

# 1. A new research area: disequilibrium sports economics

**Wladimir Andreff\***

---

Ever since Rottenberg's (1956) pioneering article, sports economics has been set within the framework of equilibrium economics, in particular when modelling team sport leagues. Four pillars of this mainstream approach are crystal-clear in the economics of team sport leagues. The first one of course is the concept of economic equilibrium assumed to be reached by a league for its product market and labour market for talent – its major input. Economic equilibrium is obtained through the usual marginal calculation achieved by all economic agents operating in a league's market, namely, the calculation of team owners driven by a profit maximization objective, both in the original model (El Hodiri and Quirk, 1971) and later in the standard model of a closed North American team sport league (Fort and Quirk, 1995). Therefore, the assumption of profit maximization is a second pillar. The equilibrium solutions in the labour market for talent (the marginal productivity of labour = the wage rate) and in the market for output (fan attendance equalizes marginal revenues with marginal costs) are supposed to prevail.

The league's labour market equilibrium in the standard model does not produce a perfect competitive balance where all teams would have an equal probability to win the championship and a 50–50 chance of winning any game. This first-best competitive balance is out of reach along with the league's economic equilibrium unless the market size of each team is absolutely identical (no big-market teams, no small-market teams). Therein lies all the debates about how much regulation (revenue redistribution between teams, a rookie draft, a salary cap and a luxury tax) is needed or not to make the league's economic equilibrium coincide with the best feasible competitive balance. Competitive balance is the third pillar of the standard model.

However, when it comes to open European team sport leagues with a promotion-relegation system, profit maximization is no longer considered as being relevant and has to be substituted by the assumption of team owners attempting to maximize some utility function (Sloane, 1971),

which eventually boils down to a team's objective of win-maximization (Késenne, 1996). Késenne's model became standard for open leagues where an economic equilibrium is guaranteed if win-maximizing clubs stick strictly to their budget constraint or, in managerial terms, if clubs always attempt to break even. Thus, with a hard budget constraint or a break-even accounting rule, the team budget is always balanced, so that overall costs are neither higher nor lower than overall revenues. This is the fourth pillar of the equilibrium approach to team sport leagues.

A first motivation for launching a book dealing with disequilibrium sports economics is that such a thing just does not exist in the literature so far. All the authors in this volume have once embarked on research pathways that drove them away, to some extent, from the highway of mainstream equilibrium sports economics.

A second motivation is that a few recent papers have moved in the direction of something that looks like disequilibrium economics: this has happened when a few authors have examined some non-equilibrium solutions in actual labour markets for talent such as journeymen player unemployment, superstar excess wages and tanking. In particular, the *International Journal of Sport Finance* has played a crucial role as a springboard to this new disequilibrium approach to sports economics. This has been done when the journal published in the same year a rather theoretical article about the building blocks of a disequilibrium model of team sport leagues (Andreff, 2014) as well as a practical assessment of the Union of European Football Associations' (UEFA) Financial Fair Play facing the fact that many European football clubs actually do not break even because they face a soft – instead of hard – budget constraint (Franck, 2014). In the market for fan attendance, ticket touting expresses a local excess demand for a local sport show, whereas skyrocketing superstar wages express an excess demand for their talent. With regard to a club's soft budget constraint, the two aforementioned articles explicitly refer to a typical disequilibrium economist, Janos Kornaï – from Kornaï (1980) to Kornaï et al. (2003) – who emphasized soft budget constraints. This notion was first applied by Andreff (2007) when assessing the deficits and rising debts of football clubs through the lenses of a club's weak governance fuelled by a softening of its budget constraint. Not surprisingly, one more recently published paper has been entirely devoted to soft budget constraints in European professional football (Storm and Nielsen, 2012).

Alongside this new strain of sports economics literature about disequilibrium economics and soft budget constraints, the number of articles that call the notion of a league competitive balance into question is flourishing. Is a balanced league a precondition for its economic attractiveness in terms of attendance and gate receipts, and in terms of TV audience and TV rights

revenues? The initial standard literature about the assumed strong relationship between sport outcome uncertainty and a fan's willingness to pay is no longer the unique train of thought in this research area. Among the renewed approaches, a simulation model has been used to explore complex stochastic dynamic systems such as sports leagues, where managers face difficult decisions regarding the structure of their league and the desire to maintain competitive balance (Tuck and Whitten, 2013). It has been found that reverse-order drafts can lead to some teams cycling between success and failure and to other teams being stuck in mid-rank positions for extended periods of time. Reverse-order drafts can also create incentives for teams to deliberately under-perform, or tank, due to the perceived gain from obtaining quality players at higher draft picks. With tanking, both a league's economic equilibrium and competitive balance may be in jeopardy. Another standpoint has been taken to push forward the concept of competitive imbalance (Gayant and Le Pape, 2012, 2015), thus going beyond the standard notion of competitive balance, an optimum that is never reached in reality. Revenue disparities between teams most often jeopardize competitive balance on the pitch.

All the above means, on the one hand, that a wide avenue for further research is opened up by applying concepts drawn from disequilibrium economics and Kornai's analyses to the economics of team sport leagues and, on the other hand, that a small group of sports economists is already involved in this new research area. They are namely those who have contributed to the present volume.

A third motivation for this book is the conviction that in real life, more often than not, the situation of a team sport league does not coincide with general equilibrium solutions: everyone can witness disparities in sporting strengths, that is, in recruitment capacities, price rigidity or stickiness, excess demand or supply, revenue hyper-concentration, heavily imbalanced contests, superstar wages de-linked from their marginal productivity and more clubs in the red than in the black. One chapter in this volume, for the first time, offers some evidence that economic disequilibrium is not confined to sports leagues: it may affect the structure of supply in the market for televised sports as compared to the structure of demand.

The volume is divided into two parts. Part I focuses on economic disequilibrium in sports markets and competitive imbalance in sporting contests (four chapters). Part II concentrates on soft budget constraints and their consequences for club governance and management (three chapters).

Opening Part I, Chapter 2 by Wladimir Andreff starts by relaxing some unrealistic assumptions embedded in the equilibrium model of a team sport league, in particular with regard to open leagues. A next stage on the path to an alternative disequilibrium model is to realistically confront

some hypotheses of the equilibrium model that do not fit empirical evidence gathered so far about the different markets of team sport leagues. The last stage is to introduce Kornai's concept of a soft budget constraint and adjust it to the case of not-for-profit professional sports teams. Then, step by step, a simple disequilibrium model of an open team sport league is elaborated upon. It encompasses one labour market for heterogeneous talent with an excess demand for superstar players, and two markets for the league's final products: one is a market for live games with fans' excess demand, another is a market for televised games supplied by free-to-air TV channels with viewers' excess demand, and then the market is supplied by pay-per-view TV channels. However, this first attempt at disequilibrium modelling neglects some interactions and spillovers between markets that are observed in real European football leagues. This delineates avenues for further research.

An alternative approach to optimization modelling – which looks at how a team sport league reaches its first-best economic equilibrium – consists in resorting to a simulation model. Non-equilibrium simulation methods fit better with highly variable or unpredictable outcomes and complicated systemic feedback mechanisms often witnessed in a league. Geoff Tuck, Robert Macdonald and Athol Whitten (Chapter 3) stress that the role of simulation would be extremely useful for league managers in designing labour market regulations. Target reference points are derived from a team sport league's objectives (competitive balance, financial viability, integrity and quality of the sporting contest, public support and economic benefit of expansion clubs) and each target reference point is defined as a value of the indicator representing a desirable state of the system while a limit reference point is defined as an unacceptable system state. These reference points are linked to performance indicators in order to obtain performance measures of league management that may guide decision-making – namely, when negotiating collective bargaining agreements with the players' union – in a Monte Carlo simulation framework coined Management Strategy Evaluation.

After comparing the Australian Football League (AFL) to other closed leagues concerning player drafts, league expansion over time, sporting performances of expansion clubs and the design of detailed labour market regulation, Geoff Tuck, Robert Macdonald and Athol Whitten apply their Sports Synthesis simulation framework (initially used in marine resource modelling) and the reference point methodology to the competitive balance implications and other performance measures of various allocations of player draft selections to two expansion clubs recently admitted into the AFL. Running a number of simulations enables the calculation of performance statistics related to management objectives and reference

points when a new team has benefited from player draft selections granted to expansion clubs joining a closed league.

At odds with an optimization model, many alternative allocations of draft selections to the expansion club, and not a single one, may satisfy the objectives of the league manager. With regard to the last two AFL expansion clubs, only three out of six simulation scenarios exhibit a high probability of success within ten years of their establishment. Expansion clubs are relatively weak in the years that follow establishment due to a preponderance of young players. This initial poor performance secures them high draft picks so that the clubs rapidly grow in team productivity, as the high draft picks mature as quality players, and move upwards to the top eight ranks in the league within five years.

Jean-Pascal Gayant and Nicolas Le Pape start a new train of analysis with a metrics of competitive imbalance (Chapter 4). If one is concerned about the effective level of competitive imbalance in a league, or if one seeks to define a socially desirable level of imbalance, then a suitable metric is needed. The first requirement is an index calculated through an appropriate point system, such that the index has its maximum value for the distribution that is most imbalanced, and its minimum value for the distribution that is most balanced. The second requirement is that the index must be robust with respect to any change in the size of the league. Finally, employing an analogy between measuring imbalance in a league and measuring inequality in a community, it seems worthwhile to construct an index that satisfies good properties and importantly, the so-called principle of transfers. This underlines that some of these good properties should be (a) specific to imbalance measurement and (b) separate for closed leagues and for open leagues (with promotion and relegation).

In Chapter 5, Daam Van Reeth studies TV broadcasts of Olympic events. With the addition of women's boxing, the 2012 Olympics in London became the first Games in which women competed in every sport on the Olympic programme. The presence of parallel competitions for men and women is one of the appealing features of the Games. Many studies have therefore used the Olympic Games for analysing gender balance in media coverage of sport. Most of these studies focus exclusively on the supply side of the media market by measuring how much time/space TV channels or newspapers dedicate to the coverage of both genders. Daam Van Reeth's study is different and original in its approach because it uses data on TV audiences, the demand side of the market. This creates an opportunity to check for evidence of a disequilibrium situation between, on the one hand, the supply of Olympic TV broadcasts and, on the other hand, the TV demand revealed by sports consumers. The analysis is based on a dataset of almost 1000 sport-specific Olympic TV broadcasts on

Dutch national television, totalling about 144 hours of television. The results show a disequilibrium situation on the Dutch TV market for Olympic sports broadcasts: while broadcasters provide significantly more coverage of male events, Dutch TV viewers slightly prefer broadcasts of women competitions over broadcasts of men competitions.

Part II of the volume begins with Rasmus Storm and Klaus Nielsen's (Chapter 6) presentation of soft and hard budget constraints as theoretical concepts according to Janos Kornai that perfectly fit with the disequilibrium model dealt with in Chapter 1. The focus is on the soft budget constraint syndrome that had developed in former socialist economies but also in certain environmental conditions in capitalist market economies. That soft budget constraints prevail in European football is evidenced once again with a high survival rate of clubs despite continuous financial problems, namely, in the Big Five first-tier leagues. Storm and Nielsen extend the soft budget constraint approach to North American team sport leagues – a highly original extension. The argument runs from major league franchises enjoying a guaranteed survival because of their legally guaranteed, unregulated monopoly position to this position enabling them, as price-makers, to subtract profits that would not be possible to obtain if they were facing harder environmental conditions – a sort of inverse budget constraint softness. Empirical evidence is provided as regards soft pricing, soft taxation, soft subsidies and soft investment financing, soft credit and soft accounting in the National Football League (NFL), as the authors note that financial support is delivered to burdened teams *ex ante* in North American leagues while it is done *ex post* in European leagues. The analysis ends with a matrix outlining various ideal types of professional team sport clubs and leagues on both sides of the Atlantic.

In Chapter 7, Wladimir Andreff examines how to assess the quality and efficiency of governance in clubs that operate in a team sport league. Two theoretical standpoints can be adopted: the principal-agent model that is supposed to fit with profit-maximizing teams and economic equilibrium, and Kornai's soft budget constraint that seems more suitable for win-maximizing clubs in disequilibrium leagues. With the principal-agent model a good corporate governance structure is such that profit is maximized under the control of either a single capital owner or core stockholders who stand last in line for the distribution of profits or losses. Thus, they have the appropriate incentives to make accurate profit-maximizing decisions and control free-riding managers through contractual, takeover and bankruptcy disciplines. The chapter assesses whether North American sport teams behave accordingly and are consequently profitable and whether they resort to asset sales in view of disciplining managers. This is definitely the case in the NFL, less so in Major League Baseball (MLB)

and the National Basketball Association (NBA) and definitely not the case in the National Hockey League (NHL). Further challenging evidence is that most European football win-maximizing clubs that float their shares on the stock market are not profitable either and do not improve their governance.

Good governance in not-for-profit organizations boils down to breaking even and balancing the budget. Bad governance is associated with recurrent soft budget constraints. European football exhibits more clubs in the red than in the black. French football is used as an example with a detailed study of the clubs' deficits and the structure of their debts, confirming that a lasting soft budget constraint prevails. Recommendations are derived in favour of hardening the budget constraints of football clubs; the French football auditing system and UEFA Financial Fair Play are briefly assessed through the lens of the soft budget constraint approach.

The final chapter by Egon Franck (Chapter 8) tackles the issue of regulation in leagues where clubs turn out to have soft budget constraints and its impact on managerial incentives and the league outcome uncertainty. The author first reminds us of the detrimental managerial incentives that result from a soft budget constraint, as it triggers a runaway demand for talent and the emergence of a salary bubble. Managerial moral hazard and rent-seeking crowd out incentives for good management and fuel a kind of financial doping of football clubs. New UEFA Club Licensing and Financial Fair Play Regulations create harder budget constraints for football club managers and introduce a cap on payroll injections for football club benefactors. The chapter analyses how hardened budget constraints would presumably affect managerial incentives and decision-making in football clubs and how the cap on payroll injections would affect suspense and outcome uncertainty in European football competitions.

## NOTE

\* I would like to thank Marc Lavoie for his final review of this chapter.

## REFERENCES

- Andreff, W. (2007), 'French football: a financial crisis rooted in weak governance', *Journal of Sports Economics*, **8**(6), 652–61.  
Andreff, W. (2014), 'Building blocks for a disequilibrium model of a European team sports league', *International Journal of Sport Finance*, **9**(1), 20–38.

- El Hodiri, M. and J. Quirk. (1971), 'An economic model of a professional sports league', *Journal of Political Economy*, **79**(6), 1302–19.
- Fort, R. and J. Quirk (1995), 'Cross-subsidization, incentives, and outcomes in professional team leagues', *Journal of Economic Literature*, **XXXIII**, 1265–99.
- Franck, E. (2014), 'Financial Fair Play in European club football – what is it all about?', *International Journal of Sport Finance*, **9**(1), 193–217.
- Gayant, J.P. and N. Le Pape (2012), 'How to account for changes in the size of sports leagues: the iso competitive balance curves', *Economics Bulletin*, **32**, 1715–23.
- Gayant, J.P. and N. Le Pape (2015), 'Mesure de la *competitive balance* dans les ligues de sports professionnels: faut-il distinguer les ligues fermées des ligues avec promotion et relégation?', *Revue Economique*, **66**, 427–48.
- Késenne, S. (1996), 'League management in professional team sports with win maximizing clubs', *European Journal of Sport Management*, **2**(2), 14–22.
- Kornaï, J. (1980), *Economics of Shortage*, Amsterdam: North Holland.
- Kornaï, J., E. Maskin and G. Roland (2003), 'Understanding the soft budget constraint', *Journal of Economic Literature*, **LXI**, 1095–136.
- Rottenberg, S. (1956), 'The baseball players' labor market', *Journal of Political Economy*, **54**(3), 242–58.
- Sloane, P.J. (1971), 'The economics of professional football: the football club as a utility maximiser', *Scottish Journal of Political Economy*, **18**(2), 121–46.
- Storm, R.K. and K. Nielsen (2012), 'Soft budget constraints in professional football', *European Sport Management Quarterly*, **12**(2), 183–201.
- Tuck, G.N. and A.R. Whitten (2013), 'Lead us not into tanktation: a simulation modeling approach to gain insights into incentives for sporting teams to tank', *PLoS ONE*, **8**(11), 1–8.