Regional differences in the impact of the "Stand Your Ground" law in Florida

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ABSTRACT

In October 2005, Florida relaxed restrictions on the use of lethal force in self-defense with the Florida stand your ground law (SYG). We examined whether and how the impact of the Florida SYG varied based on the demographic and economic conditions of each of its counties. Using data from the Florida Universal Crime Reports on homicides and firearm homicides from 1999 to 2014, we found that the impact differed significantly by county urbanization, unemployment, and pre-law homicide rates. The largest increases in homicide and firearm homicide occurred in proportionally safer, richer, and less ethnically diverse suburban counties. These findings reveal that the law may have had the opposite effect than intended, and more strongly impacted counties considered safe, suburban and economically successful.

1. Introduction

Firearm use is one of the leading causes of preventable death in the United States, with over 33,000 deaths per year (*CDC National Vital Statistics Report Volume 65, Number 4, 2016*). The state of Florida is no exception, where 767 out of 1040 homicides were due to a firearm in 2015 (Florida Department of Law Enforcement, 2017). While the overall homicide rate in the U.S. is declining, Florida experienced a 24.7% increase in homicides and a 31.6% increase in firearm homicides since the beginning of 2006. Evidence suggests that these increases may be attributed to the introduction of the controversial "stand your ground" (SYG) law in October 2005 (Humphreys et al., 2017a, b). This expansion of self-defense laws in Florida relaxed restrictions on the use of lethal force in self-defense, removing the "duty to retreat" principle, thereby allowing citizens the right to use lethal force in self-defense in situations – both at home and in public – where an individual perceives a threat of experiencing harm (Russell-Brown, 2015; Catalfamo, 2007).

Since 2005, many states followed Florida's example, passing amendments expanding rights to use lethal force and produce what are referred to as "SYG" or "shoot first" laws. To date, 23 states have SYG statutes and nine states have principles protecting individuals from prosecution embedded within their case law (American Bar Association National Task Force on Stand Your Ground Laws, 2015). Despite the rapid expansion of these laws throughout the U.S., there is considerable debate about their potential impact on public health. It can be argued that by increasing the potential costs—through lawful retaliatory violence – would-be criminals will be deterred from committing predatory crimes. Alternatively, there is the concern that weakening the punitive consequences of lethal force may serve to escalate aggressive encounters by creating a "shoot first" culture (NYC Statement, 2013). In other words, residents may mis-interpret the SYG laws protection and resort to gun violence in situations that are still not protected under the law.

With several studies having now evaluated the impact of these laws in different states using different estimation strategies, there is emerging evidence that such laws may be associated with increases in homicides without having any notable protective effects on other predatory crimes (Humphreys et al., 2017a; Ren et al., 2015; Chamlin, 2014; McClellan and Tekin, 2016; Cheng and Hoekstra, 2013; Gius, 2016). For example, Cheng and Hoekstra (2013) and McClellan and Tekin (2016) analyzed the impact of all nationwide SYG laws utilizing a difference-in-differences (DD) estimation strategy and found that the law increases homicides by about 8% or 35 people a month. The closest to our study, Humphreys et al. (2017a) analyzed the impact of the SYG law in Florida by performing a pre-post comparison as well as estimating DD models and found comprehensive evidence that the law increased firearm homicides by 32%.

Despite the growing evidence that SYG laws may be harmful to health and safety, we know little about which communities may be most heavily impacted (Humphreys et al., 2017a). One way to gain insight is to explore whether a SYG law affected communities in a state uniformly, or differently impacted certain subpopulations or particular geographic areas in a state. That the impact may be heterogeneous across counties in a state is conceivable because of regional variation in

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economic conditions, and the well-documented relationship between economic conditions and crime (Rosenfeld and Fornango, 2007). To date only Munasib et al. (2018) have evaluated the impact of SYG laws based on the degree of urbanization, which found that the law increased gun deaths in more urban areas. It is also possible that counties where crime is most frequent may experience larger increases in homicide after the enactment of a SYG law because the new self-defense rights extended to citizens may create a false sense of safety and lawfulness of residents use of guns in public places. Another possibility is that crime in urban counties may decrease due to an increased risk of death perceived by perpetrators in an area that is already associated with increased levels of crime (Munasib et al., 2018) (Rosenfeld and Fornango, 2007; Guettabi and Munasib, 2017). Investigations designed to assess regional or area-level variability in violence can yield important new insights to understand the impact of government policies (Branas et al., 2004).

We contribute to the literature by building upon recent findings that the SYG law in Florida led to an abrupt increase in homicide and firearm homicide and evaluate whether the impact of the Florida SYG varied across counties geographic and demographic charateristics (Humphreys et al., 2017a). Florida is unique given the continuing migration and urbanization of the state, thereby creating a unique combination of very rural and highly urbanized counties. Additionally, we contribute by relying on Florida's Uniform Crime Reporting (UCR) information that provides location of incident data rather than a victim's place of residence.

2. Data

Our primary data source was the Florida Department of Law Enforcement Universal Crime Report, from which we extracted annual data on homicide (in total and for firearm homicides) for each Florida county from 1999 to 2014. The benefits of these data are that they are available by county of incidence rather than place of death, allowing a more accurate reflection of the geographic occurrence of homicide by county. Also, the data contain population information, which allowed us to generate a standardized county homicide rate per 100,000 residents. In terms of data quality, homicides are defined as the killing of one human by another, or through gross negligence. Non-firearm homicides include the use of a knife or sharp instruments, physical force, vehicle or other causes that lead to death. While some data may be misreported across time there is no reason to suspect that reporting of homicides and firearm homicides changed as part of the SYG law.

We investigate the differential impact of the law on homicides stratifying the sample based on three different variables – the county's urbanization, the pre-existing unemployment rate, and the pre-existing level of homicides within a county. To understand the level of urbanization at the time the SYG law was enacted, we classified each county into the urban-rural continuum based on the 2006 six-level National Center for Health Statistics (NCHS) classifications – large central metro, large fringe metro, medium metro, small metro, micropolitan (nonmetropolitan), noncore (nonmetropolitan). Doing so allowed us to define each county's urbanization status at the time the SYG law was enacted, and to explore how the law may have differentially affected homicides by rural-urban classification. For each county we also determined the economic conditions prior to the enactment of the SYG law in 2005 as measured by their annual 2005 unemployment rate collected by the Bureau of Labor Statistics.

To create a measure representing the level of homicide in a given county before the SYG law was enacted, we calculated the average homicide rate of each country over the period 2002 through 2005. With this measure we aimed to capture and classify counties by their relative exposure to homicides at the time of the law and which may also capture residents' perceptions of fear of crime (potential level of danger) within their county. Therefore, this measure should reflect how residents may have differently responded in future encounters given

that they may have been living in an area with a relatively low or a relatively high frequency of homicides. Given that annual county homicide rates can fluctuate significantly over time in a given county, we use a three-year average to better capture the overall level of homicide occurrences within a county around the time of the passage of the law. Nevertheless, we also performed the analyses with the two-year average (2004–2005) and 2005 alone and reached similar empirical conclusions.

Finally, we collected demographic information for each county from the 2000 centennial census from the Census Bureau to approximate the socio economic composition of each county—the percent of the population being white, the percent of population 18–64 years of age, the percent of the population with a child and a female head of household (HH), the county median income, the percent of families living under the poverty limit, and the percent of population with less than a high school degree— along the three dimensions (rural-urban continuum, unemployment rates, and average 2002–2005 homicide rate). These data were only available for each Florida county in the 2000 census and therefore describe the counties at a time somewhat earlier to the SYG law. However, most counties do not change drastically in their demographic composition in only a handful of years, and these data should therefore provide a good representation in terms of county demographic composition at the time of the SYG law.

3. Methods

Florida, with 19.41 million residents and a land area of roughly 60,000 mile^2, consists of 67 counties that vary in terms of population size, demographic characteristics, economic development, crime rate, and in urbanicity (State of Florida, 2017). We analyzed homicide rates in counties of Florida to evaluate whether introducing the SYG law in Florida in 2005 had a uniform or varied impact across Florida counties based on county demographic characteristics.

3.1. Analysis

We employed an interrupted time series (ITS) design to compare annual rates of homicide in Florida before and after the 2005 SYG law came into effect. The ITS design works well for this purpose given its ability to capture a discrete shift and a trend change after the onset of an implementation of intervention (Shadish et al., 2002; McDowall et al., 1980; McCleary et al., 1980). The effect is estimated based on the change relative to the preexisting trend before the intervention, and therefore the pre intervention trend serves as a counterfactual trend for the post intervention period (Bernal et al., 2017). This approach is widely used to identify treatment effects in cases where the full population is exposed to the treatment.

We tested the sensitivity of the ITS results by comparing the estimates to those derived from a separate ITS analysis of state homicide rates in comparison states that did not pass a SYG law If the comparison states show similar patterns in homicide and homicide by firearm, then it may be rational to assume that the estimated intervention effect in Florida was not attributable to the SYG law. Similarly, we also performed analyses that limit the post SYG period to the time before 2008 to verify that our results are not driven by the economic turmoil. We also combined the Florida and comparison state data and estimated a difference in differences model to directly control for potential national impacts that would also occur in the comparison states (Dimick and Ryan, 2014). In this model we include state fixed effects to isolate the within state impact of the SYG law across time.

We estimated Poisson models to analyze the trends in the pre-intervention relative to the post intervention period. The general form of the ITS model and difference in differences models are shown here:

$$y_{ct} = \beta_0 + \beta_1 law_{ct} + \beta_2 law_{ct} * year_t + \beta_3 Population_{ct} + \beta_4 year_t + \theta_c + \epsilon_{ct}$$

The outcome variable y_{ct} is the homicide count in county c in year t,