GIS Assessment Part 3 writeup

Literature Review

1. Jenkins et al, 2017, A Probabilistic Analysis of Surface Water Flood Risk in London

Estimating and mapping the surface water flood risk and damage (in $) in London under the context of climate change.

2. Kelly et al, 2015, Assessing the Relationship Between Social Vulnerability and Community Resilience to Hazards

High social vulnerability is correlated with low community resilience to natural hazards. This is expected to help with the decision making on disaster preparation and response about allocating the resource on areas that are most in need of assistance.

3. Matthew et al, 2008, A Sensitivity Analysis of the Social Vulnerability Index

Tested 54 SVI variable at the submetropolitan level in three study areas. Understanding the impacts of changes in index construction and scale are crucial in increasing user confidence in metrics designed to represent the extremely complex phenomenon of social vulnerability

4. Sim, 2017, Social vulnerability to heat in Greater Atlanta, USA: spatial pattern of heat, NDVI, socioeconomics and household composition

The hotspots of social vulnerability to heat occurred in neighborhoods with lower socioeconomic status as measured by low education, low income and more poverty, greater proportion of elderly people and young children. The findings of this study are important for identifying clusters of heat vulnerability and the relationships with social factors. These significant results provide a basis for heat intervention services.

5. Lee, 2014, Social vulnerability indicators as a sustainable planning tool

Analytical results reveal that four out of the 18 townships in Chiayi not only are vulnerable to large-scale flooding during serious flood events, but also have the highest degree of social vulnerability. The final section offers four suggestions concerning the implications of social vulnerability for [local development](https://www-sciencedirect-com.libproxy.ucl.ac.uk/topics/social-sciences/participatory-development) planning.

6. Flanagan, 2011, A Social Vulnerability Index for Disaster Management

developing of SVI based on 15 census variables, sum of rank percentile

7. Yoon, 2012, Assessment of social vulnerability to natural disasters: a comparative study

The results show that coastal counties with more vulnerability in terms of social achieved status are positively associated with disaster damages, while variations in the development of the index using deductive and inductive measurement approaches produce different outcomes.

8. Holand et al, 2010, Social vulnerability assessment for Norway: A quantitative approach

Development of SVI in Norway

9. Lixin et al, 2014, Analysis of social vulnerability hazards in China

Developing of SVI in China

10. Sayers et al, 2017, Flood vulnerability, risk, and social disadvantage: current and future patterns in the UK

Set of index measuring the social vulnerability to flood based on equal weighting, used in the mapping tool on Climate Just

Outline

1. Introduction

This part of the assessment is focusing on developing a Shiny web app that can map the Social Vulnerability Index (SVI) of neighborhoods in London.

Context: climate change and natural hazard

Social vulnerability (index) definition

2. Literature Review

Social vulnerability and community resilience

Precedents on SVI development: indicator selection, calculation method, tool development

Evaluation on sensibility of indicators and scale of study

3. Motivation

The meaning of SVI to risk management

The possibilities and variations on the construction of SVI based on different regions, scales, and method

The necessity of building a web app to assist with the construction of the SVI and decision making

4. Tool Design

Web app, two layers (SVI and Natural Hazards), base map, svi is calculated reactively based on user input on selected variables and weighting, download the output svi/shp, display the info of selected area

5. Process

AOI: London

Level of Measurement: Lower Layer Super Output Area (LSOA)

Data: 2011 Census and …

Limited Variables?

Based on weighting method, z-value

Tool used: R, Shiny package

6. Limitations and Future Research

Provide basic spatial pattern report (statistic summary, clustering, etc, might be realized this time? If do, need an example of the using of app and interpretation of the results)

More variables

More factors related to environment hazards and risk management (e.g. physical/built environment)

More methods of calculation

Info at different scales

More options for downloadable files

Incorporate the part of variable analysis and model building (weighting decision)