First, for our reports on violence, we rely on victim-based reports from the Chicago Police Department's online data portal. Each report of a crime contains an Illinois Uniform Reporting code (IUCR) classifying the crime, a date, and a latitude and longitude for each event. We subset the data to focus solely on homicides and gun crime, including first-degree murder, second-degree murder and aggravated battery involving use of a hand-gun or firearm. In data spanning from January 1st, TKTK to December 31st TKTK, there are such \textbf{FILL IN} instances of violence. Violence does not follow a uniform spatial distribution as can be seen in the figure below. \textbf{Figure of violence in Chicago about here}. As is typical in such administrative data, there is no information available about whether individual crimes were committed by gang-members.

\footnote{ We choose to use victim-based crime reports because they provide the best coverage. When dealing with victim-based crime-reporting, the primary concern is that crimes go under-reported. While under-reporting is likely to be a concern in any dataset on crime, there are two concerns which aggravate the bias in our data. First, the crimes we are interested in are those committed by one criminal organization against another, thereby reducing the probability of reporting. Second is the fact that gangs often exist in areas where members of that racial minority comprise the majority (Bruhn 2019). It is well documented that racial minorities in the US have relatively lower levels of trust in police which is likely to translate to under-reporting of crimes (Desmond et al 2016). Though other measures of violence do ot suffer these short-comings (Carr and Doleac 2018, Carr and Doleac 2016), they are available only for narrow time windows.}

To generate our ``districts" we use the division of Chicago into tracts by the US American Community Survey. Census tracts are the second smallest statistical unit, containing approximately 4,000 people and 1,600 housing units.\footnote{Definition taken from the census glossary.} There are TKTK census tracts in Chicago. We aggregate our data by month, so that each individual observation is a count of the amount of violence in a given census tract for a given week. Our data covers Chicago in the years TKTK-TKTK in order to mirror @Bruhn with whom we cross-validate our results. Because census tracts have minor changes from year to year, we fix our districts as they were in 2016. In our sample period, there were an average of TKTK gangs operating in Chicago in any given year.

Discuss changes in gang turf – how frequent, etc. We aggregate over these for purposes of validation. Also, how do we assign tracts to gangs. (subset to 6 major, assign tract to largest gang if any gang occupies at least 10% of tract)

How do we think about static/dynamic? Bootstrap iterations give us measure of uncertainty, reader can interpret these as fraction of time a tract was occupied by a given gang.

INSERT CPD GANG MAP

The problem with the use of census tracts as an exogenously generated district is that it does not conform with the building blocks used by gangs to construct territories. Anecdotal evidence suggests that gangs fight for and control of blocks (Levitt and Venkatesh 2000). Census tracts aggregate multiple blocks into a single geographic unit. This creates two issues. First, it is possible that a gang’s territory is assigned to a tract that contains peaceful areas, i.e. those uninhabited by gangs. Because peaceful areas are assumed not to produce violence in any systematic way, the census tract to the appropriate gang. However, our method will mistakenly assign the ``peaceful" areas to the gang as well. Conversely if the amount of territory owned by a gang in the tract is small, then it is possible that its territory will be designated a ``peaceful" tract. Second, it is possible that a tract may comprise territory owned by two gangs. In this case, not only will territory necessarily be distributed incorrectly, it is possible that the algorithm will be unlikely to distinguish between the two gangs. This is more likely to occur for the smallest gangs given the very fractured territorial distribution of gangs in Chicago (Bruhn 2019).

Two important features of gangs are captured by the model but are not explicitly incorporated into the data-generating process. First, gangs in Chicago are loosely organized in two alliances: the “Folk” and “People” Nations. Our data does not incorporate assumptions as two whether two gangs are allied or not, though this is captured by measures of the conflict intensities. Our measure provides supporting/contradictory evidence as to the effects of these alliances. The Black P. Stones, Vice Lords, and Latin Kings, members of the People Nation were more/just as/less likely to fight with one another as they were with the Gangster Disciples, members of the Folk Nation. Second, gangs are often racially homogenous, and control minority-majority areas. Moreover, most inter-gang conflict is intra-racial. Our estimation procedure, which relies on distinguishing patterns in the data on violence replicates this finding. The three gangs which we recover have an African American identity and are most likely to war with each other and had their highest conflict intensities with one another. The Latin Kings, the largest Latino gang, was the next most likely to be recovered per our estimation procedure, but less reliably so. The figure below shows shows the distribution of racial minorities in Chicago.

INSERT GANG TURF AREA HISTOGRAM

INSERT ETHNIC MAP