The Future of Behavioral Economics in Sports Economics Research

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Not an “Intro to Behavioral Economics” lecture
Selective literature review - examples of papers in sports economics using behavioral concepts
Discussion of areas I think are likely to be fruitful for applying behavioral concepts
I hope to convince you that sports economists should pay more attention to behavioral econ concepts than we currently do
What is Behavioral Economics?

- Standard economic models emphasize rational choice: fully informed agents make utility/profit/revenue maximizing decisions given time-invariant preferences; these decisions are not influenced by other factors.
- Standard economic choice models provide clear predictions and enjoy substantial empirical support.
- However, in some areas, outcomes appear to differ systematically from the predictions of standard choice models.
- Behavioral economics uses insights from psychology to explain these systematic differences.
- Area has come a long way since “satisficing” and now includes rigorous models that generate specific predictions.
Sports economics has a curious relationship to behavioral economics - early adopters of a few behavioral ideas (the Hot Hand, Sentiment Bias, Favorite-longshot Bias) caught on, led to much additional research, followed by general lack of interest in other behavioral concepts.
Where we have been and where we should go

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- I find this both odd and interesting.
Where we have been and where we should go

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- Sports economics is filled with research topics that appear to be well suited to the application of behavioral concepts and seminal papers in behavioral economics used sports to motivate the research.
Context: Kahneman and colleagues identified biases in perceptions of random events as an important behavioral concept as early as the 1970s - the Law of Small Numbers.

Original research focused on free throw shooting in pro and college basketball.

Sports economists seized on this idea almost immediately, currently a large, ongoing literature focusing on the Hot Hand in match outcomes and betting markets.

No need to summarize this research...
**Context**: Early tests of informational efficiency in markets used data from sports betting, especially horse race betting.

Evidence showed one clear irregularity: bettors over bet long shot horses relative to favorites, even in parimutuel betting, that cannot be easily explained by standard models of choice under uncertainty.

Sports economists seized on this idea almost immediately, currently a large, ongoing literature focusing on the Favorite-Longshot Bias in many betting markets.

No need to summarize this research . . .
Sentiment bias research in sports economics

- **Context**: Investor sentiment refers to cases when asset prices differ from the PDV of future cash flow/earnings and this difference cannot be arbitraged away.

- One explanation for this is behavioral biases in investor decisions (Hirshleifer “Investor Psychology and Asset Pricing” *J. Finance* 2000)

- Economists used data from sports betting markets to test this idea almost immediately, currently a large, ongoing literature

- No need to summarize this research . . .
Reference Dependent Preferences (RDP): Utility depends on both standard consumption utility and “gain-loss” utility that depends on deviation between actual experience and some reference point.

Loss aversion: Marginal utility of negative deviations from reference point larger than marginal utility of positive deviations. This concept rooted in Prospect Theory.

The Endowment Effect: People ascribe more value to things simply because they possess them. Manifestation of RDP and loss aversion.
Selected Sports Econ Papers using RDP/Loss Aversion

- “Can Losing Lead to Winning?” (Man Sci 2011) Not cited in JSE.
- “Reference-Dependent Preferences, Loss Aversion and Live Game Attendance” (Economic Inquiry 2014)
- “Sticking with What (Barely) Worked: A Test of Outcome Bias” (Management Science 2015).
- “Reference-Dependent Preferences, Team Relocations, and Major League Expansion” (JEBO 2015)

**Summary:** Professional athletes’ and team managers’ decisions consistent with loss aversion; managers do not update strategic decisions in a way consistent with standard choice models; fans are loss averse and teams exploit this.
Future Research: Secondary Ticket Markets


- Selling price for NCAA Final Four basketball ticket (WTA = $2,400) 14 times higher than buying price (WTP = $170).

- Growing literature on secondary ticket markets in sports. This paper, and this classic, textbook example of the endowment effect, completely ignored in secondary ticket pricing literature.
Future Research: League Design Issues

- Coates, Humphreys and Zhou *El* 2014: the *classical UOH* does not describe attendance outcomes
- Fan’s decisions suggest home win preference and tastes for upsets
- This only happens if there are dominant teams and relatively wide dispersion in team quality
- Standard league models use the *classical UOH* to explicitly motivate revenue functions that are concave in winning percent/talent
- Fan RDP/loss aversion may imply non-concave revenue functions, depending on composition of league
Stigler and Becker (1977) have argued in their seminal article that the utility, which a consumer is able to derive from the present “consumption” of certain goods, depends on the “consumption capital” accumulated by this actor through previous “consumption” of these goods.

Genuine football fans following the games and activities of “their” club sometimes for their whole life are perhaps the perfect incarnation of this theory of beneficial addiction. Presumably a true fan with all the accumulated context knowledge enjoys a remarkable game of his club more than an occasional spectator coming along incidentally. Moreover, fans of the same club enjoy interacting in a group of like-minded people, for example, by sharing the joy of a great performance.

- Egon Franck, Keynote lecture, First ECSE, Paris 2009
Future Research: Team Organizational Forms

- Clear behavioral basis (Is addiction “rational”? Theory and evidence, QJE 2001)
- Humphreys & Zhou, “The Hold-Up Problem, Reference-Dependent Preferences, and Ownership of Professional Sports Teams” formalize this idea using RDP/loss aversion
- Focus on durable fan investment in team and how this generates a hold-up problem
- Approach has many implications for understanding fan behavior, team ownership, and league governance
Behavioral Concept: Present Bias

- **Present bias**: Tendency to overvalue immediate events relative to future events; AKA hyperbolic discounting, time inconsistency
- $u_t$: current utility, individuals care about current and future utility, make decisions in period $t$ that affect current and future ($u_{t+1}, u_{t+2}, \ldots, u_T$) utility
- Standard economic model uses exponential discounting

$$U^t(u_t, u_{t+1}, u_{t+2}, \ldots, u_T) = \sum_{\tau=t}^{T} \delta^{\tau} u_\tau$$

- Discounting future utility by $\delta$ is time-consistent in that a person's relative well-being at any date relative to a later date is always the same
- Under time-inconsistent preferences:

$$U^t(u_t, u_{t+1}, u_{t+2}, \ldots, u_T) = \delta^t u_t + \beta \sum_{\tau=t+1}^{T} \sigma^{\tau} u_\tau.$$

- $\beta$, which is applied to all future periods, reflects “present bias”
Implications of present bias

- Excessive preference for gratification now at the expense of future gratification - this happens often in sport context
- Also applicable to cases where costs are immediate and benefits delayed: exercise/participation in physical activity
- Approach has been criticized on ground that a present biased person would know their future self will be present biased and act accordingly
- Issue is addressed by models of naivety, which allow for different forecasts of $\beta$ in the “beta-delta” model
Sports econ papers using present bias

- Almost non-existent
- Much of the (small) existing literature focuses on gym/health club contracting issues - covered in next section
- Humphreys, Ruseski and Zhou “Physical Activity, Present Bias, and Habit Formation: Theory and Evidence From Longitudinal Data”
- Summary: observed patterns of participation in leisure time physical activity reflect habit formation, present bias; other factors like naivety and over confidence likely affect the decision; cross sectional data cannot easily reflect the effect of these factors.
Future Research: Present Bias

- Wide open area in sports economics
- Topics where consumers, teams, or leagues weigh present benefits or costs against future benefits or costs
  - Rebuilding teams and resigning veterans versus signing prospects: involves trading off success now for success later
  - Sports labor supply: the decision to become a professional athlete required years of training (time, opportunity, and monetary costs) before large salaries realized
  - Hosting sports mega events
Behavioral economics initially focused on alternative models of consumer and producer choice, but until recently, the implications for optimal contracting were not emphasized.

Optimal contracting is a mature literature, much based on decisions in the standard rational choice framework.

Recent research has begun to incorporate behavioral econ concepts into standard optimal contracting models.

Includes research on health club/gym contracts related to sports economics.

This growing literature features *exploitive contracts* that are designed to take advantage of systematic mistakes driven by behavioral factors.
Sports econ papers using behavioral contracting

- “Paying not to go to the gym” AER 2006 (1 citation in JSE)
- “Incentives to exercise” Econometrica 2009 (not cited in JSE)
- “Naivete, Projection Bias, and Habit Formation in Gym Attendance” Management Science 2015

Summary: Habit formation, naivety, overconfidence and projection bias all play important roles in decision to exercise. Gyms offer contracts that exploit individual’s tendency to systematically over-estimate how their future selves will behave.
Future Research: Behavioral contracting

- Contracting issues are widespread in professional and intercollegiate sports
- Small literature on shirking in long-term employment contracts, but little additional research in this area
- Detailed information available about employment contracts in sport - this can be exploited in the context of behavioral contracting models
  - Deferred compensation versus up front bonus payments
  - Projection bias: individuals tend to over-estimate future productivity. Do teams systematically exploit this by offering larger performance bonuses and less guaranteed salary?
  - Are season ticket, mini-season packages offered by teams consistent with predictions from exploitive contract literature?
  - Other regarding preferences and salary discounts to play for a successful team
Experimental Economics

- Experimental economics closely linked to behavioral - many early influential behavioral econ papers used stated preference (response to hypothetical questions) data
- More recently, laboratory experiments have replaced stated preference approach, these often use undergraduate students as subjects
- But evidence “from the field” also plays an important role in behavioral economic research, and sports represents the ultimate “in the field” setting
- We do not have to conduct behavioral economic laboratory experiments to do behavioral economics
The Future of Behavioral Sports Economics

- With a few notable exceptions (Hot Hand, Sentiment Bias, Favorite-Longshot Bias), sports economists have largely ignored behavioral economic concepts.
- Recent research shows how important concepts in sports economics can be explained using behavioral concepts: UOH, fan investment and team ownership, choice of gym contracts.
- Behavioral concepts especially useful for understanding decisions under uncertainty - these decisions are very common in sports setting.


“Physical Activity, Present Bias, and Habit Formation: Theory and Evidence From Longitudinal Data”
