

# The Pricing of a Round of Golf: The Inefficiency of Membership

## Fees Revisited

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## ABSTRACT

This paper argues that the use of membership fees at shared facilities, such as private golf courses, is not per se evidence of inefficient pricing as implied by the club theory literature on variable usage. This paper reconciles the inconsistency between the predictions of existing models and empirical evidence by accounting for members' opportunity cost of time and the effect of congestion on members' utility. In particular, this research shows that the simplified nature of congestion assumed in the literature ignores the positive externalities that members receive from a members-only club.

## 1. Introduction

An extensive literature on the theory of clubs has developed since the seminal contribution of Buchanan (1965).<sup>1</sup> As indicated by Sandler and Tschirhart (1997), most contributions to the club literature have been theoretical in nature:

Although club theory has been profitably applied to a host of economic problems, an important agenda still exists in terms of empirical testing of club models, where direct measures of congestion are used. Most empirical work has not developed good tests of the basic ingredient of club theory - its congestion function and the membership condition. (p. 353)

This paper considers both the congestion function and the membership condition for a specific application of club theory: private golf courses. The private golf course has been singled out in the literature as a leading example of the inefficient use of membership fees for a club good with variable usage [Scotchmer (1985) and Cornes and Sandler (1996), among others]. While the congestion function and membership conditions of existing theoretical models imply the efficiency of per-use fees in order to internalize the congestion externality due to variable usage, a number of clubs, such as private golf courses, use membership fees rather than per-use fees [Berglas (1976) and Helsley and Strange (1991)]. The literature's two explanations for the prevalence of membership fees as opposed to per-use fees are monopoly power and high transactions costs.

This paper makes two specific contributions. First, it shows that the monopoly power and transaction costs explanations for the widespread use of membership fees are not supported empirically. Second, it reconciles the inconsistency between the predictions of existing models and the empirical evidence by accounting for members' opportunity cost of time and the effect of congestion on members' utility. The paper is organized as follows. Section 2 summarizes the

nature of the congestion function and membership condition of existing club models when members' usage is variable. Section 3 presents empirical evidence that is inconsistent with the monopoly power and transactions costs explanations for the use of membership fees at private clubs. Section 4 discusses the problems with the assumptions in the theoretical literature and proposes a positive externalities explanation for the use of membership fees at private golf courses. Concluding comments are in Section 5.

## 2. The Congestion Function and Membership Condition

Buchanan argued that club members determine the optimal size of the club by equating the marginal reduction in overall operation cost due to the addition of a new member with the negative effect that the new member has on existing members' level of consumption of the club good. Buchanan did not address explicitly the nature of this negative effect: "sharing here simply means that the individual receives a smaller quantity of the service" and "this quantity will be related functionally to the number of others with whom he shares" (p. 3). In his model all members are assumed to be identical with congestion a function of the number of members, not the aggregate number of visits to the facility. The cost of club membership is implicitly a membership fee, since he defined the price to be paid as the total cost of the club's operation divided by the number of members. Exclusion of non-members is assumed to be costless.

Starting with Berglas the club good literature has focused on the role of per-use fees in order to internalize the congestion externality when usage is variable. According to Berglas, when usage can vary, the club arrangement with membership fees is inefficient. Since members of most clubs visit them more than once, this line of research also implied that the original Buchanan model is no longer relevant. For example, Scotchmer wrote "if the intensity of use per unit of time

is variable, however, the Buchanan model does not apply. The number of people with access to a golf course is in itself irrelevant; what counts is how many rounds of golf members play” (p. 456).<sup>2</sup>

In order to arrive at these conclusions, these authors departed from Buchanan’s assumption that members know the impact that a new member will have on congestion and the utility of other members, while implicitly retaining the costless exclusion assumption. They explicitly assume that potential members separate the joining decision from the participation decision by deciding whether or not to join based on the total cost of membership (fixed plus variable fees), while determining their usage based only on the per-use fee. For members of a private golf course this assumption means that golfers consider both membership fees and per-use fees in determining whether or not to join. The decision concerning the annual number of rounds actually played is then based only on the per-use fee, if any. According to this literature, if the private club charges no greens fee or other per-use fee, members will play a number of rounds of golf where the marginal utility of the last round played equals zero and the number of rounds played will be inefficiently large relative to the socially optimal number.

In Berglas’ model clubs compete in a competitive market. Scotchmer maintained the same essential assumptions concerning members’ utility functions and the definition of congestion but changed the nature of competition. In her model shared facilities can charge both membership and per-use prices. The innovation in her paper was the use of a game theoretic model with a symmetric Nash equilibrium in these two prices for a finite number of profit-maximizing golf courses and utility-maximizing consumers.

More specifically, Scotchmer specifies a separable utility function for each of  $N$  identical consumers as  $U[m, X, c] = m + h(X) - f(c)$ , where  $m$  is a homogeneous private good,  $c$  is the level of congestion (assumed to be the total number of visits per year to the facility), and  $X$  is the

number of visits (annual rounds of golf) per member. When there is a fixed number of homogeneous clubs,  $s$ , each club has  $N/s$  members. In equilibrium the profit maximizing firms charge a per-use fee that equals the marginal cost (including congestion cost and wear and tear) and charges a lump-sum annual membership fee to capture consumer surplus. Each club's prices are a best response to the other clubs' pricing strategies, since any deviation from these prices that gives consumers an incentive to go to a different club affects the level of congestion at each club and lowers the club's profits as a result.

According to Scotchmer, the implications of her model are essentially the same as in Oi's (1971) classic paper on two-part pricing. While Oi assumed that the firm was a monopolist, Scotchmer suggests that the size of the fixed fee in her model is a direct measure of the degree of the firm's market power. According to Scotchmer, "as the economy is replicated, each firm loses its market power. The equilibrium membership fee converges to zero, and the per visit revenue paid by each patron converges to the "competitive" visit price. In this sense the lump-sum fee is a measure of market power" (p. 468).

One other explanation in the literature for the prevalence of membership fees at private clubs is large transactions costs of monitoring use. For example, Helsley and Strange make a distinction between coarse (membership fees) and fine pricing (membership and per use fees). The absence of fine pricing is due to the transaction costs of monitoring use. While Helsley and Strange do not mention golf or skiing as examples, Cornes and Sandler in an extensive survey of the literature apply Helsley and Strange's result to golf and suggest that private golf courses use an inefficient pricing system:

Many real-world clubs, such as country clubs, use membership fees rather than visitation fees and are, in the absence of exclusion costs or some other form of transaction costs, inefficient.

This arrangement may be justified, however, when the exclusion costs of collecting visitation fees are included... If these exclusion costs exceed the loss in efficiency associated with collecting membership fees, then the membership fee approach is best.<sup>3</sup> (p. 397)

### 3. Empirical Evidence

This section provides empirical evidence at odds with the market power and transaction costs arguments of the previous section. The main points are that (a) private golf courses are unlikely to have the market power implied by the Scotchmer model and (b) it is unlikely that private golf courses have transactions costs that are so high as to preclude the use of per-use fees if club would like to do so.

#### a. Market power

Scotchmer claims the following empirical support for her model:

the pricing behavior of our model appears in at least some shared facilities of the economy. Certainly in the case of private golf courses, which have strong local monopolies, there is a large membership fee which precedes [sic] the right to use the golf courses by paying a visit fee...In the case of ski slopes, however, there is almost never a membership fee. The fee structure usually resembles something closer to a visit price...Conditional on the clientele that travels to the mountains to ski, each ski slope has little market power because there are many ski slopes. Thus one would expect a low membership (or “season”) fee and a visit price to cover the congestion cost imposed on the slope. (p. 468)

The implication of this line of reasoning is that a membership fee (or season pass) indicates market power, while exclusive use of a per-use price (daily lift ticket in the case of skiing) is indicative

of a competitive market. In her model the market power premium embodied in the membership fee should disappear as the number of firms increases with the clubs charging only a per-use fee.

Scotchmer, however, does not explain why the private golf course does not also charge a per-use fee to cover congestion and wear and tear in addition to the membership fee as implied by her model. In her model clubs in a competitive market charge only a per-use fee which would cover the cost of congestion and wear and tear on the margin but also cover its average cost of operation in long-run equilibrium. Since Scotchmer's model also implies that even monopolistic golf courses would charge a per-use price that includes both congestion and wear and tear, the lack of a per-use fee at the private club undermines the empirical relevance of the model.

As a further indication of a confusion concerning the relevance of the model, Cowen and Glazer (1991), writing in support of the empirical relevance of the Scotchmer's model, argued that:

Membership fees for clubs are analogous to ticket prices for the ski lift. The number of rides that skiers obtain is analogous to congestion in club theory; congestion reduces each user's utility as the number of people who visit the facility increases....Scotchmer demonstrates that, in general, efficiency requires imposing a price for each ride. (p. 376-7)

As a result, using the same model as Scotchmer, Cowen and Glazer imply that the use of lift ticket pricing is an indicator of market power, while Scotchmer implies that lift ticket pricing is an indicator of competitive pricing.

More fundamentally, the application of this model to skiing and golf is at odds with the organization of these markets. Scotchmer's distinction between a private golf course and a ski area is an artificial construction that ignores the alternatives available to potential members. In fact, there is no essential difference between the pricing options available to skiers and golfers

once one accounts for the similarity in the market structure of these two industries.

There are approximately 400 ski areas and 16,000 golf courses in the United States. Both types of facilities fall into four general categories: (1) national resorts that attract large numbers of visitors from other regions of the country, (2) local or regional privately-owned facilities with public access, (3) local publically-owned facilities, such as municipal golf courses and ski areas, with public access, and (4) local privately-owned facilities with access limited to members and their guests.

Resort ski areas are open to the public even if the skier plans to ski only one day in the year. However, these ski areas also offer a wide array of pricing options including season passes and multi-day packages. Golf resorts follow the same pricing plan. There are season passes for local residents intending to play more frequently and multi-day and single-day rates. Ski areas and golf courses that draw from primarily local populations offer the same pricing options, usually season and daily passes. In other words, there is no fundamental difference in the pricing options offered at these public golf and ski facilities.<sup>4</sup>

While less common than private golf courses, private ski areas also exist. In fact, many public ski areas started as private clubs and switched to open facilities due to advances in lift technology and lower transportation costs. Both private ski areas and private golf courses restrict access to a membership who pay membership and initiation fees. The difference between the number of private ski areas and golf courses can be largely explained by the relative cost of operation and number of potential members needed to cover operating costs. The average skier skis approximately 5 days per season, while the average golfer plays approximately 22 rounds per year. Many ski areas are located in relatively remote areas that involve significant transportation and lodging costs for visitors, which restrict the number of visits per year of most potential

members. These costs along with the high fixed cost of chairlifts imply a relatively larger number of members needed to cover the costs of a private ski area relative to that of a private golf course.<sup>5</sup>

The conclusion that membership fees are a measure of market power is further weakened empirically by the presence of a wide range of golfing facilities with comparable aggregate numbers of rounds per year within close proximity of one another but with different pricing options. Existing club models with variable usage define congestion (that is, intensity of use) as the number of visits per year. However, one can find an abundance of examples where golf courses with the same number of rounds per year co-exist in local markets despite different pricing structures. Take the example of four golfing facilities within approximately one-half hour of driving time of one another in the vicinity of Wilmington, Delaware: Newark Country Club, Three Little Bakers Golf Course, Hartefeld National Golf Course, and Wilmington Country Club. All four courses reported approximately the same number of rounds played for the 1999 golfing season, yet two are private country clubs and two are public golf courses. Hartefeld National, a public course, charged \$110 dollars per round (including mandatory cart) in 2000, while Three Little Bakers, the second public course, charged \$52 per round on weekends and \$47 on weekdays. Three Little Bakers Golf Course is of similar quality to that of Newark Country Club, a private club, while the other two are of comparable quality. Golfers willing to pay the membership and initiation fees can join either private club. Anyone willing to pay the greens fee can play at the two public courses and at the many other public courses in the area. In addition, golfers can choose a membership fee option that allows them to play throughout the season with no per-use fee at these public courses.

The coexistence of public facilities with different greens fees and private facilities with different membership fees is indicative of differences among golf courses due to a number of

factors in addition to the level of congestion, such as physical setting of the course, complexity of the course and number of amenities. Similarly, ski areas vary by the quality of the skiing experience with vertical drop and difficulty of the trails likely to be the most important indicators.<sup>6</sup> Golfers and skiers can, thus, choose among different quality levels, number of visits per year, and between being a member of a private facility or a visitor or a member of a facility open to the public. Golf course membership fees also may vary due to the members' preferences for greater exclusivity that is independent of the congestion implied by the number of rounds played. For example, Buchanan indicated that the optimal number of members will "tend to become smaller as the real income of an individual increases" (p. 12). Buchanan's example was swimming pools with lower income communities more likely to have co-operative arrangements and individuals in wealthier communities owning their own pools. Some wealthy individuals, such as actor Clint Eastwood, even have their own golf courses for private use, just as some individuals own their own swimming pools.

b. Transactions costs

A second explanation for the exclusive use of membership fees and the absence of per-use fees is the claim of significant transaction costs at private golf courses. As mentioned above, public golf courses coexist with private golf courses. Public golf courses charge players by the round but also offer membership fees as an alternative for frequent visitors. While some private golf courses allegedly practice exclusion by refusing membership based on gender, race, and ethnic background, these practices have become less wide-spread in the United States over time. In the absence of a mechanism of this type for excluding non-members, initiation and membership fees coupled with waiting lists serve as the sole means of limiting membership size. How the

club could remain private without charging a membership fee is not addressed in this literature.

More importantly, payment of initiation and membership fees imply a minimum usage of the facility. If we assume that individuals' utility functions differ based on income or preference for the number of rounds per year, there will be some individuals who would prefer to play only one round of golf per year at the market determined per round fee. If a golf course chooses to charge only per-use fees, there is no way in a competitive market to exclude individuals who will "join" the club to play one round and only pay the per-round fee. They have been implicitly excluded in the literature by the maintained assumption that all consumers are identical with each golfer playing the same number of rounds per year conditional on the pricing mechanism used by a group of homogeneous clubs. There must, however, be some mechanism for excluding non-members. According to Buchanan, "the theory of clubs developed in this paper applies in the strict sense only to the organization of membership or sharing arrangements where "exclusion" is possible" (p. 13).

Even if one is willing to accept the assumption that there is another mechanism for limiting membership at a private golf course apart from a membership fee, it is unlikely that a private clubs avoid charging members per-use fees due to high transactions costs. If limiting the number of rounds played by members were an objective for internalizing a negative externality, it would most likely be easier to do it at a private club than at a public club, primarily because there are fewer users to monitor. In addition, there is already in place a system at these clubs that could be used to charge the member an additional fee for each use with little extra cost. All private golf clubs monitor the number of rounds played by asking members to sign in, while members are known to the staff and are already billed on a monthly basis for purchases in the pro shop, dining room and bar. As a result, there is already in place a mechanism for billing members for each round played

if so desired, so that transactions costs are likely to be low on the margin and unlikely to be larger than the cost of monitoring and charging one-time visitors at a public course.

In addition, exclusion of non-members is likely to be less costly for similar reasons. Members have special tags on their bags identifying them as members, plus, more importantly, their relatively frequent use of the facility over time makes them well known to the pro shop staff and other members. As a result, golfers attempting to use the facility without paying are more easily identifiable than they would be at a public facility with a larger number of golfers, even holding the aggregate number of rounds constant. This implies that preventing use by non-paying golfers is likely to be less costly for the member-only club, not more costly as implied by the literature.

#### 4. Theoretical Considerations

The previous section suggests little empirical support for the market power and transactions costs explanations for the widespread use of membership fees at private clubs. A significant problem with the application of these models to private golf courses is the unrealistic assumption that the private golf course can limit its membership size without requiring members to pay a membership fee. This issue aside, there are still theoretical problems with the assumptions of existing models that lead to an overstatement of the inefficiencies attributed to membership fees. In this section I argue that the alleged inefficiency results from a lack of an explicit recognition of the opportunity cost of a member's time and the assumption that the member's utility function is separable. In addition, the literature has ignored the benefits of limiting the number of golfers who use the course. Since a membership fee implies a minimum expected usage per golfer, the membership fee pricing system raises the average number of rounds played per golfer at the club.

I argue that members receive positive externalities as a result.

a. Opportunity cost of time and separability of the utility function

Even if one is willing to accept the fact that the club can limit the size of its membership by some other mechanism, the existing models overstate the negative externality implied by using membership fees. Existing models of variable usage do not explicitly account for the time cost of each visit to the facility. Unlike visits to other potentially congestible facilities, a round of golf can take four to five hours to play during daylight hours. While the opportunity cost of the first round of golf per year may be quite low, it eventually increases significantly, especially for someone with a full-time job. While some rounds can be played on weekends during the golf season, additional rounds are at the expense of at least one-half day off from work or time spent with family members. As a result, while a per-use fee raises the marginal cost of a round of golf, the rapidly rising opportunity cost of time is likely to be a much greater disincentive on the margin.

More importantly, given the rapidly rising opportunity cost of an additional round of golf per year, potential members are quite likely to forecast with some certainty both the nature of the time constraint that they face when joining and the maximum number of rounds that they are likely to play during the year. Even though unplanned events, such as changes in the weather, will affect the exact days that these rounds are played in any given year, they are unlikely to affect in a significant way the total number played per year.

While Scotchmer states that “none of our results depends on either transferability or separability (implied by this specification)”, the separability assumption is critical to her result concerning membership fees. “Separability between  $X$  and  $c$  means that individuals consider the

congestion when deciding whether to use a facility, but once they have decided, the intensity of use depends only on the price for the visit” (p. 458). If we assume, instead, that a new member upon joining knows (1) the number of other members of the club,  $n$ , (2) the expected value of congestion,  $c(n)$ , and (3) the effect congestion has on the time cost of a round of golf at different levels of  $X$ , each member will choose  $X$  so as to equate the marginal utility of a round of golf to the marginal time cost of the additional round. Given the rapidly increasing opportunity cost of an addition round, there is likely to be a much smaller difference in the member’s choice of rounds prior to and after joining the club than implied by the literature. As a result, the congestion and wear and tear on the course associated with the aggregate number of rounds played is unlikely to be much different given either a membership fee or a per-use fee pricing structure.

b. Positive externalities of restricting the number of golfers

Given that per-use fees, as opposed to membership fees, alter the marginal cost to the golfer of an additional round, the marginal effects of these two pricing methods are still not exactly equal. However, even if there is a somewhat greater number of aggregate rounds played at a club charging a membership fee compared to one charging only a per-use fee, holding total revenue generated constant, the co-existence of private and public courses of comparable quality suggests that there must be benefits from club membership that compensate members for this additional small congestion cost. Stated otherwise, if club members make this mistake upon paying their initial annual membership fee and all that they care about is the aggregate number of rounds played, why would they continue to pay this membership fee in subsequent years if they could experience lower congestion at the same average price per round at a public club?<sup>7</sup> In the remainder of this section I suggest that there are positive externalities due to the limitation on the

number of golfers at the club, holding the aggregate number of rounds constant. These benefits are due to (1) an implicit code of conduct that affects both speed of play and the level of courtesy of fellow golfers, (2) a lower probability of being unable to play on any given day, and (3) lower maintenance costs.

(1) an implicit code of conduct

Existing club models of variable usage are limited by the use of total visits per year as the only measure of potential congestion. It is noteworthy that while Berglas acknowledged a number of possible measures for the degree of members' intensity of use, he used total visits per year only as an example.

Intensity can be affected in various ways. In the case of swimming pools, the club member can change the number of times he visits the place, the length of his stay, and the use of the pool's various services...In the following analysis, however, just one variable represents intensity of use; this will suffice to show the similarity between the club case and the private good case. (p. 118)

Ever since, theorists have continued to use total visits as the only measure of intensity without regard to the specific application of the model.

While number of rounds played is one measure of congestion, the speed of play is mostly a function of the golfers who are playing directly ahead. While the current literature implicitly models a club as a space that everyone occupies at the same time, golf can be thought of as a parade with each golfer occupying a place in the parade. Even if the entire course is empty except for the players immediately in front, one cannot play any faster than those playing ahead, unless allowed to play through. In addition, the behavior of players immediately behind or on adjoining

holes can affect one's enjoyment of the round. Unlike a course at which a large number of players play less frequently, the member-only club creates a social environment that can impose criticism and sanctions for slow or inconsiderate play either directly to the members themselves or indirectly through the club staff. There is, thus, an implicit code of conduct that depends on repeated contact among members over time. While at public and resort courses slow play is mitigated to some extent by marshals who patrol the course, the self-policing nature of members-only arrangements reduces the need for and cost associated with employees serving these functions.

(2) a lower probability of being unable to play on any given day

Both private and public courses use reservation systems during peak time periods to reduce the congestion cost associated with waiting to tee off. Sign-up or call-in reservations with a set time is one method of securing a tee time without costly negotiation or time spent waiting in line. On the other hand, if the number of potential golfers exceeds the number of tee times available on any given day, golfers who value playing on that day the most may not necessarily secure a reservation. On the other hand, if the total number of annual visits is the same at two courses but one course charges membership fees and the other per-use fees, the maximum number of golfers who may want to play on any one day at the member-only club is less. Even if the average number of rounds per day is the same at the two clubs, the variance is likely to be greater at the club with more potential players. More importantly, the effect of this larger variance is not symmetric. The addition of one more golfer wanting to play on a day with a relatively light turn-out will have relatively little effect on the margin compared to that of an additional golfer on a day with a heavier turn-out.

While the main sources of financing the private club's operation are initiation and membership fees, private clubs often do impose indirect per-use fees for play during peak demand time periods. For example, participation in club-sponsored tournaments on weekend mornings and holidays is another way of securing a tee time. In this case, tournament fees (including, at times, mandatory use of a cart) are an indirect means of raising the marginal cost that shifts the playing time of those members who value these time periods less highly to other time periods. While this pricing method does not necessarily affect a member's aggregate number of rounds played per year, it will affect the day and time that these rounds are played. In addition, guests fees at private clubs (often with the additional requirement of a cart) are also often higher during weekends and holidays. Even though the transactions cost of charging members an additional per-use fee for rounds played is likely to be quite small as argued earlier, the general absence of these fees at private clubs at other time periods is more likely evidence of the small benefit to be gained from doing so than the high transactions costs argument made in the literature.

### (3) lower maintenance costs

Finally, there is also a potential implicit cost savings in the maintenance of the facility at a private club of comparable quality to that of a public course with the same aggregate number of rounds played per year. Increasing the number of golfers who play infrequently at a course, even given the same aggregate number of rounds per year, can increase the wear and tear on the course, regardless of the club's pricing structure. Repeated use of the facility by the same golfers increases the likelihood that members will be more likely to maintain the quality of the course (that is, replace divots and rakes, not drive carts close to the greens or over plants, etc.) relative to the infrequent, non-member golfer due to their long-term planned use of the facility and the implicit

code of behavior mentioned above.

## 5. Conclusion

This paper has the limited objective of showing that the use of membership fees at shared facilities, such as private golf courses, is not per se evidence of inefficient pricing as implied by the club theory literature on variable usage. The alleged inefficiency stems from an assumed separation of the joining and use decisions of members and the definition of congestion used. The literature has ignored the importance of the opportunity cost of time both in limiting the number of visits per year and aligning the joining and use decisions of potential members. By assuming that consumers are identical, the literature on variable usage has also implicitly ignored the role served by membership fees in excluding consumers who would choose to use the facility on an infrequent basis if allowed to pay a per-use fee. In addition, the simplified nature of congestion assumed ignores the positive externalities that members receive from a members-only club, even if the number of aggregate visits are the same as at a public facility of comparable quality.

While a non-refundable initiation fee is a true sunk cost, the membership fee is only fixed for the golfing season. Payment of an initiation fee, which is normally non-refundable, implies an even longer commitment to the club and its members.<sup>8</sup> Willingness to make this long-term commitment to the club, despite the possibility of somewhat higher per round costs due to the congestion associated with a higher aggregate number of rounds played, implies that there are other benefits from restricting the number of members that are missing from the current models. Membership and initiation fees signal to potential members that these characteristics will be a part of the golfing experience. Given the wide range of pricing options available, golfers who value these characteristics of a private club, want to play at least the minimum number of rounds implied

by paying the fixed fees of membership, and have the income will self-select this option among the many types offered by the market.

This paper does not attempt to construct a complete model of a private golf course that accounts for related services subject to congestion, such as swimming pools, tennis courts, locker rooms and dining facilities. My focus has been on the limitation of the club literature's definition of congestion to the aggregate number of rounds of golf. Prior to building a more general model that incorporates all of the related services provided by a club, one must first have a clear understanding of the nature of congestion that occurs for the use of each of the individual services. By accounting for the exclusionary role of a membership fee, incorporating the opportunity cost of time, refining the nature of congestion assumed, and focusing on the positive externalities intrinsic to limiting use of the course to golfers who use the golf course repeated times, one can explain much of the use of membership fees in practice at private clubs without having to resort to market power and transactions costs explanations. As Buchanan wrote, "the theory of clubs is, in one sense, a theory of optimal exclusion, as well as one of inclusion" (p. 13).

More generally, this research implies that there is value in accounting for the importance of time costs and detailing the nature of congestion for specific club goods. While an all-inclusive model with a generic definition of congestion fitting all applications of club goods is a worthy objective, it should not be at the expense of being able to explain the real-world applications that the model claims to incorporate. This point, I believe, is at the heart of Cornes and Sandler's concern about the need for testing club theoretic models relevance to the applications being modeled.

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## NOTES

1. Detailed surveys of the entire literature on club goods can be found in Cornes and Sandler (1996) and Sandler and Tschirhart (1997).
2. Actually, Buchanan did address the issue of variable usage in a footnote: “the model applies equally well, however, for those cases where cost shares are allocated proportionately with predicted usage...membership in the swimming club could, for example, be defined as the right to visit the pool one time each week. Hence, the person who plans to make two visits per week would in this modification hold two memberships.” (p. 8)
3. This overall assessment of the role of membership fees can also be found in Sandler and Tschirhart’s survey of the literature.
4. The pricing options are even more varied at some public courses with the additional option of paying a fixed, annual fee along with a lower per use fee. At some courses one can pay a fixed fee in order to have preferred tee times during peak periods. More importantly, these pricing options are available to anyone wishing to choose them. On the other hand, there is also the option of paying only a per-use fee. See Smanske (1998) for a complete discussion of the various pricing options available at public golf courses.
5. The typical private golf club with 18 holes has approximately 650 members. On the other hand, a new ski area, Bear Creek Mountain Club in Plymouth, Vermont, advertised in the Fall of 2000 that it plans to operate as a private club of no more than 2,650 members. The ski area will operate similarly to a private golf club, with an initiation fee and annual dues.
6. See Smanske (1998) for a more detailed discussion of golf course quality and pricing and Mulligan and Llinares (2000) for a comparable discussion for ski areas.
7. As in the case of Buchanan, I ignore the social reasons for joining an exclusive club and focus,

instead, on the market reasons: “The individual remains indifferent as to which of his neighbours or fellow citizens join him in such arrangements. In other words, no attempt has been made to allow for personal selectivity or discrimination” (p. 13).

8. The opportunity cost of time varies over the life cycle with teenage, college-age, and retired golfers likely to have lower time costs and, thus, likely to play more often. However, even these groups have alternative uses for their time. While retirees are likely to play more often than those with full-time jobs, they are also more likely to face physical limitations that curtail the number of rounds played. Counter to the implications of this literature, both public and private golf facilities usually charge these groups of golfers relatively lower per-use and annual membership fees than those in the prime working ages, despite their lower opportunity cost of time and their increased frequency of play.