Journal on Migration and Human Security

Structural Violence and Migrant Deaths in Southern Arizona: Data from the Pima County Office of the Medical Examiner, 1990-2013[1]

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Executive Summary

This article analyzes numeric trends and demographic characteristics of undocumented border crossers (UBCs) who have perished in southern Arizona between 1990 and 2013 in the area covered by the Pima County Office of the Medical Examiner (PCOME) in Tucson, Arizona. Of 2,413 UBC decedents investigated during this period, 95 percent died after 1999 and 65 percent after 2005. The rate of UBC deaths in the Tucson Border Patrol Sector has been consistently high, with an average of nearly 163

1 This article builds on a 2013 report released by the Binational Migration Institute at the University of Arizona which provided data on migrant deaths investigated by the Pima County Office of the Medical Examiner from 1990-2012 (see Martinez et al. 2013). It provides updated data on migrant deaths through the fiscal year 2013 as well as updated demographic characteristics for migrants who have been positively identified since the publication of the 2013 report. This research could not have been possible without the dedicated and meticulous work of forensic professionals at the Pima County Office of the Medical Examiner, now and in the past. The Colibrí Center for Human Rights has provided invaluable data-management and insight. The Tucson-based immigrant rights organization, Coalición de Derechos Humanos, has tracked migrant deaths in Arizona since 2003, providing the groundwork for this research. Studies completed by the Binational Migration Institute in the Department of Mexican American Studies at the University of Arizona in 2006 and 2013 were generously supported by the Pima County Board of Supervisors. The Pima County Board of Supervisors has also been very supportive of the Pima County Office of the Medical Examiner in its efforts to investigate suspected unauthorized border crosser deaths. We thank M. Melissa McCormick for her work on the 2006 report. Thanks to Inez M. Duarte and Kat Rodriguez for their assistance in the data collection and data entry process, to Jessica Hamar Martínez and Ricardo D. Martínez-Schuldt for looking over early drafts of the article. We also thank the Little Chapel of All Nations for their continued support. We gratefully acknowledge the contributions of all those who have worked on the issue of migrant deaths for years.

deaths investigated per year between 1999 and 2013. The increase in border enforcement during the mid-to-late 1990s, which led to a shifting of unauthorized migration flows into more desolate areas, coincided with an increase in migrant remains investigated by the PCOME. Despite a decrease in the number of unauthorized crossers traversing the area as measured by the number of Border Patrol apprehensions in the Tucson Sector, the number of remains examined for every 100,000 apprehensions nearly doubled between 2009 and 2011. These findings suggest that migrants are being forced to travel for longer periods of time through remote areas in an attempt to avoid detection by US authorities, thus increasing the probability of death.

The typical UBC decedent can be described as a male near the age of 30 from central or southern Mexico who perished in a remote area of southern Arizona after attempting to cross into the United States. Nevertheless, the share of non-Mexican UBCs in the region has increased notably over time. The findings show other important differences in UBC decedent characteristics across time periods, which speak to the dynamic nature of unauthorized migration as a social process. The authors contend that these deaths and demographic changes are the result of structural and political transformations over the past two decades. They argue that the tragic, yet mostly preventable, migrant deaths in southern Arizona constitute a form of structural violence.

Introduction

The deaths[2] of hundreds of unauthorized migrants each year along the US-Mexico border—particularly in southern Arizona—remain high despite recent evidence that migration from Mexico has decreased dramatically since 2007 (Passel, Cohn, and Gonzalez-Barrera 2012; Massey 2012). Conservative estimates[3] from the US Border Patrol suggest that at least 6,029 migrants perished while attempting to cross the border across all sectors between October 1, 1997 and September 30, 2013, however the true number of migrant deaths along the border is not known.

This article provides estimates and a demographic profile of migrants who have perished in southern Arizona between 1990 and 2013 in the area covered by the Pima County Office

2 Throughout this article we refer to unauthorized border crosser "deaths" investigated by the Pima County Office of the Medical Examiner. The term "deaths" should be taken to mean "recovered remains." This distinction must be noted as the true number of migrant deaths in southern Arizona each year is not known. Further, it is possible that remains recovered in a given year may be of an individual who passed away in prior years. Nevertheless, for the sake of clarity, consistency, and compassion, we use the term "deaths" rather than "recovered remains."

3 Border Patrol counts are considered by many to be incomplete. The clandestine nature of unauthorized migration in tandem with local and regional inconsistencies in methodologies used challenge the availability of complete counts. Although it is almost certain that not every migrant who has died along the border will be found, there are vast improvements which can be made at the local, regional, and national levels to increase the reliability of such estimates. All data presented in this article pertain to migrant deaths investigated on the US side of the US-Mexico border and therefore underestimate the true number of migrant death occurring in the border region.

of the Medical Examiner (PCOME) in Tucson, Arizona. This office provides medico-legal death investigation for the western two-thirds of the Tucson Border Patrol Sector's southern border with Mexico (Anderson 2008).[4] The PCOME has been responsible for the examination of over 95 percent of all migrant remains discovered in Arizona since 2003 (Coalición de Derechos Humanos 2013). It continues to be the agency that investigates the highest number of migrant deaths in the country, and as a consequence, handles more unidentified remains per capita than any other medical examiner's office in the United States.[5] Data from the PCOME is the most complete and comprehensive source on migrant deaths available nationally.[6] While the findings cannot be generalized beyond southern Arizona to other regions of the US-Mexico border, they offer greater insight into a social problem that has largely remained under-examined.

Multiple interrelated structural and political factors have been identified in the literature as contributing to the ongoing humanitarian crisis of migrant deaths in southern Arizona: 1) border enforcement and securitization practices initiated in the mid-1990s that effectively pushed migration flows into the most remote and dangerous regions of the US-Mexico border (Eschbach et al. 1999; Cornelius 2001, 2005; Rubio-Goldsmith et al. 2006); 2) neoliberal economic reform during 1990s that displaced hundreds-of-thousands of *campesinos* throughout Mexico (Polaski 2004; Wise 2009; Garcia Zamora 2009; Public Citizen 2014); 3) inadequate US immigration policies ill-equipped to deal with realities of an increasingly globalized world; 4) the long history and socially-embedded culture of migration in many regions of Mexico (Portes and Sensenbrenner 1993); and 5) the structurally-embedded demand for immigrant labor in the United States (Cornelius 1998).

While there is insufficient data to test the "net effect" of the above-mentioned structural and political transformations on migrant deaths over time, this paper discusses the ways in which border enforcement and neoliberal reform contributed to these deaths—both of which it argues constitute forms of structural violence. This paper situates estimates of migrant deaths in southern Arizona within a broader structural analysis in order to advance the understanding of this problem's causes, consequences, and solutions by policymakers.

Border Enforcement and Neoliberal Reform: Migrant Deaths as a Form of Structural Violence

This section examines the relationship of unauthorized migration flows and migrant deaths to increased border enforcement efforts and neoliberal economic reform initiated in the 1990s. Patterns in unauthorized migration flows can help scholars to understand fluctuations in migrant deaths along the border over time. Although not a precise measure of unauthorized crossings, previous research has demonstrated that apprehension statistics

4 The PCOME also conducts some medico-legal investigation of unauthorized migrants who have perished in the Yuma Sector, although this is rare.

5 Arizona now ranks third in the nation, following California and New York, for the number of unidentified remains entered into the National Missing and Unidentified Persons System (NamUs), but ranks first in probable migrant remains and known missing migrants.

6 Border Patrol estimates, the one data source that does exist on migrant deaths based on systematic data collection, do not publically provide information on demographic characteristics of the deceased or a breakdown of causes of death.

are highly correlated and fluctuate with unauthorized migration flows (Epenshade 1995). Figure 1 illustrates US Border Patrol apprehension statistics along the US-Mexico border from FY 1960-2013. These data depict the volatile nature of unauthorized migration and how these flows are susceptible to political and economic changes.

Figure 1 shows that the number of apprehensions began to fall beginning in FY 1986, the same year that the Immigration Reform and Control Act (IRCA) was passed. Following IRCA, scholars estimate that over 2.3 million unauthorized immigrants had gained lawful permanent residency or US citizenship by 1992 (Massey, Durand, and Malone 2002). Nevertheless, unauthorized crossing began to increase once again in FY 1990 and only declined for a period of one year in FY 1994. This brief decline was possibly due to optimism surrounding discussions of the impending North American Free Trade Agreement (NAFTA), but also likely the result of a short-term deterrent effect of "Operation Hold the Line," an enforcement program implemented by the Border Patrol in El Paso, Texas in FY 1993. This program was followed by the implementation of "Operation Gatekeeper" in San Diego, California in FY 1994, "Operation Safeguard" in southern Arizona in FY 1995, and "Operation Rio Grande" in South Texas in FY 1997.[7] Although some scholars and policymakers contend that the recent decrease in apprehensions is a direct result of heightened border security, the present analysis emphasizes the 2000-2001 recession and the 2008 "Great Recession" as key factors contributing to this decrease.

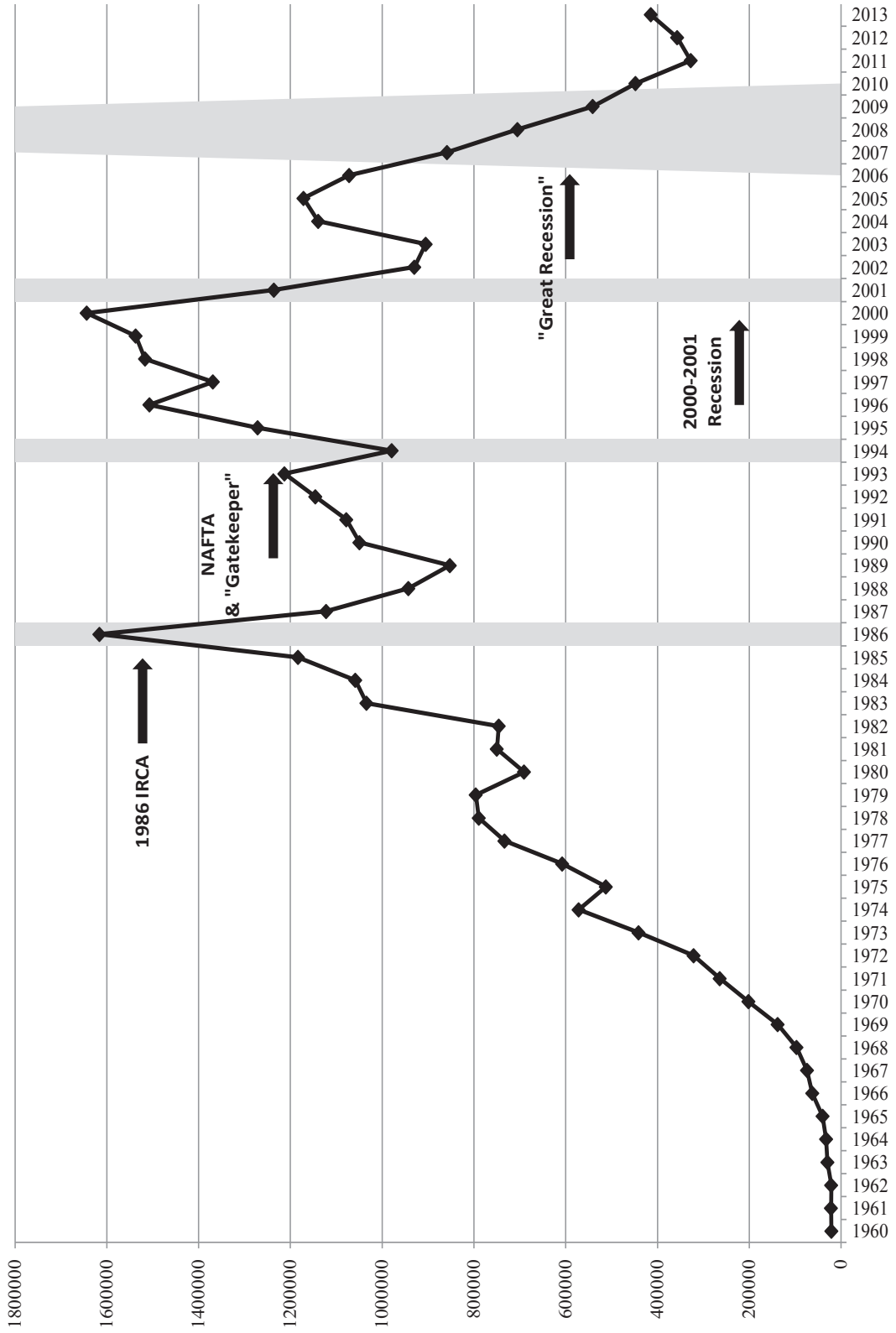
As seen in Figure 1, the sharp increase in apprehensions between FY 1994 and 1996 coincided not only with heightened border enforcement, but also with the implementation of NAFTA in FY 1994. The aim of NAFTA was to reduce trade barriers between the United States, Canada and Mexico, most notably in the agricultural sector of the economy. After the elimination of agricultural tariffs and quotas between the United States and Mexico, US- based producers continued to receive government subsidies (Wise 2010). This allowed US producers to flood the Mexican market with heavily subsidized, cheap agricultural goods ultimately displacing hundreds-of-thousands of Mexican laborers. Despite the optimism surrounding NAFTA, neoliberal economic reform had devastating consequences for Mexican *campesinos* as well as others tied to the agricultural sector of the economy. As noted by Timothy Wise,

> Below-cost exports cost Mexican producers of corn, soybeans, wheat, cotton and rice an estimated $9.7 billion from 1997-2005, just over $1 billion per year. Corn showed the highest losses. Average dumping margins of 19 percent contributed to a 413 percent increase in US exports and a 66 percent decline in real producer prices in Mexico from the early 1990s to 2005. (2010, 3)

NAFTA ultimately forced *campesino*s—many the direct descendants of the first people on the planet to domesticate corn—to abandon farming altogether (Public Citizen 2014). A

7 Operations "Hold the Line," "Gatekeeper," "Safeguard," and "Rio Grande" are enforcement programs first initiated and deployed by the US Immigration and Naturalization Service in the early 1990s based on a "prevention through deterrence" strategy to immigration enforcement (Cornelius 2001; Andreas 2009; Ewing 2014). The aim of the operations was to deter would-be migrants by heavily enforcing historical crossing corridors near the cities of El Paso, Texas, San Diego, California, Nogales, Arizona, and in southeastern Texas. Rather than be deterred, border-crossers simply shifted their routes into more remote areas of the border to avoid detection by immigration enforcement officials (Cornelius 2001; Andreas 2009).

Figure 1. US Border Patrol Apprehensions, Southwest Border FY 1960-2013



2014 report by the nongovernmental organization Public Citizen, citing a 2008 news story by the *New Republic*, states that between 1993 and 2005 "1.1 million small farmers—and 1.4 million other Mexicans dependent upon the farm sector—were driven out of work" as a direct result of neoliberal reform. Moreover, "[w]ages dropped so precipitously that today the income of a farm laborer is one-third that of what it was before NAFTA" (Public Citizen 2014, 21, citing Judis 2008). A report published by the Carnegie Endowment found that NAFTA contributed significantly to the loss of an estimated 1.3 million jobs in the Mexican agricultural sector between 1993 and 2002 (Polaski 2004, 17-20). The link between neoliberalism and increased out-migration has been well-established in the academic literature (see Nevins and Aizeki 2008; Delgado-Wise and Márquez Covarrubias 2008). This structural transformation forced many people to leave rural communities throughout Mexico in search of work in urban areas within the Mexican Republic, including in *maquiladoras* near the border, and across the border in the United States.

In addition, the direct link between increased border security and migrant fatalities has been extensively outlined in the scholarship on migrant deaths (Eschbach et al. 1999; Eschbach, Hagan, and Rodriguez 2003; Cornelius 2001, 2005, 2006; Rubio-Goldsmith et al. 2006; Jimenez 2009; Martínez et al. 2013). The 1990s and 2000s witnessed dramatic increases in the fortification of the US-Mexico border as part of the "prevention through deterrence" strategy (Dunn 1996, 2009; Andreas 1998, 2009; Cornelius 2005; Ewing 2014) and simultaneous increases in reported migrant deaths in certain regions of the border (Cornelius 2001, 2005; Eschbach et al. 1999; Eschbach, Hagan, and Rodriguez 2003; Rubio-Goldsmith et al. 2006).[8] Previous research has illustrated that segmented border militarization has resulted in the "funnel effect," or the redistribution of migratory flows away from traditional urban crossing points into remote and dangerous areas such as the deserts of southern Arizona (Cornelius 2001, 2005; 2006; Rubio-Goldsmith et al. 2006; Jimenez 2009; Martínez et al. 2013). The Sonoran Desert, which spans much of southern Arizona and northern Sonora, Mexico, is an ecologically diverse region characterized by rugged terrain, pronounced elevation changes, and relatively little rainfall. Temperatures can reach 120 degrees Fahrenheit during the summer months and drop below freezing in the winter and, at higher elevations, in the spring and fall as well.

Unauthorized migrants have not always died in high numbers while crossing the border into southern Arizona. Between fiscal years[9] (FY) 1990-1997 less than 12 percent of all Border Patrol apprehensions occurred in the Tucson Sector (US Border Patrol 2014). During this same time period the PCOME only recorded the deaths of 84 undocumented border crossers[10] (UBCs)—averaging around 11 per year. However, one consequence of

8 Eschbach, Hagan, and Rodriguez (2003) illustrate that migrant deaths across the border did not necessarily increase dramatically with heightened border enforcement efforts between 1985 and 2002. Rather, there were notable changes in specific causes of death as well as where people were dying along the border.

9 In this article all data and figures are reported according to the federal fiscal year which begins on October 1st and ends on September 30th. This allows for the making of reasonable comparisons between migrant deaths and the enforcement efforts of the Department of Homeland Security's Customs and Border Protection.

10 In this article, the terms "undocumented border crosser" (UBC) or "unauthorized migrant" will be used to refer to foreign-born, non-US citizens actively involved in crossing the border without proper authorization from the United States government. Because this study does not analyze the deaths of immigrants who are established in the United States and not actively involved in crossing the border, the standard term "unauthorized immigrant" is not used.

the funnel effect was that the Tucson Sector became the single most traversed crossing corridor for unauthorized migrants along the US-Mexico border between FY 1998-2012, with 37 percent of all apprehensions occurring in the sector during this time period (US Border Patrol 2014). According to data compiled by Border Patrol, 38 percent of all known migrant deaths along the entire border between FY 1998-2012 occurred in the Tucson Sector.

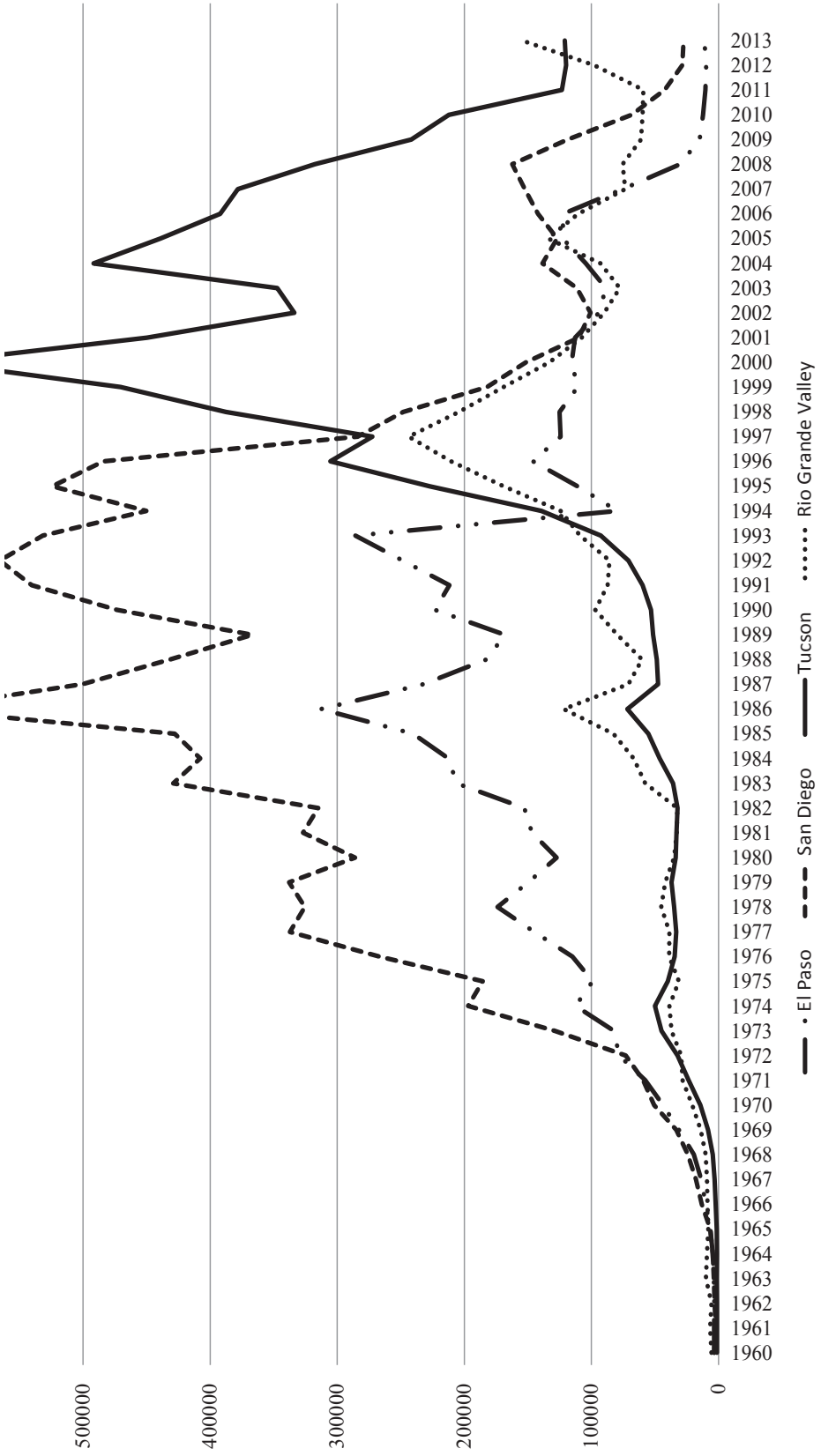
By the end of FY 2013, the Rio Grande Valley Sector in Texas (formerly known as the McAllen Sector) had become the most traversed crossing corridor, with apprehensions in that region increasing by 161 percent between FY 2011 and 2013. Much of this increase has been driven by a surge in Central Americans crossing through south Texas during this time period (Isacson and Meyer 2013). Yet people continue to cross through southern Arizona in high numbers. In FY 2013 the Tucson Sector was the second most traveled region by UBCs along the entire border, with 120,939 apprehensions or 29 percent of all southwestern apprehensions. However, Border Patrol data suggest that 43 percent of all known deaths across the US-Mexico border occurred in the Tucson Sector in FY 2013. It is precisely the redistribution of migration flows into southern Arizona stemming from heightened border enforcement over the past 20 years that has led to an increase in migrant remains investigated by the PCOME.

Figure 2 illustrates apprehensions in the San Diego, El Paso, Tucson, and Rio Grande Valley sectors between FY 1960-2013. Increased unauthorized migration flows—and deaths—in southern Arizona have been an outcome of a series of border enforcement efforts that redistributed unauthorized migration flows away from urban crossing points into remote desert areas. The implementation of Operation Hold the Line in 1993 in El Paso and Operation Gatekeeper in San Diego in 1994 coincided with the implementation of NAFTA. This had devastating consequences for displaced agricultural workers in Mexico seeking work in the United States who were essentially forced to traverse hot, remote, dangerous terrain in southern Arizona to support themselves and their families.

This paper argues that because migrant deaths result from particular structural and political conditions, they constitute a form of "structural violence," as first theorized by peace studies scholar Johan Galtung (1969) and later further articulated by medical anthropologist Paul Farmer (2003), sociologist Eric Klinenberg (2002), geographer Joseph Nevins (2003, 2005, 2007), and sociologist David Spener (2009). These deaths are representative of what Paul Farmer calls "biological reflections of social fault lines," describing the way in which violence is manifested on the human body in the form of disease and illness caused by social problems (2003,5). They have, like the deaths from the 1995 Chicago heat wave analyzed by Eric Klinenberg, "a social etiology, which no meteorological study, medical autopsy, or epidemiological report can uncover" (2002,11).

Galtung argues that because structural violence does not necessarily involve a perpetrator and a victim, it is less visible than direct violence. For this reason, it often goes unnoticed, or is "seen as about as natural as the air around us" (Galtung 1969, 173). Just like massive numbers of deaths from curable diseases, death on the border runs the intellectual risk of being medicalized—broken down into component parts rather than analyzed as a structural *and structured* phenomenon.

Figure 2. Border Patrol Apprehensions, Southwest Border, by Sector FY 1960-2013



Galtung theorizes another form of violence, "cultural violence," which he describes as "any aspect of a culture that can be used to legitimize violence in its direct or structural form" (1990, 291). The dominant discourse surrounding unauthorized migration—namely that migrants willingly cross into the United State without papers and are thus ultimately responsible for their own deaths—serves as a form of cultural violence that normalizes the deaths and blames the victim (Galtung 1990; Spener 2009). This normalization has contributed to a lack of analysis of the causes of these deaths and, in turn, has impeded efforts to quantify and track migrant deaths along the border in a transparent manner.

Migrant Deaths in Southern Arizona: Cause of Death, Identification Rates, and Demographic Characteristics

This article provides information from PCOME records between 1990 and 2013 on the following factors relevant to UBC deaths in southern Arizona: confirmed cause of death; identification rates; and demographic characteristics including sex, age, and place of origin.

Cause of Death

The analysis groups each migrant's cause of death into five possible categories: exposure to the elements; homicide; motor vehicle accident; other; and undetermined. The use of the term "cause of death" is a deviation from the conventional use by medical examiners to describe the disease or trauma that directly caused an individual's biological death. Examples of cause of death as used by medical professionals include exposure to the elements, gunshot wound of the head and blunt force impact of the torso. "Manner of death," however, describes how the death came about, and includes the categories of natural, accident, suicide, homicide, or undetermined. Strictly speaking, the manner of death for a migrant who was lost or left behind in the desert while crossing and succumbed to the elements would be accidental, while the cause of death would be hyperthermia. For the sake of clarity and parsimony, this article uses elements from the definitions of both terms to construct the cause of death categories that are most relevant for the population under study. Although the analysis includes cases which list other or undetermined as the cause of death, the discussion is limited to the differences between exposure, undetermined, motor vehicle accident, and homicide as these are the most prevalent causes of death for unauthorized migrants attempting to cross the border without proper authorization.

Identification Rates

Thirty-four percent of all the cases (people) categorized as UBCs by the PCOME between 1990 and 2013 remained unidentified at the publication of this article. Unidentified remains pose a methodological challenge for researchers—the issue of missing information. Successful identification is essential for ascertaining information for some variables of interest in this study. For instance, it is possible to determine the sex of an unidentified individual, but impossible to establish their precise age at the time of death or their hometown. Because more complete information exists for some variables than for others, sample sizes for different factors vary.

Demographic Characteristics

Records from the PCOME contain information on important demographic characteristics of UBCs who have perished in southern Arizona. This article provides estimates of migrants' sex, age, and place of origin. As noted above, while sex is likely to be determined during a medical investigation, ascertaining a person's exact age and place of origin are contingent upon the success of identification.

The extant literature on unauthorized migration finds that a migrant's place of origin plays an important role in shaping the reasons people migrate, how and where along the border they may attempt a crossing, as well as their desired destination (Massey, Durand and Malone 2002; Durand and Massey 2003). On place of origin, the present analysis provides information on two levels: country-level and region-level. Thirteen different Latin American countries are represented among the UBC deaths investigated by the PCOME; however 93 percent of decedents originate in Mexico, Guatemala, El Salvador, and Honduras, with 82 percent from Mexico.

The analysis also distinguishes between regions of origin among Mexican UBCs. Durand and Massey (2003) identify four important migrant sending regions in Mexico: north; west-central (also known as the "traditional" or "historical region"); central; and south-southeastern. These regional designations are actively used by Mexico's Consejo Nacional de Población (CONAPO) when discussing Mexico-US migration. This analysis follows suit by examining these same sending regions. In sum, it provides information on Mexican decedents' region of origin while also differentiating between Mexican and non-Mexican UBCs.

Data and Methods

Data examined in this study were collected from computerized decedent records of unauthorized migrants at the PCOME. A team of researchers from the Binational Migration Institute (BMI) began compiling data on UBC deaths using PCOME records in October of 2005 and continue to do so to this day. Data analyzed include all known migrant death cases investigated by the PCOME between FY 1990 and FY 2013 (N = 2,413).

Beginning in 2001, the PCOME adopted a new record keeping system that allowed medical examiners and investigators to record significantly more detailed information within each decedent report. Also at this time, the PCOME began to classify individuals believed to be unauthorized migrants as undocumented border crossers or "UBCs," which, as defined by the PCOME forensic anthropologist and former chief medical examiner, are "individuals of foreign nationality who died while crossing the border clandestinely" (Anderson and Parks 2008). This coding is "predictive," meaning it simultaneously weighs several factors before classifying a decedent as a UBC, especially when it comes to skeletonized remains. This coding scheme allows unidentified decedents matching certain characteristics consistent with those of unauthorized migrants in transit to be included in UBC estimates. For the data presented in this article, researchers carefully reviewed and scrutinized each individual medical investigator report before 2001 and concluded whether or not the individual was an UBC. The methods used to make this determination follow the PCOME criteria to assess whether or not an individual was an unauthorized migrant, as do other studies that

used PCOME records (Keim et al. 2006; Sapkota et al. 2006).

Factors considered to determine UBC classification following the PCOME criteria include, but are not limited to, the individual's place of origin, ethnicity/ancestry, surname, possession of a permanent US address or social security number, clothing or personal effects (including foreign currency and identification cards), association with a group of unauthorized migrants, and geographic location of discovery. Each case was reviewed several times and the decedent was only classified as a UBC if significant supporting evidence was present. Unidentified skeletal remains recovered from remote high migrant-traffic areas were considered unauthorized migrants.

As noted, the coding used by the PCOME to classify someone as a UBC is predictive. The researchers acknowledge that this may slightly over-represent the number of migrant deaths, however, to exclude data on unidentified UBCs would be to drastically under-report the true number of deaths. It should also be noted that it is impossible to say in some instances whether an individual was traveling into Mexico rather than out of Mexico. Although likely a rare occurrence, there has been at least one confirmed instance where this was the case.

Results and Discussion

Estimated Number of Deaths

Between FY 1990 and 2013, the PCOME examined the remains of 2,413 migrants. Approximately one-third of these decedents, or 820 cases, remained unidentified at the publication of this article, and thus their status as unauthorized migrants is predicted rather than certain. As discussed previously, an increase in border enforcement efforts during the mid-to-late 1990s redistributed unauthorized migration flows into more desolate areas along the US-Mexico border, including southern Arizona (Cornelius 2001, 2005; 2006; Rubio-Goldsmith et al. 2006; Martínez et al. 2013). The data from the PCOME indicate that the number of deaths in the Tucson Sector remains high. Figure 3 illustrates that the funnel effect continues unabated, with an average of nearly 163 deaths occurring each year since 1999, while an average of only 12 occurred annually between 1990 and 1999.

While it is possible that skeletonized or highly decomposed remains recovered in one year may relate to deaths which occurred in prior years, post mortem intervals (PMI)—which customarily are reported as the probable range of time lapsing from the time of death to the time of recovery—suggest that this is typically not the norm. For instance, among UBC cases in which a PMI was assigned (N = 769), the median low-end estimated PMI is six months, while the median high-end estimated PMI is 11 months. In other words, while there is certainly some fluctuation in annual UBC death counts in terms of the year in which the death occurred, the PCOME on average is not investigating deaths of UBCs from decades ago (although the mean PMI has increased slightly over the past few years). While much media attention is given to marginal changes in migrant death counts from one year to the next in southern Arizona, the present analysis contends that marginal changes should be interpreted with caution. Rather, the focus should be on larger overall trends, for instance, the fact that UBC deaths have generally remained well above 150 per year since 2004.

Figure 3. PCOME Deaths Coded as UBCs, FY 1990-2013 (N = 2,413)

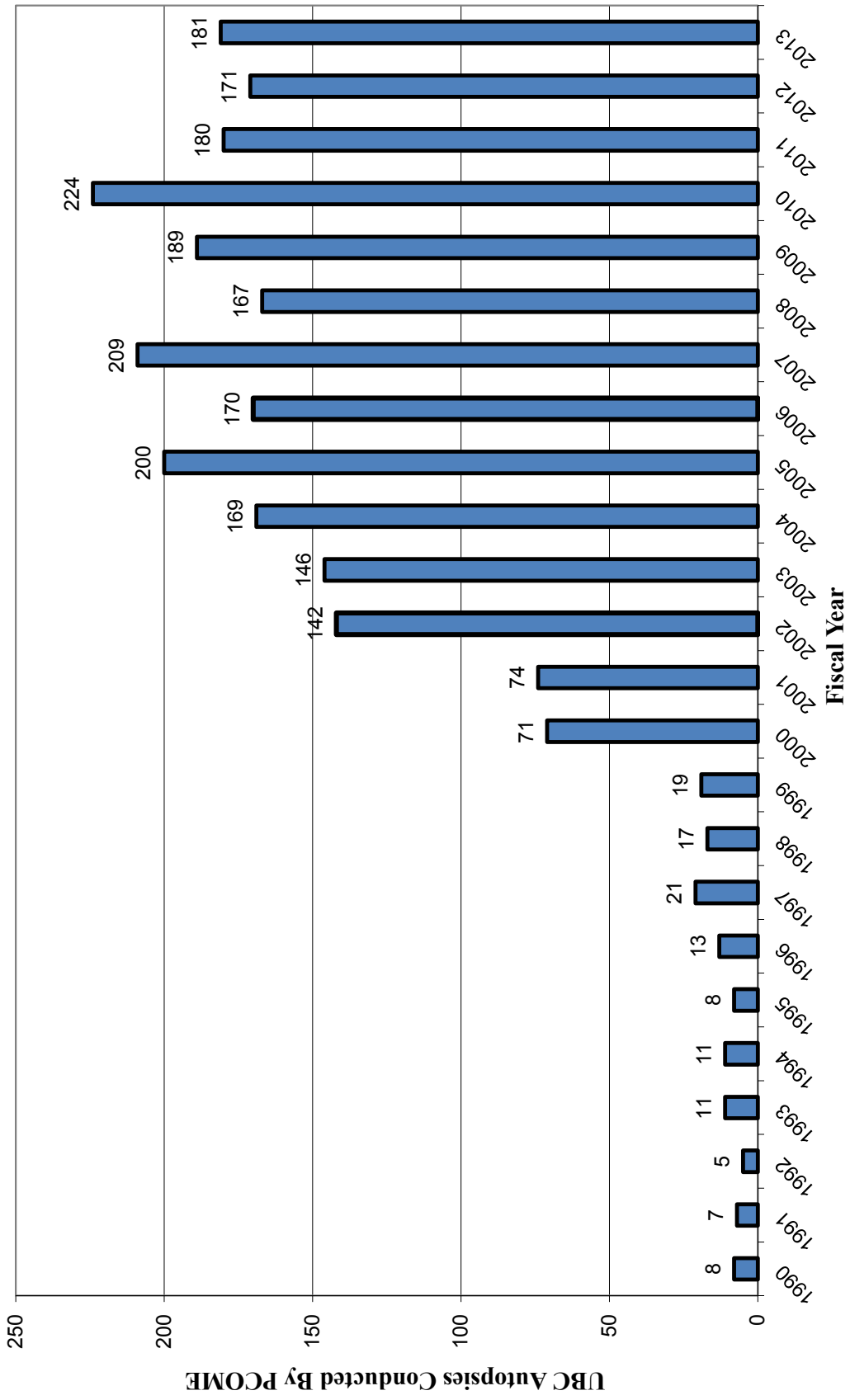
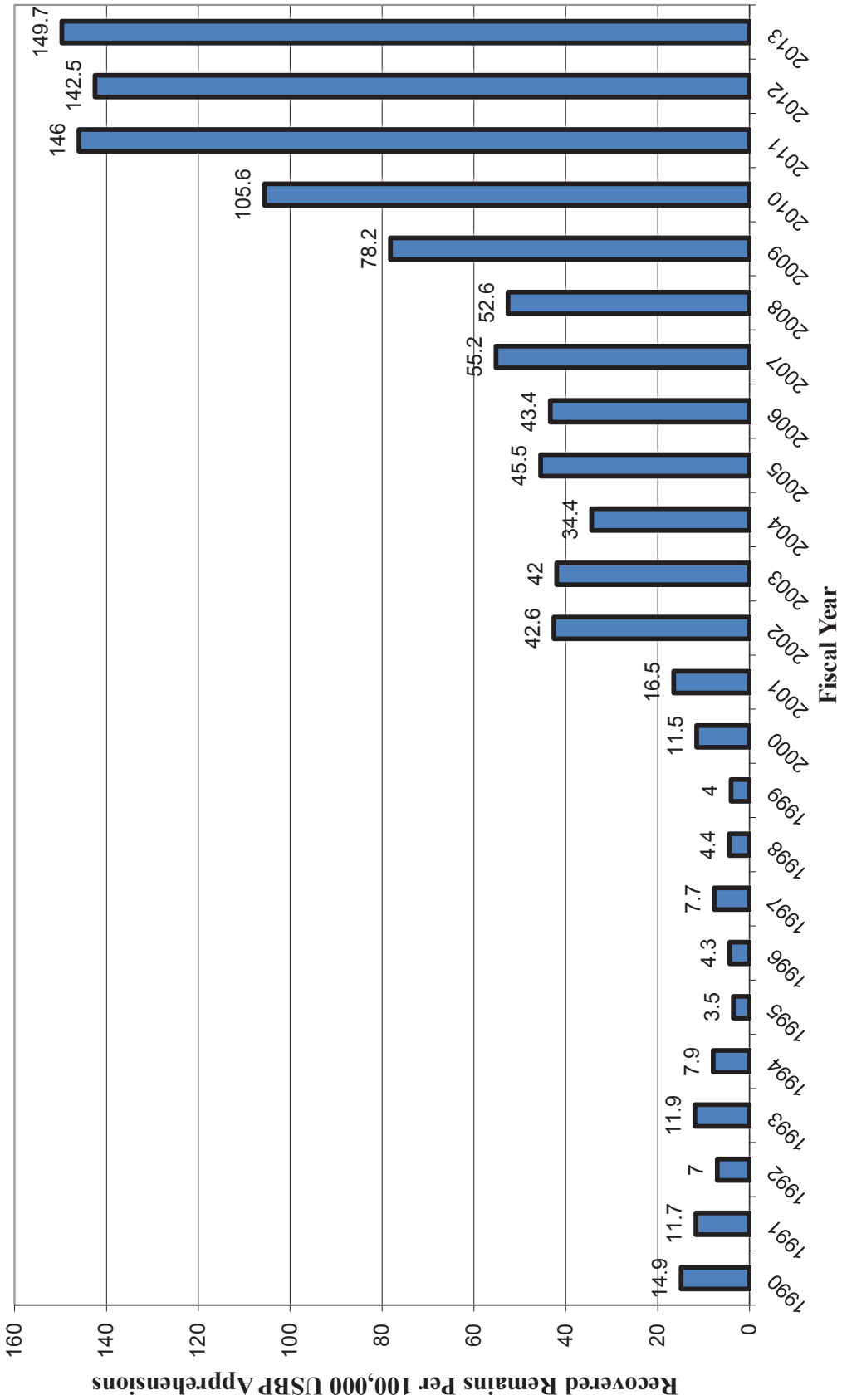


Figure 4. Approximate Death Rate in the Tucson Sector Using PCOME Deaths Coded as UBCs, FY 1990-2013 (N = 2,413)



Approximate Death Rate

One could argue that the increase of migrant deaths in southern Arizona is simply due to an increase in the number of UBCs traversing the area. Estimating an approximate death rate, which simultaneously considers deaths and migration flows in southern Arizona, addresses this concern. The "total annual number of known illegal entries" into southern Arizona, which includes apprehensions as well as what Border Patrol calls "got aways" and "turn backs" (Rosenblum 2013, 23), would be a far better denominator to utilize in the calculation of a migrant death rate, but these figures have not been made available by the Border Patrol for the complete time period covered by this study. Nevertheless, Border Patrol apprehension statistics can be used in place of the total annual number of known unauthorized entries to calculate an approximate death rate. As noted previously, scholars have often relied on apprehensions as a proxy for unauthorized migration flows (Espenshade 1995).

When Border Patrol apprehension statistics are taken into account, the death rate has actually increased exponentially since 1999. Figure 4 shows the number of migrant deaths per year standardized to 100,000 Border Patrol apprehensions each year. These findings are consistent with those of the non-governmental organization Coalición de Derechos Humanos, which reports that the UBC death rate has increased in southern Arizona, and in fact doubled, between 2009 and 2011 (Coalicion de Derechos Humanos 2012). In FY 2009, the number of deaths determined to be UBCs by the PCOME was 189, while the number of apprehensions reported by Border Patrol in the Tucson Sector was 241,655. In other words, there were about 78 deaths coded as UBCs by the PCOME for every 100,000 Border Patrol apprehensions during FY 2009. Although the number of UBCs investigated by the PCOME decreased from 189 in 2009 to 180 in 2011, the number of apprehensions in the Tucson Sector decreased at a much faster rate during the same period, from 241,655 to 123,285. This suggests that the number of unauthorized crossers traversing the area also decreased substantially between these years. Ultimately, the remains of 146 migrants were examined by the PCOME for every 100,000 Border Patrol apprehensions in FY 2011—a rate nearly twice that of FY 2009.

Overall, these results suggest that migrants are being forced to travel for longer periods of time through even more remote areas of southern Arizona in an attempt to avoid detection. A survey of Mexican deportees conducted by the Migrant Border Crossing Study of the University of Arizona and The George Washington University found that the average number of days spent crossing in the Tucson sector increased from 2.3 days in 2008 to 3.3 days in 2011. Recent accounts documented by the PCOME of people traveling with UBCs when they were last seen alive also suggest that it is not uncommon for people to spend four or five days crossing in southern Arizona. In the early 2000s a popular crossing route near the city of Nogales following the Santa Cruz River towards Tucson would typically take less than two nights. However, increased enforcement and a permanent checkpoint on Interstate-19 have pushed people west on a longer route towards the Tohono O'odham Indian Reservation through more remote and rough terrain.

Cross-Sectional Descriptive Results: Cause of Death and Demographic Characteristics

Table 1 illustrates the descriptive statistics for cause of death and demographic characteristics of UBC deaths investigated between FY 1990 and 2013. Sample sizes noted in Table 1 vary due to different degrees of complete information available for each factor examined.

Table 1. Specific Causes of Death and Demographic Characteristics of PCOME Deaths Coded as UBCs, FY 1990-2013

	Percent/Mean	N
Causes of Death		
Exposure	45%	2,413
Undetermined	38%	2,413
Motor Vehicle Accident	8%	2,413
Other Miscellaneous Causes[a]	5%	2,413
Homicide	4%	2,413
Demographic Characteristics		
Identified	66%	2,413
Unidentified	34%	2,413
Male	80%	2,413
Female	17%	2,413
Unknown Sex	3%	2,413
Age[b]	31 years	1,499
Region of Origin among Identified Decedents		
North	13%	1,583
West-Central (Traditional)	15%	1,583
Central	22%	1,583
South/Southeast	19%	1,583
Non-Mexican	14%	1,583
Unknown Region	16%	1,583

a. "Other" causes of death include drowning, suicide, natural causes, cases pending investigation, electrocution, envenomation, overdose and other miscellaneous causes.
b. Among identified decedents.
Note: Percentages may not sum to 100 due to rounding.

Over 45 percent of confirmed UBC deaths were due to exposure or probable exposure, followed by undetermined cause of death (38 percent), motor vehicle accident (8 percent), other miscellaneous causes (5 percent), and homicide (4 percent). For undetermined deaths, the medical examiner was unable to assign a definitive cause of death due to the degree of decomposition or lack of compelling evidence of any one cause of death. Nevertheless, given the remote desert location where these bodies were recovered, it is likely that the cause of death for a large percentage of these undetermined cases was exposure, but this cannot be confirmed.

The overwhelming majority (80 percent) of decedents were male, with sex unknown in about 3 percent of cases due to the fragmented condition of some skeletal remains recovered. Sex also remained undetermined for a handful of cases that were awaiting an anthropological examination at the time of publication. As noted, 820 (34 percent) of UBCs examined between 1990 and 2013 remain unidentified. Among people who were identified, the mean age was 31 years (median of 30 years). Figure 5 represents a population pyramid examining the age categories among males and females. About 38 percent of female UBCs fall in the 20-29 age category, which is comparable to 40 percent among males. Similarly, 33 percent of female UBCs were between 30 and 39 years of age at the time of death compared to 32 percent of male UBCs who fall in the same age range. Overall, the typical identified UBC decedent was in the peak of their productive years when they died.

As noted in Table 1, among those positively identified, migrants from central Mexico (22 percent) are the most prevalent, followed by those from southern Mexico (19 percent), west-central Mexico (15 percent), and northern Mexico (13 percent). Non-Mexicans accounted for about 14 percent of the identified decedents. Region of origin was unknown in 16 percent of cases among UBCs who had been successfully identified.

Table 2 illustrates the breakdown between countries of origin among identified UBCs. As noted, the majority of identified UBCs (82 percent) are of Mexican origin, followed by Guatemalans (8 percent), Salvadorans (2 percent), and Hondurans (2 percent). Country of origin was unknown in 5 percent of cases of identified UBCs. This is likely due to the "Country of Origin" category not being updated in PCOME records after the successful identification of a previously unidentified decedent.

Generally speaking, a typical UBC decedent between FY 1990 and 2013 could be described as a male near the age of 30 from central or southern Mexico who died of exposure while attempting to avoid detection by US authorities. However, as we discuss in the next section, there appear to be important differences in causes of death and demographic characteristics over time.

Figure 5. PCOME Deaths Coded as UBCs, Age Category among All Identified Female Decedents and Age Category among All Identified Male Decedents, FY 1990-2013, (N = 1,497)

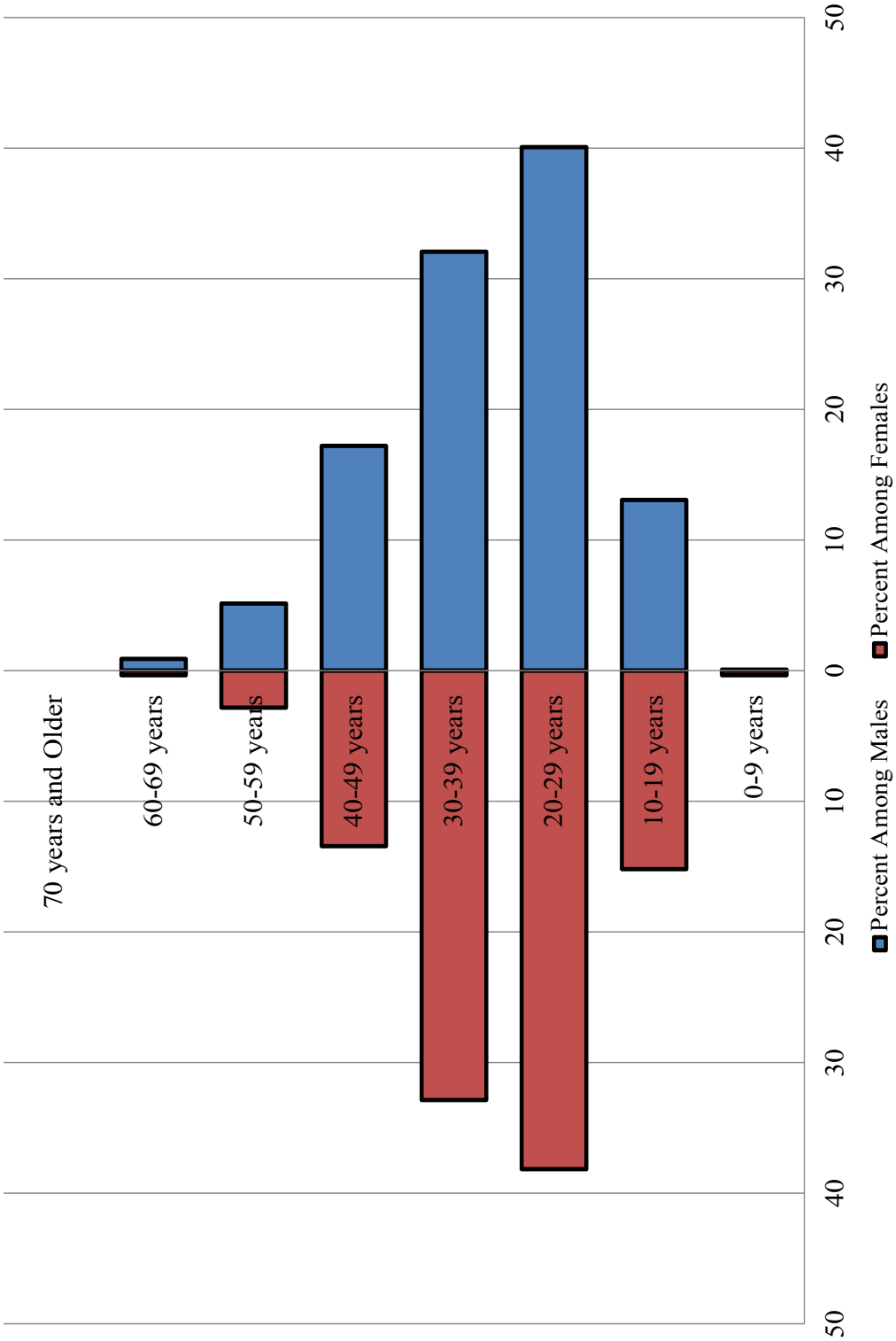


Table 2. PCOME Deaths Coded as UBCs by Country of Origin among Identified Decedents, FY 1990-2013

	Percent	Number
Naitonality		
Mexico	81.6	1,291
Guatemala	7.5	119
El Salvador	2.4	38
Honduras	1.5	24
Ecuador	0.6	10
Peru	0.5	8
Brazil	0.3	4
Costa Rica	0.3	4
Colombia	0.2	3
Dominican Republic	0.1	2
Chile	0.0	1
Nicaragua	0.0	1
Venezuela	0.0	1
Unknown Country	4.9	77

N = 1,583
Note: Percentages may not sum to 100 due to rounding.

Changes across Time Periods: Cause of Death and Demographic Characteristics

In order to better understand changes over time, the researchers grouped characteristics of yearly UBC deaths into three different time periods: the "Pre-Funnel Effect" era (1990-1999), the "Early Funnel Effect" era (2000-2005), and the "Late Funnel Effect" era (2006-2013). Using the same PCOME records, Rubio-Goldsmith and colleagues (2006) examined changes between the "Pre-Funnel Effect" (1990-1999) period and what they termed the "Funnel Effect" (2000-2005) period. The present analysis follows this by re-examining changes between these time periods while also including an additional period (2006-2013). Some of the sample sizes and figures reported in this study may differ from those reported by Rubio-Goldsmith et al. (2006) and Martinez et al. (2013) due to the positive identification of decedents, confirmed cause of death, the (rare) recoding of deaths as non-UBCs, or the (also rare) merging of two cases into one following DNA analysis.

Although migration flows began to increase in Arizona between 1993 and 1995 as a consequence of Operation Gatekeeper and Hold the Line, there was not a notable increase in migrant deaths in southern Arizona until after 1999. This is consistent with prior studies which note that although Operation Safeguard was initiated in the Tucson Sector in 1994, the sector "did not receive sufficient funding or resources until 1999" (Orrenius 2004, 296; Cornelius 2001, 664). In other words, there were essentially two funnels of migration flows

taking place in southern Arizona: first, from San Diego, California and El Paso, Texas to the outskirts of Nogales, Arizona, and then from the outskirts of Nogales into the western and eastern deserts of southern Arizona, with the latter leading to an exponential increase in deaths.. While deaths in the region did increase from 8 in 1995 to 21 in 1997—a 163 percent increase—the researchers were cautious to begin the Funnel Effect era prior to 2000 due the volatility of small sample sizes. It is possible that certain isolated incidents, for instance a motor vehicle accident involving the deaths of multiple people or a larger group of migrants getting lost and dying, could influence counts substantially in these early years. Thus, the researchers opted to mark the beginning of the Funnel Effect era in 2000 when the marginal percent increase in deaths from 1999 (19 deaths) to 2000 (71 deaths) was 273 percent. This was the same approach utilized by Rubio-Goldsmith et al. 2006 and Martinez et al. 2013.

Table 3 illustrates the changes in cause of death, demographic characteristics, and region of origin across the three time periods. The number of UBC deaths during each period is also reported. Asterisks denote that the changes from one time period to the next were statistically significant. Data for FY 2013 were omitted from the "region of origin" analysis due to the lag associated with the investigation process which leads to positive identification of decedents, and ultimately, more complete information for this variable.

Changes in Cause of Death

Most notably for cause of death, the PCOME determination of exposure, the leading cause of death in the Pre- and Early Funnel Effect years, became the second most common cause of death after "undetermined" in the Late Funnel Effect years. Individuals who died from exposure perished due to hyperthermia or hypothermia, often coupled with dehydration. For undetermined deaths, the medical examiner was unable to assign a definitive cause of death due to the degree of decomposition or lack of compelling evidence of any one cause of death. The state of decomposition may also affect the ability to determine a valid postmortem interval which might place the time of death during a specific season. Due to intensified border enforcement efforts, migrants are increasingly crossing through more remote areas in order to avoid detection. For those who die in remote areas, there is a longer period of time between death and recovery, which results in more decomposition. As previously mentioned, given the desert location where these bodies were recovered, it is likely that the cause of death for a large percentage of these undetermined cases was exposure, but this cannot be confirmed. However, if exposure and undetermined cause of death cases are merged to create one group, these cases make up 82 percent of cases in the Early Funnel Effect era and 85 percent of cases during the Late Funnel Effect years. This is a much less significant change.

A significant change between time periods is related to the percent of deaths by motor vehicle accident. In the Pre-Funnel Effect years, 1990-1999, motor vehicle accidents accounted for 20 percent of UBC fatalities. During this time period, fewer unauthorized migrants spent an extended amount of time in remote areas attempting to cross. In the Early Funnel Effect years from 2000-2005, the percentage of UBCs who died by motor vehicle accident dropped by almost half, to 11 percent, and dropped once again in the Late Funnel Effect years to 6 percent. These changes suggest that people have altered their crossing strategies as a consequence of increased enforcement, relying less on the use of motor

Table 3. Specific Causes of Death and Demographic Characteristics PCOME Deaths Coded as UBCs, by Time Period

	"Pre-Funnel Effect" (FY 1990-1999)	"Early Funnel Effect" (FY 2000-2005)	"Late Funnel Effect" (FY 2006-2013)
Causes of Death			
Exposure	39%	62%***	37%***
Undetermined	28%	20%*	48%***
Motor Vehicle Accident	20%	11%***	6%***
Other Miscellaneous Causes[1]	8%	4%	5%
Homicide	6%	4%	4%
N	120	802	1,490
Demographic Characteristics			
Unidentified	33%	23%*	41%***
N	120	802	1,491
Female	13%	22%*	15%***
N	120	801	1,430
Age[2]	29 years	30 years	32 years*
N	74	603	822
Region of Origin among Identified Decedents (through FY 2012)			
North	39%	11%***	14%*
Traditional	17%	19%	14%**
Central	5%	25%***	24%
South/Southeast	9%	23%**	19%
Non-Mexican	7%	9%	18%***
Unknown Region	23%	14%*	11%***
N	80	618	812

1. "Other" causes of death include drowning, suicide, natural causes, cases pending investigation, electrocution, envenomation, overdose and other miscellaneous causes.
2. Among identified decedents.
Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ indicate the change from the previous time period is statistically significant. Percentages may not sum to 100 due to rounding.

vehicles to facilitate a crossing and more on traversing through remote areas on foot. It is also possible that the number of people crossing in motor vehicles has not changed drastically over the years, but rather the number of those crossing on foot has increased substantially between these time periods.

Recently, notable media attention has been paid to the increase in cartel violence throughout Mexico since former Mexican president Felipe Calderon declared a war on drug trafficking organizations (DTOs) in December of 2006. Estimates suggest that nearly 130,000 people have been killed , and more than 27,000 have disappeared in Mexico since 2007 (Molloy 2013). A notable portion of the drug cartel-related violence has clustered along border crossing corridors and other disputed territories in the northern part of the country. Although Mexico has a much lower homicide rate (18 per 100,000 residents) than other Latin American countries such as Guatemala, El Salvador, Honduras, Venezuela, and Colombia (Molzahn et al. 2012), some municipalities in the northern Mexican states of Sonora, Chihuahua, and Tamaulipas have some of the highest homicides rates in the world (Kronick 2010). This has led to concern over a possible "spillover" effect of DTO-related violence into the United States. Yet with the exception of a few well-publicized and isolated incidents, there is little evidence supporting the notion of a spillover effect. In 2010 Ciudad Juárez, Chihuahua, had one of the highest homicide rates in the world, yet its US sister city of El Paso is one of the safest cities in the country (*CQ Press* 2013). PCOME records suggest the percent of UBCs that have been victims of homicide has remained unchanged at 4 percent in both the Early Funnel Effect era and the Late Funnel Effect era—a time period that coincides with Calderon's declaration of the war on DTOs in Mexico.

This finding should not be taken as suggesting that unauthorized migrants are not at risk of falling victim to DTO-related violence during crossing attempts. However, it is likely that much of the violence migrants experience tends to be in Mexican territory. A recent survey of deportees notes that unauthorized migrants are at risk of kidnapping, robbery, and assault after deportation by US authorities to Mexican border towns (Slack et al. 2013).

Finally, it is important to note that the medico-legal classification of "homicide" used in this analysis is distinct from homicide in the legal sense of the term. That is, it does not disaggregate between criminal homicide, justifiable homicide, or manslaughter. The classification includes migrants who were possibly killed by coyotes (human smugglers), *bajadores* (border bandits), or other migrants, but also consists of migrants who were killed during an encounter with US officials. One source notes that 28 people have been killed by US Customs and Border Protection agents across the border since 2010 alone (Martínez 2014). This is an important distinction to make considering the qualitatively different roles these various actors play in the unauthorized migration process. Though the present analysis does not disaggregate between these types of homicides, a closer examination of this distinction warrants future consideration.

Changes in Demographic Characteristics

Overall, females account for 17 percent of all UBCs examined at the PCOME since 1990 (see Table 1). However, there have been significant changes in the ratio of females to males across the three time periods. As noted in Table 3, approximately 13 percent of

UBCs during the Pre-Funnel Effect years were female. This figure jumped to 22 percent during the Funnel Effect era, and decreased to 15 percent in the Late Funnel Effect period. One of the many consequences of increased border enforcement has been the decreased probability of migrants returning to their countries of origin, ultimately transforming would-be seasonal migrants into longer-term settlers (Massey, Durand, and Malone 2002). Historically, migration from Mexico to the United States has been a gendered process, with men making up the majority of migrants (Donato, Wagner, and Patterson 2008; Wilson 2010). However, the fact that men are staying in the United States longer has led to an increase in the migration of women for the purposes of family reunification, which helps explain the increase in female UBCs between the Early and Funnel Effect eras (Donato, Wagner, and Patterson 2008).

The number and proportion of women migrating today appears to have decreased in recent years. It is possible that the family reunification process has slowed as more women have successfully been reunited with their male family members in the United States over the last decade. US Border Patrol apprehension data seem to support this notion. For example, in FY 2004 females made up approximately 18 percent of all apprehensions, however, this figure fell to 13 percent in FY 2011. Nevertheless, apprehensions of females are once again on the rise, representing 17 percent of all apprehensions during FY 2013 (US Border Patrol 2014). This increase is likely due to non-Mexicans making up a larger share of all apprehensions when compared to previous years, an issue which is addressed below.[11]

Table 3 illustrates that the average age of UBCs has increased from 30 years in the Early Funnel Effect period to 32 years in the Late Funnel Effect period ($p < 0.05$). It is possible that interior immigration enforcement programs in effect during this time period, such as the federal government's Secure Communities or state level initiatives such as Arizona's SB 1070, Alabama's HB 56, or Indiana's SB 590 have disproportionately affected older, more established migrants residing in the United States rather than younger seasonal workers. However, the population of Mexico as a whole is aging and birth rates have decreased, so it is also possible that this difference, in part, reflects demographic changes occurring in the country (*The Economist* 2012; Passel, Cohn, and Gonzalez-Barrera 2012). Nevertheless, further attention should be given to the impact that interior removal programs have had on the changing profile of unauthorized border crossers.

Changes in Region of Origin

There have been notable changes in the regions of origin represented among UBCs. As noted, following Massey and colleagues and CONAPO, the present analysis identifies four main Mexican sending regions: north; west-central (traditional); central; and south-southeastern. It also groups non-Mexicans together, although the majority of non-Mexican identified UBCs are from the countries of Guatemala, El Salvador, and Honduras.

Generally speaking, the most significant changes among Mexican UBCs in terms of region of origin occurred between the Pre-Funnel Effect and Early Funnel Effect time periods. In the Pre-Funnel Effect era, around 39 percent of identified UBCs were from northern

11 Publically available US Border Patrol apprehensions statistics do not disaggregate "Other than Mexicans" by sex.

Mexico, however, this share decreased to 11 percent in the Early Funnel Effect era. Similarly, the share of those from the central and south-southeastern region in the earliest time period only made up 5 percent and 9 percent of all identified UBCs, respectively. By the Early Funnel Effect era, these percentages increased to 25 percent among those from the central region and 23 percent among those from the south. This change can likely be attributed to increased migration from these regions stemming from the implementation of NAFTA which displaced thousands of rural Mexicans (Polaski 2004; Wise 2009; Garcia Zamora 2009).

Changes in the region of origin were less pronounced between the Early Funnel Effect and the Late Funnel Effect periods. One exception was the share of UBCs from the northern regions, which increased from 11 percent in the Early Funnel Effect era to 14 percent in the most recent time period. Similarly, the percentage of non-Mexicans increased from 9 percent to 18 percent between these two periods. A 2005 Congressional Research Service Report by Nuñez-Neto, Siskin, and Viña notes that the proportion of non-Mexican border crossers has been on the rise since the late 1990s. More recent data from US Border Patrol apprehension statistics support this assertion. In FY 2005, roughly 14 percent of all apprehensions were of non-Mexicans, or what the Border Patrol calls "OTMs" (Other than Mexicans). By FY 2013 this share increased two-and-a-half times to 36 percent across all sectors. The proportion of non-Mexicans crossing through southern Arizona, however, is substantially lower than in other areas along the border. A significant number of unauthorized Central Americans travel through Mexico atop of freight trains to the Tamaulipas-Texas border and attempt to cross through south Texas after crossing the Rio Grande. Nevertheless, the proportion of non-Mexicans crossing through the Sonoran Desert appears to be on the rise in recent years. For instance, only 3 percent of US Border Patrol apprehensions in the Tucson Sector in FY 2005 were of non-Mexicans, compared to 16 percent in FY 2013 (US Border Patrol 2014).

Overall, non-Mexicans appear to be at greater risk for death while crossing the border in southern Arizona relative to their share of apprehensions in the area. As noted in Table 3, 18 percent of identified decedents between FY 2006-2012 consisted of non-Mexican UBCs. However, during this same time period, an average of 5.7 percent of apprehensions in the Tucson Sector were of non-Mexicans, with a low of 2.4 percent in FY 2006 and a high of nearly 15 percent in FY 2012 (US Border Patrol 2014). The greater distance, effort and time required to reach the US-Mexico border by non-Mexicans—who often must traverse multiple international boundaries—places them in a vulnerable state, leading to increased risk of death in the southern Arizona desert. Abject poverty may also help explain this disparity. Central American migrants often come from impoverished, marginalized communities, something which greatly limits their ability to secure safe travel northward (Hagan 2008). Finally, the researchers suspect that a relatively larger share of the unidentified and cases with "unknown region" among identified UBCs investigated by the PCOME may be non-Mexicans. Institutional limitations, scarce economic and social resources among Central American consulates and families, and strategies utilized by human smugglers transporting Central Americans through Mexico to avoid detection all present challenges to successful identification and the determination of non-Mexican UBCs' region of origin.

All indications suggest that out-migration from Central America will persist as the region continues to struggle with political instability, abject poverty, gangs, and drug trafficking-related violence. The researchers anticipate that the share of non-Mexicans among UBCs in southern Arizona will remain high in the absence of comprehensive immigration reform, sustainable development programs in Central America, and expanded channels for temporary protection and refugee admissions.

Conclusion

The number of unauthorized border crosser remains examined by the Pima County Office of the Medical Examiner has increased substantially since FY 2000 and has remained above 150 decedents per year since 2004. This increase has coincided with intensified enforcement efforts across the border, supporting previous studies which have found that border militarization has redistributed migration flows into remote areas, thereby increasing the risk of death.

The increased number of migrant remains examined by the PCOME is not simply a consequence of more migrants crossing through southern Arizona. US Border Patrol apprehensions, often used as a proxy for unauthorized migration flows by scholars, have decreased over the past several years in the Tucson Sector. However, the death rate based on Border Patrol apprehension statistics has increased exponentially since 1999. Despite a decrease in the number of unauthorized crossers traversing the area as measured by the number of Border Patrol apprehensions in the Tucson Sector, the number of remains examined for every 100,000 apprehensions nearly doubled between FY 2009 and FY 2011. This suggests that migrants are crossing for longer periods of time through more remote areas to avoid detection by US authorities, thus increasing the probability of death.

Remote areas along the California-Baja California border experienced notable increases in migrant deaths when border enforcement efforts first began in the early 1990s (Cornelius 2001). Migrant deaths then appeared to shift east into southern Arizona in the early-to-mid-2000s. This shift is reflected in the near two-fold increase in the number of migrant deaths investigated by the PCOME between FY 2001 and FY 2002. Although migrant deaths and the death rate remain near all-time highs in southern Arizona, counties close to the South Texas-Tamaulipas border have begun reporting strikingly high numbers of migrant deaths, especially considering the size of these counties. For instance, Brooks County, which is nearly ten times smaller than Pima County in terms of geographical area, reported 129 deaths in calendar year 2012 compared to just 20 in 2010 (MacCormack 2013; Miroff 2013). This increase in migrant deaths in South Texas is confirmed by data reported by the US Border Patrol, with deaths in the Rio Grande Valley sector increasing from 66 in FY 2011 to 156 in FY 2013 (US Border Patrol 2014). Scholars and policymakers alike should be concerned with this drastic increase, which appears to be tied to high rates of deportations to areas just south of Texas as well as an increased number Central Americans crossing clandestinely through south Texas (Isacson and Meyer 2013).

Counties along the Texas-Mexico border tend to be smaller in terms of area and population, and have limited financial and institutional resources with which to investigate migrant deaths. Further, given the sheer number of counties along the Texas-Mexico border, it is

not entirely clear which agency or entity has the responsibility of investigating migrant deaths. Given these considerations, counties in South and West Texas may not be equipped to properly investigate migrant deaths and disappearances in the area. Institutional and structural limitations will likely adversely affect the identification rate of migrants, ultimately contributing to an ever-growing list of "John" and "Jane Does" whose remains may never be reunited with their family members.

Understanding the causes and solutions of unauthorized migration and migrant deaths requires an understanding of the extent of these phenomena. At present, the true number of migrant deaths occurring across the border on an annual basis is unknown. Nevertheless, the PCOME continues to collect reliable and valid data on estimated border crosser deaths in southern Arizona and, most importantly, is committed to identifying the deceased. Both tasks are of paramount importance. The former should help inform policymakers about the consequences of immigration and border enforcement policies, particularly in light of recent immigration reform proposals calling for even greater border enforcement measures. The latter helps provide closure to the families that have lost loved ones who died while traversing the Sonora-Arizona border in search of a better life.

The public acceptance of significant numbers of migrant deaths on the US-Mexico border every year for nearly 30 years is symptomatic of cultural violence. Just as in the case of the 1995 Chicago heat wave, we have collectively created the conditions that have allowed so many migrants to die, "as well as the conditions that make these deaths so easy to overlook and forget" (Klinenberg 2002, 11). Summer in Arizona does not have to be a season of death, and policies that aim to provide security should not result in loss of life.

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