

Competitive Balance in Australian and Japanese Sport[†]

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An exciting and closely contested competition is often argued to be an essential feature of a professional sporting league. Some American evidence suggests that match attendance is likely to stagnate in a competition dominated by one team (Leeds and Von Allmen 2005). Sports fans like to see their team win but they also like a close competition. In Australia, the Australian Football League (AFL) and the National Rugby League (NRL) have justified the use of labour market restrictions in the name of promoting competitive balance. For example, the NRL presented two justifications for the use of a salary cap, one based on the importance of competition. It was argued that a salary cap was necessary —

‘to assist in “spreading the player talent” so that a few rich Clubs cannot simply out-bid poorer teams for all the best players. The NRL believes that if a few Clubs were able to spend unlimited funds in such a way, it would both reduce the attraction of games to fans, due to an uneven competition, and drive some Clubs out of the competition.’ (NRL 2004a)¹⁾

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1) The second justification is interesting because it could be interpreted as an argument for the use of monopsony power to reduce players’ salaries. ‘The second primary reason for having the Cap is to ensure Clubs are not put into positions where they are forced to spend more money than they can afford in terms of player payments, just to be competitive’. (NRL 2004a)

This paper presents new measures of competitive balance for the NRL and its precursors, the New South Wales Rugby League (NSWRL) and the Australian Rugby League (ARL), and compares them with measures for the AFL and its precursor the Victorian Football League (VFL) developed by Booth (2002). It presents the average measure of competitive balance in periods of different labour market controls and considers whether there is any evidence that the operation of these controls has affected the outcomes. The second part of the paper looks at the effect of changes in the regulations of the labour market for Japanese baseball players on competitive balance.

Part I : Australian Winter Ball Sports

Labour market controls in the NSWRL/NRL

Rugby league is a British game that was first played in Australia in 1907 (NRL 2004). The original competition was Sydney-based but the game is now most popular in NSW and Queensland. Canberra and Illawarra were added to the Sydney competition in 1982 and the Australian Rugby League was formed in 1994. In the mid 1990s there was a major split in the league revolving around control over television rights and there were two professional competitions played in 1997, the Super League with ten teams and the Optus League with twelve teams. The competition between the two leagues had a negative effect on the game. The leagues were amalgamated for the 1998 season and in 1999 the NRL was formed with 17 teams.

There are currently 15 teams from NSW, Queensland, Melbourne and Auckland, New Zealand playing in the NRL competition. The State of Origin competition between NSW and Queensland introduces an inter-state dimension to the game and Australia plays in an international competition. The labour market regulations discussed below relate to the NRL and its precursors.

Table 1 presents a summary of the types of labour market restrictions that have been used in the NSWRL/NRL. In the period 1950–60, players in the NSWRL were restricted by a zoning or residential system. This system required players to have lived in a zone for at least one year before they were eligible to play for a club. This restriction was relaxed for country and interstate players to a residency period of 28 days. Under this system, stronger clubs were able to attract the best players (particularly interstate and country players). There were loopholes in the zoning

Table 1 Summary of Labour Market Restrictions in the NSWRL/ARL/NRL, 1950 –present

Period	Restrictions
Pre- 1960	Residential Zoning
1960 - 1970	Transfer System plus Residential Zoning
1971 - 1974	Individual player salary caps
1975 - 1983	Thirteen-import rule plus Residential Zoning
1983 - 1990	Transfer System re-introduced (refined version)
1990 - 1995	Salary Cap
1996 - 1998	Super League period
1999 - 2004	Salary Cap

scheme with some players changing or appearing to change residence to comply with the rules. However, the system appears to have reduced trade and movement of players between clubs.

In 1960, a transfer system was introduced into the NSWRL. This system operated in conjunction with the existing zoning system. It allowed players to be transferred between clubs only if they were included on the transfer list, and that the price or 'transfer fee' set by the club was affordable to other clubs. Under this system, the football clubs had control of the players, and it was the club's decision whether or not a player was put on the 'retain' or 'transfer' list. However, if a player was not put onto the transfer list they could appeal (within 5 days of the lists being publicised) to the Qualification and Permit Committee. Players that nominated themselves to be put on the transfer list received only 5% of the transfer fee. Players put on the list by the club received 10% of the transfer fee.

This system was challenged in *Buckley v Tutty* (1971) 125 CLR 353. The judgement said of the appeal system that 'a player is completely in the hands of the committee; he has no right to require it to decide in a particular way, or in accordance with any suggested principle, and it cannot be assumed that the decisions of the committee will always and necessarily ensure that the restraint imposed by the rules is no more than a court would consider reasonable'. The High Court of Australia, in *Buckley v Tutty* (1971) 125 CLR 353, upheld the decision of the Supreme Court of New South Wales (or dismissed the appeal by Buckley), and maintained that the 'rules imposed upon the respondent were a restraint of trade which is unreasonable and unjustified'.

As a result of this ruling by the High Court of Australia, the NSWRL introduced an individual salary cap for players. This system was short-lived and is not well

documented. Dabscheck (1996) mentions that it was 'discontinued because of problems associated with enforceability.'

The thirteen-import rule was introduced in 1975. This system allowed clubs to import up to thirteen players from outside their residential zones. In 1983 the transfer system was reintroduced with the agreement of the Rugby League Players' Association (RLPA). Fees were linked to levels of player proficiency. The transfer system was flawed in that it benefited the wealthier clubs that were able to spend large amounts of money on transfer fees.

In 1990 the salary cap was introduced and an internal players draft was planned. The internal draft was found to be an unreasonable restraint of trade by the Federal Court of Australia in *Adamson v New South Wales Rugby League Limited* (1991) 31 FCR 242 (Dabscheck 1993). It never operated although there have been recent discussions about introducing a system similar to that used by the AFL.

The salary cap however was not challenged as an unreasonable restraint of trade. It was implemented progressively and initially depended upon the clubs financial position at the time. For example, wealthier clubs had higher caps than poorer clubs. The caps ranged from an initial \$0.8 m to \$1.5 m in 1990, and in 1995 were of equal value at \$1.5 m. The operation of the salary cap was interrupted by the advent of the Super League but with the formation of the NRL it was re-introduced.

The cap includes all playing fees and benefits, for example travel, cars and interest free loans, win bonuses and appearance fees. It excludes costs incurred for educational purposes, medical insurance and relocation. Additional payments can be made for sponsorship involving extra work.

The salary cap now stands at \$3.25 m for the 25 highest paid players at each club, an average of \$130,000 per player. The clubs however can choose how to allocate the money between the 25 players. The cap does not include coaches. The continuation of the cap and its size are voted on by the member clubs of the NRL. The salary cap is actively enforced. There is a Salary Cap Auditor who reviews all the contracts with players and monitors clubs for any breaches of the cap. In 2002 Canterbury lost its place at the top of the league ladder for breaking the cap.

Labour market controls in the VFL/AFL

The most popular winter ball sport in Australia is Australian Rules Football. It

Table 2 Summary of Labour Market Restrictions in the VFL/AFL, 1950–present

Period	Restrictions
1945–1967	Metropolitan residential zoning, individual salary caps
1968–1984	Metropolitan and country zoning
1985–1998	Salary cap, national player draft

Source: Booth (2002).

is a uniquely Australian game and it is only played to a very limited extent outside the country. There is an interstate competition but not an international one. The original VFL competition based in Melbourne expanded to a national competition in 1990 and now includes 16 teams from Brisbane, Sydney, Melbourne, Adelaide and Perth. Since 1915 the VFL/AFL has used a range of regulations with the stated aim of promoting competitive balance in the sport. Booth (2002) has divided the period since 1950 into the sub-periods presented in Table 2. The current regulations applied in the AFL are more complex than those operating in the NRL but there are similarities in the development over the period from a zoning system to the use of salary caps and in the case of the AFL, a drafting system for new and established players.

The initial regulation of the labour market for Australian Rules footballers was a metropolitan zoning system that operated from 1945–67. The eligibility of players to play for a team depended on their location of residence. There were also maximum limits on individual players salaries (the Coulter Law). In 1968, this was extended to country zoning and transfer fees were introduced in 1971. In the following period, 1985–98, zoning was phased out and a salary cap and a player draft introduced (Booth 2002). An explanation of the draft rules for new players and for those no longer under contract on an AFL club list is presented in AFL (2002) and Daly and Kawaguchi (2004). As in the NRL, the AFL has actively enforced the salary cap. In 2002 the Carlton Football Club was forced to reduce the salary of ten players by 25% and they were fined \$930,000 and lost two draft choices for breaching the salary cap. (The Australian 28th November 2002).

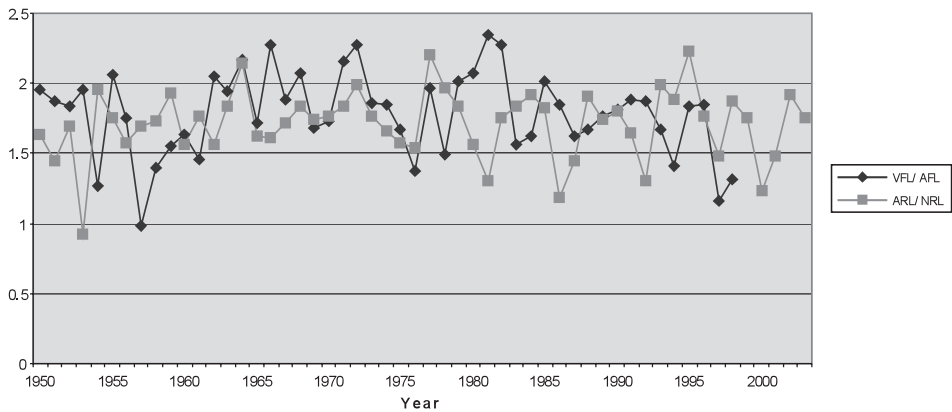
Competitive Balance

The focus of this paper is the relationship between these labour market controls and competitive balance in rugby league and Australian Rules football. Unfortunately in all social sciences, it is not possible to conduct the controlled experiment of holding everything else constant and only changing one variable. Over time many

other things have changed in these sports that might affect competitive outcomes. These include other devices used by the leagues to promote more competition, for example gate sharing and the sharing of revenue from television rights. A multiple regression framework is really required to test for the impact of labour market restrictions independent of other effects. Our results therefore only provide a limited test of the effect of these regulations on competitive balance.

In a perfectly equal competition each team should win half its games. The competitive balance can be measured by comparing the actual standard deviation with the ideal standard deviation given the number of teams in the competition. The larger the ratio, the more uneven is the competition (Leeds and Allmen 2005). Figure 1 presents the competitive balance ratio for the rugby league and compares it with the AFL results calculated by Booth (2002). It shows the competitive balance fluctuating in a fairly random way from year to year but mainly falling in the range between 1.5 and 2 indicating that the actual standard deviation was between 1.5 and 2 times the ideal standard deviation.²⁾

In 1997 there were two competitions, the Optus League and the Super League.



Source : Booth (2002) and the NRL web site.

Figure 1 Competitive Balance in the AFL and Rugby League, 1950 – 2003

2) In order to make the calculations comparable with Booths calculations, the results presented here relate to wins. Draws are more common in rugby league than in AFL so we have also calculated a competitive balance ratio giving clubs 0.5 for a draw as well as one for a win. The results are very similar to those presented in this table.

Table 3 Average Competitive Balance by Period for NRL and AFL 1950 – 2003

VFL/AFL		NSWRL/ARL/NRL	
1950 – 67	1.77	1950 – 59	1.66
1968 – 84	1.88	1960 – 70	1.73
1985 – 98	1.69	1971 – 74	1.80
		1975 – 82	1.72
		1983 – 89	1.66
		1990 – 95	1.80
		1996 – 98	1.63
		1999 – 2003	1.31
Average 1950 – 84	1.82	Average 1950 – 95	1.72

Source : Booth (2002), authors calculations.

Figure 1 includes the competitive balance ratio for the Optus League which was higher than that of the Super League, 1.48 compared with 1.3. In 2002 Canterbury finished the season at the bottom of the table for breach of the salary cap. If Canterbury were included at the top of the table on the basis of their wins for the season, the competitive balance ratio for that year would be 1.80 instead of 1.92.

Table 3 presents the average competitive balance for each of the periods of labour market regulation. It shows that both competitions were more competitive in recent years under a system of salary caps and in the case of the AFL, internal and external drafts. A test of significance for the average competitive balance for the NRL for 1999 – 2003 compared with earlier years shows a statistically significant difference between the means for 1950 – 1995 and 1999 – 2003.³⁾ However, the difference in the means between 1950 – 84 and 1985 – 98 for the VFL/AFL is not statistically significant.

Another measure of the competitiveness of a league is the Hirfindahl–Hirschman Index (HHI). This measures the degree of concentration of teams at the top of the league within each period. A period dominated by one team will have a high HHI and a period where the top team was different each year will have a low HHI. More formally the HHI is calculated as

$$HHI = \sum f^2 / N.$$

3) The period 1996 – 98 has been omitted from these calculations because the introduction of the Super League and its aftermath made the period unusual.



Figure 2 Hirfindahl-Hirschman Index, Rugby League, 1950 – 2003

Where f is the number of times each team topped the league at the end of each season during the focus period and N is the number of seasons in the period.

Figure 2 presents the calculations of the HHI for the NRL and its precursors and shows some evidence of increasing competitive balance in the most recent period. In the period 1996–98, the Super League has been included as a separate result so there were four winners over this three-year period.

Conclusion

This section has documented the labour market regulations operating in the rugby league and Australian Rules Football since 1950. These have been linked to measures of competitive balance. The results show that there is some evidence that competitive balance has improved in recent years under the salary cap system in both leagues and the internal and external draft in the AFL. The evidence to support this conclusion is stronger for the NRL than for the AFL. However, it has not been possible at this stage to hold everything else equal in making this comparison so we cannot conclude that the improvement in competitive balance is a result of the salary cap. Other factors such as any gate sharing arrangements and changes in sponsorship deals or factors beyond the control of the relevant leagues may also account for these changes.

Part II : Japanese Baseball

Deregulation in 1993

There were important changes in the Japanese baseball players' labour market in 1993. The rookie draft system was revised, and free agency was introduced. The rookie draft has operated in the Nippon Professional Baseball (NPB) since 1965. It is often said that the reason that the NPB introduced the rookie draft was not to improve competitive balance, but to reduce salary and contract money of rookie players. However, La Croix and Kawaura (1999) showed that the rookie draft improved competitive balance.⁴⁾

The earlier version of the rookie draft was attacked by two rich clubs, Yomiuri Giants and Seibu Lions. They were not satisfied with the rookie draft system, as it limited their ability to recruit players and influenced the players salaries. They asserted that the revision of the draft system was necessary so that players could choose clubs. The Giants and Lions threatened other clubs with the suggestion of establishing a new league. Other clubs had to accept their proposal, and the rookie draft was revised in 1993.

There had been minor changes in the system, but in principle, all rookie players were chosen by lottery. However, the 1993 revision mutilated the draft system. Each club was given the right to recruit up to two non-high-school players from outside the rookie draft. This revision gives rich clubs a larger opportunity to recruit good players.

Another important change in 1993 was the introduction of free agency. Players who played 10 years or more were qualified as free agents, so that they can choose the clubs they play for. The introduction of free agency was requested by the Japan Professional Baseball Association, and supported by the richest club, Yomiuri Giants. There was a minor change in 1997, so that players who played 9 years, rather than 10 years, are now qualified as free agents.

Table 4 shows the number of players who are qualified as free agents and

4) Horowitz (2001) also concluded that the rookie draft improved the competitive balance in the Pacific League, but the effect on the competitive balance in the Central League is not clear.

Table 4 Players Qualified as Free Agents

	qualified	exercised their right	stayed	transferred	transferred to the Measure League	Did not exercise their right
1993	60	5	1	4	0	55
1994	58	16	10	6	0	42
1995	48	11	9	2	0	37
1996	44	8	6	2	0	36
1997	64	11	8	3	1	53
1998	59	7	5	2	1	52
1999	62	10	6	4	1	52
2000	65	6	4	2	1	59
2001	64	11	5	6	2	53
2002	62	10	7	3	1	52
2003	60	5	2	3	2	55

Source : Japan Professional Baseball Players Association, http://jpbpa.net/jpbpa_f.htm?topics/01.htm.

players who were actually transferred by this system. About 60 players are qualified every year. However, very few players are transferred to other clubs. One reason for this is the existence of compensation payments. A club that recruits a free agent has to compensate the club which loses the player. The amount of compensation payment is 1.5 times as much as the player's annual salary. Under this system, only very good players with relatively low salary can be transferred.

There are two possible results of the 1993 deregulation. One is an increase in players' salaries. The fact that rookie players can choose clubs implies that clubs compete with each other by offering higher salaries to recruit good rookie players. The same is true for recruiting free agents. Clubs that can offer a higher salary are more likely to recruit good players.⁵⁾ This will increase the average salary of players.

Another is deterioration of competitive balance. Since rich clubs are more likely to employ good players, they will become stronger, and poor clubs become weaker. As a result, the competitive balance will deteriorate. However, this may not be the case. Even before the deregulation of the system, clubs could trade players. The

5) Another criterion by which players choose clubs is the popularity of the club. Games of popular clubs are more broadcast, and hence, players become popular. This offers player a larger chance to earn from other sources such as advertising and TV programs. It also helps players to find good jobs after their retirement from baseball.

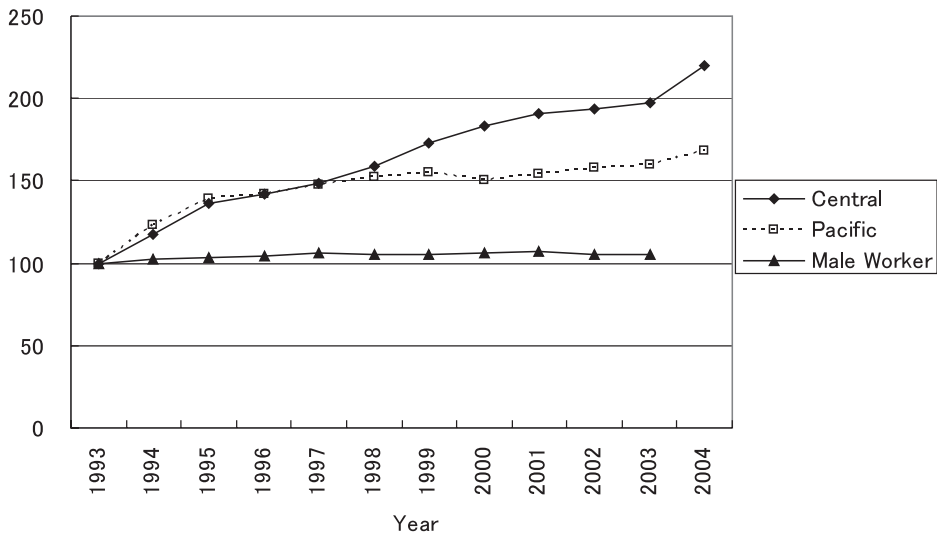
trade may be swapping players with another club or transferring players with compensation money. Therefore, at least in a long run, rich clubs could employ good players through the trade with other clubs. Hence, the deregulation may not cause any change in the competitive balance. We examine which conjecture is supported by the data.

Salary

Figure 3 shows the average salary of players in each league and of ordinary male workers. Clearly, baseball players' salaries increased substantially after the deregulation in 1993. Ordinary workers' salaries was stable in the last ten years, but the salary of players in the Central League more than doubled, and that for players in the Pacific League increased by 68 percent between 1993 and 2004.

Among the Central League clubs, the largest increase in total salary payments was for the Bay Stars (more than tripled), followed by the Giants, Tigers and Dragons. In four out of six clubs the total salary payments more than doubled in the last 11 years. On the other hand, only the Hawks doubled the salary payment in the Pacific League.

Unfortunately, the profit of clubs is not publicly available. Hence we cannot



Source : Japan Professional Baseball Players Association, http://jpbpa.net/jpbpa_f.htm?topics/01.htm. Ministry of Health, Labor and Welfare, Wage Census, selected years.

Figure 3 Mean Annual Salary of Players and Workers (1993 = 100)

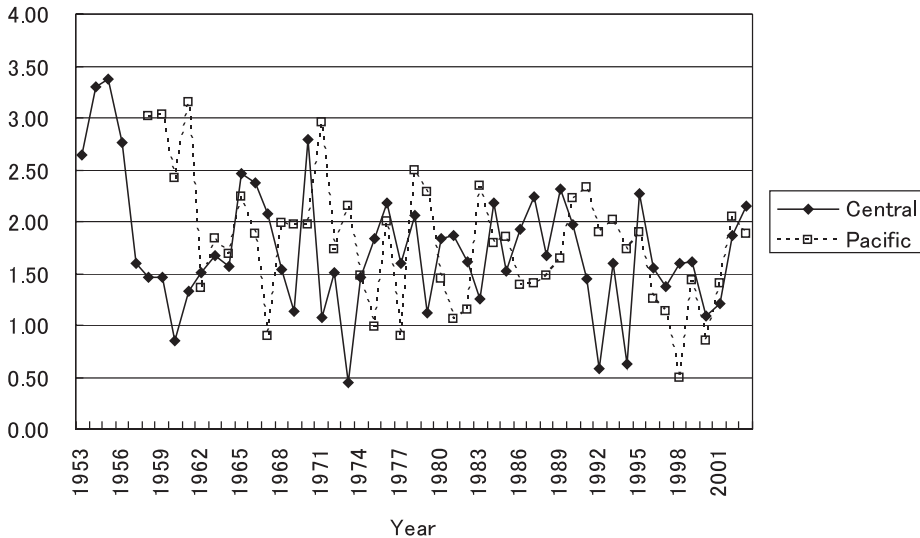
discuss the effect of the pay rise on clubs' profit. However, there is no doubt that this caused financial difficulty in some clubs, which resulted in the merger of two clubs in the Pacific League in this year.

3. Competitive Balance

Figure 4 gives the ratio between actual and ideal standard deviations of win rate. The ideal standard deviation is calculated by assuming that each club has a 50 percent chance of winning each game. A smaller ratio means the competitive balance is good.

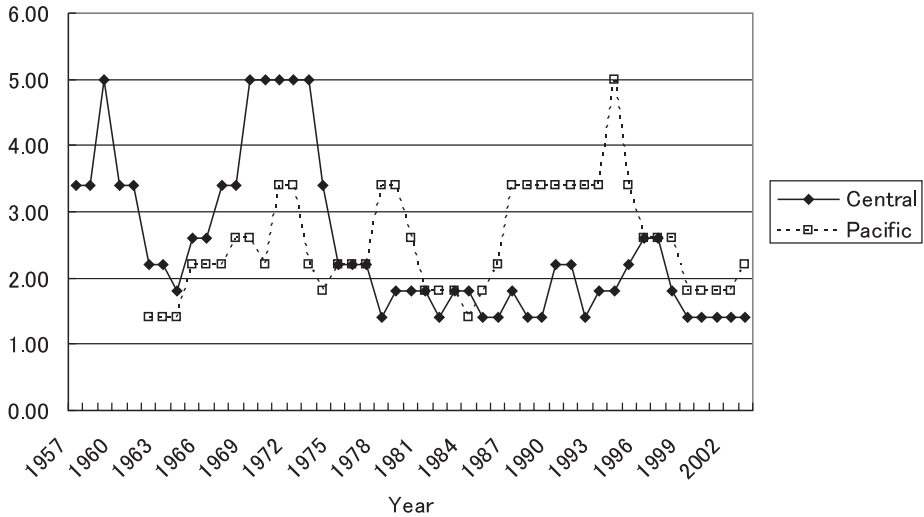
The figure shows that there is no significant difference before and after 1993. Precisely speaking, the ratio slightly declined after 1993. The mean actual/ideal ratio of 1984–93 was 1.75 for the Central League and 1.80 for the Pacific League, which declined to 1.53 and 1.41 respectively in the period 1994–2003. However, the difference is not significant at the 5 percent level in either league.

Figure 5 shows the Hirfindahl and Hirschman Index (HHI) of the Central and Pacific Leagues. These indexes are based on the calculation of a moving average of five pennant races. For example, the HHI for 2000 is based on the pennant races from 1996 to 2000. If only one team won five pennants in the previous five years, the



Source : NPB Official Site, http://www.npb.or.jp/bis/index_yearly.html.

Figure 4 Actual/Ideal Ratio of Standard Deviation



Source : NPB Official Site, http://www.npb.or.jp/bis/index_yearly.html.

Figure 5 Hirfindahl-Hirschman Index

HHI is 5.0, and if five teams won once respectively, the HHI is 1.0. Thus, the HHI is small if the competitive balance is good. The figure shows that the competitive balance has not deteriorated since 1993, or rather it has been improved in the case of the Pacific League.

The decline in the HHI in the Pacific League is caused by the decline of the Lions. The Lions was extremely strong in the late 1980s and early 1990s. It won nine times in ten years, 1985–94. Since the improvement in the competitive balance in terms of the standard deviation and the HHI was achieved by the decline of the extremely strong team, we should not conclude that the deregulation improved the competitive balance in the Pacific League.

Conclusions

We discussed the effect of the deregulation of the baseball players' labour market, which was implemented in 1993, on players' salary and the competitive balance. We found that players' salary increased substantially after 1993. The mean salary of players in the Central League nearly doubled in 10 years, and that in the Pacific League increased by 60 percent, while ordinary male workers' salaries increased by 5 percent in the same period.

On the other hand, competitive balance in Japanese baseball did not deteriorate.

The standard deviation of the win rate in both leagues slightly declined after the deregulation of the labour market, though it is not significant. The HHI declined substantially in the Pacific League after 1993, while it was stable in the Central League.

In summary, these three examples from Australia and Japan do not support the argument that tight labour market regulations are necessary to promote competitive balance in a professional sport. The calculations for Japanese baseball show no evidence of deteriorating competitive balance over the period of free agency since 1993. In AFL there was no statistically significant difference between the average competitive balance ratio under the salary cap and player drafts in the most recent period compared with earlier periods. There is however some evidence of improved competitive balance in the most recent period of the salary cap in the NRL. It is important to remember that we have not held everything else constant so these changes may reflect other effects on match outcomes.

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