A Crowdsourced Homeless Data Collection System And Its Econometric Analysis: Strengthening Inclusive Public Administration Policies

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Abstract : This paper proposes a method to collect homeless data using crowdsourcing and presents an approach to analyze the data, demonstrating its potential to strengthen existing and future policies aimed at promoting socio-economic equilibrium. The 2022 Annual Homeless Assessment Report (AHAR) to Congress highlighted alarming statistics, emphasizing the need for effective decision-making and budget allocation within local planning bodies known as Continuums of Care (CoC). This paper's contributions can be categorized into three main areas. Firstly, a unique method for collecting homeless data is introduced, utilizing a user-friendly smartphone app (currently available for Android). The app enables the general public to quickly record information about homeless individuals, including the number of people and details about their living conditions. The collected data, including date, time, and location, is anonymized and securely transmitted to the cloud. It is anticipated that an increasing number of users motivated to contribute to society will adopt the app, thus expanding the data collection efforts. Duplicate data is addressed through simple classification methods, and historical data is utilized to fill in missing information. The second contribution of this paper is the description of data analysis techniques applied to the collected data. By combining this new data with existing information, statistical regression analysis is employed to gain insights into various aspects, such as distinguishing between unsheltered and sheltered homeless populations, as well as examining their correlation with factors like unemployment rates, housing affordability, and labor demand. Initial data is collected in San Francisco, while pre-existing information is drawn from three cities: San Francisco, New York City, and Washington D.C., facilitating the conduction of simulations. The third contribution focuses on demonstrating the practical implications of the data processing results. The challenges faced by key stakeholders, including charitable organizations and local city governments, are taken into consideration. Two case studies are presented as examples. The first case study explores improving the efficiency of food and necessities distribution, as well as medical assistance, driven by charitable organizations. The second case study examines the correlation between micro-geographic budget expenditure by local city governments and homeless information to justify budget allocation and expenditures. The ultimate objective of this endeavor is to enable the continuous enhancement of the quality of life for the underprivileged. It is hoped that through increased crowdsourcing of data from the public, the Generosity Curve and the Need Curve will intersect, leading to a better world for all.

Keywords : crowdsourcing, homelessness, socio-economic policies, statistical regression