Luck vs Skill in College Basketball

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1 Letter to the Editor

In addition to this report, write a one-page letter to the newspaper chief editor, explaining the main results of the report and suggesting findings that can be communicated with the basketball fans reading the newspaper.

2 Overview

Describe the problem, your model, results and how your model performed.

3 Introduction

Rephrase the problem Problems are open-ended and there are many ways to interpret and address them. Explain how you approached the problem.

4 Methods

Explain your model Clearly state and justify ALL assumptions your model uses Motivate your model. Why did you choose your approach? Clearly describe your model Clearly define all variables Include tables and figures to make it easier to understand Analyze your model What are the strengths and weaknesses of your model? How could you test your model? How stable are the results to noise? If you had more time, how would you expand/improve your model?

4.1 Our "Elo" Ranking

Traditionally, a player's Elo ranking is updated after each game based on the following formula:

The Elo score after a team's $n + 1^{\text{th}}$ game is given by

$$\gamma_{n+1} = \gamma_n + \alpha \frac{\gamma_n^{opp}}{\gamma_n} \frac{S_{\text{winner}}}{S_{\text{loser}}}$$

$$\gamma_{n+1} = \gamma_n - \alpha \frac{\gamma_n}{\gamma_n^{opp}} \frac{S_{\text{winner}}}{S_{\text{loser}}}$$

where γ_n is the team's current Elo score (after week n), γ_n^{opp} is the opposing team's current Elo score, $\alpha > 0$ is a weight parameter, and S_{winner}, S_{loser} are the scores of the winner/loser.

4.2 Weaknesses

4.3 Rejected Ideas

5 Results

What does your model say about the question you have been given?

6 Next Steps

When updating our "Elo" scores, we had an artbitrary parameter α. If we had more time, we would have liked to rerun the experiment with a range of α and see if we obtained similar results.