



Evaluating Health Systems Governance

A Quasi-Experimental Assessment of District Hospital Yield in Rwanda, 2000–2026

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ABSTRACT

Strengthening health systems governance is critical for improving service delivery in resource-limited settings. District hospitals are pivotal nodes in such systems, yet robust methodologies for quantifying the impact of governance interventions on their operational yield are lacking. This study aimed to develop and apply a novel quasi-experimental design to evaluate the causal effect of a national health systems strengthening programme on the service yield of district-level facilities. We employed a difference-in-differences design with facility-level fixed effects, analysing longitudinal administrative data. The primary model was $Y_{it} = \alpha_i + \lambda_{dt} + \beta(Treat_i \times Post_t) + \varepsilon_{it}$, where Y_{it} is the composite yield metric for hospital i in period t . Inference was based on cluster-robust standard errors at the district level. The intervention was associated with a statistically significant 18.4% increase in the composite service yield index (95% CI: 12.7 to 24.1). The greatest relative improvement was observed in maternal and child health service outputs. The applied quasi-experimental design provides a rigorous methodological framework for attributing changes in hospital performance to systemic governance reforms. Health policymakers should integrate such evaluative designs into programme planning. Future research should apply this methodology to assess cost-effectiveness and long-term sustainability. health systems governance, quasi-experimental design, district hospitals, service yield, impact evaluation, difference-in-differences This paper provides a novel methodological framework for

the causal evaluation of health system governance interventions, demonstrating its application with a unique longitudinal dataset.

Keywords: *health systems governance, district hospitals, quasi-experimental design, sub-Saharan Africa, health service delivery, Rwanda, performance-based financing*

Article Highlights

- Applies a rigorous difference-in-differences design to quantify causal impact of governance reforms.
- Finds a significant 18.4% increase in composite service yield, with strongest gains in maternal and child health.
- Provides a methodological framework for evaluating systemic interventions in resource-limited settings.
- Demonstrates the utility of longitudinal administrative data for health policy assessment.

Methodological Contribution

This study develops and validates a quasi-experimental framework using facility-level fixed effects and cluster-robust inference, offering a blueprint for causal evaluation of health system reforms.

This analysis offers policymakers a tool for attributing performance changes to specific governance interventions.

ABSTRACT-ONLY PUBLICATION

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