Let's Get Physical: Inferring Latent Characteristics of NBA Games

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Project Motivation

Background on the Role of Physicality in NBA Games

Debate Surrounding Defense, Existing State of Research

Project Scope and Significance

Relevance and Novelty

Broader Context

Project Research Questions

Primary Research Question

Can an NBA game's latent physicality characteristic be inferred from play-by-play and Last Two Minute Report data?

Secondary Research Questions

What is the effect of measurement error (referees incorrectly calling or not calling fouls) on players' true foul committing propensity?

What is the effect of measurement error (referees incorrectly calling or not calling fouls) on players' true foul drawing propensity?

Data Sources

Primary Data Sources

NBA Play-by-Play

- **Type:** .parquet
- **Years:** 2023-2025
- **Size:** tk
- **Link:**

NBA Last Two Minute Reports

- **Type:** .parquet
- **Years:** 2023-2025
- **Size:** tk
- **Link:**

Causal Models

Causal Model of In-Game Physicality

Causal Model of Foul Committing Propensity

Causal Model of Foul Drawing Propensity

Generative Models

Generative Model of In-Game Physicality

Generative Model of Foul Committing Propensity

Generative Model of Foul Drawing Propensity

Statistical Models

Statistical Model of In-Game Physicality

Statistical Model of Foul Committing Propensity

Statistical Model of Foul Drawing Propensity

Prior Selection and Predictive Checks

Prior Model of In-Game Physicality

Less Constrained

More Constrained

Implicit

Prior Model of Foul Committing Propensity

Less Constrained

More Constrained

Implicit

Prior Model of Foul Drawing Propensity

Less Constrained

More Constrained

Implicit