The Effect of the Central America Regional Security Initiative on Violence

A Single Policy Look at the War on Drugs

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Abstract

Spearheaded by the United States Federal Government, the War on Drugs in North America has produced a variety of results, and has taken many forms, from region to region. In this paper, I analyze the effects of the Central America Regional Security Initiative, a War on Drugs policy implemented in the Northern Triangle of Central American States, on two measures of violence. These measures are provided by the United Nations Human Development Data Center, and the Strauss Center Social Conflict Analysis Database. I utilize a Difference-in-Differences regression method to discern the effects, with Nicaragua as a control. I find that the Central America Regional Security Initiative increased the homicide rate per 100,000 person-years by 8.25 persons-years, and increased the number of casualties from social conflict by 21.78 casualties-years. These results point to the Central America Regional Security Initiative's exacerbation of the violence and insecurity it intended to control. I discuss the implications of these results for similar policies.

Introduction

Led by the Federal Government of the United States, the War on Drugs is a global campaign of drug prohibition, military aid, and military intervention. Its main objective is to reduce the illegal drug trade, both in the United States and around the world. Policies implemented under the War on Drugs have intended to prevent and discourage the consumption, production, and distribution of illegal drugs. More recently, the War on Drugs has shifted to destabilizing or eliminating the organized production and distribution of illegal drugs by organized crime. This new shift has been impulsed by the growing power of organized criminal groups in the developing world, their increasing domination of the global illegal drug market, and the violence that accompanies them. The rationale is that, by destabilizing or eliminating these groups, illegal drug production and distribution, and the violence perpetrated by these groups, can be minimized. Given that these organized criminal groups are mainly in the developing world, the United States Federal Government has sought policies that increase military aid to developing countries harboring these groups, in the hope that the military and judicial forces of these countries may take on the task of destabilizing or eliminating these groups. The Central America Regional Security Initiative (CARSI) has been such a policy.

Stirred on by the growing power and violence of organized criminal groups involved in the drug trade in Central America, the United States Federal Government crafted and implemented CARSI in 2007 with the intention to assist law enforcement and security forces in Central American countries through military aid, and build the capacity of law enforcement and the justice sector in those countries, in order to reduce criminal activity and create a safe environment. Despite the efforts of CARSI, Central America remains one of the most violent and criminal regions of the world, with an apparent increase in violence and criminality following CARSI. Given this, and that a prime motivation for CARSI is the creation of a safe environment in cooperating countries, I examine the impact of CARSI on two levels of violence. The first measure, the homicide rate per 100,000 person-years, is intended to highlight the efficiency of CARSI in reducing criminal violence. The second measure, the number of casualties from social conflicts per year, is intended to highlight the efficiency of CARSI in reducing overall violence, both from the state and criminal activity. Together, both measures evaluate the efficiency of CARSI in reducing violence in general. Data for the first measure comes from the United Nations Human Development Data Center, and data for the second measure comes from the Strauss Center Social Conflict Analysis Database. To examine the effect of CARSI on these two measures, I implement a Difference-in-Differences (DoD) research design, utilizing the Central American Northern Triangle (consisting of Guatemala, Honduras, and El Salvador, which all cooperated with CARSI) as my treatment, and Nicaragua, which did not cooperate with CARSI, as my control. I find that, in fact, CARSI increased the homicide rate per 100,000 person-years by 8.246 persons-years, and increased the number of casualties from social conflict by 21.78 casualties-years. I discuss the validity of my findings, and their importance for War on Drugs policies similar to CARSI.

Literature Review

The impact of policies implemented under the War on Drugs, and those with similar characteristics, on violence has been studied in the literature. Using econometric methods, Javier Osorio analyzes the escalation and diffusion of drug violence in Mexico from 2000 to 2010. His results show that violent and nonviolent law enforcement helps intensify violence between criminal organizations, especially in areas of high criminality. Similarly, David A. Shirk analyzes drug violence in Mexico from 2001-2009, and finds an alarming increase in violence following the Merida Initiative of 2007, which began Mexico's systematic military persecution of organized criminal organizations. Finally, Gabriela Calderon Et al. implement similar difference-in-differences methods to analyze the effect of capturing organized criminal group leaders in Mexico on drug violence. They find that capturing such leaders has exacerbating and lasting effects not only on inter-criminal-group violence, but the homicide rate for the general population. The impact of these policies on

criminality, which is associated with violence, have also been studied. For example, Yassaman Saadatmand Et al. analyze the effects of the War on Drugs on crime rates through a time-series analysis of four types of crime rates in the United States. Their findings suggest that incarcerating drug offenders crowds-out prisons, releasing non-drug offenders that potentially increase rather than reduce crime.

Hence, the literature is consistent with policies similar to War on Drugs policies increasing violence directly or through an increase in crime. Particularly, there is an intensification of violence between criminal groups, and the homicide rate for the general population. This is consistent with my findings. My findings on social conflict say that the CARSI increases social conflict violence, which may include violence between criminal groups. My findings on the homicide rate say that CARSI increases the homicide rate. This increase may be done through the incarceration of criminal leaders under CARSI, or in the general increase of crime, as consistent with the literature.

Data

The United Nations Human Development Data Center is a data center run by the United Nations with the intent to measure human development in terms of the richness of human life, focusing on people and their opportunities and choices. The data on human development is sourced from independent international data agencies who collect national data on specific indicators particular to human development. National data is collected for every year from 1980 to present day, and is compiled in a yearly time series format for every human development indicator. Of concern to me is the human development indicator of the homicide rate per 100,000 person-years at a national scale, which is taken as a negative in terms of human development. This rate is calculated by dividing the total number of murders nationally in a year by the total national population of that year, and then multiplying the result by 100,000. I also take demographic data from here. In particular, I take data for the human development index (HDI), life expectancy at birth, mean schooling years, and Gross National Product (GNP) per Capita with 2017 dollars and PPP adjusted. This data will help make the case for balance between the Northern Triangle and Nicaragua.

Given that the data is sourced from independent international data agencies, and that the data is on the homicide rate, which is notoriously hard to fully capture, I expect some classical measurement error. That is, it is likely that homicides are misreported by these independent international agencies, who source their own records from national and local records, which might code homicides incorrectly due to faulty justification of what is a homicide. On that note, homicides are often under-reported, especially in developing nations with high levels of criminality, violence, weak governmental oversight, and corruption, which the Northern Triangle and Nicaragua are known to have. That is, with high criminality and violence, and with weak

governmental oversight, some homicides might not be reported at all. Furthermore, with weak governmental oversight and corruption, officials might be tempted to not report homicides in an attempt to project security and safety to secure rewards. This under-reporting of homicides constitutes systematic measurement error, and is likely to bias my estimation for the homicide rate down. The classical error is not likely to bias my estimation either way, given that the error is made in an outcome variable.

The Strauss Center Social Conflict Analysis DataBase is a data base derived from the Strauss Center at the University of Texas at Austin. The database is sourced from private and public sectors, and contains data on criminal violence, protests, riots, strikes, inter-communal conflict, government violence against civilians, and other forms of social conflict from the entirety of Africa, Mexico, Central America, and the Caribbean. The data is organized as a yearly time series covering the years from 1990 to 2017, with each social conflict indicator marked by perpetrator, duration, types of casualties, and number of casualties. To garner the scope of overall violence, I utilize a measurement of total casualties for every event in a year computed from this database. This is calculated by summing up the number of casualties from each event in a particular year.

Like the data from the United Nations Human Development Data Center, the data here is likely to suffer from similar classical and systematic measurement error. That is, the sources for casualties of social conflict events is likely muddled by what a casualty from a social conflict event is defined to be. Furthermore, like before, the high levels of criminality, violence, weak governmental oversight, and corruption present in the Northern Triangle and Nicaragua is likely to result in a systematic under-reporting of social conflict casualties. This is especially true for high levels of weak governmental oversight and corruption, given that some social conflict events include state involvement. Like before, the classical measurement error is not likely to produce any bias for my estimation (since it is in an outcome variable), but the systematic under-reporting of casualties is likely to bias my estimation downwards.

Methods

I implement a DoD research design to examine the effects of CARSI on my two measures of violence. The motivation behind the method is given by the nature of CARSI as a policy, of which the DoD research design is well equipped to examine using time series data. The DoD design requires that the policy to be examined is well associated with, or aimed at, the variables of interest, and is not generally confounded by similar policies implemented at the same time for the same or similar variables of interest. The CARSI fits the first requirement due to its direct association with, and targeting of, violence through its stated objectives, and its implementation to achieve those objectives. The second requirement is fulfilled by the CARSI's expansive

domination of similar policies. That is, most policies involving similar objectives to CARSI were essentially implemented as a part of CARSI, making CARSI an overarching policy for safety and security as a whole. Furthermore, a well specified DoD design requires that the trend of the outcome variable be not significantly different before the policy, and that the potential outcomes be not different, between treatment and control. The former is assured by the statistical significance of my estimations, but also by figures portraying the trends of my outcome variables. The figures further have the benefit of reassuring that my estimations are most likely not statistically significant by chance. The latter is highly probable given that the Northern Triangle and Nicaragua share many things in common, including demographics and culture, before and after CARSI. I check this empirically by performing a balance test for demographic measures that are likely to motivate insecurity, and hence violence and criminality in both regions.

$$Rate_i = \beta_0 + \beta_1 Treat_i + \beta_2 Post_i + \beta_3 Treat_i * Post_i + \epsilon_i \tag{1}$$

$$Casualties_i = \gamma_0 + \gamma_1 Treat_i + \gamma_2 Post_i + \gamma_3 Treat_i * Post_i + \delta_i \tag{2}$$

$$Test_i = \Gamma_0 + \Gamma_1 Treat_i + \Gamma_2 Post_i + \Gamma_3 Treat_i * Post_i + \Delta_i \tag{3}$$

Equation (1) represents the estimation model for my first measure of violence, with $Rate_i$ as the rate of homicides per 100,000 person-years, $Treat_i$ as a dummy variable recording if an observation is in the Northern Triangle or Nicaragua, $Post_i$ as another dummy variable recording if an observation is in/after 2007 or before 2007, and ϵ_i as an error term. The estimation of interest is β_3, which is attached to the interaction term $Treat_i * Post_i$, and is the estimated effect of the CARSI on the homicide rate per 100,000 person-years. Equation (2) represents the estimation model for my second measure of violence, with $Casualties_i$ as the total number of casualties from social conflicts in a year, $Treat_i$ and $Post_i$ as before, and δ_i as an error term. The estimate of interest here is γ_3, which is similarly attached to the interaction term, and is the estimated effect of the CARSI on the total number of casualties from social conflict events per year. Note that both $Rate_i$ and $Casualties_i$ for the Northern Triangle are taken as the simple average of the same corresponding variables for the individual countries of Honduras, Guatemala, and El Salvador, which together make up the Northern Triangle. This is done to better encapsulate the entirety of the CARSI effect on my measures of violence, given that CARSI was simultaneously implemented in these countries. This method is further justified by observing that the Northern Triangle countries are vastly similar in many ways, and so the simple average of those measurements may stand for an "average" Northern Triangle country. Both $Rate_i$ and $Casualties_i$ are taken as just the individual observations for the valid control of Nicaragua, with no average involved. Hence, given that each country in the Northern Triangle, Nicaragua, and essentially every

other Central American country is very similar, the estimations derived from equations (1) and (2) can be taken as the CARSI effect on my measures of violence for an "average" Central American country. Equation (3) represents an empirical balance check, where $Test_i$ is a demographic variable, Δ_i an error term, and the rest as before. The estimates of interest here are Γ_1 and Γ_3. The former will show if the demographic variable between both regions is significantly different, and the latter will show if CARSI has an impact on the demographic variable. For balance, it is ideal that both estimates of interest are not statistically significant, however trend analysis, via the computation of figures for each demographic variable, will also resolve whether potential outcomes differ between both regions.

I compute both equations (1-3) with robust standard errors. The motivation behind the usage of robust standard errors for equations (1-2) lies in the intuition that both the homicide rate per 100,000 person years, and the total number of casualties from social conflicts per year, are heteroscedastic. That is, I expect both $Rate_i$ and $Casualties_i$ to vary in distribution year by year due to naturally occurring fluctuations in violence, and the randomness of social conflict events. The motivation for equation (3) is less intense, since I expect the demographic variables which I observe to be relatively homoscedastic. However, to be more certain in my estimates, I compute robust standard errors anyway.

Results

Table 1 presents the estimates for running equation (3) on the demographic variables presented in the table. The motivation behind these variables lies in their theoretical and empirical importance for security, and hence crime and violence. Observing the estimates of interest (Treat, Treat*Post), and Figures 1 and 2, it is

Table 1: Regression Results

	Dependent variable:			
	HDI	Life Expectancy	Mean Schooling Years	GNP per Capita
	(1)	(2)	(3)	(4)
Treat	0.004	−0.389	−0.706***	1,865.417***
	(0.009)	(0.510)	(0.130)	(123.591)
Post	0.064***	3.571***	1.230***	1,322.827***
	(0.008)	(0.451)	(0.140)	(171.257)
Treat*Post	−0.006	0.048	0.303	−226.801
	(0.011)	(0.630)	(0.242)	(209.115)
Constant	0.574***	69.575***	5.108***	3,739.250***
	(0.007)	(0.378)	(0.088)	(106.331)
P-Values as Stars:				*p<0.1; **p<0.05; ***p<0.01
Note:				Std. Errors in Parentheses

easy to see that the CARSI does not impact any of these demographics. This is reassuring, given that these demographics are associated with crime and violence, hence implying that my results for the CARSI effect on my measures of violence are most likely motivated by CARSI. Table 1 shows that only Mean Schooling Years and GNP per Capita are significantly different between the Northern Triangle and Nicaragua. This might be concerning, if the regions did not switch places for either demographic. That is, observing Figure 2, it can be seen that, although the northern triangle consistently has a higher GNP, Nicaragua consistently has higher average schooling years. It might be expected that these two, in terms of their association with crime and violence, offset each-other, leaving balance. Furthermore, it is important to note that the trend of either demographic in one region essentially mirrors that of the other region. This is also the case in Figure 1. If doubt is still present, note that the culture, institutions, society, etc. of both regions is very similar; there is just no empirical measurement of them. And, that the HDI, arguably the best measurement of overall human security and development, is essentially the same for both regions. Hence, given the results here, in general I expect balance between the regions, and hence similar potential outcomes. With this, I can proceed to the estimation of the effect of CARSI on my measures of violence, and be relatively certain that CARSI is the one motivating my estimates.

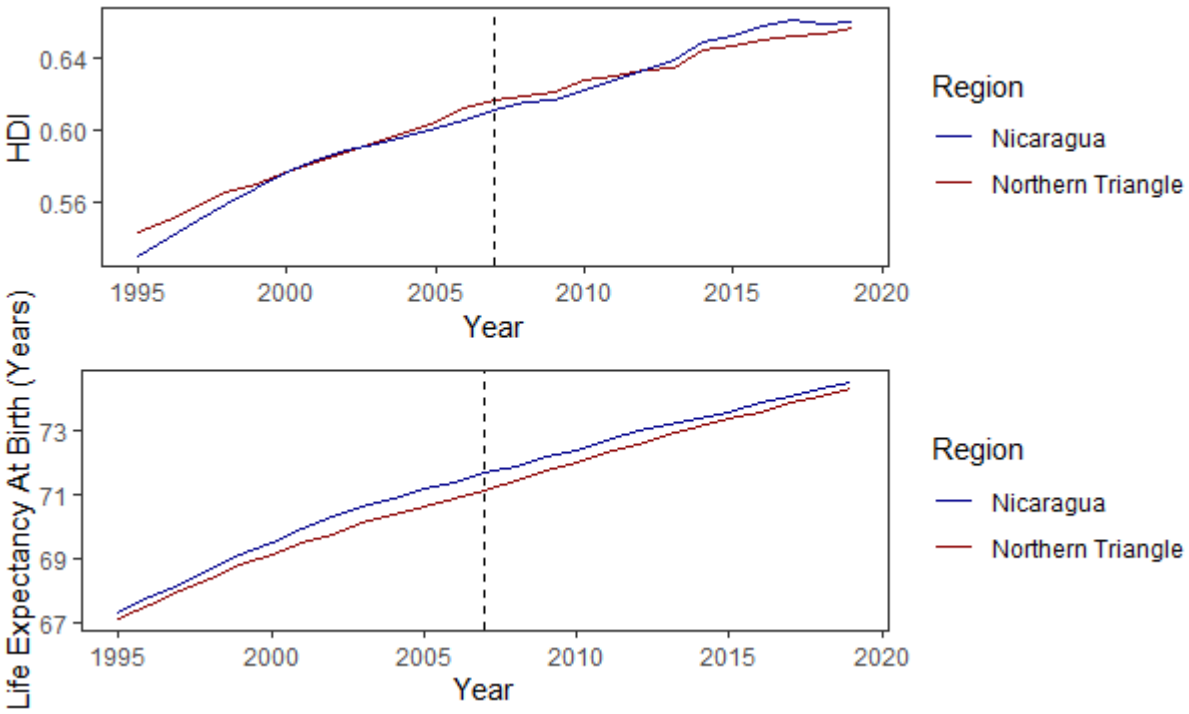

Figure 1: Trend Check for HDI and Life Expectancy

Compiling the results of equations (1) and (2) in Table 1, observe a statistically significant estimate at the 99.99 percent confidence level for the CARSI effect on the homicide rate per 100,000 person-years, and a

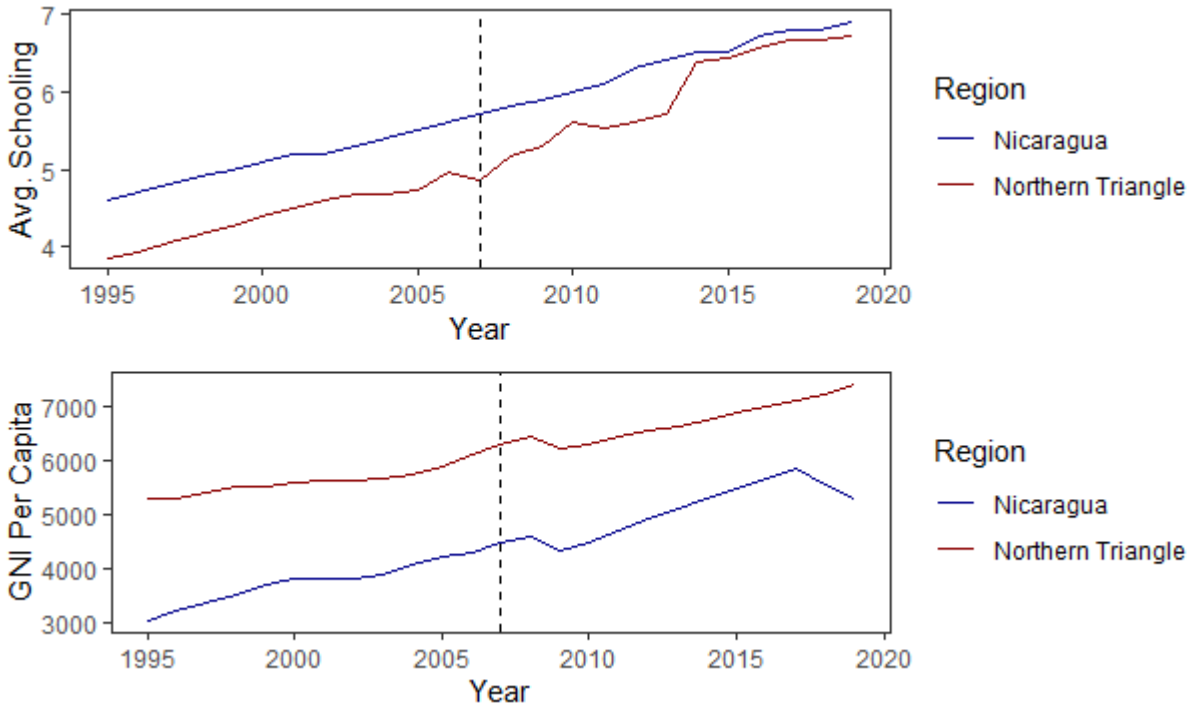

Figure 2: Trend Check for Mean Schooling Years and GNP per Capita

similar statistically significant estimate at the 99.99 percent confidence level for the CARSI effect on the total number of casualties from social conflicts per year. In particular, my estimate of interest for the homicide rate in Table 1 says that CARSI *increased* the homicide rate per 100,000 person years by 7.584 person-years, with a robust standard error of 2.316 person-years. Next, the estimate of interest for the total number of casualties from social conflict events in Table 1 says that CARSI similarly *increased* the total number of casualties from social conflict events by 40.923 casualties-years, with a robust standard error of 14.243 casualties-years. Two caveats immediately follow these results: As noted before, both the homicide rate and the total number of casualties from social conflict events are likely to be systematically under-reported by both countries in the Northern Triangle, and in Nicaragua. Given this, it is likely that the estimates of the CARSI effect on my measures of violence presented in Table 1 are likely lower than the true CARSI effect. That is, it is likely that CARSI *increased* both the homicide rate and casualties by even more. The second immediate caveat is that it is not entirely certain if the estimates are by chance, especially since my estimate on *Casualties* is a bit noisy, with a robust standard error of 14.243 casualties-years. This is not really a problem for my estimate on *Rate*, given its relatively low robust standard error of 2.316 person-years. To analyze the concern over my *Casualties* estimate, and to further gain confidence in my estimate for *Rate*, it is necessary to visually confirm that CARSI is most likely motivating the statistical significance of these estimates.

Table 2: First Regression Results

	Dependent variable:	
	Rate	Casualties
	(1)	(2)
Treat	35.391***	10.222***
	(1.088)	(3.180)
Post	0.386	0.217
	(0.773)	(2.650)
Treat*Post	7.584***	40.993***
	(2.316)	(14.243)
Constant	11.526***	6.083***
	(0.453)	(1.839)
P-Values as Stars:	*p<0.1; **p<0.05; ***p<0.01	
Note:	Std. Errors in Parentheses	

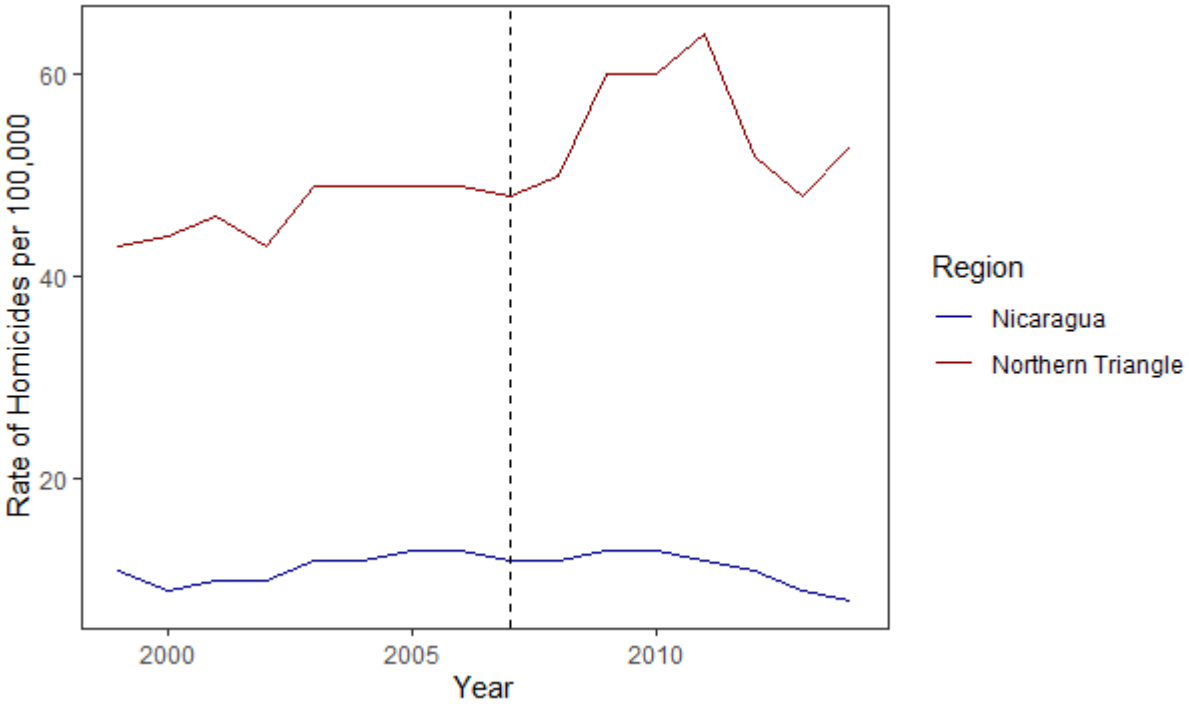

Figure 3: Yearly Trend of the Homicide Rate per 100,000 persons

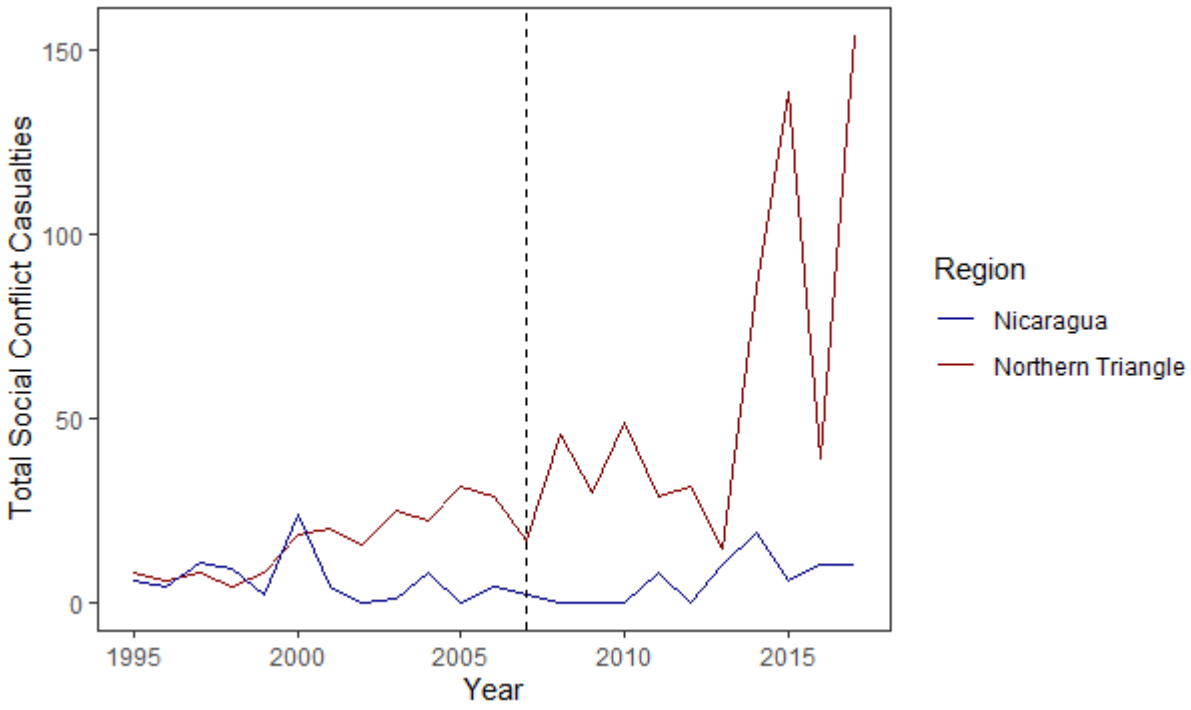

Figure 4: Yearly Trend of the Total Number of Casualties from Social Conflict Events

Figure 1 shows the yearly trend of the homicide rate per 100,000 persons from the year 1999 to 2017. Analyzing the figure, it is easy to see that the trend of the homicide rate prior to 2007, the year in which CARSI was officially implemented (shown by the dotted line), is not significantly different between Nicaragua and the Northern Triangle. That is, although the Northern Triangle maintains a consistently higher homicide rate than Nicaragua, the actual trend of the rate, as in its direction, remains relatively the same for both regions prior to 2007. Now, it is important to note that CARSI was officially implemented in 2007, although a bit late in the year, in September; and, the homicide rate for a particular year is calculated using the homicides occurring in that year. With this in mind, it is easy to note that the trend for the Northern Triangle present prior to 2007 departs starting 2008, and is significantly greater from the years 2009-2011. Comparatively, the trend remained the same for Nicaragua during these years. This suggests that the homicide rate increased significantly for four years of CARSI policy. The trend for the Northern Triangle begins to emulate that of Nicaragua after the year 2011, suggesting the CARSI only increased the homicide rate from 2008-2011, or, in other words, in the short-run. The results of the figure further reassures that the statistical significance for the *Rate* estimate is for now likely not due to chance.

Figure 2 shows the yearly trend of the total number of casualties from social conflict events. Compared to the figure for the homicide rate, the trend prior to 2007 is a lot more sporadic. For example, note that the trend for the Northern Triangle departs from the years 1999-2002, but mimics the Nicaraguan trend, albeit

at now higher values, from the years 2003-2007. What is important is that the trend between both regions was relatively the same in the immediate years prior to 2007, which is generally seen in Figure 2. Now, it can be noted that the trend for the Northern Triangle departs significantly from the years 2008-2010. This is similar in time frame for the departure noted in Figure 1. The trend for the Northern Triangle begins to emulate that of Nicaragua from the years 2011-2013 (which stays relatively the same throughout), but then departs significantly from the years 2014-2017. This latter departure cannot be taken with confidence as the effect of CARSI, given its time distance away from the initial implementation, and the opposite trend direction is noted for Figure 1. Then, from the results of Figure 2, I note that the total number of casualties from social conflict events increased for three full years of CARSI. This prompts me to believe that the estimation on *Casualties* is for now most likely not due to chance.

Now, it is important to note that, although the original estimates for both *Rate* and *Casualties* are likely not due to chance, Figures 1 and 2 show that these estimates may also be driven by including observations that are far from 2007, and are not likely motivated by CARSI. That is, in both figures, the apparent effect of CARSI seems to dissipate at or past 2011, hence removing the observations of these years from the regressions might produce better estimates. Table 2, which contains such estimates with observations only prior to the year 2011, shows that this is in fact the case for *Casualties*.

Table 3: Second Regression Results

	Dependent variable:	
	Rate	Casualties
	(1)	(2)
Treat	35.391***	10.222***
	(1.088)	(3.180)
Post	1.614***	−4.083
	(0.509)	(2.526)
Treat*Post	8.246***	21.778***
	(2.912)	(6.364)
Constant	11.526***	6.083***
	(0.453)	(1.839)
P-Values as Stars:	*p<0.1; **p<0.05; ***p<0.01	
Note:	Std. Errors in Parentheses	

Table 2 says that CARSI increased the total number of casualties from social conflict events per year by 21.778 casualties-years, with a robust standard error of 6.364 casualties-years, and with statistical significance at the 99.99 percent confidence level. The estimate for *Casualties* here is more statistically significant in Table 1 (compare a t-stat of $21.778/6.364 = 3.42$ here versus a t-stat of $40.993/14.243 = 2.878$ from Table 2) than the estimate in Table 2, and is much less variant, as given by comparing standard errors. Intuitively this

makes sense, since removing the large outliers of later years, which are most likely not immediately due to the CARSI, has the benefit of better pinpointing the true effect of the CARSI on *Casualties*. Comparatively, Table 2 shows an estimated increase in the homicide rate per 100,000 person years of 8.246 person-years, with a robust standard error of 2.912 person-years. This estimate is statistically significant at the 99.99 confidence level, just like the estimate in Table 1, however, computing the t-stats of each estimate, and observing the standard errors of each, yields this estimate less statistically significant than the previous (t-stat of $8.246/2.912 = 2.832$ here versus t-stat of $7.584/2.316 = 3.275$ from Table 1). It is interesting to note that the estimate in Table 1 was lower *and* more statistically significant, implying that either the reduction in the homicide rate in later years is due to the CARSI, or that the increase in the homicide rate immediately following the CARSI has less to do with the CARSI (i.e. there might be omitted variables here). Whatever the case, the difference in magnitude and statistical significance between both estimates is not great, and I take the estimate without the years after 2011 as the best estimate. The main motivation is that, given the results of Figure 1 and 2, I am more concerned with capturing the immediate effect of the CARSI, given that later years *might* be due to the CARSI, or might be due to other policies implemented in those later years. With this same motivation, and the greater statistical significance in Table 2, I similarly take the estimate for *Casualties* in Table 2 to be its best estimate . Finally, again from the results of Figures 1 and 2, I am confident that these estimates are most likely not due to chance.

Conclusion

CARSI is a drug war policy that, among other matters, is concerned with reducing violence and creating a safe environment. With that intention, an ideal CARSI effect would reduce my measures of violence, not increase them. But that is not the case. From the results of Figures 1 and 2, and Tables 1 and 2, I claim that the CARSI increased the homicide rate per 100,000 person-years by 8.246 person-years, give or take 2.912 person-years; and, increased the total number of casualties from social conflict events per year by 21.778 person-years, give or take 6.364 casualties-years. These findings are consistent with similar studies of anti-drug/War on Drugs policies in the literature.

I have already discussed that my final results likely suffer from systematic measurement error. The motivation is that the homicide rate, and the total number of casualties from social conflict events, are likely to be systematically under-reported, hence biasing my estimates downward. Then, both estimates are likely lower than the actual CARSI effect, *if* I assume that CARSI does not in fact improve the reporting of the homicide rate and the total number of casualties from social conflict events. That is, without this assumption, it is quite likely that the spikes after 2007 that are sees in Figures 1 and 2, and my positive

estimates, are in fact capturing an increase in reporting my two measures of violence due to CARSI. This is unlikely to hold for the total number of casualties from social conflicts per year. This is because, observing the raw data, the number of casualties on most years is mainly driven by a small number of high casualty events in each country, and not many low casualty events. That is, if the CARSI improved reporting of casualties, then more low casualty events should be reported; and, even if the CARSI improved reporting, the casualties of high casualty events need not be impacted, given that the Strauss Center derives this data from independent sources, who thoroughly investigate high casualty events either way. On a different note, the independent sources of the United Nations Human Development Data Center are more likely to be impacted if the CARSI does in fact improve the reporting of homicides, given that their sources are national. Whatever the case, it is important to note that the homicide rate begins to return to its original trend after four years of the CARSI, implying that, for the years after 2011, either the CARSI improved the reporting of homicides and homicides actually decreased; or, that the CARSI did not improve the reporting of homicides, and the homicide rate actually decreased; or, CARSI increased reporting by a little, and the rate actually decreased. Given the parallel movements of Figures 1 and 2, and the fact that CARSI is also concerned with improving the judicial capabilities of a country, I assume the third proposition. Then, in my final estimates, I assume that, even though the CARSI *might* have improved reporting of especially the homicide rate, my estimates are still representative of the positive CARSI effect on these measures, although biased downward.

Then, my estimates point to the contradictory results of CARSI. That is, although CARSI was implemented to increase safety and security, my estimates show that CARSI in fact *increased* two important measures of violence, and hence insecurity in general, for the "average" Central American country. This has important implications for War on Drugs policies implemented in developing countries that are similar to countries in Central America. That is, countries suffering from high levels of criminality, violence, insecurity, impoverishment, weak governmental oversight, and corruption are likely to see an increase in violence for implementing policies similar to CARSI. For example, I see that this is the case for Mexico in the literature, which has experienced a major increase in violence (and specifically for my measures of violence) since cooperating with the United States' Merida Initiative under the War on Drugs, and through its own anti-drug policies, which are all very similar to CARSI. My estimates do not have external validity beyond countries that are not similar to Central America, hence I may take my estimates as biased local average treatment effects. Further studies are required to better pinpoint the average treatment effects of these types of policies in countries in general. Similarly, further studies should better account for the systematic under-reporting, and the potential improvement in reporting, of my two measures of violence in regions similar to Central America. Whatever the case, my estimates here still point to the CARSI, and anti-drug/War on Drugs policies similar to it, increasing violence in countries similar to Central American countries.

References

1. Calderon. “The Beheading of Criminal Organizations and the Dynamics of Violence in Mexico.” The journal of conflict resolution 59.8 (2015): 1455–1485. Web.

2. Osorio, Javier. “The Contagion of Drug Violence: Spatiotemporal Dynamics of the Mexican War on Drugs.” The Journal of conflict resolution 59.8 (2015): 1403–1432. Web.

3. Saadatmand. “The War On Drugs And Crime Rates.” Journal of business 10.5 (2012): 285–290. Web.

4. Salehyan, Idean, Cullen S. Hendrix, Jesse Hamner, Christina Case, Christopher Linebarger, Emily Stull, and Jennifer Williams. ”Social conflict in Latin America: A new database.” International Interactions 38, no. 4 (2012): 503-511.

5. Shirk. “Drug Violence in Mexico: Data and Analysis from 2001–2009.” Trends in organized crime 13.2/3 (2010): 167–174. Web.

6. UNDP (United Nations Human Development Data Center) (2020). https://hdr.undp.org. Accessed 10 December 2021.