The Problem with Venezuelan Homicide Data, and a Solution

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Abstract

The rise of lethal violence in the Americas has spawned dozens of quantitative empirical studies about the causes and consequences of criminal conflict. But data limitations have precluded the study of Venezuela, which experienced one of the region's largest homicide waves. Based on original interviews with government officials and analysis of privately obtained data, we explain the problem with Venezuelan homicide statistics and propose a partial solution. We then implement our proposed solution, using our measure to describe trends in lethal violence in Venezuela over the past 50 years. We then relate these facts to findings in the literature, identifying questions for future work.

The cliché that it is easy to lie with statistics needs a corollary: it is even easier to lie without statistics. (Monkkonen, 2001b, p. 7)

The academic debate over homicides in Latin America generally turns on competing explanations, not competing facts.

Researchers studying Mexico, for example, might disagree over whether the government's military offensive against drug cartels [Dell, 2015, Calderón et al., 2015, Lessing, 2018] or (say) fluctuating drug profits [Castillo et al., 2020] explain more of the violence—but no one questions the fact that the Mexican homicide rate nearly tripled between 2007 and 2010.

Likewise, students of Colombia might compare the effects of (e.g.) counternarcotics policies [Mejía et al., 2017], pro-state para-state armed actors [Acemoglu et al., 2013], or price shocks [Dube and Vargas, 2013] in driving conflict—but everyone knows that the homicide rate plummeted during the presidency of Álvaro Uribe.

Of course, body counts are fraught everywhere [Monkkonen, 2001b, Ball and Reed, 2016, Willis, 2017]. But the governments of Mexico, Colombia, Brazil, and Argentina, among others, publish well-documented homicide data in timely fashion, making it easy for journalists and scholars to describe homicide trends.

Venezuela does not afford this luxury. Researchers for Brazil's Igarapé Institute have written of "a near blackout of reliable [Venezuelan] government crime statistics" [Garzón and Muggah, 2017]. The veteran crime journalist Ioan Grillo, reporting for *Time* magazine, described Venezuela's murder rate as a matter of fierce debate [Grillo and Benezra, 2016]. And the *Miami Herald* published an article under the headline "Dueling data blur Venezuelan murder rate" [Wyss, 2016].

Researchers studying Venezuela dispute even basic facts like whether the homicide rate rose or fell in certain years [see, e.g., Kronick, 2016, Briceño-León, 2016, Toro, 2016]. This hampers research on Venezuela, a case important in and of itself (as readers of this volume no doubt agree). More than that, were it not for the dearth of data, Venezuela could help scholars evaluate competing theories about the determinants of lethal violence in Latin America. Subnational variation within Venezuela could speak to the consequences of local political changes [Dell, 2015, Fergusson et al., 2018], demographic trends [De Mello and Schneider, 2010], drug trafficking [Angrist and Kugler, 2008], and gun supply [Dube et al., 2013], among others. So, what is wrong with Venezuelan homicide statistics? Is it simply that the government conceals official data? Or is there something else?

In this chapter, we find that there is something else. Based on original interviews with government officials and analysis of privately obtained data, we find that a problem with the underling data sets makes it especially difficult to count homicides in Venezuela—even relative to other countries in the region.

The problem is that the Venezuelan government underuses the label *homicide*, and that the extent of underuse varies dramatically over time and across Venezuelan states and municipalities.

Imagine that a person dies from a gunshot wound. This death might be a *homicide*—an "unlawful death inflicted upon a person with the intent to cause death or serious injury" [UNODC, 2015]—or it might be an accident, a suicide, or the result of legal police action. Both of the Venezuelan government agencies that produce homicide statistics classify many *homicides* as something else. The Ministry of Health classifies many homicides as *violent deaths of unknown intent*, a residual category, while the national investigative police classify many homicides as cases of *resistance to authority*, which implies police action. Because *violent deaths of unknown intent include* many deaths that are not homicides, and because cases of *resistance to authority* include many incidents that do not result in death at all, researchers cannot obtain a count of homicides by simply adding these categories to the counts of deaths labeled *homicide*.

The upshot is that analyzing deaths coded as homicides—whether in vital statistics, produced by the Ministry of Health, or in police data—both understates the number of homicides and misrepresents the trend (how homicides rise or fall over time).

To some extent, these problems plague homicide statistics everywhere. In other major Latin American countries, though, the problem is circumscribed: relatively few deaths fall into health ministries' *unknown intent* category, allowing researchers to use vital statistics to estimate the homicide rate. Moreover, in (e.g.) Mexico or Colombia, coding rules appear consistent over time. But in Venezuela, a large proportion of homicides are classified as *violent deaths of unknown intent* or as cases of *resistance to authority*. Worse, this proportion varies dramatically over time and across the country.

We propose a partial solution to this problem. Rather than analyze intentional homicide, we propose that researchers studying Venezuela consider instead all *violent deaths*, which include intentional homicides, legal intervention, and violent deaths of

unknown intent. While a count of violent deaths does not facilitate simple comparisons with other countries, it does allow us to make comparisons within Venezuela over time, and across Venezuelan states or municipalities. These comparisons are valuable for assessing hypotheses about the causes of Venezuela's homicide wave (or rather, lethal violence wave).

We then take two steps toward executing our proposed solution. First, we use original interviews with officials in the police and in the health ministry—the two principal sources of relevant data—to document their respective methods for counting homicides and other violent deaths. Second, we use data provided by these sources together with data we digitize from historical records—to construct and validate a measure of the national *violent death rate*.

Finally, we use these data to characterize descriptive facts about the Venezuelan violence wave. Some of these facts challenge popular and academic explanations. For one thing, the violent death rate doubled in the first half of the 1990s, well before the election of Hugo Chávez in 1998. This bears on theories that relate violence to rhetoric or policies of the Chávez administration. For another, the violent death rate remained low from the 1930s through the mid-1980s, throughout regime changes, an oil boom, many coup attempts, and guerrilla activity. While this is not necessarily inconsistent with analysis that points to the role of political conflict as a driver of violence in the post-1989 period, it does invite an explanation for why the mechanisms linking political conflict to lethal violence were apparently inoperative for most of the twentieth century. The same applies to work focused on oil rents as a driver of conflict. If the oil boom of the 2000s drove violence in the 2000s, did the oil boom of the 1970s similarly stoke lethal violence? If not, why not? Section 3 discusses other descriptive facts and relates them to the literature.

Our goal in presenting this description is to set out clearly what it is that the remaining chapters of this volume seek to explain.

While we would not expect any one theory to account for every feature of the lethal violence wave—to quote (again) the great historian Erik Monkkonen, "violence is complex and multicausal and no one has all of the answers" [Monkkonen, 2001a, p. 181]—no valid explanation will be ruled out by the facts.

1 Sources of homicide data in Venezuela

In September of 2015, researchers and government officials from twelve Latin American countries gathered in Bogotá to develop tools for measuring and improving the quality of homicide data in the region [Protocolo de Bogotá, 2015]. The resultant *Bogotá Protocol* defined a set of best practices for counting homicides in the two principal sources of homicide data: police records and vital statistics. The Bogotá Protocol also proposes standards against which to gauge the quality of the data. The protocol suggests, for example, that *best practice* requires recording the age of each victim, and, as a *standard*, states that no more than five percent of homicide records should fail to register victim age. The protocol also emphasizes the importance of "a high degree of convergence" between the counts based on vital statistics and those based on police records, suggesting a "20% discrepancy" as the maximum acceptable disparity between the two sources (p. 7).¹ We use the Bogotá Protocol as a guide in assessing the two government agencies that count violent deaths in Venezuela.

1.1 Police records

This section describes how Venezuela's national investigative police collect, process, and publish data on violent deaths.²

The process of measuring lethal violence using police records comprises four steps: opening a case file (Section 1.1.1), classifying the case by type (Section 1.1.2), counting the cases by type and by state (Section 1.1.3), and the use of these counts by government agencies and researchers (Section 1.1.4). We describe both the *de jure* and the *de facto* procedures at each of these steps.

1.1.1 The investigative police open a case file

When a person dies from external causes in Venezuela, someone—most often a state or local police officer, other times a family member or doctor—notifies the national investigative police. Unlike in the United States, where local police forces also have investigative functions, in Venezuela, these functions are the responsibility of a single organization: the national investigative police.

¹Curiously, the protocol does not specify 20% of what; we discuss this in Section 2.

²The national investigative police was, from its founding in 1958 until 2001, called the *Policía Técnico Judicial* (PTJ); since 2001, it has been called the *Cuerpo de Investigaciones Científicas*, *Penales y Criminalísticas* (CICPC) [CICPC, 2015]. We use the term "investigative police" to avoid confusion.

In theory, three agents of the investigative police then attend the scene: one agent from the national Homicide Division, another from one of four regional homicide units, and a third from the local branch office.³ The agents are meant to jointly determine which of their respective divisions should handle the investigation. The Homicide Division generally handles high-visibility cases, including deaths of women and children and police-involved shootings; the four regional homicide units generally handle cases known internally as "routine homicides," such as those involving gang conflict; and the local branch offices generally handle cases that might or might not be intentional homicides, such as deaths in hit-and-runs.

In practice, however, many deaths are attended by agents from only one or two of the divisions, rather than all three. Officers of a Caracas-area municipal police force said in interviews that, when they notify the investigative police of a violent death, they sometimes describe it as the result of a gang shoot-out, so as not to have to wait for an agent of the Homicide Division. Since the Homicide Division covers the entire country with only (approximately) 100 agents—many of whom are tied up in administrative work—agents from one of the four regional homicide units generally arrive much more quickly. In the words of one municipal police officer, "Sometimes you are tired and about to end your shift when you come across a body. It's your responsibility to guard the scene and wait for the investigative police, but, *uff*, they can take a long time. So what you can do is call and say, 'Hey, this was a gang shoot-out,' which makes everything go much faster."⁴ This behavior obviously affects the proportion of cases labeled as gang shoot-outs (see Section 1.1.2).

Whichever of the three investigative police divisions takes the case then oversees the recording of evidence from the scene (fingerprints and photographs, initial interviews with witnesses, etc.). In theory, a coroner from the National Forensic Medicine Service and a prosecutor from the Public Prosecutions Service (*Ministerio Público*) are also present; in practice, again, both agencies are short-staffed and cadavers are often removed to the morgue without the presence of either.⁵

 $^{^{3}}$ Unless otherwise specified, the statements in this section are based on interviews conducted by one of the authors (Josbelk González Mejías) with officers of the investigative police. To the best of our knowledge, and in contrast with the health ministry (see Section 1.2), there is no official document that describes these procedures in writing.

⁴Author's interview with officer, April 2016.

 $^{{}^{5}}$ In 2012, for example, the Director of the National Forensic Medicine Service stated at a conference that there were only five coroners for all of Caracas—meaning that each coroner would have been responsible for approximately 31 cadavers per month, or 1.5 cadavers per working day. Given the time required to travel to the scene of the death, as well as the time required to evaluate each cadaver, this would have been an impossible workload. The Director also emphasized the time

The detective assigned to the case then opens a case file (*expediente policial*), which, at a minimum, includes a copy of the autopsy report and of the death certificate (more on death certificates in Section 1.2 below). The case file also generally contains officers' notes from the scene, but there is no standardized incident report form. Therefore, while certain details *generally* appear in every case file, the included (and excluded) information varies, perhaps reflecting officers' views (expressed in interviews) that each case is unique.

1.1.2 Officers classify cases by type

Of the many types of cases handled by the national investigative police, three types clearly relate to violent death: cases of homicide, cases of "resistance to authority," and cases in which a person dies in what might (or might not) have been a homicide. In Spanish, this last category is called *averiguación de muerte*, which we translate as *death inquest*.

Because the investigative police do not use a manual, guide, memorandum, or other written document that specifies definitions of these three types of cases, it is difficult for outsiders (such as the authors) or even insiders (such as our interviewees) to describe the categories with any precision. Cases of *homicide* generally include violent deaths that meet the definition of homicide in the Venezuelan penal code: a person who commits homicide "is one who has voluntarily killed another person" [Código Penal, 2000, Article 407]. In practice, the police category *homicide cases* includes both intentional homicides and manslaughter.

Deaths at the hands of police or the armed forces are an exception. The Venezuelan penal code defines the crime of *resistance to authority* as "the use of violence or threats" against government officials (Article 216); in general, victims of police-involved shootings are classified as perpetrators of the crime of resistance to authority (along with many other people who are not victims of shootings). Thus, *resistance to authority* cases include cases of death at the hands of the police or armed forces, and also incidents of "violence or threats" against any government official, whether or not the perpetrator was harmed.

The third category, *death inquest*, is the most nebulous. Nothing in the Venezuelan penal code or in internal investigative police documents formally defines this category, and informal descriptions differ across officers within the investigative police.

required to autopsy a body with six or eight bullet wounds, each of which must be described and documented.

Some describe death inquest cases as cases of *violent deaths* in which it is not immediately clear whether the death was an accident—for example, a body found with injuries that could be consistent either with assault or with an accident. Others describe death inquest cases as those in which the deceased shows no obvious signs of violence—no bullet wounds, for example—but might nevertheless have been murdered; for example, a person killed by poison. Most likely, death inquest includes cases both of these types, in unknown proportion.

Within the universe of homicide cases, the police further disaggregate into six subcategories: "brawl" homicides (por riña), "score-settling" homicides (in practice, those associated with gang conflicts; ajuste de cuenta), contract homicides (por encargo), lynchings, robbery-homicides, homicides "of passion," and homicide of unknown motive. In recent years, approximately 70% of homicide cases have been categorized as score-settling, which, again, is generally understood as gang-related; however, as noted above, this is almost certainly an overestimate. The patrol officers who notify the investigative police of violent deaths are responsible for guarding the scene until the investigative police arrive; for personnel reasons, the division that handles gang violence arrives faster than the division that handles higher-visibility violence. Patrol officers therefore sometimes call in a death as score-settling even when it is not. The artificially inflated gang violence numbers have found their way into public statements by government officials, as we describe in Section 1.1.4 below.

Formally, the Public Prosecution Service (Fiscalia) is the agency responsible for categorizing cases as (for example) a homicide or an accident. In practice, however, the initial categorization of the investigative police officers who open the case rarely changes, at least within the investigative police records.

1.1.3 Each division counts its cases

To the best of our knowledge, the investigative police do not create a master list of cases. In other words, case numbers, victim details, and other case-level information reside only in the physical case files themselves, as opposed to in an index or spreadsheet. Only aggregate case counts—by type, by state, and, more recently, by municipality—are recorded in spreadsheets.

Since 2012, the investigative police have recorded the aggregate number of lethal violence *victims* in addition to the aggregate number of lethal violence *cases*. The number of cases is different from the number of deaths both because a single homicide case could involve multiple deaths and because many "resistance to authority" cases involve no deaths at all. The investigative police count deaths in three categories

Figure 1: Construction of police data on lethal violence

The three types of violent deaths, the rules by which they are assigned to one of three divisions of the national investigative police, the procedures these divisions use to record information, and the process by which the information is transmitted to the central statistics division in Caracas are described in detail in Section 1.1.



Source: Authors' interviews.

(since 2012): deaths from homicide, deaths at the hands of state security forces ("resistance to authority"), and violent deaths in prisons.

Recording the total number of violent deaths—as opposed to creating a victimlevel database—falls short of best practice as defined in the Bogotá Protocol, which suggests that the unit of registration should be the *victim*.

Each of the three administrative divisions—the Homicide Division, regional homicide units, and branch offices—conducts an initial count of its own cases. (Case files initiated by the local branch offices are counted at the corresponding state-level branches). After recording the number of cases by type and by state, the Homicide Division, the four regional homicide units, and the twenty-three state branches send their respective case counts on to the national Statistics Division of the investigative police, located in Caracas. The Statistics Division then aggregates the case counts (and, more recently, victim counts) from all sources and creates a consolidated spreadsheet with national and state-level totals. Figure 1 illustrates the flow of information.

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The mechanics of conveying the summary tables from the administrative divisions

to the central Statistics Division in Caracas illustrate some of the challenges of data management within the investigative police. In early years, the summary tables were conveyed via a private courier service—but finding the budget for these services was a constant struggle, so much so that the work of the central Statistics Division was sometimes delayed as a result of inability to pay the couriers. Later, the investigative police began transmitting the summary tables via fax, which was cheaper but introduced new problems. The fax-machine paper was not durable, which meant that agents in the central Statistics Division had to transcribe every table. Besides creating additional work, transcription likely produced errors: faxed tables were sometimes difficult to read, and long shifts increased the risk of typographical mistakes. Even the arrival of the internet and email did not resolve transmission difficulties. Because many of the regional investigative police offices lacked reliable internet connections, agents would sometimes save the files on pen drives and send them from nearby cyber cafés.

The mechanics of recording the case counts have also changed. Commissar Hugo Gamarra, in his role as the head of the Statistics Division from the early 1980s through the early 2000s, oversaw the replacement of handwritten or typewritten tables with Microsoft Excel spreadsheets. Despite subsequent attempts to replace Excel spreadsheets with a dedicated internal information system,⁶ Excel spreadsheets persisted as the dominant method of recording and storing investigative police data.

Just as there is no written guide to categorizing cases, there is likewise no written guide or manual for the procedures by which the Statistics Division aggregates the figures it receives from the Homicide Division, the homicide units, and the state branch offices. These procedures are therefore sensitive to personnel changes. In interviews, agents in the Statistics Division said that the content and format of the Excel spreadsheets can change in response to how the Interior Minister "likes to have the information presented" (the investigative police is part of the Interior Ministry).

On the other hand, continuity in the directorship of the Statistics Division itself has provided considerable stability. When Commissar Hugo Gamarra left the Statistics Division in the early 2000s, after nearly two decades as Director, one of his deputies— José Antonio Rojas—took his place. Rojas generally ran the Division in Gamarra's image. When Rojas left, two inexperienced directors followed in quick succession; then, in 2010, Cristina Rojas—formerly of the human resources department within the investigative police—took the helm. While she had little experience with data,

 $^{^6{\}rm For}$ example, the Integrated System of Police Information (SIIPOL), a system designed for but seldom used by the investigative police.

her organizational and managerial capacities improved the functioning of the Division, and she was able to learn from agents who served under Gamarra and José Antonio Rojas.

1.1.4 Access to and use of the police data

From early in the twentieth century until the year 2003, national and state-level counts of each type of case were published in a government document called the Statistical Yearbook of Venezuela.⁷ (The Statistical Yearbook also published demographic, economic, climatological, and epidemiological data, along with hundreds of pages of other information.) After 2003, the administration of Hugo Chávez discontinued the Statistical Yearbook series entirely, thereby ending the regular publication of the data collected by the investigative police. While the annual reports of the Interior Ministry sporadically mention certain case counts, they do not regularly or reliably publish the data previously available in the Statistical Yearbooks.⁸

In the absence of any regular or reliable publication of the case counts constructed by the investigative police, researchers and journalists have requested the data both formally (in writing, to the director of the investigative police) and informally (though personal connections). To the best of our knowledge, the latter is the only viable way to access the investigative police data.

1.2 Health ministry data

The Venezuelan health ministry provides a second source of data on violent deaths, and its procedures are more formal and better-documented.⁹ The health ministry process comprises three steps: the collection of paper death certificates, the transcription of the death certificates into a central database, and then use of the microdata to produce a Mortality Yearbook.

⁷For an example of these tables from 1908 Statistical Yearbook, see Appendix Tables A.1–A.2. ⁸In the 1970s, the investigative police published a short-lived periodical called the Yearbook of Criminal Statistics; it was discontinued in the 1980s.

⁹The Venezuelan health ministry has changed names several times. When founded in 1936 the name was *Ministerio de Sanidad y Asistencia Social*. In 1999, the name was changed to Ministerio de Salud y Desarrollo Social; in 2007, the name changed again, to *Ministerio del Poder Popular para la Salud*. In this chapter we use the generic "health ministry" to refer to all three agencies.

1.2.1 A medical professional fills out a death certificate

When a person dies in Venezuela, a medical professional fills out a paper death certificate (Form EV-14, reproduced in the Online Appendix, Figure A.5). The type of medical professional who fills out the certificate—whether an attending physician, an agent of the forensic medicine service, or an officer of the health ministry—depends on the location and nature of the death [MPPS, 2012, p. 14].¹⁰ De jure, coroners from the National Forensic Medicine Service fill out the certificate in cases of violent death; in practice, especially when victims die in a hospital, physicians complete the certificates.

The death certificate records, among other information, the identity of the deceased, her location of residence, the location of death, and the causes of death. Critically, the medical professional who fills out the certificate describes the causes of death in words (Section 54 of the certificate; see Figure A.5) but does *not* fill out the corresponding code in the International Classification of Diseases (Section 56 of the certificate).

1.2.2 Coverage

In practice, the vast majority of deaths produce a death certificate: a Venezuelan government study estimated coverage at 96% in 1998; in 2008, the World Bank estimated coverage at 96.8%; and a more recent report by Venezuela's National Statistics Institute indicates slightly higher coverage by including late registration [OCEI, 1991, Danel and Bortman, 2008, INE, 2013].

Another way to assess the coverage of the health ministry mortality data is to compare the number of death certificates to the United Nations's estimate of the overall crude death rate, which is based not only on death registration itself but also on (a) survey data and (b) predictions based on population structure [United Nations, 2017a, p. 4]. For 2010–2015, the United Nations estimated Venezuela's crude death rate at 5.5 per 1,000 [United Nations, 2017b]; that would imply 163,824 deaths in 2013, given the population reported by the Venezuelan National Statistics Institute.

¹⁰The 96-page Norms for the creation, distribution, filling out, registry and recording of the Death Certificate [MPPS, 2012] indicates who is responsible for filling out the death certificate in each possible circumstance of death (p. 14). When a person dies in a hospital or other medical facility, the attending physician and/or an employee of the facility statistics office fills out the death certificate; for deaths at home, either the physician of the deceased or a physician at the nearest medical facility fills out the death certificate. For deaths in remote areas without any medical services, officials at the municipal health office (Dirección de Epidemiología Municipal) are responsible for filling out the death certificate.

The mortality microdata for that year contain 149,903 records, suggesting coverage of 92%.

While Venezuela's Organic Law of Civil Registry formally requires family members, police officers, medical professionals, and "any civilian aware of the death of an unknown person" to declare deaths (Article 126), the high coverage is likely due not to this formal requirement but rather to the fact that, in practice, a death certificate is needed to obtain the permissions required for cremation or burial. (Coverage for birth registration is much lower.)

1.2.3 Coding and transcription of paper death certificates

The original paper death certificates are sent to the health ministry in Caracas, via the municipal and state branch offices [MPPS, 2012, p. 12].¹¹ Within the ministry, the group that receives and processes the certificates is called the Division of Information and Health Statistics (DIES, by its Spanish acronym).¹² DIES is part of the General Directorate of Epidemiology, which in turn is part of the Viceministry of Public Health (one of five viceministries; see Figure A.6 for an organizational chart). While there has been considerable turnover in the directorship of DIES, many of the technical staff have had long tenures.

As noted above, the physicians and other medical professionals who fill out the paper death certificates simply describe the cause of death in words, rather than choosing a code from the International Classification of Diseases (ICD) [MPPS, 2012, p. 20, p. 37]. Choosing and recording the appropriate ICD code is the responsibility of technical staff within DIES. For 63 years (1955–2018), the World Health Organization maintained a Collaborating Center for the Classification of Diseases within the Venezuelan Ministry of Health; this Collaborating Center was effectively a part of DIES, and its staff assisted in the correct coding of causes of death [Gabaldón, 2018, Danel and Bortman, 2008, p. 93; http://www.who.int/].

Officers of the health ministry transcribe the paper death certificates using dedicated software called the System of Information in Health (SIS, by its acronym in Spanish). This software was designed to minimize transcription errors by employing dropdown menus and radio buttons wherever possible (see screenshots in Online Appendix

¹¹The original produces four carbon copies, which go to the civil registry, the National Institute of Statistics (INE), the National Electoral Council (for the purposes of updating the voter registry), and the medical institution of the official who filled out the death certificate, respectively.

¹²Formerly called the Division of Social Information and Statistics, and before that called the Division of Statistics Systems.

Figures A.3 and A.4).

Unlike the national investigative police, the health ministry thus complies with the Bogotá Protocol recommendation that the *victim* constitute the unit of registration.

1.2.4 Publication of the vital statistics data

In defining best practices for the dissemination of mortality data, the Bogotá Protocol states that [Protocolo de Bogotá, 2015, p. 8]:

- (1) "official data on homicides, both national and local, will be publicly disseminated," and that
- (2) "In addition to aggregate numbers, the micro-data of homicides, victim by victim, will be freely accessible, with the exception of information that may lead to individual identification of the persons involved ... with the lowest level of geographic disaggregation that does not compromise the confidentiality of the victims or alleged perpetrators."

While the national investigative police publish neither aggregate numbers nor microdata (indeed, as described above, the police do not even create micro-data), the health ministry publishes aggregate numbers ("both national and local") and, while the anonymized micro-data are not available online, they have been made available to academic researchers upon request (including but not limited to the authors).

More specifically, summary tables on mortality within Venezuela have been published continuously since the nineteenth century. From 1877 through 2003, these tables were published in the Statistical Yearbook of Venezuela, alongside the police records described above and hundreds of pages of data on unrelated topics.¹³ While the earliest volumes published only total deaths by location within the country (that is, not disaggregating by cause), already by the early twentieth century the Statistical Yearbooks published the number of deaths by location and by cause (see Online Appendix Figure A.7 for an example).

Beginning in 1938, another periodical—the Yearbook of Epidemiology and Vital Statistics, published by the health ministry—provided even more disaggregated figures than those available in the Statistical Yearbook of Venezuela.

¹³Even before 1877, vital statistics records were maintained by the church and published in parish books [González et al., 2009, p. 1]. However, to the best of our knowledge, the 1877 Statistical Yearbook marks the first publication of consolidated mortality data.

To the best of our knowledge, the first micro-data files date from the early 1990s. Online Appendix Table A.2 summarizes the availability of the health ministry data.

1.3 Comparing the quality of the two sources

Table 1 summarizes how Venezuelan data on violent deaths perform against the standards set by the Bogotá Protocol. Overall, the health ministry data performs much better, in that it uses the victim as the unit of registration, and in that it publishes aggregate data and makes the microdata available to researchers. Despite the deficiencies of the police data, however, the trends it reveals are largely consistent with those visible in the health ministry data, as we document in Section 3.

Bogotá Protocol Recommendation	Investigative Police	Health Ministry			
<i>Victim</i> as unit of registration	No	Yes			
Missing data for age, sex, and place of occurrence below cutoffs	N/A	Yes			
Maximum of 10% of violent deaths with unknown intent (or "death inquest")	No	No			
Maximum 20% discrepancy between the sources	High level of agreement across sources.				
Validation by comparing victim-level data across sources	lidation by comparing No. ctim-level data across sources				
Publication of aggregate data	No	Yes			
Access to microdata	N/A	Selective			
Prompt publication of data (6-month lag for police, 18 months for vital statistics)	N/A	No			

Table 1: Does Venezuela meet the Bogotá Protocol standards?

2 The impossibility of counting intentional homicides, and an alternative

Public laments about Venezuelan homicide statistics sometimes imply that the relevant data do not exist, or that the government never make them available to researchers. We document in the previous section that the relevant data do exist, and that, while they are not as easy to access as one might like, researchers can obtain them. In practice, though, these data have a fatal flaw: inconsistent application of the label *homicide*. In this section, we explain the problem and propose a partial solution.

2.1 The impossibility of counting intentional homicides in the health ministry data

Despite the strengths of the health ministry data on violent deaths (Section 1.2), these data undercount the number of homicides. Worse, the extent of the undercounting changes over time and varies across Venezuelan states and municipalities.

Consider, for example, the data from the year 2013, presented in Table 2. While the police recorded 14,781 deaths from intentional homicides, the health ministry recorded only 8,841 deaths from intentional homicides—and 9,565 violent deaths "of unknown intent." (The vast majority of these were gun deaths.) In other words, many—if not most—of the violent deaths that the health ministry codes as "of unknown intent" were in fact homicides. Few other Latin American countries classify such a high proportion of violent deaths as "of unknown intent:" in Colombia, for example, the proportion is approximately 10%; in Mexico, it is approximately 15%.

Second, the proportion of violent deaths that the health ministry codes as intentional homicides (as opposed to "of unknown intent") varies dramatically over time and across states and municipalities, in ways that suggest changes in coding practices rather than changes in homicide incidence.

The changes in coding practice stem in part from revisions in the International Classification of Diseases (ICD). From the 1950s through 1967, the Venezuelan health ministry coded causes of death according to the *Seventh* Revision (ICD-7), which did not have a code for "of unknown intent" [NCHS, 1975, p. 37–38, 52]. The *unknown intent* category appeared for the first time in the *Eighth* Revision (ICD-8). When Venezuela adopted ICD-8 in 1968, many deaths that would previously have been classified as homicides—and a few that would have been classified as accidents—

Police D	ata	Vital Statistics			
	Cases	Deaths		Deaths	
Homicide	13,565 (59.3%)	$14,781 \\ (72.3\%)$	Homicide	8,841 (47.6%)	
Resistance to Authority	4,873 (21.3%)	1,091 (5.4%)	Legal Intervention	152 (0.8%)	
Death Inquest	4,443 (19.4%)	4,443 (21.2%)	"Unknown intent"	9,565 $(51.5%)$	
Total Total w/o inquest	22,881 18,438	20,315 15,872	Total	18,588	

Table 2: Cases and violent deaths by type, 2013

were subsequently coded as "of unknown intent," as Figure 2a makes clear. When Venezuela adopted the Ninth Revision of the ICD, in 1979, use of the *unknown intent* category changed sharply for a second time (Figure 2a).

But revisions to the ICD are not the only reason for shifts in the use of the *unknown intent* category in Venezuelan mortality statistics. Figure 2a reveals that, after falling sharply with the introduction of ICD-9 in 1979, the proportion of violent deaths coded as *unknown intent* increased from the mid-1980s through the mid-1990s—a period in which the ICD-9 was used continuously (Venezuela adopted ICD-10 in 1996). In 1997–1999, the number of *unknown intent* violent deaths actually surpassed the number of known intentional homicides (Figure 2a).

This problem is less pronounced in other countries. Figures 2b–2d plot the proportion of violent deaths classified as *homicides* or as *violent deaths of unknown intent* in the vital statistics of the United States, Mexico, and and Colombia (we omit accidents and legal intervention for visual clarity). The introduction of the *unknown intent* category with ICD-8 in the 1960s clearly affected use of *homicide* codes in all three countries, and most dramatically in Mexico. But by the 1980s, coding rules appear to have stabilized: the *homicide* proportion rises slightly when conflict increases (as in Mexico after 2006), or falls when crime falls (as in the United States in the early 1990s), and the *unknown intent* proportion generally does not surpass 20%. In Venezuela, in contrast, the proportion of violent deaths labeled *unknown intent* rises from the mid-1980s through the late 1990s, even exceeding 50%.

Figure 2 makes clear why the Venezuelan vital statistics data both underestimates the homicide rate and misstates the trend: because many homicides appear to be

Figure 2: The Impossibility of Counting Intentional Homicides in Venezuelan Vital Statistics Data

These figures plots the proportion of all violent deaths that were coded as homicides, accidents, "legal intervention," or "of undetermined intent" (the proportions sum to one across all four categories). Solid lines indicate ICD-7 and ICD-9, dashed lines ICD-8 and ICD-9. Use of these categories stabilizes by the 1980s in the United States, Mexico, and Colombia, but not in Venezuela.

(a) Venezuela: Growing use of the *unknown intent* category



miscoded as violent deaths of unknown intent.

Moreover, use of the *unknown intent* category varies across Venezuelan municipalities and within municipality over time. In the Federal District (part of Caracas), for example, officials coding causes of death moved away from the *intentional homicide* category over the past half-century; the proportion of violent deaths coded as *intentional homicides* fell from 100% in 1960 nearly to 0% by 2012.¹⁴ In Maracaibo, Zulia,

¹⁴Police data confirm the conventional wisdom that the Caracas homicide rate was in fact increasing through most of this period—in other words, this trend is not driven by a decline in intentional

in contrast, officials code 80–90% of violent deaths as intentional homicides. Using these data to compare the *homicide rate* in the Federal District and in Maracaibo would thus be uninformative.

Despite the strengths of the health ministry data, therefore, we cannot use it to measure the intentional homicide rate, both because intentional homicides are undercounted, and because the extent of under-counting varies over time and across states and municipalities within Venezuela.

2.2 The impossibility of counting intentional homicides in the police data

The police data suffer from a related, but distinct, classification problem. Deaths perpetrated by the police or other state security forces—whether legal or illegal—are generally classified as *cases of resistance to authority*. As noted above, cases of resistance to authority include:

- (1) cases of death at the hands of the police or armed forces,
- (2) cases of injury at the hands of the police or armed forces, and also
- (3) incidents of "violence or threats" against any government official, whether or not the perpetrator was harmed.

This means that we cannot obtain a count of homicides from the police data, even if we we were willing to assume that all police-involved killings were homicides. If we were to add the police count of *resistance to authority cases* to the police count of *homicide cases*, we would (in most years) overestimate the number of homicides, because many *resistance to authority* cases do not involve any deaths at all.

Moreover, the extent of the overestimate would vary dramatically over time. Since 2012, the police have maintained counts of *victims* in addition to counts of *cases* (Section 1.1.3); these data provide a glimpse into variation in the relationship between resistance to authority *cases* and *deaths*. In 2013, *deaths* from resistance to authority made up just 22% of resistance to authority *cases* (see Table 2); by 2015, it was 57%; and by 2017, there were more *deaths* than *cases* (implying that a single case of resistance to authority involved multiple victims). This variation precludes simply deflating the number of resistance to authority cases by a constant in order to infer *deaths* from *cases*.

homicides in Caracas during this period.

To summarize, the police count of *homicide cases* both understates the number of homicides (because it excludes homicides committed by state security forces) and misstates the trend in homicides (because state violence has fluctuated dramatically over time).¹⁵ Nor can we add *homicide cases* and *resistance to authority cases*, because a large and variable fraction of *resistance to authority cases* entail no deaths.

If the state did not perpetrate much lethal violence in Venezuela, this might not be cause for concern. No count of homicides is perfect; if 1% or even 5% of homicides were committed by police, perhaps we could simply exclude these deaths for the purposes of some studies. But in fact, a large proportion of all lethal violence victims are killed by the state. The police data collected since 2012 allow us to estimate this proportion with some precision: the state killed 7% of all lethal violence victims in 2013, and 27% by 2017. While we lack reliable figures for earlier years, we know that (for example) the state was responsible for a large fraction of lethal violence in 1989, the year of the *Caracazo*. To study homicide in Venezuela without attention to police violence would be misleading at best.

A second problem with the police data is that a large number of deaths fall into the "death inquest" category (*averiguación de muerte*). As explained in more detail in Section 1.1.2, "death inquest" includes both (a) violent deaths in which the intent (homicide, suicide, or accident) was unknown, or (b) deaths which might or might not have been from external causes (usually found bodies). In 2013, 21% of deaths in the police data fell into the "death inquest" category—more than double the maximum of 10% recommended in the Bogotá Protocol. We cannot know what proportion of these deaths were in fact intentional homicides. Unlike the *unknown intent* category in the Ministry of Health data, however, rules for using the *death inquest* category do not obviously change over time.

2.3 An alternative: counting violent deaths

We cannot use the Ministry of Health data to count homicides because a large and variable proportion of homicides are misclassified as *violent deaths of unknown intent*, a category which also includes many non-homicides. And we cannot use police data to count homicides because a large and variable proportion of homicides are misclassified as cases of *resistance to authority*, a category which also includes not

¹⁵A secondary problem is that there are more homicide *victims* than homicide *cases* (because some cases involve multiple victims), and the ratio changes over time in unobserved ways. However, this problem is minor compared to the impossibility of counting homicides committed by state security forces.

only legal police killings but also many nonlethal interactions.

Figure 3: Comparison of trends in vital statistics and police data These figures plot violent deaths (from the vital statistics data) and cases (not deaths) in the police data per 100,000 population. The correlation of the differenced series is 0.88.



Given the impossibility of counting intentional homicides in Venezuela in a way that makes for meaningful comparisons across time and space, we propose instead that researchers use a count of *violent deaths*, based on the health ministry data. Our measure includes *homicides*, *lethal injuries of undetermined intent*, "*legal intervention*," and *firearm accidents*; we exclude motor vehicle deaths, known suicides, and accidents other than firearm accidents (such as accidental drownings). Appendix Table A.3 lists the specific ICD codes included for each revision.

To provide a sense of how this measure compares with other possible measures of homicide and of lethal violence in Venezuela, consider Figure 3a. Figure 3a plots (a) the *homicide rate* and the *violent death rate* as measured in the health ministry data together with (b) the *number of homicide cases per 100,000* and the *number of violent-death-related cases per 100,000* from the police data. By *number of violent-death-related cases*, we mean the sum of homicide cases, cases of "resistance to authority," and cases of "death inquest."

The trends are not entirely dissimilar; indeed, the correlation between the *differenced* series (that is, the *changes* from one year to the next) is 0.88, which boosts our confidence in both sources.¹⁶ But considering the violent death rate rather than the homicide rate also produces corrections: as explained in Section 2.1, the heath

¹⁶The Bogotá Protocol states that "a high degree of convergence between homicide counts in

Figure 4: Comparison of lethal violence in vital statistics and police data These figures plot 2012 local death rates in the police data against violent death rates in the vital statistics data; ρ denotes the correlation. The gray dashed lines mark 45°. Both figures exclude death inquest cases from the police count.

(a) State violent death rates ($\rho = 0.94$) (b) Municipality violent death rates ($\rho = 0.7$) 120-



Note: Figure (b) excludes two outlier municipalities.

ministry's homicide rate is artificially low especially in the 1960s and in the post-1989 period, due to changes in coding practices. Figure 3b clarifies these differences by using a log scale on the y-axis (which approximates percent change rather than absolute change). This emphasizes that, while the *homicide rate* as measured in the police data increased sharply in the early 1970s, the *violent death rate* did not.

The same is true of cross-sectional variation (Figure 4). That state- and municipalitylevel violent death rates are highly correlated across the two sources increases our trust in our proposed measure of violent death rates. But using the violent death rate rather than the homicide rate allows us to make credible comparisons both over time and across Venezuelan states and municipalities.

police data and in vital statistics data ... is necessary to guarantee the validity of both sources" (p. 7). More specifically, the Protocol establishes "a 20% discrepancy" as the maximum acceptable difference between the two sources. Strangely, the Protocol does not specify 20% of what: of the lower of the two counts? Of the greater? Of the lower or greater of the homicide rates (rather than counts)? Is 20% (of something) the maximum discrepancy at the lowest level of geographic disaggregation, or only for the nation as a whole? Lacking answers to these questions, we compare the police and vital statistics data along a number of dimensions, according to our own criteria.

3 Descriptive Facts

The goal of the previous section was to introduce and validate our proposed measure of lethal violence; here, we use that measure to characterize a set of facts about the phenomenon that this book seeks to explain.

(1) From the 1950s through 1988, the violent death rate hovered between ten and fifteen per 100,000 (Figure 5). This fact bears on theories that point to political unrest and/or a surge in the oil price as the cause of violence in later years. For example, Briceño-León [2012, p. 3236] cites the coups d'etat of 1992 as the cause of a "institutional breakdown that provoked some substantial changes in the social contract," and thereby led to more lethal violence in that year and the following year. Observing the (relatively) stable violent death rate through the 1960s, we might ask why the coup attempts of 1961 or 1962 did not have similar consequences (or, for that matter, the actual regime change in 1958). If the coups d'etat "made democratic rules dispensable and superficial and justified the use of violence in order to reach political goals" (p. 3236), why did the urban guerrilla strikes in the 1970s not have similar effects?

Figure 5: National and regional trends in violent death, 1958–2013 Using the measure proposed and validated in Section 2.3, this figure plots both the national trend in violent deaths and trends in two groups of states.



(2) The violent death rate doubled between 1989 and 1996, reaching 32 per 100,000. We view this early-1990s doubling of the violent death rate as an important part of the puzzle that this book seeks to explain. Of course, a significant (but unknown) fraction of the increase from 1988 to 1989 was driven by deaths

associated with the *Caracazo*; while subsequent political unrest might seem like a straightforward cause of lethal violence in the early 1990s, the direct death toll of the two coup attempts in 1992 accounted for just 5% of all violent deaths that year [Kronick, 2020, p. 1506]. That said, a thorough attempt to catalogue the deaths associated with political unrest in these years would likely produce a higher total. We discuss other plausible hypotheses in Point 3 below.

In any case, the fact that the violent death rate doubled *before* Hugo Chávez was elected president (in December of 1998), bears on theories that point to Chavismo as the source of Venezuela's lethal violence wave. Briceño-León [2012], for example, describes "the institutional destruction that comes with [Chávez's] Bolivarian revolution" as an extension of the institutional crisis of the early 1990s and a primary cause of the homicide wave (p. 3233, 3288).

(3) A small group of municipalities drove the increase in the violent death rate between 1989 and 1996 (Figure 5b). The increase in violence in this period was geographically confined to the capital region of the country—especially Caracas, Miranda, Carabobo, and Aragua—and select other municipalities [Briceño-León and Pérez Perdomo, 1999, Kronick, 2020].¹⁷

Kronick [2020] views this geographic variation (together with qualitative evidence) as evidence of rising violence related to drug trafficking. This pattern could also be consistent with criminal violence associated with political unrest, as discussed in Point 2 above. Another plausible hypotheses, mentioned but not fully investigated in Kronick [2020], is that decentralization—which included the proliferation of municipality-level police forces—affected violent death rates. This strikes us as an opportunity for future work.

(4) After a lull in 1997–1998, the violent death rate increased sharply nationwide beginning in 1999 and through 2003. The violent death rate jumped from 30 per 100,000 in 1998 to 37 per 100,000 in 1999 and then 47 per 100,000 the following year. By 2003, it reached 65 per 100,000. Unlike the increase of the early 1990s, which was geographically confined, the 1999–2000 increase occurred in nearly every state in the country (Figure 5b; Appendix Figure A.8).

Hausman and Kronick [2020] suggest that the implementation of a new criminal procedure code in July 1999 might have driven this sharp increase in lethal violence, though the evidence is not definitive. Briceño-León [2012] suggests instead that the arrival of President Chávez, and in particular his "restriction of

 $^{^{17}\}mathrm{Online}$ Appendix Figure A.8 plots trends in the violent death rate by state.

police action" and "speeches of uprising" (p. 3238) drove the increase.

(5) The violent death rate climbed gradually after 2003. Between 2003 and 2013 (the last year in our health ministry data), the violent death rate continued to climb, reaching a high of 69.5 per 100,000 in 2012. But the increase during this period was not constant; the violent death rate declined in six of these ten years, such that the overall upward trend was much more gradual than in 1989–1996 or 1999–2003. This pattern bears on all of the explanations mentioned thus far: that Chávez's rhetoric or "institutional destruction" drove the violence, that oil rents were responsible, or that the conflict stemmed from changes in illegal markets. In all cases, we might ask: is this explanation consistent with a leveling off of the violent death rate after 2003?

4 Conclusion

Our aim in this chapter has been to pull back the curtain shrouding Venezuela's oftdeplored statistics on lethal violence. The government's failure to publish data has made it difficult for journalists and the public even to know whether lethal violence rose or fell in a given year, much less for researchers to use quantitative measures to evaluate competing theories about Venezuela's violence wave, or to inform theories about lethal violence in Latin America more generally.

Based on original interviews with officials in Venezuela's health ministry and in the national investigative police, we document that both agencies do collect useful data on violent deaths. We also find, however, that these data cannot be used to produce a reliable measure of the *homicide rate*, that is, the rate of violent deaths inflicted *unlawfully and intentionally*. The problem is that both agencies (the health ministry and the national investigative police) lump many homicides together with non-homicides—or even non-lethal events—in residual catch-all categories that cannot be disaggregated ex-post. This problem plagues Venezuelan homicide statistics more than those of other major countries in the Americas.

We propose that researchers studying Venezuela focus instead on the *violent death rate*, which includes intentional homicides, firearm accidents, violent deaths "of unknown intent," and deaths in legal police action. The disadvantage of this measure is that it may not be the quantity of interest for some studies. The advantage is not only availability, and not only comparability over time and across Venezuelan states and municipalities, but also that the violent death rate may indeed be the quantity of theoretical interest for some studies.

We hope that our defense of this measure, as well as our publication of the corresponding data, will serve other researchers who seek to understand the Venezuelan case. In our view, quantitative work leveraging subnational variation can help evaluate the hypotheses set out in the extensive qualitative literature on violence in Venezuela.

More than that, or in addition to it, we expect that the Venezuelan case will inform theories of criminal conflict and state violence in Latin America more generally [e.g. Yashar, 2018, Lessing, 2018, Durán-Martínez, 2017, González, 2020, Castillo and Kronick, 2020]. To paraphrase Lessing, there are many plausible theories and not enough cases to rigorously test them (2018, p. 77). One more case, we hope, can mtake a difference.

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A Online Appendix: Additional tables and figures

Revision	Years in use	Codes	Cause
ICD-7	1955–1964	E919	Accident caused by firearm
		E980 - E983	Homicide
		E984 - E985	Legal intervention
		E990 - E999	Operations of War
			<i>Note:</i> ICD-7 did not include a code for
			"injury of undetermined intent;" see
			discussion in Section 2.1 .
ICD-8	1965 - 1978	E922	Accident caused by firearm
		E960 - E969	Homicide
		E970 - E978	Legal intervention
		E990-E999	Operations of war
		E980-E989	Injury undetermined whether
			accidentally or purposely inflicted
ICD-9	1979 - 1995	E922	Accident caused by firearm
		E960 - E969	Homicide
		E970 - E978	Legal intervention
		E990-E999	Operations of war
		E980 - E989	Injury undetermined whether
			accidentally or purposely inflicted
ICD-10	1996 - 2013	W32–W34	Accidental firearm discharge
		X85–Y09	Assault (homicide)
		Y35-Y36	Legal intervention & war
		Y10-Y34	Injury of undetermined intent

Table A.1: ICD codes included in our measure of violent deaths

Delitos	1906	1907	1908
Delitos totales	1.380	1.512	1.683
Homicidio	323	357	337
Heridas	542	614	682
Hurto	117	84	172
Robo	54	49	36
Estafa	5	13	19
Apropiación fraudulenta	7	7	18
Ultrajes al pudor	11	15	46
Violación	49	44	35
Rapto	27	29	41
Contra la cosa pública	23	13	24
Contra la Administración de justicia	12	10	10
Contra la fé pública	17	7	15

Figure A.1: Table from the 1908 Statistical Yearbook of Venezuela

a) Affaires commencées). (1 — Délits c. Cuadro Nº 1.— Tableau Nº 1.— Table N. 1.	<i>I</i> ontre les	a) De s pe	ASU elito erson	NTO s co nes)	ntro	a las	per: -Offe	sona nces :	S again	st pe	rsons)		a)	Suit	ts be	gun)	•
DENOMINACIÓN DE ASUNTOS	TOTA-	DI	STRIT	OERAL						EST	TADO	s						ruary
(Dénomination des affaires) (Denomination of Suit)	(Tota ux)	Seccion	Occidental	Oriental	Aragua	Bermúdez	Bolívar	Carabobo	Falcón	Guárico	Lara	Mérida	Miranda	Táchira	Trujillo	Zamora	Zulia	Territorio Yu
Totales: (Totaux) Homicidio en general. (Homicide en général) Tentativa de homicidio (b). (Tentative d'homicide) Homicidio frustado (c). (Homicide frustré)	1.197 337 7 4		86 7 1.	15 1	27 5	107 26 1	18 5	126 22	94 31	16 8	179 69	83 29	71 18 1	87 35	85 37 3 2	25 15 1	157 23	21 6
Infanticido -d (Infanticide) Conato de infanticidio (e)	1 1 1		1:. - - - - -	····· ····	1	···· ····		1 	····· ·····	· · · · · · · · · ·		· · · · · · · · · ·			2 		·····	
(instigation au suicide) Contusiones y lesiones (h) (Contusions et lésions) Heridas (i) (Blessures) Abandono de niños y personas incapaces para pro-	88 682		7'. 62		20	9 67	1 8	2 88	8 49		3	5 46	2 45	2 40	2 38		45 73	2 12
 veer a su seguridad o a su salud (j)	4		· · · · · [: · · ·						3				· · · · ·				····	
Calumnia (), Calomnie- Difamación (m) -Diffamation- Injuria (n) (Injures)	4		• • • •	····· ····	 	2		2	1			1 • 1 1			ī 	1 	2 14	

Figure A.2: Table from the 1908 Statistical Yearbook of Venezuela

Figure A.4: Screenshot from System of Information in Health (2)

Sección VI: Certificac	ión Médica	Sección VII - VIII: Responsable de la Certificación/ Registro Civil								
Sección III - IV: 1 año o más/ Muert	e en Mujeres Edad Fertil		Sección V: Muerte Violenta							
Sección I: Identificación o	del Fallecido(a)	Sección II: Men	ores de un año ó muerte fetal/Da	tos de la Madre						
Ko C Si	Nombre:	Nacionalidad Cédula	: Sexo: C Masculino C Fem	enino 🕫 Ignorado						
Fechas de: Muerte Nacimiento Hora:	Edad Tiempo Edad (gar de Nacimiento:	Exterior	Etnia:						
Asistencia Médica: Sitio dono	le Ocurrió la muerte:	Hospital ó Clínica: Código:	ALEMANIA ANTILLAS HOLANDESAS (CUR APÁTRIDA ARABIA ARGENTINA *							
Localidad:		Direct	ción:	*						
Ubic	ación Geográfica	*		*						
Datos de la Partida de Nacimiento en caso Tomo: Fol	o de no estar cedulado: io:	Libro:	Acta:							
		100								



Figure A.3: Screenshot from System of Information in Health (1)

	Gobierno Bolivariano de Venezuela Salud			TIPO DE DEFUNCIÓN MUERTE FETAL MENOS DE 1 AÑO 1 AÑO O MAS 2 3 3 3 3
		CERTIFICADO	DE DEFUNCIÓN EV-14	4
	PRIMER APELLIDO	SECCIÓN I: IDENTIR 2. SEGUNDO APELLIDO	FICACIÓN DEL FALLECIDO(A)	4. SEGUNDO NOMBRE
	CEDULA DE IDENTIDAD / N° DE PASAPORTE / OTROS V O E O PASAPORTE O OTRO	6. SEXO 1 O M 2 O F DIa Mes Africa	to Dia Mes Año O A	10. LUGAR DE NACIMIENTO M 1 O En Venezuela: Entidad Federal M 2 O En el Exterior: País
	PERTENECIA A ALGUNA ETNIA O PUEBLO INDÍGENA Si Cuál?	12. TUVO ASISTENCIA MÉDICA 13. SI	TIO DONDE OCURRIÓ LA MUERTE O Hospital 3 O Casa 5 O Sitio o	14. ESTABLECIMIENTO DE SALUD 1 O Público 2 O Privado
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Figure A.5: Death Certificate (Form EV-14)



Figure A.6: Ministry of Health Organizational Chart

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Figure A.7: Mortality data in the 1908 Statistical Yearbook of Venezuela

Resumen de las Defunciones ocurridas en la República según causas y edad. (Résumé des décès survenus dans la République suivant, les causes et âge.) — (Resumen of Deaths in the Republic, according to causes and age)

Source	Coverage	Availability				
Epidemiology and Vital Statistics Vearbooks	1938–1996	Physical volumes (paper): Select years available in U.S. university libraries:				
Anuarios de Epidemiología y Estadística Vital	1938–1989: Parish level, Deaths by cause, sex, year (no parish-level data 1990–1996)	all years available at Venezuela's National Library (<i>Biblioteca Nacional</i> <i>de Venezuela</i> , Caracas) and in the MOH archives (Caracas)				
	1938–1996: State level, Deaths by cause, sex, age group, year	Digitized: Select tables from select volumes scanned and converted to tables for the VMD				
Mortality Yearbooks	1997–2013: State level, Deaths by cause sev	PDF volumes available on MOH				
Anuarios de Mortalidad	age group, year	Digitized: Select tables scanned and converted to tables for VMD				
MOH Microdata	?–2013: Individual level, Cause, sex, age, date of death, parish of	1997, 1999–2012 Obtained from Venezuelan researcher (who obtained files from MOH)				
	death, parish of residence	2009–2013 Obtained from MOH				
		1999–2008 Municipality-level annual aggregates obtained from MOH				
World Health Organization	1955–2012: National level, Deaths by cause (groups), sex, age group, year	Available online at www.who.int/healthinfo/mortality_data				
National Statistics	2000-2012: State level,	Available online at				
Instituto Nacional de Estadística	demographics, sex, month (Note, cause of death not included)	www.me.gov.ve/evitalesjsp/evitales.fitmi				

Table A.2: Availability of Health Ministry Mortality Data

ICD Revision	Years in use	Causes included in VMD violent deaths
ICD-8	1965–1978	E922 Accident caused by firearm E960–E978 Homicide E970–E978 Legal intervention
		E980–E989 Injury undetermined whether accidentally or purposely inflicted
ICD-9	1979 - 1995	E922 Accident caused by firearm E960–E978 Homicide
		E970–E978 Legal intervention E980–E989 Injury undetermined whether accidentally or purposely inflicted
ICD-10	1996-2012	W32–W34 Accidental firearm discharge X85–Y09 Assault (homicide) Y35 Legal intervention Y10-Y34 Event (injury) of undetermined intent

Table A.3: Violent Deaths in the International Classification of Diseases

Figure A.8: Homicide rate in each state

These figures plot the violent death rate (violent deaths per 100,000) in each Venezuelan state. The black line plots each state trend on the a standardized scale, so as to compare trends across states (left axis); the gray lines plot the same trends on individual scales. Source: See Appendix ??.



Homicide rate in each state (continued)

These figures plot the violent death rate (violent deaths per 100,000) in each Venezuelan state. The black line plots each state trend on the a standardized scale, so as to compare trends across states (left axis); the gray lines plot the same trends on individual scales. Source: See Appendix ??.

