Sport, Economics, and Finance

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Abstract: This chapter focuses on the economics and finance of professional team sports. The business models of individual pro sports teams and pro sports leagues are considered and the key issues of the sporting and financial viability of teams and leagues are discussed. Four approaches to studying the business of professional team sports are identified: allocative (i.e., mainstream) economics; corporate finance; strategic management; and radical political economy. It is argued that only the radical political economy approach sets the business of sport in its social, cultural, and historical context but this approach has had a very limited influence within the sports economics literature. The chapter then considers three ongoing debates in sports economics: the motivation of team-owners; the role of league regulation; and innovation and the *Moneyball* story.

Keywords: Professional team sports, sports leagues, team-ownership objectives, uncertainty of outcome, competitive balance, league regulation, Rottenberg invariance proposition, innovation, Moneyball, data analytics.

Sport is big business. It is estimated that the global sports industry was worth US$756bn in 2018 (Somoggi, 2020). The sports industry covers both participatory sport and spectator sport. Participatory sport is by far the biggest component of the global sports industry, accounting for most of the US$270bn of the sport retail business in 2018 as well as the US$115bn expenditure worldwide on club and gym fees (Somoggi, 2020). The focus of this chapter is on professional (spectator) sports particularly professional team sports which, although only accounting for US$170bn (22.5%) of the revenues in the global sports industry (Somoggi, 2020), has a massive public profile and social media presence, and dominates the discussions of the sports business. For example, the English Premier League (EPL) is the biggest domestic soccer league in the world with its 20-member teams generating total revenues in excess of €5.4bn in season 2017/18, implying average annual revenue per team that season of over €270m (Sports Business Group, 2019).

The objective of this chapter is to analyse professional team sports from the perspective of economics and finance. The chapter is structured as follows. In the Issues section the basic business model of a professional sports team is outlined followed by a discussion of professional sports leagues as both self-regulated sporting structures and as business entities. Two key inter-related issues are identified: (i) the financial viability of professional sports teams; and (ii) the sporting viability of professional sports leagues. The Approaches section sets out four different theoretical lenses for framing the sports business: (i) allocative (mainstream) economics; (ii) corporate finance; (iii) strategic management; and (iv) radical political economy. A key point throughout the chapter is that the allocative economics, corporate finance, and strategic management approaches tend to be dominated by a fucus on individual agents. It is the radical political economy approach that gives more emphasis to the social, cultural, and historical context of economic and financial behaviour. The Debates section considers three issues in sports economics and finance as applied to professional team sports: (i) the impact of team-ownership objectives on professional sports leagues; (ii) the need for professional sports leagues to adopt an activist self-regulatory role to maintain the financial viability of teams and the sporting viability of leagues; and (iii) the danger that excessive league regulation could undermine the incentives for teams to innovate.

Issues

Professional team sports comprise two basic entities – teams and leagues. Teams compete in tournaments which are regulated by the leagues. Both teams and leagues are business entities in the sense of generating revenues from the sale of the rights to view the sporting contests between the teams and the sale of images associated with the sporting contests. We will consider the business models of both teams and leagues in turn and identify key concerns about the sporting and financial viability of these business models.

The Pro Sports Team Business Model

Pro sports teams sell two types of sporting product: (i) sporting contests as spectator events; and (ii) images associated with the team and its players. The sale of these sporting products generates four basic types of revenue streams as illustrated in Figure 1. Traditionally the principal source of team revenues was gate revenues. Professional team sports emerged in the latter half of the 19th Century as industrialisation and urbanisation created a working class concentrated in cities and towns, with disposable income to spend on leisure-time pursuits (see, for example, Ford, 1977). Professional sports teams offered elite-level sporting competition as a spectator event. The basic business model was cost-driven. Elite players especially those from the working class needed to be employed and paid which, in turn, required team-owners to generate revenues from the sporting contests. This involved the first "enclosure movement" in professional sports as sporting contests were moved from the open-to-all public spaces (the village green) to an enclosed private space (the sport stadium) where spectators faced a pay-to-view barrier (the turnstile) with gate receipts as the principal revenue source for teams. However, the development of radio and television created a new opportunity to follow sporting contests without attending the contest in the stadium. Gradually a new revenue source developed for teams as they sold media companies the rights to broadcast games on radio and television. The value of media rights for games was limited initially by broadcasting over free-to-air channels via public-service providers or commercial advertising-financed broadcasters. Eventually as satellite, cable and internet technology developed, the possibilities of a second enclosure movement emerged via pay-to-view platforms (the electronic turnstile), either by charging subscriptions to access dedicated sports channels and/or charging fees to access broadcasts of specific sporting events.

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The second type of sporting product sold by pro sports teams is image associations. Broadly speaking, there are two main image-based revenue streams – merchandising sold to fans, and sponsorship sold to other businesses who want to use sport to market their own goods and services to targeted customer groups, both those attending games at sports stadia and those viewing games on television and online. Alcohol and tobacco companies were initially the major sponsors of sport but with the increasing restrictions on advertising these products motivated by public-health concerns, sport sponsorship now tends to be dominated by financial services, cars, sportswear and sports gaming although there are growing ethical and public-health concerns about sport being used to glamorise and promote gambling (McDaniel, Mason, & Kinney, 2004).

The economic size of a pro sports team, measured by its ability to generate revenues, depends ultimately on the size of its fanbase and the size of the league in which it competes. A team's fanbase is a product of history and geography. Fans typically form their initial affiliations to teams either based on locality – residency and/or family connections – or sporting success. Big-market teams tend to be in large metropolitan areas and have a history of sporting success. The economic size of the team is also dependent on the economic size of the league in which it competes since the economic size of the league is critical for a team's ability to generate media revenues.

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Table 1 provides a summary of the team revenues for the Big Five domestic European soccer leagues in season 2017/18. The Big Five are the top-tier leagues in England, France, Germany, Italy, and Spain which generate the five highest total team revenues of all domestic soccer leagues worldwide. The EPL dominates with total revenues of €5.4bn, more than €2bn ahead of the next two biggest leagues financially, the German Bundesliga and the Spanish La Liga, both with total revenues just over €3bn. Although the German Bundesliga has the highest average attendance at league games, this does not translate into the highest matchday receipts. It is the EPL that generates the highest matchday revenues which includes not only ticket sales but also corporate hospitality and other food and beverage sales in the stadium as well as car parking. However, most of the revenue gap between the EPL and the rest of the Big Five is due to media revenues with EPL teams cumulatively earning €3.2bn from the sale of their media rights in 2017/18 which exceeds the total revenues from all sources of the German Bundesliga teams and is more than double the value of the media rights of the Spanish La Liga which ranks second in media revenues. The EPL teams also lead in commercial revenues (i.e., merchandising and sponsorship) although the advantage over the German Bundesliga is relatively small (i.e., under €100m).

Two key performance indicators (KPIs) for the revenues of pro sports teams are: (i) Media%, measuring the financial dependency of teams on the value of their media rights; and (ii) Local Spend, measuring the non-media revenues relative to the fanbase (using average league gate as a proxy for the team's active fanbase). These two KPIs highlight the high dependency of the EPL and the Italian Serie A on media revenues but whereas EPL teams have partly mitigated the risk of volatility in the media rights market by also having the highest Local Spend, the dependency of Italian Serie A teams on media revenues is exacerbated by having the lowest Local Spend.

The importance of the revenue-generating potential of a pro sports team is that ultimately the economic size of a team drives its ability to attract the best players. Higher revenues allow teams to spend more on playing talent so that the big-market teams will be able to afford the best players and create a "virtuous circle" where higher revenues lead to better sporting performance via higher expenditures on playing talent and, in turn, better sporting performance will lead to higher revenues to the extent that a component of team revenues is "win-elastic". For example, winning teams are likely to attract more fans to their games generating higher matchday revenues and higher merchandising sales. In addition, sponsorship contracts typically have performance-related clauses and the distribution mechanisms for media revenues usually tend to reward more successful teams either because their games are broadcast more frequently and/or media revenues are treated partly as prize money with higher shares awarded to teams finishing higher in the league (see, for example, the discussion later in the chapter of the distribution mechanism used by the EPL for media revenues).

The player wage budget is the key financial decision by a pro sports team and depends crucially on the objectives of the team ownership as will be discussed in detail in the Debates section. Increased wage costs to increase the playing quality of the team's squad of players would be expected to produce greater sporting success and, consequently, increased revenues. But the overall impact of financial performance (i.e., profitability) will depend on whether the increased revenues exceed the increased wage costs. This is where the objectives of the team ownership play a decisive role in determining the extent to which the team ownership is prepared to sacrifice short-term financial performance in pursuit of sporting glory.

The overall level of player wages in pro team sports is essentially determined by two sets of factors – demand-pull factors and cost-push factors. Demand-pull factors focus on the revenue-generating capabilities of teams and leagues. Ultimately the economic value of playing talent (as with all types of labour services) depends on the incremental revenues generated, what economists call marginal revenue product (MRP). Thus, the economic value of Player X at Team A in League 1 depends on Player X's expected win contribution to Team A (i.e., the expected improvement to the team's sporting performance) and the economic size of both Team A and League 1 which together determine the team's ability to generate increased revenues from Player X's win contribution. In addition Player X's economic value will also depend on the expected impact on team revenues of the image contribution of Player X and the non-financial returns of Player X's win contribution to the extent that the team-ownership value sporting performance in its own right and not merely as a means to generate revenues. Overall, it follows that, as the revenues of teams and leagues increase, the economic value of playing talent as measured by MRP will increase so we should expect player wage costs to track revenues over time.

The cost-push (or supply-side) factors affecting player wages mainly reflects the structure of the players' labour market, specifically the extent to which there is an open competitive market (known as free agency) or the market is regulated with restrictions on the ability of players to bargain with more than one team and often reserving bargaining rights to the player's current team only (known as a player reservation system). The rationale for league regulation of the players' labour market will be discussed in the Debates section. For the moment, suffice it to say, that the greater the degree of free agency in the players' market, the greater the share of their economic value that players are able to achieve.

The wage costs of the Big Five leagues in European soccer are summarised in Table 2. Pro soccer teams in European are typically constituted as independent limited companies with publicly available audited accounts. Hence there is very reliable financial data on pro soccer teams in Europe but unfortunately there is no accounting requirement to separately disclose player wage costs. Hence the financial analysis of European soccer has had to rely on data on total wage costs. Following the precedent set by Szymanski and Smith (1997), it has generally been agreed that total wage costs acts as a reliable proxy for player wage costs, given that by far the largest proportion of wage costs of all pro sports teams is accounted for by player wage costs. As expected, given the revenue dominance of the EPL, it is no surprise that the EPL has the highest wage costs in the Big Five. Similarly, it is no surprise that wage costs are lowest in the French Ligue 1 which has the lowest revenues within the Big Five. However, what may be surprising is that the German Bundesliga lags behind the Spanish La Liga in wage costs (especially in 2017/18) and is only just ahead of the Italian Serie A despite the German Bundesliga having the second highest revenues in the Big Five. This reflects differences in cost-push factors particularly the much tighter financial regulation of soccer teams in the German Bundesliga. These cost-push differences are highlighted by the wage-turnover ratio (also known as the wage-revenue ratio), a crucial KPI for pro sports teams and, indeed, for any talent-based business where wage costs are the dominant cost item and, as a consequence, profitability depends critically on the gap between wage costs and revenues. The wage-turnover ratio can help identify changes in cost-push factors by controlling for revenue-induced growth in player wages since, effectively, demand-pull factors imply a constant wage-turnover ratio with wages and revenues growing at equal rates. The standout feature of Table 2 is the low and stable wage-turnover ratio in the German Bundesliga in 2016/17 and 2017/18 because of their financial regulatory regime and indicative of a financially sustainable business model. The other Big Five leagues have significantly higher wage-turnover ratios and, with the exception of the Italian Serie A, their wage-turnover ratios

increased significantly in 2017/18 compared to the previous year. A high and increasing wage-turnover ratio is indicative of potential issues for the financial sustainability of a team's business model.

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The Pro Sports League Business Model

Pro sports leagues have a dual nature. They are, first and foremost, a self-administered sporting structure which determines the structure of the sporting tournament for its member teams, sets the rules and regulations for the tournament, and is responsible for ensuring that the rules and regulations are enforced and the agreed sanctions on players and teams for any breaches of the league rules and regulations are implemented. These rules and regulations include the rules of the sport itself governing the individual sporting contests between teams and enforced by referees and other match officials. But league rules and regulations also govern the overall structure of the league tournament as well as player eligibility to participate in matches and the operation of players' labour market including player movement between teams. But leagues are typically also business entities in their own right, actively involved in generating revenues which necessitates a distribution mechanism to determine how centrally-generated revenues are shared between the member teams.

As regards the sporting structure of leagues, there are two key structural dimensions: (i) the tournament structure; and (ii) the tournament entry mechanism. There are two basic tournament structures – round-robin (or league) tournaments in which all teams play each other with teams ranked at the end of the season based on the overall record in all of their matches, and elimination (or cup or knock-out) tournaments in which teams are paired and the winner of the match (or a series of matches) proceeds to the next round. European domestic soccer leagues traditionally have been organised as round-robin tournaments with all teams playing each other home and away, and often with a separate elimination tournament organised by the national governing body of the sport rather than the league. Indeed in English professional soccer there are three domestic tournaments every season – the league, the league cup (an elimination tournament organised by the league), and the FA Cup organised by the Football Association, the governing body for all soccer played in England. In the North American major leagues there is a single tournament that combines elements of both a round-robin tournament and an elimination tournament with teams playing a round-robin regular season in order to qualify for the end-of-season playoffs, an elimination tournament to determine the league champions. End-of-season playoffs can generate a significant uplift in revenues not only by adding lucrative end-of-season playoff games to the schedule but also increasing interest in regular-season games as teams compete for playoff places. In recent years European team sports have emulated the North American major leagues, a process that Hoehn and Szymanski (1999) have termed 'the Americanization of European football', including the introduction of end-of-season playoffs to determine some of the league outcomes including promotion and relegation, and qualification to pan-European tournaments.

The second key structural dimension of the sporting structure of leagues is whether leagues are closed leagues or merit hierarchies. A closed league is a league in which the membership of the league is fixed from season to season with teams entering or exiting the league only in exceptional circumstances such as a decision by the league to expand by admitting new teams to its membership or a member team leaving the league either because of bankruptcy or to join a rival league. In a closed league such as the North American major leagues there is no promotion or relegation. By contrast, a merit hierarchy is a league organised as a set of divisions in a hierarchical structure with promotion and relegation of

teams at the end of each season based on their sporting performance (although occasionally relegation may be imposed on teams for serious breaches of league rules). For example, English soccer has a full pyramid structure consisting officially of 11 levels with the 20-team EPL at the apex of the pyramid followed by the Football League with three 24-team divisions (Levels 2 – 4) which constitutes the full-time professional levels of the sport. Below the top four levels, teams are mostly semi-professional although the pyramid does extend via promotion and relegation into the amateur levels. It has been estimated that the full pyramid structure comprises 20 levels in some localities encompassing over 140 leagues and more than 7,000 teams. Closed-league structures tend to be adopted by leagues organised as a franchise system whereas merit hierarchies are more common in leagues operating as members' associations. Neale (1964), adopting a North American perspective on sports economics, considers one of the peculiarities of the pro team sports industry that distinguishes it from other industries is that each major league is more akin to a single multi-divisional organisation rather than a group of independent competing firms.

As business entities, leagues differ to the extent to which there is centralised selling of merchandising, sponsorship, and media rights. Centralised revenue generation implies the need for a distribution mechanism to allocate these league revenues to the member teams. This distribution mechanism is inevitably a potential source of tension between teams with big-market teams arguing that they deserve large shares since they attract more fans to the league as discussed below in the context of the EPL. The distribution mechanism for media revenues in the EPL provides a good example of the tensions involved and the different allocative principles to be considered. The EPL media rights distribution formula differentiates between the revenues from the domestic rights and those generated by the sale of the overseas rights. The domestic rights revenues are distributed on the basis of 50% equally divided between the teams (including "parachute" payments for relegated teams for two years), 25% merit payments based on final league position (with the bottom team receiving a 1/210 share and each place above that receiving an additional 1/210 share so that the league champions receive a 20/210 share of the merit payments), and 25% facility fee based on how often a team's home games have been televised. The overseas rights revenues were distributed equally until 2019 when, under pressure from the bigger teams with the biggest numbers of overseas fans, the EPL voted to implement the so-called "grandfather rule" such that teams would be guaranteed at least the same amount as in the previous overseas media deal but any uplift would be distributed on the basis of league position (i.e., as merit payments) with the proviso that the ratio of the highest and lowest payments would be capped at 1.8. Hence the EPL media distribution mechanism attempts to reconcile equity, performance incentives and recognition that the bigger teams create more value for the league. The result is a complex compromise that, at least for the moment, has the majority support of the teams.

The two key issues facing all pro sports leagues are the interconnected issues of maintaining their sporting and financial viability. Financial viability requires that the teams can survive as business entities given the financial objectives of their owners. As will be discussed in the Debates section, team ownership objectives form a spectrum ranging from those who run their teams as conventional businesses with the objective of earning profits and an acceptable rate of return, to team owners who put a priority on sporting success and are prepared to deficit-finance their teams by debt and/or equity to cover operating losses. The operating profitability of teams is largely dependent on the wage-turnover ratio. Teams can get trapped in an "arms race" of spiralling player wage costs as they compete in auction-type players' labour markets. This risk of unsustainable player wage costs is particularly acute in

merit hierarchies with risks increased by the threat of relegation as well as the desire to gain promotion to more financially lucrative higher divisions.

Sporting viability refers to the necessity to maintain competitive sporting tournaments to attract fans. It is known as the uncertainty-of-outcome hypothesis, first formulated by Rottenberg (1956). From this perspective, sport is unscripted drama with no requirement by the audience (unlike the theatre) to suspend belief that the outcome has been pre-determined. Uncertainty of outcome requires competitive balance defined as the degree to which teams have an equal opportunity of sporting success. A key research theme in sport economics has been the development of measures of competitive balance, and empirically investigating the extent to which competitive balance impacts on gate attendances and TV viewing audiences. Kringstad and Gerrard (2007) identify three types of *ex post facto* measures of competitive balance based on league outcomes: (i) win dispersion measuring the distribution of the league outcomes in a single season, (ii) performance persistence measuring the degree to which league outcomes are replicated across seasons, and (iii) prize concentration, a specific type of performance persistence, measuring the distribution of championship winners (and other "tail outcomes") across seasons.

The problem facing leagues is that any long-term trend towards a loss of competitive balance will reduce the uncertainty of outcome, thereby undermining sporting viability. This, in turn, can impact negatively on team/league revenues and thereby undermine financial viability. In the Debates section we will consider the degree to which leagues should intervene to maintain the financial and sporting viability of member teams, and what types of intervention are likely to be most effective. This will lead to a further debate about the danger that excessive regulation by leagues may undermine the ultracompetitive nature of the pro sports industry and reduce the incentives for teams to innovate, raising questions about the long-term viability of pro sports leagues.

Approaches

Marshall (1922) defined economics as the 'study of mankind in the ordinary business of life' (p. 1). But this traditional general, all-encompassing and more application-focused definition of economics concerned with wealth and welfare has been supplanted by a much more restricted definition of economics. This alternative conception of economics that Fraser (1937) labels as "Type B" economics in contrast to the "Type A" economics of Marshall, emerged initially in the marginalist revolution in economics in the late 19th century led by Walras, Menger and Jevons. Robbins (1984) formalised this approach in his definition of economics as a theoretical and positive science concerned with the study of the allocation of scarce resources. As a consequence of the dominance of "allocative economics" (i.e., Type B economics), the Marshallian study of the ordinary business of life has become somewhat balkanised into separate disciplines. Hence in approaching the formal study of one particular domain of the ordinary business of life, namely pro sport, it is useful to separate out four alternative approaches that provide different lenses to frame and interpret the ordinary business of life. A brief characterization of each follows.

Allocative Economics

The choice-theoretic and market-theoretic approach to the study of economic behaviour as optimising allocative behaviour is concerned with trading in markets. This embraces Robbins's restrictive definition of economics in which the theoretical focus is on rational economic agents with economic behaviour modelled as constrained optimisation. The economic system is viewed as a set of interdependent markets in which utility-

maximising households sell labour services and purchase goods and services while profit-maximising firms buy labour services to produce goods and services to be sold. The myriad of individual economic decisions of firms and households are co-ordinated by the price mechanism which acts as an "invisible hand". The basic theorem of allocative economics is that if markets are perfectly competitive, then the price mechanism will ensure a socially-optimal, market-clearing general equilibrium in which the quantities demanded and supplied in every market are equal. Perfect competition (more appropriately termed "perfect resource allocation") requires that markets be atomistic in structure with no individual trader possessing sufficient market power to influence the market price. Perfect competition also requires that the informational structure of markets be such that all traders are fully informed on the price and quality of all goods or services being traded. This informational requirement has been formalised as the efficient market hypothesis (EMH) in asset markets. The principal corollary of the invisible hand theorem is that sub-optimal market outcomes are due to imperfections in market and/or informational structures. For example, from the allocative-economics perspective, unemployment is conceptualised as excess supply of labour services which occurs if the "price" of labour (i.e., the wage rate) is above its market-clearing level. It follows that unemployment will be automatically remedied if the wage rate falls to the market-clearing level unless market imperfections are causing wage rigidity and preventing wage rates from falling.

Corporate Finance

This includes the financial performance analysis of businesses using accounting data, business asset valuation, both the valuation of the business as a whole (known as corporate valuation) as well the valuation of its constituent assets, and the investment decision on the acquisition of additional business assets. The underpinning logic of both financial performance analysis and corporate valuation is the business-finance model as summarised in Figure 2. Here, financing capital in the form of equity and debt is invested in business assets comprising tangible assets, intangible assets, and current assets. These business assets are operated to produce goods and services that are sold to generate revenues that are used to cover operating costs (including wage costs) and pay taxes. The residual net income (i.e., profit after tax) is either paid out as returns to the providers of financing capital – dividend payments to equity providers and interest payments to debt providers – or retained and reinvested in the business which represents an increase in equity capital. The data for the business-finance model is provided by the company accounts: the income statement (showing the relationship between revenue and net income), the balance sheet (showing the company's assets and liabilities), and the cash flow statement (showing the company's operating, investment and financing cash flows received and paid out). Financial performance analysis focuses on the rates of return generated by the financing capital invested in the company. Asset valuation involves estimating the current market value of business assets. There are two approaches to asset valuation. Comparative valuation involves using the market values of similar assets (or businesses) that have been recently traded and therefore have a known market value. Fundamental valuation involves projecting the expected cash flows to be generated by a business asset (or a business as a whole) which involves evaluating the expected future rates of return based on current performance and an assessment of the future prospects of the business.

INSERT FIGURE 2 HERE

Strategic Management

This track represents a move away from the structuralist approach of allocative economics in which the behaviour of firms is largely seen as determined by market structure

(i.e., external factors) as summarised, for example, in the Structure-Conduct-Performance paradigm that acted as an organising principle in the economic study of industrial organisation (Sawyer, 1981). Strategic management as it emerged in the work of Porter (1980) provides a more dynamic view of the competitive process focused more on the internal strategic decision making of firms. The core research question in strategic management is to explain the sources of sustainable competitive advantage that underpins the market dominance of large firms and is not bid away by the competitive process, at least in the short to medium term. Two complementary approaches have emerged: the resource-based view (Barney, 1991) and the dynamic capabilities approach (Teece, 2007). The basic proposition of the resource-based view is that sustainable competitive advantage is derived from resources that are unique to a firm and only imperfectly imitable by rivals. Attention has focused on tacit knowledge (Polanyi, 1966) as a unique resource that is difficult for rival firms to imitate. Tacit knowledge is just that, tacit, and never fully explicitly codified but is largely acquired directly through on-the-job training within the firm. Tacit knowledge is what Becker (1962) defined as specific human capital that only has value within the firm in which it is acquired. Dynamic capabilities theory (Teece, 2007) essentially provides a more dynamic perspective on the importance of a firm's unique resources, emphasising the need to 'continuously create, extend, upgrade, protect and keep relevant the enterprise's unique asset base' (p. 1319). The resource-based view and dynamic capabilities approach have both highlighted the role of asset orchestration as a key attribute of effective management in being able to 'identify resource gaps and fill them in response to new opportunities, repeatedly' (Chatterji & Patro, 2014, p. 396).

Radical Political Economy

Outside the mainstream neoclassical paradigm of allocative economics, there are a number of very diverse schools of thought that agree on the imperative to situate the analysis of human behaviour in its social, cultural and historical contexts in contrast to the mainstream emphasis on the de-contextualised rational economic agent. However, beyond this broad agreement, there is often little in the way of common ground. Two of the most prominent schools of thought are the Marxist and radical (or post-) Keynesian schools. The key themes in the Marxist analysis of the capitalist mode of production include the labour theory of value, surplus value as the source of profit derived from the exploitation and alienation of workers, the tendency towards a declining rate of profit, and the internal contradictions of the capitalist system that will ultimately lead to its collapse. The radical Keynesian school rejects the mainstream conception of the economic system as an exchange economy regulated by the price mechanism, emphasising instead the circular flow of income, the importance of multiplier effects for output and employment levels consequent on changes in aggregate demand, and the all-pervasive effect of uncertainty with particular emphasis on the effects on private investment which Keynes (1936) identified as the principal source of volatility in the macro economy. Radical political economy offers a much more contextualised account of economic and financial processes that recognises the historical specificity of the ordinary business of life. However, as the discussion in the Debates section will show, this perspective has had relatively little influence in the economic and financial analysis of pro sport.

Debates

Debate 1: The Objectives of Team Owners

A basic assumption in mainstream economics is that the objective of firms is profit maximisation. However, the recognition of the separation of ownership and control in large firms creating scope for managerial discretion over the objectives of firms led to the profit-maximisation assumption being increasingly questioned. Consequently, the managerial

theories of the firm began to emerge in the 1960s, postulating that firms are trying to maximise sales, growth, or managerial utility rather than profit. This debate was replicated in sports economics. Sloane (1971) argued that soccer teams should be treated as utility maximisers and suggested that the team owner utility function should include playing success, average gate attendance, the health of the league, and profits. Quirk and El-Hodiri (1974) distilled the debate over team owner objectives to whether sporting success enters their objective function directly creating the sportsman-owner effect (i.e., utility maximisation) or only indirectly as a means to generating profit (i.e., profit maximisation). If team owners pursue sporting success in its own right as a merit good, then these teams will invest in playing talent beyond the level consistent with profit maximisation, trading off lower financial performance in return for higher sporting performance. The performance trade-off is illustrated in Figure 3. The performance frontier represents the locus of full-efficiency optimal combinations of financial and sporting success given the economic size of a team. Optimising teams will seek to operate on the performance frontier at or above the level of sporting performance consistent with profit maximisation.

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Gerrard (2005) tested empirically for the existence of such a performance trade-off in the EPL by comparing teams listed on the stock market with non-listed teams, and found that listed teams had higher levels of profitability after controlling for differences in economic size but the improved profitability was not achieved at the expense of poorer sporting performance. Gerrard explained this finding as due to efficiency improvements as a consequence of being listed on the stock market which mitigated the performance trade-off in the short term.

From the corporate finance perspective, the debate over ownership objectives is crucial in determining the valuation of pro sports teams. The enterprise value of a conventional business as reflected in the combined market value of its equity and debt (i.e., financing capital) should represent the current discounted value of the expected future free cash flows (i.e., operating cash flows net of investment and tax cash flows). The price-earnings (p/e) valuation ratio provides a standardised measure of the market value of the equity component of the enterprise value as a multiple of current net income. Pro sports teams are typically very anomalous with excessively high enterprise values and valuation multiples given their current and expected future profitability. The explanation of the excessively high enterprise values of pro sports teams beyond that justified by conventional business criteria is that the excess value lies in the expected future sell-on values of pro sports teams as a ‘trophy asset’ (Turney, 2017) to potential buyers who value the non-financial returns from sporting success.

A radical political economy perspective on ownership has also been evident in the debate over team ownership, particularly in regard to questioning the legitimacy of a market for the ownership of pro sports teams. This debate has been especially relevant in European team sports where teams tend to be constituted as clubs. Morrow (2003) considers whether soccer teams should be considered to be businesses or social institutions. Some soccer leagues in Europe have been active in regulating the ownership structure of teams. For example, the German Bundesliga has the “50+1” rule which requires that teams must retain over 50% of their voting rights in order to be members of the Bundesliga and thereby preventing external investors taking a controlling stake in any team. The EPL and the Football League in English soccer both have a “fit and proper person” rule for individuals appointed to a team’s board of directors. There have been various campaigns for fans to be represented on a team’s board of directors or even to take control of their teams with such

moves particularly prominent when teams are in severe financial distress. In England there is a government-backed initiative, Supporters Direct, to increase fan ownership and representation (Morrow, 2003). The leading Spanish soccer team, Barcelona, with an elected president is often held up as a democratic model for fan involvement in team governance (Hamil, Michie, & Oughton, 1999).

Debate 2: League Regulation

As discussed previously in the Issues section, a foundational proposition of sports economics is that the sporting and financial viability of pro sports leagues depends on the uncertainty of outcome. So, the conventional wisdom is that competitively-balanced leagues will thrive and competitively-dominated leagues will struggle. The degree of competitive balance depends ultimately on the economic size distribution of teams and the extent to which differences in the economic size in teams are replicated in the distribution of playing talent between teams. Pro sports leagues have developed several regulatory mechanisms to influence the distribution of playing talent. These regulatory mechanisms can be broadly categorised into three groups: (i) revenue redistribution; (ii) player allocation systems; and (iii) player wage expenditure controls.

Revenue-redistribution mechanisms can attempt to equalise the distribution of playing talent by equalising team revenues, the fundamental driver of team expenditure on playing talent. Historically the principal mechanism for revenue redistribution was shared gate receipts. In recent years revenue redistribution has occurred indirectly through the collective selling of media and other image rights by the league with a significant proportion of these revenues being distributed between teams on an equal-shares basis.

Player allocation systems attempt to directly control the distribution of playing talent by replacing an open-market allocation of playing talent (i.e., free agency) with an administered allocation. There are two main forms of player allocation systems – player reservation systems and player draft systems. Player reservation systems reserve the rights in the first instance to teams to offer new playing contracts to their current players. Under player reservation systems, players are only allowed to bargaining with other teams if their current team waive the rights to retain them, often in return for monetary compensation such as the payment of transfer fees in soccer or other non-financial forms of compensation such as player exchanges and draft picks. Player draft systems are an administered allocation of new players (i.e., rookies) entering the league where teams select from a centralised list of players. The sequence in which teams select players is usually based on a reverse-order principle with poorer performing teams in the league getting earlier picks in each round of the draft (Kahane, 2006).

Rather than directly controlling the allocation of players between teams, some leagues have attempted to do this indirectly by controlling player wage expenditure. One such intervention historically was to set a maximum wage as in the case of English professional soccer where the league set maximum weekly wage rates for all players with this practice only abandoned after the threat of strike action in 1961. Such practices are unlikely to be sustainable in law nowadays and in most legal systems are likely to be deemed to be a restraint of trade. Hence, for leagues seeking to equalise the distribution of playing talent by equalising player wage expenditures, the focus has been on total player wage expenditures by teams and setting a maximum either in the form of a salary cap that cannot be exceeded or, alternatively, a maximum above which teams incur a luxury tax which is then redistributed to other teams.

From the perspective of allocative economics, the debate over league regulation has been dominated by Rottenberg (1956) who argued that the distribution of playing talent would be unaffected by whether or not leagues imposed a player reservation system or allowed free agency. This argument is now known as the Rottenberg invariance proposition. It is an application of the Coase theorem (Coase, 1960) that the allocation of property rights determines the distribution of income but leaves the allocation of real resources unaffected. In the case of the distribution of playing talent, if both team-owners and players are wealth-maximisers, it follows that players will move to the teams where their economic value is maximised irrespective of whether there is a player reservation system or free agency. The best players will move to the biggest teams whatever the regulatory regime. The type of regulatory regime determines who can instigate player movements between teams and the distribution of the economic value of playing between team owners and players, but not the distribution of playing talent across teams. Player reservation systems assign team owners the rights to instigate player trades and economic theory predicts that team owners will be able to exploit their bargaining power to gain a larger share of the economic value generated by players. In contrast, free agency allows players greater freedom to bargain with any team at the end of their current contract, allowing players to gain a higher share of their economic value.

The Rottenberg invariance proposition remains highly contentious particularly with respect to its key prediction that the labour market regime will not affect the distribution of playing talent. El-Hodiri and Quirk (1971) essentially agreed with the Rottenberg invariance proposition, arguing that the equalisation of the distribution of playing talent in the long run requiring 'rules to prohibit the sale of player contracts among teams guarantees convergence over time to equal playing strengths' (p. 1319) although they did recognise that the sportsman-owner effect would undermine the long-term tendency to equal playing strength. However, Daly and Moore (1981) disagreed and suggested that the reserve clause in Major League Baseball had meant that 'the 1965-76 period involved a greater degree of competitive equality and a lower correlation between city size and winning percentage' (p. 93) while 'the effective termination of the reserve clause for veteran players in 1976 has been followed by a series of free agent transactions which have on balance clearly strengthened big city teams' (p. 94).

Although the impact of the labour market regime on the distribution of playing talent remains unsettled, it is generally agreed that a move to free agency will result in a greater share of economic value of playing talent accruing to the players. Scully (1974) estimated that under the reserve clause baseball players only earned 15% - 20% of their MRP in the late 1960s. Zimbalist (1992) found that, with the advent of free agency, rookie players continued to earn only a fraction of their economic value. However, Zimbalist also found that players who became free agents after six years in the MLB earned more than their MRPs thereby compensating for the restrictions earlier in their careers. Further evidence of the impact on player wages from the introduction of free agency can be seen in Figure 4 which shows the wage-revenue ratio in the EPL. Free agency was introduced in European soccer in 1996 following the Bosman ruling by the European Court of Justice in September 1995 which deemed that the transfer system, particularly the payment of transfer fees for out-of-contract players, was in breach of the principle of free mobility of labour within the European Union (Késenne, 2006). Initially Bosman free agency only applied to players moving between teams in different member-states, but it was very quickly adopted for both domestic and international player transfers. As can be seen in Figure 4, it led to a dramatic re-alignment of player wages in the EPL with the wage-revenue ratio rising in the space of four years from a pre-Bosman level of 47.1% in 1996 to 60.9% in 2000.

INSERT FIGURE 4 HERE

Salary caps are generally accepted to be the most effective means of influencing the sporting and financial viability of leagues. But salary caps vary in their objectives and design. A "hard" cap that sets the same absolute maximum on player wage expenditure for all teams is the most effective type of salary cap to equalise the distribution of playing talent whereas setting a maximum on player wage expenditure as a proportion of designated revenues is a "softer" cap that is more appropriate when ensuring the financial viability of teams takes precedence over competitive balance. An alternative approach to ensuring financial viability is to set a break-even requirement overall for teams and then leave it to their discretion to determine the level of player wage expenditures compatible with break-even. This is essentially the approach adopted by UEFA, the governing body for European soccer, in its Financial Fair Play approach to regulating teams participating in the pan-European tournaments, the UEFA Champions League and the UEFA Europa League, with several domestic soccer leagues such as the EPL adopting a version of Financial Fair Play (Peeters & Szymanski, 2014). UEFA were motivated by the dual concerns of ensuring the financial solvency of the teams competing in its tournaments as well as trying to limit the competitive advantage of debt-financed teams (Drut & Raballand, 2012). UEFA's regulatory regime owes less to allocative sports economics and more to the political economy of managing its tournaments that involve teams from 55-member national associations of very different economic status while facing the periodic threat from the biggest teams to form a breakaway European super league (Drut & Raballand, 2012).

Another form of softer salary cap involves exemptions to foster the long-term viability of leagues. For example, the salary cap adopted by English Premiership rugby union teams involves additional allowances for players developed within the team's own academy system to incentivise teams to continue to invest in youth development. Another type of exemption is for iconic players seen as crucial to the developing the fan base of the league particularly when a league is trying to compete with well-established leagues in other team sports as in the case of the Australian soccer league and Major League Soccer in the USA and Canada. For example, the LA Galaxy in Major League Soccer were able to sign David Beckham under the Designated Player Rule and able to pay him more than twice the team's total salary cap (Badenhausen, 2012).

Debate 3: Innovation and the Moneyball Story

Fetter (2003) warns of the dangers of league regulation in undermining the incentives to innovate, pointing out that 'there was much to be said for baseball's traditional ways, for the scope it gave to innovation and initiative by individual franchises' unwillingness to submit to the levelling down process implicit in the quest for competitive balance, a quest that … could easily lead to cooperative mediocrity' (p. 384). Fetter provides a detailed account of the history of innovation in baseball as small-market and/or emerging teams innovated to be able to compete with the larger, more established teams. Such innovations include the separation of the roles of the general manager and field coach, the farm systems for developing young players, franchise relocation particularly the postwar movement of franchises to the cities in the boom states of western USA, and stadium construction and redevelopment. Indeed publication of Fetter's book coincided with the publication of *Moneyball* by Michael Lewis (2003) which told the story of how Billy Beane, the general manager of the Oakland Athletics, developed the use of data analytics as an innovative competitive strategy.

From the perspective of allocative economics and corporate finance, *Moneyball* is an application of the efficient market hypothesis. Traditionally baseball teams valued batters

using the two conventional batting statistics, the batting average and slugging average. However, analysis of baseball data (known as sabermetrics) had shown that these metrics are not the best predictors of team win percentages. Rather, sabermetricians such as Bill James (Gray, 2006), had long argued that on-base percentage (OBP), defined as the proportion of at-bats that a batter reaches base, is a better predictor since it includes all the ways that a batter gets to base. In particular, OBP takes account of walks which traditionally had been treated as a pitcher error rather than an indicator of the batter's skill in selecting which pitches to leave and which to attempt to hit. As a consequence, walks represented what economists call a "free lunch", a valuable commodity that is undervalued in the market. Oakland took advantage of the informational inefficiency of other teams to gain a competitive advantage. Hakes and Sauer (2006) tested the *Moneyball* hypothesis and found that: (i) OBP was the best predictor of team winning percentage in the period 1999 - 2003; (ii) OBP had no significant impact on batter salaries between 2000 – 2003; but (iii) OBP became the most significant determinant of batter salaries in 2004 after the publication of *Moneyball* just as predicted by the efficient market hypothesis when other traders are alerted to an informational inefficiency.

From the perspective of strategic management, Oakland used data analytics as a "David" strategy to compete effectively with resource-richer rivals by innovating to make efficiency gains. Gerrard (2007) estimates that in the first nine years of Beane's tenure as general manager, 1998 – 2007, Oakland achieved efficiency gains of 59.3% above the league average. Other baseball teams have also adopted data analytics and indeed *Moneyball* has sparked innovation in the use of data analytics throughout team sports and individual sports worldwide. Rather than Fetter's fear that league regulation is likely to produce competitive mediocrity being realised, salary caps and other league interventions have provided a further stimulus to teams to innovate to find ways to be more competitive although, unfortunately, these innovations have sometimes involved breaching the rules.

Conclusion

The importance of sport as a political tool has long been recognised. Back in Ancient Rome, Juvenal reputedly summed up the public policy of Roman emperors as "panem et circuses" (bread and circuses) – i.e., feed and entertain the masses. Elite sport, especially professional team sports, are the modern circus for the masses. Yet the economic study of sport is still in its relative infancy as a sub-discipline, dating back only to the publication of Rottenberg's paper in 1956. The practicalities of ensuring the sporting and financial viability of pro team sports both in the short/medium term and in the longer term remain work in progress. Key issues concerning the motivation of team owners, the impact of league regulations and the need to maintain incentives for teams to innovate require further research. Leagues must also remain alert to the challenges of detecting unethical behaviour by teams with an "only-winning-matters" attitude to sporting competition. And this concern with the ethical dimension reinforces a theme throughout this chapter that there is a pressing need for sports economics to develop a more holistic understanding of sport by situating the economic and financial analysis of sport in its social, cultural and historical context.

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Figure 1: The Revenue Streams of a Pro Sports Team

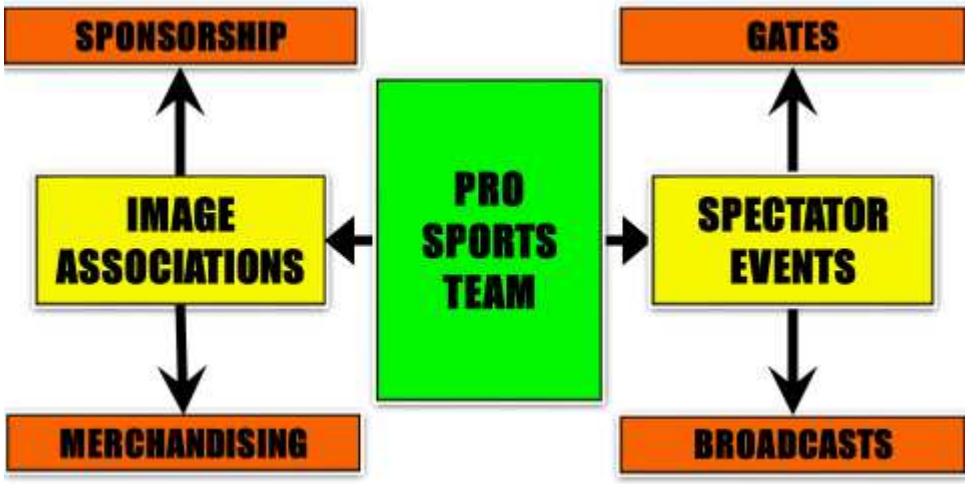


Figure 2: The Business-Finance Model

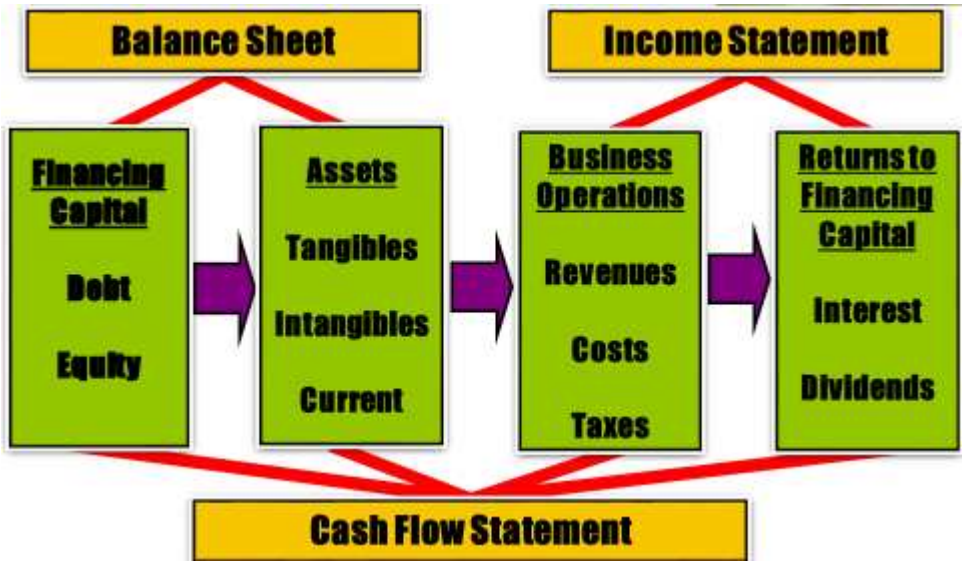


Figure 3: The Performance Trade-Off

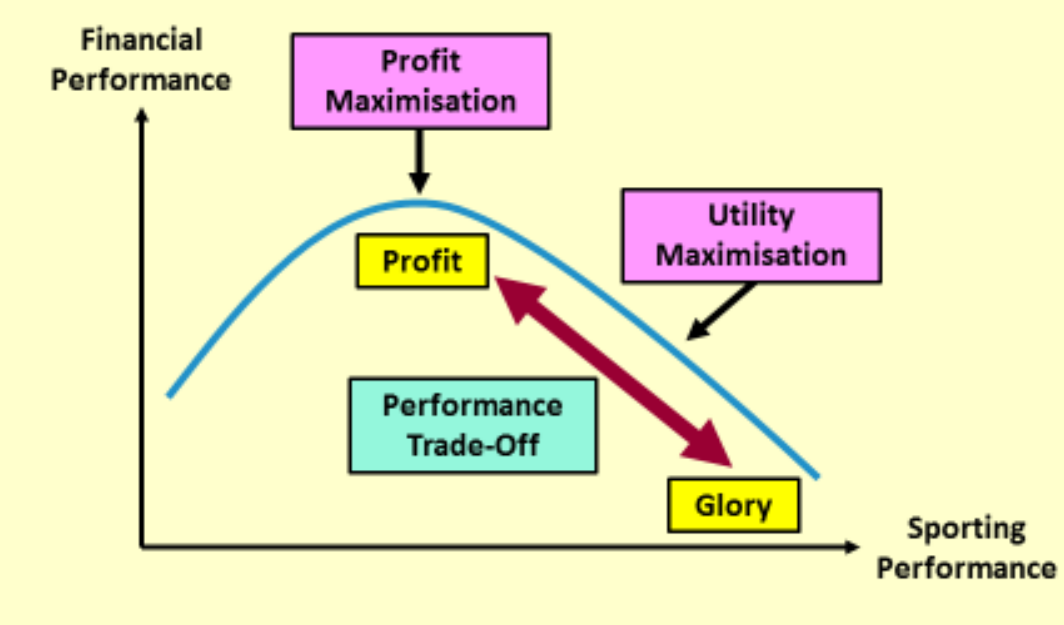
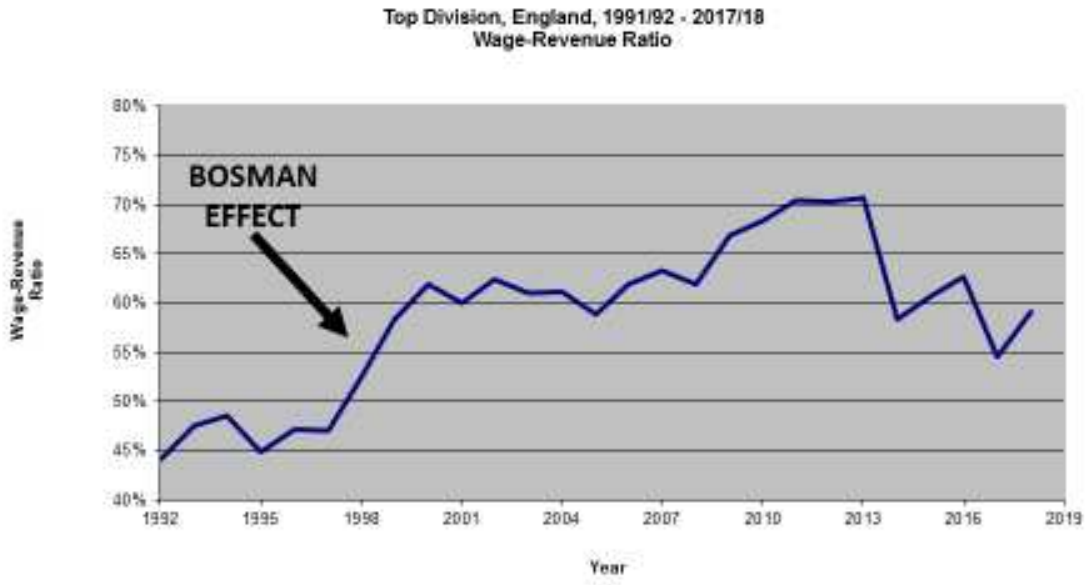


Figure 4: Wage-Revenue Ratio, EPL, 1991/92 – 2017/18



Source: Sports Business Group (2019); author calculations

Table 1: Team Revenues, Big Five European Domestic Soccer Leagues, 2017/18

	England (EPL)	France (Ligue 1)	Germany (Bundesliga)	Italy (Serie A)	Spain (La Liga)
Revenues (€m)					
Matchday	757	191	538	257	510
Media	3,210	791	1,248	1,294	1,609
Commercial	1,473	710	1,382	666	954
Total	**5,440**	**1,692**	**3,168**	**2,217**	**3,073**
Revenues (%)					
Matchday	13.92%	11.29%	16.98%	11.59%	16.60%
Media	59.01%	46.75%	39.39%	58.37%	52.36%
Commercial	27.08%	41.96%	43.62%	30.04%	31.04%
Total	100.00%	100.00%	100.00%	100.00%	100.00%
Other KPIs					
Average League Gate	38,495	22,575	43,879	23,848	26,771
Local Spend (€)	2,896	1,996	2,431	1,935	2,734

Source: Sports Business Group (2019); author calculations

Table 2: Wage Costs, Big Five European Domestic Soccer Leagues, 2016/17 and 2017/18

	England (EPL)	France (Ligue 1)	Germany (Bundesliga)	Italy (Serie A)	Spain (La Liga)
Wage Costs (€m)					
2016/17	2,894	1,078	1,478	1,401	1,691
2017/18	3,217	1,262	1,674	1,472	2,033
Revenues (€m)					
2016/17	5,301	1,643	2,793	2,062	2,865
2017/18	5,440	1,692	3,168	2,217	3,073
Wage-Turnover Ratio (%)					
2016/17	54.59%	65.61%	52.92%	67.94%	59.02%
2017/18	59.14%	74.59%	52.84%	66.40%	66.16%

Source: Sports Business Group (2019); author calculations