been purchases in neighboring countries such as Venezuela or Paraguay (where such guns could be freely purchased in shops by civilians), or Argentina, followed by the guns being clandestinely transferred over the border into Brazil.⁵⁰

Graphs 8 and 9, show that there were supplies of US pistols and revolvers to Argentina and Venezuela which could have been subsequently sent to Brazil. However the available data does not define the exact caliber of the handguns.

⁴⁹ It is though important to note that collectors and shooters do not register their weapons at DFAE. Therefore some of the seized guns may have originated from this source, but it is unlikely to have comprised a significant proportion

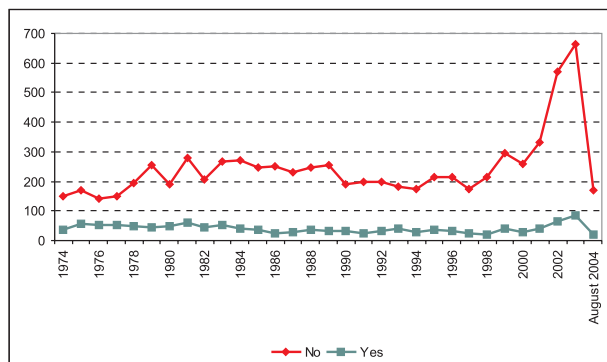
⁵⁰ Similarly, small quantities may have been imported legally by Brazilian collectors (see footnote 1).

Third, there are significant anomalies in the sale of US origin firearms to Paraguay which can best be explained by massive diversion of weapons exported to Paraguay into illicit markets in Brazil. A dramatic peak in handgun imports to Paraguay from the USA is evident in precisely those years that the seizure of 'restricted use' US origin pistols started climbing (graph 10).

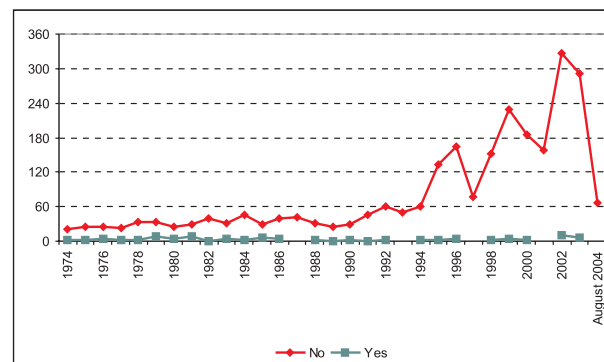
The coincidences between graphs 10 and 1 and 2 are startling. They indicate that US exports to Paraguay are the most likely source of the US origin pistols and revolvers that were seized by the Rio de Janeiro police. Paraguayan arms traders cashed in on a booming market which depended upon illicit demand from Brazil as people crossed the border to buy firearms from Paraguayan gun shops. This diversion point was recognized by the US government and in 1996 it banned all such export licenses to Paraguay. It is for this reason that identified imports in graph 10 decline dramatically in that year. However, the flows of US origin weapons into Brazil from Paraguay didn't stop after the US imposed its ban. Field research made in 2000 and 2005 found that stocks of handguns imported in the mid 1990s still remained in Paraguayan gun shops. The most likely source of US origin handguns seized in Rio de Janeiro was a wave of US made handguns were exported to Paraguay in the mid-1990s that then made their way clandestinely into Brazil and were, over the following years, gradually seized in police operations.

Seized small arms graphs:

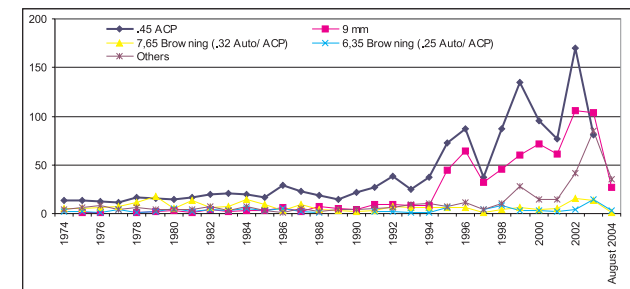
Graph 1. USA: revolver registered (yes/no)



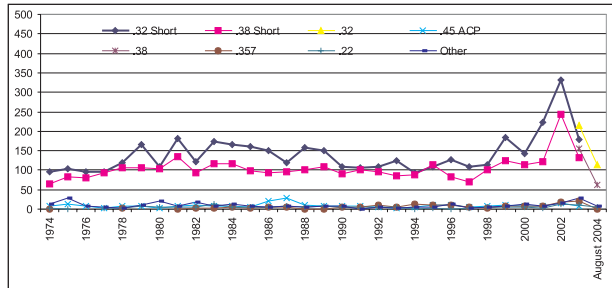
Graph 2. USA: pistol registered (yes/no)



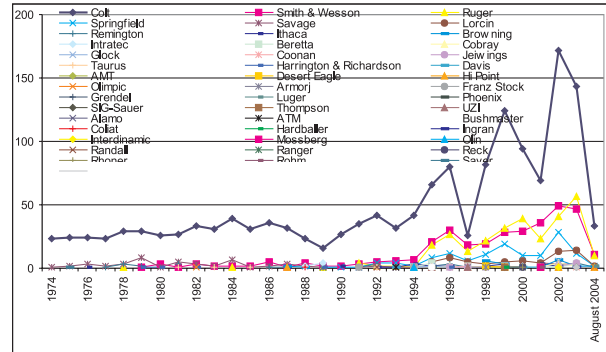
Graph 3. Pistol by caliber



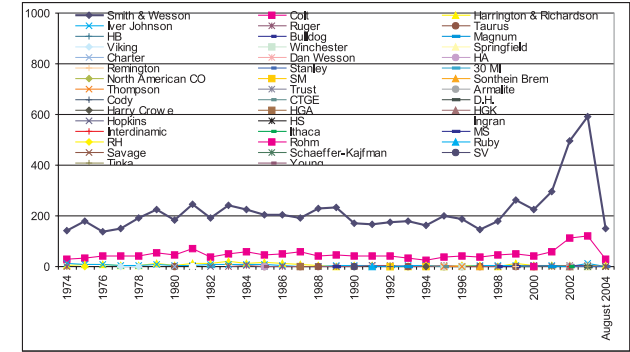
Graph 4. Revolver by caliber



Graph 5. Pistol by maker

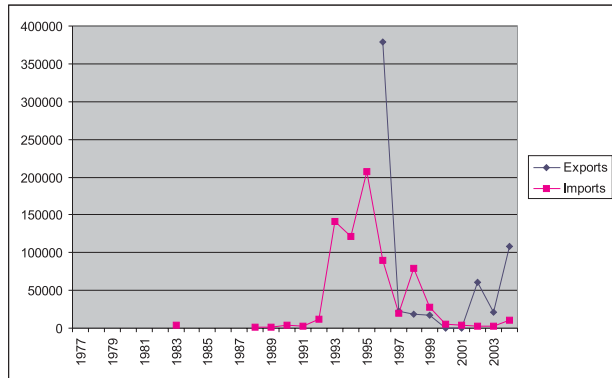


Graph 6. Revolver by maker

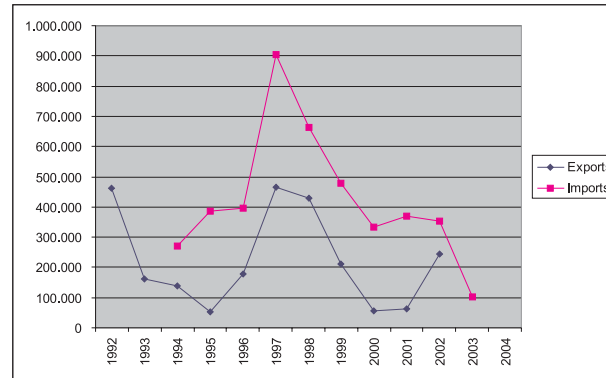


Legal transfers graphs:

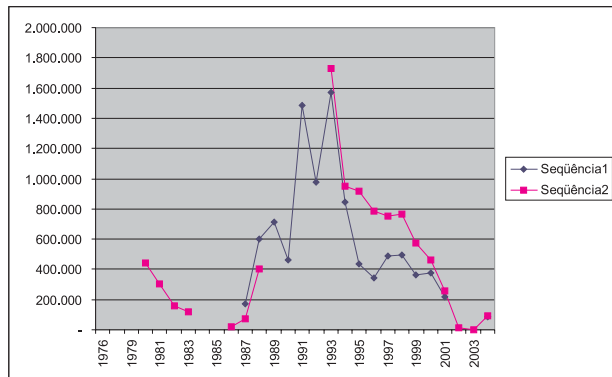
Graph 7. Brazil: Handguns from USA



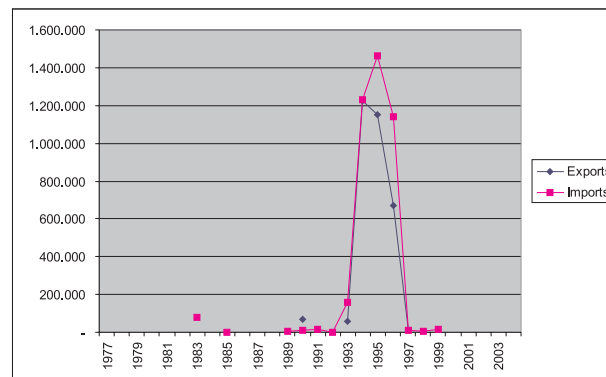
Graph 8. Venezuela: Handguns from USA



Graph 9. Argentina: Handguns from USA



Graph 10. Paraguay: Handguns from USA



Military Firearms (assault rifles and sub machineguns):

Much more sensitive than the US origin pistols, were the 1,351 assault rifles and sub-machine guns seized by the Rio de Janeiro police. Concerning assault rifles, the make, caliber, and the years of seizure are very powerful indicators. Seizures (see graph 5) show a prevalence of 5.56x45mm caliber rifles and .223 caliber rifles. In theory this is the same caliber (measured in millimeters and inches). However, it is very common that semi-automatic versions of assault rifles produced for the civilian market have the caliber marked in inches (i.e. .223 or .308) and fully automatic military versions are marked in millimeters (i.e. 5.56 or 7.62). This is the case for different US manufacturers who produce a wide range of versions of the M-16 (military) and AR-15 (civilianized) rifles under the brand names: Colt, Ruger, Bushmaster, PWA, Olympic, and Armalite.

The seizures of Colt 5.56x45mm caliber rifles are very interesting, because the numbers climbed in 2000 (see graph 5). This occurred after an import of over US\$ 1 million worth of military weapons in the year 2000 (see graph 7). This import occurred in the same year that the Public Security Secretariat of Rio de Janeiro decided to equip its policemen with M-4 carbines (short version of the M-16 noted above) as the standard long barrel weapons for the uniformed police and special teams of the investigative police. The import was authorized because at the time Brazilian industry did not manufacture a rifle with the characteristics of the M-4 (with a short barrel and of 5.56mm caliber). That the seizure of the 5.56 caliber rifles and Colt rifles climbs precisely from the year 2000 onwards indicates that the weapons could have been diverted into illicit markets from official police stockpiles. Indeed, in the DFAE's database one can find assault rifles identified as police weapons in the "observations" field. Another possibility is the diversion from stockpiles of the marines (*Fuzileiros Navais*) which incorporated 5.56x45mm M16A2 rifles in late 1997.

The US is also a major supplier of military firearms to the governments of the region. The extent of this kind of weapon in the sample (assault weapons and sub machineguns) could be explained by diversions from military stockpiles in Brazil and its neighbors.

The 'civilianized' AR-15 rifles (marketed as 'Bushmaster', 'PWA', and 'Olympic') and semi-automatic "sport" rifles (Ruger and Mini-Ruger), are designated as being 'sporting rifles' in trade statistics. This is because these kind of weapons which have military features can be exported as sporting rifles to countries where the ownership of these weapons by civilians is allowed . Such domestic regulations apply in Brazil (for collectors and shooters up to the year 2000), Argentina (as conditional civilian use weapons), and Paraguay where these types of weapons can be purchased in any gun shop (as long as the purchaser has the correct authorization). It is therefore likely that the 'civilianized' assault rifles were originally lawfully exported from the USA as sporting guns before they were diverted into illicit ownership.

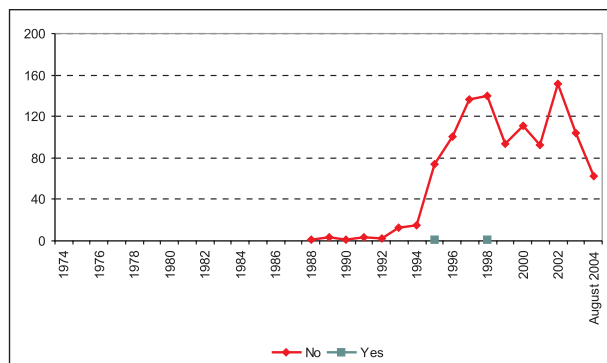
A very likely diversion point is Paraguay. Graph 8 indicates that significant transfers of sporting rifles were made from the USA to Paraguay precisely in the years immediately before the rise in seizures of US origin assault rifles in Rio de Janeiro. Moreover, data from

OCIT Comercio Exterior (see section 3) , shows that Paraguay imported a total of 452 US made 'Bushmaster' and 'Sporter' .223 caliber rifles in 1994. Brazil also made a substantial import of sport rifles in 1999 and 2001, most likely for collectors or shooters. There are no records of such 'civilianized' versions of assault rifles being registered with the DFAE before they were seized. Therefore the guns were either owned by people that do not need to register, such as the collectors , or were exported to Brazil's neighbors, before they were diverted into illegal ownership. Since they do not register their weapons with DFAE and since this kind of weapon can not be openly purchased by civilians in gun shops in Brazil, there are no records of registration of these kinds of weapon at DFAE). In addition, Argentina is a possible source, as is shown in graph 9.

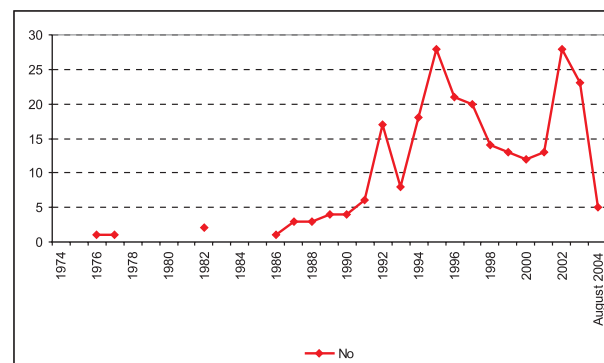
Concerning sub-machineguns, the make and caliber of the seized weapons indicate the illicit trade of semiautomatic versions of Ingram sub machine guns produced in the USA for the civilian market (under the brand names Intratec, Cobray).The possible sources are likely to be the same as used for the diversion of assault rifles –namely importation by Brazilian collectors, or to countries bordering Brazil. However, since these imitations of the Ingram have a reputation of being cheap and low quality, it is unlikely that they were imported by collectors in Brazil.

Seized small arms graphs:

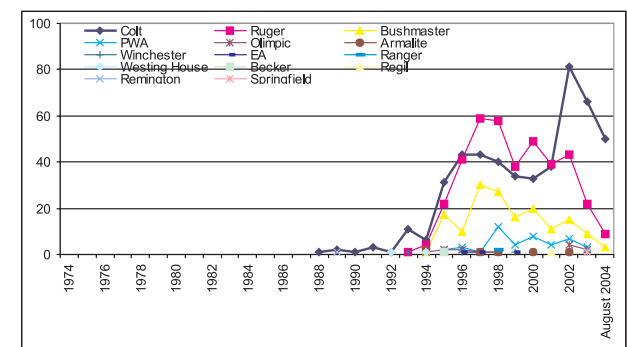
Graph 1. USA: assault rifle registered (yes/no)



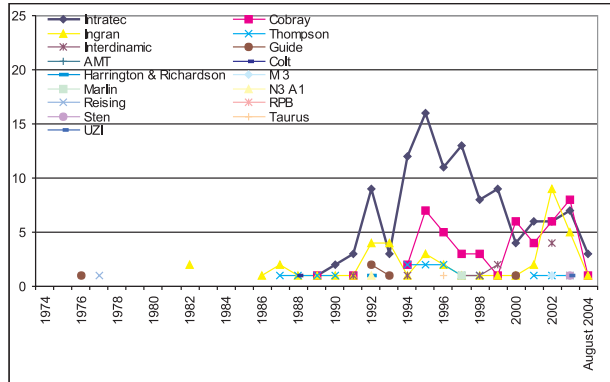
Graph 2. USA: sub-machine gun registered (yes/no)



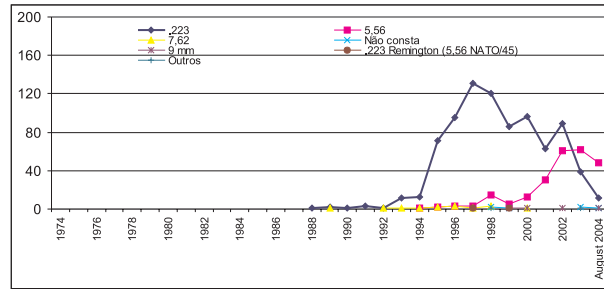
Graph 3. Assault rifle by maker



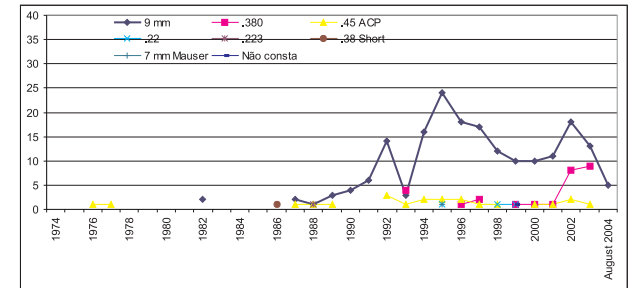
Graph 4. Sub-machine gun by maker



Graph 5. Assault rifle by caliber

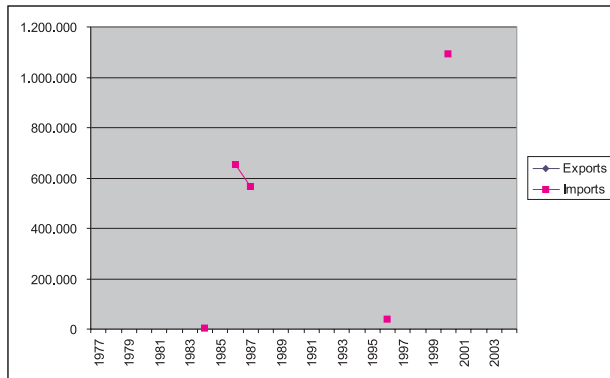


Graph 6. Sub-machine gun by caliber

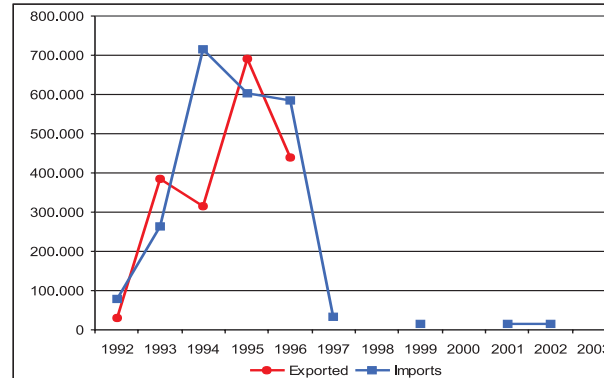


Legal transfers graphs:

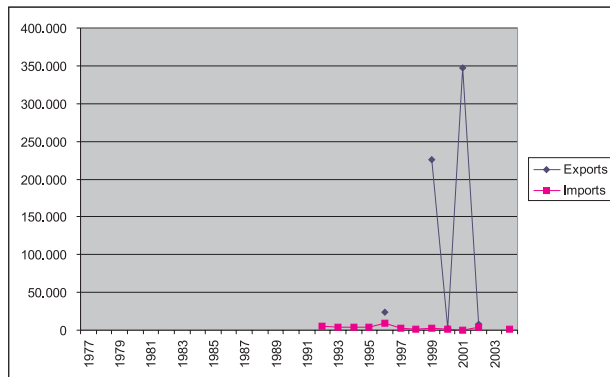
Graph 7. Brazil: Military Weapons from USA



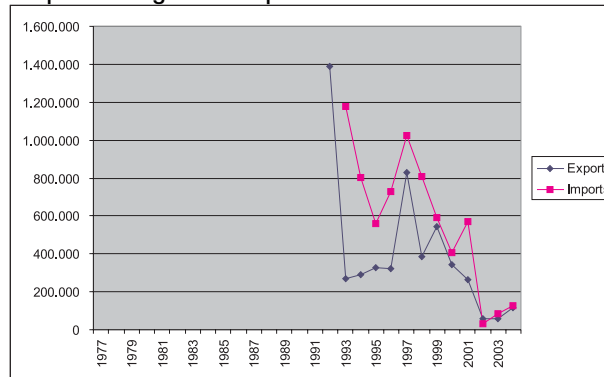
Graph 8. Paraguay: Sport Rifles from USA



Graph 9. Brazil: Sport Rifles from USA



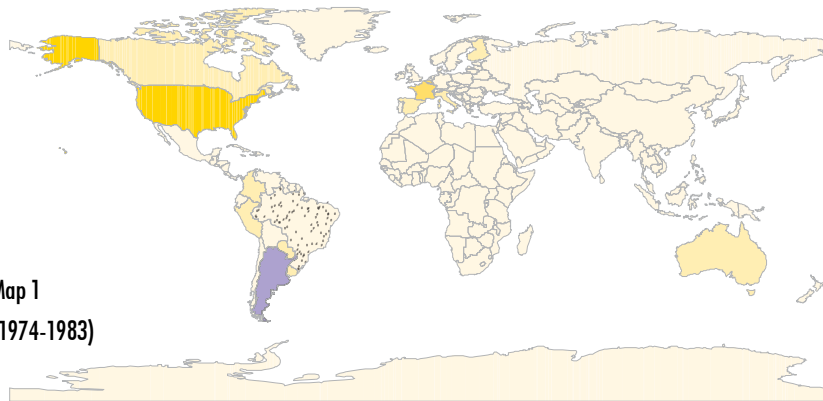
Graph 10. Argentina: Sport Rifles from USA



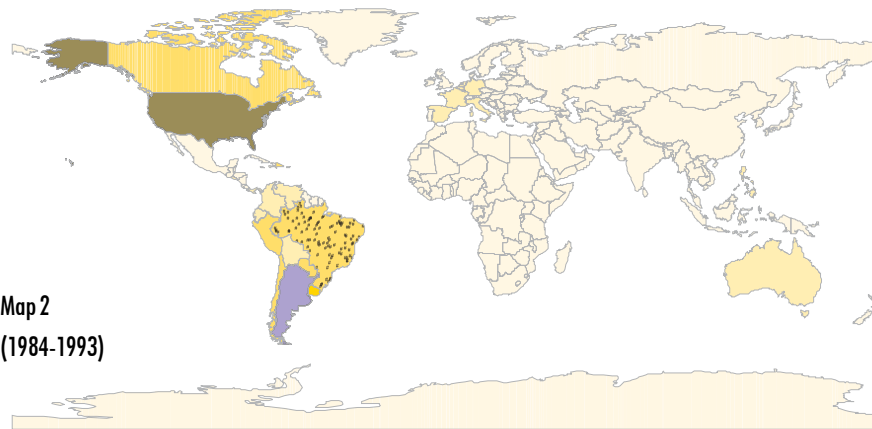
Argentina

Maps 1, 2 and 3. Small Arms legally transferred from Argentina and Argentine made weapons seized in Rio de Janeiro (1974-2004)

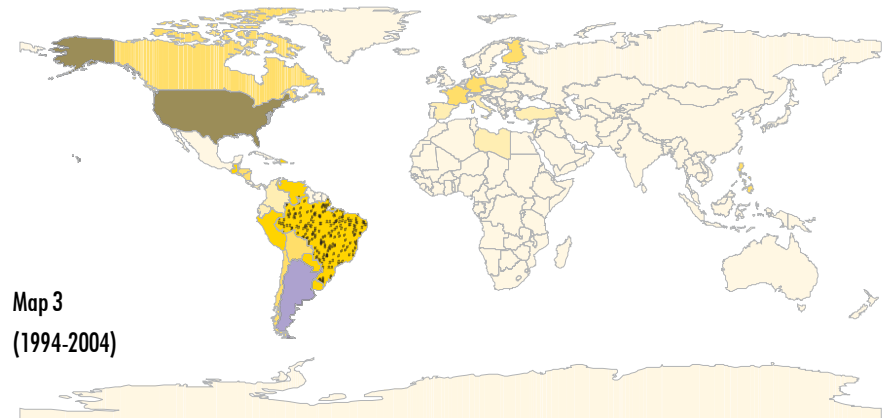
Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)



Country Limits
 Manufacturing Country
 Number of firearms seized
 1 Dot = 10
 Import in US\$
 0 - 10000
 10001 - 100000
 100001 - 500000
 500001 - 2000000
 2000001 - 10000000
 10000001 - 50000000

Type of seized weapon 1974 - August 2004	Total
Revolver	2.748
Pistol	901
Sub-machine gun	275
Assault Rifle	118
Carbine	19
Shotgun	7
Single Shot Pistol/Hand Shotgun	4
NO DATA	2
Total	4.074

Maps 1, 2 and 3 show that the main export markets for small arms produced in Argentina are in the Americas – to the USA and Canada, and to its neighbors in South America. Lesser markets are found in Western Europe.

After Brazil, Argentina is the second largest Latin American arms producer and exporter. As a result of import substitution and “developmentist” (*desarrollistas*) policies in the 1950s and 1960s Argentina developed an important medium sized metallurgic industry. As a by-product of this process, a local private small arms industry developed in the 1960s, and 1970s. Several companies manufactured handguns and low caliber sporting rifles which were marketed at very cheap prices in Argentina and exported especially to bordering countries. Several factors combined in the late 1980s and early 1990s that led to the closure of most of these factories:

- the hyper inflation crisis of the 1980s;
- Peso/Dollar parity from 1991 to 2001 and the opening of the economy to better quality products at cheaper prices; and
- more restrictive small arms control measures and policies adopted from 1994 onward.

Only two commercial companies survived the crisis with good quality and reliable handguns: Bersa S.A. (Pistols), and Rexio S.R.L (Revolvers and hand shotguns). In addition, the state owned Fabricaciones Militares (DGFM), which was created in the 1940s, produced small arms and light weapons for the Armed Forces and well as small arms and ammunition for the civilian market, along with other types of military equipment. During the 1970s and 1980s the company also exported assault rifles and sub-machine guns to the Armed Forces of Peru, Uruguay, Honduras, Colombia and Bolivia. In the mid 1990s it was embroiled in a series of scandals after it emerged that the company had been involved in illicit transfers of weapons to Croatia and Bosnia (which were then under a UN arms embargo); and to Ecuador in 1995 in violation of an international treaty (as Ecuador was at that point at war with Peru, and Argentina was one of the guarantors of a peace treaty signed between both countries in 1941).⁵¹ Bersa and Rexio consolidated in the domestic market and also managed to open market niches in the United States, Canada and Latin American countries. Fabricaciones Militares was dismantled during the privatization processes of the 1990s and the illegal arms export scandals. The small arms plant ceased the production of military firearms in the early 1990s and concentrates today on the production of 9mm and .40 pistols, ammunition and .22 carbines for domestic and foreign civilian and police markets and for the Armed Forces. With the devaluation of the Peso in 2002 and the return of protectionist policies, some new companies emerged producing low quality and cheap revolvers (such as F & L).

Maps 1,2 and 3 indicate that Argentina has exported significant quantities of small arms to Brazil and its neighbors – primarily Paraguay, Venezuela and Peru. In addition, there has been a steady increase in the number of Argentinean small arms seized when the decades are compared. Brazil has not imported Argentinean small arms since 2001 (Graph7).

⁵¹ See: Santoro, Daniel, *Venta de Armas, Hombres del Gobierno: El Escándalo de la Venta Ilegal de Armas Argentinas a Ecuador, Croacia y Bosnia. La verdadera Historia*, Buenos Aires, Planeta 1988.

Analysis of police seizures of Argentinean origin weapons indicate a clear predominance of 'permitted use' revolvers (calibers .22; .32 and .38) which were evenly distributed over the period 1974 – 2004. Unlike other types or weapons, there are no distinctive peaks and troughs. In addition, a clear majority of revolvers had not been registered, indicating that they may have been illicitly imported (Graph 2).

The most likely source of the revolvers were the cheap, low quality revolvers manufactured and sold by Argentine companies in the 1970s and 1980s when registration and trade regulations were very lax. These weapons are still circulating in informal markets all over Argentina and in Paraguay where field research showed that it was possible to illegally purchase .22, .32 and .38 caliber Argentine revolvers in open sky markets in the Capital City, Asunción.

Concerning pistols, analysis indicates a larger proportion of guns that had previously been registered. (Graph 1). These weapons were most likely legally exported to Brazil and sold to licensed users, but were subsequently diverted onto illicit markets through theft, loss, or illicit sale. In addition there are many 'restricted use' calibers (such as 9mm). These weapons were more likely to have been illicitly trafficked into Brazil. Significant transfers of handguns have been made from Argentina to some of Brazil's neighbors – mainly to Venezuela, Paraguay and Uruguay (Graphs 7, 8, 9). These three countries have porous borders with Brazil, a history of lax controls over the purchase of firearms and gun shops located close to the border with Brazil.

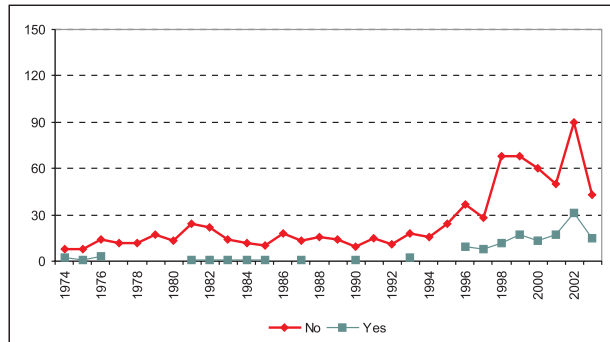
Again, a particular culprit is likely to have been exports to Paraguay which were then diverted into Brazil. For example, following a tracing request formulated in 2001 by the Government of Rio de Janeiro, the Argentine National Arms Registry (RENAR) identified 222 Bersa pistols that had been exported to the companies Perfecta S.A. of Paraguay and Rossi de Moraes of Rio Grande do Sul, Brazil.⁵²

The seizure of DGFM 9mm pistols may also be explained by material being diverted from official Argentine military and law enforcement stockpiles. This has been identified as a serious problem since the mid-1990s – which was when Argentina abolished its compulsory military service and so reduced by more than half the number of personnel in its Armed Forces (Graph 3).

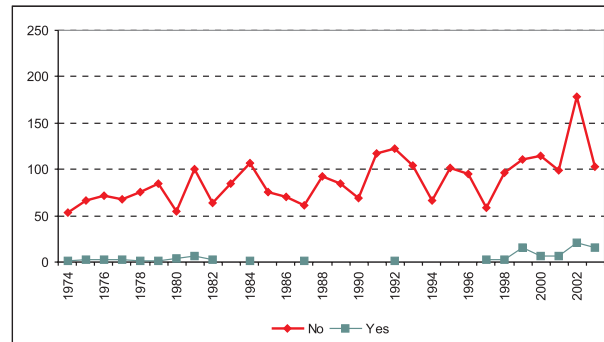
⁵² In 2003 Uruguay introduced stricter controls

Seized small arms graphs:

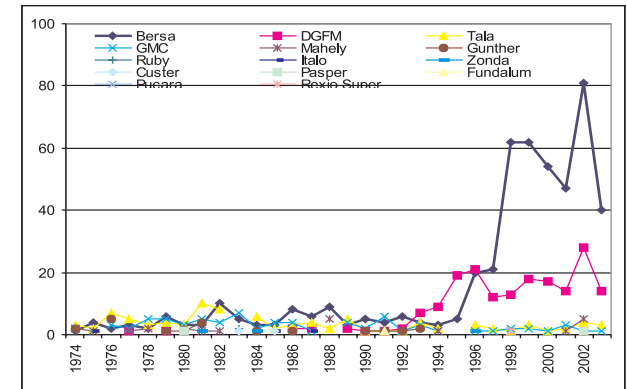
Graph 1. Argentina: pistol registered (yes/no)



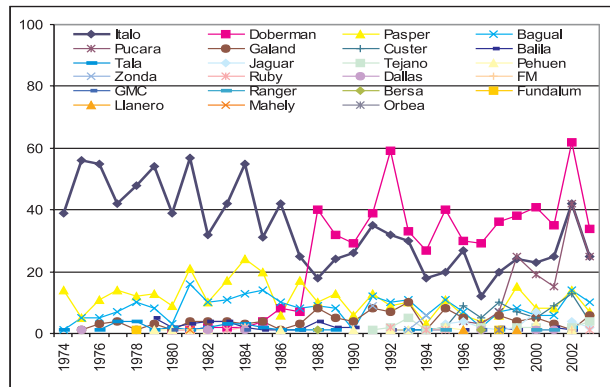
Graph 2. Argentina: revolver registered (yes/no)



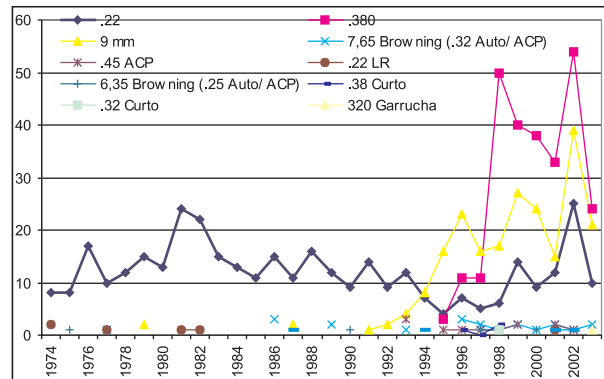
Graph 3. Pistol by maker



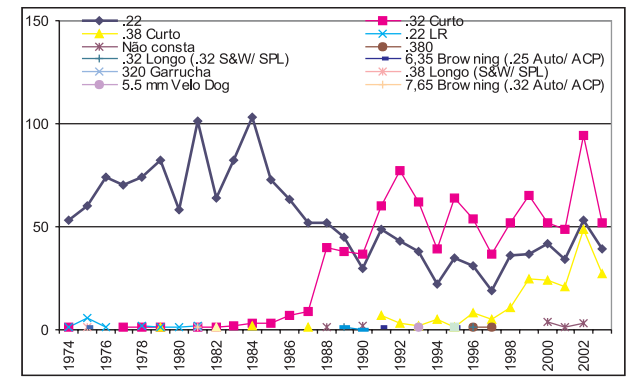
Graph 4. Revolver by maker



Graph 5. Pistol by caliber

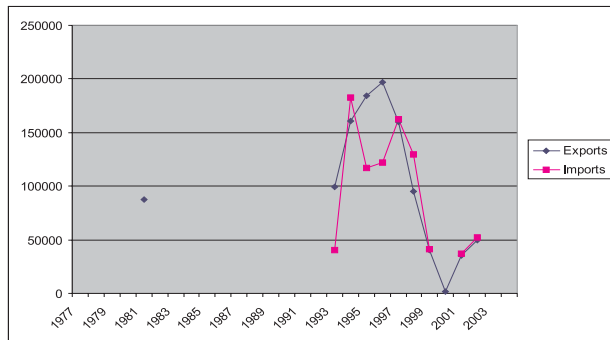


Graph 6. Revolver by caliber

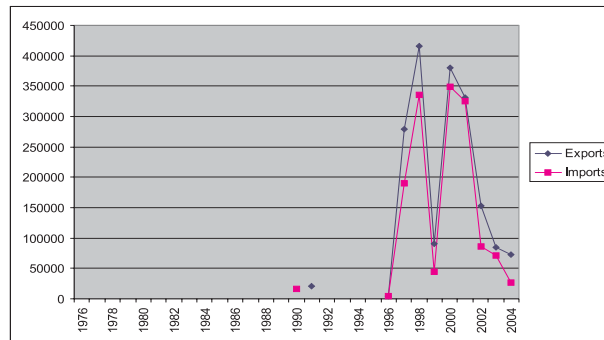


Legal transfers graphs:

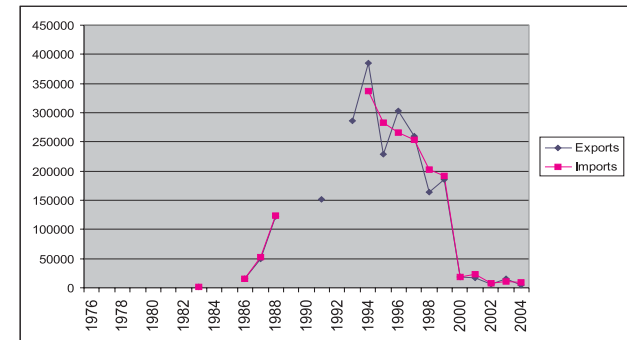
Graph 7. Paraguay: handguns from Argentina



Graph 8. Venezuela: Handguns from Argentina



Graph 8. Uruguay: Handguns from Argentina

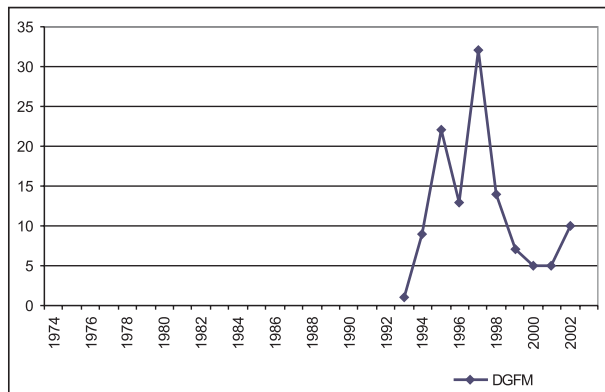


Military Firearms (Assault Rifles and sub-machine guns):

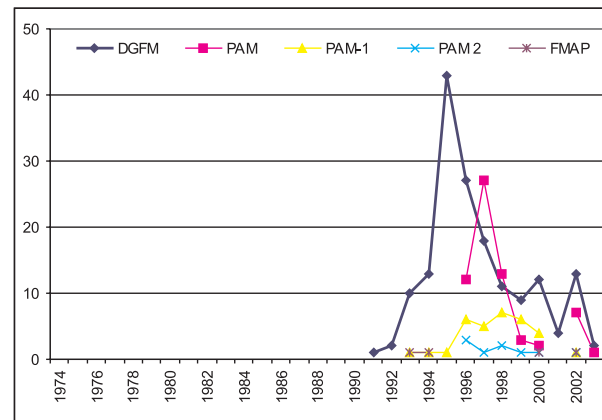
Seizures of FAL rifles, and sub-machine guns, produced under license by Fabricaciones Militares in Argentina start in the early 1990s and reach a peak in the mid 1990s. The only military firearms export by Argentina detected in the NISAT database was a US\$ 70,000 export to Uruguay in 1982.⁵³ There is evidence released by the Argentine Congress which indicates that such military firearms are being smuggled with grenades directly into Brazil from Argentina.⁵⁴ The source of the weapons is leakages of military and police surplus stocks. In addition, it is also possible that remnants of weapons that were illegally sold to Ecuador during its conflict with Peru in 1995 could have been trafficked into Brazil.

Seized small arms graphs:

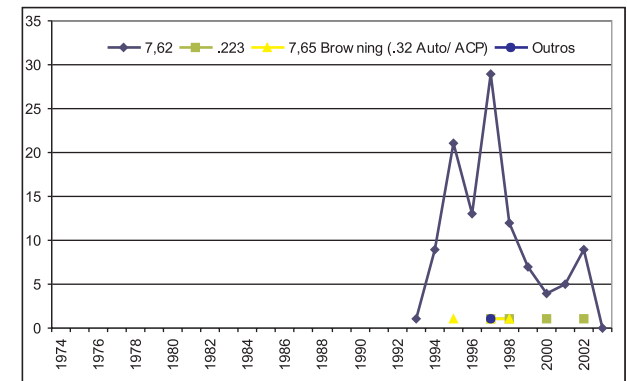
Graph 10. Assault rifle by maker



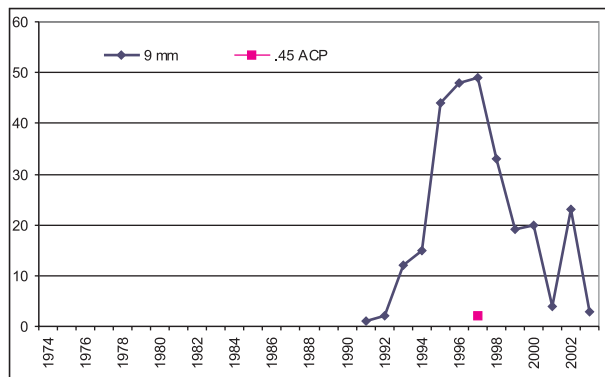
Graph 11. Sub-machine gun by maker



Graph 12. Assault rifle by caliber



Graph 13. Sub-machine gun by caliber



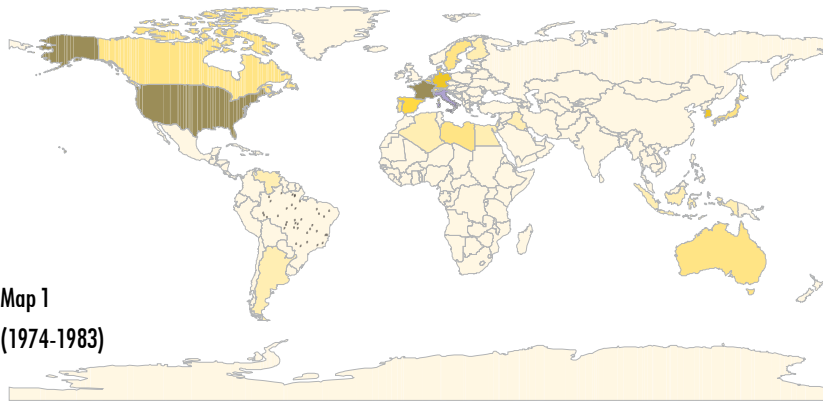
⁵³ As noted above, many transfers of military style small arms may not be officially reported for national security, or other, reasons.

⁵⁴ Werneck, Antonio "Argentina Sabia de Desvio de Armas", O Globo, 28 May, 2002 and "Cómo llegan a los narcos de Río las armas argentinas", Clarín, 6 July 2003, www.clarin.com/diario/2003/07i-02815.htm

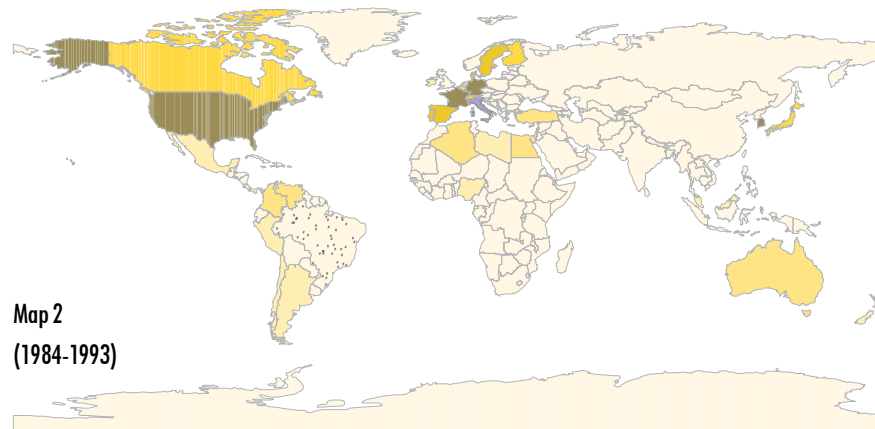
Italy

Maps 1, 2 and 3. Small Arms legally transferred from Italy and Italian made weapons seized in Rio de Janeiro (1974-2004)

**Map 1
(1974-1983)**



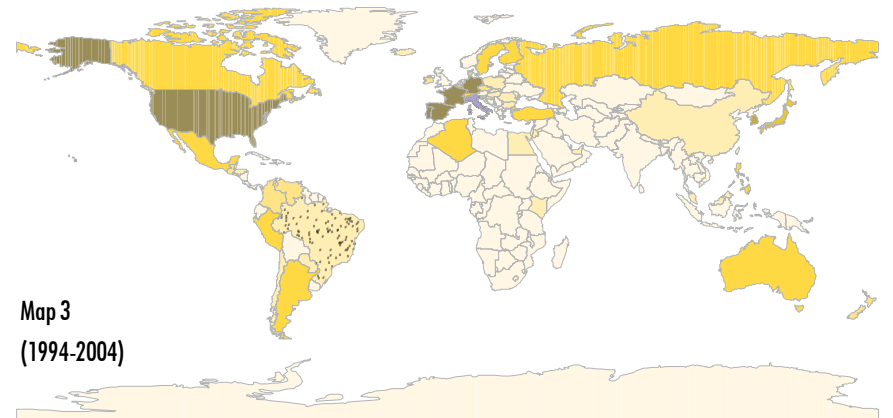
**Map 2
(1984-1993)**



Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 1390000
1390001 - 5000000
5000001 - 15000000
15000001 - 32000000
32000001 - 57000000
57000001 - 87000000
87000001 - 950000000

Type of seized weapon 1974 - August 2004	Total
Pistol	1.751
Shotgun	105
Revolver	20
Sub machine Gun	20
NO DATA	1
Rifle	1
Single Shot Pistol/Hand Shotgun	1
Total	1.899

**Map 3
(1994-2004)**



Italy is one of the world's largest producers and exporters of small arms. In particular, the Beretta company has exported pistols across the world. Especially during the decade 1994 – 2004 there were significant transfers of small arms to Brazil and its neighbors, and numerous seizures of Italian origin small arms.

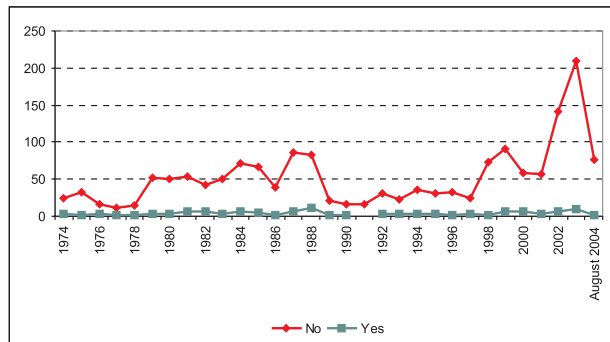
Until the late 1990s, the overwhelming majority of pistols seized in Brazil were of 'permitted use' calibers and there are no relevant imports by Brazil in the period under study.⁵⁵ This situation changed after 1998 when there was a pronounced increase in the number of seizures of 9mm pistols, which peaked in 2003. In addition, the majority of seizures were of weapons that had not previously been registered. This again may be an indication that many of the seized guns had not been lawfully imported into Brazil, but had been imported illicitly (Graphs 1 to 3)

Four countries are candidates for being the diversion point: Paraguay; Argentina; Venezuela and Peru. All three have porous borders with Brazil, and all three experienced dramatic increases in identified supplies of pistols and revolvers in the years prior to the peaks in seizures by the police of Italian origin pistols (Graphs 4 to 7).

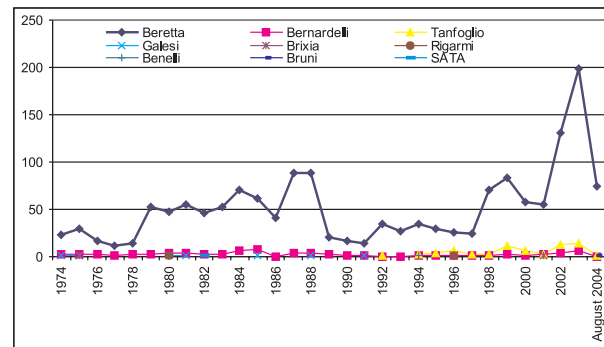
⁵⁵ This may be explained by the fact that since 1957 to 1977 a Brazilian branch of Beretta manufactured low caliber pistols for the Brazilian Civilian market. From 1978 to 1980 Beretta produced Model 92 9mm pistols for the Armed Forces. In 1980 the plant of Beretta was purchased by Taurus, which started producing 92 pistols under the make and model Taurus PT-92. Whereas the production of 9mm pistols was limited to the military market in limited quantities, the production for the civilian market was massive. At a time in which registrations requirements were very low. Most of Beretta permitted used pistols in this graph may well be "Brazilian Berettas" mistakenly registered as "Italian" by DFAE personnel.

Seized small arms graphs:

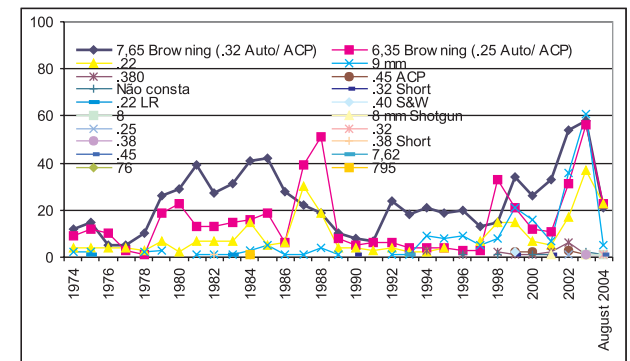
Graph 1. Italy: pistol registered (yes/no)



Graph 2. Pistol by maker

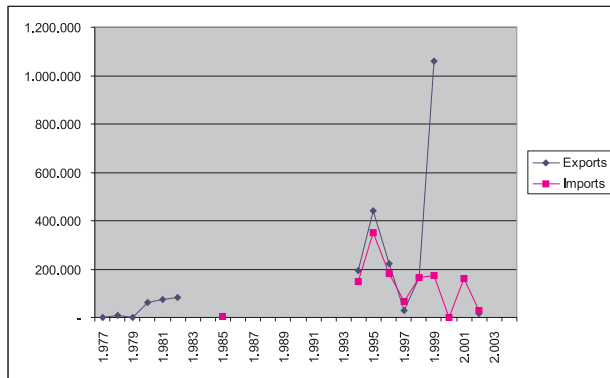


Graph 3. Pistol by caliber

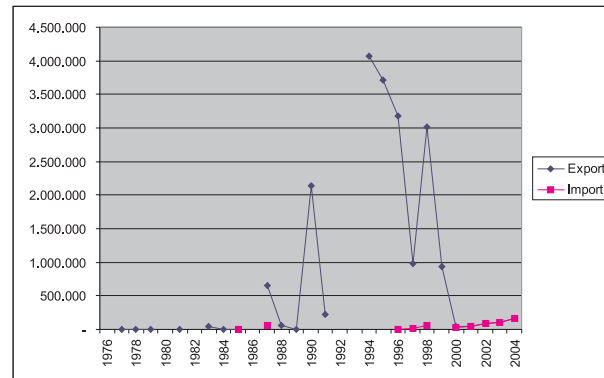


Legal transfers graphs:

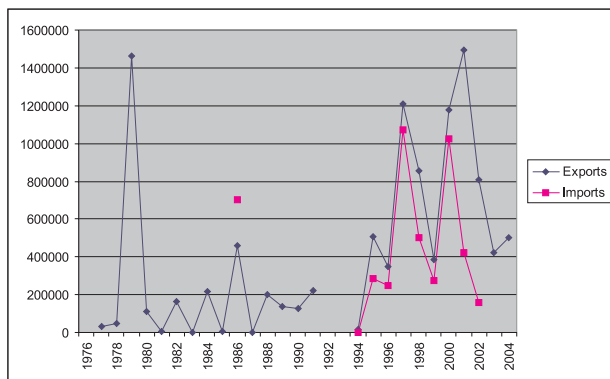
Graph 4. Paraguay: Handguns from Italy



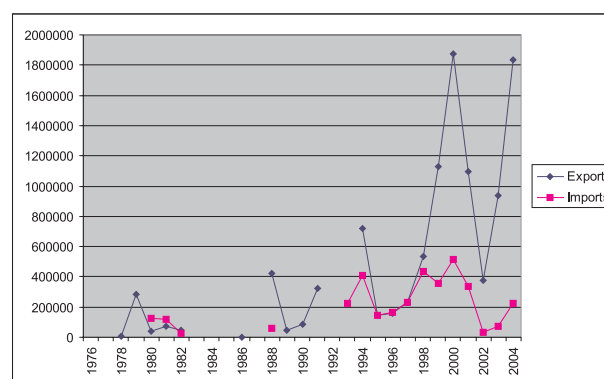
Graph 5. Peru: Handguns from Italy



Graph 6. Venezuela: Handguns from Italy



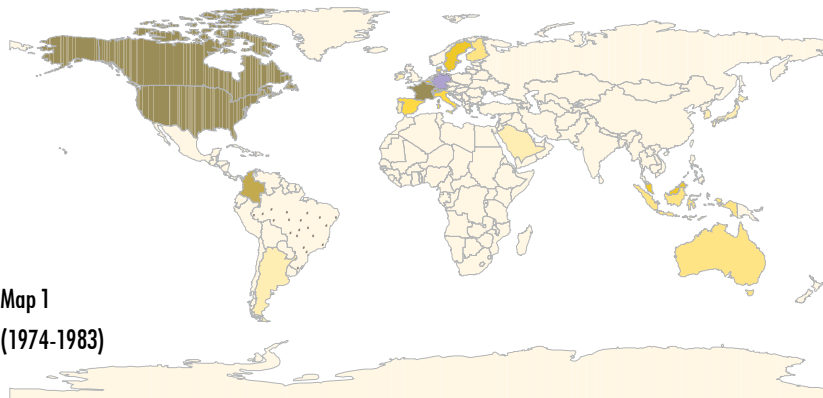
Graph 7. Argentina: Handguns from Italy



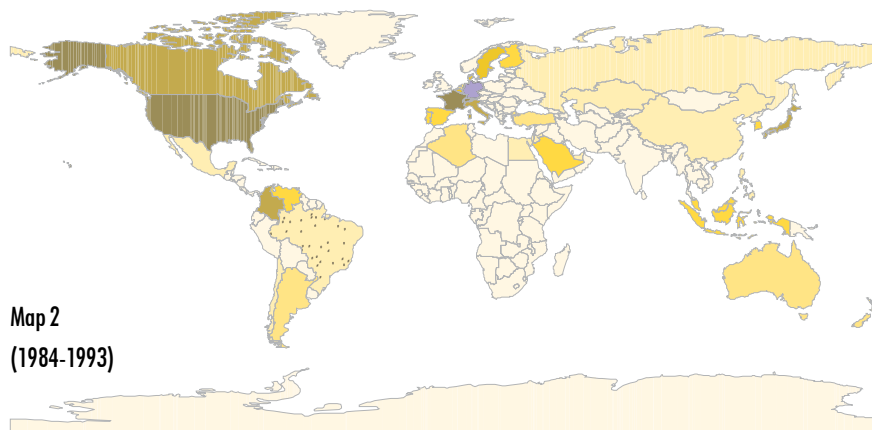
Germany

Maps 1, 2 and 3. Small Arms legally transferred from Germany and German made weapons seized in Rio de Janeiro (1974-2004)

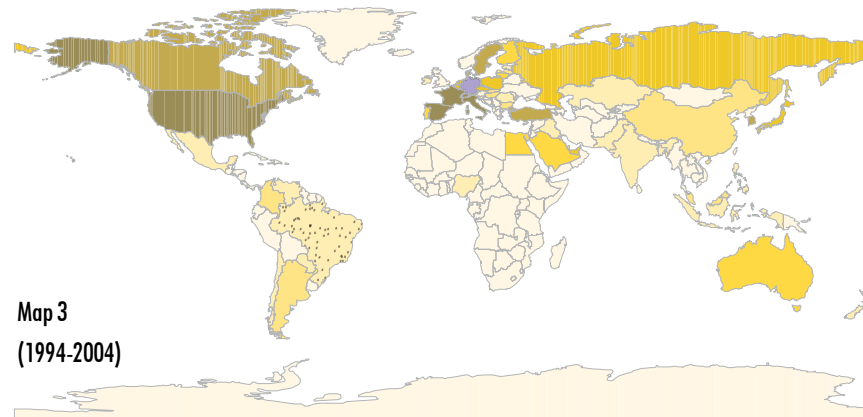
Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)



Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 6000000
6000001 - 20000000
20000001 - 38000000
38000001 - 90000000
90000001 - 170000000
170000001 - 340000000
340000001 - 4600000000

Type of seized weapon 1974 - August 2004	Total
Pistol	723
Revolver	154
Assault Rifle	138
Sub-machine gun	101
Shotgun	27
Carbine	15
Rifle	3
Machine Gun	1
Total	1.162

Germany is one of the world's largest producers and exporters of small arms and light weapons. As noted in map 3, some of its most important markets are located in North America and Western Europe. In addition, it has made significant sales to South America, including to Brazil and its neighbors. When the three decades are compared it is important to note that the number of seizures of German origin weapons has increased significantly. Imports from East Germany were not included in the map because there almost no records of seizures of weapons made in that country.

Handguns:

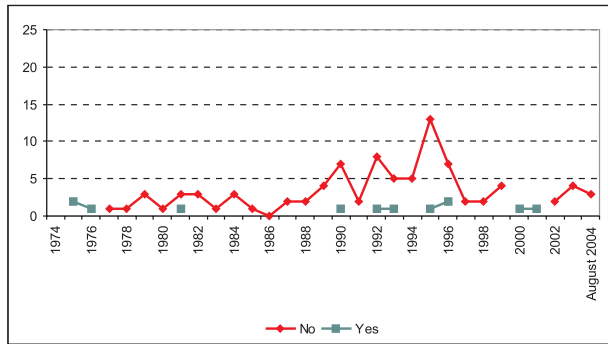
Analysis of the data on seized weapons (see graph 1) indicates that there has been a steady rise in the number of seized weapons of German origin over the period 1974 – 2003. There were several peaks in the seizures, most notably in the period 1993-1996, 1999 and 2002-2003. As is shown in graph 2, the predominant calibers are 7.65 mm Browning (or .32 Auto), which is a 'permitted use' caliber, and 9mm, which is a 'restricted use' caliber. The predominant makes are Walther, and Heckler and Koch (as shown in graph 2).

Analysis of arms transfers to Brazil (see graph 4) shows significant exports of German handguns to Brazil in 1992, 1994, 1995, 1997 and 2003. These transfers are concomitant with a subtle although relatively important rise in seized pistols with previous registration from 1997 onwards (shown in graph 1). Since neither the Brazilian Armed Forces nor law enforcement agencies are known to use German handguns as standard side arms, the imports shown in graph 4 are most likely related to permitted use weapons imported for the civilian market. The increase in seizures since the mid 1990s may be related in part to the diversion of these legally imported German handguns which were sold on the domestic market. There are indications however that the increase in seizures in that period is related to illicit transfers of weapons originally exported to Paraguay and Argentina.

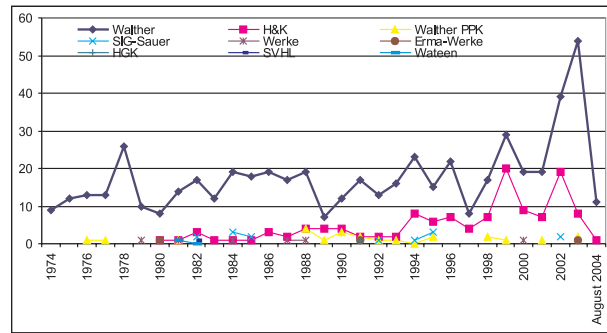
As noted in section 2 field research in Paraguay and police investigations have found ample evidence that Paraguay is a point at which small arms are diverted into illicit markets in Brazil. In graph 6 shows significant exports and imports from Germany to Paraguay over the period 1994 to 1998 (especially in 1997) – during or just before the peaks of seizures in Rio de Janeiro. One very likely source is the city of Pedro Juan Caballero which lies on the border with Brazil. It is a city of 70,000 inhabitants and 5 gun shops, and one of them is an authorized dealer of Heckler and Koch and Walther pistols. Similarly, there were significant transfers to Argentina over the period 1992 to 2001 (Graph 5) . During that period there were lax controls in Argentina regarding sales in gun shops located in cities along the border with Brazil. Therefore Argentina is another likely diversion point of the German origin pistols seized in Brazil.

Seized small arms graphs:

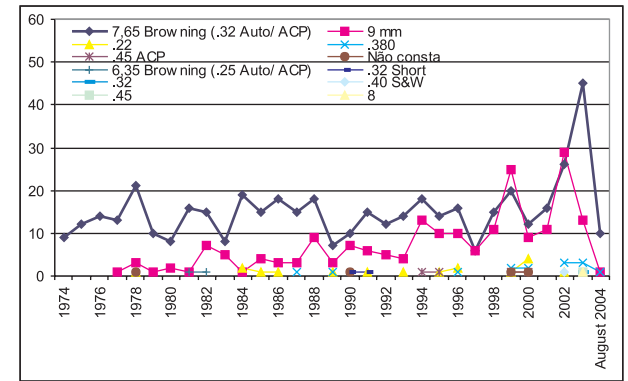
Graph 1. Germany: sub-machine gun registered (yes/no)



Graph 2. Pistol by maker

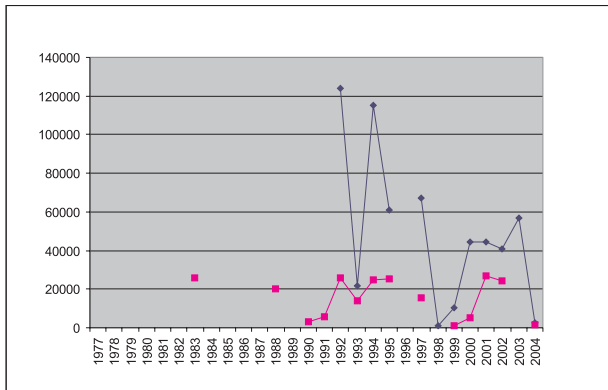


Graph 3. Pistol by caliber

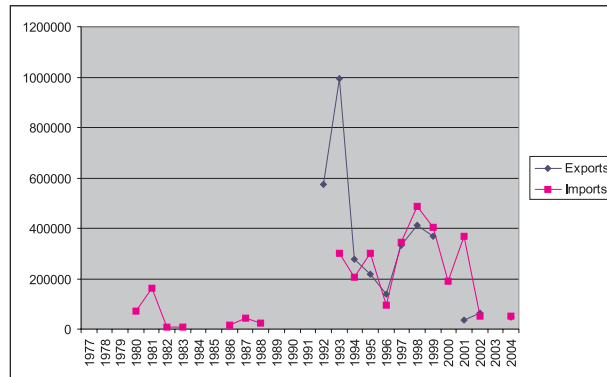


Legal transfers graphs:

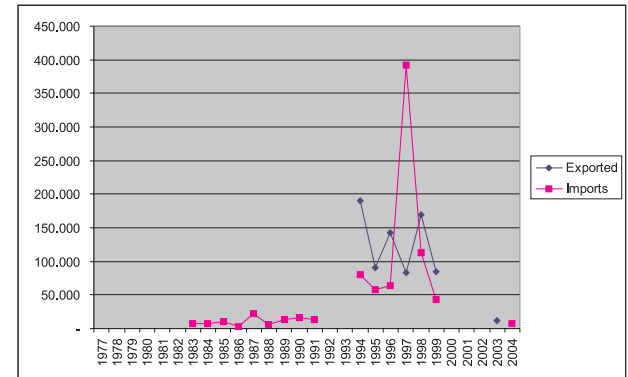
Graph 4. Brazil: handguns from Germany



Graph 5. Argentina: handguns from Germany



Graph 6. Paraguay: handguns from Germany



Military firearms:

Assault Rifles:

Graphs 7 to 12 highlight the seizure of a total of 240 military style firearms. These weapons, such as assault rifles or sub-machine guns, are extremely dangerous in the hands of criminals or drug traffickers. There was a dramatic increase in seizures of German origin assault rifles after 1996, while seizures of German origin sub-machine guns peaked in the mid-1990s.

As shown in graphs 13 to 17 there have been important transfers of German origin military weapons to Brazil, Argentina, Colombia, and Venezuela. Brazil and Colombia are the most likely diversion points of the assault rifles. The standard assault rifle used by the infantry units of the Brazilian Air Force is the Heckler and Koch HK-33 (5.56x 45mm caliber) , and there is evidence of theft and diversion to drug trafficking organizations of this type of rifle from Air Force bases in Rio de Janeiro. Regarding Colombia, until the early 1990s the Heckler and Koch 7.62x51mm caliber assault rifle was the standard infantry weapon of the Colombian Armed Forces. These are most likely responsible for the high volumes of transfers of military weapons from Germany to Colombia during the period 1980 to 1993 (see graph 17). Germany interrupted exports to Colombia in the early 90s due to concerns about human rights violations committed by Colombian security forces. A consequence of the cessation of German supplies was the Colombian government's decision in 1993 to purchase supplies from a different source. Instead of buying German guns, the Colombian state owned company INDUMIL (Industria Militar) started producing the 5.56x45mm caliber Galil rifle, which was produced under a license from Israeli Military Industries (IMI).

The decision to adopt the Galil rifle lead to large surpluses of the old Heckler and Koch assault rifles in Colombia. They would have provided a likely source of weapons to be smuggled over the border into Brazil. Paraguay is an additional likely diversion point. The Brazilian police seized several G-3 rifles with marks of the Paraguayan military rifles at the border with Paraguay. The assault rifles had markings that identified the weapons as belonging to the Paraguayan Armed Forces. (However, analysis of trade data has not produced direct reports of transfers of military weapons from Germany to Paraguay).

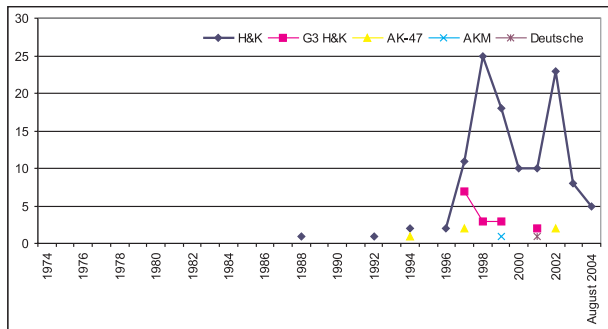
The exception to the absence of weapons from the former German Democratic Republic (East Germany) are 6 assault rifles identified as AK-47 and AKM (caliber 7.62x39) seized in 1994, 1997, 1999 and 2002 as shown in graph 1. There are no records in NISAT however about transfers of Military Firearms from East Germany to South America, at least in the period under study. Either these exports were not reported or these weapons got to the region through entirely illicit channels instead of being diverted after legal import to Brazil or its neighbors.

Sub-machine guns:

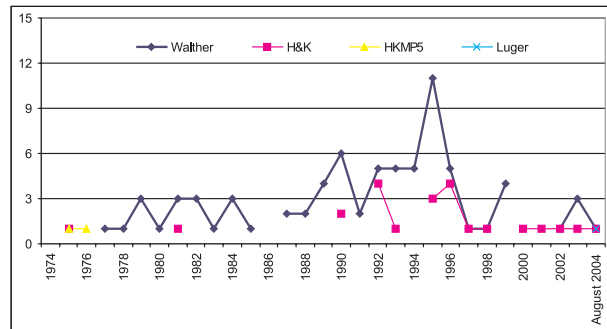
Concerning sub-machine guns, the most frequently seized German origin guns were made by Walther and Heckler and Koch (see graph 8). Sub-machine guns made by these companies, the Walther MPK and Heckler and Koch MP5, are in service with some units of the Brazilian Armed Forces and law enforcement agencies, including the Civilian Police of Rio de Janeiro. Therefore, the seized sub-machine guns may well be small arms diverted or stolen from official stockpiles in Brazil. Since the H&K MP5 and Walther MPK are also used by the armed forces of Argentina (MP5) , Venezuela (MPK) and Colombia (MPK), some of the seized weapons may have originally been imported by these countries in graphs – as shown in graphs 14 to 16.

Seized small arms graphs:

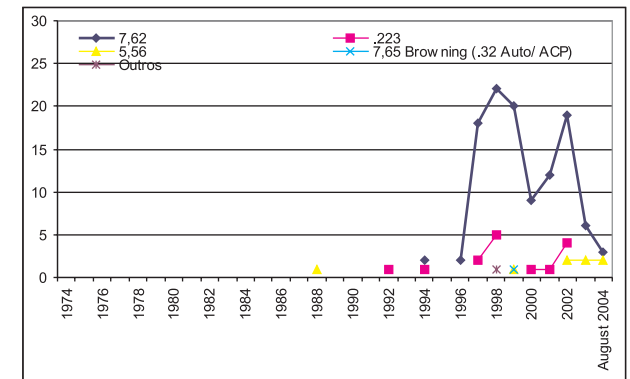
Graph 7. Assault rifle by maker



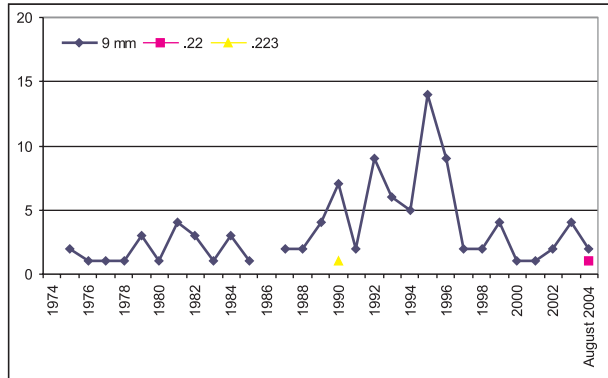
Graph 8. Sub-machine gun by maker



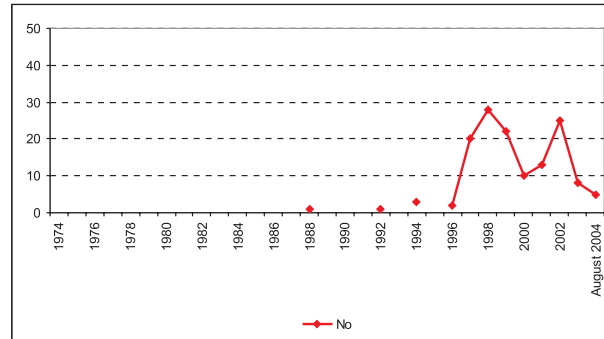
Graph 9. Assault rifle by caliber



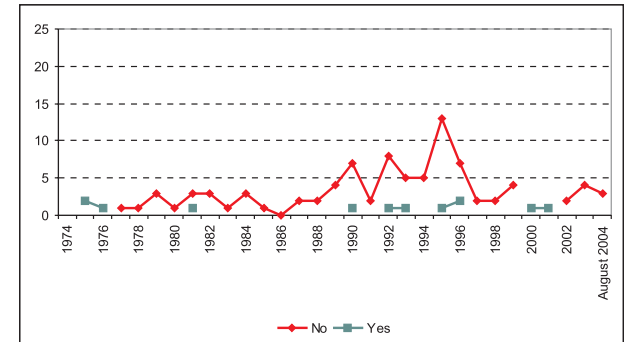
Graph 10. Sub-machine gun by caliber



Graph 11. Germany: assault rifle by registered

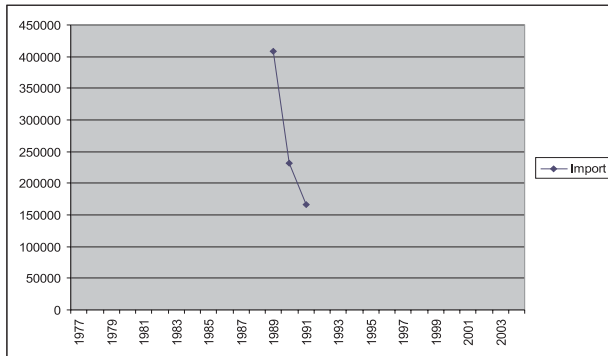


Graph 12. Germany: sub-machine gun by registered

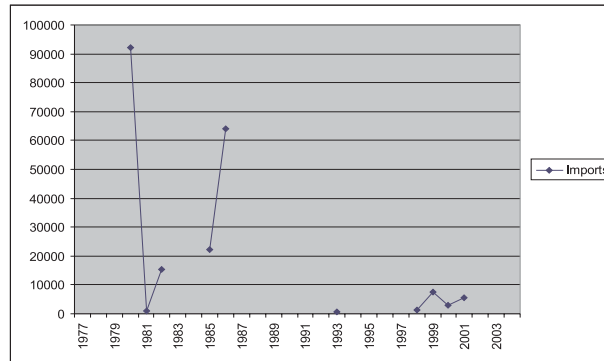


Legal transfers graphs:

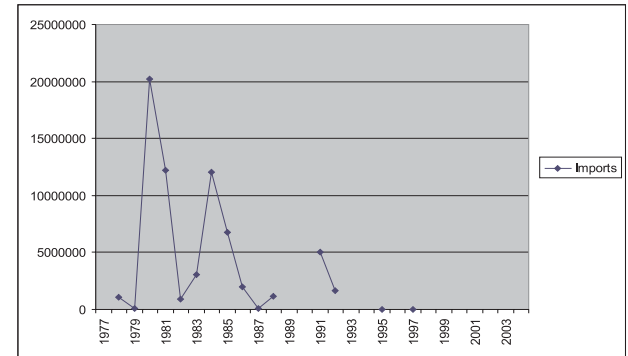
Graph 13. Brazil: Military weapons from Germany



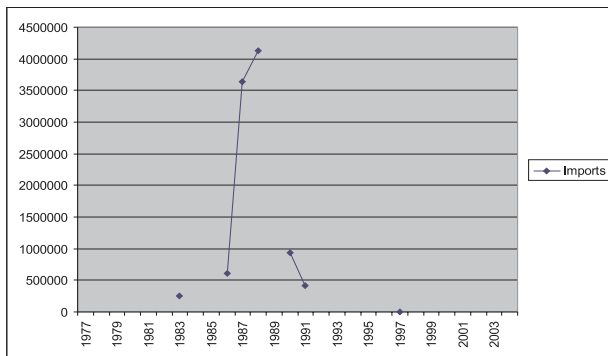
Graph 14. Argentina: Military Weapons from Germany



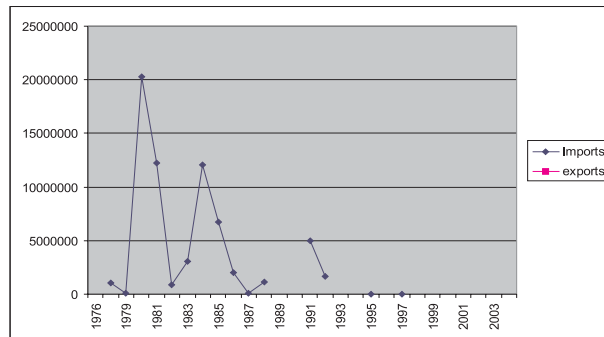
Graph 15. Colombia: Military Weapons from Germany



Graph 16. Venezuela: Military Weapons from Germany

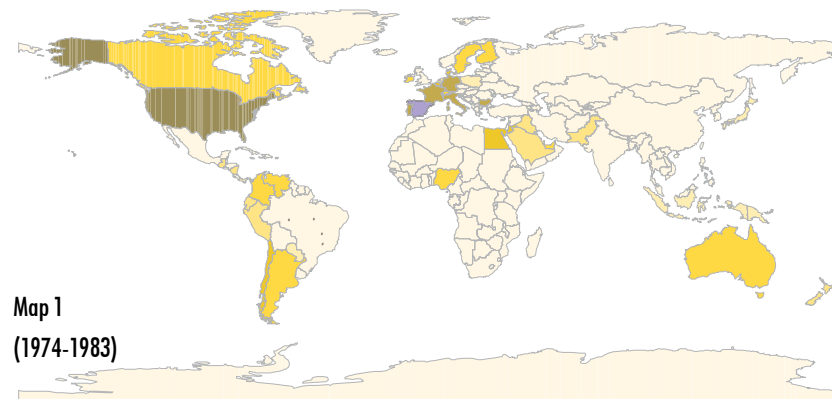


Graph 17. Colombia: Military Weapons from Germany

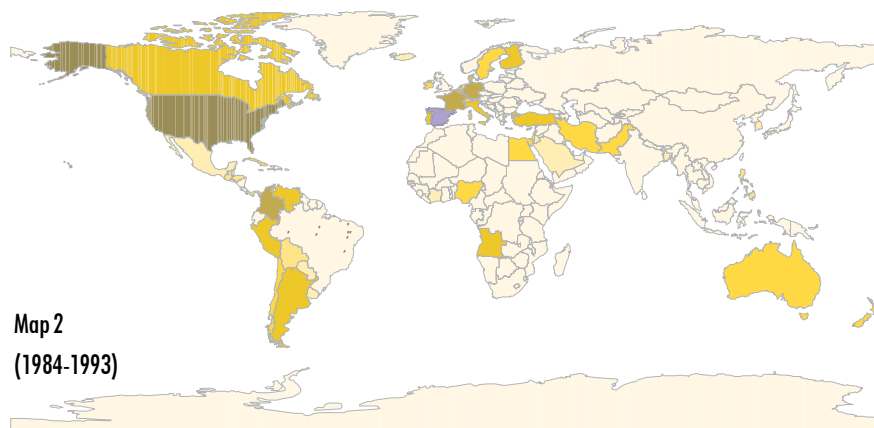


Spain

Maps 1, 2 and 3. Small Arms legally transferred from Spain and Spanish made weapons seized in Rio de Janeiro (1974-2004)



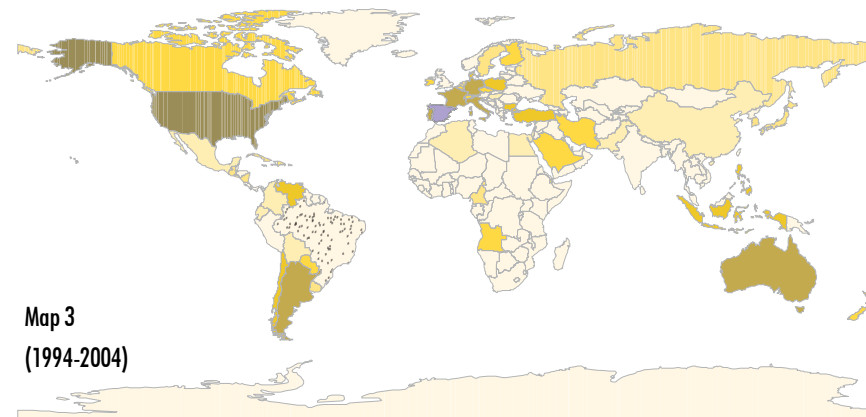
Map 1
(1974-1983)



Map 2
(1984-1993)

Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 70000
70001 - 200000
200001 - 600000
600001 - 1900000
1900001 - 5800000
5800001 - 40000000
40000001 - 142823148

Type of seized weapon 1974 - August 2004	Total
Pistol	895
Shotgun	121
Revolver	37
Sub-machine gun	12
Single Shot Pistol/Hand Shotgun	7
Carbine	6
NO DATA	2
Total	1.080



Map 3
(1994-2004)

During the late 1990s the four main Spanish handgun producers went out of business. Llama, Gabilondo, Astra and Star anticipated a rise in demand for their products in the US domestic market which never took place. The three companies had overproduced and were unable to recoup their costs. The last to go out of business was Gabilondo.

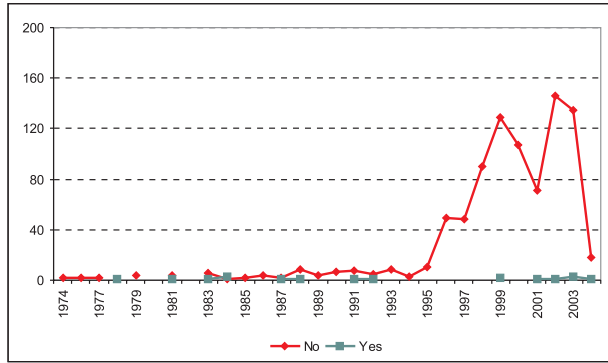
The late 1990s witnessed a rise in transfers of Spanish handguns to several Latin American countries. The three most significant new markets were Venezuela, Argentina and Paraguay. At the time all three had relatively open economies (graphs 4, 5 and 6)

The rise in exports, which occurred when the Spanish manufacturers were facing bankruptcy and had excess stocks of handguns, indicates that the companies may have tried to liquidate their stocks of weapons in South America. During field research in the year 2000, it was possible for one of the authors to observe shelves full of Llama .45 and 9mm pistols in gun shops in the Paraguayan border city of Pedro Juan Caballero. The maps clearly indicate a rise in import of Spanish small arms in the last decade which parallels a rise in seizure of these kinds of weapons in Rio de Janeiro. The dramatic rise in exports to Paraguay as the firms went out of business is shown in graph 4. Similar peaks in exports during the late 1990s can be observed in Venezuela (graph 5). In addition, as Graph 6 shows, strong sales of pistols and revolvers to Argentina continued until the Spanish industry collapsed. There was a less dramatic peak in the late 1990s.

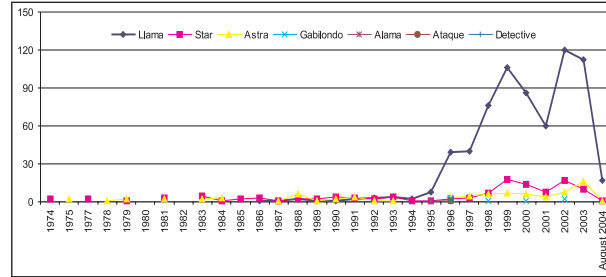
These peaks in exports of Spanish origin pistols and revolvers in the late 1990s were followed almost immediately by a marked increase in the seizures of Spanish made 45 and 9mm pistols without previous registration (maps 1 to 3) . Again, transfers to Paraguay, a country with little purchasing power and a low population, are particularly suspicious. While the transfers to Argentina and Venezuela could have been soaked up by the domestic market (as during the period the two countries enjoyed growth and financial stability), it is much more difficult to make that assumption about Paraguay.

Seized small arms graphs:

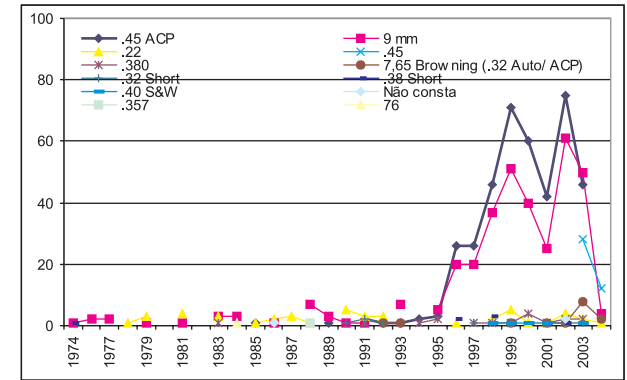
Graph 1. Spain: pistol registered (yes/no)



Graph 2. Pistol by maker

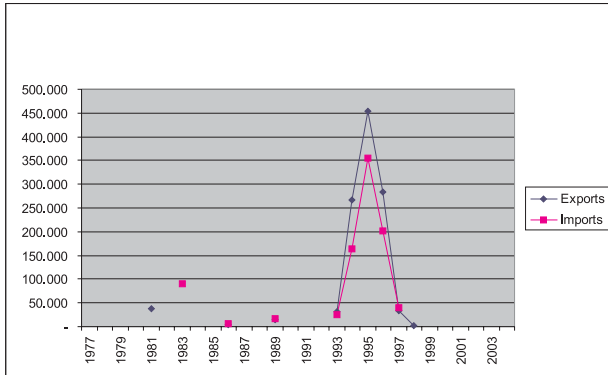


Graph 3. Pistol by caliber

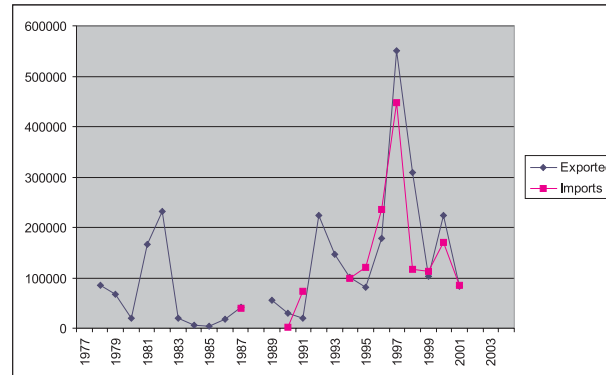


Legal transfers graphs:

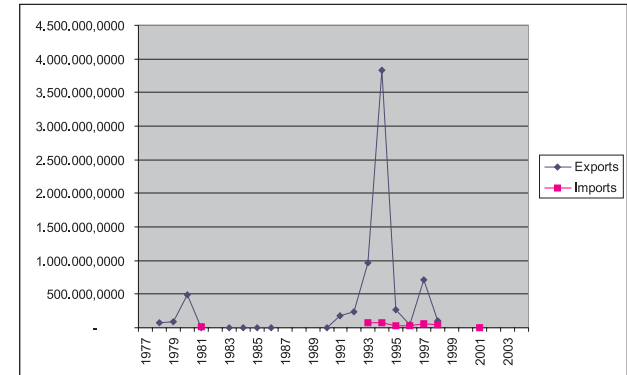
Graph 4. Paraguay: Handguns from Spain



Graph 5. Venezuela: Pistols from Spain

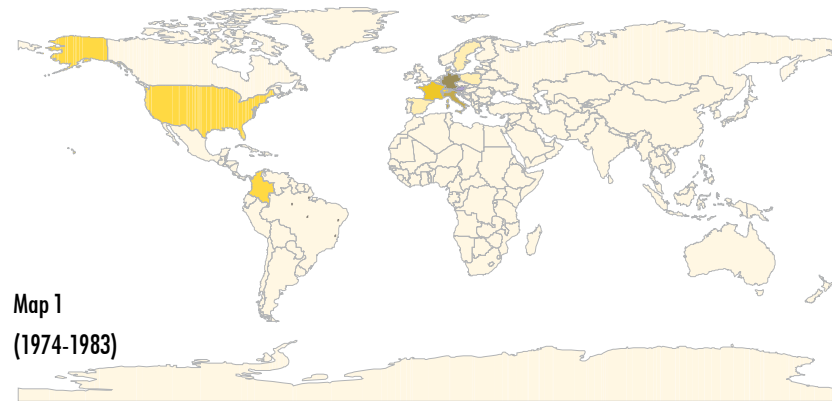


Graph 6. Argentina: Handguns from Spain

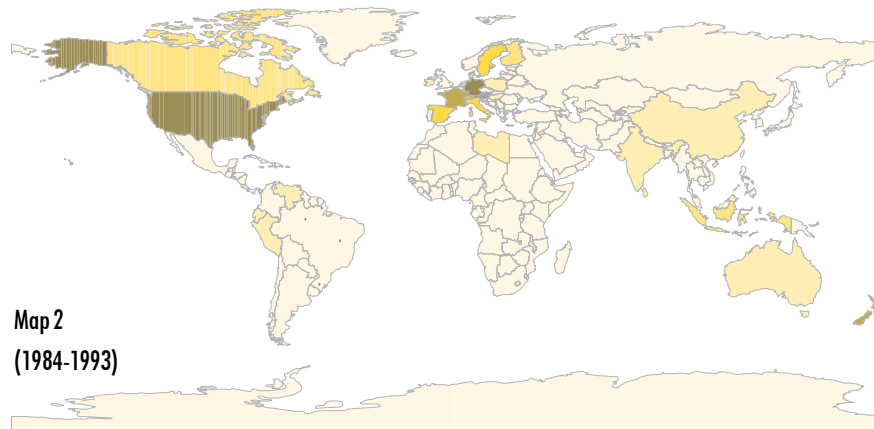


Austria

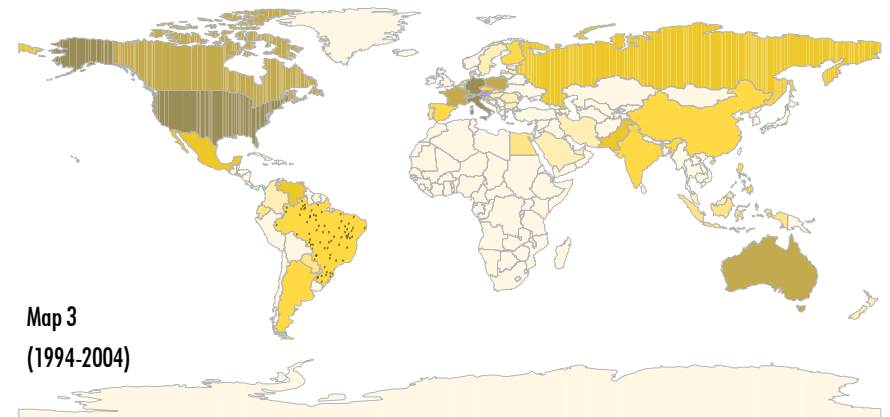
Maps 1, 2 and 3. Small Arms legally transferred from Austria and Austrian made weapons seized in Rio de Janeiro (1974-2004)



Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)

Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 400000
400001 - 1500000
1500001 - 2800000
2800001 - 4800000
4800001 - 7400000
7400001 - 12500000
12500001 - 55000000

Type of seized weapon 1974 - August 2004	Total
Pistol	845
Shotgun	3
Assault Rifle	2
Revolver	2
Carbine	1
Rifle	1
Total	854

Over the period 1974 to 2004 there was a dramatic increase in exports of small arms from Austria to the Americas (and the rest of the world). There was a concomitant increase in seizures of Austrian origin pistols by the Brazilian police.

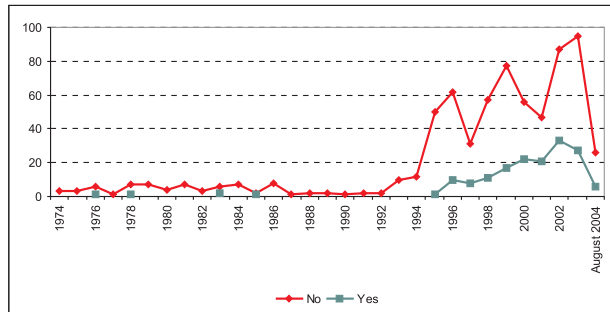
The rise in the seizure of Austrian made pistols in period 1994-2004 is explained by a single company: Glock. The Glock was an innovative product because its main parts were made out of polymers and it was launched in the 1980s. Glock pistols soon became fashionable as the company produced a diverse range of models and calibers in the 1990s. Glock pistols are popular with policemen, civilian licensed owners, and criminals as well.

The data on seizures of Austrian made pistols is remarkable because, unlike many of the other types found in this report, there were a higher proportion of previously registered guns than is normally the case (though the majority was still unregistered). This is probably because in the absence of a similar competitive product made of polymer components by Brazilian manufacturers, the Brazilian government authorized the import of Glock 25 (caliber .380) pistols. (Graph 4). These imports are recorded in Brazil's trade statistics. These weapons may then have been diverted within Brazil through theft, loss or illicit sale.

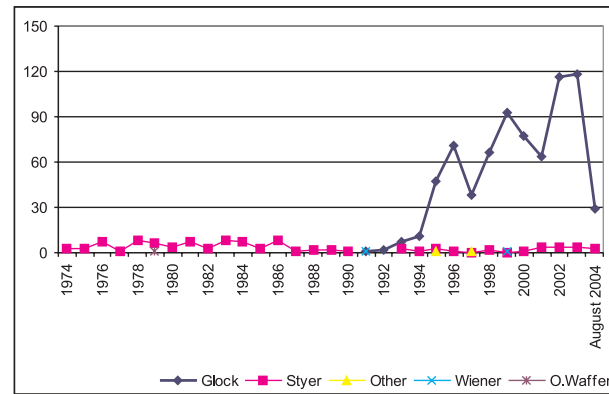
In addition to diversion within Brazil, Austrian handguns were also exported to Brazil's neighbors, and they may have filtered over the border. Significant transfers were made to Paraguay, Argentina and Venezuela (Graphs 5 to 7)

Seized small arms graphs:

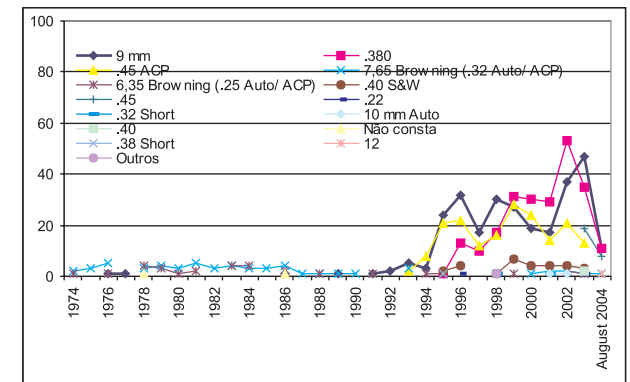
Graph 1. Austria: pistol by registered



Graph 2. Pistol by maker

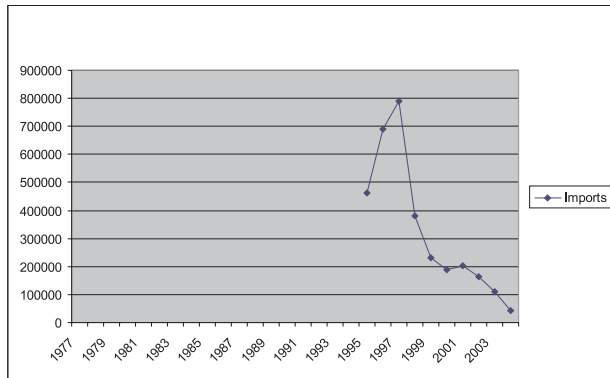


Graph 3. Pistol by caliber

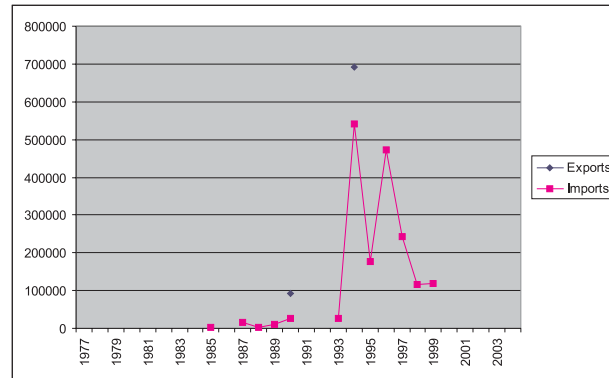


Legal transfers graphs:

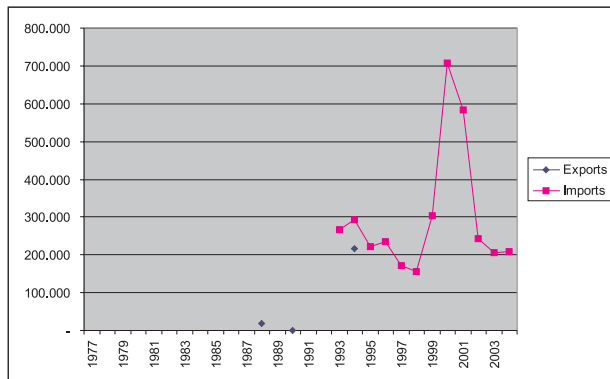
Graph 4. Brazil: Handguns from Austria



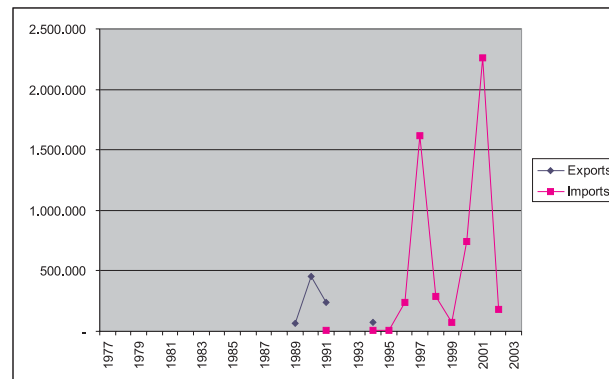
Graph 5. Paraguay: Handguns from Austria



Graph 6. Argentina: Handguns from Austria



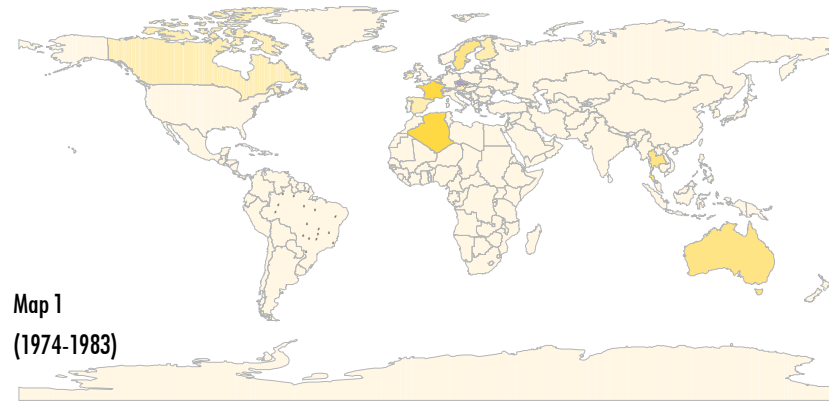
Graph 7. Venezuela: Handguns from Austria



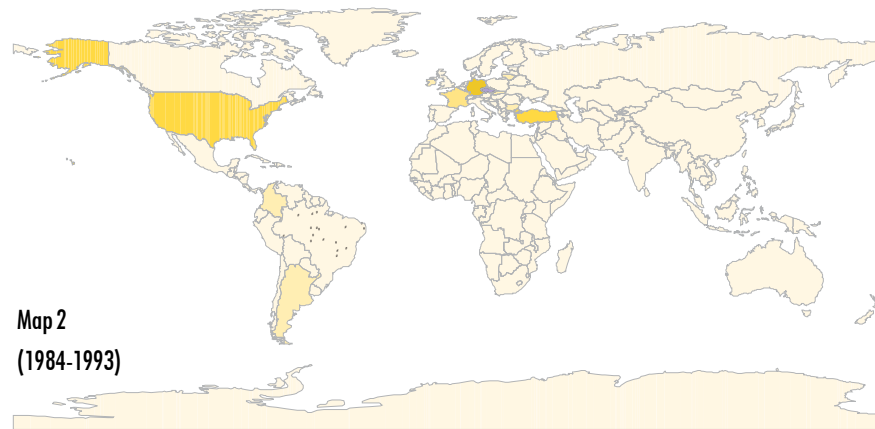
Czech Republic

(includes Czechoslovakia before 1992)

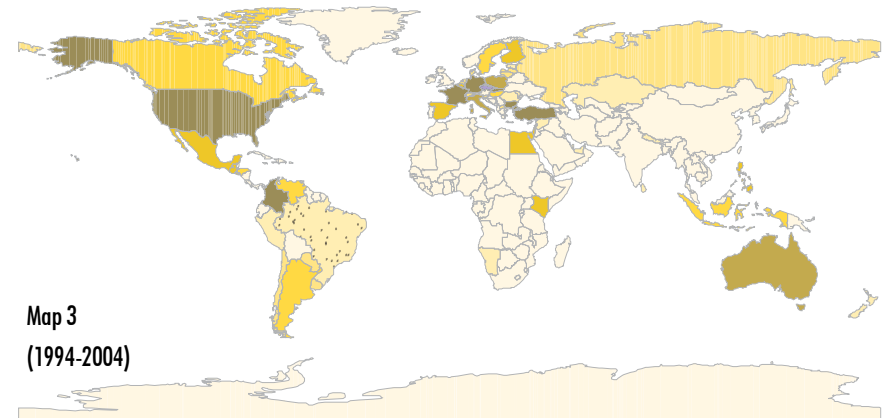
Maps 1, 2 and 3. Small Arms legally transferred from Czech Republic and Czech made weapons seized in Rio de Janeiro (1974-2004)



Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)

Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 230000
230001 - 800000
800001 - 1500000
1500001 - 2800000
2800001 - 4500000
4500001 - 7000000
7000001 - 61115040

Type of seized weapon 1974 - August 2004	Total
Pistol	706
Carbine	15
Rifle	10
Assault Rifle	5
Shotgun	5
Revolver	2
Sub-machine gun	1
Total	744

The Czech Republic is an important producer of pistols. After the end of the Cold War, its sales to markets in western countries, such as Brazil and other South American countries, increased dramatically. The same period witnessed a rise in the number of seizures of Czech origin pistols in Rio de Janeiro.

The likely diversion points of Czech pistols are similar to those presented by Austrian made Glock pistols. Graph 1 shows that seizures of Czech origin pistols were largely stable over the period 1978 to 1988 (save a dip during 1988-1991). In 1998 however, there was a dramatic increase on the seizures of Czech origin pistols, which peaked in 2002. In particular, after 1998 there was a steady rise in the number of Czech pistols that had already been registered (see graph 1); and of 380 caliber CZ pistols (see graph 1), permitted use caliber pistols which are very likely to be legally registered by civilians. The most likely source of these seizures was guns that were legally imported into Brazil, which were then passed into illicit hands.

The increase in seizures of Czech origin weapons between the years 1999 and 2003 followed significant transfers of handguns from the Czech republic to Brazil, and its neighbors in Paraguay and Colombia. Graphs 4, 5, and 6, show significant transfers to Brazil and Paraguay during 1996-1998, and a sharp increase in transfers to Colombia.

The imports by Brazil from the Czech Republic in 1996 and 1997 were at the beginning of the 'Real Plan' which resulted in cheaper imports due to the rate at which the Brazilian Real was pegged to the US dollar. As with Glock during that period the CZ company successfully exported model 100, (9mm and .40 caliber) polymer constructed pistols from the Czech republic to Brazil. These weapons were of 'restricted caliber' but small numbers could be imported legally by collectors. Brazilian import restrictions were much more relaxed for these types of pistol than for most other weapons because the Brazilian arms industry did not produce a similar competing polymer made pistol.⁵⁶

Of particular note are the high volumes of imports of handguns from the Czech Republic by Paraguay in 1996. As noted in sections 2 and 3 , field research has identified Paraguay as an important diversion point for weapons being illicitly trafficked into Brazil. The large batch of handguns transfers to Paraguay could therefore be another source of the weapons seized in Brazil. The biggest importer of Czech origin handguns in the region over the last decade was Colombia. As shown in graph 6 Colombia has made significant imports from the Czech Republic since 1993. Colombia is the fifth largest importer of Czech made small arms and in recent years the Colombian Army, the Colombian National Police and private security companies in Colombia have incorporated CZ pistols into their inventories.⁵⁷ Colombia is therefore another possible diversion point through theft, corruption by illegal armed groups and then transferred to or capture to drug trafficking and criminal organizations in Rio de Janeiro of.

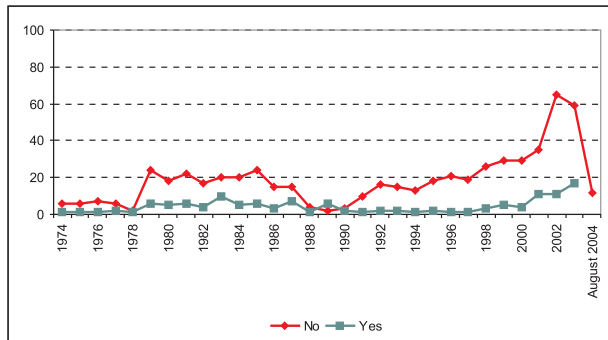
In the late 1990s, the Brazilian small arms producing company Taurus launched the 'Millennium' line of polymer made pistols in order to compete with Glock and CZ.

⁵⁶ In the late 1990s, the Brazilian small arms producing company Taurus launched the 'Millennium' line of polymer made pistols in order to compete with Glock and CZ.

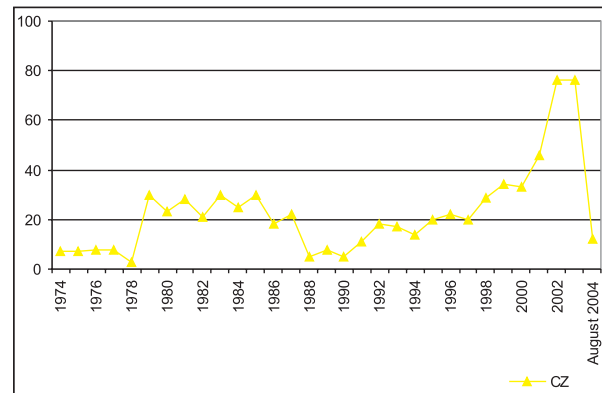
⁵⁷ See: Picado, Federico, "Armas Checas para Colombia", Prague, Radio Praga, 2002, www.radio.cz/es/articulo/27664. Nor were FN Herstal pistols produced under license in Brazil.

Seized small arms graphs:

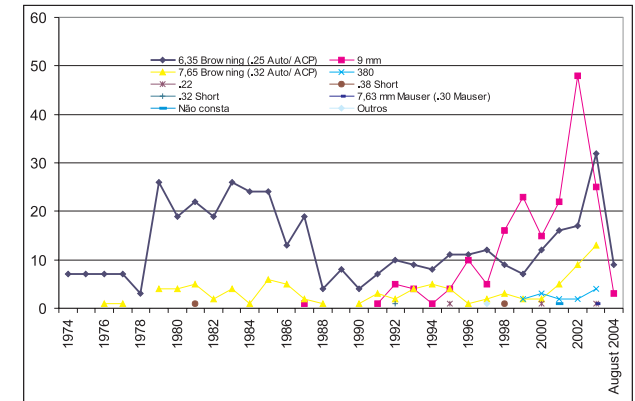
Graph 1. Czech Republic: pistol registered (yes/no)



Graph 2. Pistol by maker

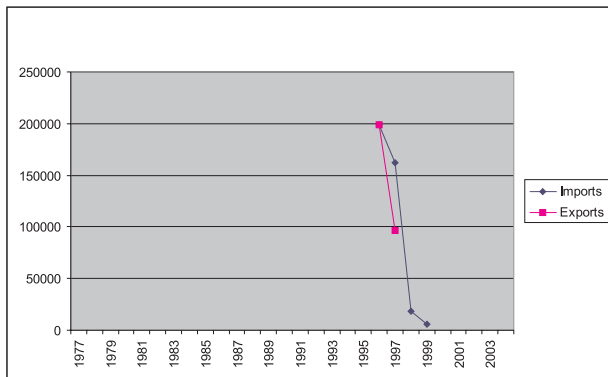


Graph 3. Pistol by caliber

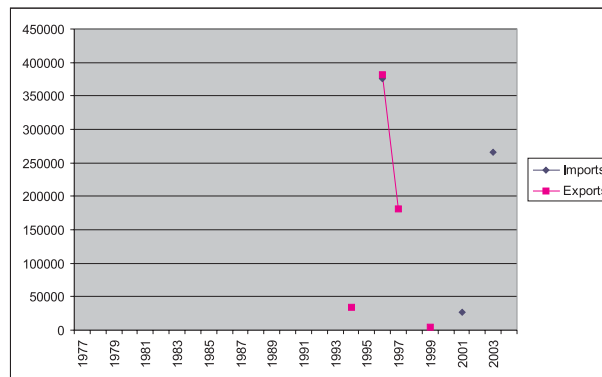


Legal transfers graphs:

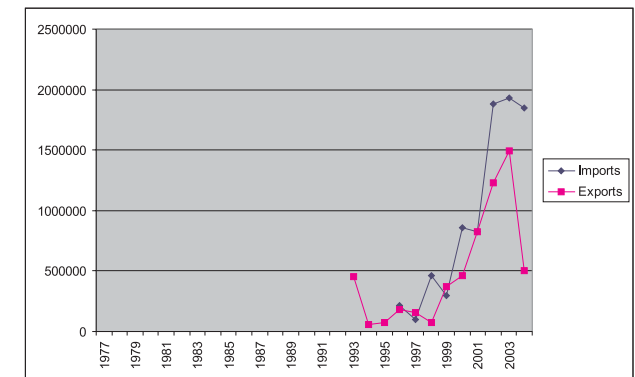
Graph 4. Brazil: Handguns from Czech Republic



Graph 5. Paraguay: Handguns from Czech Republic



Graph 6. Colombia: Handguns from Czech Republic

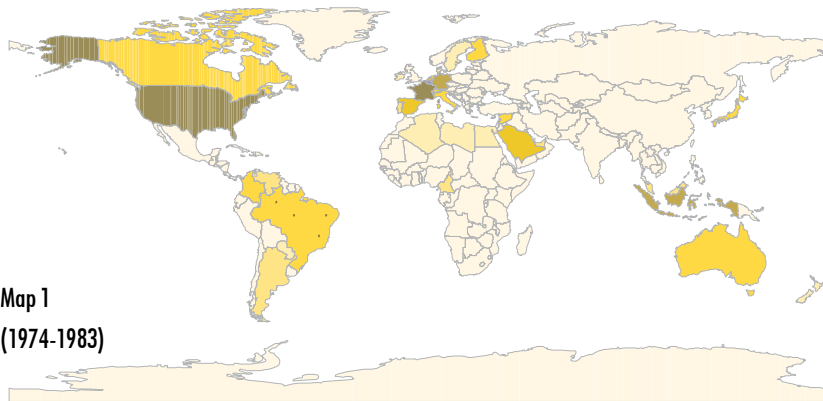


Belgium:

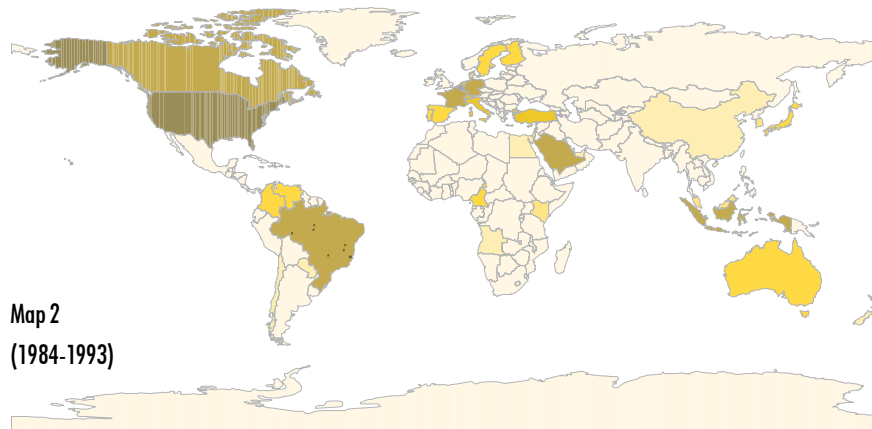
following the path of surplus and licensing

Maps 1, 2 and 3. Small Arms legally transferred from Belgium and Belgium made weapons seized in Rio de Janeiro (1974-2004)

Map 1
(1974-1983)



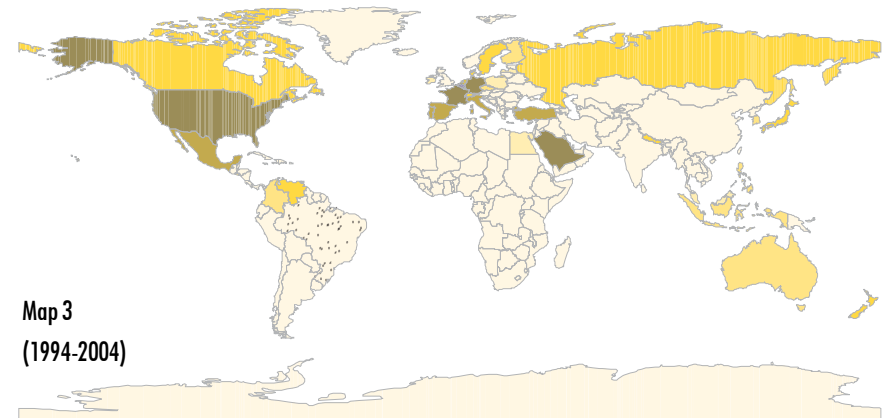
Map 2
(1984-1993)



Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 250000
250001 - 900000
900001 - 2200000
2200001 - 5000000
5000001 - 9000000
9000001 - 24000000
24000001 - 149093811

Type of seized weapon	Total
Pistol	390
Assault Rifle	174
Shotgun	31
Carbine	29
Revolver	10
Machine Gun	8
Sub-machine gun	8
Rifle	4
Single Shot Pistol/Hand Shotgun	3
Total	657

Map 3
(1994-2004)



Belgium, mainly through its FN Herstal company, is a significant producer and exporter of small arms and light weapons. It has significant markets in Western Europe, North America and the Middle East. However, its sales to South America have not been as extensive.

Handguns:

Belgium offers yet more clear evidence of weapons that were initially exported to Brazil's neighbors before they were diverted and trafficked over the border before being seized in Rio de Janeiro. Graphs 1 to 3 indicate a steep general rise in seizures of FN Herstal 9 mm caliber pistols over the period 1993 to 2003. However, during that period, there were no recorded imports to Brazil of handguns from Belgium,⁵⁸ and the Brazilian armed forces do not use FN Herstal manufactured handguns.⁵⁹ Moreover, the 9mm FN Herstal guns seized were of a 'restricted caliber' which cannot be freely licensed to civilians.

The most likely source of the seized FN Herstal guns was via large scale transfers to Chile, Colombia, Paraguay and Peru. Graphs 4 and 5 show that Paraguay and Colombia made significant imports during the 1980s. Venezuela imported a much smaller quantity of pistols in 1998 and 2001 (see graph 6).

All four countries have FN Herstal HP 35 pistols in their military inventories,⁶⁰ therefore the imports of pistols from Belgium were likely to have been procurement by the armed forces of these countries. It is therefore possible that the guns being seized in Rio de Janeiro were originally part of the military stockpiles of these four countries, but were then diverted through capture, theft, loss or corrupt sale. In Colombia, this is especially concerning as it (as noted in section about the Czech Republic) had been engaged since the late 1990s in re-equipping its armed forces with Czech origin pistols. There are therefore likely to be large stocks of surplus FN Herstal guns which were originally procured in the 1980s. Such surplus stocks are very vulnerable to diversion.

In addition, there are two further possible sources of the HP 35 pistols, both of which are from licensed production. The first concerns military and police stockpiles of FN HP 35 produced under license in Argentina and Venezuela. The Fabricaciones Militares company of Argentina has produced HP 35 9mm pistols since the 1960s under a FN Herstal license. As shown in graph 9 , the Rio de Janeiro police seized 184 DGFM pistols (all them 9mm), and these seizures increased since 1994. There is therefore the possibility that police officials erroneously confused the marking of the license to produce "*Licencia de Fabrique National de Armes Herstal Belgique*" with the marking of the manufacturer and country of manufacture.⁶¹

⁵⁸ Instead they use Beretta M92 (produced in the late 1970s in Brazil), Taurus and IMBEL pistols.

⁵⁹ See Jane's Infantry Weapons, 1999-2000 pp. 819-833

⁶⁰ This is a very common mistake detected during the systematization of the database and that can only be corrected through the verification in the police vault of each one of the weapons. This problem is being corrected through the training of the police through a manual jointly developed by the Delegacia Legal program of the Civilian Police of Rio de Janeiro and Viva Rio (SCO, and Dreyfus et al, 2003)

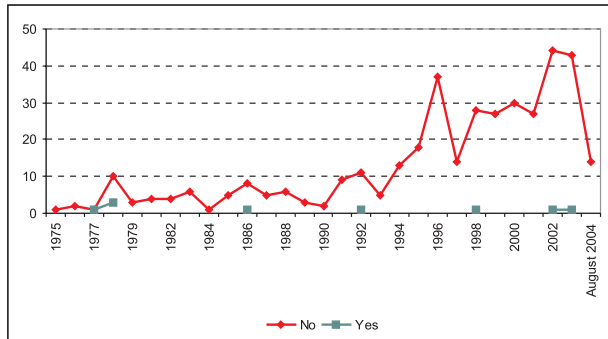
⁶¹ Câmara dos Deputados, Departamento de Taquigrafia, Revisão e Redação, Núcleo de Redação Final em Comissões, Texto com Redação Final, Transcrição IPIS VERBIS, N°0130/06, Brasília, Câmara dos Deputados, 16/2/2006.

The company CAVIM *Compañía Anónima de Industrias Militares* in Venezuela also assembled HP 35 pistols under FN Herstal license in the 1970s that could have been diverted also to Brazil. The misclassification of CAVIM HP pistols diverted from Venezuelan military and police surplus and stockpiles is also possible.

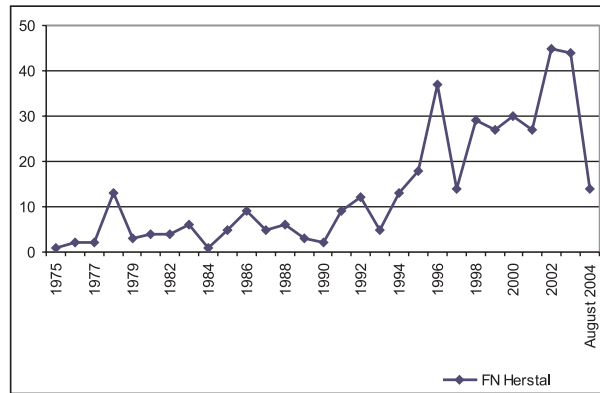
The second possibility is related to commercial sales and state to state exports of HP 35 pistols by FN Herstal in Belgium. In contrast to Venezuela, which ceased assembling in the 1970s, the Argentine licensee company never ceased production of HP 35 pistols and it has made commercial sales and exports. Moreover, Argentina exported small arms to the armed forces of several Latin American countries (though not to Brazil). It is therefore possible that the HP 35 DGFM pistols were exported in commercial or state to state transactions to other South American countries and subsequently diverted , and was mistakenly classified as Belgian weapons at the DFAE after they were seized.

Seized small arms graphs:

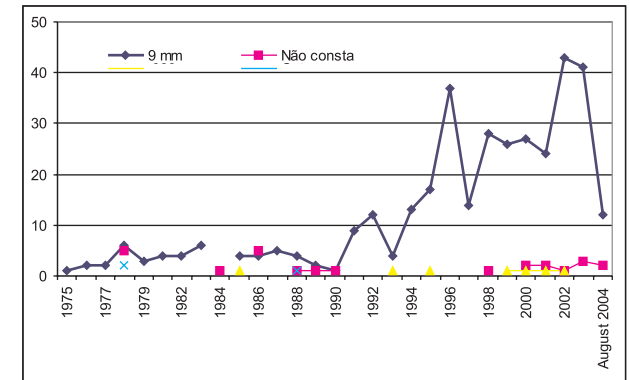
Graph 1. Belgium: pistol registered (yes/no)



Graph 2. Pistol by maker

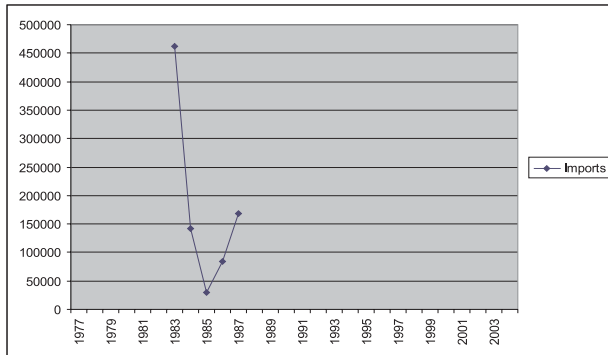


Graph 3. Pistol by caliber

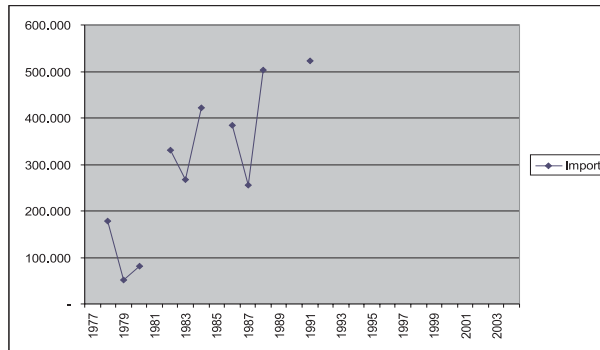


Legal transfers graphs:

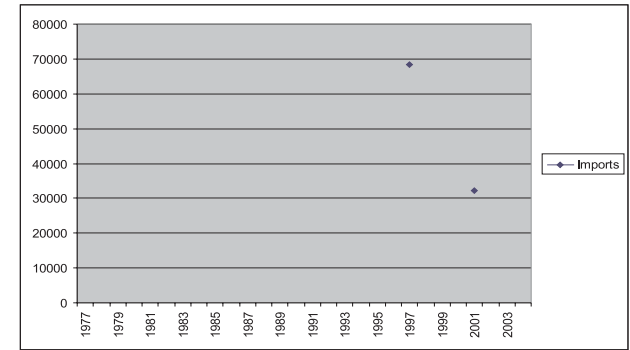
Graph 4. Paraguay: Handguns from Belgium



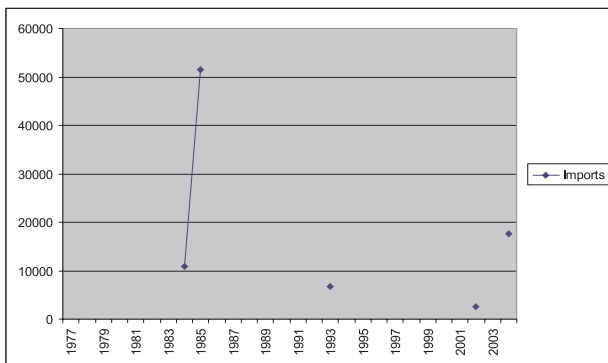
Graph 5. Colombia: Handguns from Belgium



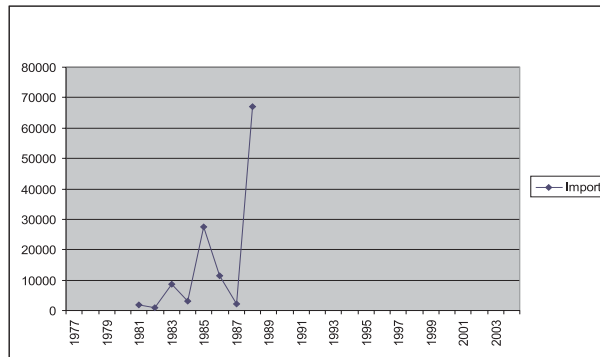
Graph 6. Venezuela: Handguns from Belgium



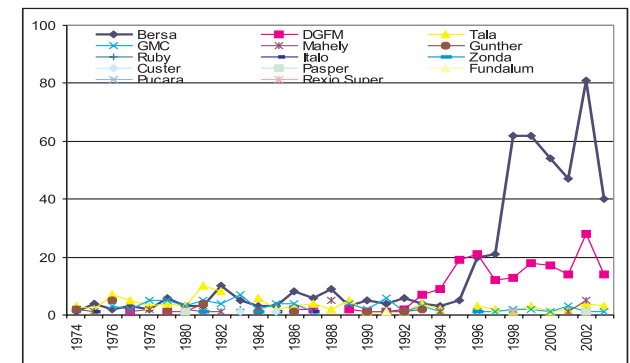
Graph 7. Chile: Handguns from Belgium



Graph 8. Peru: Handguns from Belgium



Graph 9. Argentine made seized pistols



Military Firearms (Assault rifles):

There is an even greater likelihood that the seized Belgian origin assault rifles have been diverted from official government stockpiles in South American countries. One of the world's most popular Cold War military rifles was FN Herstal's FAL.7.62x51 mm rifle. This rifle was used in almost all of the South American armed forces – as shown in the table below. In addition to purchasing the rifles from Belgium, some South American countries produced, or still produce, the FAL rifle under license from FN Herstal. The trade data records significant imports of military weapons from Belgium by Brazil, Venezuela and Colombia (see graphs 13, 14 and 15.). Brazil and Venezuela also made important purchases of FAL rifles in the late 1950s and early 1960s (not displayed in this report). In addition to direct imports from Belgium, there are also exports of the FAL rifle by producers in South America to other purchasers in the region.

South American Countries that Produced/Produce FAL rifles under FN Herstal License

	PERIOD OF MANUFACTURE	MANUFACTURING COMPANY	QUANTITY MANUFACTURED	KNOWN LEGAL EXPORTS
ARGENTINA	1960-1992	Fabricaciones Militares Fábrica de Armas Portátiles Domingo Mattheu	up to 125,000	Colombia, Honduras, Peru, Uruguay, Bolivia, Panama, Venezuela
BRAZIL	1962 to present days	IMBEL, Itajubá Plant	up to 200,000	Paraguay, Chile
CHILE	Limited production during the 1960s	Fabricas y Maestranzas del Ejército (FAMAE)	no data	not known
VENEZUELA	During the 1970s (assembled)	CAVIM	up to 10,000	not known

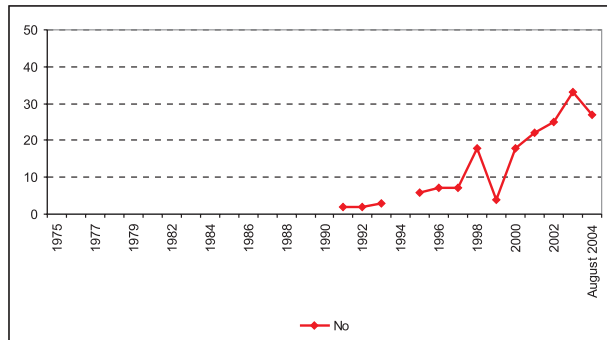
Sources: Forecast International, Ordnance & Munitions Forecast, Military Rifles (international), 2002, pp.19-23; Klare Michael and Andersen, David, A Scourge of Guns: The Diffusion of Small Arms and Light Weapons in Latin America, Washintong D.C., Federation of American Scientist, 1992, available: <http://www.fas.org/asmp/library/publications/scourgefl.htm>; Dreyfus, Lessing and Purcena, op.cit, pp.77-79; field research interviews in Santiago de Chile (2003 and Asunción 2003), Jane's Sentinel Security Assessment-South America: Chile, August 6, 1999 obtained from Lexis Nexus.

There are numerous possible mechanisms by which Belgian origin military rifles could have reached criminal ownership in Brazil. First, and most likely, Brazilian surplus stocks of old Belgium FALs imported in the late 1950s and early 1950s could have leaked into illicit markets. Second, are stockpiles of Belgian produced FALs purchased in the 1980s and 1992 which were then leaked into illicit markets. It should be noted that in the mid 1990s the Brazilian military donated surplus rifles to several Brazilian police corps, especially the Military (uniformed) Police of the State of Rio de Janeiro. The Belgian weapons could therefore have been stolen, captured or corruptly purchased by criminals from either the military or the police. The third possible mechanism is leakages from Venezuelan stockpiles of assault rifles imported from Belgium.

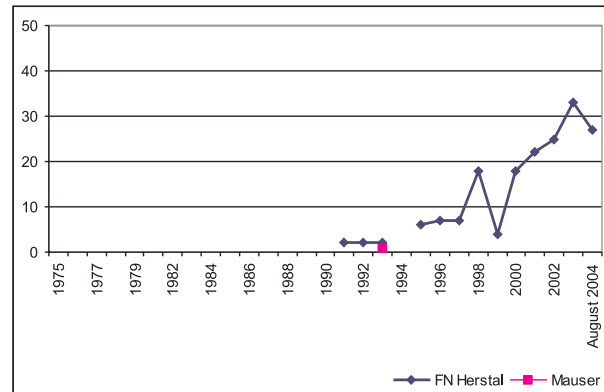
In addition, as noted above, it is possible that FN Herstal designed rifles which were produced under license in Argentina, Brazil, Chile or Venezuela could have been erroneously registered as being produced in Belgium. It is therefore possible that the FAL assault rifles seized in Rio de Janeiro could also have come from these sources.

Seized small arms graphs:

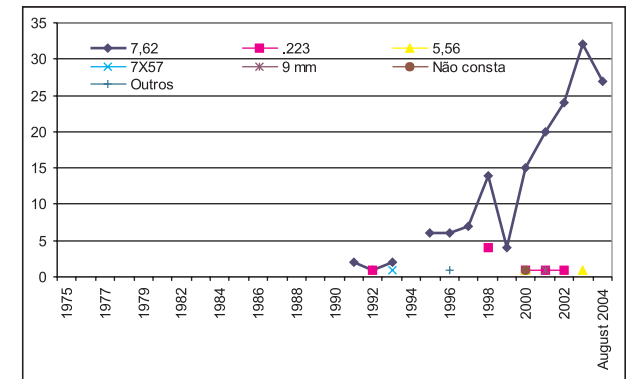
Graph 10. Belgium: assault rifle registered (yes/no)



Graph 11. Assault rifle by maker

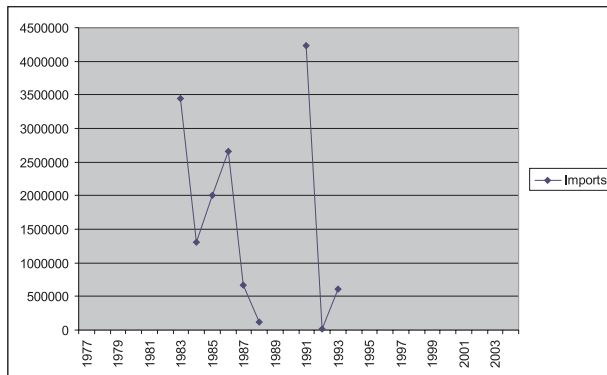


Graph 12. Assault rifle by caliber

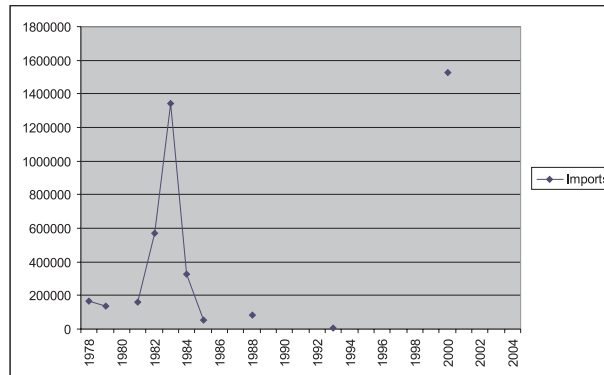


Legal transfers graphs:

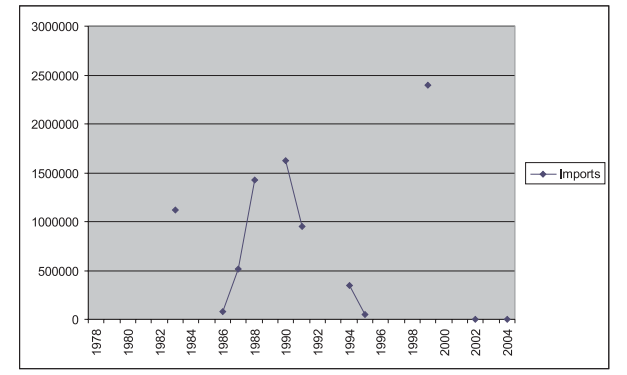
Graph 13. Brazil: Handguns from Belgium



Graph 14. Colombia: Military Weapons from Belgium



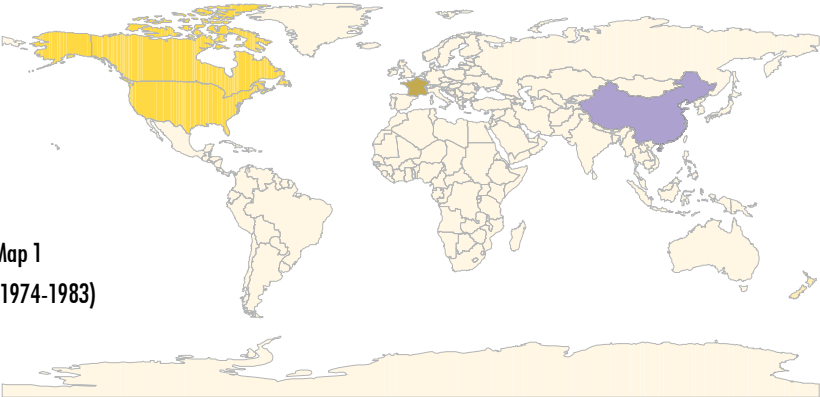
Graph 15. Venezuela: Military Weapons from Belgium



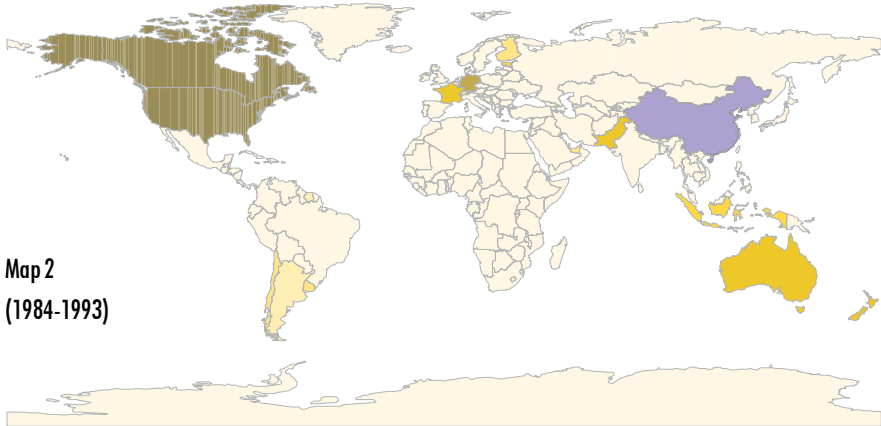
People Republic of China

Maps 1, 2 and 3. Small Arms legally transferred from China and Chinese made weapons seized in Rio de Janeiro (1974-2004)

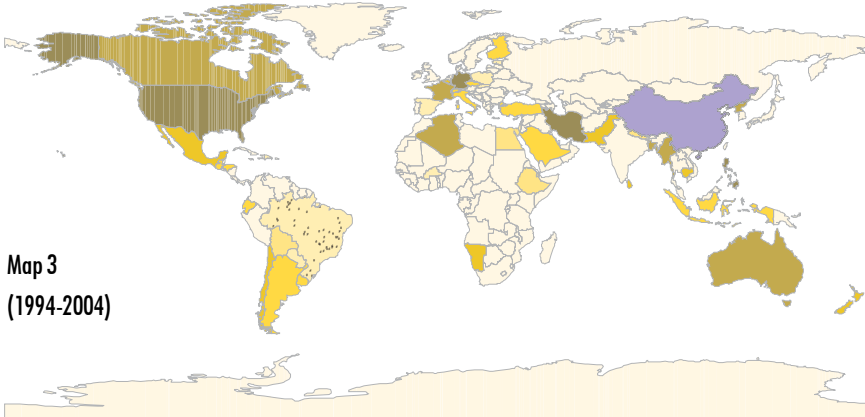
Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)



Country Limits
 Manufacturing Country
 Number of firearms seized
 1 Dot = 10
 Import in US\$
 0 - 40000
 40001 - 130000
 130001 - 240000
 240001 - 600000
 600001 - 1500000
 1500000 - 7200000
 7200001 - 174030509

Type of seized weapon 1974 - August 2004	Total
Pistol	291
Assault Rifle	191
Sub-machine gun	5
Shotgun	3
Total	490

China is one of the world's largest producers of small arms and light weapons. As noted by Amnesty International and others it is one of the main suppliers to some conflict zones in Africa. During the period 1994-2004 the South American market became much more important to Chinese exporters. That period was also marked by a dramatic increase in the number of seized Chinese origin weapons.

Pistols:

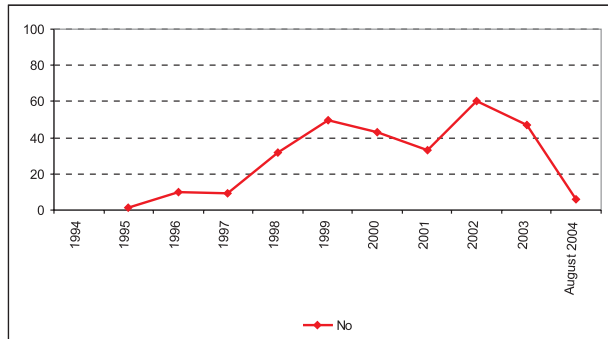
The overwhelming majority of Chinese origin handguns seized in Rio de Janeiro are Norinco 9mm pistols (graphs 1, 2 and 3). Moreover, none had previously been registered and there were no seizures before 1995 – after which they climbed steadily. As shown in graphs 4 to 8, Brazil, Argentina, Chile, Paraguay and Bolivia imported handguns from China. Most importantly, they were imported just before, or during, the 1995 to 2004 period, coinciding with the seizures of Chinese origin pistols.

The particularly small quantities imported by Brazil (see graph 4.) may be accounted for by imports by collectors. Imports by Argentina and Paraguay are much smaller than imports by Chile and Bolivia (see graphs 4 to 7). In Chile, it is interesting to note that in the late 1990s FAMAE, the state owned Chilean small arms manufacturing company, became an official importer and distributor for Norinco products. Concerning Bolivia, it has recent military agreement cooperation with China and as a consequence is receiving Chinese made weapons. There was a single import of above US\$ 200,000 of handguns from China by Bolivia in 2002 (see graph 8).

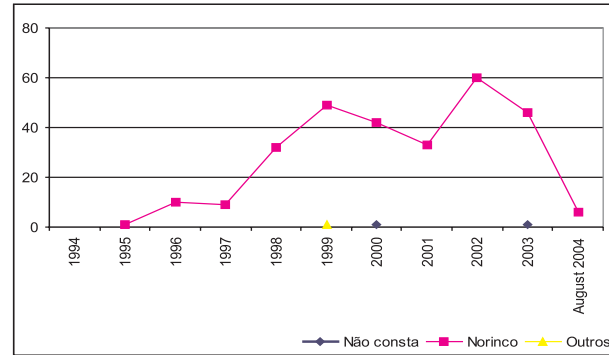
There are several possible sources of the Norinco pistols seized in Rio de Janeiro. First, weapons imported by Brazilian collectors could have been diverted through theft, loss or illicit sale into illicit markets. Second, pistols could have been purchased in Argentina or Paraguay and then smuggled into Brazil. Third, Chinese pistols imported by Chile could have been then re-exported to Brazil and neighboring countries. Last is the diversion of 9mm pistols from Bolivian armed forces or from commercially imported Chinese pistols (concerning the weapons seized in 2003 and 2004).

Seized small arms graphs:

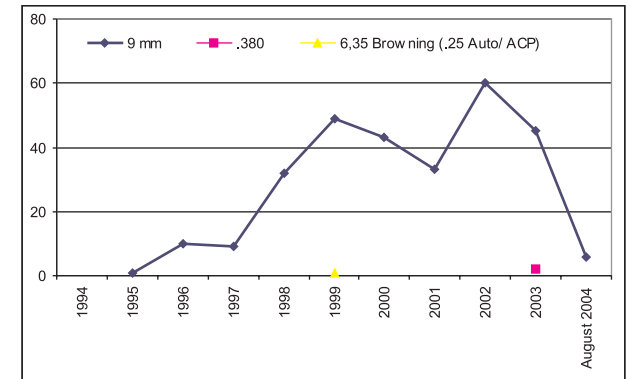
Graph 1. China: pistol registered (yes/no)



Graph 2. Pistol by maker

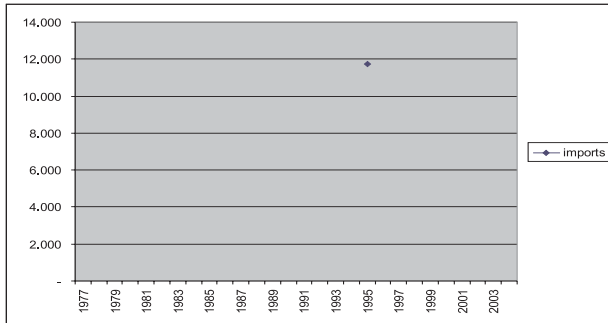


Graph 3. Pistol by caliber

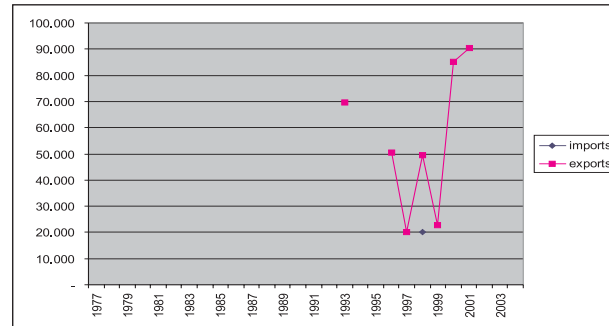


Legal transfers graphs:

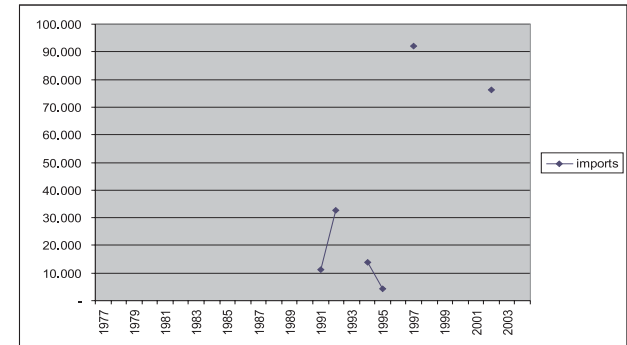
Graph 4. Brazil: Handguns from China



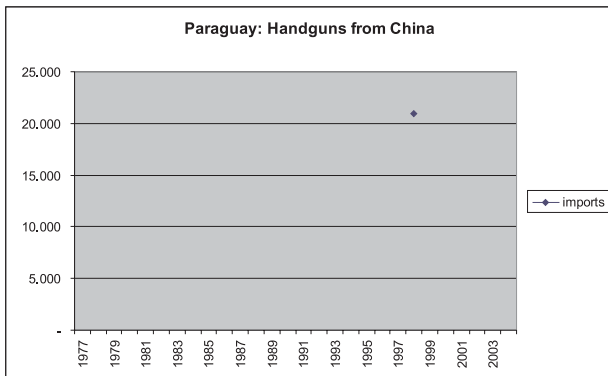
Graph 5. Argentina: Handguns from China



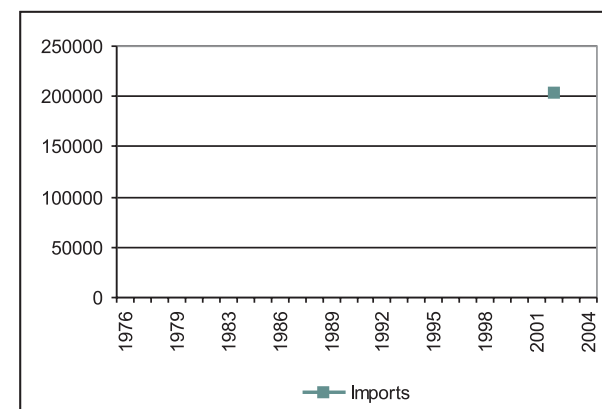
Graph 6. Chile: Handguns from China



Graph 7. Paraguay: Handguns from China



Graph 8. Bolivia: handguns from China



Military firearms (Assault Rifles):

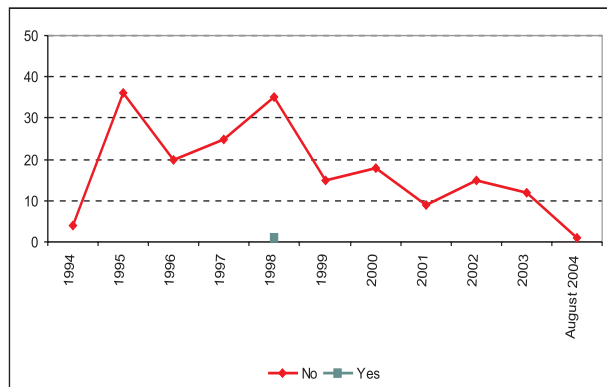
Much more concerning have been the Chinese origin assault rifles seized by the Rio de Janeiro police. Large numbers of these weapons have been seized and most are Norinco manufactured (7.62 mm caliber) variants of the Kalashnikov assault rifle. The seizures of Chinese origin assault rifles started in 1994 and peaked in the mid-late 1990s. Neither the Brazilian armed forces, nor the police, have been issued with Chinese origin assault rifles – so we must look elsewhere for the source of the weapons.

The Type-56 is a military assault rifle, and there have been relatively large imports of military weapons from China by Brazil, Chile and Ecuador (see graphs 12, 13, 14). Since Brazilian armed forces or police do not use Chinese made weapons, imports by Brazil are most likely by collectors which up to the year 2000 could legally purchase 'civilianized' semi-automatic versions of assault rifles.

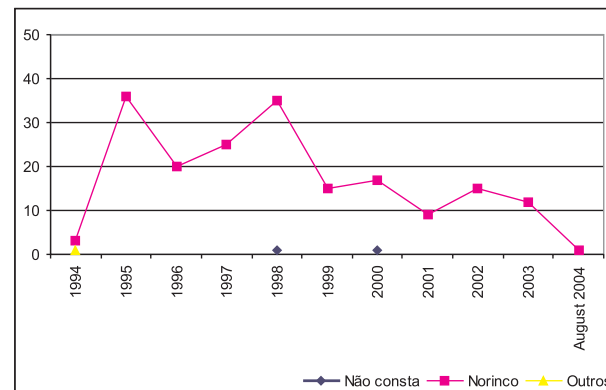
The MAK-90 is a variant of the Kalashnikov which has been modified so it can be classified as a sporting rifle and marketed to civilians (in particular they are purchased by collectors). Such civilianized versions of military rifles are controversial because it is possible to re-modify them to military specifications (so they can fire fully automatic bursts). Imports of sporting rifles from China have been made by Brazil, Argentina, Chile, Paraguay, Uruguay and Suriname (see graphs 15 to 18). Of particular interest are the imports by Paraguay and Suriname because both countries have previously been identified as diversion points.⁶² According to OCIT Trade data (see section 2 and 3) Paraguay imported 600 hundred units of Chinese rifles in 1998.

Seized small arms graphs:

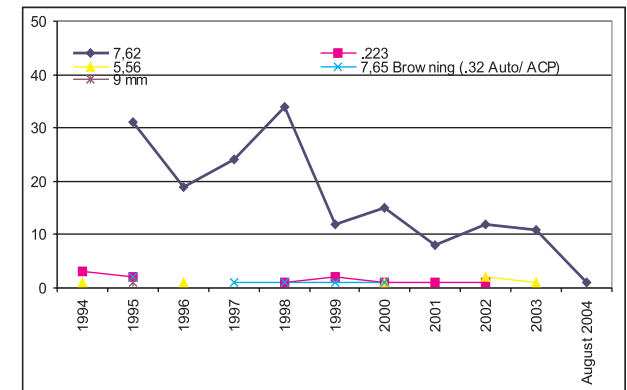
Graph 9. China: assault rifle registered (yes/no)



Graph 10. Assault rifle by maker



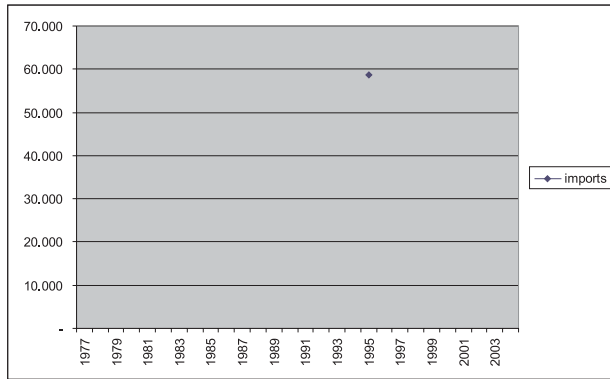
Graph 11. Assault rifle by caliber



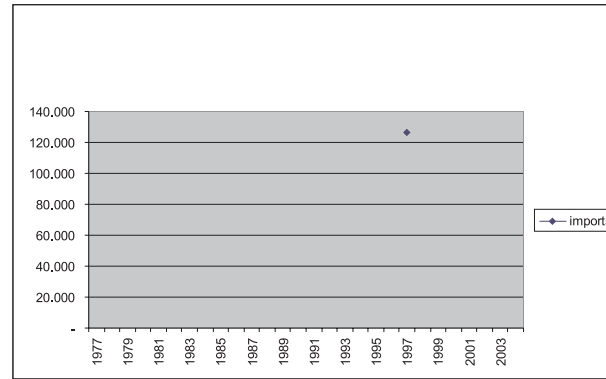
⁶² The firearms were recorded as being 'AK-47', the first version of the Kalashnikov. However it is important to note that this description may also cover later variants of the AK-47, and so in the text the term 'Kalashnikov' is used.

Legal transfers graphs:

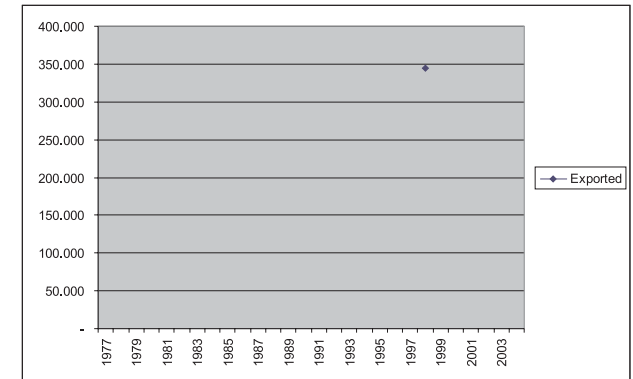
Graph 12. Brazil: Military Weapons from China



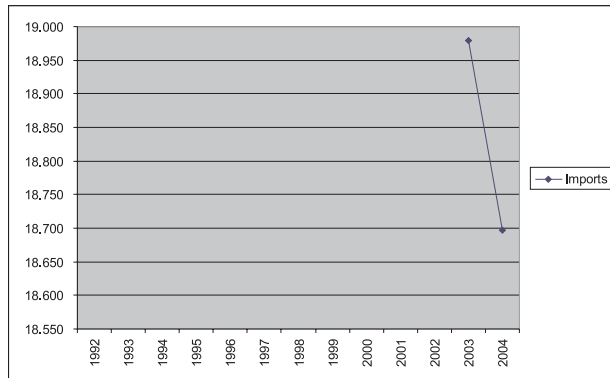
Graph 13. Chile: Military Weapons from China



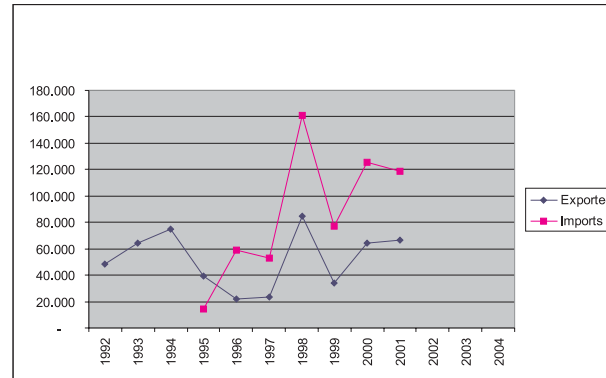
Graph 14. Ecuador: Military Weapons from China



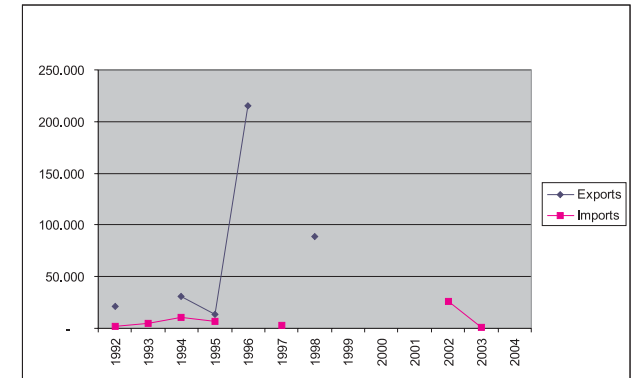
Graph 15. Brazil: Sporting Rifles from China



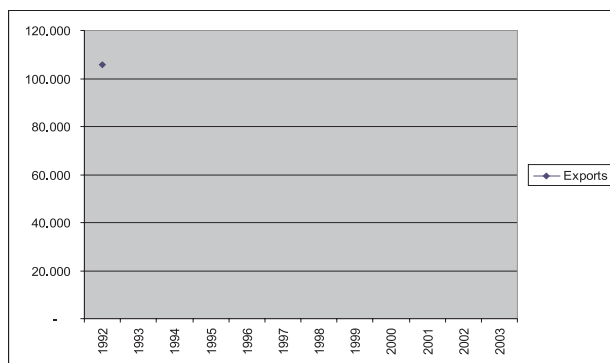
Graph 16. Argentina: Sporting Rifles from China



Graph 17. Chile: Sporting Rifles from China



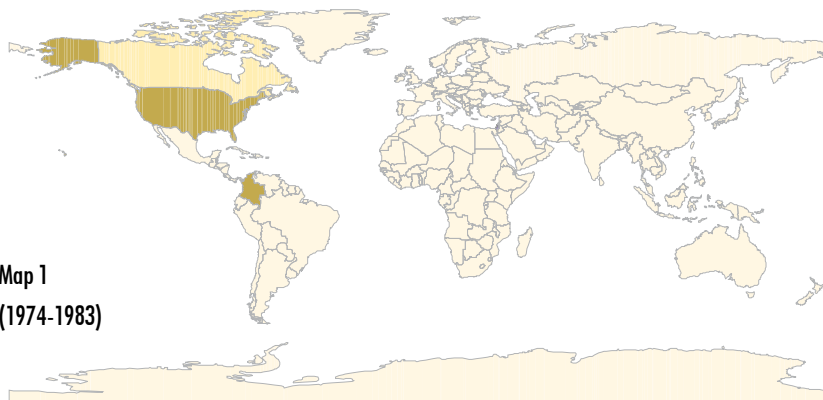
Graph 18. Suriname: Sporting Rifles from China



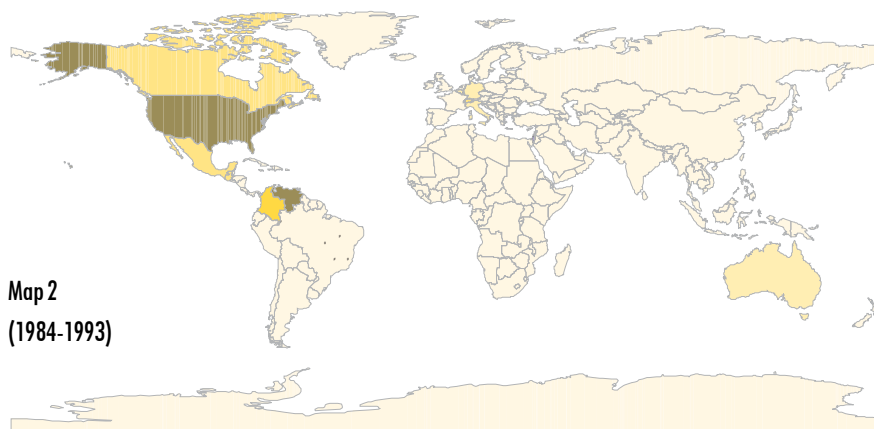
Israel

Maps 1, 2 and 3. Small Arms legally transferred from Israel and Israelis made weapons seized in Rio de Janeiro (1974-2004)

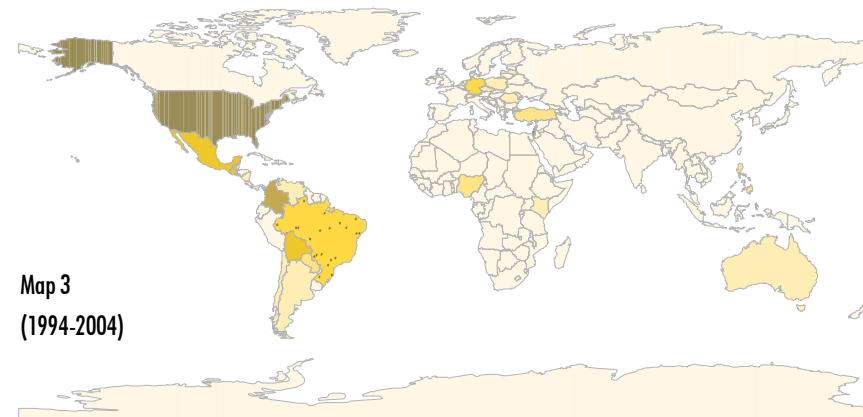
Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)



Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 200000
200001 - 800000
800001 - 2000000
2000001 - 3400000
3400001 - 9000000
9000001 - 17000000
17000001 - 52795573

Type of seized weapon 1974 - August 2004	Total
Pistol	174
Sub-machine gun	105
Assault Rifle	1
Carbine	1
NO DATA	1
Total	282

Israel has developed several types of small arms with the most famous being the Uzi sub-machine gun. It has also developed significant markets in the Americas. The USA is the most important customer but in the decade 1994-2004 several countries in South America, including Brazil, have imported significant quantities of Israeli origin weapons. This decade also experienced a rise in the number of seizures of Israeli origin weapons by the Rio de Janeiro police.

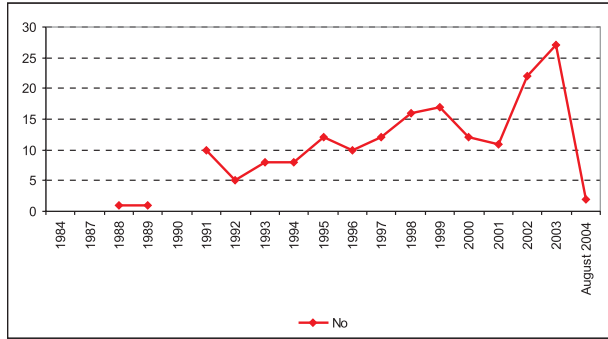
Pistols:

Seizures of Israeli origin pistols, primarily Jericho (9mm caliber), semiautomatic Mini-Uzi (9mm) and Desert Eagle (.357 caliber) models manufactured by Israeli Military Industries increased steadily after 1993 (Graphs 1 to 3). However, there is no record of any imports by Brazil of handguns from Israel during the period covered by this report. It is therefore likely that the pistols were initially imported by Brazil's neighbors. Six South American countries did import handguns from Brazil during, or immediately before, the period in which Israeli pistols started to be seized in Rio de Janeiro – they are Argentina (graph 7), Bolivia (graph 8), Chile (graph 9), Colombia (graph 4), Paraguay (Graph 5) and Venezuela (Graph 6).

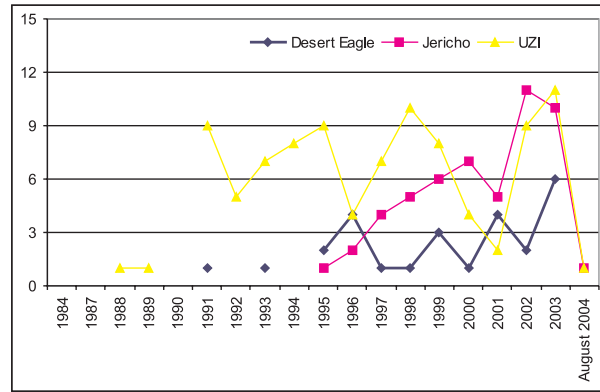
A very likely source is Paraguay. In 1994 it suddenly imported some USD 800 000 worth of pistols from Israel, after which seizures in Brazil increased. Field research made in 2000 also found that gun shops in the border cities of Pedro Juan Caballero and Asunción stocked large numbers of Jericho and Desert Eagle pistols. At the time, there were few restrictions placed on Brazilians purchasing pistols in Paraguay. Paraguay reduced imports of handguns as a political decision since 1999 in order to combat small arms trafficking. In addition to Paraguay, it is also important to note other countries could also have acted as diversion points. In particular, Argentina, Venezuela and Colombia, (see graphs 7, 6 and 4) also imported large quantities of Israeli origin handguns and could have been used as replacement sources after arms stopped being exported to Paraguay.

Seized small arms graphs:

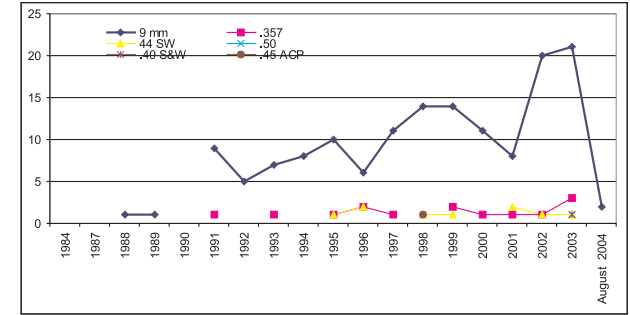
Graph 1. Israel: pistol registered (yes/no)



Graph 2. Pistol by maker

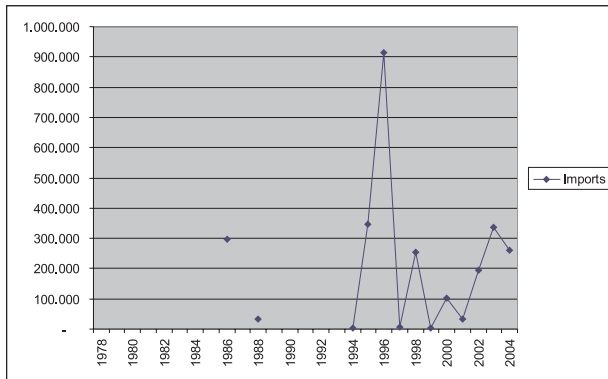


Graph 3. Pistol by caliber

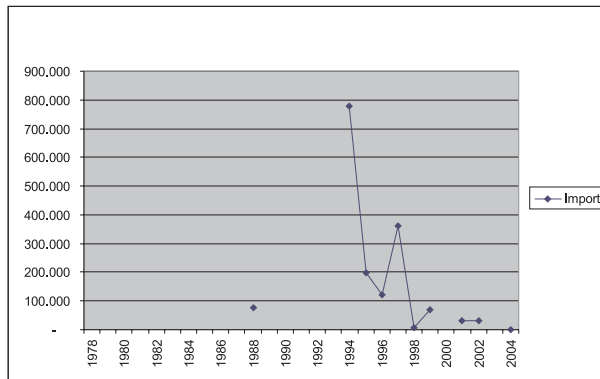


Legal transfers graphs:

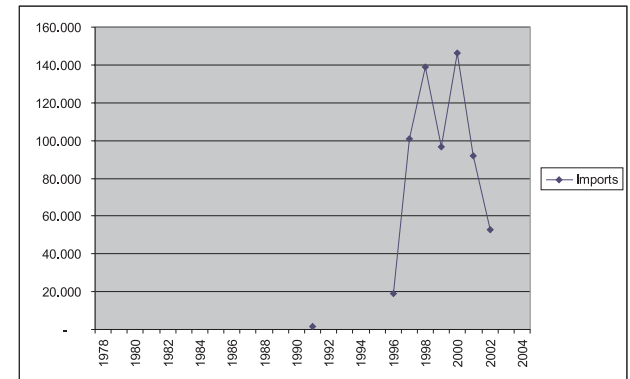
Graph 4. Colombia: Handguns from Israel



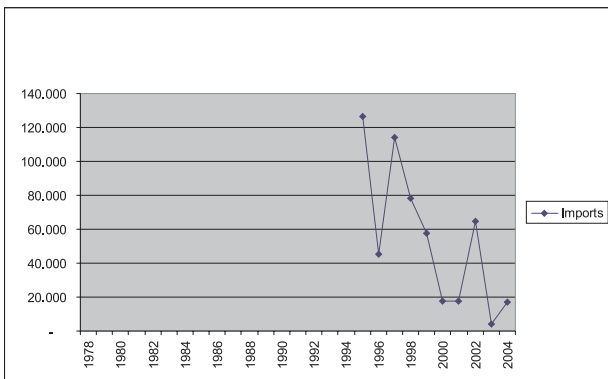
Graph 5. Paraguay: Handguns from Israel



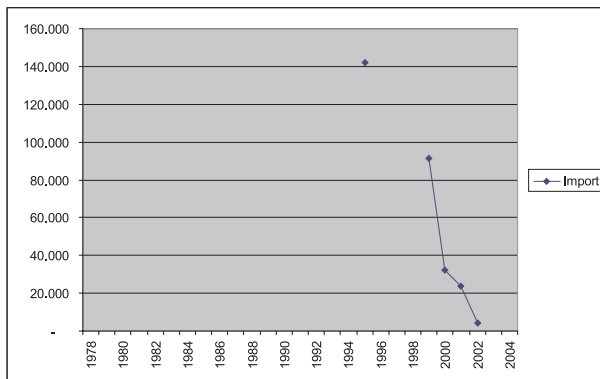
Graph 6. Venezuela: Handguns from Israel



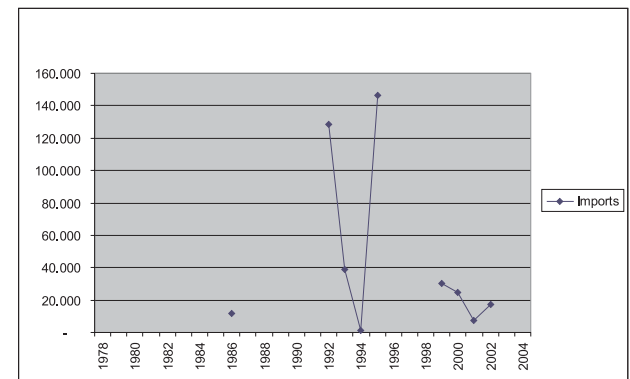
Graph 7. Argentina: Handguns from Israel



Graph 8. Bolivia: Handguns from Israel



Graph 9. Chile: Handguns from Israel



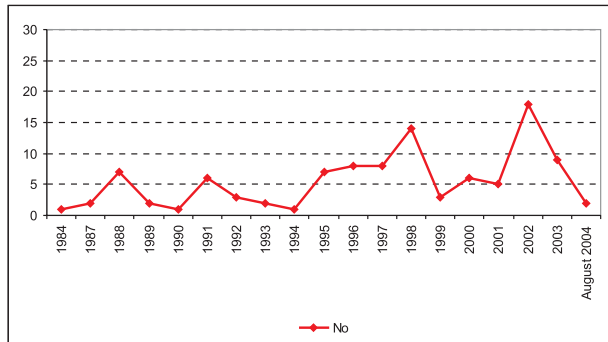
Military Firearms:

Since 1984 there have been consistent seizures of UZI sub-machine guns (9mm), none of which were previously registered with the DFAE (see graphs 10, 11, 12). UZIs are used by the military forces of Brazil and many of its neighbors: Bolivia; Chile ; Colombia; Ecuador; Paraguay; Peru, Suriname; and Venezuela. All of these countries have problems concerning the diversion to criminal markets of weapons in military and police stockpiles (and especially of surplus stocks). The UZI sub-machine guns seized in Rio could have originated from the leakages military stockpiles in Brazil or any of the other countries. Brazil had particularly high imports of Israeli military weapons in 2001, right before the "high" in seizures of UZI sub-machine guns in 2002 (see graph 18).

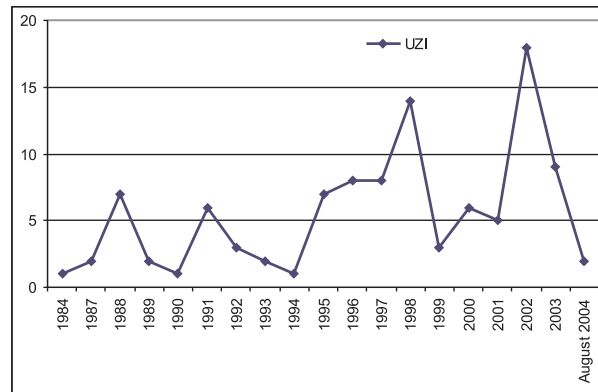
During the period in which Uzis were seized in Rio de Janeiro, Bolivia, Chile, Colombia and Venezuela also had large imports of Israeli military weapons (see graphs 13 to 17). However, other sources reveal that the import by Bolivia in 2000 concerns the acquisition of Galil rifles for its armed forces, so that trade is unlikely to be a source of UZIs. The same could be said about imports by Colombia in 1993, which is the year that Colombia adopted the Galil rifle as the min assault rifle for its military. Instead, other likely candidates for diversion points are imports of military weapons from Israel by Colombia from 1981 to 1986, and imports by Venezuela in 1986 .

Seized small arms graphs:

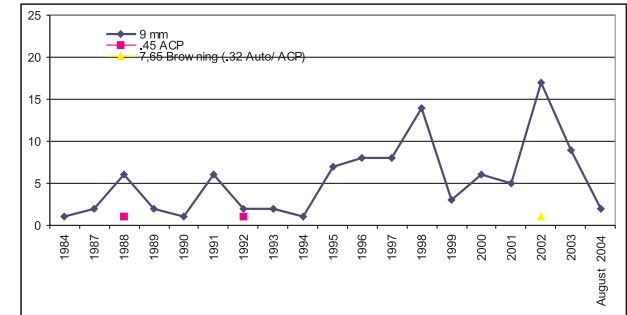
Graph 10. Israel: sub-machine gun registered (yes/no)



Graph 11. Sub-machine gun by maker

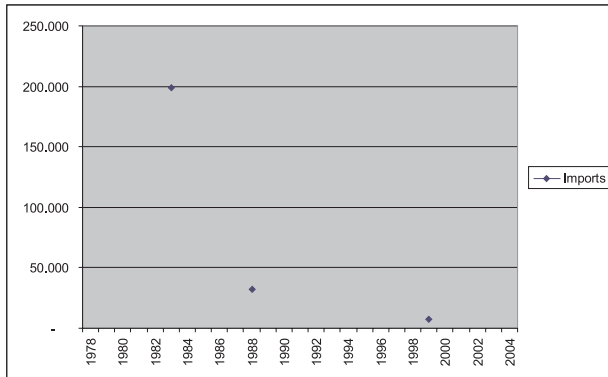


Graph 12. Sub-machine gun by caliber

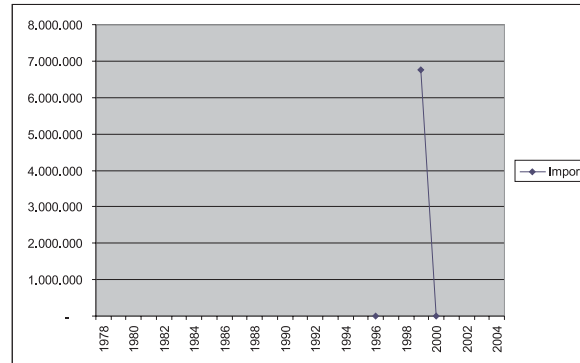


Legal transfers graphs:

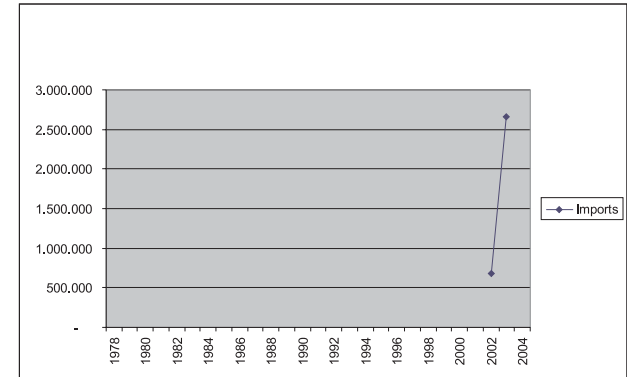
Graph 13. Chile: Military Weapons from Israel



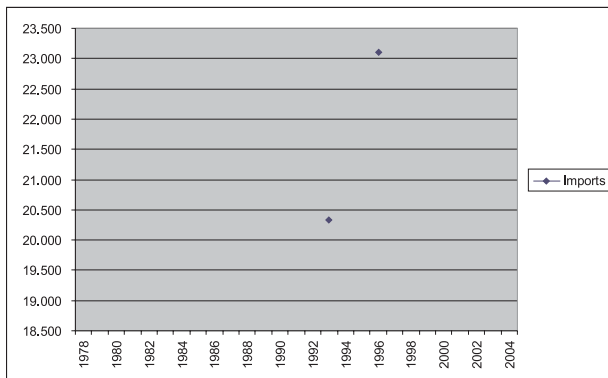
Graph 14. Bolivia: Military Weapons from Israel



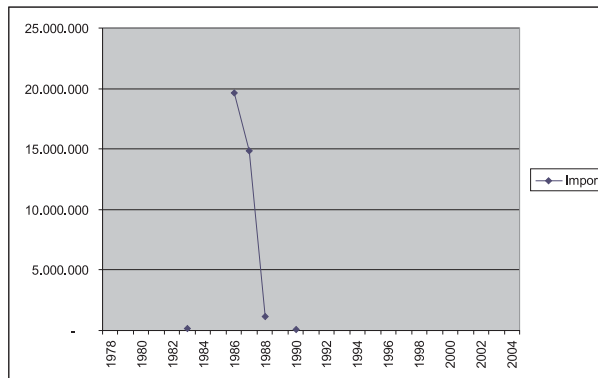
Graph 15. Colombia: Military Firearms from Israel



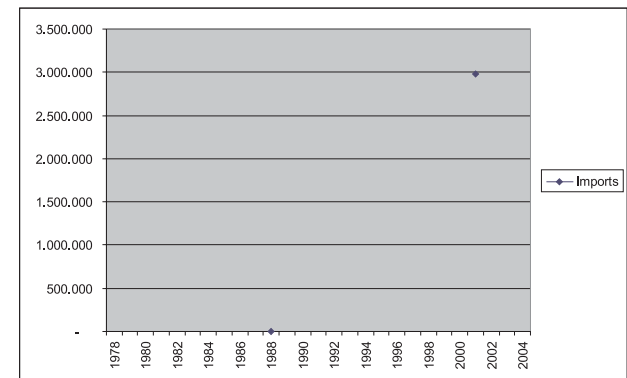
Graph 16. Paraguay: Military Weapons from Israel



Graph 17. Venezuela: Military Weapons from Israel



Graph 18. Brazil: Military Weapons from Israel

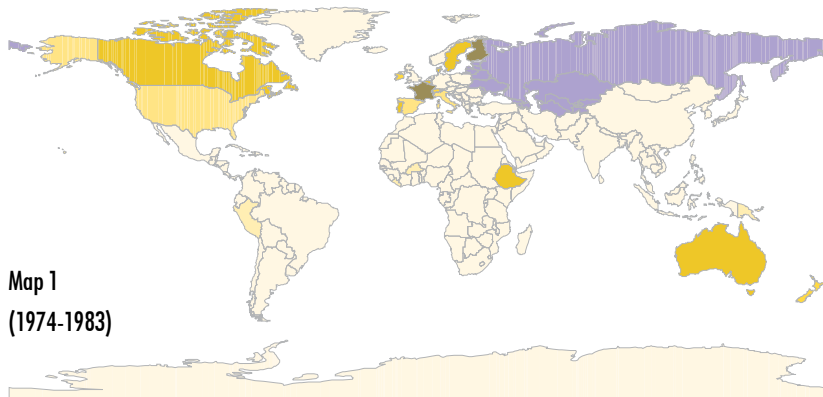


Russian Federation/Soviet Union

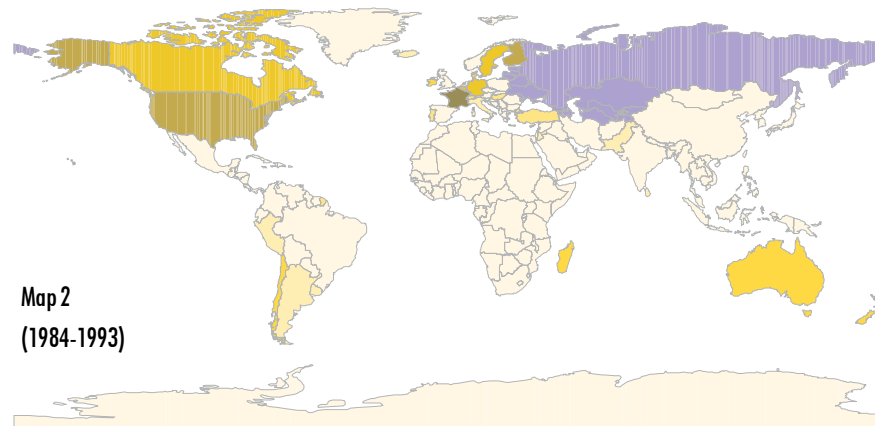
(82 assault rifles)

Maps 1, 2 and 3. Small Arms legally transferred from Russian Federation and Russian made weapons seized in Rio de Janeiro (1974-2004)

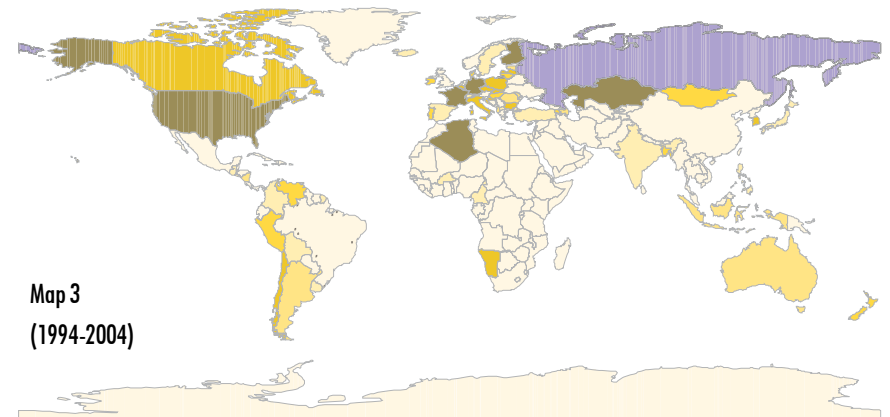
Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)



Country Limits
Manufacturing Country
Number of firearms seized
1 Dot = 10
Import in US\$
0 - 25000
25001 - 160000
160000 - 420000
420000 - 880000
880000 - 3000000
3000001 - 6500000
6500000 - 105000000

Type of seized weapon	Total
Assault Rifle	82
Total	82

The Russian Federation (and Soviet Union) is most famous for producing the Kalashnikov assault rifle. This weapon was first produced in 1947, and has subsequently been produced in many variants in Russian and in other countries.

In addition to the Kalashnikov, Russia also produces a wide variety of small arms for military and civilian owners. In the period 1994-2004 important markets were located in Europe, North and South America, Africa and in Asia. Despite the ubiquity of Russian origin small arms across the world comparatively few of them have been seized in Rio de Janeiro.

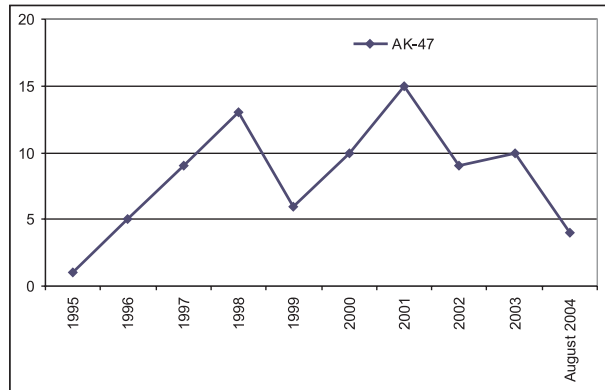
Between 1995 and 2004, there were yearly seizures of Russian origin Kalashnikov assault rifles – none of which had previously been registered by the DFAE. While the numbers seized are comparatively small, the Kalashnikov is a very powerful military weapon which has been used in wars across the world. Its use and possession by criminal organizations is a matter of great concern (Graphs 1 to 3).

Before the Venezuelan purchase of 100,000 AK-103 rifles from Russia in 2005 (which is not considered in this report because it was made after the period of study), the only two South American countries that reportedly had AK assault rifles in their military inventories were Peru and Suriname. Peru procured Russian made Kalashnikov rifles in the 1970s, however these sales however were not reported by either country in official trade statistics. The only country reporting the purchase of Russian military firearms is Argentina, which is a very small import of 625 US\$ (probably an individual purchase by a collector). Leaving aside the possibility of diversion from the remnants of the Cold War Central American conflicts (such as El Salvador, Honduras and Nicaragua), within South America the possible sources could be the diversion of stockpiles in Peru or Suriname.

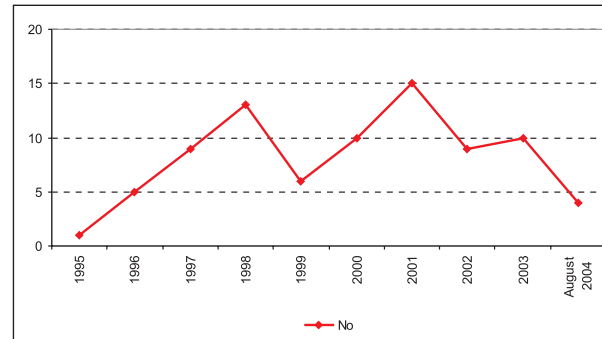
It is also possible that the Kalashnikovs seized in Brazil were originally ‘civilianized’ versions of the assault rifle. As with other such ‘civilian’ versions of military firearms, in many cases it is not difficult to re-convert them back to military specifications. These weapons would therefore be recorded as sporting rifles in trade statistics. There were imports by Argentina and Uruguay of Russian sporting rifles in the period 1995 to 1999 – before and during the period when the Kalashnikovs were seized in Rio de Janeiro (see graphs 4 to 6). It is therefore possible that the transfers of these weapons to the three neighbors of Brazil could have included ‘civilian’ versions of the Kalashnikov which then made their way to criminal organizations in Brazil.

Seized small arms graphs:

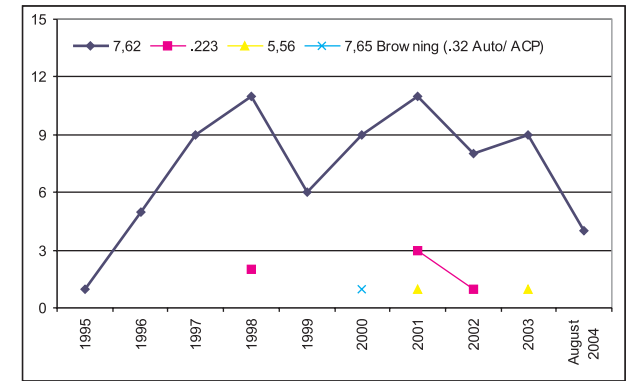
Graph 1. Assault rifle by maker



Graph 2. Russia: assault rifle registered (yes/no)

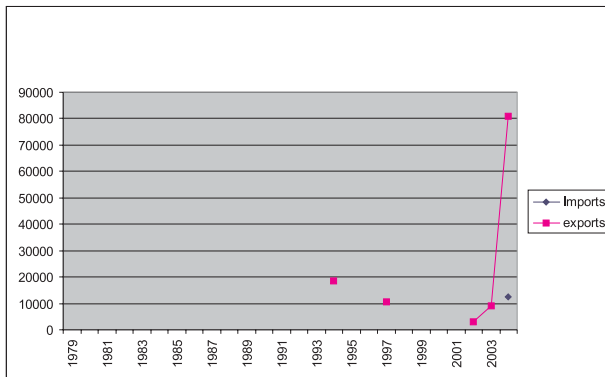


Graph 3. Assault rifle by caliber

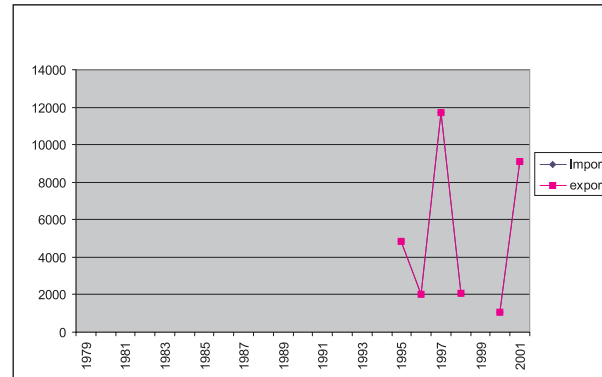


Legal transfers graphs:

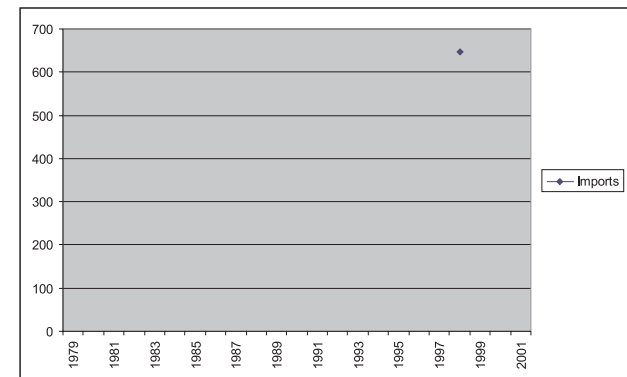
Graph 4. Chile: Sporting Rifles from Russia



Graph 5. Argentina: Sporting Rifles from Russia

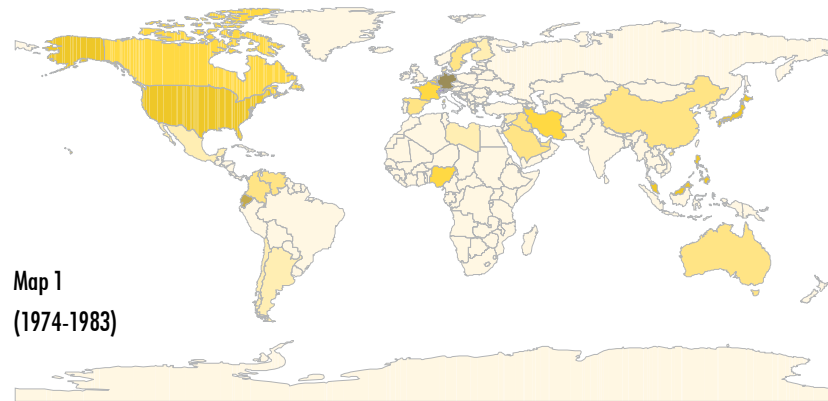


Graph 6. Argentina: Military Weapons from Russia

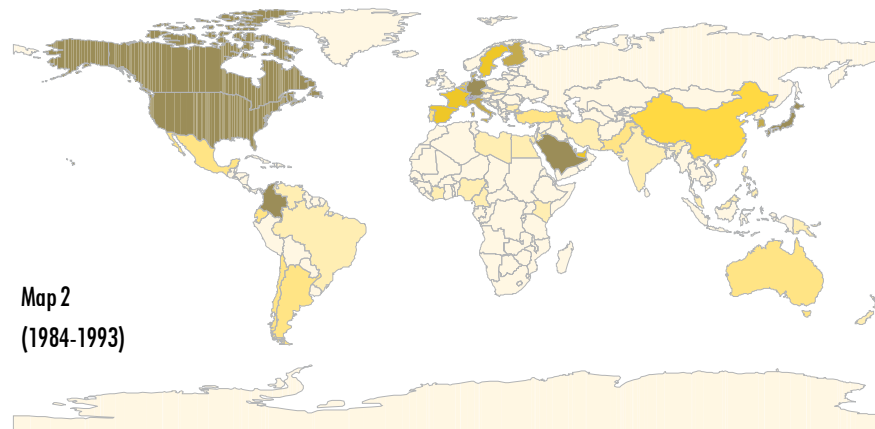


Switzerland

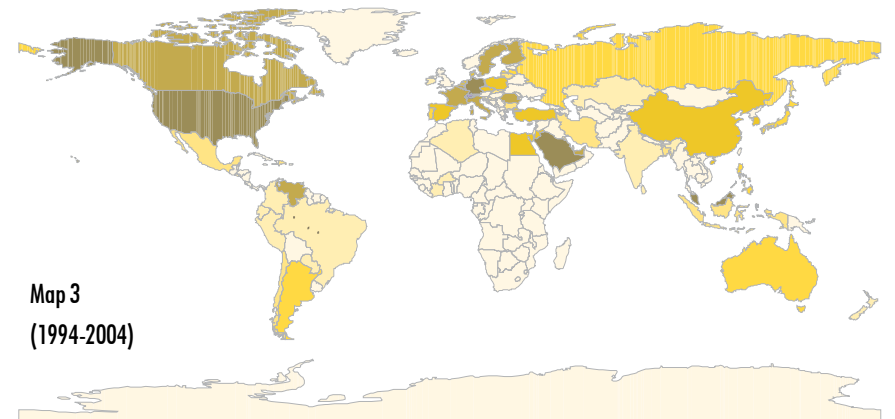
Maps 1, 2 and 3. Small Arms legally transferred from Switzerland and Swiss made weapons seized in Rio de Janeiro (1974-2004)



Map 1
(1974-1983)



Map 2
(1984-1993)



Map 3
(1994-2004)

Country Limits
 Manufacturing Country
 Number of firearms seized
 1 Dot = 10
 Import in US\$
 0 - 70000
 70001 - 220000
 220001 - 550000
 550000 - 1200000
 1200000 - 3000000
 3000000 - 8000000
 8000000 - 38000000

Type of seized weapon	Total
Pistol	16
Assault Rifle	14
Shotgun	1
Total	31

Swiss small arms are sold to very many countries across the world, and have gained a reputation for quality of manufacture. Important markets are found in North and South America, the Middle East, East Asia, and Western and Eastern Europe.

However, despite this wide dispersion, comparatively few Swiss origin firearms have been seized in Rio de Janeiro. During the period 1996 to 2002 there were a small but consistent number of seizures of Swiss origin assault rifles. Some of these Swiss assault rifles were observed by one of the authors at the DFAE's vault. The observations confirmed that most of the rifles are SIG SG 550/551 rifles (5.56x45mm or .223 caliber) which had been manufactured in Switzerland (and not under license elsewhere).

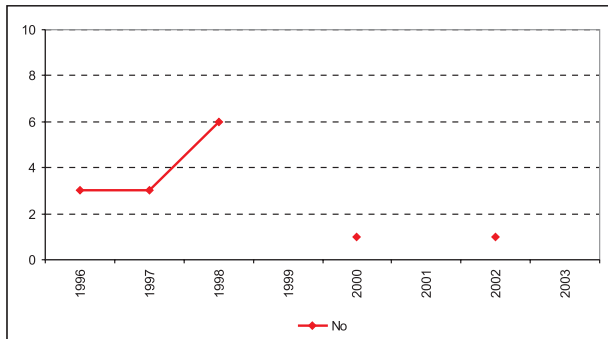
Military Firearms (assault rifles):

The most likely source for the SIG assault rifles were exports by Switzerland to Brazil in 1994 and 1995 (see graph 4) Interviews with an arms dealer have ascertained that the Brazilian Air Force imported SIG assault rifles during this period.⁶³ These weapons may well have been diverted through theft, loss or corrupt sale by Air Force personnel. In addition, another possible source is diversion from of military weapons imported by Paraguay in 1993 (see graph5).

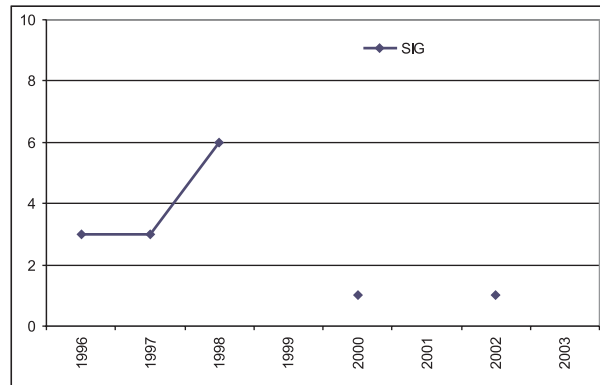
⁶³ Interview with an arms importer, Rio de Janeiro, August 2004.

Seized small arms graphs:

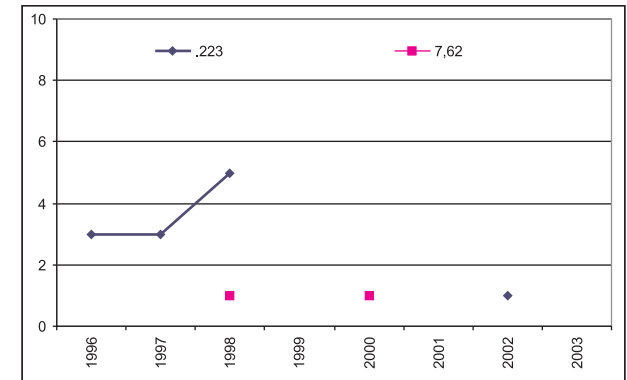
Graph 1. Switzerland: assault rifle registered (yes/no)



Graph 2. Assault rifle by maker

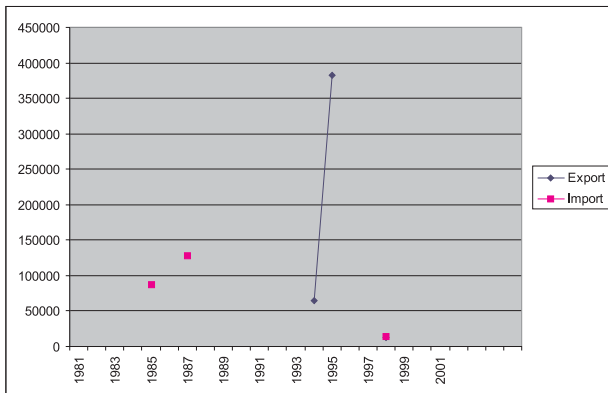


Graph 3. Assault rifle by caliber

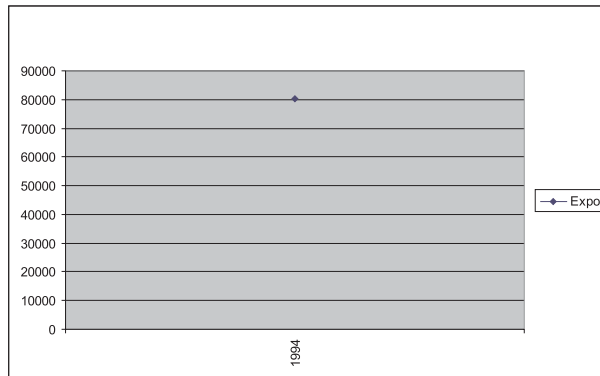


Legal transfers graphs:

Graph 4. Brazil: Military Weapons from Switzerland



Graph 5. Paraguay: Military Weapons from Switzerland



5. Conclusion:

This report outlines some of the possible means by which foreign made small arms and light weapons were diverted from legal trade and ownership into illicit markets in Brazil and particularly in the State of Rio de Janeiro. It begins by conducting a pioneering analysis of the database of illegal weapons seized by the Rio de Janeiro police. The majority of the weapons seized as recorded in that database were manufactured in Brazil. Many, however, were also produced abroad. Brazil's strict imports restrictions on many types of small arms and light weapons have therefore made it possible to determine who are the most likely purchasers in Brazil (in instances where the restrictions were relaxed) or identify the neighboring country to which the weapons were first exported before the weapons were diverted.

When licensing arms exports, governments should rigorously assess the risk that the weapons may be diverted into illicit ownership. This report highlights numerous instances in which weapons transfers to Brazil's neighbors have been identified as the most likely source of the firearms seized by the police in Rio de Janeiro.

- Many weapons, including sub-machine guns and assault rifles, were most likely diverted into criminal possession from stockpiles under the control of the Brazilian government and from private ownership by collectors.
- Lax regulations in Paraguay in particular allowed that country to act as an open door for arms smugglers into illicit markets in Brazil. For years, arms exports from the USA and Western Europe flowed into Paraguay and many were subsequently illicitly diverted into Brazil. Thanks to unilateral initiatives and cooperation with Brazil, the problem of grey markets in Paraguay is now beginning to be contained. However, lack of adequate controls over gun shops, and the sale of weapons, in other neighboring countries also facilitated the diversion of thousands of weapons.
- The importance of the pool of informal (that is unregistered) small arms in the possession of civilians as a source of domestic and foreign weapons for criminal and armed groups should not be under-estimated. Cheap, low quality revolvers produced and sold in Argentina during times of lax practices and regulations (before 1994) are still being smuggled to Paraguay and seized by the police in Rio de Janeiro. The surplus of non registered or poorly controlled small arms in civilian hands is as serious an issue as is the poorly controlled military weapons surplus. When controls are tightened in a given country, criminals look elsewhere for other potential sources. This report also recommends massive gun collection campaigns as a way of drying up the supply of weapons for criminals. One such campaign was implemented by the Brazilian Government between July 2004 and October 2005 that resulted in the hand over of approximately 460,000 weapons.

- The overwhelming majority of weapons seized by the Rio de Janeiro police had no previous records of ownership. These weapons were therefore either illicitly trafficked into Brazil from abroad, purchased and registered in other states and subsequently illicitly brought into Rio de Janeiro, or were purchased by parties not required to register their weapons with the police (such as collectors, who, in Brazil, register their weapons with the Army).
- Weapons are diverted in Brazil or its neighbors. There is little or no evidence of weapons whose source was likely to be directly from outside South America. This shows that, at least in the case of Brazil, global trafficking networks are legally transported to the region and then diverted to illicit markets.

These findings naturally promote the following policy recommendations: Importing countries need to enact strict controls over the sale of firearms as well as measures to ensure that firearms are only sold to authorized parties that will own them responsibly. Furthermore, in order to prevent diversion, governments need to insist upon strict control over official stockpiles (especially of surplus weapons); and over private holdings of weapons (especially by collectors). The centralization of information is extremely relevant at the domestic level and allows for international cooperation in tracing weapons and ammunition. Brazil federalized its registration procedures in 2003 and also established mandatory information exchange between the Army and the Federal Police (on-line and through confidentiality protocols). Information exchange between security agencies makes it possible to rapidly identify and curtail patterns of diversion of weapons held by groups of users controlled by different government institutions.

Exporting countries need to thoroughly evaluate the risk of weapons diversion when considering issuing an export license. This should include *inter alia*: the national laws and regulations of the importing country – particularly those pertaining to the sale of weapons; control over official stockpiles; and the ability of a nation to implement its laws and policies. Most importantly, governments should not look at an export license in isolation. Governments need to evaluate license applications in light of recent arms trade flowing in and out, of the prospective importer. This report indicates that such an analysis is possible.

6. Annex

South America



GROSS DOMESTIC PRODUCT AND DEFLATORS USED IN THE HISTORICAL TABLES: 1940–2009 (Fiscal Year 2000 = 1.000)

Year	GDP (in billions of dollars)	GDP (Chained) Price Index	Composite Outlay Deflators												
			Total	Total Defense	Total Non- defense	Payments for Individuals			Other Grants	Net Interest	Undistributed Offsetting Receipts	All Other	Addendum: Direct Capital		
						Total	Direct	Grants					Total	Defense	Non- defense
1940	96,8	0,0978	0,0870	0,0836	0,0878	0,0931	0,0931	0,0931	0,0703	0,0978	0,0608	0,0847	0,1897	0,1623	0,2044
1941	114,1	0,1014	0,0928	0,0994	0,0876	0,0963	0,0963	0,0963	0,0640	0,1014	0,0583	0,0809	0,1830	0,1725	0,2149
1942	144,3	0,1089	0,1028	0,1186	0,0757	0,1053	0,1053	0,1053	0,0631	0,1089	0,0565	0,0661	0,1799	0,1772	0,2303
1943	180,3	0,1163	0,1122	0,1268	0,0682	0,1165	0,1165	0,1165	0,0675	0,1163	0,0554	0,0583	0,1736	0,1731	0,2278
1944	209,2	0,1209	0,1061	0,1157	0,0689	0,1251	0,1251	0,1251	0,0689	0,1209	0,0552	0,0562	0,1677	0,1675	0,2285
1945	221,4	0,1239	0,1041	0,1071	0,0843	0,1315	0,1316	0,1311	0,0691	0,1239	0,0569	0,0586	0,1559	0,1557	0,2286
1946	222,7	0,1328	0,1071	0,1052	0,1140	0,1387	0,1388	0,1385	0,0747	0,1328	0,0632	0,0684	0,1604	0,1595	0,2190
1947	233,2	0,1466	0,1162	0,1137	0,1177	0,1493	0,1493	0,1492	0,1022	0,1466	0,0834	0,0868	0,1839	0,1796	0,2128
1948	256,7	0,1606	0,1273	0,1052	0,1403	0,1631	0,1631	0,1630	0,1036	0,1606	0,1060	0,1118	0,2083	0,2009	0,2390
1949	271,3	0,1660	0,1246	0,1062	0,1367	0,1676	0,1676	0,1674	0,1110	0,1660	0,1033	0,1092	0,2222	0,2117	0,2501
1950	273,2	0,1635	0,1287	0,1059	0,1434	0,1656	0,1656	0,1650	0,1042	0,1635	0,1088	0,1162	0,2183	0,2107	0,2311
1951	320,3	0,1723	0,1279	0,1113	0,1523	0,1749	0,1750	0,1742	0,1198	0,1723	0,1045	0,1154	0,2306	0,2278	0,2429
1952	348,7	0,1792	0,1280	0,1162	0,1633	0,1816	0,1817	0,1810	0,1218	0,1792	0,1094	0,1222	0,2397	0,2380	0,2574
1953	372,6	0,1825	0,1368	0,1269	0,1661	0,1844	0,1845	0,1839	0,1291	0,1825	0,1157	0,1289	0,2426	0,2407	0,2698
1954	377,1	0,1846	0,1409	0,1290	0,1784	0,1868	0,1869	0,1866	0,1260	0,1846	0,1170	0,1360	0,2400	0,2383	0,2660
1955	395,9	0,1862	0,1455	0,1335	0,1709	0,1870	0,1870	0,1869	0,1292	0,1862	0,1204	0,1310	0,2473	0,2465	0,2603
1956	427,0	0,1911	0,1526	0,1425	0,1710	0,1894	0,1894	0,1893	0,1321	0,1911	0,1231	0,1317	0,2614	0,2611	0,2674
1957	450,9	0,1983	0,1601	0,1497	0,1780	0,1948	0,1949	0,1947	0,1434	0,1983	0,1277	0,1379	0,2783	0,2780	0,2822
1958	460,0	0,2043	0,1687	0,1562	0,1885	0,2006	0,2006	0,2005	0,1571	0,2043	0,1361	0,1491	0,2881	0,2878	0,2924
1959	490,2	0,2075	0,1746	0,1647	0,1875	0,2036	0,2037	0,2035	0,1667	0,2075	0,1423	0,1536	0,2928	0,2926	0,2956
1960	518,9	0,2100	0,1750	0,1603	0,1945	0,2073	0,2073	0,2071	0,1680	0,2100	0,1400	0,1570	0,2951	0,2945	0,3006
1961	529,9	0,2130	0,1795	0,1645	0,1981	0,2103	0,2104	0,2102	0,1656	0,2130	0,1464	0,1647	0,2968	0,2960	0,3038
1962	567,8	0,2154	0,1803	0,1657	0,1971	0,2123	0,2124	0,2122	0,1671	0,2154	0,1489	0,1665	0,2999	0,2988	0,3086
1963	599,2	0,2181	0,1873	0,1726	0,2034	0,2149	0,2149	0,2147	0,1727	0,2181	0,1533	0,1756	0,3068	0,3056	0,3158
1964	641,4	0,2207	0,1900	0,1739	0,2064	0,2178	0,2178	0,2176	0,1760	0,2207	0,1575	0,1832	0,3081	0,3050	0,3282

Year	GDP (in billions of dollars)	GDP (Chained) Price Index	Composite Outlay Deflators												
			Total	Total Defense	Total Non- defense	Payments for Individuals			Other Grants	Net Interest	Undistributed Offsetting Receipts	All Other	Addendum: Direct Capital		
						Total	Direct	Grants					Total	Defense	Non- defense
1965	687,5	0,2245	0,1928	0,1735	0,2102	0,2208	0,2208	0,2206	0,1807	0,2245	0,1656	0,1905	0,3096	0,3056	0,3299
1966	755,8	0,2293	0,1974	0,1800	0,2131	0,2248	0,2248	0,2246	0,1779	0,2293	0,1714	0,1956	0,3112	0,3082	0,3278
1967	810,2	0,2367	0,2026	0,1863	0,2185	0,2308	0,2308	0,2307	0,1820	0,2367	0,1773	0,2002	0,3165	0,3134	0,3402
1968	868,5	0,2451	0,2103	0,1950	0,2254	0,2380	0,2380	0,2379	0,1889	0,2451	0,1848	0,2061	0,3244	0,3212	0,3553
1969	948,3	0,2563	0,2230	0,2062	0,2390	0,2482	0,2482	0,2481	0,1999	0,2563	0,1974	0,2210	0,3368	0,3339	0,3699
1970	1.012,9	0,2703	0,2363	0,2178	0,2515	0,2602	0,2602	0,2601	0,2138	0,2703	0,2123	0,2343	0,3560	0,3522	0,3962
1971	1.080,3	0,2838	0,2519	0,2314	0,2661	0,2719	0,2719	0,2718	0,2293	0,2838	0,2284	0,2526	0,3818	0,3759	0,4284
1972	1.176,9	0,2972	0,2690	0,2551	0,2769	0,2823	0,2824	0,2822	0,2398	0,2972	0,2455	0,2692	0,4216	0,4166	0,4503
1973	1.311,0	0,3103	0,2833	0,2752	0,2872	0,2931	0,2931	0,2930	0,2473	0,3103	0,2587	0,2838	0,4565	0,4541	0,4681
1974	1.438,9	0,3327	0,3070	0,2967	0,3116	0,3167	0,3168	0,3166	0,2714	0,3327	0,2765	0,3014	0,4789	0,4747	0,4985
1975	1.560,8	0,3673	0,3384	0,3293	0,3418	0,3491	0,3492	0,3490	0,3011	0,3673	0,3034	0,3277	0,5207	0,5099	0,5669
1976	1.738,8	0,3938	0,3640	0,3547	0,3670	0,3722	0,3722	0,3720	0,3267	0,3938	0,3325	0,3597	0,5586	0,5464	0,6087
TQ	459,6	0,4063	0,3752	0,3648	0,3785	0,3840	0,3840	0,3838	0,3404	0,4063	0,3454	0,3704	0,5873	0,5773	0,6222
1977	1.974,4	0,4233	0,3934	0,3881	0,3951	0,4002	0,4003	0,4000	0,3525	0,4233	0,3679	0,3945	0,6093	0,6013	0,6412
1978	2.218,3	0,4518	0,4195	0,4161	0,4204	0,4273	0,4274	0,4271	0,3758	0,4518	0,3898	0,4156	0,6492	0,6449	0,6646
1979	2.502,4	0,4882	0,4552	0,4520	0,4561	0,4625	0,4626	0,4623	0,4096	0,4882	0,4159	0,4476	0,6902	0,6867	0,7034
1980	2.725,4	0,5310	0,5029	0,5017	0,5033	0,5110	0,5110	0,5108	0,4563	0,5310	0,4584	0,4873	0,7391	0,7326	0,7663
1981	3.058,6	0,5830	0,5562	0,5582	0,5556	0,5604	0,5604	0,5602	0,5081	0,5830	0,5076	0,5371	0,7981	0,7911	0,8308
1982	3.225,5	0,6229	0,5958	0,6037	0,5932	0,5950	0,5950	0,5948	0,5514	0,6229	0,5364	0,5677	0,8614	0,8569	0,8874
1983	3.442,7	0,6504	0,6245	0,6348	0,6210	0,6223	0,6223	0,6221	0,5794	0,6504	0,5622	0,5910	0,9033	0,9038	0,8999
1984	3.846,7	0,6744	0,6555	0,6809	0,6467	0,6464	0,6464	0,6461	0,6088	0,6744	0,5753	0,6127	0,9344	0,9396	0,9007
1985	4.148,9	0,6963	0,6781	0,7089	0,6676	0,6681	0,6682	0,6677	0,6329	0,6963	0,5968	0,6312	0,9380	0,9427	0,9089
1986	4.406,7	0,7125	0,6947	0,7180	0,6861	0,6861	0,6861	0,6857	0,6557	0,7125	0,6107	0,6466	0,9199	0,9204	0,9164
1987	4.654,4	0,7311	0,7143	0,7284	0,7090	0,7071	0,7071	0,7068	0,6866	0,7311	0,6245	0,6667	0,9027	0,8992	0,9276
1988	5.011,9	0,7541	0,7359	0,7386	0,7349	0,7345	0,7345	0,7344	0,7107	0,7541	0,6429	0,6885	0,8895	0,8806	0,9447
1989	5.401,7	0,7834	0,7631	0,7609	0,7640	0,7670	0,7670	0,7670	0,7365	0,7834	0,6599	0,7031	0,8977	0,8875	0,9677
1990	5.737,0	0,8125	0,7882	0,7822	0,7902	0,7996	0,7996	0,7999	0,7693	0,8125	0,6845	0,7194	0,9121	0,9004	0,9867

Year	GDP (in billions of dollars)	GDP (Chained) Price Index	Composite Outlay Deflators												
			Total	Total Defense	Total Non- defense	Payments for Individuals			Other Grants	Net Interest	Undistributed Offsetting Receipts	All Other	Addendum: Direct Capital		
						Total	Direct	Grants					Total	Defense	Non- defense
1991	5.934,2	0,8430	0,8226	0,8189	0,8236	0,8333	0,8333	0,8333	0,7994	0,8430	0,7285	0,7599	0,9371	0,9249	1,0067
1992	6.240,6	0,8642	0,8508	0,8422	0,8531	0,8574	0,8575	0,8572	0,8181	0,8642	0,7459	0,7972	0,9484	0,9362	1,0013
1993	6.578,4	0,8838	0,8725	0,8555	0,8770	0,8787	0,8788	0,8783	0,8418	0,8838	0,7863	0,8407	0,9669	0,9574	1,0066
1994	6.964,2	0,9028	0,8902	0,8724	0,8946	0,8967	0,8968	0,8962	0,8644	0,9028	0,8199	0,8604	0,9880	0,9809	1,0168
1995	7.325,1	0,9218	0,9120	0,8895	0,9171	0,9168	0,9169	0,9165	0,8922	0,9218	0,8458	0,8950	1,0078	1,0003	1,0314
1996	7.697,4	0,9395	0,9328	0,9190	0,9356	0,9355	0,9355	0,9352	0,9151	0,9395	0,8851	0,9244	1,0186	1,0141	1,0309
1997	8.186,6	0,9559	0,9508	0,9381	0,9534	0,9537	0,9537	0,9533	0,9318	0,9559	0,9095	0,9402	1,0022	0,9982	1,0131
1998	8.626,3	0,9675	0,9603	0,9499	0,9623	0,9629	0,9630	0,9628	0,9449	0,9675	0,9329	0,9481	0,9913	0,9893	0,9983
1999	9.127,0	0,9802	0,9748	0,9690	0,9759	0,9763	0,9763	0,9762	0,9650	0,9802	0,9591	0,9683	0,9950	0,9961	0,9922
2000	9.708,4	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
2001	10.040,7	1,0234	1,0234	1,0268	1,0227	1,0220	1,0220	1,0220	1,0302	1,0234	1,0269	1,0231	1,0000	0,9963	1,0083
2002	10.373,4	1,0415	1,0408	1,0537	1,0382	1,0354	1,0353	1,0355	1,0543	1,0415	1,0686	1,0521	0,9925	0,9876	1,0040
2003	10.828,3	1,0585	1,0624	1,0812	1,0582	1,0551	1,0550	1,0553	1,0881	1,0585	1,1014	1,0731	0,9933	0,9911	0,9988
2004 estimate	11.466,0	1,0724	1,0820	1,0949	1,0789	1,0762	1,0761	1,0764	1,1099	1,0724	1,1159	1,0911	1,0062	1,0042	1,0119
2005 estimate	12.042,4	1,0858	1,1009	1,1075	1,0994	1,0987	1,0987	1,0989	1,1291	1,0858	1,1298	1,1048	1,0189	1,0168	1,0246
2006 estimate	12.641,1	1,1021	1,1296	1,1599	1,1234	1,1220	1,1220	1,1220	1,1543	1,1021	1,1468	1,1471	1,0393	1,0320	1,0399
2007 estimate	13.279,1	1,1204	1,1522	1,1793	1,1467	1,1467	1,1467	1,1468	1,1818	1,1204	1,1658	1,1659	1,0549	1,0492	1,0572
2008 estimate	13.972,6	1,1419	1,1764	1,2019	1,1713	1,1719	1,1719	1,1720	1,2127	1,1419	1,1882	1,1883	1,0753	1,0693	1,0775
2009 estimate	14.701,6	1,1651	1,2025	1,2262	1,1977	1,1989	1,1989	1,1990	1,2454	1,1651	1,2123	1,2124	1,0972	1,0910	1,0994

Data available at: <http://www.gpoaccess.gov/usbudget/fy05/hist.html>

Note: Constant dollar research and development outlays are based on the GDP (chained) price index.