

Engineering Calculations – EGR 120

By Jack Robert Urso

Mid-term Project

North Central College

Spring 2019 (DUE: April 25)

Table of Contents:

i. Executive Summary.....	3
ii. Written Evaluation.....	4-8
a. Factor 1: History (4)	
b. Factor 2: Weapons & Ammo (5)	
c. Factor 3: Heat (6)	
d. Factor 4: Education (7)	
e. Factor 5: Gangs (8)	
iii. References.....	9
a. Works Cited	

Executive Summary:

According to an article written by Ann Givens for *The Trace*, “the fatal shooting rate in Chicago was five times as high as it was in New York: 15.6 per 100,000 residents compared to 2.8 per 100,000.” This report was looking at Chicago homicides in 2015; however, since this report, the gun violence in Chicago has been increasing dramatically. Even President Trump has gotten involved, he tweeted that the city’s murder rate is “record setting.” Most of this crime is carried out by young men living in high-violence neighborhoods, and this problem has negatively impacted black Americans living in these areas. A large percentage of the crime is committed by black men between the ages of 18 and 26, and they also fall victim to these crimes of violence. After researching these shocking statistics about gun violence in Chicago, I wanted to write a lab report responding to certain data that I found on the internet. I will be looking at how the following influencing factors have spiked the gun violence in Chicago: history of the homicide rate in Chicago, the increase in higher caliber weapons, the rise in crime during the warmest days of the year, the decrease in graduation rates in inner-city schools, and the increase in the number of gangs.

Written Evaluation:

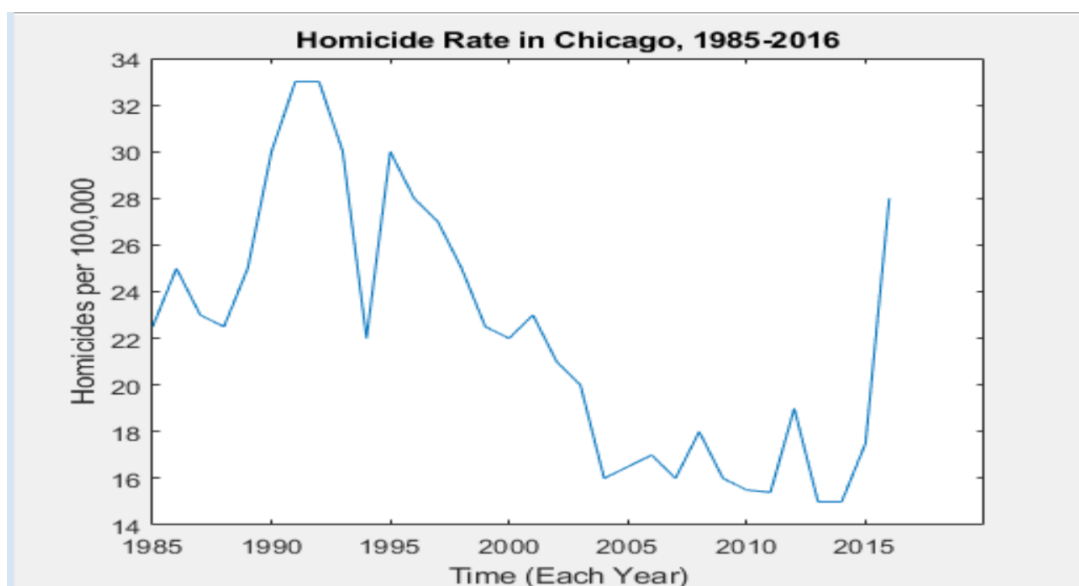
➤ History:

Since the beginning of time, humans have been killing each other and this dark trend continues today within some Chicago neighborhoods like Englewood and West Garfield Park. People have killed each other over drugs, disputes, and territory. This report will cover the period between 1985 and 2019. During this timeline, the homicide rate in Chicago has experienced great fluctuations. There are many reasons why the homicide rate dramatically changed throughout the years, but there are a few specific factors that played a significant role.

During the crack cocaine epidemic, between the late 80s and early 90s, violent crimes and murders skyrocketed. In 1992, the homicide rate reached its peak with 943 people killed in Chicago. This epidemic finally ended in the mid-90s due to a variety of events that took place. To combat the epidemic, mass incarceration happened, which decreased the amount of crime significantly. Many of the prisoners were locked up because the number of police officers increased, and they enforced stricter laws. In addition, there was also an economic boom during the 90s, bringing more jobs to the public.

For the next 20 years, the homicide rate decreased and then remained consistent. But in 2015, the homicide rate started to increase again. In 2016, the homicide rate increased by 58 percent compared to the previous year. The majority of these murder victims are young black men. Chicago has received worldwide attention surrounding the issue of gun violence and skyrocketing murder rates.

The graph was taken from a set of data in an article by Ryan Marx for the *Chicago Tribune*, and it shows the homicide rate in Chicago from 1985 to 2016. This graph's behavior illustrates the data mentioned above. As you can see, the crack cocaine epidemic caused the homicide rate to explode during the early-90s, but then decline after the mid-90s. The homicide rate reached its peak during the very early-90s; this explains why Chicago had so many murders in 1992. After 1995, the homicide rate continued to fall and then remain at a consistent rate of 17 homicides per 100,000. However, in 2015, the homicide rate made an unsettling jump to 28 homicides per 100,000.

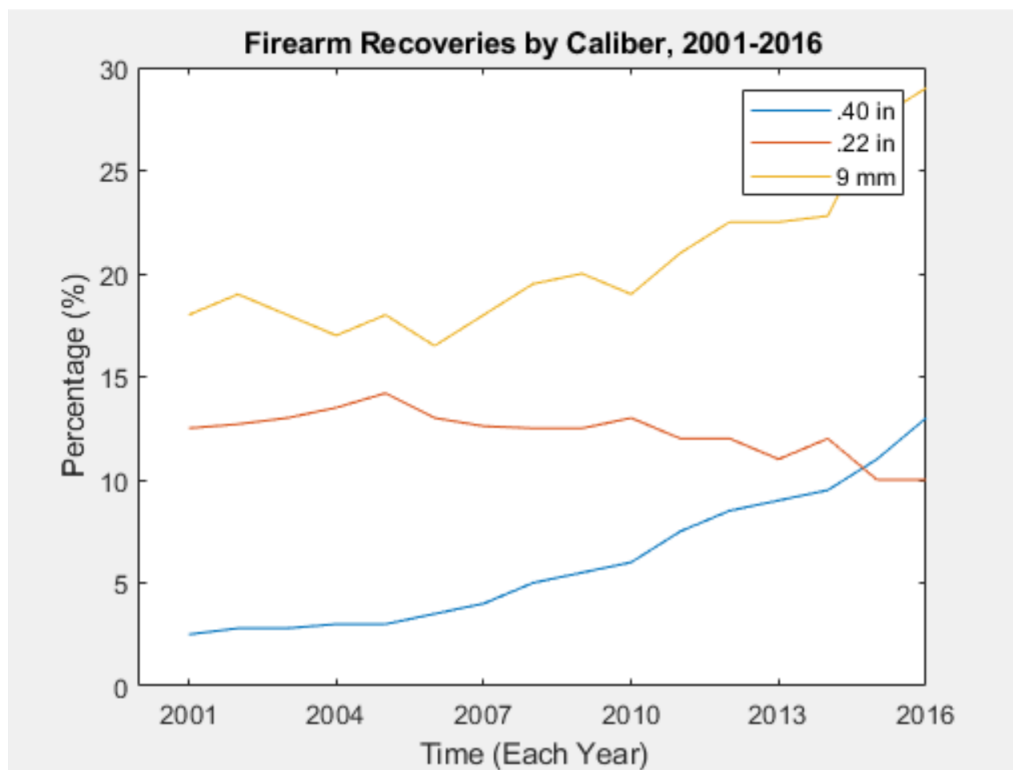


➤ Weapons & Ammo:

Over the years, Chicago has been known for having its own underground market for guns. For example, 7,932 illegal guns were collected by the Chicago police in 2017. Chicago is the third largest city, but it collects more illegal guns than the two biggest cities. About 90 percent of the guns collected are from adults; however, the percentage of guns collected from juveniles has been increasing. According to NBC Chicago, 40 percent of illegal guns came from dealers in Illinois, and the remaining 60 percent came from dealers outside the state, mostly Indiana and Wisconsin. As you can probably infer, it is easy to get an illegal gun in Illinois, especially if you live in a rough neighborhood.

One factor that has contributed to the high homicide rate in Chicago over the past couple of years is the increase in more powerful weapons and ammo. Larger caliber bullets have been linked to an increase in the number of homicides. Regardless of the circumstance of the crime, “the size of the bullet affected which gunshot victims lived and which ones died” (Sanger & Bui). Smaller caliber bullets have 40 percent fewer deaths, while a large caliber bullets have a 43 percent more deaths. In addition, a medium caliber bullet has 9 percent more deaths. From these percentages, there is an obvious relationship between the homicide rate and the caliber size. Chicago gangs are gaining increased access to larger caliber bullets and more powerful handguns.

The graph below was taken from a set of data conducted by the University of Chicago Crime Lab, and it shows the percentage of firearm recoveries by caliber from 2001 to 2016. As you can see, there is a noticeable increase in the percentage of .40 inch and 9 mm caliber guns. The end behavior of the graph is very similar to the spike of homicides in 2015 displayed on the first graph titled Homicide Rate in Chicago from 1985 to 2016. The higher caliber firearms have a direct relationship to the increase in homicides that have taken place in the past couple of years.

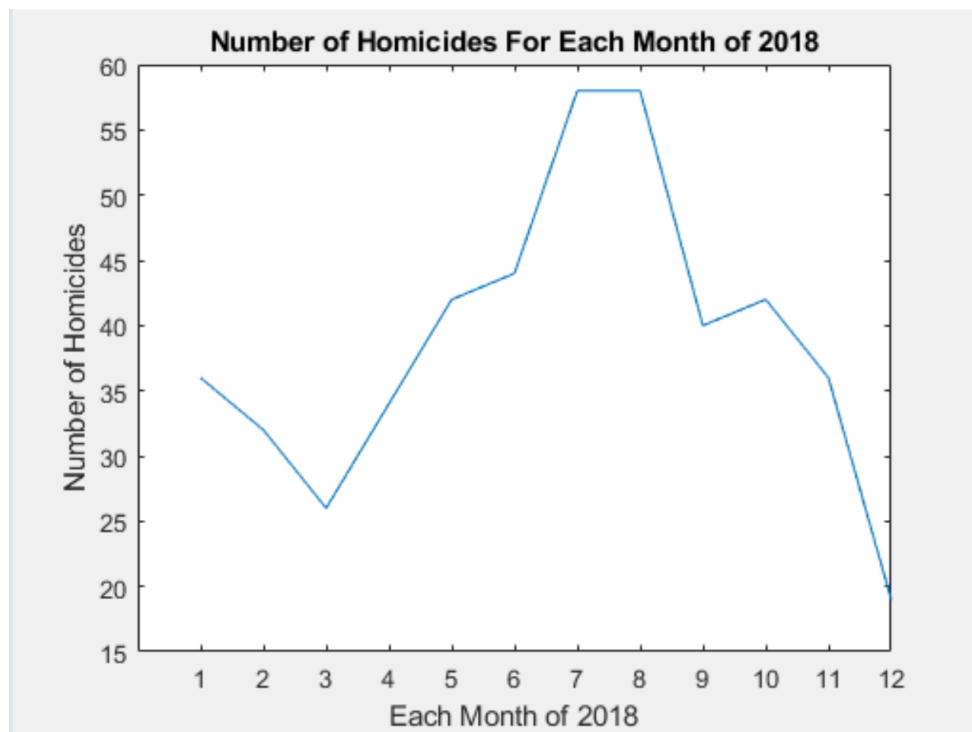


➤ Heat:

As the weather gets warmer, there tend to be more violent crimes; therefore, these crimes go up during the Spring and Summer seasons in Chicago. Whenever people spend time outside, it gives them more opportunities to commit crimes. In addition, there are more social interactions, which isn't always a good thing. And during the summertime, kids get out of school and "this increases the number of potential victims and assailants" (Moser).

The temperature has a direct relationship to making some people feel frustrated, angry or stupid. As it gets hotter, your heart rate goes up and feelings of aggressive attitudes can set in. The heat has been linked to the "are you looking at me?" effect, a reference from the *Taxi Driver*. According to Whet Moser, "uncomfortable warm temperatures also produce biases in the interpretation of observed interactions." Therefore, social interactions can lead to aggressive tendencies between people. The relationship between heat and aggression is not linear; for example, it can always be too hot to go outside and as a result, people will not go outside. And as the temperatures regulate, people stop trying to fight the heat and they just stay inside.

The graph below was taken from a website called *Chicago Sun-Times Graphics*, and it shows all the homicide victims since 2017. The filter keys were used to get the number of homicides for each month of 2018. As you can see, the graph starts with 35 homicides in January and ends with 18 homicides in December. From January to March, the number of homicides goes way down; however, after March, the number of homicides increase dramatically. When it reaches July, it has reached its maximum peak for the year. Fortunately, when August arrives, the number of homicides makes a sudden drop. It makes a minimal jump in October but then continues to fall until December. Looking at the graph, there is a noticeable correlation between the number of homicides and the outside temperature.

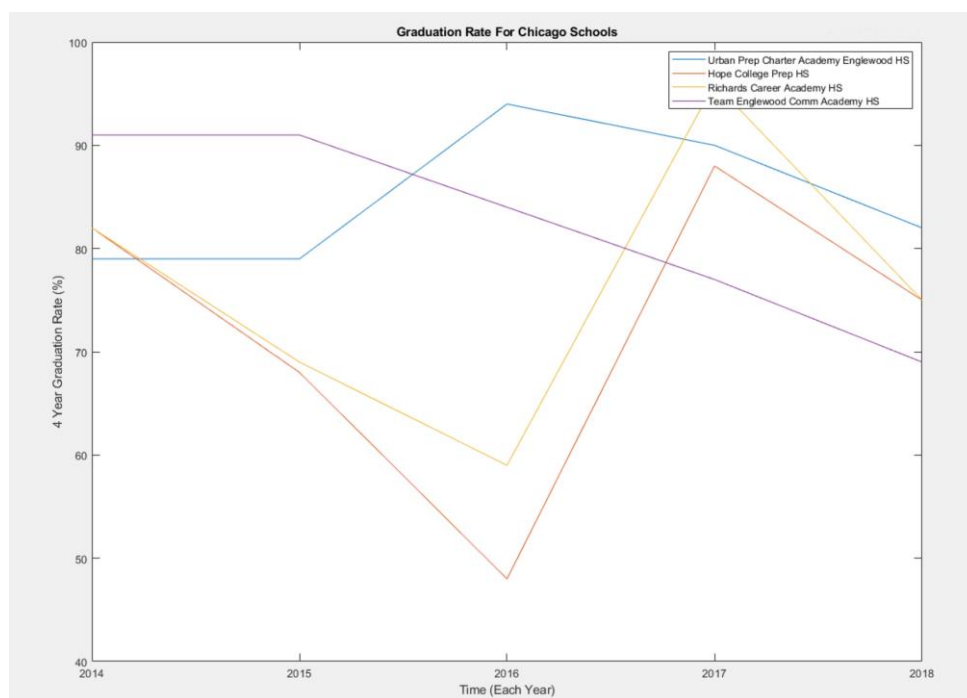


➤ Education:

Education is one of the most important factors in helping the Chicago youth because it can be the ticket to escape the crime and violence that plague low-income city neighborhoods. Educating the city's young population can have a drastic effect on lowering the homicide rate. Unfortunately, most inner-city public schools have low graduation rates and many of the kids get in trouble with the law. Schools are a positive influence because they keep kids busy and off the streets and so they aren't as likely to be a victim or perpetrator of criminal activity. School programs can potentially decrease violent crime arrests by 44 percent, according to the University of Chicago News. More focus on the kids who attend inner-city schools can help them achieve academic success and reach more opportunities.

For many young adults in Chicago, they are at risk for being recruited into gangs. Kids living in crime-afflicted neighborhoods are susceptible to being involved with gang violence and there is distrust of the local police. Because of all these issues facing these neighborhoods, many students feel like school is irrelevant in their lives and they have a better chance of survival by joining a gang and being protected. School is a haven from the dangers of the streets and can provide a pathway of success and escaping a life of multi-generational poverty.

This graph came from data taken by the Illinois Report Card website, and it shows the graduation rate for a list of Chicago schools from 2014 to 2018. The following schools include Urban Prep Charter Academy Englewood High School (BLUE), Hope College Prep High School (ORANGE), Richards Career Academy High School (YELLOW), and Team Englewood Comm Academy HS (PURPLE). There is a noticeable fluctuation between all the schools and the graduation rate. Team Englewood Academy's graduation rate decreased by 22 percent in a matter of three years. In 2017, there was a significant drop in the graduation rate for all the schools. In 2015, 3 of the 4 schools had a decrease in their graduation rate. In 2016, there was a dramatic increase in the graduation rate for half of them.

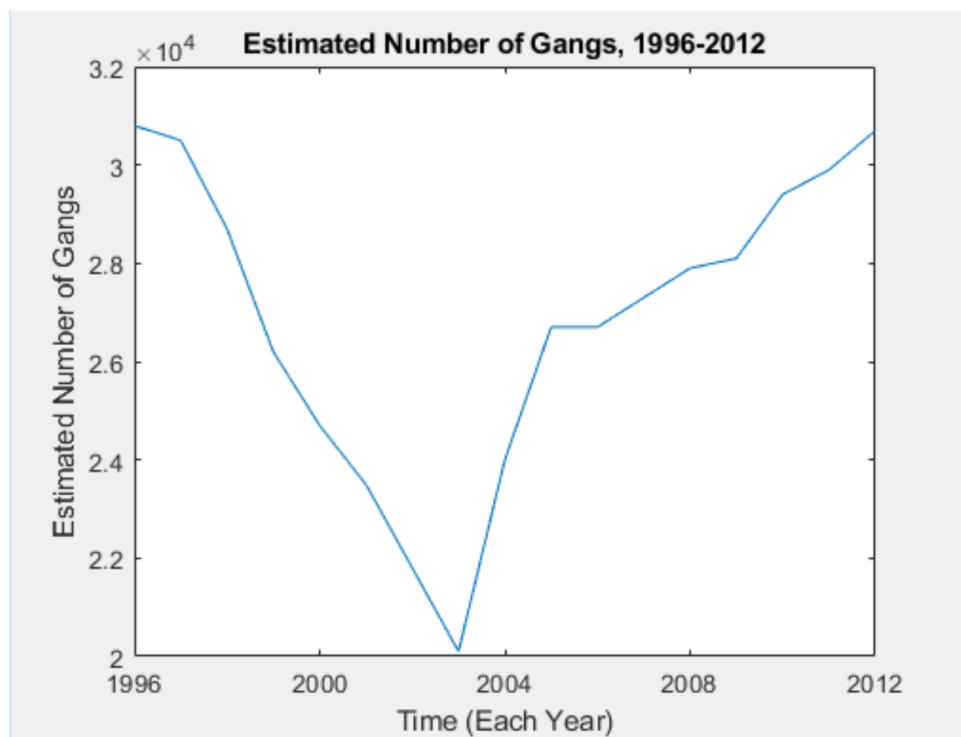


➤ Gangs:

Gangs have always played a huge influence in Chicago, and they still have a major role in communities. Since the mid-2000s, gangs in Chicago have been increasing and becoming more prevalent within crime-infested neighborhoods. According to ABC News, from 2009 to 2011, 40 percent of homicides nationwide were gang-related. In 2011, 60 percent of gang members were responsible for all the homicides. Most gang members are between the ages of 16 and 19, some are even younger. Looking at the statistics, there is an obvious gang problem in Chicago, and it is responsible for most of the homicides that take place.

The black youth is vulnerable to joining gangs in Chicago, and they must go through an initiation in order to join. These initiations usually involve doing a violent crime, like killing someone in another gang. From 2008 to 2012, at least 2,389 homicide victims were killed before their 25th birthday. These gangs control neighborhoods and prey on young recruits.

This graph shows data from the National Gang Center, and it displays the number of gangs nationwide from 1996 to 2012. Although it only goes to 2012, it is going in an upward direction and the number of homicides have been increasing in recent years; therefore, we can probably infer that it is still increasing or around 31 thousand. In 1996, there were around 31,000 gangs, but it dropped to around 20,000 gangs in 2003. After 2003, the number of gangs dramatically went up and it reached 31,000 gangs in 2012. As you see from the graph and the growth in homicide rates in the recent years, the number of gangs have been increasing and becoming more influential in troubled neighborhoods.



References:

Associated Press. "The Myths and Truths About Chicago's Guns and Murder Rate." *NBC Chicago*, NBC Chicago, 11 Dec. 2018, www.nbcchicago.com/news/local/The-Myths-and-Truths-About-Chicagos-Guns-and-Murder-Rate-502480821.html.

Givens, Ann. "Chicago's Murder Rate Is Typical for a Major Metropolis - Until Fatal Shootings Are Factored In." *The Trace*, 10 May 2017, www.thetrace.org/2017/01/chicago-murder-rate-fatal-shootings/.

Harms, William. "Study: Chicago Counseling Program Reduces Youth Violence, Improves School Engagement." *University of Chicago News*, 25 May 2018, news.uchicago.edu/story/study-chicago-counseling-program-reduces-youth-violence-improves-school-engagement.

"Homicides in Chicago: A List of Every Victim - Chicago Sun." *Times*, graphics.suntimes.com/homicides/.

"Illinois Report Card." *Illinois Report Card*, www.illinoisreportcard.com/.

Kapustin, Max, et al. *Gun Violence In Chicago, 2016*. University of Chicago Crime Lab, 2016.

King, Jamilah. "5 Must-Know Facts About Chicago's Gun Violence." *Colorlines*, 30 Oct. 2017, www.colorlines.com/articles/5-must-know-facts-about-chicagos-gun-violence.

Lind, Dara, and Lopez. "16 Theories for Why Crime Plummeted in the US." *Vox*, Vox, 20 May 2015, www.vox.com/2015/2/13/8032231/crime-drop.

Marx, Ryan. "Chicago Homicide Data since 1957." *Chicagotribune.com*, 2 Mar. 2016, www.chicagotribune.com/news/local/breaking/ct-chicago-homicides-data-since-1957-20160302-htmlstory.html.

Miller, Steve. "Chicago Homicides 2018, a Second Look with R." *DATAVERSITY*, 11 Apr. 2018, www.dataversity.net/chicago-homicides-2018-second-look-r/.

North Central College | Engineering: OFFICIAL LAB REPORT (EGR 120)

Moser, Whet. "Heat and Crime: It's Not Just You Feeling It." *Chicago Magazine*, 15 Mar. 2012, www.chicagomag.com/Chicago-Magazine/The-312/March-2012/Heat-and-Crime-Its-Not-Just-You-Feeling-It/.

"National Youth Gang Survey Analysis." *Measuring the Extent of Gang Problems*, www.nationalgangcenter.gov/survey-analysis/measuring-the-extent-of-gang-problems.

Rosenzweig, Ma'ayan. "'Hidden America: Don't Shoot I Want to Grow Up.'" *ABC News*, ABC News Network, 18 Oct. 2012, abcnews.go.com/Nightline/fullpage/chicago-gang-violence-numbers-17509042.

Sanger-katz, Margot, and Quoc Trung Bui. "People Kill People. But the Bullets Seem to Matter." *The New York Times*, The New York Times, 27 Mar. 2019, www.nytimes.com/interactive/2019/03/27/upshot/deadly-bullets-guns.html.