

Analyzing Nationwide Urban Service Accessibility for Women through Computational Analysis.



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Access to health and education services is essential for the well-being of the female population. It is crucial to maintain these services within a reasonable distance to ensure viable emergency access and prevent education from becoming a daily sacrifice.

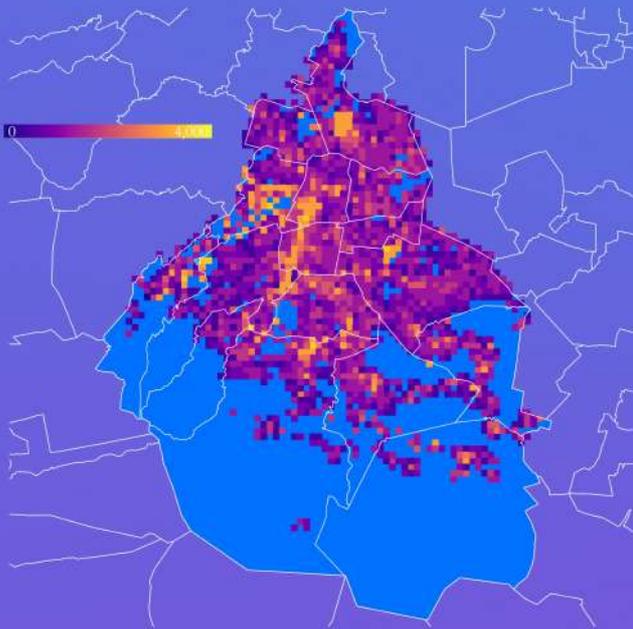
The problem involves developing a methodology to identify the coverage of health and education service centers. One way to do this is through the use of isochrones, which represent the time women in Mexico require to travel from their homes to the nearest establishment offering services relevant to them.

National distribution of establishments with a gender focus



To carry out this task, several steps were followed. First, data from the DENU (National Directory of Economic Units) classified by services provided to women were used. For this classification, a model was applied to identify those that provide specific support to women, using automatic classification of economic units and keywords with a gender focus.

Establishments with a Gender Focus per Thousand Inhabitants - Ciudad de México



Additionally, the strategy of using OpenRouteService (ORS), a free software that offers global spatial services by consuming free geographic data from OpenStreetMap, was implemented. All street vertices corresponding to Mexico were collected and loaded into the ORS system.

With this data, a Python script was used to generate isochrones automatically for each of the 6 study categories, thus integrating all steps of the process.

Percentage of women aged 12 years or older with access to health services within 30 minutes or less



To facilitate the handling of information, the isochrones were associated with a 600 x 600 grid containing population data. An intersection was performed between the cell and the isochrone, allowing the population data to be associated with each of the generated isochrones. This process also enabled the addition of data at different levels of disaggregation.

Travel time to a health service for women aged 12 years or older - Oaxaca, Mexico

