**Related papers on the effect of crisis**

There are numerous research on the effect of 2008 financial crisis on various topics, including traffic related issues. These works are done on a variety of databases originating from different countries. The research papers evaluate different aspects of traffic data, from effects of crisis on traffic congestion to car sales and fatalities of the accidents.

The first related paper [1] named *“How did the economic recession (2008–2010) Influence Traffic Fatalities in OECD-countries?”* studies the effects of the recession on OECD countries. The conclusions that can be derived from this paper shows that for all the OECD countries, the traffic fatalities decreased more than trends from previous years. Furthermore, there was a direct decrease in traffic casualties in OECD countries during the recession. In general, the research tries to find a connection between the crisis and traffic congestion and succeeds in finding a direct relation between two aspects.

The second related research paper [2] named *“Trafc congestion and economic context: changes of spatiotemporal patterns of trafc travel times during crisis and post‑crisis periods”* tries to find a relation between the economic crisis of 2008 and the traffic congestion. The study is based on the traffic data collected from Madrid. The reason for Madrid as the designated city to research on is because Madrid is a metropolitan city which means that it has an active business and social lifestyle. The findings suggested that both mandatory and recreational transportation decreased in Madrid during 2008 crisis and started to increase after rebuilding the economy (2013-2014). Furthermore, the article suggests that the same pattern could be found in other European metropolitan areas, including London, which can lead us to traffic congestion in specific areas of the UK, namely metropolitan ones.

**Related works on visualizing the traffic data**

Apart from the works that focuses mainly on the relation between the 2008 crisis and traffic aspects, there are projects that specializes in creating a visualization for a given traffic data.

The first one [3] is named Incident Clustering Explorer (ICE), which utilizes a database of traffic incidents. It creates interactive visualizations such as heatmap, scatterplot, and histogram. The program has a toolbar on the left hand side that includes tabs to select a variety of filters, from road condition to incident type. Also, the website has a default map plot, which shows every incident in the database on a real map. This website is a suitable inspiration since heatmap and a map plot of UK is a part of our project and can reveal insights into what type of data columns (date, incident type, etc.) are suitable to create plots.

The second [4] visualization tool is called CrashMap, which is an interactive incident map plot of UK between the timespan 1999-2020. Its interactions include the date, the seriousness and the weather conditions of the incident. It is one of the most significant tools of inspiration for our project, since a map plot of UK incidents is one of the most prominent visualization technique of our project.

For the visualization tools, some similarities will be apparent between our project and the tools mentioned above. For instance, our project has filters to customize the plots given like ICE. Also, like CrashMap, our database focuses on UK incidents, while a map plot is one of the visualization techniques that are used.

However, there are aspects in our project which are significantly different than the other two. For instance, Our project will display four plots on the display which allows the user to see the filtered datapoints in different maps at the same time.

Bib:

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[2] Moyano, A., Stępniak, M., Moya-Gómez, B., & García-Palomares, J. C. (2021). Traffic congestion and economic context: Changes of spatiotemporal patterns of traffic travel times during crisis and post-crisis periods. *Transportation*, *48*(6), 3301–3324. <https://doi.org/10.1007/s11116-021-10170-y>

[3] *Incident clustering explorer*. CATT Lab. (n.d.). Retrieved December 5, 2021, from <https://www.cattlab.umd.edu/?portfolio=incident-clustering-explorer>.

[4] *UK road safety map*. CrashMap. (n.d.). Retrieved December 5, 2021, from https://www.crashmap.co.uk/.