

Visualizing the Costs of Immigration Enforcement and Border Security on the US-Mexico Border

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Executive Summary

Since the 1990s, immigration enforcement and border security on the U.S.-Mexico border has increased significantly to apprehend and deter unauthorized migrants from entering the United States. To do this, the United States allocates money from the federal budget to the Department of Homeland Security (DHS) for ‘national security’ initiatives, with these initiatives implemented on the southern border by their sub-agency, Customs and Border Protection (CBP). Because both agencies have been engrossed in controversy since their inception, especially due to the Trump administration’s 2017 policy of separating kids from their parents at the southern border, it is important to review these initiatives, their costs, and their results.

Many immigration and border researchers believe the financial and human costs of these initiatives outweigh the benefits. Specifically, they argue that maintaining the border sectors, both in financial expense and agent staffing, costs more than what their outcomes are worth in apprehensions and detainments. Additionally, human rights activists and civil rights groups also cite the human costs as (un)intended consequences, arguing that these initiatives force migrants to use more dangerous corridors to evade federal agents, like the Sonora desert in Arizona, leading to higher death and rescue rates. I would like to question this same benefit-cost relationship and would like to offer the same arguments.

This report investigates these questions and outlines the financial and human costs to immigration enforcement and border security initiatives (such as the “Prevention through Deterrence,” the “Secure Fence Act of 2006,” and Trump’s 2017 “Border Security and Immigration Enforcement” “programs along with Trump’s improvements) implemented on the U.S.-Mexico border. I do this by looking at trends in migrant apprehensions, deaths and violence and increases in the CBP budget for the southern border overall, as well as breakdowns for selected sectors.

The report finds that, though the CBP budget allocated for the southern border has increased exponentially, the “Prevention through Deterrence” and “Secure our Borders” initiatives were not correlated with a decrease in the amount of border crossers. Additionally, the Trump administration’s immigration and border policies also did not decrease border crossers, as evidenced by an increase in family and minor apprehensions over time. These policies have also

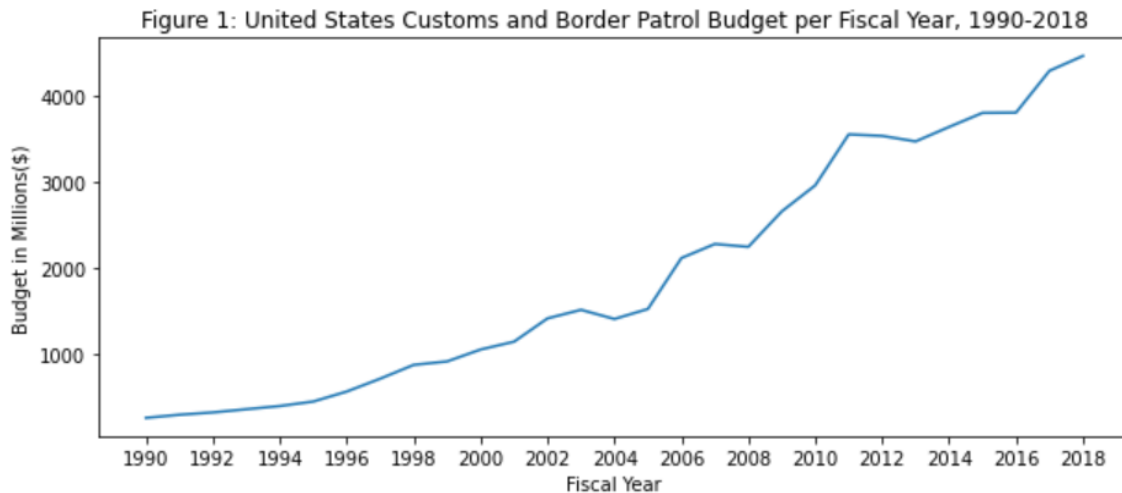
not led to an increase in drug seizures¹. Secondly, while apprehensions decrease over time, the opposite trend is found for death rates and reported violence along the southern border. These results provide support for the arguments that CBP and DHS-sponsored and implemented initiatives are costly, ineffective in reducing drug trafficking, and force migrants to use more high-risk corridors to reach the United States instead of deterring their migration in the first place.

Methodology

This report uses web-scraped CBP statistics and summaries data for fiscal years 1960 to 2018, but vary in this range for each data file and the earliest public reports in each category². Statistics in the data set detail counts of migrant apprehensions and deaths, drug seizures, reports of violence by type, and CBP staff by sector and aggregated for the southern border. For the purposes of this report, it is important to define the sectors, initiatives, and variables used for analysis. *Tables 1, 2, and 3* describe the sectors and initiatives looked at, and define each variable used for context. The software used was Python, and not all data files were imported. Data was cleaned before being explored and used in analysis. Please note that the data in this report is in fiscal years, where each fiscal year runs from October of the previous year to September of the year being described.

The Financial Cost of Immigration Enforcement and Border Security on the US-Mexico Border

The enforcement and militarization of the U.S.-Mexico border has increased exponentially over the past three decades, with rising border staff, wall and fencing, and surveillance equipment. This increase in the CBP budget is visualized in Figure 1.



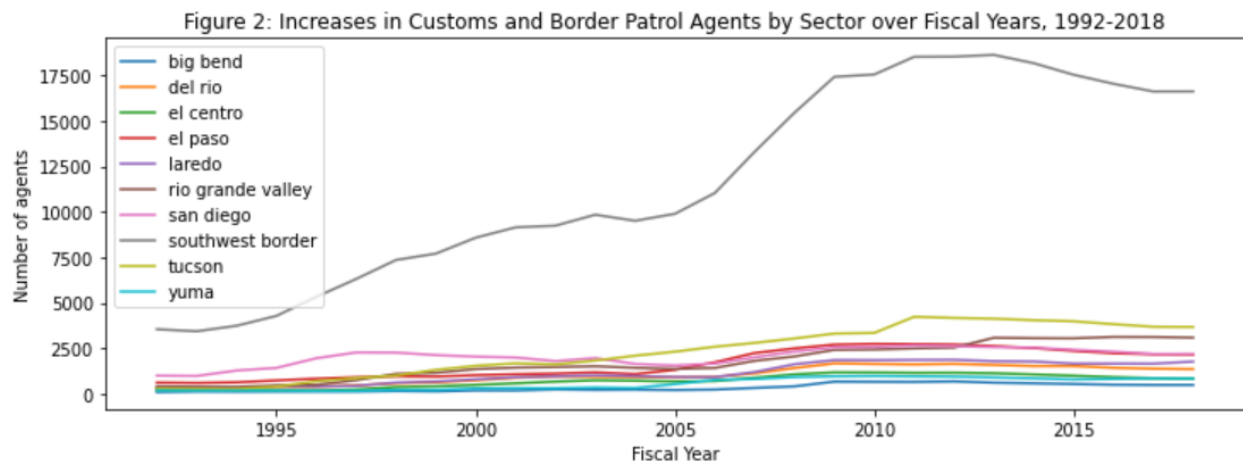
Source: [Department of Homeland Security Budgets in Brief](#)
Credit: Alessandra Pacheco/The University of Pennsylvania

¹ Drug seizures have declined for the southwest border over fiscal years, and a graph showing so is in the Appendix. However, for the themes of this paper, it will not be discussed in depth.

² CBP Statistics and Summaries data was web-scraped by Jacob Kaplan from the University of Pennsylvania, who then published this data as an open-source data set on the ICPSR website. The data files can be found [here](#).

The blue line in Figure 1 shows the massive growth in the CBP budget, rising astronomically between FY 1990 (\$262 million) and FY 2018 (over \$4 billion). One can see the bumps in the budget following the implementation of the Prevention through Deterrence initiatives (implemented between 1993 and 1997), the 2006 Secure Fence Act, and 2017 Trump executive orders following the fiscal years. In FY 1993, the budget increased by 11.4% from \$326 million to \$363 million; in FY 1994, the budget increased by 10.2% from \$400 million to 452 million; in FY 1997, the budget increased by 26.2% from \$568 million to \$717 million; in FY 1999, the budget increased by 4.6% from \$877 million to \$917 million; in FY 2006, the budget increased by 38.6% from \$1525 million to \$2115; and FY 2017, the budget increased by 12.8% from \$3801 million to \$4286 million. The decrease in the federal budget between FY 2003 and FY 2004 can be attributed to the start of the Iraq war and the continuation of the Afghanistan war, where the national security budget was allocated abroad instead of domestically.

One of the ways the rising budget can also be measured is in terms of CBP staffing numbers. for each checkpoint and aggregated for the southwest border as a whole. Figure 2 shows the rise in CBP agents and other staff for each sector and aggregated for the southwest border overall.



Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

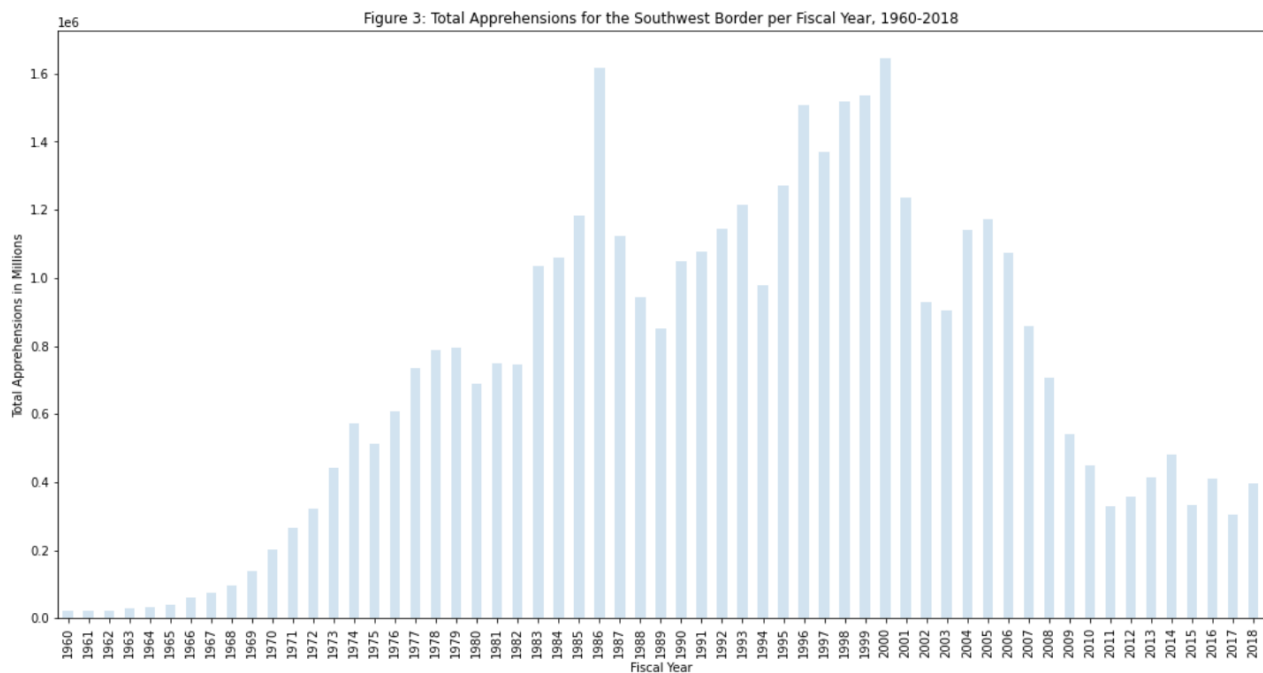
Credit: Alessandra Pacheco/The University of Pennsylvania

When looking at Figure 2, the gray line represents the aggregated sectors to make the southwest border line, therefore being the highest. From FY 1992 to FY 2018, the southwest border has increased their agents and other staff by 13,853 personnel. This is followed by the sectors Rio Grande Valley (RGV) and Tucson, which are visualized by the rust and mustard lines, respectively. There is a large increase in personnel that starts in FY 2005 for both RGV(at that time, having 1562 agents and other staff) and Tucson(at that time having 2324 agents and other staff), creating a spike that ends around FY 2009, where RGV ends with 2422 personnel and Tucson ends with 3318 personnel. This is paralleled in a giant spike in the southwest border line as well, before declining in staffers in FY 2014 and 2015. Tucson is the sector that has the larger allocation of staffers, which is interesting since it is not the sector with the highest total apprehension count or drug seizure count, which will be talked about in following sections.

The Human Cost of Immigration Enforcement and Border Security on the US-Mexico Border

Migrant Apprehensions

The increases in the CBP budget for the implementation of immigration enforcement and border security measures on the U.S.-Mexico border is not necessarily correlated with deterring illegal immigration. For that, one must look at the number and type of migrant apprehensions over time for the southwest border overall and compare this to the respective death rate for every year. Figure 3 shows the total apprehension count for the southwest border for fiscal years 1960 to 2018³.



Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

Credit: Alessandra Pacheco/The University of Pennsylvania

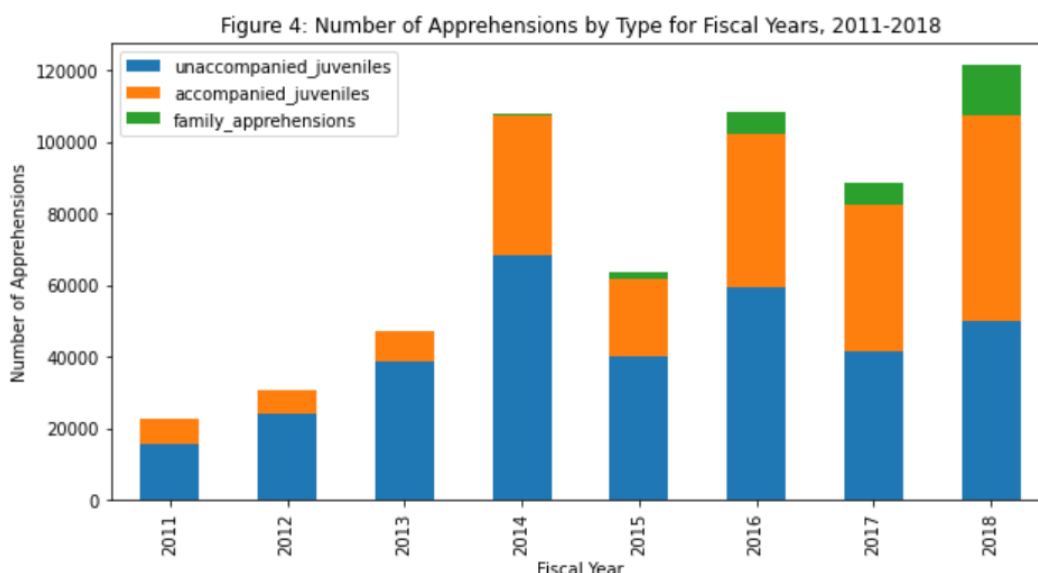
When examined closely, one can see that FY 2000 had the highest number of southern border crossings, with 1.64 million total apprehensions, followed by FY 1986 that had the second highest number of southern border crossings with 1.61 million total apprehensions, explained by the Immigration Reform and Control Act of 1986 during the Reagan administration. The historic act created a migration wave directly following its passing, as the act legalized most undocumented immigrations who had arrived to the United State prior to January 1982. This is followed by FY 1999(1.53 million) and 1998(1.51 million). There is an increase between 1993

³ For the purposes of this report, estimated unauthorized migration(entries) are measured by total apprehension statistics. though one can argue less apprehensions are a measure of less crossings, but we assume that less apprehensions are correlated to more people crossing into the United States undetected

and 1997 (when the PTD initiatives were implemented), but there is a decrease in 2006. There is another increase in FY 2017, explained by the Trump Executive Orders. Overall, there is a dumbbell distribution, with peaks in the 90s and early 2000 before settling down in the 2010s.

Apprehensions by Migrant Type

This decline in apprehensions should also be correlated to a decline in apprehensions by type of apprehension. Figure 4 shows the trends in apprehensions for families, unaccompanied minors and accompanied minors⁴. Please note that data was only available for family apprehensions for FY 2013 – FY 2018; for unaccompanied and accompanied minors, data was available for FY 2011 – 2018.



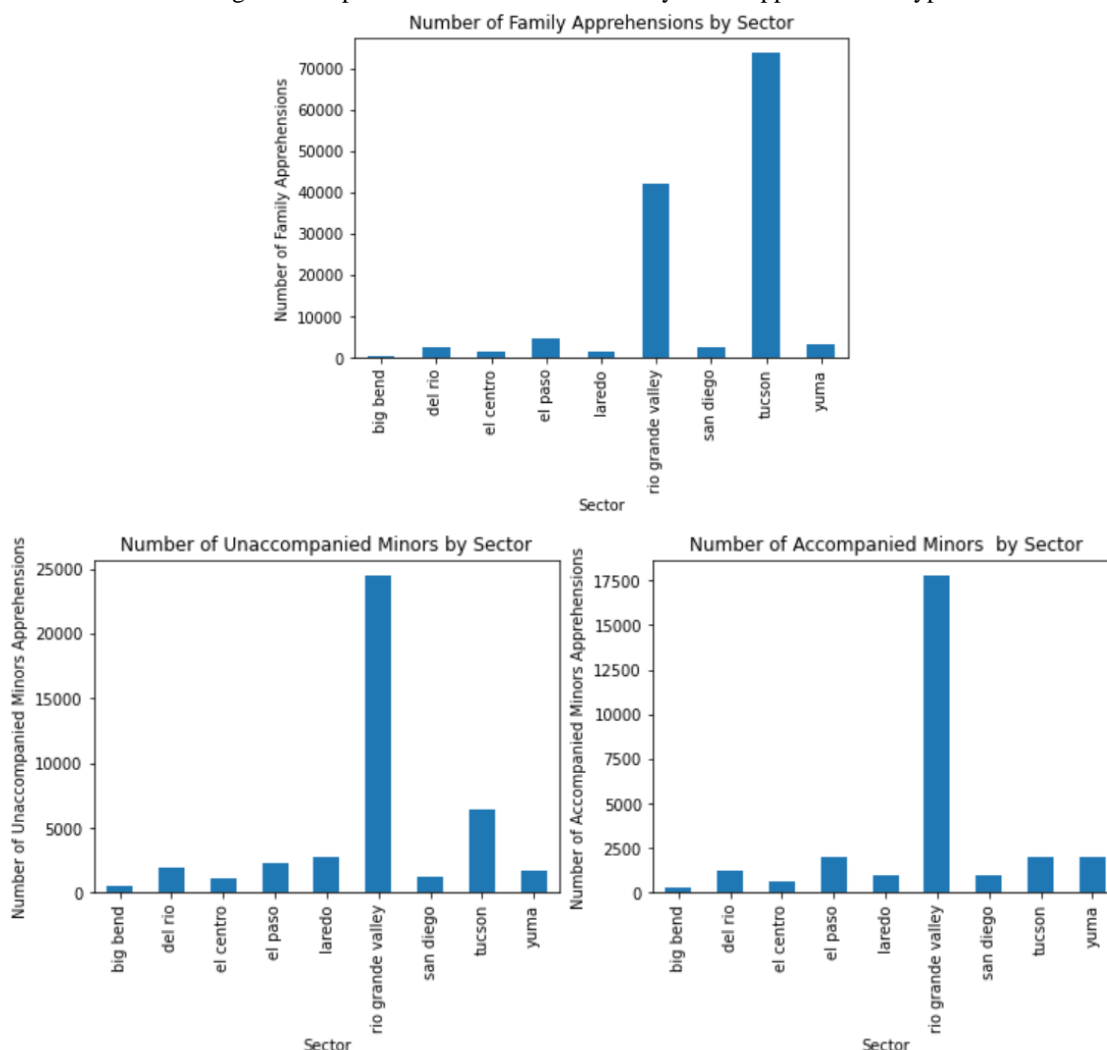
Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

Credit: Alessandra Pacheco/The University of Pennsylvania

As shown in the graph, apprehensions by migrant type did not decrease for the southwest border: unaccompanied juveniles actually rose in FY 2018 following the Trump executive orders, and family apprehensions and accompanied juveniles rose significantly from FY 2015 onwards: family apprehensions doubled from 1734 to 14554 between FY 2015 and FY 2018, and accompanied juveniles apprehensions also doubled from 22004 to 57210 between the same time periods. This could be explained by families wanting to pursue a better life in the United States through the ‘American dream’ and therefore not being swayed by immigration enforcement and border security measures. Figure 5 (following page) shows each apprehension type and their count distribution by sector, to show which corridors are most used.

⁴ This report uses minors and juveniles interchangeably.

Figure 5: Popular Sector Corridors Used by Each Apprehension Type



Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

Credit: Alessandra Pacheco/The University of Pennsylvania

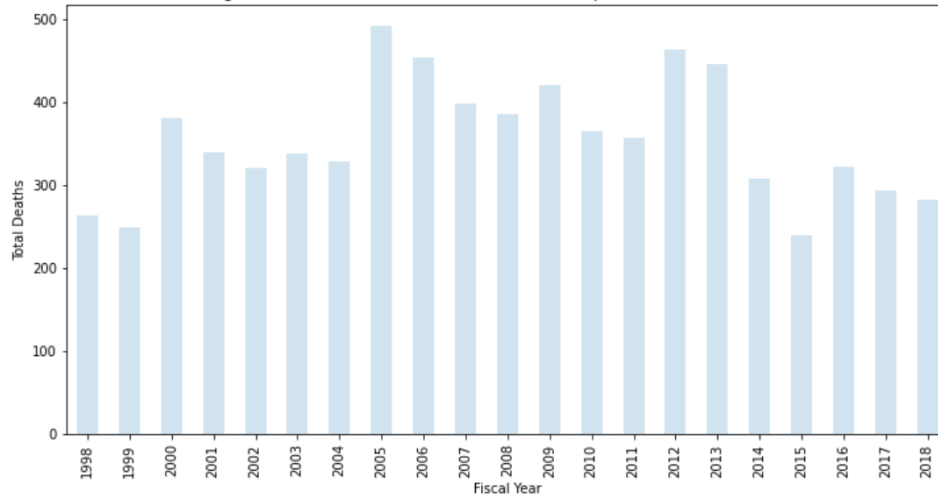
The Tucson sector is the most used most used corridor when it comes to family apprehensions. The Rio Grande Valley sector is the most used corridors when it comes to unaccompanied and accompanied minors and could be because of its general popularity with border crosses due to its geographical location.

Apprehensions, Death Rate, and Violence

A decrease in apprehensions should also be correlated to a lower death rate over time. Here, death rate was calculated by dividing the number of deaths by the total apprehension count for every fiscal year and is therefore a proportion. Figures 6 and 7 depict the death count and death rate over time. Please note death count data was only available for fiscal years 1998 to 2018.

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Figure 6: Total Deaths for the Southwest Border per Fiscal Year, 1998-2018

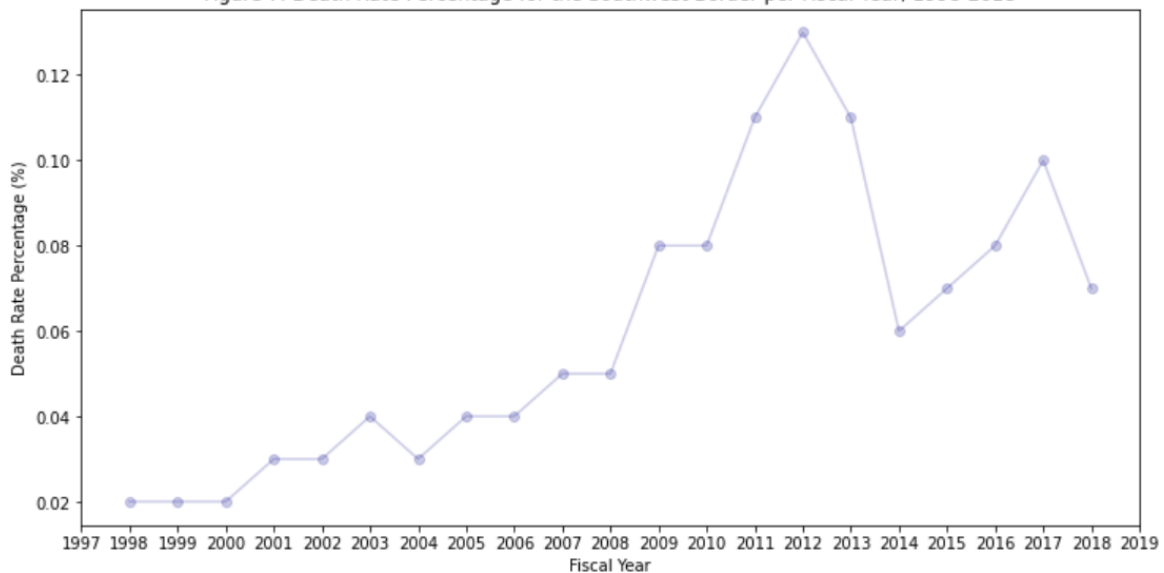


Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

Credit: Alessandra Pacheco/The University of Pennsylvania

It should be noted that the death count, and death rate by extension, underestimate the actual migrant death count due to it being measured as the *reported* death count by way of recovered migrant bodies. This number therefore does not account for migrant bodies that could not be recovered due to their location in desert and mountain terrain, does not account for fully decomposed migrant bodies that could not be found, and does not account for skeleton fragments since they cannot be traced back to someone due to a lack of bones and therefore cannot be documented fully.

Figure 7: Death Rate Percentage for the Southwest Border per Fiscal Year, 1998-2018

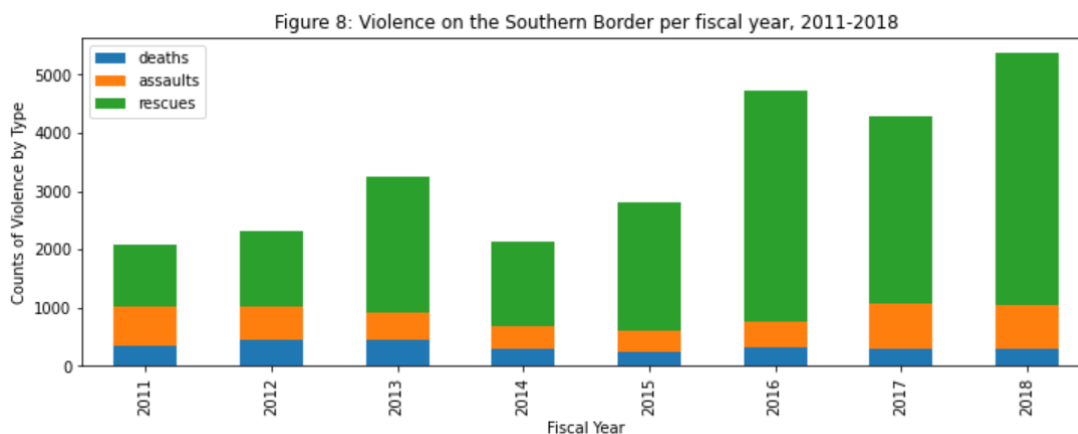


Source: [U.S. Customs and Border Protection Statistics and Summaries](#)

Credit: Alessandra Pacheco/The University of Pennsylvania

It's interesting to note that though the highest apprehension count was in FY 2000, this was not the year with the highest death count or death rate. Instead, the highest death count was in FY 2005 with 492 reported deaths, followed by FY 2012 with 463 reported deaths; from Figure 7, the highest death rate was in 2012 with over .12% preceded by FY 2011 and followed by FY 2013. This is also observed in the relationship between total apprehensions for FY 2007 - FY 2008, and their respective death counts and death rates. There was a decrease in total apprehensions from 8.58 million to 7.05 million and a decrease in total death count, however, the death *rate* increased between these years, rising from .046% to .056%. These observations give support to the argument that the initiatives don't deter illegal immigration but push unauthorized migrants to use high-risk environments as their corridors to reach the U.S., which ends up increasing the death rate.

This argument is further supported by an increase over time regarding reported rescues and assaults. Figure 8 shows violence on the southern border, measured with death count, assault count and rescue count for each fiscal year over the southern border.



Source: [U.S. Customs and Border Protection Statistics and Summaries](#)
 Credit: Alessandra Pacheco/The University of Pennsylvania

As previously stated, migrant deaths decrease over time, however upon looking at the graph, assaults increase two-fold from FY 2014 to FY 2018, from 366 counts to 774 counts. Rescues follow the same trend but much more aggressively, increasing almost three-fold (195%) from 1457 rescues in FY 2014 to 4307 rescues in 2018.

Conclusion

Immigration enforcement and border security measures have been increasingly implemented on the U.S.-Mexico border for the past 30 years, kicking off with the Prevention through Deterrence Initiatives of the 90s, maintained by the Secure Fence Act of 2006, and evolving with the Trump Executive order initiatives of 2017. Because these policies are implemented for the purposes of deterring unauthorized migration and funded by a portion of the federal budget, this report sought to follow and compare the trends in the CBP budget, migrant apprehensions and deaths,

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and reports of violence via assaults and rescues. This report used public CBP statistics and summary data to measure the effectiveness of these policies, and to test the arguments that these policies do not really deter illegal immigration but push unauthorized migrant to cross the border using more dangerous environments, such as the mountains and deserts, instead of known crossing points to evade CBP agents. This report find little support for the former (though one can argue less apprehensions are a measure of less crossings, but this report assumes that less apprehensions are correlated to more people crossing into the United States undetected). The report finds substantive support for the latter by calculating a death rate and looking at where apprehensions decreased but death rate increased over fiscal years. Limitations include not having data for fiscal years before the available ones, limiting the large-scope picture that can be created, and having an underestimated count of migrant fatalities due to migrant deaths being defined as those that were reported, and therefore do not include ones that weren't. Recommendations include looking at sector data more closely, incorporating human rights groups' trackers (that may be more detailed and substantive), and running regression and other modeling on the data.

Appendix

Table 1: U.S. Mexico border crossing sectors:

State	Border Crossing Sectors
Arizona	Yuma; Tucson
California	El Centro; San Diego
Texas	Del Rio; Laredo; El Paso; Rio Grande Valley
Aggregated: Southwest Border	All sectors combined

Table 2: Selected US-Mexico immigration enforcement and border security initiatives:

Initiatives	Description	Implemented in	Sectors Affected
Prevention Through Deterrence (PTD): Operation Blockade	initiatives/programs that increased border security: staff, equipment, and funding	1993	Del Rio; Laredo; El Paso; Rio Grande Valley
PTD: Operation Gatekeeper	initiatives/programs that increased border security: staff, equipment, and funding	1994	El Centro; San Diego
PTD: Operation Safeguard	initiatives/programs that increased border security: staff, equipment, and funding	1994-1999	Yuma; Tucson
PTD: Operation Rio Grande	initiatives/programs that increased border security: staff, equipment, and funding	1997	Del Rio; Laredo; El Paso; Rio Grande Valley
Secure Fence Act of 2006	Authorized and partially funding the construction of 700 miles of fencing/wall along the southern border	2006	All sectors
2017 Trump Executive Orders	improved immigration enforcement and border security by building and replacing old wall fencing along the southern border with new fencing; increased CBP budget;	2017	All sectors

Table 3: Variables used and their measurements:

Category	Variable	Measurement
Apprehensions	Total apprehensions: (data available for 1960-2018)	The sum of family apprehensions, unaccompanied minor apprehensions, accompanied migrant apprehensions, and single adult men and single adult women apprehensions

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	Family apprehensions	Families (either adults, children, or legal guardians) apprehended at the US-Mexico border with a family member
	Unaccompanied minors	minors under 18 years of age apprehended at the US-Mexico border traveling alone
	Accompanied minors	minors under 18 years of age
Violence	Deaths	reported deaths of migrants at the US-Mexico border who were verified or whose bodies were recovered
	Assaults	reported assaults of migrants at the US-Mexico border
	Rescues	reported rescues of migrants at the US-Mexico border who were responded to, rescued and documented.
Drugs	Marijuana	counts of marijuana that were seized at the US-Mexico border measured in pounds (lbs)
	Cocaine	cocaine of marijuana that were seized at the US-Mexico border measured in pounds (lbs)

Drug Seizure Figures:

Fig. 1

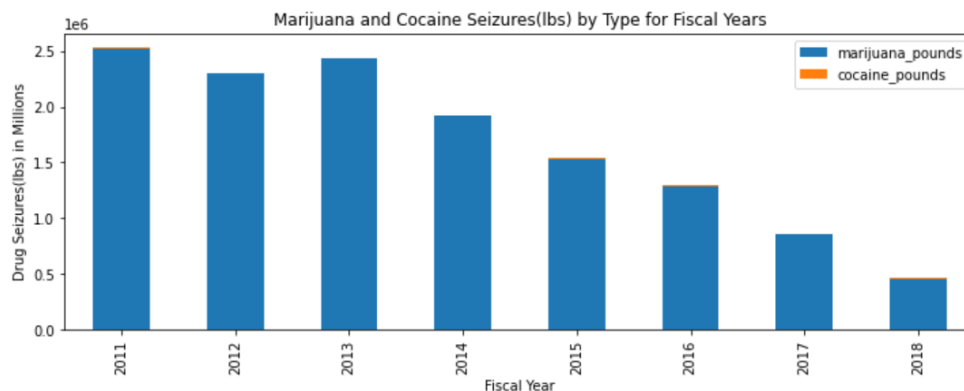


Fig. 2

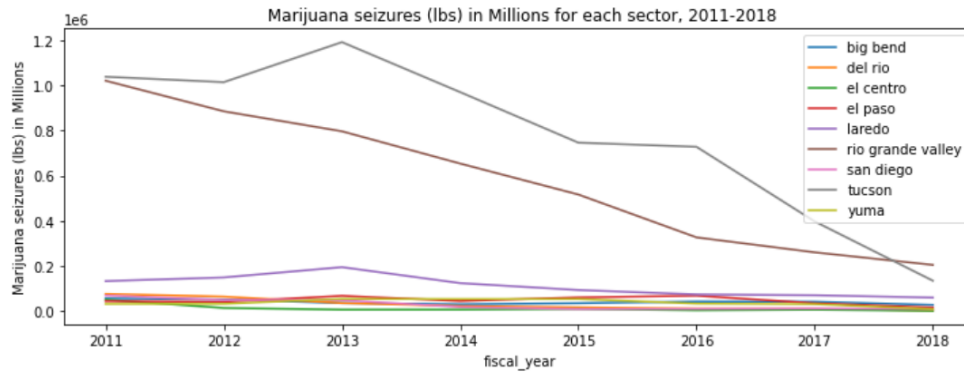
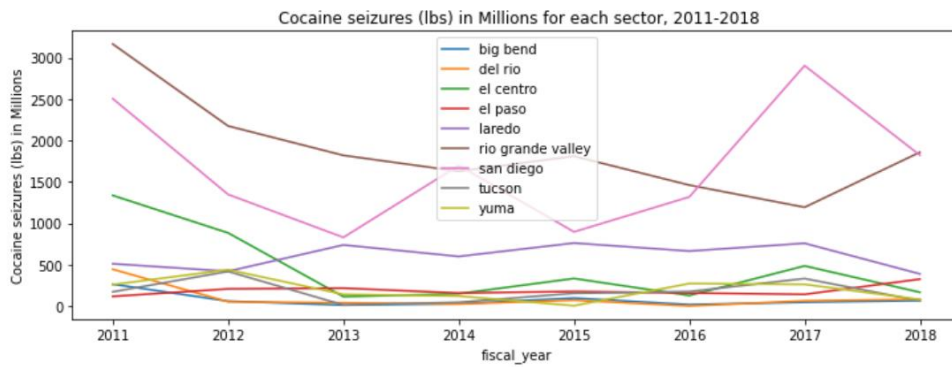


Fig. 3



Drug Seizure figure 1 shows an overall decrease in drug seizures for the southwest border per fiscal year. Drug Seizure figures 2 and 3 showing the breakdown of marijuana and cocaine seizures by sector overall fiscal years. These figures can be used as evidence showing that because drug seizures have decreased over time (and drugs have been proven to predominantly come through ports of entry in comparison to land borders), there isn't a need to allocate increasing amounts of money to the southwest border because it is not correlated with an increase in drug seizures.