1 Resilience index

The resilience index ι for each census block j is obtained as a linear combination in the form

$$\iota_j = \sum_{i=1}^{N} w_{ij} x_{ij} \tag{1}$$

where w is the weight and x is the value function of the state of critera i for the N criteria considered in the phenomena description.

The value function for criteria is given by

$$x_{ij} = 1 + \frac{\min(\bar{\mathbf{y}}_\mathbf{i}) - y_{ij}}{\max(\bar{\mathbf{y}}_\mathbf{i})} \tag{2}$$

where $\bar{\mathbf{y}}_\mathbf{i} = [y_{i1}, \ldots, y_{ij}]^T$ represents the vector of census blocks for criteria i.

The criteria associated with the resiliency index are

- the complaints ($resident_reports_potable_water_failure_count_per_year$)
- the infrastructure deficiency ($household_potable_system_lacking_percent$)