

# Comparing Attendances and Memberships in the Australian Football League: The Case of Hawthorn<sup>1</sup>

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## Abstract

*While the linkage between team performance and attendances is well established, there has been negligible previous research using club memberships as an alternative indicator of demand for sport. Little attention has been paid to how the number of memberships is affected by common measures of team performance, such as the team's win-ratio. This study utilises a previously unavailable long range time-series data set of annual memberships for an Australian Football League (AFL) club, Hawthorn FC. A succession of basic correlation analyses demonstrates that, while the relation between club membership numbers and win-ratios is strongly positive as it is for attendances (for most of the sample), some of the finer properties are substantially different. It is suggested that much of the reason for this lies in differences between the segmented nature of these markets for attendances and memberships.*

**JEL Codes:** C14, L83

## Keywords

*Demand; markets; sports club membership; sporting match attendance; sports economics.*

## Introduction

The sports economics literature is abundant with studies of models of match attendance estimation and determination. A detailed survey on this literature is provided by Borland and Macdonald (2003). For a few examples covering different sports, sample periods, factors and methodologies, the reader is referred to *inter alia*, Peel and Thomas (1988), Hyndes and Smith (1994) and Butler (2002). The economic intuitive appeal of undertaking such an exercise is that attendances represent a way of measuring the underlying demand for sport. One useful starting point for AFL literature pursuing this theme is Borland and Lye (1992), who found that an important determinant of attendance is habit (as proxied by lagged attendance). While this finding may suggest that AFL fans

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are highly tribal and loyal, empirical evidence from various professional sports leagues around the globe indicates that attendances are higher for teams when they are doing well in the current season, *ceteris paribus*. Other contributions to the literature on attendances for AFL matches include those from Fuller and Stewart (1996) and Lenten (2009).

Throughout much of the 1990s, demand for top-flight Australian Rules football, as measured by attendances at AFL matches, rose dramatically.<sup>2</sup> While improvement in competitive balance was one factor at this time (Booth 2004), there were numerous other reasons for this. These reasons included aggressive marketing, market success of the new non-Victorian clubs, home ground aggregation of Melbourne-based teams, match scheduling, and expansion of the finals series — see Lenten (2011: 375–378) for an extended description of these factors. One other factor identified has been the spectacular growth in club memberships that occurred contemporaneously, driven by a more specific range of reasons. Lenten (2011: 377) identifies revelations that some Melbourne-based clubs such as St.Kilda, Richmond and the Western Bulldogs were in desperate financial trouble (Linnell 1995, chapter 16); and more obviously, the near-merger in 1996 of Hawthorn and Melbourne, as two such reasons.

Since membership has previously been largely overlooked as an alternative measure of demand, this article proposes the idea that long-range time-series membership data is a very useful source of empirical information about the nature of demand for AFL football.<sup>3</sup> The intention of this study is not so much to explain in intricate detail the determinants of club memberships. Rather, it is a formative attempt to understand the basic differences between memberships as opposed to attendances as a form of demand, so that the preliminary results provided here might then indirectly pose a number of possibilities for future research. The chosen approach is similar to that of Shaw and McDonald (2005), except in a time-series (rather than cross-sectional) framework.

The notion of looking at memberships (as with attendances), also has intuitive economic appeal, as memberships essentially represent a form of second-degree price discrimination.<sup>4</sup> This is because they invariably involve some form of entry entitlement to  $x$  games once the membership is purchased, thus the price discrimination is on the basis of quantity (defined as number of games attended). Thus, some fans will often take this into consideration when deciding whether to purchase a membership. A further distinctive feature of the AFL is that the vast majority of the clubs have a legal structure whereby the members are effectively the owners of the club, and therefore have voting rights at Annual General Meetings.

Also, AFL (attendance and membership) data contain a number of desirable qualities that make them highly suitable as an indicator of demand for Australian Rules football. One reason why AFL attendance data are excellent for this purpose is that historically a low number of home-and-away games are sold out fully. In the formative days, this was because of the large standing sections in the various Melbourne suburban grounds. For example, Hawthorn's first home ground, Glenferrie Oval, had a recorded maximum attendance of 36,000 for a match against Carlton in 1965, despite having an official (current) listed capacity

of 10,000. In recent years, as demand has grown, and standing areas have disappeared as the game has gone national, the low sell-out rate has been maintained effectively by home ground aggregation to a much smaller number of significantly larger stadiums in Melbourne. Furthermore, pricing is not a huge issue within this series, as AFL entry and membership pricing has typically been stable, and demand has always been very price-inelastic — an obvious characteristic of highly habitual and loyal fans. Furthermore, membership data is generally just as salient a measure of demand for similar reasons, since quotas have not been commonplace historically among AFL teams.

The structure of this article proceeds in the following fashion: the next section elaborates on the economic relevance of distinguishing memberships from attendances as a demand measure for sport. Following that, there is an extended description of the membership data to be utilised in this study. The main sets of results derived from the correlation analysis are then revealed in the penultimate section. Finally, the article concludes by summarising the key results and posing possibilities for future research.

### **Attendances and Memberships as Segmented Markets**

In establishing the motivation for this study, it is crucial first of all to examine the conceptual differences between attendances and memberships as alternative forms of demand. Firstly, the market for attendance includes all ‘consumers’ — not only those usually referred to in the sports economics literature as fans, but also people that are marginally interested in the AFL who attend for other reasons, such as attending with family or friends, or even international tourists. Analogously, the market for memberships is more limited to a portion of (mostly) committed AFL fans. Since members are substantially more likely to attend regularly than non-members (even if memberships provided no free entry entitlement), it can also be said that there is a large degree of overlap between the two markets. Unfortunately, there do not exist records indicating the proportion of attendees that are also club members, so it is not possible to tell precisely to what extent this is the case.

At least within a static framework (within a single season) the degree to which the markets are segmented appears to be on a voluntary basis. That is to say, fans are not excluded from one market or the other (disregarding quotas or sell-outs) on a geographic basis or any other basis that is typically associated with segmented markets. Rather, prices are forwarded in both markets, and then fans are free to self-select.

It is also sensible to assert that the relationship between the two markets is dynamic in nature, as whether a given fan is a member or not partially conditions their choice of number of games attended in a given season. Having said this, however, the issue of causality is unclear, as it could be argued that memberships cause attendances because of the complementarities that are present — some marginal pay-at-the-gate fans that purchase a membership often then find themselves attending more often in order to maximise the benefits of their membership. Likewise, it could also be argued that the inverse is true, as new

members are invariably people who have already attended numerous matches prior to signing up.

It should be noted at this stage, however, that a shift in the demand curve upwards and to the right for memberships does not necessarily result in an equivalent shift in the demand curve for attendances. There is anecdotal evidence that some members do not attend regularly or even at all, which is consistent with the findings of DellaVigna and Malmendier (2006) with respect to gymnasium memberships. Rather, they simply view their membership purchase as a periodic financial subscription (or even donation) to their club. Nevertheless, the two markets are most definitely complementary.

Another interesting way of comparing attendances and memberships lies in their respective relationships to team performance. Generally, it would be expected that demand for a club's output will be greater when team performance is better. Hence, all other things being equal, attendances and memberships should both rise when a team improves.<sup>5</sup> However, it seems that memberships should more accurately reflect the relation with team performance than attendances, as changes to the latter are also a function of the team's opponents, venue, day/time, and several other exogenous factors. When it comes to memberships though, because of the timing of the commitment to purchase (mostly prior to or just after the commencement of the season) what matters most is fans' collective *expectation* of team performance.<sup>6</sup> It is probable that many AFL fans would simply extrapolate their expectations on the basis of the previous season's performance or performance in the pre-season cup, rather than media or other external predictions, such as betting markets.

## A Formal Description of the Membership Data

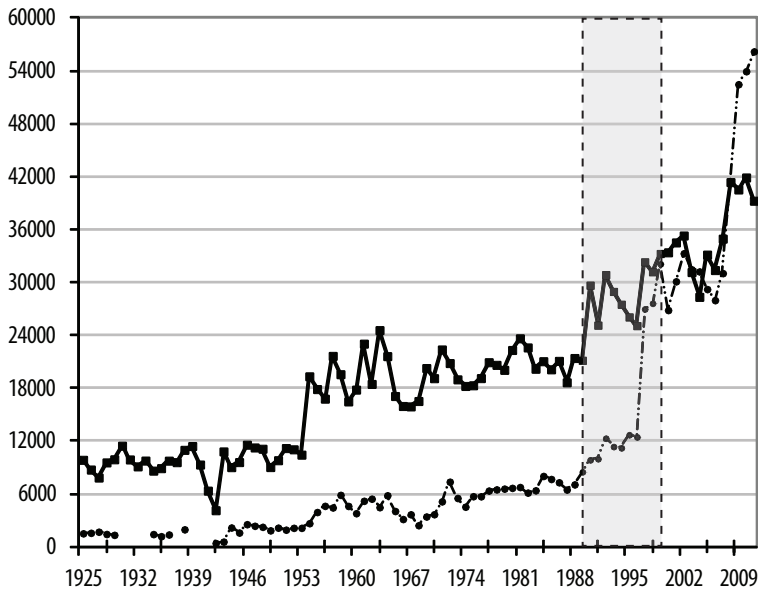
For the purposes of performing the applicable basic modelling of data in this survey, the key ingredient is the procurement of Hawthorn membership data. The data frequency is annual, since there is only one season in any calendar year. The AFL has maintained annual membership figures for all clubs in the competition since 1984 (aggregate of all membership types).<sup>7</sup> To supplement this data, the challenge was to obtain as many observations as possible between Hawthorn's entry into the AFL in 1925 (from the Victorian Football Association, VFA) and 1983.<sup>8</sup> The actual figures were obtained from archived hard copies of Hawthorn FC Annual Reports, located at the Hawthorn FC Museum at the club's current headquarters at Waverley Park.

Unfortunately, there were numerous gaps in the data, especially in the formative years of Hawthorn's existence in the VFL, since the Annual Reports did not contain membership figures for the years 1930–1933, 1937 and 1939–1941. Hence, much of the analysis is undertaken utilising only data from 1945, which is often standard practice, due to the difficulty of accounting for the precise nature of the intra-World War II effects on demand. Furthermore (and more disappointingly), the Annual Reports for the years 1979 and 1980 simply did not report member numbers. These observations are filled in via linearly interpolating the 1978 and 1981 figures.

Also of potential interest are the alternative categories of membership. The most recent years have seen a profound proliferation of membership types (or levels), as clubs attempt to begin to move towards (but of course will never even approach) first-degree price discrimination.<sup>9</sup> Thus, it is actually the more dated data here that may be of some use. The first year in the sample that reveals different categories of membership is 1942, where there are figures for both Adult (A) and 'Schoolboy' (SB) memberships, the latter of which were given out free to numerous local primary schools in the area. Then in 1971, there are figures for Complimentary (C) memberships, and in the following year, SB was re-categorised as Junior (J) memberships. By 1981, a pensioner category had been introduced, with a student category established in 1982 and then a family category initiated in 1983.<sup>10</sup> Given the number of changes in the 1980s, as well as the missing observations, the sub-sample between 1945 and 1978 is chosen to isolate the A category.

Comprehensive AFL attendance data extends back to 1921, which predates Hawthorn's entry into the league; hence the full sample back to 1925 is used. Finals matches are excluded since they are manifestly higher attended on average, creating an upward bias in seasons when Hawthorn made the finals series. Also required is the annual win-ratio of home-and-away matches during each season (games won divided by games played), as a way of controlling for the team's on-field fortunes. This should (at least partially) determine demand for Hawthorn games — this series is also obtained back to 1925. Both of these series are available from: [http://stats.rleague.com/afl/afl\\_index.html](http://stats.rleague.com/afl/afl_index.html). The original series for both total memberships (available observations) and average attendance at Hawthorn matches, and are exhibited graphically in Figure 1. In the early part of the sample, it can be seen on close inspection that the series follow a similar pattern of peaks and troughs over time. Being a small, newly-admitted club, Hawthorn struggled to be competitive in its first quarter of a century in the league, never even making the finals series. Not surprisingly, Hawthorn attendances and memberships were substantially below the league average.

**Figure 1: Hawthorn original total memberships (thin dashed line) and Hawthorn game average attendances (thick solid line)**



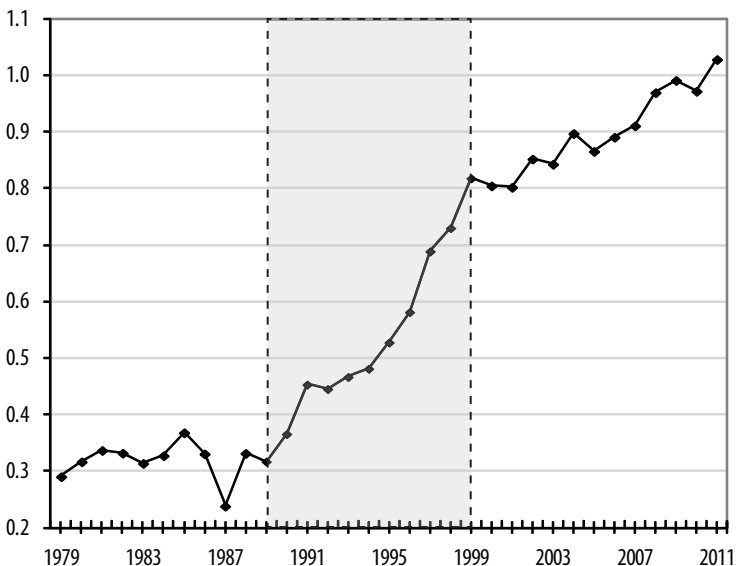
Also as seen, average Hawthorn game attendance stagnated from their entry into the league until the early 1950s. World War II had less of an effect on Hawthorn attendances *vis-à-vis* the league average, mainly because Hawthorn had easily their best ever season hitherto in 1943, resulting in attendances recovering immediately to their pre-War levels (though memberships declined significantly earlier in the War period). Following the nadir of a winless season amid internal bickering in 1950, much of it due allegedly to tension between Catholic and Protestant players (see Gordon 1990: 91–92), Hawthorn rapidly became more competitive, resulting in a significant structural increase in attendances and memberships. Average attendance then stagnated for the following 35 years until the late 1980s, an interval that culminated in the most successful period in the club's history — four titles and three runners-up in the seven years from 1983–1989. However, there was still some degree of structural increase in memberships during this 35-year period. Arguably though, memberships should have increased further during this period given their on-field success.

Anecdotal evidence that helps to explain this is the suggestion that at the time, the mentality of the club's administration was to concentrate on the (then growing) corporate side of revenue-raising and to ignore membership to a large extent, in the belief that a small membership base was preferable — a luxury afforded by their on-field success.<sup>11</sup> This anecdotal evidence is exemplified by the stories surrounding the phone-driven campaign for membership renewals led by former premiership captain Graham Arthur until the mid-1990s. The database that Arthur's recruitment team had to work from was haphazard in nature and not kept up-to-date. Following the failed merger attempt, however, the club recognised the importance of membership and revamped the membership

department, with a concerted effort (by a mostly-volunteer group) to construct a new database of not only existing and former members, but also others who identified with the club, wherever they resided. This was centred on the strategy of 'member get member' and highlighted the exclusivity of membership. This strategy was successful; right up until the club followed the trend of other clubs of replacing the volunteers with a full-time dedicated and professionally trained staff.

It is the 10-season period, however, between 1989 and 1998 that is of most interest in this analysis, not only from the Hawthorn experience, but the league experience as well. This era was one of significant expansion of demand for top-flight Australian Rules football, as the league's administration transformed the competition from a semi-professional concern to a fully professional sport. In doing so, they undertook many reforms that resulted in a profound increase in average attendances league-wide as outlined earlier. Furthermore, much of the league's (and its constituent clubs') marketing efforts centred on attempting to make as many fans as possible commit to purchasing memberships on an annual basis, rather than paying at the gate on a per-match basis. In this endeavour, they were highly successful, as can be gleaned by Figure 2, which plots the ratio of average club membership to average league game attendance. While the number itself has no direct interpretation, it can still be used as an index of the relative importance of memberships to attendances. As is shown, this ratio, stagnant throughout the 1980s, rose remarkably through the entirety of the 10-year period to 1998, falling only slightly in 1992.<sup>12</sup> Since the end of this period, by which most of the potential for further gains had been mostly saturated, this ratio has experienced far more modest annual growth rates.

**Figure 2: Ratio of average club membership to average attendance (1979–2011)**



With specific reference to the Hawthorn perspective over this period, attendances increased notably in 1990 on the heels of back-to-back premierships titles, and remained at these higher levels thereafter. Following that and another premiership in 1991, however, there was little further increase in Hawthorn average attendances throughout the remainder of the period, nor were there many further gains until the final few years of the sample, culminating in a further premiership in 2008. It is also worth noting that none of the major changes to home-ground capacity had a huge immediate effect on attendances. These changes include the completion of the major (now Michael Tuck) grandstand at Glenferrie Oval in 1938; the Ferguson Stand, built in the mid-1960s, the move from Glenferrie to Princes Park in 1974, the (gradual) move to Waverley Park, formalised in 1992, and the most recent move to the Melbourne Cricket Ground in 2000.<sup>13</sup>

In terms of memberships during the period in question, there were noteworthy gains in the early years, followed by some years of stagnation. The result that stands out clearly here is the remarkable increase from 12,484 in 1996 to 27,005 in 1997, following the club's near merger with Melbourne FC, which rallied many Hawthorn fans (not previously members) to commit to taking up memberships and saturating much of the previously untapped potential membership base. Following that, memberships remained at roughly the same level, until the recent period of premiership contention (referred to previously) saw a further structural surge in membership levels in 2008 and 2009.

## Results

Since the current study represents a formative attempt at modelling this type of membership data, much of the analysis centres on the comparison and contrasting of correlation coefficients between the variables. As will be shown, these correlation coefficients have a sufficiently fascinating story to tell about measuring demand via attendance versus membership, without having to resort to exploring the exact nature of causation. The reason for relying on correlation coefficients is that one has to be careful about the nature of inference with respect to the variables under investigation. Nevertheless, a simple Granger-causality test of attendances and membership for the Hawthorn data (1945–2011), reveals that with a one-season lag, the null hypothesis that memberships do not Granger-cause attendances is significant, though only at the 10 per cent level ( $p$ -value of 0.0525). Meanwhile, the analogous hypothesis that attendances do not Granger-cause membership is insignificant ( $p$ -value of 0.2205), while the  $p$ -values for higher-order lags are themselves all noticeably higher.

Beginning with the attendance data, the raw match average figures are also expressed as a ratio to the league average of all other (*not* involving Hawthorn) games, as a way of mitigating structural effects arising from exogenous factors over time. This series is plotted against Hawthorn's win-ratio in figure 3. The similarities in the series are striking — not only the turning points from season-to-season, but also the medium-to-long-term effects, as Hawthorn's improved competitive performance from the formative period to their most successful period was associated with vastly higher attendances. This relation has been less precise in more recent years, however.



**Figure 3: Hawthorn season win-ratio (thin dotted line, LHS) and Hawthorn-to-League average attendance ratio (thick solid line, RHS)**

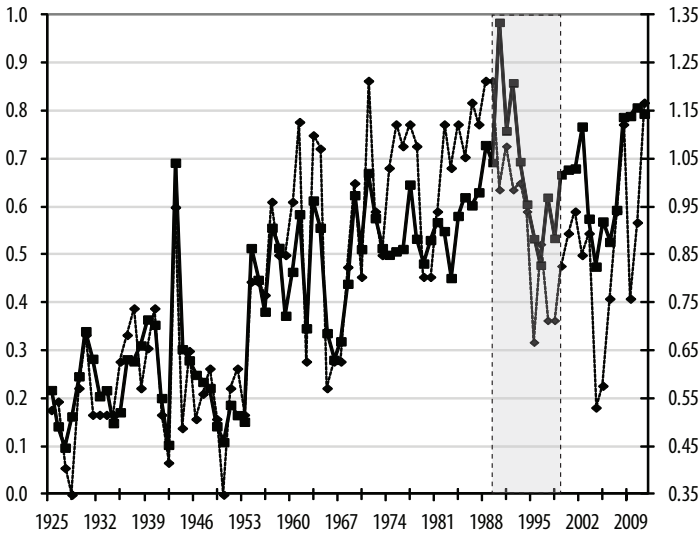


Table 1 displays the various correlations between average attendances and Hawthorn’s win-ratio. The middle column shows the results for when attendances are expressed in logs, since percentage changes are more revealing than changes in levels of the series in this context. For the full sample, the association between attendance and performance is positive and quite strong — not surprisingly, better performance is associated with higher attendances in that season. However, it is when the sample period is split into the appropriate sub-samples that the story becomes more interesting. It can be seen from Table 1 that for the 1925–1988 and 2000–2011 sub-samples, the positive correlation is also quite strong (even stronger for the former). However, for the critical period between 1989 and 1999 referred to earlier, the contrary is surprisingly the case.<sup>14</sup> Nevertheless, there is a nice explanation to account for this counter-intuitive result. The period from 1989–1999 corresponds to this era in which attendances increased markedly across the league (for all teams) for reasons explained earlier, irrespective of how the individual teams were faring on the park. It also (coincidentally) corresponds to a period in which Hawthorn went into decline in terms of performance, yet the exogenous attendance increases were easily more than enough to offset this decline. By 2000, this structural change had reached its saturation point, allowing performance to once again become more influential than these exogenous factors.

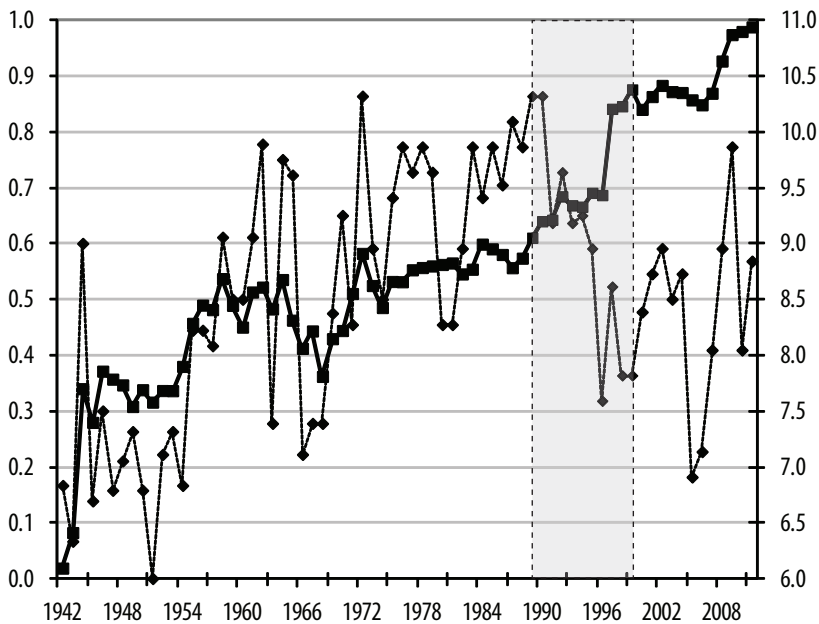
**Table 1: Correlation between attendances and win-ratio**

	Logs	Ratio Measure
All Years	0.6510	0.8063
1925–1988	0.8244	0.9258
1989–1999	-0.5730	0.5436
2000–2011	0.6331	0.6588

The right-hand column of Table 1 displays the analogous results using the attendance ratio measure. As a measure that controls more for exogenous factors, it is not surprising that the full sample correlation is even more strongly positive. Since it is a ratio-to-league average measure, it is not surprising that even the correlation for the period from 1989–1999 is strongly positive. Also, the full sample correlation coefficient is stronger for the current season win-ratio (0.8063) than for one- and two-season win-ratio lags (0.6559 and 0.6052, respectively). This result makes perfect intuitive sense, as attendances are being determined throughout the season with the contemporaneous win-ratio jointly. The result could also be indicative that while a significant proportion of members will remain members irrespective of performance, others may decide to switch, depending on performance, in a manner similar to switching between ‘attraction’ and ‘allegiance’ in Funk and James’ (2001) ‘psychological continuum model’.

In light of memberships, it is not possible to express the figures in terms of a ratio to the average of other clubs, since the data for some of the other clubs are unavailable prior to 1984.<sup>15</sup> Therefore, the simpler approach of taking the natural logarithm of the series is again applied. This series is charted against the win-ratio (lagged by one season) in Figure 4 from 1942, after which the series is mostly unbroken. However, for the correlation analysis, the sample was trimmed back to 1945, which is a very common starting date for long-range time-series studies in sports economics.

**Figure 4: Hawthorn previous season win-ratio (thin dotted line, LHS) and logarithm of total memberships (thick solid line, RHS)**



In Table 2, the correlations between memberships and the win-ratio are revealed, with up to two seasons’ lags on the win-ratio, for both the full sample and the

1945–1978 sub-sample specified earlier. Concentrating first on the full sample, the link between membership and performance is strongest in the previous season. That is, how Hawthorn performed last season was more highly correlated with membership in the current season than current season performance (this is also true for the sub-sample from 1945–1978).<sup>16</sup> This finding again seems sensible, as it conforms to the theory outlined earlier — since most memberships are sold before the season begins (or at the very latest, early in the season), what matters more than the realised win-ratio in the current season is fans' *expectations* of the win-ratio. It makes sense that the team's standing in the previous season is probably the most important factor in how fans condition their expectations. We will return to this point later on, but for now, the following parts of the analysis are undertaken using the win-ratio lagged by one season. Overall, while the correlation coefficient is not particularly strong for the full sample (about 0.29), the correlation coefficient becomes far stronger when the sub-sample from 1945–1978 is used.

**Table 2: Correlation between log (memberships) and win-ratio with lags**

Lag	1945–2011	1945–1978
Same Season	0.2576	0.7491
1 Season	0.2921	0.8779
2 Seasons	0.2211	0.6048

One other reason for looking at the years 1945–1978 is that this period corresponds to the period for which there is data availability for the standard A category memberships. This is a useful exercise for the purposes of comparison, as this category should be most sensitive to team performance, since SB memberships were distributed at various primary schools in the Hawthorn and Glenferrie area at no cost. The correlations justifying the limitation of memberships to the A category are shown in Table 3. Once again, the correlations are strongest when the win-ratio is lagged by one season. Rather surprisingly, however, the correlations are not stronger compared to those derived from the total membership base including SB (and other types of) memberships.<sup>17</sup>

**Table 3: Correlation limited to adult memberships only, 1945–1978**

Lag	Logs	Levels
Same Season	0.7003	0.6738
1 Season	0.8624	0.8670
2 Seasons	0.5508	0.5246

In any event, at an aggregate level, the sub-sample breakdown of the correlations between memberships and the previous season's win-ratio are provided in Table 4, and they reveal some strong evidence. In accordance with the (log of) attendance sub-sample correlations, the correlation is strongly positive in the first sub-sample, then negative for the 1989–1999 sub-sample, and positive again in the final sub-sample. However, these correlations are stronger in magnitude than the equivalent attendance correlations (except 2000–2011), most notably for the negative correlation for the 1989–1999 sub-sample. This result provides some compelling evidence that memberships could add much to the literature on the demand for sport.

**Table 4: Correlation between memberships and previous season's win-ratio**

	Log (Memberships)
1925–1988	0.8657
1989–1999	-0.7271
2000–2011	0.4973

Finally, let us return momentarily to the issue of fans forming expectations of their team's performance based on their previous season's performance. This would seem sensible if the two were highly positively correlated. Table 5 illustrates the full sample correlations (middle column) between the win-ratio in the current season and each of up to the previous six seasons. From these results, it is seen that the 1-season ago correlation for Hawthorn is quite strong, and then correlations taper off when further seasons are considered, as could be expected.

**Table 5: Correlation between current season win-ratio and recent seasons win-ratio**

Lag	All Years	Draft and Salary Cap Era
1 Season Ago	0.6233	0.6029
2 Seasons Ago	0.4926	0.4218
3 Seasons Ago	0.5060	0.3826
4 Seasons Ago	0.3858	0.2601
5 Seasons Ago	0.3817	0.2631
6 Seasons Ago	0.3344	0.0208

While for much of the history of the AFL, between-season competitive balance has arguably been relatively low, there is ample evidence to suggest that in recent years, teams have moved up and down the league ladder much more readily. Hence, a final minor extension to this analysis is to limit the correlations to the period from 1985–2011, the phase of the league's history that corresponds to the existence of the national player draft and salary cap. This era is referred to as Booth's (2004) 'period six', in his historical recount of the various combinations of revenue-sharing devices and labour-market restrictions used by the league throughout its history. From the right-hand column in Table 5 compared to the full sample, we see that Hawthorn's 1-season ago correlation is comparable during this period, and then tapers off at a substantially faster rate, reverting virtually to zero for 6-seasons ago. This is consistent with the observation that the draft and salary cap combination has partially mitigated the propensity of good (poor) teams to remain high (low) on the ladder in the following few seasons, like the Hawthorn experience of the 1980s.

## Conclusion

This article has sought to advocate club memberships as a suitable possible measure of demand for Australian Rules football, using data for Hawthorn FC in the AFL as a case study. This idea is particularly compelling, as virtually every previous time-series study has relied only on attendances. While it is not suggested that memberships are a superior measure overall, it is felt that they do have quite a lot to add to the current literature as a supplementary measure of

demand. Some of the theoretical properties of the market for memberships in relation to the market for attendances were then discussed. Notably, the markets have some degree of overlap, but they are still largely segmented. Furthermore, the relationship is a dynamic one.

The major empirical findings include the following: predictably, while attendances are strongly positively correlated with the win-ratio overall, they are negatively correlated for the important sub-sample from 1989–1999. For memberships, the strongest correlations occur when the win-ratio is lagged by one year. This is explained by Hawthorn fans having to form expectations about the team's win-ratio in the forthcoming season, since the membership is typically purchased prior to the commencement of the season. When the membership story is broken into the various sub-samples, it is again seen that the relation is negative during the period from 1989–1999, explained by the expansion of demand for AFL football concurrent with a decline in Hawthorn's win-ratio over this period. It is also found that limiting memberships to the main (Adult) category does not really change the results at all.

Having taken this formative analysis to its logical conclusion, several interesting possibilities for future research are evident, including a more thorough discussion of the theoretical underpinning of the demand-related comparison of memberships and attendances. Several empirical issues also remain: foremost, given that the crucial era between 1989 and 1998 and the unique experience of Hawthorn during that period, it would be fascinating to obtain membership figures from the other (mainly Melbourne-based) AFL clubs that have been in the competition for a long time. The purpose of this would be to see whether the findings obtained here for Hawthorn can be generalised, or if they are merely club-specific. Another possibility is the more formal parametric estimation of models aimed at making inferences regarding the determinants of memberships. Such formal testing would most likely take the form of panel techniques, rather than time-series analysis, and could involve the use of a wide range of explanatory variables.

## Notes

1. Earlier versions of this article were presented in seminars at: (i) Örebro University, Department of Business, Economics, Statistics and Informatics; (ii) University of Aarhus, Department of Economics; and (iii) RMIT University, School of Economics, Finance and Marketing. The author would like to thank the various participants of these seminars for their comments and suggestions. The author would also like to thank Peter Haby for his efforts in obtaining the earlier part of the sample, as well as his general knowledge and assistance; and finally both Wayne Geerling and Shaun Lenten; as well as Tanya Tran, who noticed some errors on an earlier draft.
2. As this has occurred, the sport's popularity has also managed to travel outside of Australia, with established (non-professional) leagues in places such as Canada, Denmark/Southern Sweden, France, Germany, Ireland, Japan, New Zealand, Papua New Guinea, Samoa, the UK, and the US.

3. While not ignored completely, most commentaries on the role of memberships in club finances are casual and brief in nature. As an example, see Stewart (1985: 4).
4. They also offer the team (vendor) an opportunity to package tickets for less popular games with those for more popular games. For a textbook treatment of price discrimination in the sports industry, refer to Leeds and von Allmen (2011: 112–121).
5. Pinnuck and Potter (2006) conclude that other factors also play a role in determining AFL memberships, such as past memberships and marketing expenditures.
6. AFL members of every club are typically sent membership renewal reminders by their club far in advance of the commencement of the season, and subsequent reminders often follow if they do not respond initially.
7. These figures are taken as of 31 May, which is the census date for which the AFL calculates finals series ticket allocations between the various clubs.
8. The AFL was then known as the Victorian Football League (until 1990). Peculiarly, the then VFA is now known as the VFL.
9. In the modern day, there are now numerous adult packages (not to mention further various concession packages) that vary inversely according to cost and (attendance and other) benefits received. Some of the packages are even named after former champion players — examples of 2012 packages include the Hudson Club, Eade Wing and Pritchard Pocket.
10. The family category was an important innovation, as Hawthorn often markets itself as ‘the family club’. For a recent popular media item reinforcing this, see Gleeson (2011).
11. It is worth noting that much of Hawthorn’s on-field success during this period was due to the grossly inefficient Victorian ‘country zoning’ device used by the league from 1968 until the introduction of the national player draft in 1986, as a means of equalising player talent between teams. Hawthorn was lucky enough to draw a zone that realised an immense pool of player talent.
12. The ratio actually falls nearly to 0.2 in 1987, due to a temporary loss of public interest following a television rights stand-off that saw no matches telecast on the Seven Network that year.
13. Hawthorn had been playing a significantly above-average number of games at Waverley Park prior to 1992 — six in 1987; five in 1988; nine in 1989; eight in 1990; and ten in 1991.
14. This period is also shaded in all of the figures as a visual aid to the story. The 1999 season is added to the sub-sample for reasons of consistency, as a one-season lag enters the analysis later on.
15. If we do this with the available years for the same sub-samples, however, the correlations are as follows: 0.6235 (1984–1988); 0.2245 (1989–1999); 0.6365 (2000–2011).
16. In fact, for the full sample, the two-season lag correlation coefficient is insignificant at the 5 per cent level. The critical value here for 67 observations is approximately 0.237.

17. There was not likely to be much quantitative difference between the two sets of correlations, as over the sub-sample, the A category comprised an average of 75 per cent of total memberships anyway. Since the differences are not profound in any case, this could be taken as providing (weak) support for including all categories of membership equally in the aggregate measure, as the AFL does with respect to its finals-allocation figures.

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