Final Project

Hospital Financial Data Analysis: An Exploration into California's Healthcare Finances

Salina R. Najera

Bellevue University

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Professor Metzger

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Statistical Questions:
In the intricate web of healthcare, financial metrics serve as crucial indicators of a hospital's health. This analysis delved into the financial data of hospitals across California, aiming to uncover patterns and insights that could guide stakeholders in their strategic decisions.

Central to our exploration was a question of great importance: How do financial metrics differ across counties in California, and can we predict a hospital's net income based on its operational metrics?

Outcome of the EDA:
The exploratory data analysis (EDA) provided a comprehensive understanding of the hospital's financial and operational landscape.

Key findings include: Variation Across Counties: There were noticeable differences in financial metrics across counties. For instance, hospitals in urban counties like Los Angeles had higher operating expenses compared to those in more rural counties like Riverside. This could be attributed to higher patient volumes, more specialized services, or higher cost of living and operational costs in urban areas.

Predictive Modeling: A regression model was developed to predict a hospital's net income based on various operational metrics. The model showed that variables like total discharges (DIS_TOT) and total operating expenses (TOT_OP_EXP) were significant predictors of net income.

What was missed during the analysis?
While the analysis provided valuable insights, a deeper dive into the specific financial metrics across counties could have been beneficial. For instance, understanding the breakdown of operating expenses or analyzing patient revenue streams across counties would have added depth to the analysis.

Variables that could have helped:
Including variables like patient satisfaction scores, average length of hospital stay, or a detailed breakdown of revenue streams (e.g., outpatient vs. inpatient revenue) could have enriched the analysis and provided more nuanced insights.

Incorrect Assumptions:
One potential assumption was that all counties operate similarly in terms of financial metrics. However, the EDA revealed significant variations across counties, highlighting the importance of localized analysis.

Challenges and Misunderstandings:
Data Granularity: The dataset provided a high-level overview, but diving deeper into specific financial metrics at a granular level would have been challenging without additional data.
Model Interpretation: While the regression model provided statistical outputs, translating these into actionable insights for hospital administrators required a deeper understanding of the healthcare industry.

Conclusion
In conclusion, the analysis shed light on the variations in financial metrics across counties and the factors influencing a hospital's net income. The findings underscore the importance of localized strategies for hospital financial management and the potential of predictive modeling in guiding financial decision-making. Future analyses could delve deeper into specific financial metrics, incorporate more variables, and refine the predictive model for enhanced accuracy.