Aspects of Poverty Analyzer

Michael Heinle & Zachary Hofstra

The problem we are trying to solve with our project is the combination of causes, effects, and other potentially causally linked aspects of poverty across the U.S.A. The intent is not a reductionist approach to single cause or even to necessarily determine confluences of causes, but to identify commonly experienced narratives and conditions of localized poverty as well as differences between what poverty looks like between various regions of the United States, potentially allowing for regional/typological applications of relief. This will inform decision-makers about common symptoms and areas of highest need. This may be used by city planners on what to avoid and how to mitigate aspects of poverty as well as sociologists on how to detect, measure, and advise on various indicators of emerging poverty. This could also inform studies into measures of improvement with multi-variable measurements beyond merely income.

This project will incorporate many measurements taken from U.S. Census data as well as from USDA soil mapping and agricultural levels. Basic functionality should have a graphical representation of the data on a map. Data with calculated statistical correlations to the poverty level should be available and represented as well. Additionally, an attempt will be made to identify comparables regarding shared features of poverty that allow connections beyond the standard geographic, rural/urban mix, and socio-demographic matrix.

Nice to have features may include timelines of the evolution of income levels in areas, zoom features that enable precision measurements, and school zone ratings as an additional layer. To ensure greatest ease of access and spread among both professional and non-professional users, we will prioritize a final user interface that avoids the need for specialized software, set-up, or technical expertise, opting for a browser-based application.

A technical challenge we foresee is correlating all the data with geographic coordinates. While census and ACS (American Community Surveys) data employ the census block/census tract geographic identifiers, their use is not as common in medical (preferring ZICTA schema), agricultural, and social data sets, even those originating from Federal sources. While specialized tools and software (e.g. ArcGIS) exist specifically to mitigate data inconsistencies of this type, their cost is generally prohibitive and their use falls more within the domain of professionals, potentially limiting reach and audience. We will instead opt for the creation of crosswalks between the various geographic identifiers. This will likely lead to a reduction in the total levels of granularity available to end users, but will ensure a broader reach while still providing a viable framework for expansion in the future.

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Collaborating may be more difficult as Zach has no access to collaboration tools, coding tools, or Canvas where he works. This will limit his ability to consult about the project to real-time only after work hours EST. Team composition issues may arise from the limited coding capabilities Zach has, as well as the team's available hours to work each week. We will use our first planning meeting to mitigate coding and capability challenges and strengths.

Our plan for coordination is regular ad hoc Slack updates as we work asynchronously with dedicated Sunday zoom calls to go over anything that may be falling back, ensure we are on azimuth for completion, and discuss any other improvements we can make to represent the data as well as possible. Mike will implement and share a Git repository for data, code, documentation, and version control. We believe that this will add a level of stability and clarity to our, mostly, asynchronous efforts. Fortunately, we are both in the Eastern time zone and will be able to coordinate effectively without unusual scheduling. We will hold 1 long planning meeting where we line out everything that will need to get done and divide it evenly and assign rough timelines to ensure we stay on track and we know each of our responsibilities to the team and the project.