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Individual Project Problem Statement

Literature Review

US is dealing with a unique problem of gun violence due to its gun policy. Statistics suggests that US owns half of the civilian guns, has way higher rate of firearm suicides (Lopez, 2017) and has almost one mass shooting per day (Ingraham, 2015). In Kalesan and Galea's research (2017), most states in US has some violent gun counties with poor economic situation, more minority, higher unemployment rate and homicide rate. It is also mentioned in the research that homicide rate is highly correlated with gun deaths. Among gun deaths, most of them are suicides (Matthews, 2015). While gun is causing a lot of problems in the US society, it appears that gun ownership support has largely increased since 2000(Parker el al., 2017). With high frequency of gun violence, the political debates between gun supporters and opponents is postponing the gun control policy execution (Gillespie, 2013).

Data Product Effectiveness Analysis

This data product provides a holistic picture of America's gun violence problems in the aspects of homicide, suicide and public opinions on gun control. It also tells us the reasons behind the status quo and why it is hard to deal with the problem.

The data product not only presents gun violence related data, but also digs deep into the reasons behind it. For example, it is concluded that America has way more firearm homicides than other developed countries. Apart from the visuals of comparison of homicides of US and other countries, a bar chart of the overall crime across 15 industrialized countries is given to rule out the assumption that America is probably having a higher crime rate in general. Such graphs with reasons explained can provide more compelling evidence to the audience.

The data product also picks appropriate visuals to illustrate points and reinforce impressions. For example, to illustrate that there is almost one mass shooting per day in US, there is a calendar showing the number of shootings for each day. This is unconventional and really convinces the audience of how big issue gun problem is in the US. The geospatial graphics that appear several times in the data product also give the audience a better understanding of how gun issues are distributed across states. Further, this data product excels in making

comparisons. For example, the population percentage and the civilian-owned guns percentage gives a good understanding of gun ownership problem in the US.

Data Product Redesign Proposal

Following are the charts proposed to change so as to get a more intuitive visualization for the audience.

1. Change the graph of "Gun Ownership vs. Gun Deaths" to a geospatial graphic.

While the current graph shows a positive relationship between gun ownership and gun deaths, a geospatial graphic will present the statistics in different states in a more straight-forward way. One layer of the revised graph will be gun ownership and the other layer would be gun deaths. Compared to the current graph, the revised one might be able to discover some correlation between gun deaths with other social indicators related to geolocation.

2. Revise the graph of "CRIME in 15 industrialized countries" to reflect gun violence percentage.

The conclusion from this graph is that America is an outlier in gun deaths but not overall crime, however, the first part of conclusion is not reflected in the graph. One could argue that some previous chart in the data product shows such information, however, it is clearer to put the information in one graph to show the contrast.

3. Add reference data to "Rate of Firearm Homicide Deaths, 1981 – 2010". The current graph shows a decline in firearm homicide deaths but doesn't show the reason behind it. It was mentioned in the article that there are theories about policing or increased gun deterrence leading to the drop in 90s. Levitt (2005) has a theory that the drop of crime rate is the result of legalized abortion case Roe vs. Wade in 1973. In the revised figure, both firearm homicide deaths data and the abortion rate data will be presented to validate this theory.

Deceptive Data Product Potential Starting Points

1. Omitting baselines of "More guns, more suicides" graph.

The current graph is showing that Firearm suicides are 4 times more in the states with highest gun rate than in the lowest. If some pro-gun-control groups want to make the result more dramatic, they could change the baseline to around 4k.

2. Axis Manipulation of "Rate of firearm suicides after Australia's gun buyback program".

The current graph is showing that policies that limit gun access can lead to less suicides. If we change the y-axis scale from 1 unit to 5, we will get a pretty flat line. As a result, the conclusion would be policies that limit gun access doesn't help decrease suicides.

3. Cherry Picking Data of "Rate of Firearm Homicide Deaths".

The current graph is presenting a clear decline of gun homicides. If we omit data prior to 1998, we will get a flat line with a little bit increase around 2007. The resulting line might convey a message that gun issue is not a huge problem in the US.

Data Sources

Data sources that are going to be used for the data products are recorded in the following table.

Redesigned Product	Change "Gun Ownership vs. Gun Deaths" to a geospatial graphic	1. Firearm Mortality by State (Centers for Disease Control and Prevention) 2. Gun Ownership by State (Injury Prevention)
	Revise "CRIME in 15 industrialized countries" to reflect gun violence percentage	1. Crime in 15 industrialized countries (International Crime Victims Survey) 2. Homicide in 15 industrialized countries (OECD)
	Add reference data to "Rate of Firearm Homicide Deaths, 1981 – 2010"	1. Rate of Firearm Homicide Deaths, 1981 – 2010 (Centers for Diseases Control and Prevention) 2. CDCs Abortion Surveillance (Centers for Diseases Control and Prevention)
Deceptive Product	1. Omitting baselines of "More guns, more suicides" graph	1. Guns and Suicide in the United States (Matthew Miller, M.D., Sc.D., and David Hemenway, Ph.D.)

	2. Axis Manipulation of "Rate of firearm suicides after Australia's gun buyback program"	1. International Crime Victim Surveys (UNICRI)
	3. Cherry Picking Data of "Rate of Firearm Homicide Deaths"	1. Rate of Firearm Homicide Deaths (Centers for Diseases Control and Prevention)

References

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