Introduction

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This is a Special Issue on productivity in sports from all over the world: soccer in Germany, soccer in Spain, baseball in Korea, baseball in the U.S., basketball in the U.S, football in the U.S., golf in the U.S. The economist's toolkit combined with passion and data produces unexpected insights that have the potential to spawn new arguments amongst sports enthusiasts and maybe even resolve old controversies:

- Professional sports teams are businesses. Teams in the Spanish First Football League are very effective in transforming resources into revenue (Barros and Garcio-del-Barrio).
- Coaching and player talents drive sports performance. It is interesting to separate the effects of these two drivers for teams in the first division of the German professional soccer league (Frick and Lee).
- In U.S. professional basketball, teams select in the amateur draft in reverse order of their previous season performance. The purpose is to equalize player talent over time and maintain a degree of competitive balance. This is predicated upon the assumption that draft order predicts professional performance. This assumption may be false. (Berri, Brook and Fenn).
- Quarterbacks in the U.S. National Football league are drafted based upon college performance and other data collected by the NFL Scouting Combine. The expectation is that draft order predicts professional performance. The evidence suggests that this is not the case (Berri and Simmons).
- A professional sports team manager can intervene more or less in the course of a game. "Small ball" is a more interventionist strategy that is prevalent in Asian baseball. Is it effective in winning games in Korean baseball? Maybe (Lee).
- Well functioning labor markets establish salaries that correspond to productivity. Salaries should vary over a career according to the time profile of productivity. In U.S. professional baseball, it appears that younger and inexperienced players are underpaid and that salaries peak a few years after productivity peaks (Hakes and Turner).
- Success on the Professional Golfers Association (PGA) Tour depends upon physical talent and the ability to perform under pressure. Both physical talent and mental fortitude vary over the course of a career as a golfer gains experience but also age takes a physical and mental (ability to handle the pressure) toll. It appears that the ability to perform under pressure peaks around 36 years of age, controlling for physical ability (Fried and Tauer).

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1 A reader's guide

Many of the papers in this Special Issue utilize a production function methodology: inputs are related to outputs. Some of the papers utilize a frontier production function

methodology. It is helpful to keep in mind the difference. Frontier production functions fit relationships to the outlying observations in the dataset rather than fit a “line” through the middle of the data. Frontier approaches identify best practice; conventional approaches identify average practice. Both approaches are useful and interesting.

The remainder of this introduction examines each paper in turn, identifying its novel contribution. The point is not to provide a summary. The specific findings are left to the reader to enjoy.

1.1 Productivity drivers and market dynamics in the Spanish first football league

Watch out for the frontier production function methodology, particularly the application of data envelopment analysis (DEA) embedded in a stochastic framework. DEA efficiency scores are bootstrapped and the second stage explanatory regression is based upon a bootstrapped truncated regression. The approach is financial. Outputs are revenue components; inputs are cost components and assets. The financial technical efficiency of teams in the Spanish League is particularly important since football has become more highly integrated throughout Europe (and the world). Teams no longer operate in insular markets that are sheltered from outside competition.

1.2 Temporal variations in technical efficiency: evidence from German soccer

Again, note the frontier production function methodology; a stochastic frontier model with time varying technical efficiency is applied to a unique panel data set. The results are decomposed to reveal that the efficiency of individual teams tends to vary over time, but the average efficiency of the league tends to be stable. The German League relegates the worst performing teams each year to the second tier of the league hierarchy. Interestingly, relegated teams tend to have poor technical efficiency scores. Moreover, teams with poor efficiency scores tend to replace the head coach. On both counts, the model passes a realism-based sniff test.

1.3 From college to the pros: predicting the NBA amateur draft

The order in which players are drafted in the NBA does not predict their performance; this is not because of the lack of data, but because the wrong data is used. This finding is related to evidence that NBA teams over emphasize scoring in their evaluation of player performance. The “market” gets it wrong. Why? How long will this persist?

1.4 Catching a draft: on the process of selecting quarterbacks in the national football league amateur draft

The reverse order draft is based upon the connection between draft order and professional performance. Note some novel contributions: Professional performance is typically evaluated on an aggregate basis for the season according to measures such as net points, wins, quarterback score or quarterback rating. Aggregate measures of performance are related to draft order. However, aggregate measures do not control for the number of plays that the quarterback runs. Per play measures of performance are not related to draft order. Earlier draft picks play more than later draft picks; they do not necessarily play better.

1.5 Is the small-ball strategy effective in winning games? A stochastic frontier production approach

Notice the use of a stochastic frontier approach to identify managerial inefficiency and to relate this to factors that characterize a small-ball strategy. The production function specifies the transformation of player talent into wins; the inefficiency term captures the contribution of the manager. The inefficiency term is specified as a function of the characteristics of a small-ball strategy. The signs and significance of the coefficients on the characteristics of small-ball constitute the test of the effectiveness of a small-ball strategy.

1.6 Pay, productivity and aging in major league baseball

Research on salaries and productivity in major league baseball typically rely upon a pooled sample that includes players of all abilities, ranging from super stars to journeymen. This paper investigates possible differences in the relationship between productivity and salaries for players according to player ability. Separate regressions are run for each talent quintile. Since the time profile of the relationship between pay and performance is of particular interest, the salary regression is a function of experience rather than typical performance measures.

1.7 The impact of age on the ability to perform under pressure: golfers on the PGA tour

The method is order-m FDH. This is a non-parametric frontier method that introduces a stochastic element to mitigate the effect of outliers. The production function relates performance on the PGA tour to conventional

measures of golfing ability. The inefficiency term is interpreted to be a quantitative measure of the ability to perform under pressure. As a golfer ages, physical ability and mental fortitude eventually decline. The impact of age

on the ability to perform under pressure is identified, controlling for physical golfing ability.

Welcome to the JPA Special Issue on Sports. Have fun.