

Civilian Casualties and Migration in the Syrian Civil War

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Questions:

1. What are the patterns of casualties and migration of the Syrian Civil War?
2. Can we identify major events that correspond to these patterns?
3. Where are civilians seeking refuge?
4. How does provincial casualty data change with time?
5. What forms of violence are taking place?

Data Resources:

1. Syria Shapefiles: <https://data.humdata.org/dataset/356a63e9-90aa-4b9c-a938-58ef24469c00>
 - a. used to plot Syria on a map
2. The UN Refugee Agency Data: http://popstats.unhcr.org/en/asylum_seekers_monthly
 - a. dataset with information on the number of refugees fleeing Syria and where they fled to
3. A More In-Depth UN Refugee Agency Data:
<https://data.world/unhcr/e2d5566d-d755-40dd-a63f-d4d298a9df1d/workspace/file?filename=unhcr-persons-of-concern-origin-syr-csv-1.csv>
 - a. dataset with more information on the number of refugees fleeing Syria and where they fled to
4. Violations Documentation Center in Syria (VDC): <http://www.vdc-sy.info>
 - a. probably the most complete dataset for Syrian War casualties with names, civilian status, date of death, cause of death, and involved actors in their death
5. Syrian Center for Statistics and Research (CSR): <https://csr-sy.org/>
 - a. another dataset for casualties in Syria
6. Plotly Country Codes: <https://www.kaggle.com/shep312/plotlycountrycodes>
 - a. CSV file that contains the country codes used in Plotly maps to map each country

Links:

1. understanding plotly and adding a slider:
<https://community.periscopedata.com/t/36nz2s/plotly-choropleth-with-slider-map-charts-over-time> & <https://plot.ly/python/scattermapbox/>
2. understanding bokeh and adding a slider:
<https://pythonawesome.com/bokeh-plotting-backend-for-pandas-and-geopandas/>
3. changing pandas dataframe to GeoDataFrame:
<https://gis.stackexchange.com/questions/174159/convert-a-pandas-dataframe-to-a-geodataframe>
4. understanding choropleth with Plotly: <https://plot.ly/python/choropleth-maps/>
5. understanding flight paths with Plotly: <https://plot.ly/pandas/lines-on-maps/>

Conclusion of Results:

Patterns in Syrian Casualty

Going into the project, the majority of us had no clue what to expect from the data. However, by cleaning up the data and plotting it out, some patterns presented themselves. For Syrian casualties by year, there was a peak in 2013, but since then, the reported number of casualties has been steadily dropping. If we graph the data day by day using the VDC data, you can see that there are some spikes. We found it quite interesting that by plotting the casualties out, we can match some major Syrian events that happened to the spikes. For example, the largest spike corresponds to the first time Syria decided to use chemical warfare, which is banned by the Geneva Convention due to its devastation and destruction.

Patterns of migration

Although the month-by-month data is not as accurate as the yearly data provided by the UNHCR, we were able to see the rate of migration increase from 2011 and peak around 2016, specifically in Germany and it has slowly been dropping. Using the yearly data, we see that in 2017, Turkey has the most refugees from Syria.

Where are civilians seeking shelter

Similar to the overall deaths, provincial deaths have also been dropping since 2013 except for a few occasions where there is a spike in death. By looking at the choropleth map with a slider, the viewer can see that while the deaths in each province have been generally decreasing over time, Aleppo and Damascus still has quite a bit of casualties throughout the years. This makes sense since most of the conflict happens there.

Forms of violence

When looking at the violence occurring overtime, we can see different trends. For example, initially most of the fighting happened on the ground, but as time went on the war turned into a shelling campaign.

Libraries:

1. Pandas
2. Pandas_Bokeh
3. Matplotlib
4. Geopandas
5. Plotly
6. Beautiful Soup
7. Tor
8. Fake_useragent
9. Pickle

Tasks:

1. data scrape VDC and CSR websites for Syrian casualties
2. manipulate code to combine shapefile data and scraped data

3. manipulate code to create cumulative choropleth map
4. create choropleth map for number of Syrian casualties yearly
5. create bubble map for number of Syrian casualties yearly
6. create choropleth map for number of Syrian casualties daily
7. create choropleth map for number of Syrian refugees yearly
8. create non-map graphs to visualize other features such as forms of violence, gender, age, ...

Challenges:

1. converting mutable data frames to immutable data frames
 - a. in the end, we converted the pandas data frame to a geo data frame
2. manipulating tables
 - a. pivoting
 - b. summing columns
3. setting up dependencies
4. adapting visualization elements
5. understanding plotly, limited resources and documentation