

# Health Management: How the Environment and Energy Could Affect Health Outcomes and Hospital Financial Sustainability

Sasha Lopez

Mentor: Hyunji Christine Kim

## Introduction & Background

The relationship between health outcomes and financial sustainability of hospitals has been well studied and highlighted the importance of reciprocal impacts. However, the interaction of health management and environmental factors that affect hospitals financial sustainability, which will lead to better performance of the hospitals hasn't been studied relatively.

The purpose of the research is to create a comprehensive understanding of how environmental conditions and energy management practices within the hospitals impact the quality of patient care and the economic standing of hospitals.

The study aims to develop a comprehensive framework for assessing how environmental factors and hospital-level energy management influence both the quality of patient care and the economic viability of healthcare institutions.

This research contributes to the growing body of literature on sustainable healthcare management and offers evidence-based recommendations for policymakers and healthcare administrators. By highlighting the critical role of environmental and energy-related factors, the study aims to provide strategies that enhance both the financial

## Future Implications

With an emphasis in our research on the environmental sustainability and healthcare management intersection, we seek to contribute to an expanding body of literature in this field. Highlighting the essential role of sustainable practices in healthcare systems, our research emphasizes the necessity of integrating environmentally conscious strategies to enhance the efficiency of operations and patient recovery outcomes.

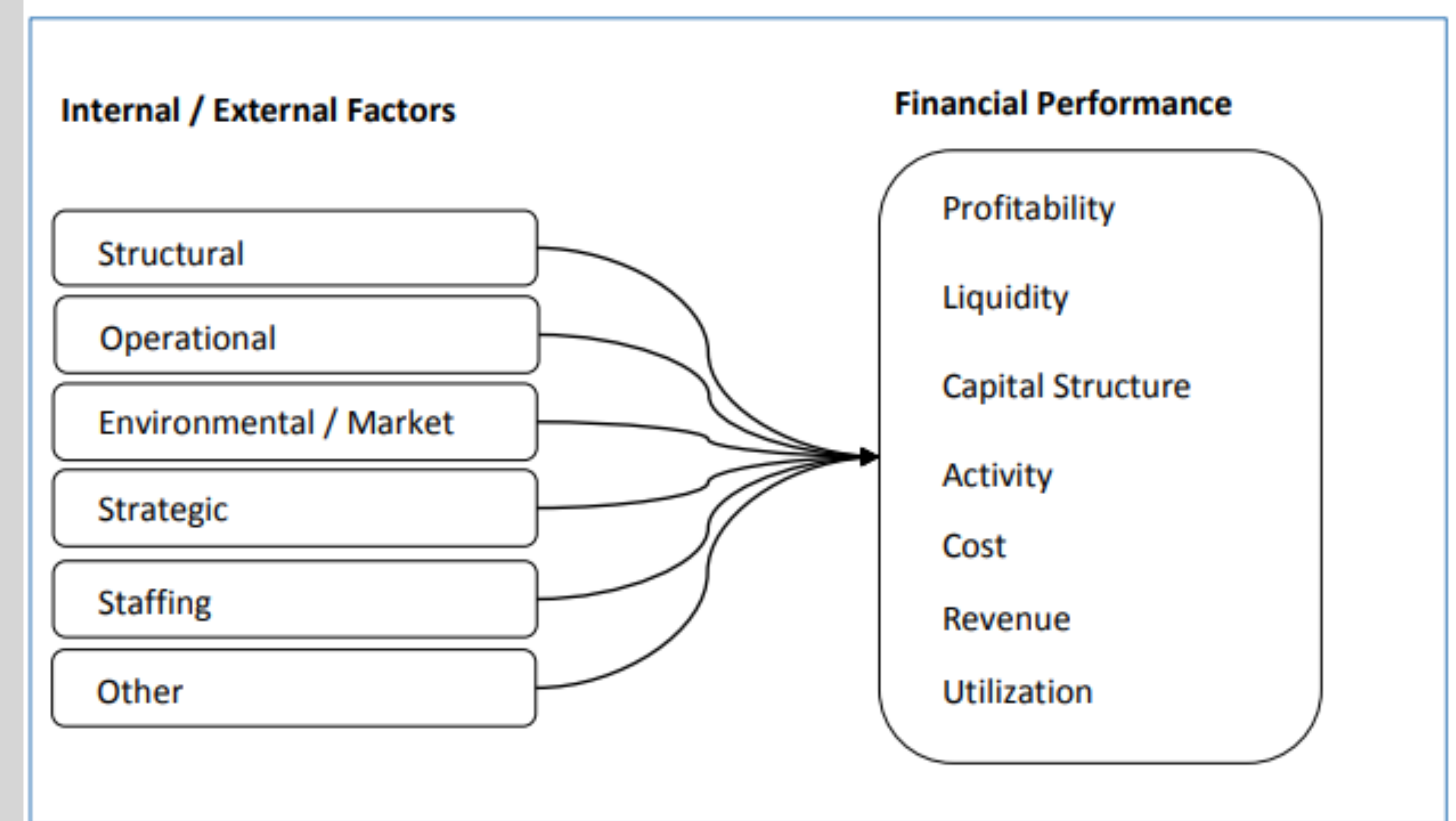
Our objective is to provide well-informed and data-driven recommendations that can be provided to policymakers and healthcare administrators. They can use these findings as a resource to shape policies and institutional frameworks to ensure the financial viability of healthcare organizations and promote improved health outcomes for patients facing growing environmental challenges. By emphasizing a balance between economic sustainability and ecological responsibility, our research aims to influence the development of healthcare systems that remain resilient and responsive to changing demands of public health and environmental stewardship. Our research has made significant progress, and we are still actively working with our processes of data collection and analysis to further perfect our findings and establish concrete conclusions that will answer our research question and provide us results that we can utilize.

## Method

This study employs a multiple panel regression analysis to examine the relationship between environmental factors and hospital financial sustainability. Grounded in organizational theory, the analysis utilizes hospital-level panel data from the American Hospital Association (AHA), incorporating information from insurance policy reports and hospital financial performance metrics.

The unit of analysis is individual hospitals, with a particular focus on fund dependency, which is whether hospitals primarily funded through public insurance programs such as Medicaid and Medicare or private insurers. The Dependent variable is hospital financial sustainability, consisting of the modified Altzman Z score, and the independent variable is an environmental index with several environmental factors, including air and water quality of the community. This also considers extreme temperature days of the area where the hospital is located. Control variables include key hospital characteristics, such as size, rurality of its location, patient demographics, and operational efficiency indicators. By leveraging longitudinal data, this research captures trends over time, allowing for a robust assessment of how environmental and energy management strategies influence both financial and health-related outcomes in hospitals. The findings aim to provide empirical evidence to inform policy decisions and managerial strategies for improving hospital financial sustainability.

Figure 1. Conceptual Framework



## References

Ms. N.O. (2016). Organizational and Environmental Factors Associated with Hospital Financial Performance: A Systematic Review. *Journal of health care finance*, 43.  
Rennane, S., & Dick, A. (2023). Effects of Medicaid Automatic Enrollment on Disparities in Insurance Coverage and Caregiver Burden for Children with Special Health Care Needs. *Medical care research and review - MCRR*, 80(1), 65-78.  
Agency for Health Care Administration. (2019, October 1). *Florida Medicaid managed care auto-assignment methodology*.  
Nelson, M., Ehrenfeucht, R., Birch, T., & Brand, A. (2021). Getting By and Getting Out: How Residents of Louisiana's Frontline Communities Are Adapting to Environmental Change. *Housing Policy Debate*, 32(1), 84-101.  
Kallin, Sukono, Supian, S., & Mamat, M. (2023). Model for Determining Insurance Premiums Taking into Account the Rate of Economic Growth and Cross-Subsidies in Providing Natural Disaster Management Funds in Indonesia. *Sustainability*, 15(24), 16655.  
Camarinha-Matos, L. M., & Alsamaneh, H. (2005). Collaborative networks: a new scientific discipline. *Journal of intelligent manufacturing*, 16, 439-452.  
Durugbo, C.M. (2015). Collaborative networks: A systematic review and multi-level framework. *International Journal of Production Research*, 54 (12), 1-28Ms. N.O. (2016). Organizational and Environmental Factors Associated with Hospital Financial Performance: A Systematic Review. *Journal of health care finance*, 43.  
Rennane, S., & Dick, A. (2023). Effects of Medicaid Automatic Enrollment on Disparities in Insurance Coverage and Caregiver Burden for Children with Special Health Care Needs. *Medical care research and review - MCRR*, 80(1), 65-78.  
Agency for Health Care Administration. (2019, October 1). *Florida Medicaid managed care auto-assignment methodology*.  
Camarinha-Matos, L. M., & Alsamaneh, H. (2005). Collaborative networks: a new scientific discipline. *Journal of intelligent manufacturing*, 16, 439-452.  
Durugbo, C.M. (2015). Collaborative networks: A systematic review and multi-level framework. *International Journal of Production Research*, 54 (12), 1-28