Differences in violence and conflict between Russia and Yugoslavia in the 1990s

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1   Introduction

Following World War II, the geopolitics of Europe were heavily shaped by the rise of communist movements. These movements were especially widespread in east and south-east Europe and played crucial roles in the antifascist resistance that pushed back the Nazis. The communist states that arose after the war were all in one way or another under the influence of the Comintern. Many eastern European states, such as Poland, Chechoslovakia, Romania, Bulgaria, Hungary and East Germany, were soviet satellite states that served as a buffer zone between Soviet Russia and the West (Rouček and Lottich, 1964).

One communist state, however, had a different fate after the war. The Socialist Federal Republic of Yugoslavia, created by the Partisans after the war, was the only one to resist Soviet attempts at becoming a satellite state. This event is today referred to as the Tito-Stalin split, after the conflict of the two leaders resulted in Yugoslavia's expulsion from the Cominform in 1948 (Lees, 1997). Following this moment in history, the two nations greatly diverged in social, economic and foreign policy. Where the Soviets took a more aggressive stance in foreign policy and heavily used concentration camps for labour (the Gulag), Yugoslav foreign policy was strictly neutral (in context of East vs West) and less suppressive of its own people, although that is not to say that it did not exist.

The communist rule in both nation lasted at least 50 years and profoundly shaped the culture of both nations, both socially and morally. Furthermore, due to the vast differences in the style of governing, it is likely that differences in attitudes towards certain issues arose in both former Yugoslav and former Soviet states. For the purposes of this study, we will be using data for Russia as an example for the Soviet Union. The data for Yugoslavia will be obtained using the separate data from each former Yugoslav state.

Using the world conflict data and the population data, we will be looking at differences in violence between Russia and Serbia (Croicu and Sundberg, 2015; 'World Urbanization Prospects: The 2014 Revision', 2014). Specifically, we will be looking at the number of deaths relative to population size in order to see if there are any differences. This will be done using software like Python and R to recode the data. We will also be plotting the occurances on a world map to visualize the places the violence occured.

2   Methods

2.1   Command Line Interface

The counts of recordings in Russia and Serbia in the 1990s were found using the following code in PowerShell:

```
Directory> cat conflict_data_full_lined.json | select-string RUS-199. | measure-o
bject

Count    : 555
Average  :
```

```
Sum       :
Maximum   :
Minimum   :
Property  :

Directory> cat conflict_data_full_lined.json | select-string YUG-199. | measure-o
bject

Count     : 908
Average   :
Sum       :
Maximum   :
Minimum   :
Property  :
```

YUG was used instead of SRB for Serbia since the country referred to itself as Yugoslavia well into the 2000s, and RUS- was used for Russia. The part indicated by 199. indicates the year, with the dot representing any possible character. The data was then stored into a new file that contained only the counts for Russia and Yugoslavia. However, after data from both countries was stored in the file, the number of counts was 10 times higher than it should have been. The reason for this is unclear; regardless, the new dataset will be used as it is substantially smaller than the whole set. The code used for making the new file is as follows:

```
Directory> cat conflict_data_full_lined.json | select-string RUS-199. > rus90s
Directory> cat conflict_data_full_lined.json | select-string YUG-199. > yug90s
Directory> cat yug90s,rus90s > yugrus90s
Directory> cat yugrus90s | measure-object

Count     : 15716
Average   :
Sum       :
Maximum   :
Minimum   :
Property  :
```

In order to make this selection of strings into a list, the file yugrus90s was turned into a json by adding ".json" to the file name. The file was then opened in notepad and square brackets were added at the begining and at the end of the entire file.

When using python, some problems occured that turned out to be because "PowerShell is weird" (Joris, 2019). Because of that, Git Bash was used following the same protocol as above. The code was the following:

```
$ cat conflict_data_full_lined.json | grep YUG-199. | less
$ cat conflict_data_full_lined.json | grep YUG-199. | wc
    908   114329 1173008
$ cat conflict_data_full_lined.json | grep RUS-199. | wc
    555    73520  732162
$ cat conflict_data_full_lined.json | grep RUS-199. > rus90s
$ cat conflict_data_full_lined.json | grep YUG-199. > yug90s
$ cat rus90s | wc
    555    73520  732162
$ cat yug90s | wc
    908   114329 1173008
```

This code created two files, one for Yugoslav data and the other for Russian data. Unlike the PowerShell code, the word count in the Git Bash code did not change after the strings were copied to a new file.

2.2 Python

Python was used in order to transform json files into csv files. The following code was used:

```python
    import json
import csv

with open('conflict_data/rus90s.json') as file:
    rus90 = json.load(file)        #opens russia file

with open('conflict_data/yug90s.json') as file2:
    yug90 = json.load(file2)       #opens yugoslavia file

with open('conflict_data/populations_lined.json') as file3:
    populations = json.load(file3) #opens populations file

#The next part creates a new csv file with the variables listed under 'headers'
#file for Russian Conflict Data
headers = ['year', 'type_of_violence', 'conflict_name', 'dyad_name', 'side_a',\
'side_b', 'latitude', 'longitude', 'best']
with open('rus90.csv', 'w', newline = '') as csvfile:
    filewriter = csv.writer(csvfile)
    filewriter.writerow(headers)
    for conflict in rus90:
        filewriter.writerow([conflict['year'], conflict['type_of_violence'],\
        conflict['conflict_name'], conflict['dyad_name'],conflict['side_a'],\
        conflict['side_b'], conflict['latitude'], conflict['longitude'],\
        conflict['best']] )

#The next part creates a csv file for the Yugoslav Conflict Data
with open('yug90.csv', 'w', newline = '') as csvfile2:
    filewriter = csv.writer(csvfile2)
    filewriter.writerow(headers)
    for conflict in yug90:
        filewriter.writerow([conflict['year'], conflict['type_of_violence'],\
        conflict['conflict_name'], conflict['dyad_name'], conflict['side_a'],\
        conflict['side_b'], conflict['latitude'],\
        conflict['longitude'], conflict['best']] )

'''
The next part creates lists for years to use (all in the 90s).
Yugoslav population needs to be calculated as a sum of the populations
of countries_yug. The populations are then put into a new list that
contains the Yugoslav and Russian population for each year.
'''
years = ['1990', '1991', '1992', '1993', '1994',\
'1995', '1996', '1997', '1998', '1999']
countries_yug = ['Serbia', 'TFYR Macedonia', 'Croatia',\
'Montenegro', 'Bosnia and Herzegovina', 'Slovenia']
yugrus_population = []
rus_country = ['Russian Federation']
for year in years:
    subtotal = 0
    subtotal2 = 0
    for country in countries_yug:
        subtotal += populations[country][year]
    for country in rus_country:
```

3

```
        subtotal2 += populations[country][year]
    yugrus_population.append([year, subtotal, subtotal2])

#Next part saves data from the yugrus_populations list and turns it into a csv file.
with open ('yugruspopulation90.csv', 'w', newline = '') as csvfile3:
    filewriter = csv.writer(csvfile3)
    filewriter.writerow(['year', 'yug_population', 'rus_population'])
    for year in yugrus_population:
        filewriter.writerow(year)
```

The code took the json file, which was a list of dictionaries, and extracted specific variables from each dictionary. These were then stored in csv format in order to use the data in R. For populations, the Yugoslav population needed to be calculated by adding the populations of each state for each year. After obtaining a list of both countries' populations for each year, the data was stored into a csv file.

2.3 R

R was used for data analysis and making graphs. The following code was written (with comments to explain specific parts):

```
    library('tidyverse') #loads data
library(mapdata)
install.packages('mapproj')
library('mapproj')

#import raw data
yug90_raw <- read.csv('Directory/yug90.csv')
rus90_raw <- read.csv('Directory/rus90.csv')
yugruspop90_raw <- read.csv('Directory/yugruspopulation90.csv')

#best death estimate per year in yugoslavia, data for 90 & 93-95 missing
yug_year <- yug90_raw %>%
  group_by(year) %>%
  summarize(sumbest = sum(best)) %>%
  mutate(
    Country = 'Yugoslavia'
  )

#best death estimate per year in russia
rus_year <- rus90_raw %>%
  group_by(year) %>%
  summarize(sumbest = sum(best)) %>%
  mutate(
    Country = 'Russia'
  )

#bind data for both countries
yugrus_year <- bind_rows(rus_year, yug_year)
yugrus_year %>%
  mutate(
    year = as.character(year)
  )

#Makes the bars stacked next to each other from both data
ggplot() +
```

```
  geom_col(data = yugrus_year, mapping = aes(x = year, y = sumbest, fill = Country),
  position='dodge') +
  ggtitle("Best total estimate of deatsh per year") +
  xlab("Year") + ylab("Total recorded deaths")

#total deaths in 90s in yugoslavia
yug_total <- yug_year %>%
  summarize(sumall = sum(sumbest))

#total deaths in 90s in russia
rus_total <- rus_year %>%
  summarize(sumall= sum(sumbest))

# create dataframe with both these numbers
countries <- c('Russia', 'Yugoslavia')
deathstotal <- c(rus_total$sumall, yug_total$sumall)
deaths_total <- data.frame(countries, deathstotal)

#total number of recorded deaths in the 90s per country
ggplot(data = deaths_total) +
  geom_col(mapping = aes(x = countries, y = deathstotal)) +
  ggtitle("Total deaths in the 90s by country") +
  xlab("") + ylab("Total best estimate of deaths")

#calculates the average population for both countries in the 90s
population_average <- yugruspop90_raw %>%
  summarize(average_yugoslav = mean(yug_population),
  average_russian = mean(rus_population))

#can I make this into a vector and join it to another dataframe?
#- changed a bit; first is russia, second yugoslav population, entered manually
popavg <- c(148318100, 23338500)
avgpop_country <- data.frame(countries, popavg)
#made this dataframe so I could use left_join

new_deaths_total <- left_join(deaths_total, avgpop_country)

#total number of recorded deaths per average population in the 90s per country
#technically shows how many people died due to recorded violence in promilles
ggplot(data = new_deaths_total) +
  geom_col(mapping = aes(x = countries, y = 1000*deathstotal/popavg))  +
  ggtitle("Relative total deaths per average population in the 90s") +
  xlab("") + ylab("Deaths in promilles() of average population")

#mutate populations to make nice figures
population_yugrus_forfacet <- yugruspop90_raw %>%
  gather(
    'yug_population', 'rus_population',
    key = 'Country',
    value = 'Population'
  )

#population changes during the 90s
ggplot(data = population_yugrus_forfacet) +
  geom_line(mapping = aes(x = year, y = Population/1000000, group=Country)) +
  facet_wrap(~Country, nrow = 2, scales='free_y')+
```

```
  ggtitle("Population changes during the 90s") +
  xlab("Year") + ylab("Population in millions")

#map the types of violence on a world map to compare
ggplot() + #plots a map of eurasia with where violence occured
  geom_polygon(data = map_data('world'), mapping = aes(x = long, y = lat,
  group = group), alpha = 0.6) +
  coord_fixed(xlim = c(0, 80), ylim = c(35, 70), ratio = 1) +
  geom_point(data = rus90_raw, mapping = aes(x = longitude, y = latitude,
  colour = type_of_violence)) +
  geom_point(data = yug90_raw, mapping = aes(x = longitude, y = latitude,
  colour = type_of_violence))

#let's look at yugoslavia specifically, coords to map: 12-24,  40-47
ggplot() + #plots a map of eurasia with where violence occured
geom_polygon(data = map_data('world'), mapping = aes(x = long, y = lat,
group = group), alpha = 0.6) +
coord_fixed(xlim = c(12, 24), ylim = c(40, 47), ratio = 1) +
geom_point(data = yug90_raw, mapping = aes(x = longitude, y = latitude,
colour = type_of_violence))
```
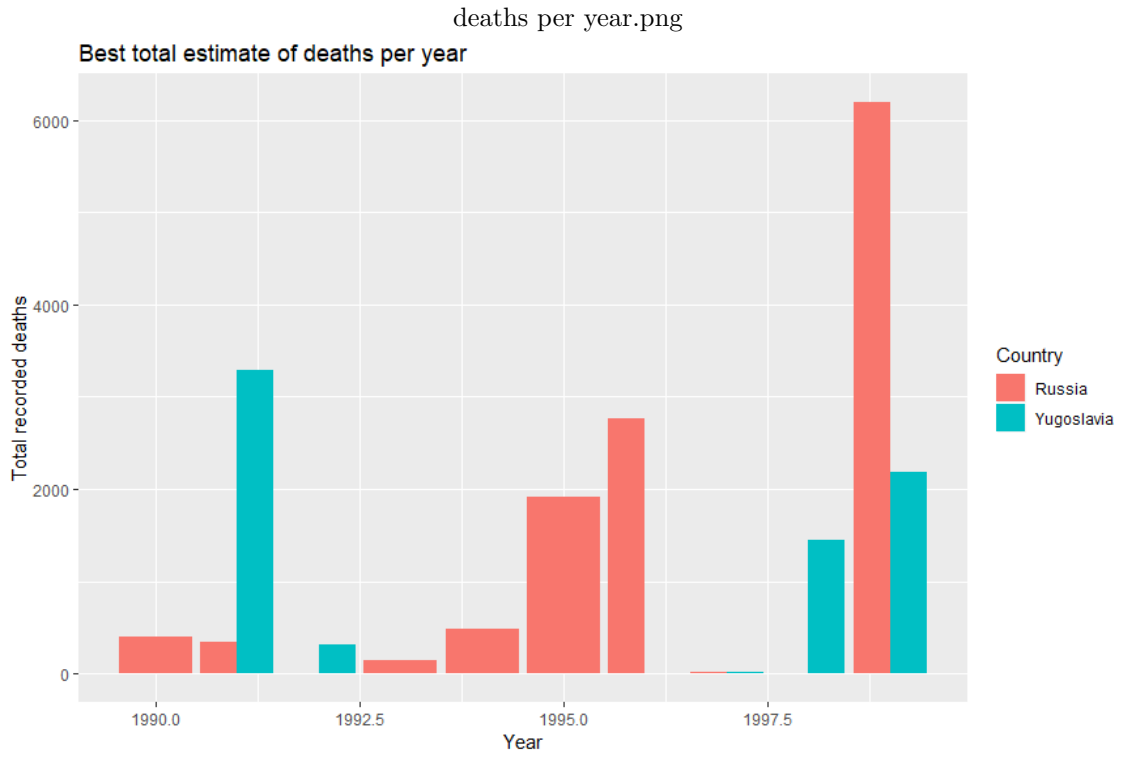
deaths per year.png

Figure 1: Best estimate of deaths per year for Yugoslavia and Russia

3 Results

The total recorded deaths per year were calculated for both Russia and Yugoslavia (Figure Figure 1). These values were then plotted on a bar graph, with the values for each country displayed next to each other for each year. A bar graph was used in order to treat the values for year as discrete. However, because there was no data for Yugoslavia for the years 1990, 1993, 1994 and 1995, some of the bars are wider since they only represent the values for Russia. What can be observed in the graph is that the total deaths in Russia seem to have increased during the 90s. No trend can be observed in Yugoslavia.

The total deaths for each country were calculated, as expressed in Figure 2. As can be seen, the total best estimate of deaths due to recorded conflict in the 90s is around 12 000 for Russia and 7500 for Yugoslavia. Next to this, the death estimate per average population in the 90s was computed, as expressed in Figure 3. This clearly shows that the deaths relative to population were in fact much higher for Yugoslavia than Russia, with values of ca. 0.3 and 0.1 ‰.

The population changes in both countries were then plotted on a line graph in order to visualize changes over time (Figure 4). A line graph was used in order to treat years as a continuous variable rather than a discrete one. In the figure, it can be observed that the Yugoslav population decreased for most of the 90s, until it started slowly increasing again after 1996. In Russia, the population was increasing until 1993, after which it started gradually decreasing for the rest of the 90s.

Finally, maps of where the violence took place were created. In Figure 5, a map of both Russia and Yugoslavia can be seen. Interestingly, the majority of violence in Russia occured in the Caucus region, between the Black Sea and the Caspian Sea. There are also cases of violence recorded in the Moscow Oblast and what appears to be Latvia and Lithuania, but these cases are all one-sided violence. On the other hand, the violence in Yugoslavia is mapped throughout the entire territory of the former country, however mostly along the borders (Figure 6). Interestingly, there's a large concentration of datapoints in Kosovo and Metohija, and what appears to be a substantial presence of one-sided violence.
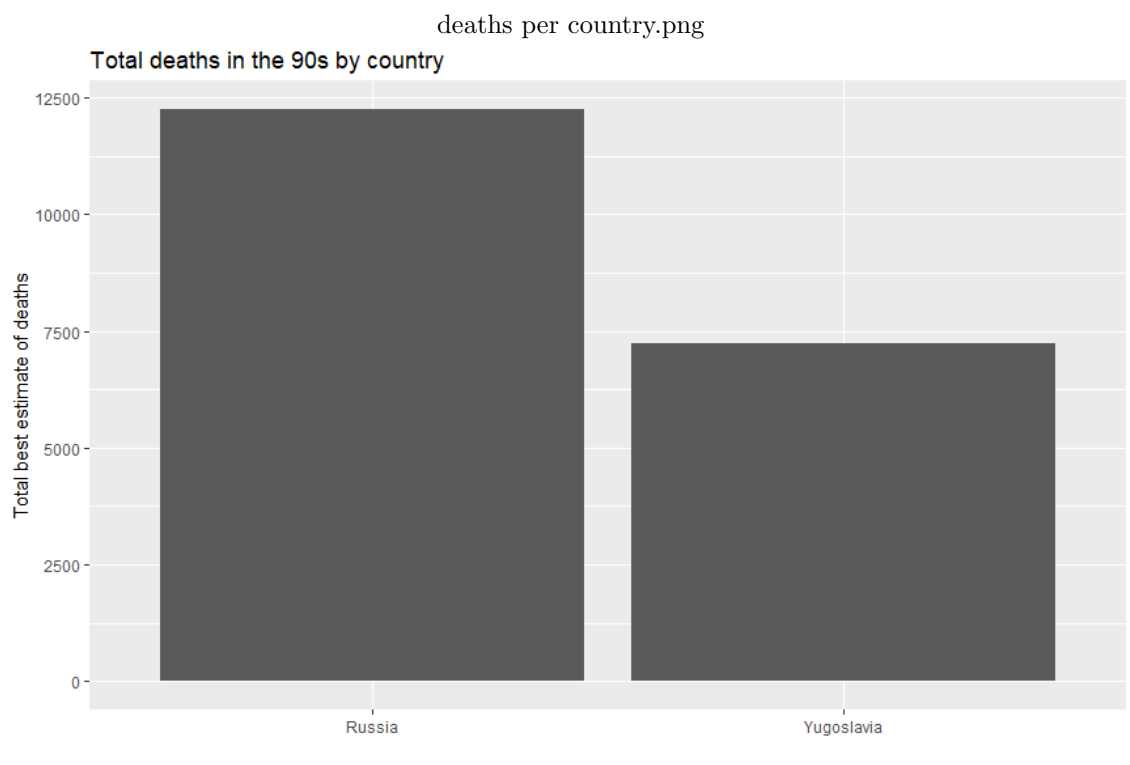
deaths per country.png

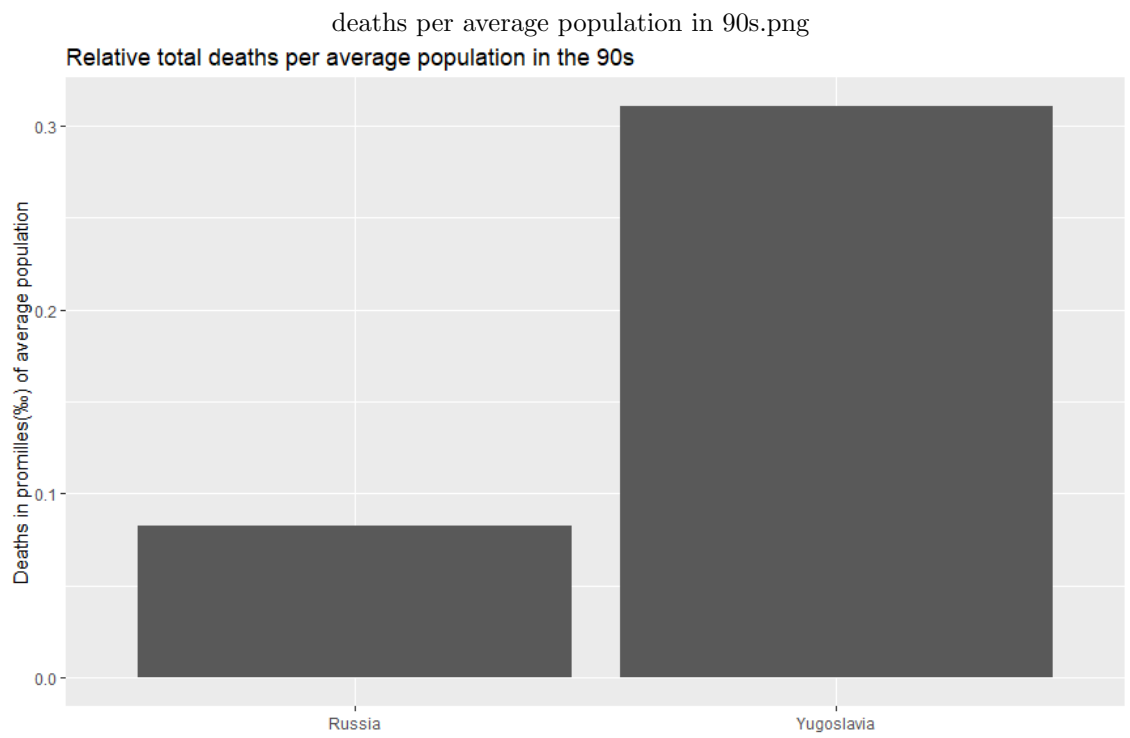Figure 2: Total deaths per country

deaths per average population in 90s.png

Figure 3: Deaths due to conflict per average 90s population

changes in the 90s.png

Figure 4: Population changes in the 90s

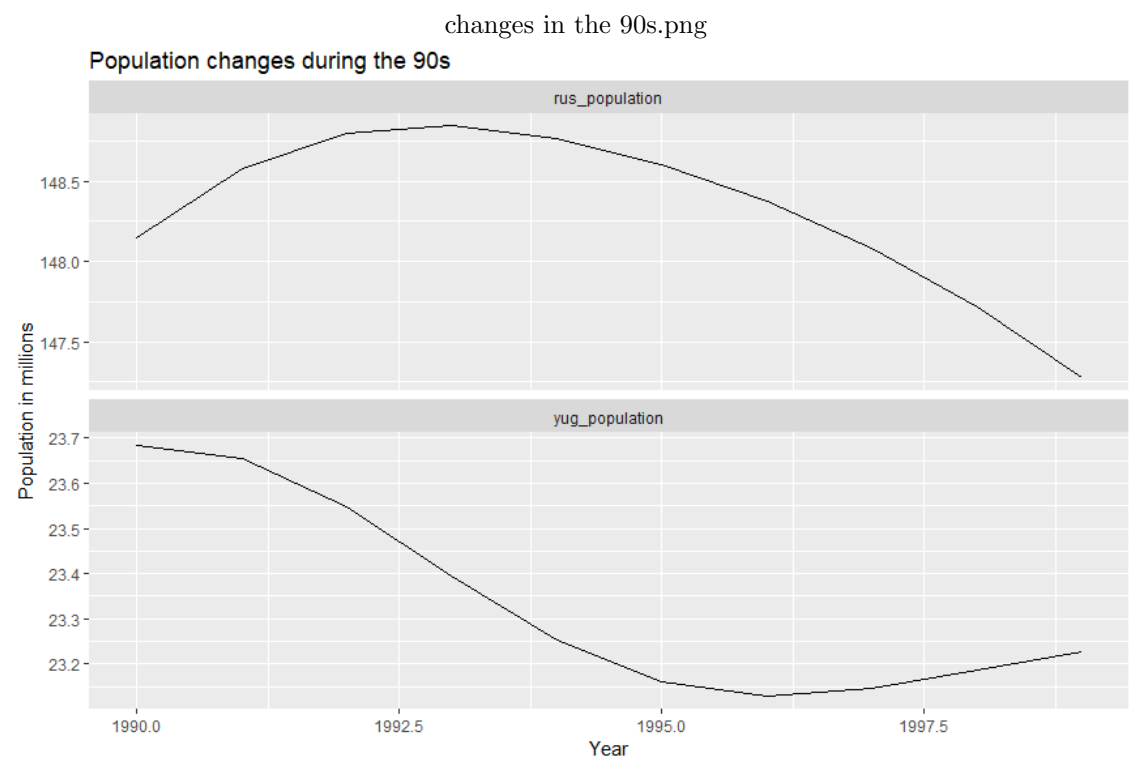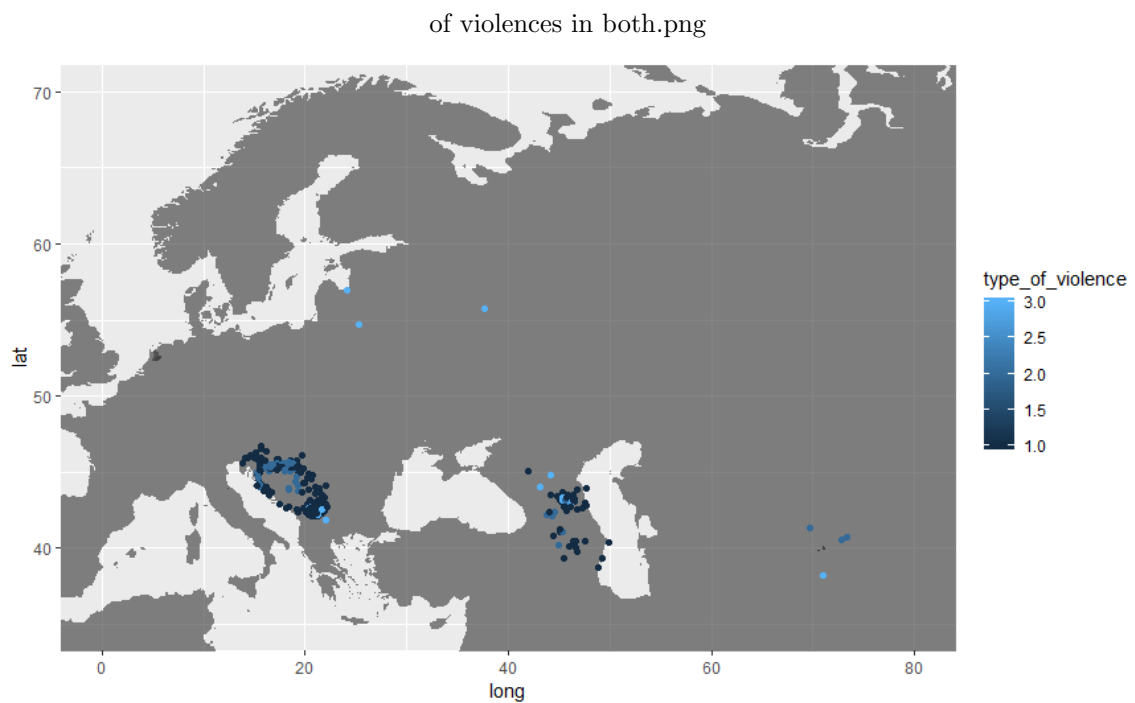of violences in both.png

Figure 5: Places where violence took place according to type of violence. 1 stands for State-based conflict, 2 for Non-State conflict and 3 for One-Sided violence.
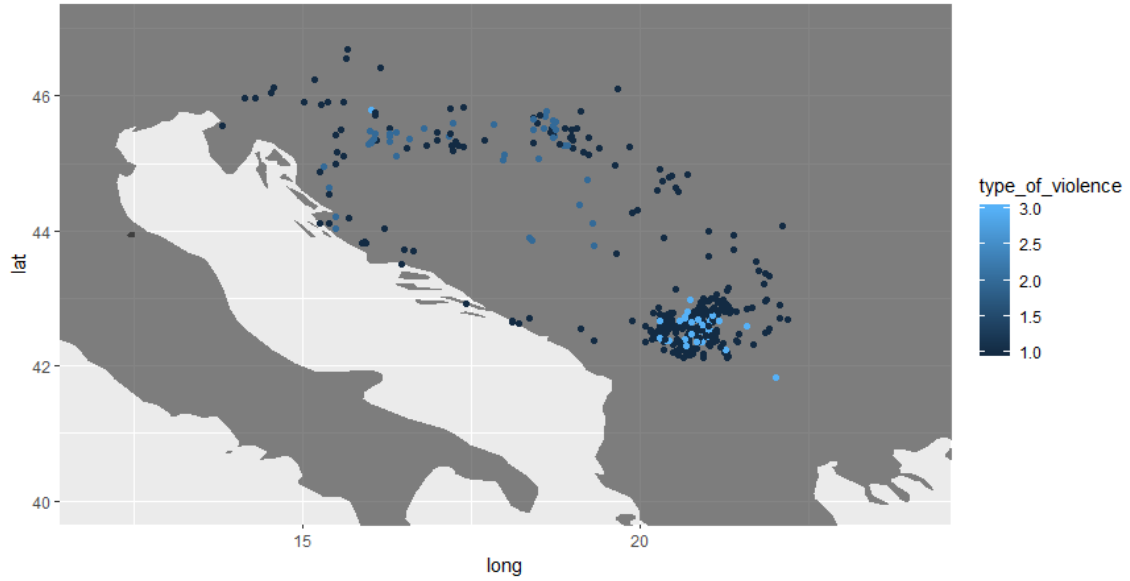
of violence in yugoslavia.png

Figure 6: Places where violence took place in Yugoslavia according to type of violence. 1 stands for State-based conflict, 2 for Non-State conflict and 3 for One-Sided violence.

4   Discussion

The total yearly recorded deaths for each country show increasing violence in Russia during the 90s (Figure 1). This may be due to the stagnating Russian economy during the Yeltsin years that might have lead to higher unhappiness among the population (Åslund, 1995). This may also explain the trend of decreasing population in Russia following 1993 (Figure 4), as Russians started emigrating in search for better economic opportunities. The data for Yugoslavia, on the other hand, is inconclusive since there are no datapoints for 1990 and 1993-1995. This is most likely because the Croatian and Bosnian war happened in that period, which made the region extremely dangerous and unsafe and might have prevented researchers from carrying out their duties (Morton, Forage, Bianchini and Nation, 2004).

The total deaths being higher in Russia makes sense, as the population is much larger than that of Yugoslavia (Figure 2, Figure 4). Because of that, the statistics in Figure 2 are not that meaningful and need to be related to the countries' respective populations in order to quantify whether one or the other experienced more violence per person (note "experienced more violence" because we're making the assumption that more deaths due to violence equals more violence in general, which is already arbitrary and undefined in this report). Looking at Figure 3, we can see that in fact there was three times as much violence in Yugoslavia than in Russia. However, even this is likely untrue, as the statistic for Yugoslavia lacks data for four years, including 1993-1995, the years that the majority of the Bosnian and Croatian wars occurred (Hansen, 2013; Olujic, 1995). Due to this, it's likely that the true parameter for number of violent deaths per person is much higher for Yugoslavia than the value obtained

The effect of the Yugoslav wars can also be seen in Figure 4. The decreasing Yugoslav population in the first part of the 90s is largely due to higher mortality because of the wars and emigration to avoid armed conflict. However, the 90s was a rough period for Yugoslavia in general; even before the wars, ethnic tensions were high, as can be seen by the shear abundance of non-state and one-sided violence in the region (Figure 6). This is especially the case in Croatia and Kosovo, regions predominantly populated by Catholic Croatians and Muslim Albanians respectively. These two ethnics groups have been in conflict with the Orthodox Serbs since the fall of the Ottoman empire in the early 20th century. The wars fought between them have largely shaped the geopolitics of the Balkans in the past 100 years, with countless examples of "ethnic cleansing" and genocide known

to us today.

The difference in Russia and Yugoslavia is quite clear when looking at the 90s. Due to separatist wars, Yugoslavia had much more violence occur on its territory than did Russia. However, problems in Russia were more economic due to the transition from communism to capitalism, as seen by the decrease in population over the 90s (Figure 4).

5   Conclusion

In conclusion, the violence in the two countries (Yugoslavia and Russia) in the 90s was quite different. Yugoslavia experienced much more violence per person, or three times as much as obtained from the conflict database (Croicu and Sundberg, 2015). Even this figure is likely larger due to unavailable information from three crucial years during which the Yugoslav wars took place. However, how relevant this data is is debatable, as there are still many more things needed to be taken into account.

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