In for a Penny, in for a Pound: Accession Costs and Voting Rules in International Organizations

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Abstract

We explain the interdependence between an international organization's (IO) accession costs and voting rule in a rational choice framework. Under uncertainty about a candidate state's productivity in a game-theoretic model of club good provision, both instruments can be used to prevent potentially unproductive new members from destroying cooperation in the IO. The incumbent states face a trade-off between economies of scale from a large membership and hold-up problems caused by unproductive states. We show that simple majority induces self-selection of candidates and is optimal in combination with low accession costs. For unanimity, the optimal combination depends on whether the benefits of a large membership are enough to compensate for hold-up problems. If this is the case, unanimity is optimally combined with low accession costs.

Keywords: Asymmetric Information, Club Good, International Organization, Majority Rule, Screening, Unanimity Rule.

JEL Classification: D71, D82, F53, F55

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1 Introduction

States forming an IO face a myriad of institutional design choices. The founding members have to settle on a procedure to decide which actions should be taken by the organization. Furthermore, criteria for the accession of new members have to be determined. Naturally, the effect of a given voting rule depends on who votes. Accession terms influence just this.[1]

The literature so far considered the two institutional features separately and argued that IOs ask for concessions from prospective new members in the form of domestic policy adjustments (Koremenos et al., 2001). Accession terms as a costly signal can then resolve uncertainty about states' types and lead to a separating equilibrium, where "good" types join and "bad" ones do not (Kydd, 2001). Our model adopts this argument but relates the strategic design of accession costs to the policy-making procedure used within the IO.

IOs today make use of a wide variety of voting rules in their main decision-making bodies: Some have the strong requirement of unanimity, in others choices can be made via simple or qualified majorities. It is not obvious what causes the heterogeneity in voting rules across and within IOs. Rational choice institutionalism claims that states purposefully design institutions to achieve their goals given certain constraints (Posner and Sykes, 2014). One such constraint is that – in the absence of external enforcement – a voting rule used by sovereign nation states should be self-enforcing (Maggi and Morelli, 2006). If a variety of voting rules coexists this should be explicable by differing characteristics of IOs and their member states.

One such factor is the number of members of an IO, which is nothing that can be assumed to change quickly and without friction, yet it is also not exogenously given: The EU has admitted 22 new member states in the past 60 years and, as Britain is currently painfully proving, membership can also be revoked. Accession conditions and voting rules are likely to be interdependent in any club: who is allowed to join influences the internal decision-making process and this process vice versa influences what kind of players find membership appealing.

We address this gap in the literature with the help of an economic model describing the interaction between accession costs and voting rules in a club

[1] Consider for instance the Center for European Policy Studies' assessment that without adapted voting rules "[EU] enlargement would cripple EU decision-making" (Baldwin and Widgrén, 2005).

with endogenous membership. Both can serve to mitigate the effect of low-type candidates and members on the efficiency of an IO. The concrete research question we are asking is what combination of accession conditions and voting rules is optimal for an IO in a given situation.

We build a game-theoretic model of club good provision under uncertainty. Uncertainty about the potential entrant comes in the form of stochastic variation in the benefits of the good (high or low) and in the candidate being of a type (high or low) that is not publicly known. The founding IO members simultaneously determine the amount a new member has to pay to join their club and whether to aggregate members' preferences about the club good provision using unanimity or a simple majority rule. They face a fundamental trade-off: A stricter voting rule makes it more likely that only Pareto-efficient decisions are taken but at the cost of sometimes foregoing actions which would increase total welfare. Low accession costs make candidates more likely to join and a larger membership increases the benefits for every member. However, low accession costs pose the risk that also unproductive candidates are admitted.

Our main result is that the two design instruments act as complements in equilibrium: High accession costs are set whenever collective action is taken only after unanimous consent, whereas a simple majority rule induces candidate states to self-select into the IO only when they are of the good types, making entry barriers obsolete as a screening device.

To extend the baseline model we later on allow for the productive states to "bribe" other member states with side payments; or in other words, the productive states compensate the unproductive ones for not exercising their right to veto. We find side payments to be potentially welfare increasing. Additional model extensions consider the accession cost not as wasteful spending, but as a payment from the candidate to the incumbents, which makes the admission of candidates ceteris paribus more attractive. A third extension shows that less productive candidate states are more likely to be granted veto rights than more productive candidates.

The remainder of the paper consists of a brief literature review in section 2, followed by the baseline model in section 3. Section 4 presents the aforementioned model extensions. Section 5 discusses applications to existing IOs and section 6 concludes.

2 Literature

2.1 International Organizations as Clubs

Rational choice theory assumes that international organizations (IOs) are founded to make or facilitate decisions on behalf of states in the presence of transaction or decision costs (Posner and Sykes, 2014). IOs can further help groups of states to overcome cooperation problems in the provision of common goods such as free trade or the reduction of greenhouse gas emissions. In the absence of strong formal and informal institutions these goods are prone to exploitation by free-riders, whose defection may lead to a complete breakdown of international cooperation on the issue. We can distinguish two categories of goods that are typically produced by IOs. First, (international) public goods where consumption is non-rivalrous and countries cannot be excluded from the benefits of the good.[2] Second, club goods where again the consumption of the good is non-rivalrous, but countries can be excluded from the benefits. The key difference between club goods and public goods is the credibility of a threat of exclusion. By definition, the threat is more credible in a club good setting.

Olson and Zeckhauser (1966)'s economic theory of military alliances analyzes countries' contributions to the North Atlantic Treaty Organisation (NATO). They argue that even though the alliance is a club, which provides the good "deterrence" only to its members, low excludability within the club results in frequent free-riding. This paper, by contrast, focuses on IOs that produces a true club good, which is excludable even to its members.

Ahrens et al. (2005) analyze the EU under the lens of club theory. Club goods provided by the EU are, inter alia, the Internal Market, the Monetary Union, and the Common Agricultural Policy. The authors follow Buchanan (1965)'s approach to model the trade–off between deepening (degree of club good provision) and enlargement (membership size) of the "EU club" and conclude that due to the heterogeneity of member states, further integration of European policies is best achieved via voluntary sub-clubs.

[2]Ever since Samuelson (1954), the economics literature has devoted much attention to the social dilemma of public good provision: Every individual player has an incentive to free-ride on the good and hence the good will be undersupplied.

2.2 Voting Rules

In their day-to-day-business, IOs repeatedly have to find a collective answer to the general question whether an action should be taken. The action can encompass the provision of a public good,the adoption of a policy or the accession of a new member state. Initially, the IO thus faces the constitutional problem of determining a rule to aggregate the members' preferences. There is great variation in the choice of voting rule across IOs, which should be explicable by different characteristics of the organization and its members.

Each voting rule carries costs and benefits and the body of literature discussing the topic is vast.[3] Unanimity ensures a Pareto-superior outcome and thus faces no enforcement problem but entails high decision-making cost since every actor can veto a proposal (Posner and Sykes, 2014). Blake and Payton (2015) claim that unanimity generally makes membership in an IO more attractive. Empirically, Blake and Payton (ibid.) and Hooghe and Marks (2015) find that IOs with more members tend to have smaller majority requirements. Our model will provide one potential explanation why this is the case: increased preference heterogeneity makes consensus less likely with increasing membership.

Majority rule mitigates the hold-out problem and ensures greater responsiveness of the IO, but potentially allows exploitation of the minority (Blake and Payton, 2015). There is thus a high temptation not to comply for states with preferences far away from the median. But repeated interaction can still induce compliance under majority rule. Maggi and Morelli (2006) theoretically investigate such self-enforcing voting rules. Without external enforcement a voting rule must produce incentive-compatible decisions in a repeated-game setting. A crucial assumption in this regard is the fixed number of member states in a given IO. We deviate from Maggi and Morelli (ibid.) in two ways, namely by endogenizing the size of the club, and by giving up the self-enforcement criterion.

Schneider and Slantchev (2013) follow up on Maggi and Morelli (2006) and study different institutional mechanisms to decide upon and enforce a collective action in an IO under repeated interactions: coalition of the willing, universal burden-sharing, and agent-implementing organization. They find that unanim-

[3] Buchanan and Tullock (1962) distinguish between external and decision cost arising from a given voting rule. The latter stem from cumbersome negotiations and are increasing in the share of yes-votes needed for a decision. The former arise to an actor from society making decisions that she did not prefer. In a similar vein, Aghion and Bolton (2003) show that a majority rule can be ex ante more efficient than unanimity if the social contract is incomplete.

ity rule is never optimal. Our model can be said to fall in between the first two institutions, as we use universal burden-sharing but endogenous membership. The IO in our model is an ex ante coalition of the willing under some veil of uncertainty and in contrast to Schneider and Slantchev (2013) in a one-shot interaction with perfect enforcement.

Kandogan (2000) argues in a similar direction: Initially, the EU was a homogeneous club and the voting rule of minor importance; unanimity functioned well. However, with every enlargement wave the organization became more heterogeneous. New members reverse budget restrictions after accession, such that the voting rule is the crucial aspect in institutional design to adapt according to the accession of poorer states. Specifically, it is suggested that the majority requirement should be lowered before enlargement. Our paper comes to a similar conclusion, but emphasizes also the flip side of the argument: not only is the optimal voting rule influenced by the composition of the club, but it also influences who joins it in the first place. Lechner and Ohr (2011) study voting in the EU under the threat of withdrawal of a member state. They find that the option to withdraw gives members relatively more bargaining power under majority rule, but is not equivalent to a full veto right under unanimity rule.

2.3 Selective Membership and Accession Terms

Depending on the characteristics of member states' interactions in an IO, they will be more or less open to new members. The EU for instance requires unanimous approval for the accession of new members. In general, any club is willing to include only those new members that bring efficiency gains to the incumbents. But this may be hard to predict ex ante, as in our model setting with uncertainty about the productivity of other states. Koremenos et al. (2001) argue that candidates potentially want to misrepresent their true type, which can be mitigated by purposefully designed accession terms. As a consequence membership becomes less open the higher the uncertainty about others' preferences. Kydd (2001) zeros in on the relationship between restrictive membership and preference uncertainty in the context of NATO, which has significant entry barriers.[4] In a game of reassurance and trust states demand costly signals before cooperating: a price of admission is set by the IO to separate candidates by type.

[4]Article 10 of the treaty states that unanimous agreement is needed to let a European state join the NATO (Kaoutzanis et al., 2016, p.407).

More specific obligations make it easier to monitor compliance. Bernauer et al. (2013) claim that monitoring and enforcement make participation less attractive. One could also argue that specific obligations can be used as a selection mechanism to reduce uncertainty about others' true willingness to cooperate. If these mechanisms separate states by type the organization potentially becomes more attractive for cooperators.

Kaoutzanis et al. (2016) investigate the relationship between states' democratization and IO membership and find that transitioning democracies have incentives to found new IOs with strictly regulated entry barriers because they often cannot join many of the already existing IOs. The authors make the case for voting rules on accession as a screening device since "it is important for the democratizing states to block the membership of states who will undermine the IO's [...] provision of public goods."(ibid., p.403).

Schneider and Urpelainen (2012) investigate the legitimacy-efficiency trade-off that strict accession rules supposedly produce. Their model finds to the contrary that high entry barriers can induce a candidate state to implement a high level of efficiency-increasing reform. Our paper further delves into what the authors term the *strategic logic* of unanimity voting, as opposed to its *legitimacy value* (ibid., p.293).

To summarize, we deviate from existing studies in two ways: On the one hand by combining the strategic considerations between an IO's choice of voting rule and accession terms, and on the other hand by endogenizing the size of the IO in a model of club good provision.

3 The Model

3.1 Basic Framework

We model the provision of a club good with incomplete information and endogenous club membership. In this context we consider different voting rules to aggregate members' preferences. The interaction is a one-shot game between three players = $\{P_1, P_2, P_3\}$. The first two (*incumbents*) form an IO[5] and the third is a potential new member state (*candidate*).

[5]Please note that our model deals with a simplified version of an IO. We are fully aware that two members would not be sufficient to form an IO by the prevailing view in international law. The results would also apply with a generalized version of the model with n incumbents.

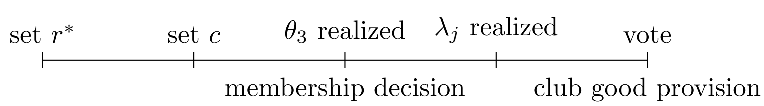
Timing The model consists of four stages. In the first stage, the incumbents set up the IO and choose a voting rule. In a second stage, the accession costs for potential entrants is chosen. Once these rules are set up, potential entrants decide whether or not to join the organization. After this decision, the private benefit parameter is drawn for low types and all members vote on whether or not to produce the public good in the fourth stage.

Initially, P_1 and P_2 determine a voting rule and accession costs. The voting rule of an IO of size $m = 3$ is characterized by a number $r^* \in \{1, 2, 3\}$. We denote the actual number of votes in favor with r. Club good provision takes place if and only if at least r^* players vote for it, i.e. $r \geq r^*$. To study the effect of two prominent voting rules, we let the incumbents choose between simple majority rule, i.e. $r^* = \frac{m+1}{2} = 2$, and unanimity, i.e. $r^* = m = 3$.

The accession costs c are the amount that P_3 has to pay in order to become a member. We assume that the cost is a sunk cost and is of no benefit to the incumbent members. The incumbents do not have to pay for their membership. Upon learning about c and r^*, P_3 decides whether to become a member (pay c) or not.

For the final stage, every players receives the same endowment $e = 1$. The endowment can be spent on private consumption or club good provision. The benefit from one unit of the private good is simply one, whereas the sum of all contributions to the club good is multiplied by a common technology parameter $a(m)$, which is increasing in the number of members m, and then equally divided among all member states.

Table 1 gives an overview over the model's parameters. The timing of events is as follows:



Payoffs Members' individual payoffs are determined by an additional benefit parameter that depends on player i's type θ_i^j with $j \in \{L, H\}$ and $\theta^L < \theta^H$. The benefit parameter $\lambda_j \in \{\underline{\lambda}, \overline{\lambda}\}$, with $\overline{\lambda} > \underline{\lambda}$, indicates the state of the world and is drawn independently for each type after the membership decision has been made. θ_i^j translates into the distribution of the benefit parameter λ_j in the following way: $Prob(\overline{\lambda}) = \theta_i^j$ and $Prob(\underline{\lambda}) = 1 - \theta_i^j$.

Table 1: Model Notation

Symbol	Interpretation
$e = 1$	Endowment
$q_i = \{0, 1\}$	Player i's contribution to the good
c_3	Candidate's accession costs
m	Size of the IO
$a(m)$	Overall productivity parameter of the IO
$\lambda_j = \{\overline{\lambda}, \underline{\lambda}\}$	Individual benefit from production
$\theta_i^j = \{\theta^L, \theta^H\}$	Country i's type; probability of receiving a high benefit from production
r	Number of votes in favor of club good production.
$r^* = \{2, 3\}$	Implemented voting rule (majority, unanimity)
$v(r^*)$	Voting rule indicator: $v(2) = 1$; $v(3) = \frac{1}{a(3)\cdot\underline{\lambda}}$
$y(r^*)$	Voting rule indicator: $y(2) = a(3) \cdot \overline{\lambda}$; $y(3) = 1$

We assume that θ^H is always equal to 1 and that it is commonly known that both incumbents are of the high type, i.e. $\theta_{1,2} = \theta^H = 1$. It follows by assumption that $\lambda_H = \overline{\lambda}$, such that the high types receive a high benefit with certainty. For low types $0 < \theta^L < 1$ applies. The value of θ^L and the prior probability distribution $Prob(\theta_3^L) = Prob(\theta_3^H) = \frac{1}{2}$ are common knowledge, but the realization of θ_3^j is private knowledge of the candidate. If P_3 is a high type, then she too will draw $\overline{\lambda}$ with certainty. For a low type, λ_L is drawn after the membership decision has been made. To sum up, the incumbents are high types and receive a high benefit from club good production and the candidate can be either a high type as well, or a low type, for whom high and low benefits could occur.

Once λ_j is realized,[6] every member of the IO votes on whether club good provision shall take place. If the number of votes in favor is at least as large as the predetermined voting threshold r^*, production is executed. The individual contribution is a binary variable q_i. In case of production every member contributes the full endowment: $q_i = e = 1$. If not, the entire endowment is spent on private consumption and $q_i = 0$. We model perfect enforcement, i.e. if the decision is to provide the good then every member complies. Individual payoffs are then

[6]Notice that according to our setup the benefit is drawn independently for each type *and* the benefit of a high type is always high. Therefore, in the vote stage, a low type would know every player's benefit, whereas a high type only knows their own.

$$u_i(\lambda_j, r, r*) = \begin{cases} a(m) \cdot \lambda_j - c & \text{if member and} \quad r \geq r^* \\ 1 & \text{otherwise} \end{cases}$$

The following analysis focuses on the interesting case in which $\overline{\lambda}$ makes production individually profitable for any $a(m)$ while $\underline{\lambda}$ yields a net loss for player 3. We therefore assume $a(m) \cdot \underline{\lambda} < 1 < a(m) \cdot \overline{\lambda} \quad \forall m \Leftrightarrow \underline{\lambda} < \frac{1}{a(m)} < \overline{\lambda}$.[7]

3.2 Equilibrium Strategies

We now solve for the Bayesian Nash equilibrium in terms of optimal voting rule, accession costs, and size of the organization. To solve the game, we use backward induction and thus start with the final stage of the game.

Stage 4: Voting Decision In the final stage, low types learn their private benefit draw and thereafter members cast their vote on whether or not to produce the public good, conditional on the private benefit draw λ_j.

A member will vote yes if the benefit from production is larger than the outside option of spending the endowment on the private good. Formally, this comes to

$$a(m) \cdot \lambda_j > 1 \tag{1}$$

This is equivalent to the simple optimization problem $\max\{1\cdot, a(m) \cdot \lambda_j\}$. We can focus on truthful voting because it is rational for members to vote yes if they received a high benefit draw ($\overline{\lambda}$) and no if they received a low benefit draw ($\underline{\lambda}$).

Stage 3: Accession Decision When deciding whether or not to join the organization, the entrant knows its own type θ_3^j, the probability distribution of the private benefit draw λ_j, the voting rule and the accession costs of the IO. Under unanimity, any unfavorable decision can be vetoed, whereas under majority rule the incumbents have a majority of votes. We use the binary variable $v(r^*)$, which is defined as $v(2) = 1$ and $v(3) = 0$ to formally express

[7]Trivial solutions arise if the assumption is not met. For $\overline{\lambda} > \underline{\lambda} > \frac{1}{a(m)}$ every type always favors production and the (choice of) voting rule is irrelevant. If $\frac{1}{a(m)} > \overline{\lambda} > \underline{\lambda}$ the organization is pointless.

the expected utility of the candidate joining the IO.

$$E[u_3(\text{join}|r^*, c, \theta_3^j)] = \theta_3^j \cdot a(3) \cdot \overline{\lambda} + (1-\theta_3^j) \cdot [v(r^*) \cdot a(3) \cdot \underline{\lambda} + 1 - v(r^*)] - c \quad (2)$$

The first part of the expected benefit is the payoff from a high draw, whereas the second part is the expected benefit from a low draw: Under a simple majority rule, the new entrant could not prevent production in case of a low draw for himself. Under unanimity, production would not take place and the entrant would receive the outside option of 1. This reasoning is captured by the values that $v(r^*)$ can take. Note that for an entrant with $\theta_3^H = 1$, the second part of the equation drops out regardless of the voting rule because high types always have a high draw by assumption.

The decision to join is based on a simple cost-benefit calculus. While the expected utility function described above does contain the accession cost, opportunity cost are not included. Since we normalize the endowment to $e = 1$, the opportunity cost for joining the IO is 1. Thus, a potential entrant will join if the following condition holds

$$E[u_3(\text{join}|r^*, c, \theta_3^j)] \geq 1 \quad (3)$$

Candidates base their decision on the accession costs versus expected benefit from membership, which in turn depends on the voting rule as denoted by $v(r*)$.

Since the new entrant knows his own type, we can separately look at the decision for each type at this stage. Using equation (2) and the assumption that $1 < a(m) \cdot \overline{\lambda}$, it directly follows that high types (θ_3^H) will always want to join when accession costs are absent (or low), independent of the voting rule. Given that the benefit draws are type-specific this finding is not surprising. If all members are high types they always prefer the same course of action and the voting rule has no influence. The only things that matter for the high type are the benefits from producing the good and the costs of joining.

For a low type, equation (3) becomes

$$\theta^L \cdot a(3) \cdot \overline{\lambda} + (1-\theta^L) \cdot [v(r^*) \cdot a(3) \cdot \underline{\lambda} + 1 - v(r^*)] \geq c + 1 \quad (4)$$

We see that the voting rules does indeed matter for the low type. With unanimity, they could veto any detrimental production decision. Thus, they are willing to join the IO if

$$\theta^L \cdot a(3) \cdot \overline{\lambda} + (1-\theta^L) \cdot 1 \geq c+1 \iff \theta^L \cdot (a(3) \cdot \Delta\lambda + 1) \geq c \tag{5}$$

with $\Delta\lambda \equiv \overline{\lambda} - \underline{\lambda}$. The key difference to the decision of high types is that the low types are aware that the benefit of production will only accrue when they have a high benefit draw. Thus, the maximum accession cost they are willing to pay under unanimity is lower than for high types.

For simple majority, using $\phi \equiv \theta^L \cdot \overline{\lambda} \cdot a(3) + (1-\theta^L) \cdot \underline{\lambda} \cdot a(3)$, we can simplify equation 3 to

$$\phi \geq c+1 \tag{6}$$

Here, ϕ can be interpreted as the expected value of a low type being in the organization when the good is produced. Low types are thus more likely to join when their probability of a high benefit draw is larger, when the low benefit payoff increases and when the overall productivity increases. To summarize, with a simple majority rule potential entrants do not always want to join an organization even in the absence of accession costs. The reason is that the new entrant can be overruled and the club good be produced in situations when he would prefer no production. Since we assume that free-riding is impossible, the new entrant can be in a position where she will rationally stay out of the organization. This paragraph's results are summarized in the following proposition.

Stage 2: Accession Costs In this stage, the incumbents choose the accession cost for a potential entrant. They know the voting rule r^* and the distribution from which the candidate's type is drawn.

The entrant can veto under unanimity (which would lead to all members receiving their endowment), whereas the initial members always have the majority in a simple majority situation.[8] Thus, under simple majority any additional member increases the expected utility of the incumbents and they set $c = 0$.

Lemma 1. *Whenever $r^* = 2$, $c = 0$ is Pareto-superior to any $c > 0$.*

[8] Note that in our model setting the following discussion is only interesting if all incumbents are high types, since otherwise any new member would be willingly accepted (given that all low types draw the same state of the world, an additional low type member would not increase the odds of a no-vote)

Proof. Since we assume that accession costs are wasteful spending and do not generate benefit for the incumbents, any positive accession costs ($c > 0$) will only reduce the payoffs of potential entrants without any benefits for the incumbents. Thus, reducing the accession costs to zero is a Pareto improvement. $\square$

Under unanimity, high type candidates are beneficial to the incumbents with certainty. The IO is willing to also accept low type candidates if the expected net gain derived from their membership is positive. In this case, they will also set $c = 0$. Otherwise, they demand $c > 0$ such that the high types still find membership profitable, but the low types do not.

Lemma 2. *In case a separating equilibrium where low types stay out and high types join is preferred by the incumbents, they will set the accession cost to* $c^* = \theta^L(a(3) \cdot \overline{\lambda} - 1)$.

Proof. In the appendix. $\square$

Stage 1: Voting Rule The previous section analyzed optimal accession costs and participation decisions taking the voting rule as given. We now go one step further and ask which of the equilibrium rule combinations the incumbents choose at the constitutional stage.[9] The optimal voting rule depends on players' cost-benefit parameters (or expectations thereof). We know that in the absence of prohibitive accession costs high types always participate in the IO.

Under simple majority rule, the incumbents accept any candidate. And even a low type might have a positive expected value from production. In this case, majority rule without accession costs is the optimal equilibrium. If, however, low types do not join under simple majority for any $c \geq 0$, unanimity is the optimal voting rule.

If it is the case that a low type state would not join given majority rule, but the incumbents benefit from its membership even when granting it a veto right, they optimally implement unanimity without accession costs. If the incumbents' expected utility decreases from a low type joining, they combine unanimity with accession costs of $c*$ to arrive at the separating equilibrium. In this case, the IO will be perfectly homogeneous and unanimity and simple majority function equivalently.

[9] Since both incumbents are high type, we can focus on symmetric behavior. Thus, it does not matter with which voting rule they choose the initial voting rule and the accession costs. In this way, a problem of infinite regress is avoided.

It was shown that the choice of rules depends on the incumbents' expectations about the productivity of the low type and their prior about the likelihood that the candidate is indeed a low type. The results of this section are summarized in the following proposition.

Proposition 1. *The incumbents will choose the following equilibrium combinations of accession cost and voting rule.*

$$c = 0 \text{ and } r^* = 2 \text{ if } \phi \geq 1$$
$$c = 0 \text{ and } r^* = 3 \text{ if } \phi < 1 \text{ and } \theta^L \geq \frac{a(2)}{a(3)}$$
$$c = c^* \text{ and } r^* = 3 \text{ if } \phi < 1 \text{ and } \theta^L < \frac{a(2)}{a(3)}$$

Proof. In the appendix. □

4 Model Extensions

4.1 Side Payments

Historical accounts suggest that powerful member states determine the policies of international organizations and induce the cooperation of weaker members with side-payments (Moravcsik 1991, 1998)

So far, we have assumed a world where side payments between the players are impossible. One could describe this setting as a case with prohibitively high transaction costs, which make bargaining and logrolling through side payments impossible. This section will loosen this assumption by looking at two other possible assumptions with regards to the transaction costs associated with side payments. The first possibility is a "Coasean" setting in which transaction costs are zero and the second possibility is a setting with positive, but not prohibitive transaction costs. Side payments are only relevant in cases where an overall welfare increasing production of the good can be blocked by the low type due to his draw. Thus, the effect of side payments only emerges in case of a unanimous voting rule.[10] With regards to timing, the stage of side payments follows after the voting stage. In case of a veto by the low types, the high type members can make a "take it or leave it" offer for compensation. If the low type accepts, the

[10] *Anecdote:* In 1984, Greece held up a unanimous accession procedure in the EU and extracted a large side payment (Schneider, 2011; Schneider and Urpelainen, 2012, p.291).

voting stage is overruled and the good is produced. If the low type rejects, the good is not produced.

4.1.1 Zero Transaction Costs

To analyze the viability of side payments, we have to look at the benefits and costs of these payments to the high type incumbents. The benefit is their surplus of producing the good compared to no production ($2 \cdot \overline{\lambda} \cdot a(3) - 2$). The minimum side payment would make the low type indifferent between producing and not producing. Since his outside option is simply keeping the endowment, the minimum payment is the difference between his endowment and his private benefit from the good ($1 - \underline{\lambda} \cdot a(3)$).

Therefore, side payments are generally possible and welfare-enhancing if the following equation holds

$$2 \cdot \overline{\lambda} \cdot a(3) - 2 > 1 - \underline{\lambda} \cdot a(3) \tag{7}$$

This can be rewritten to

$$2\overline{\lambda} + \underline{\lambda} > \frac{3}{a(3)} \tag{8}$$

One can easily see that an increase in the benefit from the good (λ) or in the benefit from an additional group member ($a(3)$) make side payments more viable.

4.1.2 Positive Transaction Costs

Moving from the world of zero transaction costs to a world with positive transaction costs leaves the benefits of side payments unchanged, but affects the cost part. Instead of simply being able to transfer the side payment, we now assume that negotiation and transfer are actually costly. In formal terms, the minimum transfer is now $k \cdot [1 - \underline{\lambda} \cdot a(3)]$, where $k > 1$ is a measure of transaction costs.[11] The reasoning from the last subsection is unchanged, but the equations change to

$$2 \cdot \overline{\lambda} \cdot a(3) - 2 > k \cdot [1 - \underline{\lambda} \cdot a(3)] \tag{9}$$

[11] One can see the Coasean setting as the special case of $k = 1$ and the prohibitive setting as $k \liminf$.

This can be rewritten to

$$2\overline{\lambda} + k\underline{\lambda} > \frac{2+k}{a(3)} \tag{10}$$

Given the assumption that production is not profitable in case of a low draw (i.e. $\underline{\lambda}a(3) < 1$), we can see the expected result that side payments are less likely to be welfare enhancing with positive transaction costs.

4.1.3 Side payments and the choice of rules

Following our analysis of side payments, it is useful to ask whether the choice of initial voting rules and accession costs will be affected by the possibility of side payments. Recall proposition 1, which differentiated three cases.

In the first case, we have shown that whenever $\phi \geq 1$, implying a positive expected value of production with simple majority voting for low types, then it is optimal to implement a simple majority rule and no accession costs. In this setting, the good is produced every round and side payments would not change the outcome. Thus, we do not expect any effect in this setting.

In the second case, we considered a setting where low types would not join under a majority rule (i.e. $\phi < 1$), but high types benefit sufficiently from an additional member in the organization to grant them veto power (i.e.$\theta \geq \frac{a(2)}{a(3)}$). In this case, the rules are not affected by the possibility of side payments. However, we will see that production will happen more frequently, namely in all settings where side payments are welfare enhancing due to sufficiently low transaction costs or high gains.

In the third case, we discussed the setting where where low types would not join under a majority rule (i.e. $\phi < 1$) and high types would be unwilling to grant an additional member in the organization veto power (i.e.$\theta < \frac{a(2)}{a(3)}$). We will see a change in the choice of rules if granting the candidate veto power and subsequently pay the side payments is beneficial for the incumbents. Formally, we can say that if

$$2 \cdot \Delta a \cdot \overline{\lambda} > [1 - \underline{\lambda} \cdot a(3)] \cdot (1 - \theta^L) \tag{11}$$

holds, the choice of rules will be affected. Here, the left-hand side is the additional benefit from a third member compared to an IO with only two members, whereas the right-hand side is the cost of side payments for those cases where the new member has a low draw. We can rewrite this equation and get

$$\theta^L > 1 - \frac{2 \cdot \Delta a \cdot \overline{\lambda}}{1 - \underline{\lambda} \cdot a(3)} \tag{12}$$

We can see that if the benefit from an additional member ($a(3)$) or the type-specific multiplier (λ) increases, the equation is more likely to hold. The same holds true if the probability of a high draw for a low type (θ^L) increases.

4.2 Redistributive Accession Cost

So far, we have assumed that accession cost is wasted spending. One could also ask whether our results change when the accession cost is redistributed equally among the incumbents. While voting and accession decision are not affected by this change, the choice of accession cost and the choice of voting rule might change.

Formally, the expected utility for the incumbents changes to

$$E[u_{1,2}] = \begin{cases} \frac{1}{2} \cdot c + E[\theta_3^j] \cdot a(3) \cdot \overline{\lambda} + (1 - E[\theta_3^j]) \cdot y(r^*) & \text{if candidate joins} \\ a(2) \cdot \overline{\lambda} & \text{otherwise} \end{cases}$$

Simple majority With simple majority, the optimal accession cost is no longer zero. For the incumbents, the optimal accession cost is either the maximum that a low type candidate would be willing to pay (with an outcome just as in the main model, besides this redistributive consequence) or the maximum that a high type is willing to pay. The trade-off here is the additional utility from the higher accession cost payment of the high type with the foregone benefit of having a low type candidate join. This foregone benefit is composed of the benefit from an additional member and the redistributive accession cost which a low type would have to pay.

Formally, the higher accession cost, leading to a separating equilibrium, will only be chosen if

$$\frac{1}{4} \cdot (\overline{\lambda} \cdot a(3) - 1) > \frac{1}{2}(\phi - 1) + \frac{1}{2}\Delta a \cdot \overline{\lambda} \tag{13}$$

This equation can be simplified to

$$\overline{\lambda} \cdot a(2) - \frac{1}{2} \cdot \overline{\lambda} \cdot a(3) + \frac{1}{2} > \phi \tag{14}$$

The key difference to the basic model is the possibility of a separating equilibrium with simple majority rule.

Unanimity For unanimity, the same trade-off applies. However, accepting low types also leads to the risk of non-production in case of a low draw. Thus, the calculus for the incumbents when deciding for an accession cost is the following:

Formally, the higher accession cost, leading to a separating equilibrium, will only be chosen if

$$\frac{1}{4}\cdot(\overline{\lambda}\cdot a(3)-1) > \frac{1}{2}[\theta^L\cdot(\overline{\lambda}\cdot a(3)-1)]+\frac{1}{2}[\theta^L\cdot\Delta a\cdot\overline{\lambda}-(1-\theta^L)(\overline{\lambda}\cdot a(2)-1)] \quad (15)$$

The left-hand side represents the accession cost that could be collected from high type candidates, while the right-hand side represents the costs and benefits from including the low type candidate. The first term on the right-hand side is the benefit a low type has from joining the organization (and thus the maximum accession cost you could charge that a low type would be willing to pay). The second term is the additional utility from having an additional low type member compared to a situation with only the two incumbents.

This equation can be rearranged to

$$(\frac{1}{2}-\theta^L)\cdot(\overline{\lambda}\cdot a(3)-1) > [1-\theta^L+\overline{\lambda}\cdot(\theta^L\cdot a(3)-a(2)] \quad (16)$$

We can directly see that an increase in θ^L makes inclusion of the low types more attractive. This result is in line with our intuitions.

Choice of Rules With regard to the choice of voting rules, we can consider 4 scenarios based on the discussion on simple majority and unanimity above. For each rule, we can have a separating equilibrium (i.e. accession costs are chosen so that only high types join) or a pooling equilibrium (accession costs are chosen so that both types join). Formally, the separating equilibrium will respectively be chosen if equations (13) and (15) hold. Thus, our four scenarios are the case where simple majority and unanimity both lead to a separating equilibrium, the case where simple majority leads to a pooling equilibrium and unanimity leads to a separating equilibrium, the case where simple majority leads to a separating equilibrium and unanimity to a pooling equilibrium and finally the case where both rules lead to a pooling equilibrium. The first case can be safely ignored since in those case the IO consists only of the high type in both cases and thus the voting rule does not make any difference. The other three cases will be discussed in turn.

First, lets look at the case when (13) and (15) both do not hold. If the following equation holds, a simple majority rule is optimal.

$$\frac{1}{2}(\phi - 1) + a(3) \cdot \overline{\lambda} > \frac{1}{2}[\theta^L \cdot (\overline{\lambda} \cdot a(3) - 1)] + \theta^L \cdot a(3) \cdot \overline{\lambda} + (1 - \theta^L) \cdot 1 \tag{17}$$

The left-hand side is the expected utility from simple majority rule with a pooling equilibrium and the right-hand side the expected utility from unanimity with a pooling equilibrium. Rearranging both sides gets us to

$$a(3) > \frac{3}{2 \cdot (\overline{\lambda} + \frac{1}{2}\underline{\lambda}} \tag{18}$$

If this condition holds, a simple majority rule is optimal in this scenario.

Second, lets look at the case when (13) holds and (15) does not hold. If the following equation holds, a simple majority rule is optimal.

$$\frac{1}{4} \cdot (\overline{\lambda} \cdot a(3) - 1) + \frac{1}{2}a(3) \cdot \overline{\lambda} + \frac{1}{2}a(2) \cdot \overline{\lambda} > \frac{1}{2}[\theta^L \cdot (\overline{\lambda} \cdot a(3) - 1)] + \theta^L \cdot a(3) \cdot \overline{\lambda} + (1 - \theta^L) \cdot 1 \tag{19}$$

The left-hand side is the expected utility from simple majority rule with a separating equilibrium and the right-hand side the expected utility from unanimity with a pooling equilibrium. Rearranging both sides gets us to

$$\frac{1}{2} \cdot \frac{\overline{\lambda} \cdot a(2) - 1}{\overline{\lambda} \cdot a(3) - 1} > \frac{3}{2} \cdot \theta^L - \frac{3}{4} \tag{20}$$

If this condition holds, a simple majority rule is optimal in this scenario. We can see that the condition always holds if $\theta^L < 0.5$ and never holds if $\theta^L > \frac{5}{6}$.

Third, lets look at the case when (13) does not hold and (15) holds. If the following equation holds, a simple majority rule is optimal.

$$\frac{1}{2}(\phi - 1) + a(3) \cdot \overline{\lambda} > \frac{1}{4} \cdot (\overline{\lambda} \cdot a(3) - 1) + \frac{1}{2}a(3) \cdot \overline{\lambda} + \frac{1}{2}a(2) \cdot \overline{\lambda} \tag{21}$$

The left-hand side is the expected utility from simple majority rule with a pooling equilibrium and the right-hand side the expected utility from unanimity with a separating equilibrium. Rearranging both sides gets us to

$$\phi > 2 - 2 \cdot \overline{\lambda} \cdot a(3) + a(2) \cdot \overline{\lambda} \tag{22}$$

If this condition holds, a simple majority rule is optimal in this scenario.

4.3 Varying Returns to Size

Let us now – again in a world without side payments – consider heterogeneity in the parameter a that determines how much a given member benefits from the overall size of the club, such that $a_{1,2}(m) \neq a_3(m) \forall m$.[12] We differentiate two cases.

First, suppose $a_{1,2}(m) > a(m) > a_3(m)$. Ceteris paribus, $E[U_3(\text{join}|r^*, c, \theta_3^j)]$ decreases for lower values of $a_3(m)$ making membership less attractive under both voting rules. However, as long as $\frac{1}{a_i(m)} < \overline{\lambda}$ Proposition (2) still holds and high types enter for sufficiently low values of c_3 regardless of the voting rule.

For low types the range in which equation (4) is satisfied shrinks. Let ϕ' be the benefit from production under majority rule in this scenario. Compared to before, ϕ' is lower ($\phi' < \phi$) and $\frac{a_{1,2}(2)}{a_{1,2}(3)}$ is now larger – the space in which unanimity rule and no accession costs is optimal increases, majority rule becomes less attractive.

Second, suppose $a_{1,2}(m) < a_3(m)$: Let ϕ'' be the benefit from production under majority rule in this scenario. Compared to the baseline scenario, ϕ'' is larger ($\phi'' > \phi$) and $\frac{a_{1,2}(2)}{a_{1,2}(3)}$ is lower. Majority rule becomes relatively more attainable.

To summarize, the qualitative results of the main model still hold with heterogeneity in $a(m)$. Counter-intuitively we find that less productive candidates are more likely to be granted a veto right than more productive candidates, which is due to the more restrictive participation constraint of the former. The result is not surprising in our model context, but runs against conventional wisdom when it comes to IOs in reality.[13]

4.4 Two-sided Asymmetric Information

This section investigates how the game changes if the candidate is unsure whether she joins two low or two high type incumbents. The incumbents are

[12] Assume $\underline{\lambda} < \frac{1}{a_i(m)} < \overline{\lambda}$ is still satisfied.

[13] See for instance the proceedings in and around the United Nations' Security Council.

homogeneous and know if they themselves are of the high or low type, but as in the baseline model, they face uncertainty about the candidate's type. In line with the main model the players' prior over their respective counterpart's type is $Prob(\theta_i^L) = Prob(\theta_i^H) = \frac{1}{2}$. It follows that $E(\theta_i) = \frac{1}{2} \cdot + \frac{1}{2} \cdot \theta^L > \frac{1}{2}$. The timing of moves is unchanged.

Given a majority of low types in the IO the two voting rules function equivalently and the incumbents' expected benefit from a new member is always positive (either type will not change the vote outcome but brings additional benefit in case of production). Two low incumbents are thus in principle indifferent between both voting rules and do not need to charge accession costs to deter any type of candidate. As before, let us assume that indifference between rules is resolved in favor of unanimity.

For two high incumbents the calculus is equivalent to the baseline case: They implement majority rule and zero accession cost if and only if both low and high type candidates join under these conditions (Proposition 6). And according to Proposition 7, unanimity will be combined with either zero cost if low types increase the expected utility of the incumbents by joining or with positive cost if they do not. Thus, observing majority rule or being charged accession costs informs a candidate in equilibrium that she will join two high types. But even with zero costs, the incumbents may be high types. Is this information decisive in equilibrium?

From the perspective of a high type candidate there is no difference between majority and unanimity rule for either types of incumbents. A high type candidate receives a high benefit with certainty and in the case of high type incumbents there is always consensus to produce. With two low incumbents the candidate cannot force production against two potential no-votes under either rule. The high type candidate therefore joins whenever c is sufficiently low and her belief about $\theta_{1,2}$ sufficiently high.

$$E[u_3|\theta_3^H] = E[\theta_{1,2}]a(3)\overline{\lambda} + (1 - E[\theta_{1,2}]) \geq c + 1 \iff E[\theta_{1,2}] \geq \frac{c}{a(3)\overline{\lambda} - 1} \quad (23)$$

The RHS of equation (23) is positive for all $c \geq 0$. Given that $E(\theta_i) > \frac{1}{2}$ the condition is satisfied whenever

$$c < \frac{a(3)\overline{\lambda} - 1}{2} \quad (24)$$

For a low type candidate the expected utility from joining is influenced by both the voting rule and accession costs. Given unanimity rule, a low type will join whenever

$$E[u_3|\theta^L, r^* = 3] = \theta^L a(3)\bar{\lambda} + (1-\theta^L]) - c \geq 1 \iff \theta^L \geq \frac{c}{a(3)\bar{\lambda} - 1} \tag{25}$$

Given simple majority rule the candidate can infer that the incumbents are high types, who will outvote her whenever she receives a low draw. The participation condition for low type candidates under simple majority is then the same as in the main model:

$$\phi \geq c + 1 \tag{26}$$

To summarize, low type incumbents will always be happy to accept a third member and grant a veto right, which she will never use at it can only hinder production but not force it. For lack of a better outside option, both high and low type candidates are willing to join an existing organization of low types. For an IO of two high type incumbents, the same calculus as in the main model applies.

5 Applications to Existing IOs

5.1 Overview

For an overview, let us consider data by Blake and Payton (2015), who code the voting rules of 266 IOs in the year they were founded. Table 2 shows that both unanimity and majority rule are used to a large extent. It is thus meaningful to dig deeper into the institutional design choices of existing IOs.

Table 2: Summary – IO Voting Rules

Voting Rule	Number of IOs
None	9
Majoritarian	165
Unanimity	92
Total	266

Source: Blake and Payton (2015).

As a starting point, we review the EU as an exemplary IO.

For this purpose it is first discussed whether the EU meets the model's main assumption – the production of a club good without free-riding – and if yes, how accession costs and voting rules are combined. The costs can in reality not only be thought of as pure monetary payments to the organization, but also as lengthy negotiation phases or domestic reforms required from new members, to name only two ways in which entry barriers potentially make membership more expensive in the sense of our model.

5.2 European Union

Many of the goods provided by the EU can feasibly be considered as club goods that are non-rival in consumption but exclusively consumed by member states (Ahrens et al., 2005). Furthermore, it is easy to find examples such as the free movement of goods and services and the European Monetary Union (EMU), where economies of scale lead to an increase in the individual benefits in the number of participating members, as is a central assumption of our model.

Regarding the assumption of perfect enforcement, the following points can be made on behalf of the EU as a club: Contributions to the annual EU budget are pre-negotiated (Schneider, 2014), such that ex post free-riding can be minimized. Once decisions on specific policies are made, EU member states face four types of binding law: (1) treaties, (2) directives, which have to be transposed into national law, (3) decisions, and (4) regulations, which are self-executive. If necessary, enforcement can be advanced through infringement procedures based on article 258 of the Treaty on the Functioning of the European Union (TFEU or Treaty of Lisbon). Ultimately, the Court of Justice of the European Union can impose financial sanctions against non-complying states. Overall, the EU reports high compliance rates: as of 2017, less than one percent of its directives had not been transposed into national law (European Commission, 2018).

With regard to accession, EU membership decisions are based on Article 49 of the Treaty of Maastricht (1992), the Copenhagen criteria (1993), and an individual framework for negotiations. Furthermore, accession requires unanimous consent by all incumbents (Schneider, 2011). Arguing that there is no exit from the EU at the time of Brexit might seem like an oversimplification that misses the point completely. Article 50 of the TEU (Treaty of Lisbon) explicitly allows withdrawal. However, as of yet no member state has ever actually withdrawn from the EU.[14] This fact and the possibility of the UK facing an

[14] Please note that three *territories* of member states have left the EU and its predecessor:

excessive "divorce bill" sufficiently fit the model, as the only requirement with regard to exit options is that no state leaves the IO between the benefit draw and club good provision without paying its share as decided in the vote. The points raised in the previous paragraphs lead us to conclude that the EU can indeed be considered as a feasible example in the light of the paper's model.

The concern that new member states reverse policy decisions in their favor if given too much voting power is not new (Shackleton and Laffan, 1996). Initially, the six founding members (Belgium, France, Italy, Luxembourg, the Netherlands and West Germany) of the European Economic Community (EEC) were fairly similar with regard to their economic situation and resulting policy preferences. The high degree of homogeneity meant unanimity voting was optimal (Kandogan, 2000). The first enlargement wave took place in 1973 with the accession of Denmark, Ireland, and the United Kingdom. Greece became a member in 1981. In 1986, the accession of Spain and Portugal lead to a substantial increase in the power of poor member countries, whose governments pressed for a substantial rise in structural spending (ibid.). In the light of further enlargement the Single European Act was created in 1986.

In 1994, the internal market was formalized to allow for the free movement of goods, capital, services, and people within the European Community (EC). It also included most of the member states of the European Free Trade Association.

In 1995, Austria, Finland, and Sweden joined the EU and "the accession of more small states to the Union reinforced fears by larger members of a loss of influence [and] some of the larger members would like to be able to constitute an extensive part of a blocking minority"(Hosli, 1995, p.352). In other words, these countries were not willing to give up their power to push policy proposals through. Kandogan (2000) argues that new EU members reverse budget restrictions after accession through coalitions in voting, such that the voting rule is the crucial aspect in institutional design to adapt according to the accession of poorer states. As the organization became more heterogeneous, it gradually shifted from unanimity towards majority rule to make most policy decisions, e.g. in the European Parliament. The effort to lower voting rule requirements is to this day an ongoing reform process in the EU. Subsequently, the EU can be more open to new member states, who are given less weight in decision-making.

Algeria, upon becoming independent from France in 1962, Greenland, as part of Denmark in 1982, and Saint Barthélemy, part of the French overseas collectivity, in 2012.

6 Conclusion

This paper investigates the interdependence between accession terms and voting rule in a game-theoretic model of club good provision. We show that simple majority always induces self-selection of candidates and is optimal in combination with low accession costs. For unanimity, the optimal combination depends on whether the benefits of a large membership are enough to compensate for hold-up problems. If this is the case, unanimity is optimally combined with low accession costs.

The model can be applied to any IO that produces a club good. The free-rider problem – which is central to the majority of literature on international cooperation – is not addressed here. Assuming perfect enforcement is, however, not unrealistic in all the settings where states make payments upfront. This is the case, for instance, in development organizations. Similarly, in the EU contributions to the annual budget are pre-negotiated (Schneider, 2014). Once policy decisions are made the European Court of Justice has jurisdiction to enforce member states' compliance with EU law. Overall, the EU reports high compliance rates: as of 2017, less than one percent of its directives had not been transposed into national law (European Commission, 2018). It thus seems permissible to neglect free-riding in favor of extending previous literature in other aspects. Ultimately, a full generalization of self-enforcing voting rules under endogenous membership would be desirable.

The baseline model presented above needs to be assessed in light of its key assumptions. While the model extensions have already relaxed several of the key assumptions, we would like to briefly discuss the assumption that for all high types and for all low types the same "within-type" draw is realized. This assumption is motivated by the underlying drivers of uncertainty. We would argue that the large-scale shocks that motivate our uncertainty would hit all members of a type to the same degree. While this ignores the uncertainty of smaller, more local shocks, our model focuses on the larger-scale shocks as the key driver.

The other model features of economies of scale and two types of candidates are not unrealistic for trade agreements as the European single market or.

Altogether, our paper is a first step towards understanding the interplay of accession terms and voting rules. More theoretical work and a proper empirical investigation are needed to answer this question in a comprehensive way. For the empirical investigation, data on accession costs would be a prerequisite for any kind of large-n study. So far, no dataset on this issue has been compiled. One alternative way of empirical testing could be to take our game to the lab and check whether the propositions from our model have explanatory power.

A Proofs

Proof of Lemma 2

Proof. The expected utility of incumbents can be written as

$$E[u_{1,2}] = \begin{cases} E[\theta_3^j] \cdot a(3) \cdot \overline{\lambda} + (1 - E[\theta_3^j])[v(r^*) \cdot a(3) \cdot \overline{\lambda} + 1 - v(r^*)] & \text{if candidate joins} \\ a(2) \cdot \overline{\lambda} & \text{otherwise} \end{cases}$$

If the low type enters under unanimity rule, the incumbents each lose $a(2) \cdot \overline{\lambda}$ in $(1 - \theta^L)$ of all cases where they would otherwise have produced and gain $\overline{\lambda} \cdot \Delta a$ with $\Delta a \equiv a(3) - a(2) > 0$ in θ^L of all cases where they initially would have produced the club good. The organization is willing to accept a low type candidate as long as this expected net gain is positive:

$$\theta^L \cdot \overline{\lambda} \cdot \Delta a - (1 - \theta^L) \cdot a(2) \cdot \overline{\lambda} \geq 0 \iff \theta^L \geq \frac{a(2)}{a(3)} \tag{27}$$

Thus, incumbent members are more prone to let new entrants join under unanimity when their probability of a high benefit draw is higher, when the returns to an additional member are larger and when the initial benefits are relatively small. It is always profitable to admit a high type candidate as they inherently vote in line with the incumbents and increase the size of the pie.

We already established in section 3.2 that a candidate wants to join if and only if $\theta_3^j a(3)\overline{\lambda} + v(r*)(1 - \theta_3^j)a(3)\underline{\lambda} \geq c + 1$.

Thus, the accession cost must be higher than the expected benefits of the low type, but below the expected benefits of the high type. Keep in mind that with unanimity rule the members will receive their outside option of 1 if they do not join the IO at all and – in case they join – if one of the members receives a low benefit draw (since it can veto the production of the good). There is a positive expected benefit if all members receive a high benefit draw. This leads to the following participation constraint for the low type:

$$\theta^L(a(3) \cdot \overline{\lambda} - 1) \leq c \tag{28}$$

This gives the lower bound of c.[15] An upper limit is set by the high type's

[15] Note that we assume the candidate to resolve indifference in the direction of not joining. This could be the case if agents were even slightly risk-averse. The qualitative results of the model do not require this assumption.

participation constraint:

$$a(3) \cdot \overline{\lambda} - 1 > c \tag{29}$$

As long as c simultaneously fulfills these two conditions, a separating equilibrium can be achieved given unanimity voting. Since c is wasteful spending, we can assume the incumbents to choose the social optimum, which is the lowest possible amount and hence

$$c^* = \theta^L(a(3) \cdot \overline{\lambda} - 1) \tag{30}$$

. □

Proof of Proposition 1

Proof. If a low type expects a positive value of production under simple majority ($\phi \geq 1$), such a low type is willing to join a simple majority regime. As mentioned above, the candidate is not pivotal and the incumbents therefore benefit from any new member in the IO. The expected gain from participation is larger than the outside option for all players, thus a simple majority rule with no accession cost and everybody joining is an equilibrium.

If $\phi < 1$ such that low types do not join under simple majority for any c, unanimity is the optimal voting rule. Given that low types would not join under a simple majority, the availability of accession costs makes unanimity a weakly dominant strategy. We can distinguish two cases, one where the low types increase the expected utility of the incumbents even with unanimity ($\theta^L \geq \frac{a(2)}{a(3)}$) and the case where they decrease the expected utility of incumbents with unanimity ($\theta^L < \frac{a(2)}{a(3)}$). In the first case, it can easily be seen that unanimity and zero accession cost are superior to a simple majority rule. For the second case, unanimity with an accession cost of $c = \theta^L(a(3) \cdot \overline{\lambda} - 1)$, using the participation constraint in equation 4, leads to a separating equilibrium is exactly equivalent to a simple majority rule in the sense that only high types join. Thus, the use of unanimity and accession costs is an equilibrium strategy. □

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