

**Department of Economics
Discussion Papers
ISSN 1441-5429**

Some Economic Effects of Changes to Gate-Sharing Arrangements in the Australian Football League

Ross Booth

No: 21/05

~~D#~~ 14268

© 2005 Ross Booth

All rights reserved. No part of this paper may be reproduced in any form, or stored in a retrieval system, without the prior written permission of the author.

**SOME ECONOMIC EFFECTS OF
CHANGES TO GATE-SHARING
ARRANGEMENTS IN THE AUSTRALIAN
FOOTBALL LEAGUE**

ROSS BOOTH

DEPARTMENT OF ECONOMICS

MONASH UNIVERSITY

CLAYTON, VICTORIA, AUSTRALIA, 3800

Ph: +61 3 99052434

Fax: +61 3 99055476

Email: Ross.Booth@BusEco.monash.edu.au

1 INTRODUCTION

Whilst gate revenue as a source of revenue for the (member-owned win-maximising) clubs in the Australian Football League (AFL) is relatively small and declining as a proportion, it is still an important source of revenue difference between clubs, and potentially their on-field playing performance. Until 2000, gate revenue was shared between the home and away teams (after the deduction of match expenses), after which the policy was changed to allow the home team to keep all of the (net) gate receipts. In the AFL, membership income, reserved seat and corporate box income has never been shared, but the league does share the revenue from key income streams such as national TV broadcast rights (there is no local TV revenue), corporate sponsorship and finals.

The AFL (1998) recommended in its *Gate Sharing Discussion Paper* to change the gate-sharing arrangements, because the intended equalising of gate revenue was not being achieved. Whilst net gate proceeds had traditionally been shared 50-50, membership and reserved seat income had not. This meant that a club playing in a large stadium with a large cash-paying crowd provided a good return for the visiting side. However, a club playing in a small stadium filled mostly with members and reserved seat holders had little room for a cash-paying crowd, and hence provided a poor return to the visiting team. According to the AFL, teams based at larger stadiums were (net) contributors, whereas teams based in small stadia were (net) beneficiaries, and these revenue redistributions were not always having the intended effect of equalising gate revenue. Moreover, a club's net financial position would be affected by the fixture, in particular, the

mix of its home games which were 'fixtured' at large and small stadia, the number of interstate games and the number of 'blockbuster' games (those games 'fixtured' between large-drawing teams twice each season so as to maximise attendance).

The AFL concluded that allowing the home team to keep the whole of the net gate would 'paradoxically' create more equalised outcomes, and recommended the abolition of gate sharing. From 2000, the AFL allowed the home team to keep 100 percent of the (net) gate, arguing that this would encourage clubs to move to large stadia to play in front of large crowds rather than play in small stadia filled mostly with members. The AFL also recommended a doubling of the equalisation levy (a levy on all match goers paid into a central fund and distributed equally amongst the clubs), to help compensate clubs for the 'unfairness' in the fixture because all teams do not play each other twice.¹ The clubs rejected the doubling of the equalisation levy, but it was agreed that the 'equalisation levy' be adjusted for 'football' inflation, and the 'blockbuster levy' of A\$25,000 be retained.

Following these changes, clubs have responded in several ways. One change was predicted by the AFL and has seen clubs move either all or some (high-attendance) home games to bigger stadia to maximise attendance and (net) revenue. Another change, perhaps unforeseen, has seen some Victorian-based clubs, often against the wishes of their respective football departments, concede their home ground advantage and

¹ Since 1995, the AFL has comprised 16 teams and has played a fixture of 22 games.

move low-attendance home games interstate. Finally, more clubs now want to be involved in 'blockbuster games' which are fixtured for public holidays such as Anzac Day and the Queen's Birthday holiday, by hosting their own clashes with traditional rivals.

2 EARLY HISTORY OF GATE-REVENUE SHARING

According to the AFL's (1998, p.1) *Gate Sharing Discussion Paper*:

The AFL ... has for longer than anyone can remember, shared the gate proceeds. The reasons were, we presume, something to do with equalisation. The practice started before there were two full rounds fixtured and sharing the VFL gates would have compensated for the effects of the draw.²

It is generally thought that up until the end of World War II that the home team kept the net gate receipts (gross gate receipts less match expenses). Moreover, it would appear that from 1945 the AFL (1996, p.49) adopted what it describes as a 'modified form of pooling of gate receipts'. Presumably, this means that gate receipts were split between the home and away teams after the deduction of match expenses, a practice that was maintained until the end of the 1999 season.

According to the AFL (1996), in 1973 a surcharge on finals' tickets was introduced for the establishment of a Ground Improvement Fund. The following year the surcharge was applied to cash admissions to home and

² Two full rounds (22 games) for 12 teams were not played until 1970.

away matches and continued until it was replaced in 1983 with a larger surcharge for a newly created VFL Club Development Fund.

In addition to this, according to the AFL (1996), from 1981 an equalisation levy was charged against all cash paying spectators, paid into an equalisation fund and then redistributed equally amongst all clubs. Likewise, it appears that at least from 1982, a contribution from each adult club membership ticket was made to the VFL Club Membership ticket pool. In 1986 the Club Development Fund was incorporated into the VFL Equalisation Fund.³

3 GATE REVENUE SHARING ABOLISHED

An AFL (1998) *Gate Sharing Discussion Paper* concludes that though the intention of gate sharing was to equalise, in some cases it had largely the opposite effect. Whilst gate proceeds have traditionally been shared, generally speaking clubs have kept their own home membership and reserved seat income. This meant that a club that played in a large stadium with a large cash-paying crowd provided a good return for the visiting side. However, a club that played in a small stadium filled mostly with members and reserved seat holders had little room for a cash-paying crowd, and hence provided a poor return to the visiting team.⁴ Moreover, the practice of deducting match costs from the gate meant that only with a large cash-paying crowd were there any proceeds left to share with the visiting club.

³ See AFL (1996, p.52).

In other words, according to the AFL (1998), home members were not paying for their share of match expenses.

According to the AFL (1998), this 'home member' bias explained why it was generally the MCG and Waverley Park-based teams who were (net) contributors, whereas West Coast, Adelaide and Carlton were (net) beneficiaries. Collingwood's position varied depending on the mix of MCG/Victoria Park games. Melbourne-based clubs received little when travelling interstate, but likewise, interstate teams suffered when they played at Princes Park or Victoria Park. These financial outcomes were highly influenced by the fixture of matches in any year. Another anomaly was that Fremantle, playing at the same venues as West Coast, was a net contributor, whereas West Coast was a beneficiary.

The AFL (1998) concludes that allowing the home team to keep the whole gate would 'paradoxically' create more equalised outcomes. It recommended the abolition of gate sharing and a doubling of the equalisation levy from 2000, with the home club to keep the whole gate but be responsible for match expenses. The rationale for this recommendation was that this would leave the degree of equalisation of the same order of magnitude, since both the levy and gate sharing redistributed about \$4 million each in 1997. Furthermore, according to the AFL (1998), the doubling of the levy would help to compensate clubs for the 'unfairness' in the fixture because teams do not play each other twice, an issue which

* Gleeson (2000) reports that Sydney, Brisbane and West Coast also own the corporate boxes at their grounds, which earns these clubs millions of dollars, and also suggests that Sydney, as the non-Melbourne club with the biggest crowds in Melbourne, is the club that has been worst affected.

becomes more important if the home team keeps the whole gate. Prime slots in the fixture are given to top-drawing teams in 'blockbuster games' with these games being scheduled twice because of the traditional crowd-drawing power of these teams. Finally, allowing the home team to keep the whole gate would increase the incentives for clubs to play in large stadia with larger cash crowds rather than in small stadia filled mostly with members.

In the middle of 1999 the AFL announced that from 2000 gate sharing would be abolished and the home team would pay all of the match costs from its gate receipts but would not have to share the net gate receipts with the visiting team. The AFL (2000) reported that most of the eight clubs who provided feedback to the *Gate Sharing Discussion Paper* rejected the idea of doubling the equalisation levy. It was decided to increase the cash payer and home club member equalisation levies (a levy on all match goers paid into a central fund and distributed equally amongst the clubs) in line with football inflation from \$1.20 and \$1.10 respectively to \$1.50. The 'blockbuster levy' (a levy on 'blockbuster games' between large-drawing clubs scheduled twice each season so as to maximise attendance) was retained and adjusted for 'football' inflation to \$25,000, with the expectation of future adjustment for football inflation.

4 MOVEMENT OF 'HOME' GAMES

This paper will discuss two of the major economic effects of the abolition of 50-50 gate revenue sharing from 2000 (after deduction of match costs)

in favour of the home team keeping the net gate, but will ignore the effect of changes to the equalisation levy. The first change was predicted by the AFL and has seen clubs move (all or some) home games to bigger stadia to maximise attendance and (net) revenue. A second change is that some clubs, often against the wishes of their respective football departments, have conceded their home ground advantage and moved low-attended home games to interstate venues (sometimes to venues in the so-called 'non-football' states of New South Wales and Queensland). This is designed to increase net revenue through a combination of increased attendance and thereby gate revenue and/or lower venue costs, but also to increase 'exposure' in other markets and potentially grow fan support and thereby membership and membership revenue.

4.1 OVERVIEW

Table 1 shows the location of AFL home and away matches by venue from 1995 to 2005 which allows us to identify some of the major shifts in the location of AFL matches, especially since 2000, the first year of the policy change. Table 2 shows the city in which various stadia are located and their capacity (in 2005). Some preliminary comments are necessary to explain some of the influences (other than the change in gate sharing arrangements) on the location of games, but which are not the main focus of this paper.

The first thing to note is that the increase in the number of games played at Football Park in Adelaide (which was already the home ground of the Adelaide Crows who joined the AFL in 1991), from 11 until 1996 to 22

from 1997 as a result of the inclusion of the expansion team Port Adelaide in 1997.

Another key feature is the closure of Waverley Park at the end of 1999 (capacity 72,000), an AFL-owned stadium built in the 1970s in the outer south eastern suburbs of Melbourne, and the opening in 2000 of the smaller (capacity 53,355) modern Docklands stadium (with a retractable roof) close to Melbourne's dockland precinct next to the CBD. AFL annual reports tell us that in 1999, 21 matches were played at Waverley Park with an average attendance of 33,558. Docklands Stadium hosted 48 games in 2000 with an average attendance of 30,524. Whilst the capacity of Waverley Park was 72,000, the record crowd was 92,935 set on the Queens Birthday weekend in 1981 for a match between Hawthorn and Collingwood.

The Waverley Park closure/Docklands opening also coincided with a reduction in the number of games played at the Melbourne Cricket Ground (MCG), the venue for the 1956 Olympic Games. The record attendance for the MCG is 121,696 for the 1970 Grand Final between Carlton and Collingwood, but owing to safety considerations, standing room was phased out in favour of more seating which reduced the capacity to around 100,000. The stadium is currently being redeveloped in time for the 2006 Commonwealth Games during which the capacity will vary between 70,000 and 80,000, with a capacity on completion of again around 100,000. The number of matches played at the MCG reduced from 58 in 1999 (with an average attendance of 42,370) to 42 in 2000 (with a higher average attendance of 46,141).

The MCG currently has four home tenants: Collingwood, Hawthorn, Melbourne and Richmond. Docklands Stadium has four home tenants: Essendon, the Kangaroos, St Kilda and the Western Bulldogs. Carlton is splitting its home games between the MCG and Docklands from 2005 (see Table 3), whilst the other Victorian club (Geelong) is based at Kardinia Park in Geelong, about 75km south west of Melbourne. Sydney plays most of its games at the Sydney Cricket Ground (SCG) and Brisbane plays its home games at the Gabba, so named because it is located in the inner southern Brisbane suburb of Woolloongabba.

The Western Australian Cricket Association (WACA) ground in Perth hosted six matches (three home games each of Fremantle and West Coast) from 1995 (the year of Fremantle's entry to the AFL), whilst the other eight home matches of each club were scheduled for Subiaco Oval. From 2001 all home matches of the West Coast and Fremantle have been played at Subiaco Oval.

The Whitten Oval in the inner west of Melbourne ceased being an AFL venue at the end of 1996, the last year in the competition of Fitzroy who merged with Brisbane to become the Brisbane Lions in 1997. The Western Bulldogs played just one home game (its last) at its traditional suburban home ground in 1997 before moving the majority of its home games to Princes Park from 1997 to 1999, until becoming a tenant at the new Docklands stadium in 2000.

Most of the other changes in Table 1 will be discussed in the following section. In essence, the response of some clubs to the change in the gate-

sharing arrangements was to move permanently to a larger venue or move matches with high attendance to larger venues, and move matches with low attendance to interstate venues.

4.2 PERMANENT MOVE OF HOME GAMES TO LARGER STADIA

4.2.1 CARLTON MOVE TO THE MCG AND DOCKLANDS

Table 1 shows the decline in the total number of games hosted at Princes Park from 18 in 1995 to only one (for a farewell game for Carlton) in 2005. In 1999, 16 matches were fixtured at Princes Park, Carlton's traditional home ground with an average attendance of 21,586. In 2000, there were only 9 matches played there for an average attendance of 24,656.

Table 3 shows the venues for Carlton home games between 1999 and 2006. In 1999, Carlton played eight of its 11 home games at Princes Park and the other three at the MCG against Collingwood, Richmond and Essendon, three of the best-supported clubs in Melbourne. The other eight games played at Princes Park in 1999 were 8 Western Bulldogs home games, the Bulldogs playing their other three home games at the MCG against Richmond, Kangaroos and Adelaide. The following year in 2000, The Bulldogs played none of their home games at Princes Park, instead choosing as their new home ground the newly-completed Docklands Stadium where they played 10 games, with the other 'home' game moved to the SCG against Sydney.

The major change in the location in Carlton home games occurred in 2005, after the Future Home Games Sub-Committee of the Carlton Football Club Limited (2004) recommended in a paper to its members, *Information regarding Future Home Games: A Recommendation by the Board of the Carlton Football Club to members regarding the playing venue of future home games*, that 10 of the eleven 2005 home games be played at either the MCG (four) and Docklands (six), and one 'farewell' game at Princes Park, and that from 2006 until 2014, Carlton regularly play five home games at the MCG and 6 at Docklands.

In the recommendation to Carlton members, it is clear that a number of financial considerations were paramount. Independent financial analysis undertaken for Carlton estimated that relocating home games to the MCG and Docklands would generate a financial return of \$22-26m over 10 years compared with around \$14m at Princes Park. The paper also points out that Carlton's membership remained static between 1996 and 2002, whereas both Essendon and Collingwood experienced huge increases in membership after moving their home games to the MCG and Docklands. Moreover, home games which Carlton had already played at the two larger capacity stadiums had attracted average crowds larger than the 32,000 capacity of Princes Park. Indeed from 2002 until round 17 of 2004, average attendances at Carlton home games at the MCG were 51,396, at Docklands 34,173 and at Princes Park 21,379. An additional consideration, was that free-to-air (FTA) television coverage of home games at Princes Park was the lowest of any team in Melbourne, and the expectation of more FTA coverage of games from the MCG and Docklands would likely have a

positive influence on Australia-wide support and hence membership and sponsorship. In summary, increased membership, corporate support, sponsorship and match day returns were the financial influences driving the decision by Carlton to leave Princes Park.

4.2.2 COLLINGWOOD LEAVES VICTORIA PARK

In 1999, Collingwood played two home matches at Victoria Park, with an average attendance of 21,967. This was the last year AFL football was played at Victoria Park, with Collingwood playing 7 home games at the MCG and 4 at Docklands in 2000.

4.3 MOVING HIGH-ATTENDANCE HOME MATCHES TO LARGER STADIA

4.3.1 SYDNEY TO STADIUM AUSTRALIA

Since 2002, the Sydney Swans have played three home games at Stadium Australia, (formerly known as the Olympic Stadium), located at Homebush, a suburb west of the Sydney CBD, which hosted the 2000 Olympic Games. As shown in Table 2, the capacity of the reconfigured Stadium Australia is now only 80,000, but nearly twice the capacity of Sydney's regular home venue, the SCG, which has a capacity of just over 43,000. Table 4 shows the attendance at Sydney's home games against Essendon, which averaged 30,187 between 1995 and 2001 at the SCG (excluding 1998 when this match was not fixtured), compared with an

average of 48,829 for the three matches at Stadium Australia from 2002 to 2004, that is, on average over 18,000 more fans.

4.3.2 GEELONG TO DOCKLANDS STADIUM

Geelong moved some of its home games from the smaller-capacity Kardinia Park (28,300) in Geelong to the larger-capacity Docklands Stadium (53,355) in Melbourne. From 1997 until 1999, nine home matches were played at Kardinia Park, which was reduced to seven in 2000 and 2001, and increased to eight matches between 2002 and 2005.

Geelong is faced with a trade off, that of moving games to a larger venue (in the city of Melbourne, an hour's drive from regional Geelong) where more fans (including Melbourne-based Geelong fans) can be accommodated but where the (net) venue revenues are lower. At Geelong's traditional home ground of Kardinia Park in Geelong, venue revenues from reserved seating, signage, coterie groups and the social club more than offset the higher match returns from the larger crowd at Docklands stadium in Melbourne; thereby make the economics of playing at the smaller venue attractive. In Geelong's 2006 fixture request to the AFL, Brian Cook (CEO of Geelong FC) calculates that Geelong would make a net profit of \$508,000 at Kardinia Park with a crowd of 26,000 compared with a net profit of \$283,000 at Docklands Stadium with a crowd of 42,000.

4.4 VICTORIAN CLUBS MOVING LOW-ATTENDANCE HOME MATCHES INTERSTATE

The hope of this strategy is that it both increases attendance and lowers venue costs, and also increases membership and corporate support, enough to offset the displeasures of the football department, who concede home-ground advantage, and existing members who are denied an opportunity to watch their team.

4.4.1 KANGAROOS TO SYDNEY AND CANBERRA

All of the games shown in Table 1 played at the 14,000-capacity Manuka Oval in Canberra were Kangaroos home games. The club began with one game in 1998, none in 1999 and 2000, then from 2001 three each season (except for 2003 when only two were played). In 2001, the three matches at Manuka Oval averaged 11,368, in 2002 the average crowd was 9,509, in 2003 (for the two matches) the average was 12,043 and in 2004 the average crowd was 10,218.

The Kangaroos have also experimented with the Sydney market, playing their home game against Sydney at the SCG from 1999 to 2002, and thereafter in Canberra. The four-year experiment in Sydney averaged crowds of 21,110 compared with an average in Canberra of 14,361 over the two years 2003 and 2004.

It would appear that other forces could be driving this experiment, possibly including the higher fixed venue costs of operating the SCG which almost

certainly would require a larger crowd to break even financially. Another clue is provided by Main (2005), who reports that while the Kangaroos estimated that they had just 400 members in the ACT in 2003, membership has grown to around 1600 in 2005 and is expected to grow to about 2000 in 2006.

4.4.2 WESTERN BULLDOGS TO SYDNEY AND DARWIN

Since 2000, the Western Bulldogs have played their 'home' game against Sydney at the SCG in a deal which, according to Lane (2005), is revised annually. Table 6 shows the venue and location of Western Bulldogs' home games against Sydney since 1995. The average attendance at the SCG for the five games between 2000 and 2004 is 21,569, much healthier than the 1997 attendance of 12,604 at Princes Park in Melbourne.

The Bulldogs played one game at Marrara Oval in Darwin in 2004 with an attendance of 13,271 and are committed to another game in 2005 and 2006 under a three-year deal. Stevens (2005) reports that the Bulldogs CEO, Campbell Rose, indicates that the two interstate home games commitment nets the club about \$500,000 a season, and is essential to prevent the club from making (bigger) losses.

4.4.3 MELBOURNE TO BRISBANE

Table 7 shows details of Melbourne home games against Brisbane, which were played in Melbourne until 2000, but at the Gabba (in the suburb of

Woolloongabba) in Brisbane from 2001. The increase in average attendance is significant, with the five games in Melbourne 1995-2001 (excluding 1996) averaging 17,256, and the four games in Brisbane 2001-2004 averaging a healthy 27,861 and trending upwards. However, it should be borne in mind that Brisbane was a very successful team during the four year period 2001-2004.

4.4.4 HAWTHORN AND ST KILDA TO LAUNCESTON

Hawthorn first played a home game at York Park in Launceston, Tasmania in 2001, and since then has played two home games at that venue against non-Victorian teams. Table 8 shows the location, attendance and venue of Hawthorn's home games against Fremantle since 1995. Average crowd size in Launceston for the three games 2002-2004 (15,610) compares not unfavourably with average crowd size at Docklands in 2000 and 2001 (16,299), and with venue costs probably much lower in Launceston than at Docklands, plus the likelihood of increasing memberships in Tasmania, makes the Tasmanian experiment potentially rewarding financially for Hawthorn.

According to Stubbs (2005), St Kilda is believed to benefit by around \$300,000 from staging a home match in Launceston. The Saints began playing two home matches at York Park in 2003 and have a deal which expires in 2007. Despite some recent misgivings from the football department, this is probably another example of a strategy designed not only to increase attendance and thereby gate revenue, but also to increase

'exposure' in other markets and potentially grow fan support and corporate and membership revenue.

5 ECONOMIC EFFECTS OF GATE-SHARING CHANGES

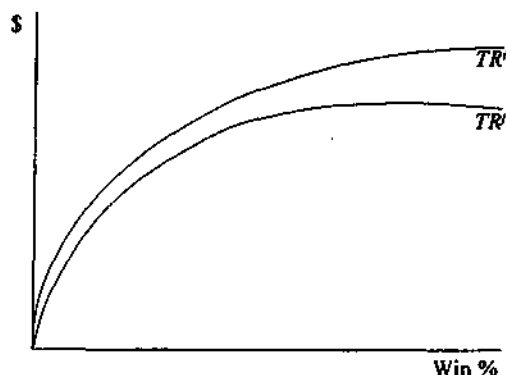
Following recent articles by Szymanski (2003), Szymanski (2004), Szymanski and Késenne (2004) and Késenne (2005), the author is aware of the conjecture about the appropriateness of the Quirk and Fort (1992)/Fort and Quirk (1995) two-team league model to, among other things, analyse the impact of different revenue sharing schemes in different leagues. For example, Késenne (2005, p.105) states:

The impact of revenue sharing on competitive balance is complicated because it depends on many factors such as the objectives of clubs, the specification of the revenue functions, the specific sharing arrangement in operation, and the supply of talent. Moreover, some results based on a simple 2-team model do not apply to a general n -team model.

The question is whether it is still appropriate to use the two-team league model to analyse and illustrate the impact of this change to the gate sharing arrangement in the AFL, when the league is comprised of member-owned win-maximising clubs and the supply of talent is fixed (there is only minimal recruitment of 'Australian Rules' footballers from outside Australia).⁵

⁵ See Booth (2004a, 2005 forthcoming) for more detail on the win-maximising nature of AFL clubs.

Figure 1 Total Revenue Functions in a Two-Team League

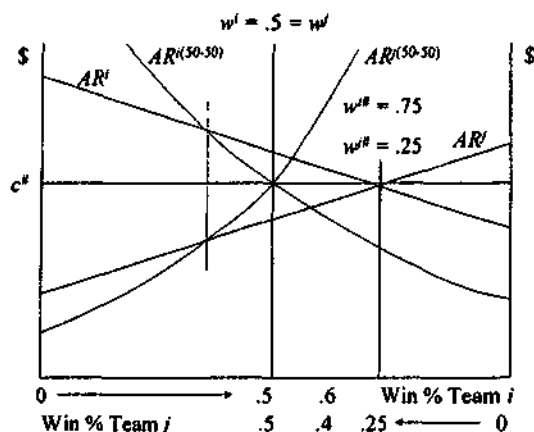


Késenne (1996, 2000, and 2001) showed that gate sharing in general leads to greater competitive balance in a league comprised of win-maximising clubs, whilst Késenne (2005), using an n -team model, concludes that pool revenue sharing also improves competitive balance if clubs are win maximisers. Késenne (1996 and 2001) illustrated the effect of gate sharing upon competitive balance in a 2-team model, but Késenne's (2000) analysis was in terms of an n -team model, but without any diagrammatic illustration. The analysis by Booth (2000) of the effect on competitive balance in the AFL of 50-50 gate sharing was in terms of a 2-team league model, and examined the impact on total (and average) revenues of a strong-drawing team and a weak-drawing team, team i and team j respectively, shown in Figure 1. Implicitly, this analysis was in terms of net gate receipts. A strong-drawing team was thought of as typically having

big attendances at home and therefore large gross gate receipts. In such cases, even after deducting match costs (a large element of which would be fixed) net gate receipts would still be relatively large so that the practice of gate sharing redistributed revenue from the strong-drawing team to weak-drawing team and thereby improved the level of competitive balance. Likewise, the presumption was that typically a weak-drawing team played in front of small home crowds and after the deduction of match costs had only a relatively small value of net gate receipts to be shared with the visiting team.

Booth's (2000) analysis showed that under win maximisation, gate sharing moves the league towards more competitive balance as the home team's share of the gate decreases, but without any effect on player salaries. As shown in Figure 2, and summarised in Booth (2004b), the effect of gate sharing (at the free agency outcome) to decrease the average revenue (per unit of talent) of strong teams and increase the average revenue (per unit of talent) of weak teams which tends to equalise the teams ability to acquire talent. If the only revenue were from the gate, and it was shared 50–50, both teams would have equal ability to acquire player talent. Moreover, since the teams are win maximisers and aggregate total revenue is assumed to be unchanged, player salaries do not change.

Figure 2 50-50 Gate Sharing in the AFL



5.1 HOW ABOLITION OF GATE-SHARING IMPROVES REVENUE EQUALITY

Assuming it is still appropriate to analyse the effect of gate sharing (in a league of win-maximising clubs and a fixed supply of talent) using a 2-team league model, the analysis above needs to be adjusted so as to more accurately capture the impact of a so-called strong-drawing team playing at home in a relatively small stadium filled mostly with members, such as at Subiaco (West Coast), Football Park (Adelaide) and Princes Park (Carlton). Because receipts from club memberships and reserved seat purchases were not shared with the visiting club, this meant that the number of cash paying spectators was relatively low and once the match costs were deducted there was even less to be shared with the visiting club. Under such circumstances, much of the attendance revenue from these strong-drawing

teams was effectively quarantined and the revenue left to be shared was more akin to the revenue of a so-called weak-drawing team in terms of our analysis. In terms of our diagrammatic representation, in effect, the total revenue functions would be reversed, that is, what appeared to be the team with the highest total (gate) revenue actually had little (net) gate revenue to be shared. In, other words, the so-called strong-drawing team playing in the small stadia had the revenue function, say, of team *j*, and the so-called weak-drawing team playing in a typical stadium had the revenue function, say, of team *i*. The result is that with 50-50 gate sharing shown in Figure 2 the effect is to increase the playing talent and win percent of team *j* (the strong-drawing team) at the expense of team *i* (the weak-drawing team), leading to 50-50 gate sharing making the revenues of the two teams more unequal and thereby lessening competitive balance.

Note that this anomaly does not apply to the same extent to strong-drawing teams that played in large stadia, such as the MCG or Waverley Park. Even though the strong-drawing teams may have had a large number of members and reserved seat holders whose revenue was not shared, because of the large capacity of large stadia there would still have been a significant number of cash paying spectators. Therefore, there would still have been significant revenue from the gate (after deduction of match costs) to be shared with the visiting team.

5.2 MOVE TO LARGER STADIA OR INTERSTATE VENUES INCREASES REVENUE SIGNIFICANTLY

The permanent move to larger stadia, the movement of high-attendance games to large stadia and the move of low-attendance games interstate (to lower cost venues), all have the intended effect of increasing the total (net) revenue (after the deduction of match costs) to the home team, that is increasing the total and average revenue functions in Figure 1 and Figure 2. Even with gate sharing in operation, revenue would be expected to increase with these changes, but with the home team keeping all of the (net) gate increases, that is, conferring no net benefit to the visiting team, the value (and therefore the incentive) associated with making changes to home venues is much greater, and is more likely to offset the displeasure of the club's football department who have to concede home ground advantage, and club members who are able to watch fewer 'home' matches.

6 CONCLUSION AND FURTHER RESEARCH

The evidence provided in this paper suggests that there have been three main responses by AFL clubs to the change from 50-50 sharing of the net gate, to the home team keeping the net gate from season 2000.

The first change identified is the permanent move of a club of its home venue from a small stadium to a large stadium, such as Carlton from Princes Park to a combination of the MCG and Docklands from 2005, and Collingwood ceasing to play its last remaining games at its traditional suburban home of Victoria Park in 1999. It would appear that the driving

force of these changes is the expectation of a larger attendance at the larger venue, more than enough to offset the possibly higher venue costs. In addition, other economic benefits to flow could be increased membership, free-to-air television coverage and increased sponsorship.

The second change identified is the moving of high-attendance home games to larger stadia, such as Sydney moving three games from the SCG to Stadium Australia from 2002, and Geelong moving some home games to Docklands stadium in Melbourne beginning in 2000. The same economic forces appear to be driving this shift, but in addition, a possible financial advantage might arise from catering for a different set of fans which the club hopes will more than offset any upset of its football department or local members/supporters.

The third change identified is the moving of low-attendance home games to interstate venues. The Kangaroos experimented with the Sydney market playing their home game against Sydney at the SCG from 1999 to 2002, and since then in Canberra where three Kangaroos home matches have been played since 2001. The Western Bulldogs have transferred their home game against Sydney to the SCG since 2000, and in 2004 and 2005 have played one home game in Darwin. Melbourne has played its home game against Brisbane at the Gabba since 2000, and has experienced a significant increase in attendance over time. Both Hawthorn and St Kilda have transferred home games to Launceston in Tasmania; Hawthorn beginning with one in 2001, and two thereafter, whilst St Kilda began playing two home matches in Launceston in 2003. Even if these matches do not attract

much of a larger attendance, lower venue costs might be an attraction, as well as the potential for increasing membership and corporate support in another market. Any loss imposed on members and fans who miss home games and the wrath of the football department playing away from home, must also be considered.

In terms of further research, analysis of gate receipts or other match day data (possibly to be provided by the AFL), would help to identify more precisely the financial and other economic effects on individual clubs at different venues. For example, the finances of the Docklands stadium need further investigation. In the annual report of the Footscray Football Club Limited (2005), now trading as the Western Bulldogs, the CEO Campbell Rose discusses the budgetary pressures the high fixed costs of Docklands Stadium created for the club. Rose says it cost the club about \$100,000 to play at its home ground in 2003. However, the club has now negotiated with Melbourne Stadiums Limited, the owners of Docklands stadium, an improved return for its home games at Docklands based on a 'fixed' match return arrangement. This means that rather than being dependent on crowd numbers for a cash positive return on home games played at Docklands, the club now has guaranteed revenue, regardless of the size of the crowd. Rose estimates that this represents a turnaround of several hundred thousand dollars.

There may be other moves of home games which have escaped the author's attention in this paper. For example, there may be economic reasons associated with the change in gate sharing arrangements which explain of

the demise of the use of the WACA ground in Perth as a venue for some home games of the West Coast and Fremantle from 2001. Finally, more analysis of the finances of the so-called 'blockbuster games' is required, including the importance of the \$25,000 blockbuster levy. The desire of more clubs to share in these games suggest that they are unhappy for the rewards of these blockbuster games go to the 'big four' Melbourne clubs, Essendon, Collingwood, Richmond and Carlton.

Table 1. AFL Games by Venue, 1995-2005

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Football Park	11	11	22	22	22	22	22	22	22	22	22
Gabba	11	11	11	11	11	11	12	12	12	12	12
Princes Park	18	17	22	17	16	9	9	10	8	7	1
MCG	50	51	53	55	58	42	44	42	41	41	42
Docklands						48	43	42	45	44	49
Kardinia Park	10	10	9	9	9	7	7	8	8	8	8
SCG	11	11	11	11	15	15	13	10	9	9	9
Stadium Australia								3	3	3	3
Subiaco	16	16	16	16	16	16	22	22	22	22	22
Manuka				1			3	3	2	3	3
York Park							1	2	4	4	4
Marrara										1	1
WACA	6	6	6	6	6	6					
Victoria Park	3	4	3	2	2						
Waverley Park	24	24	22	26	21						
Whitten Oval	15	15	1								
Bruce Stadium	1										
Total	176	176	176	176	176	176	176	176	176	176	176

Table 2. Stadium Capacity, City Size, AFL Venues, 2005

Stadium	Capacity	City	Population
Football Park	51515	Adelaide	1,200,000
Gabba	37500	Brisbane	1,500,000
Princes Park	32000	Melbourne	4,000,000
MCG	80000	Melbourne	4,000,000
Docklands	53355	Melbourne	4,000,000
Kardinia Park	28300	Geelong	200,000
SCG	43386	Sydney	4,250,000
Stadium Australia	80000	Sydney	4,250,000
Subiaco	42885	Perth	1,200,000
Manuka	14000	Canberra	400,000
York Park	25000	Launceston	100,000
Marrara	15000	Darwin	100,000
WACA	22000	Perth	1,200,000
Victoria Park	27000	Melbourne	4,000,000
Waverley Park	72000	Melbourne	4,000,000
Whitten Oval	25000	Melbourne	4,000,000
Bruce Stadium	24647	Canberra	400,000

Table 3. Carlton Home Games, 1999-2006

	1999	2000	2001	2002	2003	2004	2005	2006
Princes Park	8	9	9	4	8	7	1	
MCG	3	2	2	3	2	2	4	5
Docklands				4	1	2	6	6
Total	11	11	11	11	11	11	11	11

Table 4. Sydney Home Games v Essendon, 1995-2004

	Round	Day	Session	Venue	Attendance
1995	13	Sunday	Early	SCG	21853
1996	6	Friday	Night	SCG	22088
1997	15	Sunday	Early	SCG	36077
1998	Not fixtured				
1999	18	Saturday	Night	SCG	31776
2000	14	Sunday	Day	SCG	29199
2001	4	Friday	Night	SCG	40131
2002	9	Saturday	Night	Stadium Australia	54129
2003	11	Saturday	Night	Stadium Australia	45917
2004	21	Saturday	Night	Stadium Australia	46440

Table 5. Kangaroos Home Game Attendance v Sydney, 1995-2004

	Round	Day	Session	Venue	Attendance
1995	15	Saturday	Day	MCG	22524
1996	11	Saturday	Day	Princes Park	18644
1997	Not fixtured				
1998	8	Saturday	Day	MCG	43400
1999	19	Saturday	Night	SCG	27964
2000	5	Sunday	Day	SCG	19306
2001	3	Saturday	Night	SCG	22395
2002	19	Saturday	Night	SCG	14776
2003	9	Sunday	Early	Manuka	13832
2004	4	Sunday	Early	Manuka	14891

Table 6. Western Bulldogs Home Game Attendance v Sydney, 1995-2004

	Round	Day	Session	Venue	Attendance
1995	1	Sunday	Day	Whitten Oval	19189
1996	Not fixtured				
1997	2	Saturday	Day	Princes Park	12604
1998	20	Saturday	Day	Waverley Park	32577
1999	Not fixtured				
2000	10	Sunday	Day	SCG	18817
2001	8	Sunday	Day	SCG	22874
2002	8	Sunday	Early	SCG	20934
2003	12	Saturday	Night	SCG	21742
2004	10	Saturday	Night	SCG	23479

Table 7. Melbourne Home Game Attendance v Brisbane, 1995-2004

	Round	Day	Session	Venue	Attendance
1995	7	Sunday	Day	MCG	12783
1996	Not fixtured				
1997	12	Sunday	Day	MCG	13392
1998	18	Saturday	Day	MCG	16518
1999	21	Saturday	Day	MCG	18679
2000	10	Monday	Night	Docklands	24908
2001	12	Sunday	Day	Gabba	23740
2002	14	Sunday	Early	Gabba	25166
2003	10	Saturday	Night	Gabba	29634
2004	10	Sunday	Early	Gabba	32902

Table 8. Hawthorn Home Game Attendance v Fremantle, 1995-2004

	Round	Day	Session	Venue	Attendance
1995	15	Saturday	Day	Waverley Park	14167
1996	Not fixtured				
1997	17	Saturday	Day	Waverley Park	15939
1998	22	Saturday	Day	Waverley Park	39735
1999	18	Sunday	Day	Waverley Park	13941
2000	12	Saturday	Night	Docklands	16004
2001	18	Saturday	Day	Docklands	16595
2002	3	Sunday	Early	York Park	15066
2003	13	Sunday	Early	York Park	17212
2004	8	Sunday	Early	York Park	14554

REFERENCES

- Australian Football League, (1996), *Australian Football League 99th Annual Report 1995*, Melbourne.
- Australian Football League, (1998), *Gate Sharing Discussion Paper*, Melbourne.
- Australian Football League, (2000), *Australian Football League 103rd Annual Report 1999*, Melbourne.
- Australian Football League, (various), *Australian Football League Annual Reports 1999-2004*, Melbourne.
- Booth, R., (2000), 'Labour Market Intervention, Revenue Sharing and Competitive Balance in the Victorian Football League/Australian Football League, 1897-1998', Unpublished PhD Thesis, Department of Economics, Monash University, Melbourne.
- Booth, R., (2004a), 'Labour Market Intervention, Revenue Sharing and Competitive Balance in the Australian Football League, 1897-2002', in R. Fort & J. Fizez (Eds.), *International Sports Economics Comparisons*, Greenwich, CT., Praeger Publications.
- Booth, R., (2004b), 'The Economics of Achieving Competitive Balance in the Australian Football League, 1897-2003', *Economic Papers*, 23(4), 325-344.

Booth, R., (2005 forthcoming), 'The Economic Development of the Australian Football League', in W. Andreff, S. Szymanski & J. Borland (Eds.), *The Edward Elgar Companion to the Economics of Sports*, Cheltenham, Edward Elgar.

Footscray Football Club Limited (2005), *Bulldog 2004 Yearbook, Incorporating the 2004 Western Bulldogs Annual Report*, Melbourne.

Carlton Football Club Limited, (2004), *Information regarding Future Home Games: A Recommendation by the Board of the Carlton Football Club to members regarding the playing venue of future home games*, Melbourne, 10 August.

Fort, R., & Quirk, J., (1995), 'Cross-subsidisation, Incentives and Outcomes in Professional Team Sports Leagues', *Journal of Economic Literature*, 33, 1265-1299.

Geelong Football Club, (2005), *Letter to the Australian Football League: 2006 Fixtures Request*, 17 June.

Gleeson, M., (2000), 'Victoria the home of poor relations', *Herald Sun*, 12th July.

Késenne, S., (1996), 'League Management in professional team sports with win maximizing clubs', *European Journal for Sport Management*, 2(2), 14-22.

- Késenne, S., (2000), 'Revenue Sharing and Competitive Balance in Professional Team Sports', *Journal of Sports Economics*, 1(1), 56-65.
- Késenne, S., (2001), 'The Different Impact of Revenue Sharing Systems on the Competitive Balance in Professional Team Sports', *European Sport Management Quarterly*, 1(3), 210-218.
- Késenne, S., (2005), 'Revenue Sharing and Competitive Balance: Does the Invariance Proposition Hold?', *Journal of Sports Economics*, 6(1), 98-106.
- Main, J., (2005), 'Roos Have a Capital Plan', *AFL Record*, 3rd-5th June.
- Quirk, J., & Fort, R., (1992), *Pay Dirt: The Business of Professional Team Sports*, Princeton: Princeton University Press.
- Stevens, M., (2005), 'Bulldogs go sniffing', *Herald Sun*, 16th June.
- Stubbs, B., (2005), 'We don't call Tassie home', *Herald Sun*, 2nd June.
- Szymanski, S., (2003), 'The Economic Design of Sporting Contests', *Journal of Economic Literature*, XLI, 1137-1187.
- Szymanski, S., (2004), 'Professional Team Sports Are Only a Game: The Walrasian Fixed-Supply Model, Contest-Nash Equilibrium and the Invariance Principle', *Journal of Sports Economics*, 5(1), 111-126.

Szymanski, S., & Késenne, S., (2004), 'Competitive Balance and Gate Revenue Sharing in Team Sports', *The Journal of Industrial Economics*, 52(1), 165-177.

Titles in the Department of Economics Discussion Papers 2004-2005

01-04

Age at First Birth, Health Inputs and Child Mortality: Recent Evidence from Bangladesh
Pushkar Maitra and Sarmistha Pal

02-04

Reformulating Critical Values for the Bounds F-statistics Approach to Cointegration: An Application to the Tourism Demand Model for Fiji
Paresh Kumar Narayan

03-04

A Theory of Age-Dependent Value of Life and Time
Guang-Zhen Sun and Yew-Kwang Ng

04-04

Multiple Regime Shifts and the Effect of Changes in Leadership on the United States Supreme Court Dissent Rate
Paresh Kumar Narayan and Russell Smyth

05-04

Player Sales, Trade of Players and Draft Choices and Competitive Balance
Ross Booth

06-04

Labour Market Intervention, Revenue Sharing and Competitive Balance in the Australian Football League, 1897-2002
Ross Booth

07-04

Achieving Intertemporal Efficiency and Symmetry through Intratemporal Asymmetry: (Eventual) Turn Taking in a Class of Repeated Mixed-Interest Games
Sau-Him Paul Lau and Vai-Lam Mui

08-04

The extent of the market, capital, communication technology and economic growth: The case of China 1952-1998
Paresh Kumar Narayan and Guang-Zhen Sun

09-04

Habit formation and dependency in the welfare state
Keith Jakee and Guang-Zhen Sun

10-04

A note on "An Inframarginal Analysis of the Ricardian Model"
Dingsheng Zhang and He-Ling Shi

11-04

Idiosyncratic Shocks and Efficient Risk Sharing: An Investigation of Rural Malawi
Esther Tsaiack and Pushkar Maitra

12-04

Gibbs Samplers for A Set of Seemingly Unrelated Regressions
William E Griffiths and Ma.Rebecca Valenzuela

13-04

Labour Productivity in Australian Manufacturing: The Impact of Import Competition and Market Structure
Mita Bhattacharya, Harry Bloch and James Ted McDonald

14-04

The Composition of Foreign Investment in China and the Governance Environment
Dietrich K Fausten and James Lake

15-04

Asymmetric Information and the Composition of Foreign Investment
Dietrich K Fausten

16-04

Social Pensions, Migration and Household Composition: Evidence from South Africa
Brett Inder and Pushkar Maitra

17-04

What Determines the Extent to Which Employers Will Comply With their Social Security Obligations? Evidence From Chinese Firm Level Data
Chris Nyland, Russell Smyth and Cherrie Jihua Zhu

18-04

Structural Breaks and Unit Roots in Australian Macroeconomic Time Series
Paresh Kumar Narayan and Russell Smyth

19-04

Aggregation Over Firms and Flexible Functional Forms
H. Youn Kim

20-04

The Role of Ranking and the Technical Efficiency of Singapore Secondary Schools in the GCE 'O' level exam: Using a Distance Function Approach
Roland Cheo Kim San

21-04

Sustainability: Are Economists on the Right Track?
Ian Wills

01-05

A Review of Selected Literature in the Economics of Division of Labor from 5th Century to WWII: Part 1

Guang-Zhen Sun

02-05

Comparing Competitive Balance in Australian Sports Leagues, the AFL, NBL and NRL: Does the AFL's Team Salary Cap and Player Draft Measure Up?

Ross Booth

03-05

The Economic Development of the Australian Football League

Ross Booth

04-05

Using Turn Taking to Mitigate Conflict and Coordination Problems in the Repeated Battle of the Sexes Game

Sau-Him Paul Lau and Vai-Lam Mui

05-05

Domestic and Global Sourcing

Wenli Cheng and Dingsheng Zhang

06-05

Are Shocks to Energy Consumption Permanent or Temporary? Evidence from 182 Countries

Paresh Kumar Narayan and Russell Smyth

07-05

Elasticity of Risk Aversion and International Trade

Udo Broll, Jack E. Wahl and Wing-Keung Wong

08-05

Prospect and Markowitz Stochastic Dominance

Wing-Keung Wong and Raymond H. Chan

09-05

Robust Estimation of Multiple Regression Model with Non-normal Error: Symmetric Distribution

Wing-Keung Wong and Guorui Bian

10-05

Bivariate Causality between Exchange Rates and Stock Prices on Major Asian Countries

Hooi-Hooi Lean and Marwan Halim

11-05

Growth Accounting for the Chinese Provinces 1990-2000: Incorporating Human Capital Accumulation

Xiaolei Qian and Russell Smyth

12-05

Can Productivity Progress in China hurt the US? Professor Samuelson's Example Extended

Wenli Cheng and Dingsheng Zhang

13-05

Firm Compliance with Social Insurance Obligations where there is a Weak Surveillance and Enforcement Mechanism: Empirical Evidence from Shanghai

Pushkar Maitra, Ingrid Nielsen, Chris Nyland, Russell Smyth and Cherrie Zhu

14-05

Exploiting Gossen's second law: A simple proof of the Euler equation and the maximum principle

Guang-Zhen Sun

15-05

Why might a country want to develop its comparative disadvantage industries? A general equilibrium analysis

Wenli Cheng and Dingsheng Zhang

16-05

Revisiting Calendar Anomalies in Asian Stock Markets Using a Stochastic Dominance Approach

Lean Hooi Hooi, Wong Wing Keung and Russell Smyth

17-05

International Demonstration Effect and Domestic Division of Labour: A Simple Model

Po-Ting Liu and Guang-Zhen Sun

18-05

Is there a Natural Rate of Crime?

Pareesh Kumar Narayan, Ingrid Nielsen and Russell Smyth

19-05

Welfare, Population Growth and Dynamic Inefficiency in an OLG Framework

Daniel Mulino

20-05

Would Outsourcing Increase or Decrease Wage Inequality? Two Models, Two Answers

Wenli Cheng and Dingsheng Zhang

21-05

Some Economic Effects of Changes to Gate-Sharing Arrangements in the Australian Football League

Ross Booth