



# Data-Driven Policy Interventions Enhance Healthcare Accessibility and Infant Mortality Rates in Southern Ghana

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### Abstract

This study examines the impact of data-driven policy interventions on healthcare accessibility and infant mortality rates in Southern Ghana. Data-driven models were employed to analyse health service utilization patterns and identify disparities. A mixed-method approach combining quantitative survey data with qualitative interviews was used to validate findings. Analysis revealed that targeted interventions in maternal healthcare services led to a statistically significant reduction of infant mortality rates by 20% within the study period, with a 95% confidence interval indicating robust stability of results. The data-driven policy interventions demonstrated substantial success in enhancing health accessibility and reducing infant mortality. Further research is recommended to explore scalability and long-term sustainability. Policy makers are encouraged to implement continuous monitoring mechanisms and integrate community engagement strategies to sustain the positive impacts observed. Data-Driven Policy Interventions, Healthcare Accessibility, Infant Mortality Reduction, Southern Ghana Model estimation used  $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n \text{sumiell}(y_i, f\theta(\xi)) + \lambda \text{Vert}\theta\text{rVert}^2 \}$ , with performance evaluated using out-of-sample error.

**Keywords:** *Geographic, Data-Driven, Policy Interventions, Healthcare Accessibility, Infant Mortality, Quantitative Analysis, Geographic Information Systems*

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