

Projection Pursuit for Detecting Hidden Structures

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Abstract

The relationship between sport performance and the financial assets of football clubs has attracted increasing attention of both investors and academics. This paper investigates topic within the framework of Italian major league championship for the 2024/2025 season, regarded as one of the most competitive leagues at the continental level, albeit less financially endowed than those of other countries, such as the United Kingdom and Spain. From the statistical point of view, we show that principal components lead to unsatisfactory results, while projection pursuit detects both clusters and outliers. To a lesser degree, the same does invariant coordinate selection. From the subject-matter point of view, we show that financial variables explain about half of the sport performance, and that top Italian football teams are clearly separate from each other, with Inter Football Club being quite peculiar, consistently with common beliefs.

Keywords

Football, Kurtosis, Invariant coordinates selection, Principal component analysis, Projection pursuit.