

Measuring potential spatial accessibility to COVID-19 vaccination centers

Inputs

Health Facilities (PHs&PHCs)
"Destination"

Census Tracts Include
Population Weighted by Age
"Origin"

Spatial Analysis and
Model Evaluation

Step 1

Accessibility
Measurement:
E2SFCA

$$R_j = \frac{S_j}{\sum_{k \in \{d_{kj} \in D_r\}} P_k W_r} = \frac{S_j}{\sum_{k \in \{d_{kj} \in D_1\}} P_k W_1 + \sum_{k \in \{d_{kj} \in D_2\}} P_k W_2 + \sum_{k \in \{d_{kj} \in D_3\}} P_k W_3}$$

Step 2

$$A_i^F = \sum_{j \in \{d_{ij} \leq D_r\}} R_j W_r = \sum_{j \in \{d_{ij} \leq D_1\}} R_j W_1 + \sum_{j \in \{d_{ij} \leq D_2\}} R_j W_2 + \sum_{j \in \{d_{ij} \leq D_3\}} R_j W_3$$

Buffer Analysis,
Hexagonal Tessellation,
Moran's I (Spatial Autocorrelation),
Voronoi Polygons Method,
Hub- Distance Lines Method (Closest
Facility),
Quantile maps



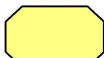
PSA

- Scenarios**
- 1: Public Hospitals
 - 2: Public Health Centers
 - 3: Public Hospitals & Public Health Centers
 - 4: Proposed Model

Outputs

PSA Maps

Hexagonal Polygons Maps,
Buffered Road Distance Maps,
Moran's I Summary Statistics,
Areas of Influence Map

Symbols		Abbreviations	
	Inputs	PSA: Potential Spatial Accessibility	
	Outputs	E2SFCA: An Enhanced Two-Step Floating Catchment Area	
	Methods and Tools	PHs: Public Hospitals	
		PHCs: Public Health Centres	