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HOW DOES CLUBS' ORGANIZATIONAL DESIGN AFFECT COMPETITION AMONG CLUBS?

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How does clubs' organizational design affect competition among clubs?*

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March 26, 2007

Abstract

We analyze competition among clubs in which the status of club members is the crucial added value accruing to fellow club members through social interaction within the club (e.g. in country clubs, academic faculties, or internet communities). In the course of competition for new members, clubs trade off the effect of entry on average status of the club and candidates' monetary payment via an entrance fee. We show that the best candidates join the best clubs but they pay higher entrance fees than some lower-ranking candidates. We distinguish among various decision rules and organizational set-ups, including majority voting, unanimity, and meritocracy. We find that, from a second-best welfare perspective, the unanimity rule leads to inefficient exclusion of some candidates, while meritocracy leads to inefficient inclusion. Our main policy implication is that consensus-based clubs, such as many academic faculties in Europe, could improve the well-being of their members if they liberalized their internal decision making processes.

Keywords: club theory, status organizations, design of decision making, collective action
JEL Classification: D71, L22, L31

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Abstract

We analyze competition among clubs in which the status of club members is the crucial added value accruing to fellow club members through social interaction within the club (e.g. in country clubs, academic faculties, or internet communities). In the course of competition for new members, clubs trade off the effect of entry on average status of the club and candidates' monetary payment via an entrance fee. We show that the best candidates join the best clubs but they pay higher entrance fees than some lower-ranking candidates. We distinguish among various decision rules and organizational set-ups, including majority voting, unanimity, and meritocracy. We find that, from a second-best welfare perspective, the unanimity rule leads to inefficient exclusion of some candidates, while meritocracy leads to inefficient inclusion. Our main policy implication is that consensus-based clubs, such as many academic faculties in Europe, could improve the well-being of their members if they liberalized their internal decision making processes.

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1 Introduction

Country clubs, academic faculties, social networks as well as internet clubs share one common characteristic: they are status organizations. The interaction among the members of these organizations increases the utility for the individual member. The value of interaction depends on the status of the individual member. The higher the status of an individual member (e.g. in an academic faculty the ability to publish high-quality research, or in a country club, the social status) the more valuable this member is for others. Status is a vertically differentiable and rival good. The more members interact with members of high social status, the less valuable this interaction becomes individually. We focus on this wide range of organizations and study how various decision making rules within the clubs affect competition among them for new members.

Thereby, our focus is on the development rather than the formation of clubs (the two main strands of the economics of organizations and clubs).[1] We will concentrate on two main questions. First, what are the main implications of the competition among clubs regarding the allocation of new members and the distribution of the resulting surplus? Or to put it more succinctly: will top PhDs join the best or just second tier universities and for which salaries? Second, what is the impact of alternative decision making regimes and organizational set-ups (e.g. majority voting, unanimity with or without side payments) on this and how do they compare in terms of social welfare?

We will show that new candidates with the highest status levels join the club with the highest average status. New potential candidates with low status levels either join the club with a low average status or are not accepted by any club at all. Furthermore, we will show that new entrants with low status levels are unable to appropriate any surplus from joining the club. In contrast, members with higher status are protected by competition among the clubs and therefore share the surplus with old club members.

With respect to the different decision rules and organizational set-ups we find that, under the unanimity rule, clubs are more reluctant to let new candidates join than under majority voting, leading to overexclusion of new candidates. In contrast, with meritocracy (i.e. the club member with the highest status level decides) our analysis predicts overinclusion of new members. That is, from the point of view of old club members as well as from a welfare perspective majority voting turns out to be the most efficient decision making rule. This finding translates to our main policy implication, that consensus-based clubs such as many academic faculties in Europe could improve the well-being of their members (and society at large) if they liberalized their internal decision making processes.

We model competition among clubs for new candidates in a two-club-framework. The

[1] Henceforth, we will use the terms *status organizations* and *clubs* interchangeably. For the sake of clarity, the term *clubs* will be used more frequently.

two clubs with a given number of old club members with given status levels differ in their average status levels. A high average status club (e.g. Harvard University) competes with a club with lower average status level (e.g. State University X). Old and new members trade off the utility they receive via the average status levels of their companion club members against the fees they have to pay for covering the costs of the resources necessary to run the club (the research facilities of the university, the club house of the golf club, the software platform of the internet club, etc.). The higher the average status of his fellows, the higher the utility for a club member. Due to the fact that status is a rival good in our model, entry of a new candidate with a lower than average status leads to a dilution of the status gains for the old members. This dilution effect can, however, be overcompensated for by the entrance fee paid by the new candidate.

The paper is organized as follows. In the next session we provide an overview of the related literature. In section 3 we outline the basic model and look into the competition of two clubs in the presence of majority voting. In section 4 we characterize the equilibrium in this set-up. In section 5 we turn to alternative voting schemes, for which we investigate the emerging allocation after club competition for new candidates. Section 6 is devoted to welfare implications of the model. In section 7 we discuss robustness of our main assumptions, while in section 8 we derive testable hypotheses from our analysis and conclude.

2 Related Literature

Our analysis forms part of the existing literature on club formation and competition, whereby we focus on the latter. The distinguishing feature between most of this large body of literature and our paper is that the vast majority of papers on club competition has focused on the idea that (some) clubs can be interpreted as social status organizations in which non-monetary characteristics of particular club members (which can be ranked vertically) play a crucial role. Taking this often crucial, but neglected, aspect of clubs into account leads us to a different model and allows us to depict club competition in a completely new manner.

We can identify four different branches of literature related to our work. First, one has to mention the seminal works on the economic theory of clubs which were published in the 1960s. Most notably, Buchanan (1965) and Olson (1965) initiated a major wave of research on the economic theory of clubs and club goods which was to be further developed in the decades following. Sandler and Tschirhart (1980) have prepared a survey of the first half of this, while Cornes and Sandler (1996, ch.11) provide an overview of the more recent literature. Therein, a club good has three major characteristics distinguishing it both from private and public goods. First of all, clubs are voluntary organizations. Hence, each and every member has to obtain a net benefit from joining a club. Second, clubs are subject to a congestion function, i.e. their optimal size is finite, since a club's resources are limited. Third, the feasibility of clubs depends on the existence of an exclusion mechanism to prevent unlimited dilution of the club's resources by unbounded access of new candidates.[2] Our paper is in line with this definition dealing specifically with various aspects. As in Ellickson et al. (1999), we deal with the individual characteristics of new and incumbent club members and the interrelation of a club's aggregate characteristics and its competition for new candidates. In contrast to them, we do not explicitly calculate the optimal size of clubs but equilibrium levels of admittance fees for one new candidate. Helsley and Strange (1991) too, compare discriminating pricing schemes, but our paper, furthermore, endogenizes clubs' governance structure.[3]

The second branch of literature we refer to analyzes the optimal size and structure of political jurisdictions, which could be regarded as clubs on a macroeconomic or political level. While Bolton and Roland (1997) model the basic trade-off in terms of the breakup or unification of nations, Casella (2001) focuses on the relationship between jurisdictions and overall market size. Wacziarg et al. (2003) include growth in their model, which is empirically tested by Alesina et al. (2004). Casella and Frey (1992) discuss the issue of overlapping political jurisdictions in a European context. From a formal perspective, these models either distinguish between individuals horizontally, e.g. concerning preferences, or vertically, e.g. with regard to income. But in contrast to our analysis, which looks into the interplay between the change of the social status situation in the club that can be attributed to new entry and monetary transfer, the interchange between new members and old members just takes place via monetary transfers.

This is also the main difference between our model and the third strand of related literature, which comprises Tiebout models in the strict sense (see e.g. Wildasin (1986) or Wellisch (2000) for an overview). Those models study the competition of jurisdictions in the presence of mobile households and/or capital.[4] The main policy areas thereby are either of an allocative nature (public provision of goods) or of a distributive nature (redistribution among different members of a jurisdiction) (see e.g. Pauly (1974)). One part of this literature analyzes competition for mobile households in a system of jurisdictions (see e.g. Epple/Sieg (1999), Benabou (1996) and Epple/Romer (2001)). These articles ask for potential sorting of households along household income. There, however, vertical differentiation of households takes place only in income levels. The potential trade off between vertically

[2]Therefore, Cornes and Sandler (1996, p.353 and p.347) also call club goods “impure public goods” or ”excludable (rivalrous) public goods”.

[3]For more details on collective choice schemes, see Zusman (1992).

[4]The second and third branches of our literature review are somehow interlinked. But whereas the second branch investigates the question of optimal club size and club formation, the Tiebout type literature is more concerned with competition of existing jurisdictions and therefore closer related to our main theme.

structured non-monetary contributions to the well-being of club members (such as social status) and monetary payoffs, which is in the center of our paper, is not a topic there.

Our paper builds on the idea of clubs as status organization being introduced by Hansmann (1986, 1996).[5] Hansmann (1986), however, regards the formation of a club system while we assume that clubs already exist. In contrast to Hansmann, we focus explicitly on the strategic competition between two existing clubs and the decision making process behind it.[6] The papers most closely related to ours are, however, Epple/Romano (1998, 2002) who analyze the competition among private and public schools for pupils in a world where peer effects make school quality dependent on the ability composition of a school's student body. Epple/Romano (1998) show that the competition of tax-financed public schools and profit-maximizing private schools leads the latter to skim off the wealthiest and most able students. We differ significantly by looking at competition among clubs that have similar objective functions and where club decisions are determined by existing members rather than a profit-maximizing investor. Moreover, our focus is on the effect of various decision making rules within clubs on competition among them.

3 The Model

3.1 Status, utility and entry

We model two clubs which compete for a new candidate. The total population of old club members consists of $N + 1 \in \mathbb{N}_+$ individuals which are distributed across the two clubs, whereby N is assumed to be an odd number. Individuals are, with the exception of their status position, identical. The status position describes their relative value for fellows in social exchange processes and can be attributed to a wide set of characteristics such as income, wealth, abilities, skills and network relations.

Status positions of old members are assumed to be uniformly distributed on a vertical line ranging from $\underline{s}$ to $\bar{s}$.[7] The endpoints of the lines are populated by one individual each. We rank individuals along the status line, i.e. a lower number n_i of an individual indicates a higher status position. The first individual (with $n_i = 0$) has the highest status level, $\bar{s}$,

[5]Hansmann (1986, p.122) explains that "clubs" are a "prototypical example of status organizations".

[6]Two other papers, which are rather closely related to the present one, are De Serpa (1977) and Baku (1989). Both are related to the basic notion of clubs as social status organizations with, however, a focus that is significantly different from ours. De Serpa (1977), by explicitly modelling the role of social interactions in clubs, analyzes potential sources for inefficiency associated with club formation and competition. Baku's (1989) main focus is on an excess-demand equilibrium. He basically argues that if club members value social status, it pays for a profit-maximizing club owner to ration access to clubs in order to avoid dilution.

[7]We will discuss the implications of relaxing this assumption in section 7.

whereas the individual at the other endpoint of the vertical line with $n_i = N$ has the lowest status, $\underline{s}$. All individuals with higher status positions are members of the more exclusive club A, which has $n_A + 1$ members, whereas the remaining individuals $(N - n_A)$ are members of club B, the less exclusive club. Figure 1 summarizes the distributional assumptions.

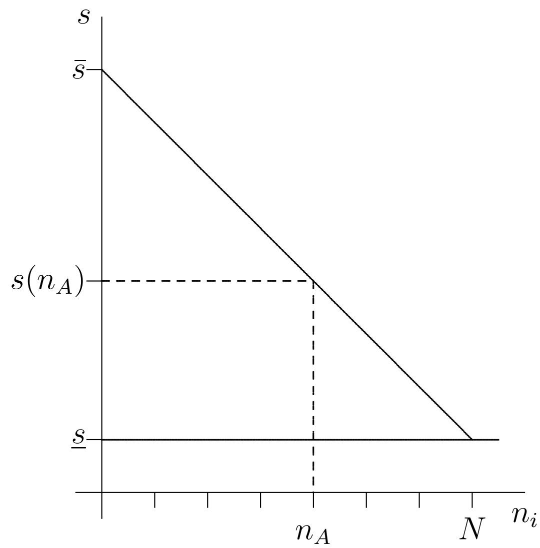

Figure 1: Status distribution (for $n_A = 4$ and $N = 7$)

A functioning club, which allows for active cooperation and social exchange among the club members, requires financial resources in order to cover operating costs, which are borne by all club members.[8] By means of cooperation and social exchange club members can increase their well-being. This effect hinges on the average social status of the other club members, where status is a rival, non-tradeable good, meaning that each member dedicates a fixed amount of resources to supporting the aggregate of his fellows.[9] Support follows a random exchange among club members. Therefore, in expectation, each member gains an equal share of a fellow's support. Social exchange and/or cooperation is the more productive and valuable the higher the social status of the counterpart. Hence, we depict the utility function of a particular member k in club j as:

$$U_j^k = \theta \hat{s}_j^k - c_j \tag{1}$$

whereby $\hat{s}_j^k$ denotes the average status of all the other members in club j from the point of view of club member k, c_j denotes the per-head operating cost of club j and $\theta \in (0, 1]$ denotes

[8]We assume these operating costs to be so large that it is prohibitive for a subset of members (or new candidates) to form a third club. Without this assumption we would shift our focus from competition of clubs to club formation. The latter, though, has been already researched (e.g. by Hansmann (1986)) and is not of our primary concern.

[9]This notion of the status variable is different from status being equal to reputation, which is a non-rival good.

the relative preference of status versus money in the economy.[10] Our linearity assumption does not put any particular weight on either of the two arguments of the utility function, besides θ: average status and monetary effects (the membership fee) are perfect substitutes (see, however, footnote 13) . The marginal rate of substitution between status and money is constant for all players and hence independent of own status.

For member k in the more exclusive club A the average status of all *other* club members is:

$$\hat{s}_A^k = \frac{\sum_{i=0}^{n_A} s^i - s^k}{n_A}, \tag{2}$$

whereas for the less exclusive club B we have:

$$\hat{s}_B^k = \frac{\sum_{n_A+1}^{N} s^i - s^k}{N - n_A - 1} \tag{3}$$

with s^i denoting the status of the $i-th$ member.

A candidate who is accepted as new member of the club[11] affects both arguments of the utility function of the old club members. First, the new candidate changes the average status value of the remaining club members for old member k to:

$$\hat{s}_A^k = \frac{\sum_{i=0, i\neq k}^{n_A} s^i + s^C}{n_A + 1} \tag{4}$$

in club A, with s^C denoting the status of the candidate. The corresponding expression for club B is:

$$\hat{s}_B^k = \frac{\sum_{n_A+1}^{N} s^i - s^k + s^C}{N - n_A}. \tag{5}$$

Second, with his entrance fee in club j, $f_j \geq 0$, the candidate contributes partially to covering the financial burden.[12] We assume that the old members benefit only partially from the new entrant, i.e. the membership fee of the new entrant reduces the financial burden of the old members in club j by αf_j. The fact that $\alpha < 1$ depicts the notion that the services of the club are not a purely public good but rather increase less than proportionally with additional club members. Alternatively, we can interpret this as frictions in the transfer of money between old and new club members which might be due to the fact that, for example,

[10] Subscripts denote clubs, superscripts denote individuals.

[11] As customary in many Tiebout type models, we assume all old members to be immobile because of switching costs. The new candidates, however, are mobile and, hence, can choose to apply at any of the two clubs. Candidates could be young researchers who have to relocate after obtaining a Ph.D. degree, while old members are settled professors for whom switching clubs/faculties is prohibitively costly. We will discuss this assumption in section 7.

[12] We assume that clubs face some budget constraint. $f_j \geq 0$ meets this assumption without loss of generality. In the model interpretation where clubs actually pay entrants, e.g. young Ph.D. researchers, to enter the club, $f_j = 0$ characterizes the maximum salary a club can offer and $f_j > 0$ refers to lower salaries.

the additional resources can only be consumed in the form of perks (better club services) rather than as a reduction of membership fees.[13]

3.2 Majority voting in clubs

We start by focusing on the case in which majority voting in clubs prevails. Later on, we will address other rules of decision making in the clubs as well. This implies that the median club member is the one who actually determines the decisions of the club. The fact, that the median along the status line is the median voter, stems from the strict monotonicity of the utility gains from the new member. This characteristic can be shown as follows.[14] The utility differential (i.e. the utility after entry occurred minus the utility level before entry took place) of the k-th individual in club A is:

$$\begin{aligned} \Delta_A^k &= \theta \frac{\sum_0^{n_A} s^i - s^k + s^C}{n_A + 1} + \alpha \frac{f_A}{n_A + 1} - \theta \frac{\sum_0^{n_A} s^i - s^k}{n_A} \\ &= \theta \frac{s^k - \sum_0^{n_A} s^i}{n_A(n_A + 1)} + \frac{\alpha f_A + \theta s^C}{n_A + 1} \end{aligned} \tag{6}$$

which is strictly increasing in s^C and the rank of k within the club. Therefore we obtain

Lemma 1 *Old club members with lower status rank gain less (or lose more) from a candidate's entry than members with higher status. The minimal status level of a new member required by an individual old member k is lower, the higher the status rank of this old member.*

The lowest ranking old member of club A, n_A, without entry enjoys a gross utility of $\theta \frac{\sum_{i=0}^{n_A} s^i - s^{n_A}}{n_A}$ which is strictly *larger* than the highest ranking member's, 0's utility, $\theta \frac{\sum_{i=0}^{n_A} s^i - \bar{s}}{n_A}$. Upon entry of any new member, this advantage is diluted. Hence, n_A suffers more than proportional from entry, which is expressed by (6). As for increasing N (or n_A) this difference diminishes, our analysis is best suited for smaller numbers of old members.

We model the competition among the two clubs for new entrants as a two-stage game. In the first stage, both clubs A and B simultaneously decide on the entrance fee demanded by the new entrant, f_j, and whether they are willing to allow the entrant to enter at all (i.e. they choose a minimum status level, $s_{j,min}$, for the entrant). In the second stage, the new entrant chooses the club which provides him with the highest utility and accepts his entry. In both stages of the game, complete information prevails. We solve this game by backward induction for a subgame perfect solution.

[13] Moreover, the introduction of α relaxes our assumptions of status and money being perfect substitutes. Any friction in the model that could be reached by assuming concave utility of status or convex operating costs (with respect to the number of members of a club) can be reinterpreted with reference to $\alpha < 1$ but with significantly less calculus.

[14] We derive this characteristic for club A only. The same procedure applies to club B and is straightforward.

4 Equilibria

4.1 The candidate's decisions

In the final stage of the game the entrant has to decide between two issues: Should he join a club at all and, if so, which one? The candidate will join a club j if the utility this option offers is positive:

$$\theta \hat{s}_j^C - f_j \geq 0, \tag{7}$$

with $\hat{s}_j^C$ denoting the average status of the old members of club j from the perspective of the new club member, C. We will refer to this inequality as the *participation constraint* of the entrant in club j, (PC_j). It implies that entry will take place if, and only if, the expected gains from interaction with the other club members are not lower than the costs associated with the entrance fee.

Given that the entrant will join any club at all, he will choose the one which offers him the highest net utility, meaning that he will prefer club j over club q if

$$\theta \hat{s}_j^C - f_j > \theta \hat{s}_q^C - f_q. \tag{8}$$

If this inequality holds for the equality sign, we will call it the *indifference condition* (IC) of the entrant. For matters of completeness we assume that, in this case, the candidate will join club A. Using this and rearranging (8), we know that club A has to make sure that

$$f_A = \theta(\hat{s}_A^C - \hat{s}_B^C) + f_B \tag{9}$$

for being able to make an offer that leads the candidate to prefer membership in club A over club B. Assuming the anticipated behavior of the entrant, we will now address the optimal behavior of the clubs.

4.2 The choices of the clubs

In the first stage of the game, clubs A and B can perfectly predict the candidate's behavior. They compete by simultaneously choosing a tuple, $(s_{j,min}, f_j)$,

The decision problem of the pivotal (median) member of club j is to maximize the utility differential $\Delta_j^{m_j}$ he will receive from entry of the candidate subject to the candidate's willingness to join club j (and not the other club, q):

$$\begin{aligned} \text{Max}_{s_{j,min};f_j} \quad & \text{argmax}\left\{\Delta_j^{m_j}, 0\right\} \\ & s.t. \\ & \theta \hat{s}_j^C - f_j \geq 0 \\ & \theta \hat{s}_j^C - f_j > \theta \hat{s}_q^C - f_q. \end{aligned} \tag{10}$$

with

$$\Delta_A^{m_A} = \theta \frac{\sum_0^{n_A} s^i - s^{m_A} + s^C}{n_A + 1} + \alpha \frac{f_A}{n_A + 1} - \theta \frac{\sum_{i=0}^{n_A} s^i - s^{m_A}}{n_A} \tag{11}$$

and

$$\Delta_B^{m_B} = \theta \frac{\sum_{n_A+1}^{N} s^i - s^{m_B} + s^C}{N - n_A} + \alpha \frac{f_B}{N - n_A} - \theta \frac{\sum_{n_A+1}^{N} s^i - s^{m_B}}{N - n_A - 1} \tag{12}$$

Note that the second side constraint for club A may hold with equality.

As a first step towards deriving the subgame perfect equilibrium we analyze the minimal status requirements of the respective clubs as function of the entrance fees.

Therefore, we use the indifference condition, which club A has to make sure is holding, and solve $\Delta_j^{m_j} = 0$ for s^C leading us to:[15]

$$s_{A,min}(f_B) = \frac{\sum_0^{n_A} s^i}{n_A + 1} - \alpha \cdot \left(\frac{\sum_0^{n_A} s^i}{n_A + 1} - \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} \right) - \frac{\alpha}{\theta} f_B \tag{13}$$

and

$$s_{B,min}(f_B) = \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} - \frac{\alpha}{\theta} f_B. \tag{14}$$

Since $\Delta_j^{m_j}$ is strictly increasing in s^C, this implies that club j will not make any *acceptable* offer to candidates with $s^C < s_{j,min}$.

Comparing the minimum status position determined by the two clubs we find:

$$s_{A,min} - s_{B,min} = (1 - \alpha) \left(\frac{\sum_0^{n_A} s^i}{n_A + 1} - \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} \right) > 0$$

The strict inequality sign holds by definition, i.e. due to the fact that the average status of the more exclusive club A is higher than the one of club B. Thus, we can state:

Lemma 2 *The more exclusive club A makes offers to entrants with a relatively higher status level. The required minimum status position of club B is strictly lower than the one of club A (i.e.* $s_{A,min} > s_{B,min} \forall f_B$*).*

Both $s_{A,min}$ and $s_{B,min}$ depend on f_B. This makes f_B a strategic tool in the hands of club B: by reducing f_B and thus raising $s_{A,min}$, under certain circumstances club B can prevent club A from making an offer to the candidate that is attractive for both, the candidate and club A.

[15] Henceforth, when writing $s_{j,min}$ we implicitly refer to $s_{j,min}(s^k)$, where k is the pivotal old club member in the specific decision making process.

To prepare characterization of the subgame perfect equilibrium below we define:

$$
\begin{aligned}
f_B^E &\equiv \theta \frac{\sum_{n_A+1}^N s^i}{N-n_A} \\
f_B^+ &\equiv \theta \frac{\sum_{n_A+1}^N s^i}{N-n_A} + \frac{(1-\alpha)\theta}{\alpha} \cdot \frac{\sum_{i=0}^{n_A} s^i}{n_A+1} - \theta \frac{s^C+\epsilon}{\alpha} \\
\text{and} \qquad \tilde{f}_A &\equiv \theta \left(\frac{\sum_0^{n_A} s^i}{n_A+1} - \frac{\sum_{n_A+1}^N s^i}{N-n_A} \right)
\end{aligned}
$$

In addition, we henceforth assume that the inefficiency of the money transfer, $(1-\alpha)$, is sufficiently large:[16]

$$
\alpha \leq \frac{s^{m_j} - \underline{s}}{s^{m_j}}. \tag{15}
$$

We prove in the appendix:

Proposition 1 *The subgame-perfect equilibrium is characterized by actions depending on the status of the candidate s^C:*
(i) Region IV: A candidate with very low status, $s^C < s_{B,min}(f_B^E)$, does not get an acceptable offer from either club.
(ii) Region III: A candidate with low status level, $s^C \in [s_{B,min}(f_B^E), s_{A,min}(f_B^E))$, only gets an acceptable offer from club B, where $f_B = f_B^E$. He chooses to join club B but will not get any surplus from entry.
(iii) Region II: A candidate with medium status level, $s^C \in [s_{A,min}(f_B^E), s_{A,min}(f_B = 0))$, receives acceptable offers from both clubs, where $f_B = f_B^+ < f_B^E$. He chooses to join club B and gains strictly positive utility (increasing in s^C).
(iv) Region I: A candidate with high status level, $s^C \in [s_{A,min}(f_B = 0), \bar{s}]$ receives acceptable offers from both clubs. He joins club A. The entrance fee of $\tilde{f}_A$ leaves him a utility gain from entry (constant in s^C). The higher s^C is the higher the gains of the club.
(v): The club losing the competition for the candidate in a region prices entry as competitive as possible (such that $\Delta_j^{m_j} = 0$ for that club.)

Figures 2 (delineating the allocation of entrants to clubs) and 3 (plotting the fees paid to the "winning" club) illustrate Proposition 1:

In region IV, it is obvious that candidates with very low status would not be willing to pay an entrance fee that satisfies the median member m_B (let alone m_A). Hence Proposition *1.(i)* follows. For candidates in region III, club B is protected from competition of club A

[16] The existence of region IV (and region III) described in Proposition 1 depends on assumption (15) to hold for $j = B$ (and $j = A$). If the exogenous efficiency exceeds that threshold, all candidates are accepted in some club (and no candidate is completely exploited).

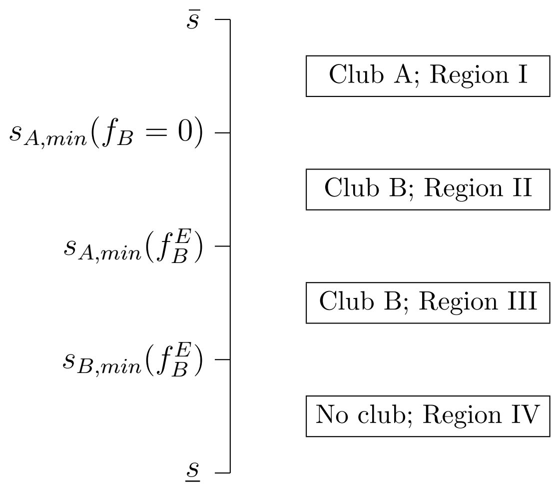

Figure 2: Stratified segmentation of candidates in clubs A and B

since m_A would only want to compete for the candidate if being remunerated extensively—which would violate (PC_A). This lets club B yield all surplus generated by entry of the candidate. In region I, on the other hand, club A is protected from intense competition since club B, because of its budget constraint, is not able to offer high ranking candidates a level of utility via the combination of old members' average status and the entrance fee that exceeds club A's. As a consequence, club A yields some surplus. Because of part *(v)* of Proposition 1 club A cannot completely exploit the candidate, however, leaving some surplus generated by entry with the candidate. In region II, competition for the candidate is most intense: no club is protected from very competitive bids of the other club, which lets the candidate enjoy a share of surplus generated from entry that increases in her own status.

The intuition of Proposition *1.(v)* is that the "losing" club j neither has an incentive to ask for a lower fee than the most competitive fee (this would violate $s_{j,min}$ and make $\Delta_j^{m_j} < 0$) nor to ask for a higher fee (this would make membership in club j even less attractive for the candidate and would not change m_j's surplus of zero). Given this strategy of the losing club, the "winning" club's best response, according to the arguments above, is to ask f_B^E, f_B^+ and $\tilde{f}_A$ in the respective regions III to I.
For matters of completeness, note that in figure 3 we plotted equilibrium fees of the winning club for $\bar{s} > N + 1 + \frac{n_A}{2}$.[17]

As a direct consequence of Proposition 1, we have:

Corollary 1 *In equilibrium, there is no convergence of clubs with respect to status levels, rather the difference in average status levels across clubs is perpetuated.*

This is due to the fact that, generally speaking, the best candidates (with $s^C \geq s_{A,min}(f_B =$

[17] If that inequality did not hold, $f_B^E \leq \tilde{f}_A$. f_B^+ in region II would adjust accordingly starting from the level of f_B^E at $s_{A,min}(f_B^E)$ and decreasing linearly to a value of zero at $s_{A,min}(f_B = 0)$.

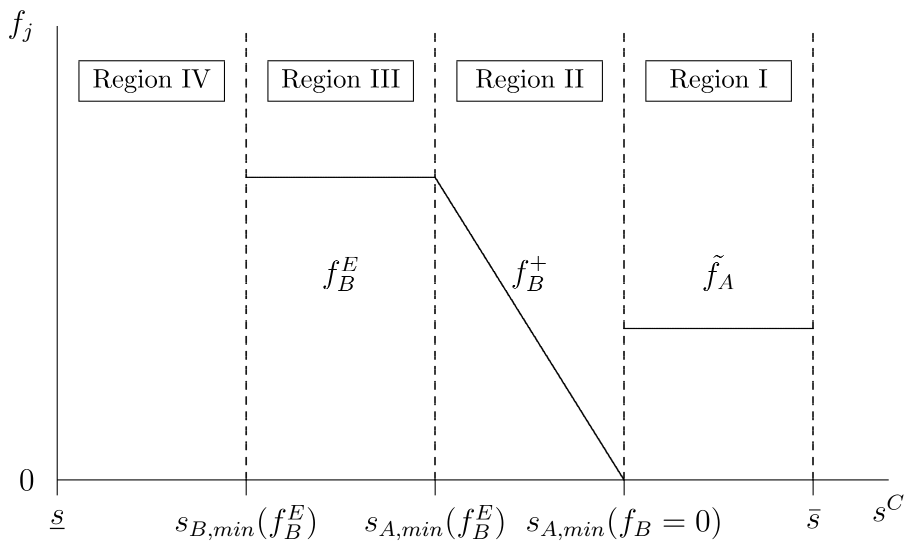

Figure 3: Entrance fees of the "winning" club

0)) join the best old members in club A, whereas lower ranking candidates join related old members in club B, or even do not gain access to any club at all.[18] Similarly, as a direct consequence of Proposition 1 we have:

Corollary 2 *The highest ranking new candidates (in region I) pay* higher *fees than some candidates with relatively lower status (the best in region II).*

In other words, top ranking scientists, for instance, according to our model, prefer to join a top ranking faculty for comparatively low remuneration (= higher entrance fees), and scientists with lower status join lower ranking faculties for a comparatively high salary. Figure 3 visualizes this idea.

4.3 Different preferences for status

Up to now our analysis used the assumption of a given relative preference for status. We will relax this assumption now and ask about the implications for club competition if we consider settings in which individuals value status relatively less. Or to put it differently: how does the nature of club competition change if individuals value monetary transfer relatively more than status?

For this purpose we alter θ in the equilibrium values for the borders of Proposition 1's regions and the winning bids. This gives us:

[18]Note that, if we allowed old club members to switch clubs after entry of the candidate occurred (which we abstract from), Corollary 1 would still be valid: depending on parameters, either the lower status members of club A, who gain least from entry due to Lemma 1, would switch to club B, or the highest ranking members of club B would switch to club A (because lower ranking club B members would not be accepted in club A). As a consequence, average status in club A would still be larger than average status in club B.

Corollary 3 *If preferences for status are lowered, this (i): has no impact on the minimal status levels the two clubs demand and (ii): implies that the entrance fees in regions I-III are reduced as long as $s^C \neq s_{A,min}(f_B = 0)$. With $s^C = s_{A,min}(f_B = 0)$ club A's entrance fee remains constant with a lower θ.*

Proof: i) A glance on $s_{B,min}(f_B^E)$, $s_{A,min}(f_B^E)$, and $s_{A,min}(f_B = 0)$ reveals that they do not depend on θ.
ii) Taking first order derivatives yields: $\frac{\partial f_B^E}{\partial \theta} > 0$, $\frac{\partial f_B^+}{\partial \theta} > 0$ and $\frac{\partial \tilde{f}_A}{\partial \theta} > 0$ for all $s^C \neq s_{A,min}(f_B = 0)$.

The intuition behind this is the following. The minimal status levels are affected twofold. On the one hand, lower preferences for status diminish the entrant's willingness to pay for entering the club implying *ceteris paribus* that the clubs would become more restrictive. On the other hand, however, the dilution effect which accompanies the entrance of new members becomes less important from the point of view of the old club members making them more liberal with regard to the minimal status levels. Here, these two effects just cancel.

The intuition for the second part of Corollary 3 is the consequence of our first effect: with lower θs new club members value entry less. Therefore, the clubs can only charge lower entrance fees. This also explains why Corollary 3.*(ii)* makes an exemption at $s^C = s_{A,min}(f_B = 0)$, where the outside option of the candidate, f_B, cannot be reduced further. Hence, at that point the entrance fee, $\tilde{f}_A$, does not have to be reduced, too.

5 Alternative Voting Schemes

In this section, we discuss three other voting schemes, *meritocracy* and *unanimity with and without side-payments.*

5.1 Competition in the Presence of Unanimity Voting

Let us begin by looking at unanimity voting in the absence of any side payments (consensus based voting). In this situation every old club member has a veto right. As a first step we have to find the pivotal member in each club. The utility differential of the k-th old member in a club via entry of a new member is strictly increasing in his own status rank (see Equation (6). This implies that in club j the old member with the lowest status position is decisive.

In contrast to our basic model, now, the member in club j with the lowest status position (being located at n_A in club A and at N in club B) solves the maximization problem (with

m_j replaced by n_A or N in Eq. (11), respectively) yielding:

$$s^{veto}_{A,min}(f_B) = \alpha \cdot \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} - \frac{\alpha}{\theta} f_B + \left((1-\alpha) + \frac{1}{n_A}\right) \cdot \frac{\sum_{i=0}^{n_A} s^i}{n_A + 1} - \frac{s^{n_A}}{n_A} \tag{16}$$

and

$$s^{veto}_{B,min}(f_B) = \frac{\sum_{n_A+1}^{N} s^i - s^N}{N - n_A - 1} - \frac{\alpha}{\theta} f_B \tag{17}$$

This allows us to derive the respective borders of the regimes as stated in Proposition 1. Substituting f_B^E (which remains the same) in (16) gives us:

$$s^{veto}_{A,min}(f_B^E) = \left((1-\alpha) + \frac{1}{n_A}\right) \cdot \frac{\sum_{i=0}^{n_A} s^i}{n_A + 1} - \frac{s^{n_A}}{n_A} > s_{A,min}(f_B^E) \tag{18}$$

In the same manner we find:

$$s^{veto}_{A,min}(f_B = 0) = \alpha \cdot \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} + \left((1-\alpha) + \frac{1}{n_A}\right) \cdot \frac{\sum_{i=0}^{n_A} s^i}{n_A + 1} - \frac{s^{n_A}}{n_A}$$
$$> s_{A,min}(f_B = 0) \tag{19}$$

and

$$s^{veto}_{B,min}(f_B^E) = \frac{\sum_{n_A+1}^{N} s^i - s^N}{N - n_A - 1} - \frac{\alpha}{\theta} f_B^E > s_{B,min}(f_B^E) \tag{20}$$

This implies that fewer potential entrants will join either of the two clubs (since $s^{veto}_{B,min} > s_{B,min}$) and fewer entrants will join club A.
Since

$$s^{veto}_{B,min} - s_{B,min} = s^{veto}_{A,min} - s_{A,min}, \tag{21}$$

the ranges along the status line of new candidates actually joining club B move upwards but have the same size as with competition under the majority voting rule.[19] The result is that regions II and III remain the same size, region I decreases, and region IV increases (see Panel (iii) of Figure 4). This implies

Proposition 2 *In comparison to the case with majority voting in both clubs, i) with competition based on unanimity in clubs A and B, both will apply more stringent selection rules. ii) Less candidates join club A which decreases A's total surplus. iii) The number of candidates joining club B remains constant leaving B's total surplus constant, too.*

Figure 4, Panel (iii) illustrates this finding. The intuition for this is the following. Unanimity implies that the old club member which gains least from the entrance of new club members is decisive. For the old club member with the respective lowest status in the existing club,

[19] Calculations are facilitated as our linearity assumption in the status distribution allows to use $\frac{\sum_0^{n_A} s^i}{n_A+1} = s^{m_A} = \bar{s} - m_A = \bar{s} - \frac{n_A}{2}$ and $\frac{\sum_{n_A+1}^{N} s^i}{N-n_A} = s^{m_B} = \bar{s} - m_B = \bar{s} - \frac{N+n_A+1}{2}$.

the dilution effect is the largest. He has to share the existing high-status members with somebody else and therefore will be more restrictive when it comes to opening the doors for new members. This is true for both clubs. Hence, the minimal status requirements shift up symmetrically implying that fewer entrants will be allowed to join altogether (region IV shrinks) and has the consequence that fewer potential member can enter club A. Since the shift is symmetric, this implies that club B "loses" member at the lower end of the status ladder but gains members at the upper end to the same extent.

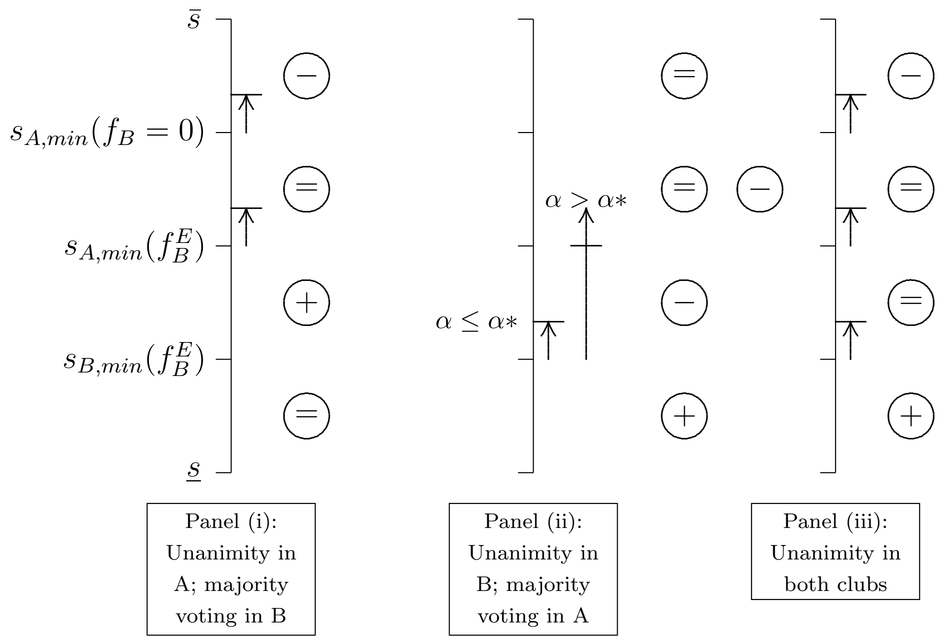

Figure 4: Unanimity and Majority Voting in the two Clubs

In addition to comparing majority voting with unanimity in both clubs we now briefly discuss a mixture of the two decision rules across club A and B. The technicalities are derived in the appendix. Figure 4, Panels (i) and (ii) give a graphical overview of the results. We distinguish between two cases. First, we consider the combination of unanimity in club A and majority voting in B. Then, we reverse it.

In the first case (unanimity in A, majority voting in B) matters are straightforward. Club A becomes, relative to majority voting more restrictive while B's optimal policy does not change. Hence region I becomes smaller, allowing club B to attract more new members, not only overall, but also in region II. This is due to the fact that the restrictiveness of club A dampens competition, allowing club B to charge on average higher fees (i.e. push more of its new members down to their participation constraint).

In the second case matters are somehow more difficult. There, club A behaves as in our main analysis while B becomes more restrictive. This leads to the question whether region III, in which club B does not face any competition and therefore can charge f_B^E, still exists. The answer depends on the realization of α. For small enough α the competition pressures are less pronounced implying that region III survives. With a large enough α, in contrast, competition leads to an elimination of region III. This is driven by the following trade-off: First, as is obvious from comparing $s_{A,min}$ and $s_{B,min}$ ((13) and (14)), these are equal for $\alpha = 1$, i.e. if there is no friction between the candidate paying the entrance fee and the old club members receiving it. The spread increases with growing distortion $(1 - \alpha)$ reflecting the fact that, in this case, old club A members value status dilution comparatively higher than monetary gains and, therefore, become more restrictive. This effect is restricted to club A because only this club has to satisfy the indifference condition which expresses the relative value of status and fees for new members. Second, as shown above, a decisive old member with lower status is more restrictive concerning new candidates' acceptance than a member with higher status. Hence, a change in club B's control structure from the median to the lowest ranking old member leads to a less liberal acceptance policy.

For $\alpha = \alpha^*$, these two effects are equal. For $\alpha < \alpha^*$, the first effect dominates. Region III shrinks but still exists, while regions II and I are unaffected. For $\alpha > \alpha^*$, the second effect dominates. No candidates will enter club B meaning that region III will disappear. The same is valid for region II if club B sets $f_B = 0$. For higher levels of f_B the upper part of region II (down to $s_{A,min}(f_B > 0)$) is served by club A. Region I remains constant. In both cases, region IV grows larger.

5.2 Meritocracy

As mentioned in section 5, an obvious alternative decision design to voting by majority or unanimity would be meritocracy, i.e. the old member of a club with the *highest* social status would hold final decision authority.

In club A, he is positioned at $n_i = 0$. According to equation (6), member 0 relative to his club fellows gains the most from a candidate's membership and hence will accept relatively lower s^C. Moreover, since we assume status to follow a uniform distribution, $\Delta_A^0 - \Delta_A^{m_A} = \Delta_A^{m_A} - \Delta_A^{n_A}$. This means that the extent to which club A becomes more restrictive by changing from median to unanimity voting equals the extent to which it becomes more liberal by moving from median voting to meritocracy. In line with this, using an analogous argumentation as above, the regions where the candidate becomes a member of the club increases. In this case, however, an increase of Region I *decreases* the aggregate surplus of club A because pivotal member 0 offers candidates to enter the club for a fee that only makes sure his own utility differential from entry is non-negative. Δ_A^i of his fellows, however, will be negative for most of them if $s^C \in [s_{A,min}^{merit}(f_B = 0), s_{A,min}(f_B = 0))$. In turn, it are exactly these candidates who have a net gain from the change in club A's decision making rule because they voluntarily join that club and were restricted to club B membership before.

The argumentation for club B is analogous. We can state:

Proposition 3 *(i) Changing from majority voting to meritocracy implies that the club member with the highest status level becomes the decision maker, which lets the club adopt a more liberal entry policy. (ii) This leads to a decrease of the club's surplus.*

5.3 Unanimity with side-payments (compensation)

A seemingly more sophisticated version of voting by unanimity is to maximize the joint utility differential of a club's old members and to allow those individual members gaining from the decision to share profits with less fortunate fellows.

However, due to our assumption of a uniform distribution of status, we have for club A: $\sum_{k=0}^{n_A}(\Delta_A^k) = \Delta_A^{m_A}$. Thus, $s_{A,min}$ under this regime would equal $s_{A,min}$ under majority voting. Since determination of $s_{A,min}$ is the main driver for the remaining results, using a compensatory scheme is not different from using "regular" majority voting. Therefore, we refrain from discussing it in more detail.

6 Welfare

Which implications does our model entail for a social planner who strives to maximize total surplus of the economy? If the candidate joins a club, the net gain in total surplus is:

$$\Delta TS \equiv \sum_{i=0}^{n_A} \Delta_A^i + \sum_{i=n_A+1}^{N} \Delta_B^i + \Delta^C = \theta s^C - (1-\alpha) f_j \tag{22}$$

If the candidate joins neither club, the net gain is zero. (22) captures a trade-off: since the candidate cannot make use of his status if he is left without club membership, his entry creates value worth θs^C. On the other hand, without entry the candidate derives utility f_j from his monetary resources. Entry shifts this sum to the old members of a club and reduces its value by the inefficiency factor $(1-\alpha)$. It is obvious that, for any given status of the candidate s^C, a first-best allocation is reached by requiring an entrance fee of $f_j = 0$ and granting the candidate access to an arbitrary club. The latter reflects the fact that, from the point of view of the old members, it is more efficient to allocate the new entrant to club B,[20] whereas the new entrant prefers joining club A. In total, the two effects just balance.

An alternative, somehow more realistic benchmark is a second-best allocation, in which the constrained social planner aims to maximize welfare while taking the entry conditions and fees as given. To obtain the second-best benchmark, let us note that ΔTS, as defined in (22), strictly increases in s^C. Using this and setting (22) equal to zero shows that the social

[20] This is due to the fact that old members in club B, on average, gain relatively more from an entrant with high status and lose relatively less from an entrant with low status than old members in club A.

planner prefers in a second-best (SB) world that all candidates characterized by $s^C \geq s_{SB,min}$ enter a club, where:

$$s_{SB,min} \equiv \frac{1-\alpha}{\theta} f_j \tag{23}$$

To compare the second-best with the equilibria derived above, recall that, according to Proposition 1, all candidates in regions I-III will gain access to a club, while candidates in region IV will be excluded from entry. Under majority voting, the marginal candidate allowed to enter a club is characterized by

$$s^C = s_{B,min}(f_B^E) = (1-\alpha)\frac{\sum_{n_A+1}^{N} s^i}{N - n_A} \tag{24}$$

and pays f_B^E . Inserting f_B^E in (23) reveals that, under majority voting, market-based competition among clubs leads to a second-best result, i.e. $s_{B,min}(f_B^E) = s_{SB,min}(f_B^E)$.

At the second-best entry-threshold, where $s^C = s_{B,min}(f_B^E)$, the candidate enters club B. Therefore, by definition, each club A member gains $\Delta_A^i = 0$, the candidate is completely exploited and the pivotal (median) member in club B also yields zero incremental net utility. This implies (see Eq. (6) and Lemma 1) that old club B members with status levels below s^{m_B} will suffer from the candidate's entry. Because of our linearity assumption of the status distribution, however, their aggregate loss is exactly offset by the net gain of old club B members with status levels above the median (for them $\Delta_B^i > 0$).

When club B changes from majority voting to unanimity, its pivotal member switches from m_B to N. As the pivotal member will make sure to get at least a net gain of zero, he will grant access to less candidates than the median member (cf. Eq. (20)) thereby excluding inefficiently many candidates from club membership.

Analogously, when club B switches from majority voting to meritocracy, i.e. the highest ranking member (n_A+1) becomes pivotal, its status requirement for new candidates declines to $s_{B,min}^{merit}(f_B^E) < s_{B,min}(f_B^E)$. As a consequence, all other club B members (with $s^i < s^{n_A+1}$) will each lose from entry of a candidate with $s^C \in [s_{B,min}^{merit}(f_B^E), s_{B,min}(f_B^E))$. We summarize these findings in:

Proposition 4 *(i) Market-based competition among clubs never leads to the first-best allocation.*
(ii) Under majority voting in club B, market-based competition among clubs leads to a second-best result, i.e. $s_{B,min}(f_B^E) = s_{SB,min}(f_B^E)$.
(iii) Under unanimity voting in club B, market-based competition among clubs leads to overexclusion of candidates from club entry, i.e. $s_{B,min}^{veto}(f_B^E) > s_{SB,min}(f_B^E)$.
(iv) If club B employs the meritocracy regime, market-based competition among clubs leads to overinclusion of candidates, i.e. $s_{B,min}^{merit}(f_B^E) < s_{SB,min}(f_B^E)$.

Proposition 4.*(i)* is due to the fact that in equilibrium there does not exist a positive s^C where $f_j = 0$. $s^C = s_{A,min}(f_B = 0) - \epsilon$ comes close, but still a positive fee ϵ has to be paid from the entrant to club B.

7 Discussion

We will focus in this section on what we consider the driving assumptions of our set-up and its conclusions.

The main mechanism in our analysis hinges on the fact that club members with higher status gain relatively more from a new member than old members with a lower status. Technically, this stems from the fact that club members benefit from the average status of their fellow members (excluding their own) independent of the specific form of the utility function. The fact that old members with lower status gain less than old members with higher status depicts the fact that, in case of entry, they have to share the possibility to interact with higher status members with more fellows. In contrast, high status members gain relatively less from social interaction anyway. They benefit more from club facilities etc., i.e. from the monetary contribution of the new member. Given that we consider clubs as status organizations, in which social interaction matters and in which social status is vertically differentiated, this is a quite natural and general mechanism.

To illustrate this, consider the following extreme example: a club consisting of a high and a low status member. The former communicates with the latter and gains rather little from social interaction whereas the low status member experiences significant gains. If a new member with an intermediate status level enters, the high status member even gains in absolute terms whereas the low status member suffers from a dilution effect. Obviously, this effect is most prevalent with a rather small number of club members and more and more disappears if club sizes increase. Therefore, we consider our main mechanism to be robust as long as we do not study clubs that are very large and as long as we accept the notion of status being a vertically differentiated value.

We consider in the main body of our analysis a one-shot game (entry takes place only once). Corollary 1 states our divergence result. What happens if we extent this one-shot game to a repeated game setting? If new entrants are stochastically distributed along the status line, the position of the median-voter in the two clubs remains the same over time. That is, the resulting equilibrium in every stage game is not changed, differences in status levels are perpetuated in every stage. There are two remaining issues in this respect. First, in a repeated game setting, the median-voter might foresee the impact his decision has on the subsequent stages. Letting a low status candidate enter now implies that the median-voter in the subsequent stage game is more restrictive. Hence, the present median-voter has an incentive to be marginally more liberal. But this effect turns in the opposite direction if the low status candidate is actually permitted. Therefore, we expect that in total the effect is negligible. Second, new entrants lead to an even number of club members. The resulting problem for the median-voter model could just be solved with a random choice mechanism leading on average to the same effect.

A third issue that we think is worth a broader discussion is our assumption of α being smaller than one. For our positive analysis, this assumption is analogous to assuming the utility function being concave in monetary transfers. Therefore, and because we do not think that club services are adequately modelled as public goods, we consider the inefficiency parameter $(1-\alpha)$ as a reasonable description. With monetary transfers and status being perfectly exchangeable ($\alpha = 1$), new entrants could (and would be willing to) perfectly compensate their lack of status by simply paying more fees. Consequently, club A would attract all potential new entrants ($s_{A,min} = s_{B,min}$). This extreme result, which is an immediate of the symmetry of the utility functions of all old members (see below) and the perfect exchangeability between status and monetary transfers, is avoided with $\alpha < 1$.

Finally, let us discuss the symmetry of the utility functions of all agents (existing members of both clubs as well as the candidate), which our results crucially depend on. Most notably, θ is identical across all agents. This implies that the marginal rate of substitution between status and monetary transfers is identical for all agents. A relaxation of this assumption has potentially strong, but in most cases quite obvious implications. The most interesting application is when the new candidate has a lower θ than the old club members, i.e. the new candidate values status less than money. In this case, the competitive advantage of club A decreases. The difference in fees becomes more important. This becomes most obvious with $\theta = 0$. Then only fees are relevant for the new candidate. At the same time, a new entrant with high status is relatively more attractive for club B than for club A (since the effect on average status is more pronounced for club B). Hence, with a low θ club B is able and willing to attract high status candidates leading to convergence of clubs. A potentially relevant application of this is when highly reputable professors prefer second-tier universities (making much more money there) than joining a top-university. Since there are no obvious justifications of systematic differences in preferences, we stick to our symmetry assumption in the main body of the analysis.

8 Empirical Implications and Conclusion

In this paper we have investigated the development of already existing member-owned clubs and their competition for new members. Our model applies to a wide range of potential applications beyond our particular example of academic institutions. The defining characteristics are that the clubs under consideration are member-owned clubs (i.e. the old members possess the decision rights) and that members' utility depends on the status positions of the other members. Finally, some sort of membership fees should play a role in the admission process of new members. Against this background, it is quite obvious that our analysis applies not only to academic institutions but also to other clubs with a vertically structured status variable such as country clubs, internet clubs, conference organizations etc. In contrast, our model cannot be applied without adaptations to clubs with a multi-dimensional status variable, where members' preferences are not single-peaked.[21]

The main hypotheses emerging from our theoretical analysis, which are empirically testable, are the following. Our model predicts:

1. The best candidates entering the system should end up in the best clubs/institutions (see Corollary 1)

2. However, they should accept lower salaries than second-tier candidates who join lower ranking clubs (see Corollary 2).

3. If a club's decision making process is switched from unanimous voting to majority voting, its acceptance policy with respect to new candidates should become more liberal, meaning that the marginal status requirement for candidates to get a membership offer should decrease. By switching to meritocracy we expect this process even to be accelerated (see Lemma 1 and Propositions 2.(i) and 3.(i)).

4. As clubs profit, on a cooperative basis, from avoiding extreme decision making rules such as the unanimity or meritocracy rules, we should expect to observe trends towards majority voting. Since, for instance, many academic faculties in Europe are organized in a consensus-based way, we expect them to liberalize their decision-making processes over time (see Propositions 2.(ii) and 3.(ii)). This would be welfare enhancing (see Proposition 4.(ii)).

There are a number of potential avenues for extensions: analyzing the implications of competition of investor-owned clubs (such as some professional sports clubs) would be a straightforward and particularly interesting one. As a first step in this direction it would be crucial to define the objective function of such an organization.

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[21] Current NATO members, for instance, when considering entry of new states into their club, could either have a preference for military power or for a certain geographical location of candidate states (e.g. being situated in Eastern Europe to serve as potential buffer against Russia). Old members' preferences could be horizontally differentiated in both dimensions, hence a unique ranking of potential candidates (and old members alike) along the status line would be impossible.

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A Appendix

A.1 Proof of Proposition 1

(i): Because of Lemma 2, the cut-off status level below which candidates do not get an acceptable offer from any club is determined by club B. f_B^E denotes the entrance fee for which (PC_B) of the entrant just holds with equality. Since $s_{B,min}$ is decreasing in f_B, $s_{B,min}(f_B^E)$ is the lowest status level where club B makes an offer that meets (PC_B).

(ii): By definition of $s_{A,min}$, in the range $s^C \in [s_{B,min}(f_B^E), s_{A,min}(f_B^E))$ club A is not able to make a membership offer to the candidate, which satisfies both parties (independently of club B's behavior). Therefore, club B is able to exploit the candidate completely, which means to set $f_B = f_B^E$.

(iii): For $s^C \geq s_{A,min}(f_B^E)$, demanding $f_B = f_B^E$ has the consequence that club A has an incentive to match the offer of club B. The candidate would then join club A. In the range $s^C \in [s_{A,min}(f_B^E), s_{A,min}(f_B = 0))$, however, club B can use the incremental reduction of f_B as a strategic tool and make sure that $s_{A,min}(f_B) > s^C > s_{B,min}(f_B)$. Thus, club A has no incentive to offer the candidate entry for a fee that would both meet (PC_A) and make him prefer membership in club A over club B. Because of the second part of this inequality, club B still has this incentive, though. As a reduction in the entrance fee reduces $s_{A,min}$ and $s_{B,min}$ by the same factor, $\frac{\alpha}{\theta}$ (see (13) and (14)), B can sustain this behavior in the entire region II. By using (13) we can find f_B^+ as defined above, whereby ϵ denotes a very small number and $(\partial f_B^+)/(\partial s^C) < 0$. Hence, an entrant with s^C very close to $s_{A,min}(f_B = 0)$ does have to pay almost no entrance fee and, consequently, realizes the highest possible utility increase of candidates finally joining club B.

(iv): Because of the budget constraint of club B, f_B cannot be lowered below zero. Hence, club B has no tool to prevent club A from making candidates with $s^C \geq s_{A,min}(f_B = 0)$ an offer that benefits both of them, i.e. club A could let the indifference condition (and the participation constraint) of the candidate hold. Comparing (7) and (9) reveals that, from the point of view of club A, (9) is always more restrictive. This implies that, if club A sets an entrance fee for which the indifference condition holds, the participation constraint is always fulfilled. Thus, club A demands an entrance fee which is equal to the difference of the average status levels of the two clubs from the point of view of the entrant, which produces $f_A = \tilde{f}_A$. Since this expression is independent of s^C, the entrance fee is the same for all entrants into club A implying the same utility gain for all of them. As $\Delta_A^{m_A}$ increases in s^C, however, the median of club A gains more the higher s^C is.

(v): The club losing the competition for the candidate (both clubs in region IV, club A in regions III and II, club B in region I) gets a surplus of zero, no matter which (rational) strategy it employs. If it plays the most competitive strategy and asks for a $(s_{j,min}, f_j)$-

combination such that $\Delta_j^{m_j} = 0$, it still has no incentives to deviate. However, it ensures that the actions explained in parts *(i)-(iv)* are actually incentive-compatible, i.e. part of the equilibrium strategy of the winning club, because then all constraints mentioned there have to bind strictly. Otherwise, the "winning" club would lose. □

A.2 Unanimity in Club A and Majority Voting in Club B

In this case $s_{B,min}$, that is the same minimum status requirement of club B as in our benchmark case, applies. However, due to $s^{veto}_{A,min} > s_{A,min}$ club A employs a more restrictive entrance policy, implying that the borders of regions I and II shift upward. The distance between the two boundaries remains the same. However, since f_B enters linearly into $s^{veto}_{A,min}$ (see (16)), region II remains of the same size but shifts upwards. For any given s^C, since club A has become even more exclusive in its selection process, club B can charge higher entrance fees, f^*_B, for $s^C \in [s^{veto}_{A,min}(f^E_B), s^{veto}_{A,min}(f_B = 0))$. Since $s^{veto}_{A,min}(f_B = 0) > s_{A,min}(f_B = 0)$, region I shrinks, implying that fewer potential members actually join club A. Due to the fact that the critical status level, below which club B is not willing to offer affiliation to potential new members, remains the same, region IV stays the same, whereas we observe an expansion of region III.

A.3 Unanimity in Club B and Majority Voting in Club A

We now reverse the decision rules which apply in the two clubs: majority voting in the more exclusive club A and unanimity in club B. In this case the behavior of club A is just the same as in our benchmark analysis. Club B's decisions are determined by the club member with the lowest status (being located at N).

We find by comparing (14) and (17):

$$s^{veto}_{B,min} - s_{B,min} > 0 \tag{25}$$

In comparison to majority voting, unanimity leads to more stringent selection procedures. Club B will increase the threshold level for potential entrants' status requirement. Therefore, region IV increases, whereas region III shrinks. Region I remains the same as with majority voting in both clubs. The open question is, however, whether the latter disappears completely and, more generally, whether club B is able and willing to take in any new candidates at all, that is, whether regions II and III still exist.

If $s^{veto}_{B,min} > s_{A,min}$, all new candidates that club B is interested in, will also receive a membership offer by club A—and, while letting the indifference condition hold, club A will attract the candidate. Then, club B would receive no new members meaning that regions II and III would disappear. $s^{veto}_{B,min} > s_{A,min}$ equals:

$$\frac{\sum_{n_A+1}^{N} s^i - s^N}{N - n_A - 1} - \frac{\sum_0^{n_A} s^i}{n_A + 1} + \alpha \cdot \left\{ \frac{\sum_0^{n_A} s^i}{n_A + 1} - \frac{\sum_{n_A+1}^{N} s^i}{N - n_A} \right\} > 0 \tag{26}$$

Since the sum of the first two terms is strictly negative, the LHS is negative for $\alpha = 0$. In contrast, with $\alpha = 1$, we have: $sgnLHS = sgn(\frac{\sum_{n_A+1}^{N} s^i - s^N}{N-n_A-1} - \frac{\sum_{n_A+1}^{N} s^i}{N-n_A}) = sgn(\frac{\sum_{n_A+1}^{N} s^i}{N-n_A} - s^N)$ which is positive, given the uniform distribution of status positions. Since the LHS is continuous and strictly increasing in α, a unique α^* exists so that for all $\alpha > \alpha^*$, $s^{veto}_{B,min} > s_{A,min}$.