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Vincent Hogan, University College Dublin

Patrick Massey, Compecon Ltd and

Shane Massey, Trinity College Dublin

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Late Conversion: The Impact of Professionalism on European Rugby Union.

Vincent Hogan[*], Patrick Massey[**] and Shane Massey[*1]**

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[*] School of Economics and Geary Institute, UCD
[**] Director Compecon Ltd.
[***] Trinity College Dublin
[1] The authors are grateful for helpful comments by Tony Amoroso, Sean Barrett, Moore McDowell and Ollie O'Brien on earlier drafts of this paper. The usual disclaimer applies.

Late Conversion: The Impact of Professionalism on European Rugby Union.

***Abstract*:** Rugby union only went professional in 1995, much later than other major team sports resulting in major changes in league structures. Different arrangements regarding revenue sharing and salary caps between the three main European rugby leagues provides an opportunity to test the impact of such factors on competitive balance. The paper also considers the issue of competitive balance between leagues based on performances in European competitions. It has been argued that soccer's rules which require leagues to operate along national lines increased competitive imbalance at both national and European level. Rugby provides an interesting comparison as it has no such restrictions.

Key Words: Professional team sports, competitive balance, league structures, Coase Theorem, collective selling, broadcast rights, salary caps.

JEL Classifications: DO2, D21, D23, K21, L14, L22, L23, L83.

1: Introduction.

There is an extensive literature on the economics of professional sports leagues, much of which emphasises the importance of competitive balance and uncertainty as key elements in the attractiveness of sport. This literature has mainly focused on US professional team sports, although soccer, which is by far the biggest professional team sport in Europe, has also featured prominently. Rugby Union provides an interesting case study because, unlike soccer and the major US team sports, it only turned professional in 1995.[2] The move to professionalism in rugby resulted in very significant structural changes, at both club and league level. Thus rugby may provide some new insights into how differences in league structures and rules relating to salary caps and revenue sharing affect competitive balance. The present paper describes the changes that have occurred since the introduction of professionalism and looks at the evidence on competitive balance in the three main European rugby leagues. Several authors have argued that soccer's rules which require leagues to operate along national lines have increased competitive imbalance in national leagues and in European wide competitions such as the Champions League. (Szymanksi, 2007 and Vrooman, 2007). Rugby offers an interesting comparison in this regard as there is no requirement that leagues operate along national lines.

The balance of the paper is structured as follows. Section 2 reviews the economics literature on professional sports leagues. The historical development of rugby is described briefly in Section 3. Section 4 describes the structural changes that have taken place in the major European rugby playing countries since the move to professionalism. Evidence on competitive balance within the three main European rugby leagues is presented in Section 5. Section 6 considers the evidence on inter-league competition. Some conclusions are outlined in Section 7.

2: Economics of Professional Sports Leagues.

Two organisational models are commonly observed in professional sports leagues throughout the world. Outside of the US soccer leagues operate a hierarchical multi-division league structure with a system of promotion and relegation between divisions

[2] Rugby split into amateur and professional codes in 1895 (see below). The amateur code, known as Rugby Union remained the more widely played version of the sport. The professional variant is known as Rugby League. Over time rule changes have led to significant differences between the two sports. Throughout the paper rugby is used to refer to Rugby Union.

whereby the bottom placed teams in a division at the end of the season are replaced by the top placed teams in the next highest division. In the US, the National Baseball League established a system of independent franchises which were each granted local monopolies. This business model was subsequently adopted by all major US sports leagues. Promotion and relegation is therefore not a feature of US sports leagues and league membership remains unchanged from one season to the next, although team franchises may be moved from one city to another.[3]

The economic literature recognises that sports leagues require a greater degree of cooperation between rival firms than most other industries. No team can produce a single unit of output, i.e. one match, on its own. (Goldfein, 1999). Teams are competitors in a sporting sense, in that the very essence of sport involves the teams in a particular game trying to beat one another, and each team in the league trying to finish higher than its rivals. Only by acting collectively, however, can a league and its member clubs produce a full season of matches resulting in a championship competition. The US Supreme Court has described league sports as "perhaps the leading example" of a business activity that "can only be carried out jointly."[4] In other industries firms seek to take business from their rivals and would gain if their rivals were forced out of business. This is not true of sports leagues, since a team that put its rivals out of business by taking customers from them would have no teams left to play against.

It has been suggested that the common interest of teams in sports leagues extends beyond the need to cooperate in order to produce a league championship competition. According to this view uncertainty of outcome is an essential feature of sport and this requires a degree of equality between the teams in a league. Consequently, it is argued that measures to ensure an even distribution of revenue among league members provides teams with equal opportunities to hire the best players thereby improving

[3] Ross and Szymanski (2005) argue that the US model of a vertically integrated league run by its member clubs leads to inefficient outcomes in the absence of rival leagues and argue that a league which is separate from its member clubs has greater incentives to operate efficiently.

[4] *National Collegiate Athletic Association v. Board of Regents of University of Oklahoma*, 468 US 85, 101 (1984). Ross and Szymanski (2005), point out that the Australian courts have taken a different view seeing the key function of leagues as being to provide "competing organizing services." Despite the recognition that no team acting alone can produce a single game, the US courts have rejected the argument that sports leagues constitute an essential facility. See *Mid South Grizzlies v. National Football League* 720 F.2d 772 (3rd Circ. 1983), 467 US 1215 (1984).

competitive balance and making matches more attractive to fans. (Sloane, 2006). McMillan (1997) argued that competitive balance was essential to maintain a healthy level of competition in New Zealand rugby. The competitive balance argument has been advanced to justify a variety of arrangements that are commonly found in sports leagues such as salary caps, restrictions on players moving between teams and the collective selling of broadcasting rights by sports leagues and their member clubs. (Rottenberg, 1956, Szymanski and Kesenne, 2004). Szymanski (2007) describes the issue of competitive balance in professional team sports as a practical test of the Coase theorem.

Rottenberg (1956) pointed out that the reserve clause in baseball, which restricted players freedom to move between teams, did not prevent the migration of the best players to bigger teams. It thus had no effect on competitive balance but artificially depressed player salaries and enabled teams to earn monopoly rents. Quirk and El Hodiri (1974) demonstrated that revenue sharing would have no impact on the distribution of playing talent if revenue generating potential varied between profit maximising teams. Both these results are examples of the invariance principle. Noll (2007a) argues that the financial viability of sports leagues is undermined rather than enhanced by measures that improve competitive balance.

Several authors have questioned the view that revenue sharing improves competitive balance. (See, for example, Downward and Dawson, 1995; Cave and Crandall, 2001: and Szymanski, 2003). Szymanski and Kesenne (2004) found that sharing of gate revenues reduced competitive balance and reduced the incentive to win. Noll (2007a) concluded that decentralised selling of broadcast rights would improve competitive balance, while Fort and Quirke (1995) found that sharing of local television revenues improved competitive balance. Fort and Quirk (2007), however, found that a unique rational expectations equilibrium existed for US sports leagues providing a formal justification for the competitive balance argument, although they noted that such an equilibrium was unlikely to exist for non-cooperative leagues. Vrooman (2007) points out that revenue sharing and salary caps will improve competitive balance, if team owners are win maximisers, which appears true of European soccer. Garcia and Rodriguez (2009) concluded that the conditions necessary for revenue sharing to affect competitive balance were not present in the case of Spanish football. Lenten

(2009a) reports that rules designed to improve competitive balance in Australian Rules Football have had to be revised from time to time as clubs tended to find ways of getting around them thus lessening their impact on competitive balance. Lenten (2009b) nevertheless concludes that the existing salary cap and draft arrangements introduced in 1995 had increased competitive balance.

Sloane (2006) argues that although the competitive-balance/uncertainty argument has tended to dominate the analysis of team sports, little attention has been paid to defining and accurately measuring it. The literature refers to three different concepts of uncertainty.

- Short-run uncertainty of match outcome, i.e. uncertainty regarding the outcome of an individual match which should increase supporter interest in individual matches;
- Medium term or seasonal uncertainty of outcome, i.e. uncertainty over which team will ultimately win the league, which should serve to maintain supporter interest in matches involving a wider range of teams over the course of the season;
- Long term uncertainty of outcome, i.e. a lack of domination by one or more clubs over a number of seasons, sometimes referred to as dynamic competitive balance.

Baimbridge et al. (1996) warned that broadcast arrangements for England's FA Premier League (FAPL) would reduce competitive balance by increasing income inequality between clubs. Arnaut (2006) claimed that competitive balance had declined in several top-flight European football leagues. Massey (2007) found evidence of a decline in short-run competitive balance in the FAPL. Vrooman (2007) concluded that dynamic competitive balance in the FAPL had declined.

Szymanski (2003) observes that the competitive balance argument is based on two assumptions that may be unique to US sports:

1. The supply of talent available to clubs is fixed; and.
2. The absence of promotion and relegation in US leagues makes competitive balance more important for maintaining supporter interest over time.

In soccer the promotion/relegation system means that teams that are relegated suffer significant declines in revenue.[5] (Szymanksi and Valetti, 2003). In addition the top teams in national European soccer leagues qualify to play in Europe wide competitions, the most important of which is the UEFA Champions League, and earn substantial extra revenue from participating in those competitions.[6] There are no equivalent multi-national competitions in US sports. It is not in the interests of the top soccer clubs that every team should have a broadly equal chance of reaching the Champions League or of being relegated.[7]

Revenue sharing is thus more limited in European soccer than in US Sports. In the NFL all broadcast revenue is shared equally in contrast to the FAPL where only 50% is distributed equally.[8] In the NFL revenue sharing is not limited to broadcast revenues so that two thirds of total revenue is shared compared with 22.5% in the case of the FAPL. (Vrooman, 2007). In England, France and Germany half of the league's total revenues accrue to the top 5 teams, while in Italy and Spain, where teams sell broadcast rights individually, two thirds of league revenues accrue to the top 5 teams. (ibid.)

The distribution of UEFA Champions League broadcast revenue is skewed in favour of clubs from larger countries increasing competitive imbalance in domestic leagues.[9] (Vrooman, 2007).

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[5] Teams that are relegated from the FAPL receive compensation payments, known as "parachute payments", for up to three years to help cushion them against such losses.

[6] It is estimated, for example, that in 2005/6 English club Arsenal, which reached the final of the Champions League received around £25m in Champions League broadcast revenues compared with £27m from FAPL broadcast revenues. (Parkes, 2007)

[7] For a more detailed analysis of the economic implications of the promotion and relegation system and Champions League see Noll (2007b).

[8] The remaining 50% is split 50/50 between merit payments, determined by a club's final league position and facility fees, which are determined by the number of times a club's matches are broadcast. (Sloane, 2006). The latter arrangement tends to favour higher placed clubs' whose matches are likely to be broadcast more often.

[9] 50% of Champions League broadcast revenue is distributed on the basis of teams' on-field performances, while the other 50% is distributed according to the relative value of the broadcast market in a team's home country. Thus, when Portuguese club Porto won the Champions League in the 2003/4 season it received a total of £13m in broadcast revenue but only £1.3m (10%) was from the broadcast pool due to the fact that the Portuguese broadcast market is relatively small in European terms. (Parkes, 2007). Szymanski (2007) reported that Porto got less revenue than several of the other participating teams despite winning the competition.

> "It would appear that the Champions League has created chronic imbalance both inside and outside the competition itself and outside in the domestic league championships." (Szymanski, 2007, p.369).

Palomino and Sakovics (2004) argue that national leagues have no incentive to undo such effects because the league as a whole benefits from the good performances by its members in European competitions, e.g. through an increase in the number of participants from the league.

Historically player mobility in European soccer was limited by the transfer system which prevented players leaving the clubs that employed them, even if their contracts had expired, and by limits on the number of foreign players that a team could employ. The European Court of Justice Judgment in the *Bosman* case[10] ruled that such arrangements were in breach of the EU Treaties. Thus European soccer now has a fully mobile labour market but product markets remain closed as soccer's rules require leagues to operate along national lines. This has increased the imbalance between the larger and smaller countries.

Kesenne (2007) observed that top teams in countries such as Belgium and Holland, including Ajax a team which won the European Cup on several occasions in the 1970s, can no longer compete with big clubs from larger countries for the best players. In order to have the same ratio of population to top division football teams as England, Belgium would have to reduce its league to just four or five clubs, which is too few for a viable league competition. Broadcast rights are higher in larger markets and Noll (2007a) argues that this explains the relative decline of Belgian teams in European terms. The best players have tended to move to the four or five richest leagues thus, lowering the quality of leagues in smaller countries and widening the gap between teams from smaller and larger countries. The exodus of top players reduced the supply of talent available in smaller countries thus bidding up wages for the remaining lower quality players and leading to the near bankruptcy of several

[10] Case C-415/93 *Union Royale des Societes de football association, Royal Club Liegois et UEFA v. Jean Marc Bosman* [1995] ECR I 4921.

Belgian and Dutch top division clubs. (Kesenne, 2007). The Champions League has become increasingly dominated by teams from the four or five largest countries.[11]

The rules prevent teams from smaller countries joining leagues in larger countries and prevent mergers of smaller country leagues that would enable them to increase the ratio of population to top clubs, thereby potentially increasing revenue. Szymanski (2009) reported that the top Dutch and Belgian clubs had considered establishing a single league but were prevented from doing so by the existing rules. Vrooman (2007) reported that UEFA also blocked an attempt by clubs in seven smaller countries to establish a new league to compete with the big 5 leagues.[12] The two largest Scottish clubs, Rangers and Celtic, the latter another former European Cup winner, have been prevented from joining the FAPL. Mergers of smaller country leagues could increase competition between European leagues and improve competitive balance within the Champions League. (Kesenne, 2007). Cities like Amsterdam and Glasgow might well be capable of supporting top level European teams but are prevented from doing so under the present rules.

3: Rugby – A Brief Overview.

Rugby, like soccer emerged in England in the mid nineteenth century. Rules based on those of Rugby School, where tradition has it the game originated, were drawn up and the Rugby Football Union (RFU) was established at a meeting of clubs at the Pall Mall Restaurant in London in January 1871.[13] The World governing body for rugby is the International Rugby Board (IRB) which was founded in 1886 and has its headquarters in Dublin. Compared with soccer, rugby, at least at the highest level, is played in a relatively limited number of countries worldwide.[14]

[11] This imbalance is exacerbated by the bias in the allocation of Champions League broadcasting revenues in favour of teams from the larger countries. See Palomino and Sakovics (2004) on competition between European football leagues for players.

[12] The proposed league was to be known as the Atlantic League and would have involved teams from Belgium, Denmark, Holland, Norway, Portugal, Sweden and Scotland's Celtic and Rangers.

[13] This brief account is summarised from information contained on the RFU website at http://www.rfu.com/AboutTheRFU/History.aspx

[14] There are effectively six top level rugby playing countries in Europe (England, France, Ireland, Italy, Scotland and Wales) and four in the Southern Hemisphere (Argentina, Australia, South Africa and New Zealand). The IRB, however, includes a total of 95 rugby playing countries in its world rankings.

Szymanski (2009) argues that the question of professionalism emerged in team sports once they began to attract large paying audiences. US baseball split into amateur and professional codes in 1871. In 1885, a similar crisis emerged in English soccer but a successful compromise was reached preventing a split, which essentially allowed for players to be paid while amateurs retained control of the sport's governing body. Ten years later the issue raised its head in rugby when clubs in the North of England wanted to make payments to players, not for playing, but as compensation for wages lost as a result of playing matches on Saturdays.[15] As the RFU put it:

> "In the South where players were more well-heeled and didn't work at weekends this was irrelevant but a powerful group insisted that payment was against the true interests of the game and consequently 22 leading clubs from Yorkshire formed their own Northern Union, which in 1922 became the Rugby League."[16]

In 1995 the IRB amended its rules to permit professionalism. This resulted in major changes in the structure of the sport at both club and league level in all of the main rugby playing countries, although there were significant differences in the responses in different countries.

4: Rugby in the Professional Era.

In contrast to soccer, English rugby has no long tradition of a national league championship competition for clubs. The Courage League only began in 1987/8 with 12 clubs which played each other once over the course of the season although there were no set dates for fixtures. Fixed Saturday fixtures were introduced the following season and in 1993/4 the teams first played each other on a home and away basis.[17] According to Richards (1996) the move to professionalism resulted in a major upheaval in English rugby with galloping inflation and "a desperately uncertain future." Bitter disputes erupted between the RFU and the leading clubs over the terms for the release of players to play for the England team and over the division of television revenues. (McMillan, 1997) This led the leading clubs to establish a new

[15] Such payments became known as "broken time" payments.
[16] http://www.rfu.com/AboutTheRFU/History.aspx
[17] Source: http://www.premiershiprugby.com/information/history.php

association to run the domestic league competition, known as the Premiership, which replaced the Courage League.

There was also considerable restructuring and innovation at club level. Several clubs were acquired by wealthy individuals while others floated on the stock exchange. One company Newcastle United Ltd. operates both professional soccer and rugby teams. In another case a rugby union and rugby league team merged and operates teams in both codes. Some clubs adopted innovative approaches to player incentives with the London Wasps club offering share options to players linking their remuneration to the club's future stock market price. (McMillan, 1997).

The Premiership operates a revenue sharing and a salary cap arrangement. All revenues, including those received by teams from participation in European competitions (see below) are split equally between the member teams. Such arrangements are considered necessary to ensure the long-term viability of the league's member clubs rather than to ensure competitive balance.[18] There is promotion and relegation, although only the bottom team in the Premiership at the end of each season changes places with the top team in the next division.

The transition to professionalism was somewhat less disruptive in France than in other countries, at least initially. The French national championship known as the Top 14 traces its origins back to 1892. Prior to 2005/6 the league was composed of two sections of eight teams with the top teams from each section reaching the play-offs. In 2005/6 the Top 14 was restructured into a single division of 14 teams. There is promotion and relegation with the bottom two teams each season changing places with the top two from the league immediately below the Top 14. Following the move to professionalism a number of clubs were acquired by wealthy individuals as in England. French clubs do not operate a revenue sharing arrangement.

[18] The League was reduced to its current 12 teams in 1999/2000 when one club, Richmond, went bankrupt and London Irish and London Scottish merged. Other clubs have also encountered financial difficulties. Assuming that teams play each other twice during the season, a reduction in league membership from 12 teams to 10, for example, would reduce the total number of matches from 132 to 90, with potential implications for the viability of the league.

In recent seasons a number of French clubs have experienced financial difficulties. *Bourgoin* only avoided a bankruptcy filing in 2009 as a result of its players agreeing to large wage cuts. The club was denied a professional licence by the league due to their ongoing financial issues, but this decision was reversed on appeal.[19] *Brive*, whose 2009/10 wage bill was €7.2 million, announced that they would cut their budget by 40% for the following season, while a third club *Montauban* were relegated at the end of the 2009/10 season after filing for bankruptcy. These financial problems resulted in the introduction of a salary cap from the beginning of the 2010/1 season, albeit at a much higher level than in England.

The Irish Rugby Football Union is an all Ireland body and the Ireland international team includes players from both Northern Ireland and the Republic of Ireland. The IRFU has four provincial branches and historically clubs were organised into four provincial leagues. In addition there were four provincial representative teams that played against one another in an annual inter-provincial championship.[20] A national club league, known as the AIL with approximately 50 teams divided into a hierarchical four division structure, was only established in 1989/90.

The rugby fan base in Ireland was insufficient to support a full time professional club league, while the four team Inter-Provincial Championship, was too small to operate as a viable professional league. Following the introduction of professionalism, the IRFU adopted a policy of centrally contracting all of its leading Irish based players. All contracted players play for one of the four provincial teams and the IRFU largely controls which provincial team an individual plays for.[21] In addition the four provincial teams are each allowed contract a number of non-Irish players.

The IRFU is able to exert this level of control because the bulk of revenue in rugby was traditionally generated from international matches. Income from international

[19] http://sports.orange.fr/infos/rugby/201027/bourgoin-maintenu-en-top-14_281127.html
[20] The Championship was played on a league format with the teams playing against each other once, with home advantage alternating from year to year.
[21] The decision by the IRFU to centrally contract players appears to have been prompted by concerns that there would have been an exodus of top players to overseas leagues. One of the four professional teams, Connacht, effectively operates as a development or "farm" team receiving significantly lower levels of funding than the other three teams. Initially contracted players continued to play with their AIL club teams as the four provincial teams only played a limited number of matches each season.

matches (both ticket sales and broadcast revenue) in 2009/10 accounted for around 60% of total IRFU revenue. The IRFU pays the bulk of the running costs of the four provincial teams and such outlays accounted for 60% of its total expenditure in 2009/10. (IRFU, 2009/10) The IRFU also funds the provincial teams' development squads and under age international teams. Broadcast revenues and prize money from the Irish teams' participation in the European Rugby Cup (ERC) is paid to the IRFU along with the bulk of teams' gate receipts from home matches in the competition. Rugby in Ireland is thus vertically integrated with the relationship between the IRFU and the four professional teams effectively a parent subsidiary one.

In Wales the transition to professionalism resulted in what the Welsh Rugby Union's (WRU) Chief Executive described as "a painful few years for Welsh rugby as it has been forced to adapt and change in an attempt to climb out of the financial mire." (WRU, 2003/4, p.16). In 2003/4 financial pressures led to a restructuring with mergers between a number of clubs leading to the establishment of five regionally based professional teams.[22] Payments to regional teams accounted for only 25% of total WRU expenditure in 2009/10.[23] Apart from such payments, there are no revenue sharing arrangements between the regional teams. The relationship between the WRU and the regions is governed by an agreement which runs up to May 2014. Thus Welsh rugby exhibits a high degree of vertical integration but not to the same extent as in Ireland

Initially Wales retained its club structure and national league, the Welsh Premier League. In 1999 two Scottish teams (Edinburgh and Glasgow) joined to form the Welsh-Scottish League. In 2001/2 the Irish, Scottish and Welsh Rugby Unions came together to establish a new league, originally known as the Celtic League but subsequently renamed the Magner's League. The league is run by Celtic Rugby Limited.

[22] The number was reduced to four due to financial pressures after just one season. "Professional rugby has been condensed to four regions and I stand by something I said 18 months ago - four regions are as many as Welsh rugby can sustain, for both player resource and financial reasons." (CEO's Statement, WRU *Annual Report 2003-2004*, p.7). Below the regions a club league continues to operate on a semi-professional basis.

[23] The WRU allocated £12m on its regional teams compared with €35m in the case of the IRFU.

The size and format of the Magner's League has varied over time. In its first season the league consisted of 15 teams (9 from Wales, 4 from Ireland and 2 from Scotland) divided into two sections with the top four from each section qualifying for the play-off stages. A third Scottish team was added in the second season bringing the number of teams to 16 while the format remained unchanged. In 2003/4 the format changed to a straightforward league competition involving 12 teams with the five newly established Welsh regional teams replacing club teams. The league was reduced to 11 teams the following season due to the withdrawal of one of the Welsh regional teams and was further reduced to 10 in 2007/8 with the withdrawal of one of the Scottish teams. A play-off to decide the league winners involving the top four teams was introduced in 2009/10. The number of teams increased to 12 for the 2010/1 season with the admission of two Italian teams.

The Magner's League provided the Irish provincial teams with a season long programme of matches which enabled the IRFU to effectively re-brand the four provincial teams as professional franchises while traditional club sides continue to play in the AIL on an amateur/part-time professional basis.

The ERC (also known as the Heineken Cup) was launched at the beginning of the 1995/6 season, at the same time as the move to professionalism. In some respects the ERC might be seen as the rugby equivalent of soccer's Champions League. Unlike the latter competition, which is run by UEFA the governing body of soccer in Europe, the ERC is run by European Rugby Cup, a company based in Dublin. Participation in the ERC is confined to teams from England, France, Ireland, Italy, Scotland and Wales, although English and Scottish teams did not participate in the first season of the competition.[24] While the entrants from the other participating countries were originally club teams, the IRFU secured agreement to enter provincial representative teams in the competition. 15 teams took part in the ERC in its first season but this has since expanded to 24.

[24] English teams did not participate in 1998/9 either. Romania had one team in the ERC in its first year but has not participated since. The six participating countries each have two directors on the ERC board. A second European competition, the ECC (also known as the Amlin Cup) was also established involving teams ranked below those qualifying for the ERC.

The ERC has not had the same distorting effect on competitive balance within leagues as the Champions League in soccer. Of the 38 teams that play in the top divisions of the three main European leagues, 24 qualify to play in the ERC with virtually all of the Magner's League teams qualifying.[25] England and France each receive six automatic places, but in the case of the English clubs the revenue from participation is shared among all of the league members. Since 2010/1 the previous year's winners of the ERC and Amlin Cup also qualify.[26]

5: Competitive Balance in European Rugby Leagues.

In both England and France wealthy individuals have acquired clubs and invested heavily in them while several clubs in both countries have got into financial difficulties suggesting that it is reasonable to regard clubs as win maximisers. The Irish, Scottish and Welsh Magner's League teams are all reliant to varying degrees for revenue from their parent associations for revenue, which the latter derive from international matches. This again suggests that the clubs are not profit maximisers and that the national associations play the part of wealthy benefactors.[27]

The English and French leagues are based on a hierarchical structure similar to soccer. The fact that only one team is relegated each season from the Premiership arguably means it has a quasi-fixed structure. Eight of the 12 teams have been members of the league for all of its 14 seasons while two others have participated for 13 seasons out of 14. The Premiership operates a salary cap and revenue sharing arrangement while the Top 14 traditionally did not, only introducing a salary cap (at a much higher level) in 2010/1. *A priori*, the Premiership should display a greater degree of competitive balance than the Top 14.

[25] At least ten of the twelve Magner's League teams qualify to play in the ERC. Italy and Scotland receive two ERC places which go to their two Magner's League teams. Ireland and Wales are each allocated three automatic ERC places. In effect the Irish and Welsh teams compete in "mini national leagues" within the overall league to decide ERC qualification.

[26] The number of English and French participants is capped at seven, so that if teams from one of these countries win both the ERC and ECC, the final ERC place is allocated to the highest non-qualifying ERC ranked team.

[27] The Scottish Rugby Union's Strategic Plan provides, for example, that both Scottish professional teams should increase their win ratio in the Magner's League to 55%, finish in the top 5 and achieve one quarter final appearance in the ERC by 2012. SRU (2007).

The Magner's League is akin to US sports leagues with no system of promotion or relegation so that membership is largely fixed. There would appear to be little room for the league to expand beyond the current 12 teams following the addition of two Italian teams. The league is, however, composed of teams from different countries, which operate different national arrangements in relation to revenue sharing.[28]

We now consider the evidence on competitive balance for the various rugby leagues. Fourie and Siebrits (2008) used a number of different measures and concluded that the three European rugby leagues displayed a high degree of competitive balance although their study only covered three seasons.

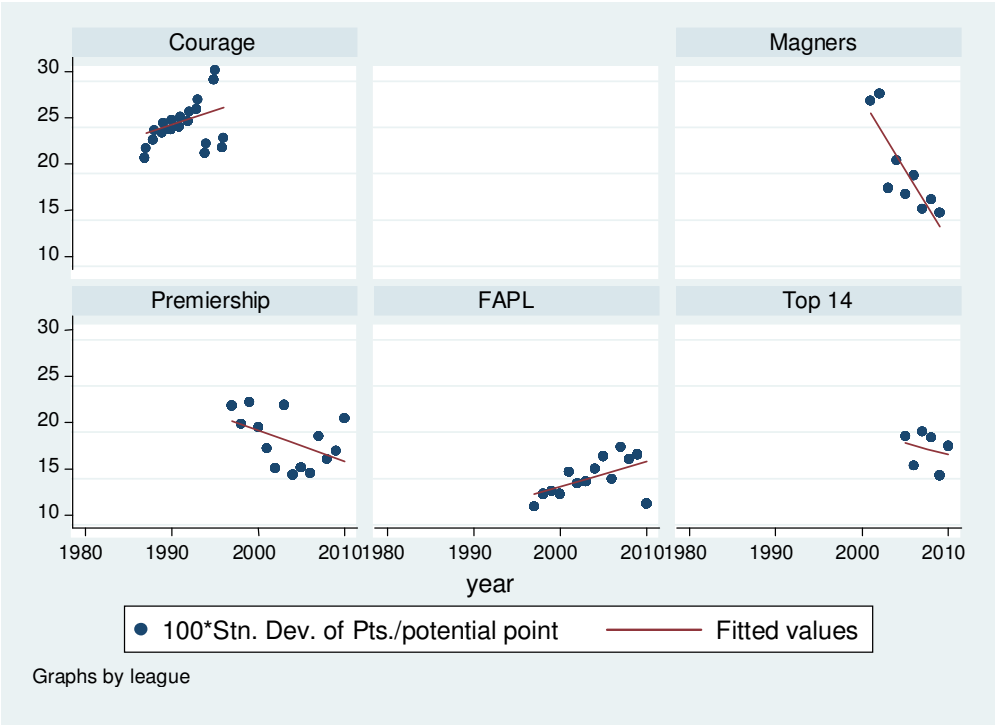
First we consider short-term uncertainty or uncertainty of outcome of individual matches. We measure competitive balance by calculating the standard deviation of points obtained by each of the participating teams in each league in each season. We calculate points scored using the rules for each league for each season but ignoring bonus points.[29] As a basis of comparison we also calculate the competitive balance in soccer's FAPL.

Figure 1 below shows how the degree of competitive balance has changed over time in the various leagues. The solid line in each diagram gives the least squares line.

The chart shows that competitive imbalance has increased in the FAPL over time, which is consistent with previous studies. (See, for example, Massey, 2007). It is also interesting to note that the courage league in England showed an increase in competitive imbalance during its existence. In contrast competitive balance increased in the three professional rugby leagues over time.

[28] The league gave the two Italian teams that joined in 2010/1 a minimum revenue guarantee for their first three seasons.
[29] The three European rugby leagues award teams bonus points for scoring a certain number of tries in a match or for losing a match by less than seven points (see below).

Figure 1.



The results are summarised in Table 1 which shows the coefficient of the regression of competitive balance on time in each sub sample. As a basis of comparison we see that the competitive balance in the FAPL has decreased overtime (i.e. the standard deviation of points has increased over time). The estimated coefficient is statistically significant even though we have only 14 annual observations. In the case of the Rugby competitions, we see that competitive balance has increased overtime in the English Premier League and in France's Top 14, although the coefficient is statistically insignificant by normal standards. In the case of the Magner's league, there was a statistically significant increase in competitive balance.

Table 1: Competitive Balance using Standard Deviation of Points

Variable	FAPL	Premiership	Courage League	Magners League	Top 14
year	0.272*	-0.293	0.311	-1.474**	-0.254
cons	-531.351*	604.512	-594.144	2973.772**	527.395
N	14.000	14.000	10.000	9.000	6.000
r^2	0.311	0.182	0.142	0.708	0.062

legend: * p<0.05; ** p<0.01; *** p<0.001

A commonly used measure of short-run competitive balance is the adjusted standard deviation of win ratios. The adjusted standard deviation is calculated as the ratio of the actual standard deviation to an idealised win ratio generated by a perfectly balanced league. The latter is defined as $0.5/\sqrt{n}$ (where n is the number of games played). This measure is attributed to Noll (1988) and Scully (1989). Humphreys (2002) argues that this measure is better than other measures of competitive balance. Lenten (2009a) points out, however, that the ratio is highly sensitive to occasional outliers. The adjusted standard deviation results were regressed over time to see if competitive balance in the various leagues had improved over time. The results are shown in Table 2.

The results mirror those of Table 1. The time coefficient is negative for the English, French and Magner's leagues but is insignificant in all three. Interestingly, the time coefficient is positive and significant for the Courage league which indicates that the amateur league was becoming progressively more unbalanced in the years before the move to professionalism.[30]

[30] It should be noted that the final two seasons of the Courage League fall within the professional era.

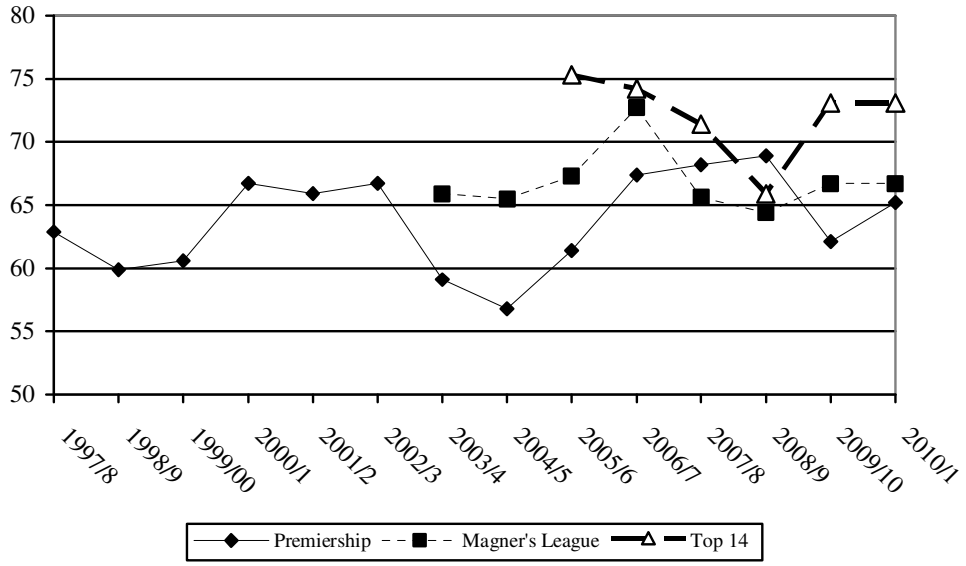
Table 2: Competitive Balance using Adjusted Standard Deviation of Win Ratios

Variable	FAPL	Premiership	Courage League	Magners League	Top 14
year	0.030	-0.017	0.073**	-0.005	-0.089
cons	-58.604	36.493	-143.843**	10.819	178.796
N	14.000	14.000	10.000	8.000	6.000
r^2	0.272	0.061	0.695	0.004	0.377

legend: * p<0.05; ** p<0.01; *** p<0.001

A commonly observed feature of sports leagues is the fact that home teams are more likely win. Figure 2 shows the proportion of home wins per season for the three European rugby leagues.

Figure 2: % Home Wins

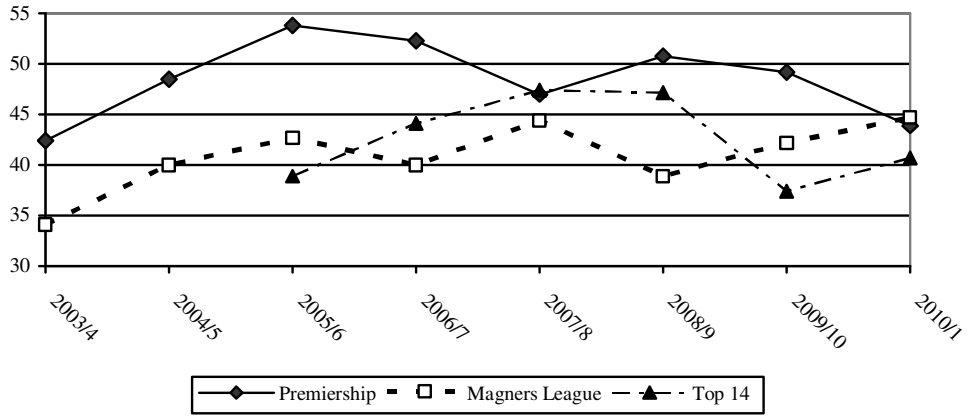


Source: http://www.premiershiprugby.com/ , http://www.lnr.fr/ and http://www.rabodirectpro12.com/

The proportion of home wins in the Top 14 was generally higher than in the other three competitions and exceeded 70% in every season apart from 2008/9. In the case of the other three competitions approximately two thirds of matches resulted in home wins, although there have been several seasons when the ratio of home wins in the Premiership, in particular, was significantly lower.[31]

In addition to gaining league points for winning or drawing matches, teams in all three leagues earn a bonus point if they lose a game by seven points or less. A difference of seven points or less means that in theory the teams were divided by a single score at the end of the match suggesting that the outcome was uncertain up to the final whistle.[32] The number of "close" matches defined as matches in which there was just a single score between the teams (including drawn matches) thus provides an alternative indication of the relative closeness of matches and of competitive balance in the various leagues. The results for each of the three European rugby leagues are illustrated in Figure 3.

Figure 3 Close Matches as % of Total



Source: As Fig. 2.

The chart shows that a h-igh proportion of Premiership matches were close contests, over 50% in a number of seasons. For the period since 2004/5 around 40-45% of

[31] Over the period 1997/8-2010/1 64% of Premiership matches have resulted in home wins. The average for the Magner's League for the period since 2003/4 was 67%. Draws (tied) matches are relatively unusual in rugby. Less than 4% of Premiership matches resulted in draws while the corresponding figures for the Magner's League and Top 14 were 2.7% and 4.4% respectively.
[32] A converted try in rugby is worth seven points.

Magner's League matches have resulted in close finishes and the results for the Top 14 were broadly similar. Thus on this measure the Premiership displays a slightly greater degree of competitive balance than the Top 14 which is in line with expectations.

Next we consider the issue of dynamic competitive balance, i.e. whether the various leagues are dominated by a small number of teams or whether the championship rotates between several different clubs. Table 3 gives details of the number and frequency of championship wins in the three leagues since 1997/8 (2001/2 in the case of the Magner's League).

Table 3: League Champions

	Premiership	French Top 14	Magner's League	Courage League
Seasons	14	14	10	10
No. Of winners	6	5	5	3
Wins by Team	Leicester 6 Wasps 4 Gloucester 1 Newcastle 1 Sale 1 Saracens 1	Stade Francais 7 Biarritz 3 Toulouse 2 Clermont Auvergne 1 Perpignan 1	Ospreys (Wal) 3 Munster (Irl) 3 Leinster (Irl) 2 Llanelli (Wal) 1 Ulster (Irl) 1	Bath 6 Leicester 2 Wasps 2
HHI	0.29	0.33	024	0.44

Source: As Fig. 2.

Since its establishment in 1997/8, six teams have won the Premiership, while there have been only five winners of the Top 14 over the same period. Stade Francais[33] won the Top 14 on seven occasions while Leicester has won the Premiership on six occasions over this period. There have been five winners of the Magner's League over

[33] Although a long established club, prior to the move to professionalism, Stade had largely been confined to the lower levels of French rugby and their re-emergence as a top force followed the clubs acquisition by a wealthy businessman following the move to professionalism.

a shorter space of team, three Irish and two Welsh. The first Welsh success came after the restructuring of club teams into regional teams, while no Scottish team has won the title to date. No team has won the Magner's League in successive seasons.

The HHI is widely used to measure market concentration in the industrial organisation literature and can be used to measure dynamic competitive balance in sports leagues. (See, for example, Leeds and von Allmen, 2005). In this case a team's "market share" can be defined as its proportionate number of championship wins, i.e. in the case of Leicester in the Premiership this is equal to 6/14. Teams "market shares" are then squared and summed to arrive at the HHI for each league. The maximum value of the HHI in each case is 1 which would arise where a single team "monopolised" the league by winning it every season while the minimum value is 1/n where n is the number of seasons.

The HHI data in Table 3 suggest that the Magner's League displayed the greatest degree of dynamic competitive balance. The Premiership had a higher degree of dynamic competitive balance than the French Top 14 which is consistent with revenue sharing and salary caps resulting in greater competitive balance. It is also worth noting that the Premiership displays a much greater degree of competitive balance than its predecessor the Courage League.[34]

We also tested the degree of dynamic competitive balance using a test proposed by Vrooman (2007). The test measures team performance on the basis of points obtained over the course of a season as a percentage of the maximum possible points obtainable. The test assumes that the points obtained by a team would follow an autoregressive process over playing seasons. If the auto regression has close to a unit root then the league would be largely deterministic i.e. the league structures acted to keep the imbalance between teams constant with any change being the result of a random shock. The results for the various rugby leagues and the FAPL are shown in Table 4.

[34] The HHI for the FAPL for the period from 1997/8 to 2010/1 was 0.42.

Table 4: Vrooman Regression Results

(Points)

Variable	FAPL	Premiership	Courage League	Magners League	Top 14
L.pts	0.879***	0.482***	0.738***	0.392***	0.592***
_cons	0.046*	0.264***	0.126*	0.296***	0.216**
N	218.000	140.000	89.000	86.000	55.000
r^2	0.635	0.193	0.394	0.158	0.314

legend: * p<0.05; ** p<0.01; *** p<0.001

The autoregressive coefficient is significant in every regression. The coefficient was extremely high in the case of the FAPL indicating that the league outcome is largely deterministic which is consistent with Vrooman (2007). In contrast the coefficients were much lower and appear to be systematically lower in each of the three European rugby leagues. The Premiership and Magner's League coefficients, in particular, suggest a high degree of dynamic competitive balance. The coefficient was lowest in the case of the Magner's League which is consistent with the results in Table 3. Similarly the Premiership coefficient is lower than that for the Top 14 which is consistent with revenue sharing and salary caps improving dynamic competitive balance.

The results also allow us to compare the degree of dynamic competitive balance in rugby before and after the switch to professionalism in the case of England. The coefficient was much lower for the Premiership than for the Courage League and the drop in the component is statistically significant. The evidence here is therefore consistent with the hypothesis that the introduction of professionalism led to an improvement in dynamic competitive balance.

Performing the Vrooman regression using win ratios yields a similar result for the various rugby leagues as Table 5 illustrates.

Table 5: Vrooman Regression Results

(Win Ratio)

Variable	Premiership	Courage League	Magners League	Top 14
L.wins	0..488***	0.676***	0.382***	0.577***
_cons	0.250***	0.155**	0.295***	0.214**
N	140.000	89.000	86.000	55.000
r^2	0.196	0.341	0.150	0.311

legend: * p<0.05; ** p<0.01; *** p<0.001

6: Inter-League Competitive Balance.

As in soccer there is a European labour market and thus competition between leagues for players.[35] In contrast to soccer, however, there is no requirement that leagues operate along national lines. Consequently the three smaller countries (Ireland, Scotland and Wales) have established a joint league to compete with the national leagues in England and France.

> "The Celtic League is vitally important for rugby in this country. We have to take it seriously and we have to encourage Ireland to take it seriously. If the Celtic League is to go head-to-head with the Zurich Premiership, the Irish Rugby Football Union - in particular - have to get on board." (Statement of WRU Chief Executive, WRU, 2003/4. p.7)

It is estimated that the top French clubs operated on a budget of around £16m for the 2009/10 season, while top English side Northampton had an estimated turnover of £12m at that time. The average player's salary in the English Premiership in 2009/10 was roughly stg£80,000 a year, compared with just over stg£100,000 in the French

[35] In 2009/10 close to 30 English players were employed by French Top 14 clubs, roughly double the figure for 2007/8. (Owen, 2010). It is estimated that New Zealand and South Africa each have around 600 players playing abroad in professional or semi-professional leagues, many of them in Europe. (Thornley, 2010).

Top 14. (Owen, 2010). The IRFU spent €35 million on its four professional teams in 2009/10. (IRFU, 2009/10).

The ERC enables some direct comparisons to be made between the different leagues. In 16 seasons there have been six English, five French and five Magner's League winners of the ERC with all five Magner's League wins due to Irish teams. English teams did not participate in the competition for two seasons. Thus the English record is six wins out of 13 seasons while the French is five wins from 15 seasons, including one when there were no English participants.[36] The number of Irish wins is notable given that it has fewer participating teams than the two larger countries and the more limited financial resources of the Irish teams. The Irish wins have prevented teams from the two larger countries dominating the competition. To date there have been no Scottish, Welsh or Italian winners of the ERC.

Table 6 looks at the number of quarter final appearances per league over the period since 1996/7.[37]

Table 6: Number of ERC Quarter-Final Appearances.

	Top 14	Premiership	Magner's League
1996/7-2010/1	44	35	41
excl. 1997/8	40	35	37

Source: http://www.ercrugby.com/eng/13_70.php

Top 14 teams have made 44 appearances in the quarter-finals while Magner's League teams made 41 and Premiership teams 35.[38] Excluding the 1997/8 season when Premiership teams did not participate, there was little overall difference in the number of quarter final appearances by teams from each of the leagues with the Top 14 edging it slightly with 40 as against 37 for the Magner's League and 35 for the Premiership.

[36] Irish team Ulster won the ERC in the other season when English teams did not take part.
[37] There were no quarter finals in the first season of the competition in 1995/6 with only four teams qualifying from the group stages.
[38] In terms of the 41 quarter-final appearances by Magner's League teams Irish teams have fared slightly better than their Welsh counterparts (22 v 18) while a Scottish team has only made the quarter-finals once. Interestingly prior to 2002/3 when the Welsh club teams merged to form four regional teams, Welsh teams recorded ten quarter final appearances in six seasons compared with eight appearances in nine seasons since.

Table 7 looks at the overall win ratio in ERC pool matches by league. The table shows that overall Premiership teams have a marginally better win record than Top 14 teams. Magner's League teams have a significantly lower win ratio although the table also shows a considerable variation between countries in this case with Irish teams having the best overall record in the competition having won 60% of matches played (163 wins from 270 matches), while Scottish teams have won only 30% of their matches.[39] Welsh teams have won 45% of their ERC pool matches. Interestingly the merger of club teams into four regional teams has had virtually no impact on the win ratio for Welsh teams.[40] Italian teams have by far the poorest record winning just over 12% of their ERC pool matches.

Table 7: ERC Pool Matches % Wins By League 1995/6-2010/1

Premiership	58.0
Top 14	57.2
Magner's League	46.6
of which	
Ireland	60.4
Wales	45.0
Scotland	30.1
Italy	12.4

Note The Magner's League figure does not include Italian teams as they only joined the league in 2010/1.
Source: http://www.ercrugby.com/eng/13_70.php

The lack of revenue sharing and salary cap arrangements in the Top 14 would suggest that French teams should outperform English teams in the ERC. Despite this English teams have won the ERC more often than French teams, while Irish teams have the same number of wins as French teams despite operating off much lower budgets. English teams also have a marginally better overall win record in the group stages than Top 14 teams but the latter have a slightly better record in terms of reaching the

[39] In general teams from different countries are kept apart in the group stages although there is some overlap. Nevertheless the country win ratios provide a good indication of the record of teams from each country against those from other countries.
[40] Pre 2002/3 the Welsh club teams won 44.6% of their ERC pool matches while the regional teams have won 45.3% of their ERC pool matches.

quarter finals. Irish teams have the highest overall win ratio in pool matches of any country.

7: Conclusions.

Rugby became professional far more recently than most other major team sports. The move to professionalism has resulted in a significant restructuring of the sport. This has effectively involved the creation of new professional franchises in Ireland, Scotland and Wales and the establishment of a new multi-national league for those franchises. In England and France, professionalism has brought major changes in structure, particularly with regard to team ownership, while in the former country the concept of an organised league really only emerged following the move to professionalism. The move to professionalism also resulted in the establishment of a new European competition, the ERC, similar to soccer's Champion's League.

The different structures and different arrangements between the various rugby leagues with regard to revenue sharing and salary caps provides an interesting test of how such rules affect competitive balance. Our results indicate that dynamic competitive balance, i.e. uncertainty of league outcome from season to season is significantly greater for the three European rugby leagues than for the FAPL. Comparisons before and after the introduction of professionalism were only possible in the case of England but the results indicate that dynamic competitive balance was significantly higher in the professional era. Similarly the results suggest that the English Premiership, which operates revenue sharing and a salary cap, displays a greater degree of dynamic competitive balance than the Top 14. Our results also suggest that short-run competitive balance, i.e. uncertainty of outcome of individual matches, has improved in all three European rugby leagues, in contrast to the FAPL and English rugby during the amateur era. The latter results must be treated with some degree of caution as they were not statistically significant in most cases.

Comparing performances of teams from the different leagues in the ERC suggests that English teams have a marginally better record than their French counterparts, despite the fact that the latter were not subject to revenue sharing or salary cap arrangements. The establishment of a joint league by the three smaller countries, which individually have an insufficient fan base to support a professional league, appears to have resulted

in a higher degree of competitive balance in the ERC than in soccer's UEFA Champions League with the Irish teams in particular enjoying considerable success.

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