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The 2002 Winter Olympics scandal: rent-seeking and committees

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Abstract In the wake of a judging controversy at the Winter 2002 Olympic games, the governing council of the International Skating Union scrapped its judging system, replacing it with a new system which uses scores from only some of the judges, selected randomly. This means that the composition of the awarding committee is unknown. I examine rent-seeking expenditures when the composition of the committee is unknown relative to the case when it is known. When the composition of the committee is unknown, I find that rent-seeking expenditures directed towards each committee member may fall but aggregate rent-seeking expenditures will not fall. I find the counter-intuitive result that there may be no change in the rent-seeking effort directed at each committee member, even if it is known that some of the members will not be part of the final awarding committee. The results hinge on whether there is full rent dissipation or rent under-dissipation when the composition of the committee is known.

1 Introduction

> "In the wake of a judging controversy that shook the foundations of the sport of figure skating at the 2002 Winter Olympics in Salt Lake City, USA, the governing council of the International Skating Union (ISU) voted … to scrap its judging system, replacing it with a new point system and using scores from only some of the judges, selected randomly…. ISU President Ottavio Cinquanta said the changes mark a 'total revolution' that will reduce the possibility of bloc judging, in which judges from different countries agree to support each other's skaters. … [i]nstead of nine judges on the panel, there would be fourteen. A computer would randomly pick seven of those fourteen judges, whose marks would decide who wins. No one – not even the judges –

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> would know which marks count and which do not… [t]he decision by the ISU Council comes in the wake of the controversial judging of the pairs competition at the Salt Lake Olympics, where a Russian pair who stumbled triumphed over the Canadian pair that did not. The ISU and the International Olympic Committee eventually decided to award a second set of gold medals to Canadians Jamie Sale and David Pelletier…."[1]

In this paper, I examine the effect of the random selection of judges on the rent-seeking efforts of the various countries. I do not examine how this change affects bloc judging. Instead, I investigate whether rent-seeking expenditures, if the composition of the awarding committee is known, are higher than expenditures when the composition of the awarding committee is unknown. The magnitude of individual and aggregate rent-seeking expenditures may be used as a proxy for bloc judging in so far as a judge's decision to participate in bloc judging is influenced by the rent-seeking efforts directed towards that judge. In other words, the propensity to engage in bloc judging is positively related to rent-seeking efforts directed at a given judge. Indeed, Jamie Sale and David Pelletier were awarded gold medals after a French judge, Marie-Reine Le Gougne, admitted she had been pressured into voting for the Russians. If the judges are under less rent-seeking pressure, then they are likely to reach the correct decision. I therefore assume that a goal of the ISU is to minimize rent-seeking pressure on judges.

We may formalize the preceding argument as follows: Suppose skater i has valuation, $W_i > 0$, for winning the prize. A skater with a higher valuation could also be thought of as one with a higher ability in the skating contest (see Baye et al. 1996; Clark and Riis 1998 for reviews). Therefore, suppose that a judge, say judge k, is likely to reach a "correct" decision if she were to vote with probability $\frac{W_i}{W_i+\sum_{j\neq i} W_j}$ for skater i. This function may be the outcome of the equilibrium efforts in the skating contest. For example, suppose there are only two skaters competing and e_i is the skating effort of player i. Then if $e_i/(e_i + e_j)$ is the success probability of skater i (used by a given judge), it can be shown that, in equilibrium, this judge will vote for skater i with probability $W_i/(W_i + W_j)$, if the cost function of skating effort is linear (i.e., $c(e_i)=e_i$).[2]

Let x_{ik} be the lobbying effort directed at judge k on behalf of skater i. Taking into account lobbying efforts, suppose judge k votes for skater i, with probability $p_{ik} = \theta\frac{W_i}{W_i+\sum_{j\neq i} W_j} + (1-\theta)\frac{x_{ik}}{x_{ik}+\sum_{j\neq i} x_{jk}}$, where $0 \leq \theta \leq 1$. Thus, the judge's decision is a weighted function of lobbying efforts and skating efforts. Then as x_{ik} increases, judge k is more likely to deviate from the "correct" decision because the *relative* contribution of the rent-seeking (lobbying) component of the judge's decision-making increases (i.e., $\partial p_{ik}/\partial x_{ik} > 0$). Hence, reducing rent-seeking effort may move the judges towards the "correct" decision.

I assume that the rent-seekers or the contestants in the lobbying contest are the officials of the various countries represented by the skaters. I assume that each judge does not necessarily vote for the contestant who expends the highest

[1] This paragraph appeared in an article at a CNN website on February 18, 2002 at http://sportsillustrated.cnn.com/olympics/2002/figure_skating/news/2002/02/18/skating_reforms/. The article was not attributed to any author.

[2] See, for example, Nti (1999) for a review.

lobbying effort. Hence, voting by a judge is probabilistic (not deterministic). As noted by Coughlin (1992, p. 21) "deterministic voting models are most appropriate with candidates who are well-informed about the voters and their preferences…. [p]robabilistic voting models… are most appropriate in elections in which candidates have incomplete information about voters' preferences and/or there are some random factors that can potentially affect voters' decisions…." In my model, the contestants are the candidates and the committee members (i.e., the judges) are the voters. Hence, one could interpret my model as one in which the contestants do not know the exact preferences of the committee of judges or that some random factors affect the decisions of the judges.

There has been a wide literature on committees and collective decision_making since the seminal works of Arrow (1963); Black (1958); Buchanan and Tullock (1962). The relationship between rent–seeking[3] and committees was first examined by Congleton (1984). He showed that a rent awarded by a committee will generate less rent-seeking expenditures than a similar rent awarded by a single administrator. Amegashie (2002, 2003) shows that the result of Congleton (1984) is not robust.

The main results of this paper are as follows: When the composition of the committee is unknown, I find that rent-seeking expenditures directed towards each committee member may fall but aggregate rent-seeking expenditures might increase. I find the counter-intuitive result that there may be no change in the rent-seeking effort directed at each committee member, even if it is known that some of the members will not be part of the final awarding committee. The results hinge on whether there is full rent dissipation or rent under-dissipation when the composition of the committee is known.

2 The model

Suppose a committee of size S will be chosen to award a rent which is commonly valued at $V > 0$ by $N \geq 2$ risk-neutral and identical contestants. Suppose the committee will be chosen from M potential members, where $M \geq S$. If $M = S$, then the composition of the committee is known by the contestants. If $M > S$, then the contestants do not know which of the M members will actually be members of the committee. As in the case of the ISU's rules above, we assume that the contestants have to expend rent-seeking efforts before the composition of the awarding committee is revealed.

Let $P_i(S)$ be the probability that the i-th contestant will win the prize, if the composition of the committee is known and is of size S. Define $P_i(S, M)$ as the probability that the i-th contestant will win the prize, if the composition of the committee is unknown (i.e., S members will be chosen from M members). Let x_{ik} be the rent-seeking effort of the i-th contestant directed at the k-th committee member, $k = 1, 2, \ldots, M-1, M$, and $i = 1, 2, \ldots, N-1, N$. I assume that $P_i(S)$ and $P_i(S, M)$ are continuous, twice differentiable functions and are increasing in x_{ik} but decreasing in x_{jk}, $i \neq j$.

[3] See Nitzan (1994) for a survey of the rent-seeking literature and Epstein and Nitzan (2003a,b) for some recent rent-seeking models.

In what follows, we assume that all potential committee members are identical. For example, they have the same sensitivity to rent-seeking expenditures.[4] This assumption allows us to focus on the effect of random selection of committee members.

First, consider the case where the composition of the committee is known (i.e., $S = M$). The i-th contestant chooses his rent-seeking efforts to maximize

$$\pi_i(S) = P_i(S)V - \sum_{k=1}^{S} x_{ik}\,. \tag{1}$$

The first-order conditions are:

$$\partial\pi_i(S)/\partial x_{ik} = V\left(\partial P_i(S)/\partial x_{ik}\right) - 1 = 0 \tag{2}$$

$\forall i \neq j$ and $k \neq h$. In a symmetric Nash equilibrium, $x_{ik} = x_{jk} = x \ \forall\ i \neq j$ and $k \neq h$.[5] Putting these into the first-order conditions above gives the Nash equilibrium effort per contestant per committee member. Denote this value by x^*. The equilibrium payoff is $(1/N)V - Sx^* \geq 0$. Therefore, we require $x^* \leq V/NS$.

Now consider the case where the composition of the committee is unknown (i.e., $M > S$). There are $m \equiv M!/S!(M-S)!$ ways of selecting S members from M members. Following the ISU's rules, we assume that each of these combinations is equally likely. The i-th contestant chooses his rent-seeking efforts to maximize

$$\pi_i(S,M) = P_i(S,M)V - \sum_{k=1}^{M} x_{ik}\,. \tag{3}$$

Given that the size of the awarding committee is S in each of the m possible cases, we can write $P_i(S,M) = \frac{1}{m}\sum_{g=1}^{m} P_{ig}(S)$, where P_{ig} is the probability that the i-th contestant will win the prize if the g-th committee of size S is chosen. However, given that the M potential committee members are identical, we can also write $P_{ig}(S) = P_i(S)\ \forall\ g$. Hence, we can write $P_i(S,M) = \frac{1}{m}\sum_{g=1}^{m} P_i(S) = P_i(S)$.

Using Eq. 3, the first-order conditions are

$$\partial\pi_i(S,M)/\partial x_{ik} = V\left(\partial P_i(S)/\partial x_{ik}\right) - 1 = 0 \tag{4}$$

$\forall i \neq j$ and $k \neq h$. In a symmetric Nash equilibrium, $x_{ik} = x_{jk} = x \ \forall\ i \neq j$ and $k \neq h$. Putting these into the first-order conditions in Eq. 4 above gives the Nash equilibrium effort per contestant per committee member. Denote this value by $\widehat{x}$. The equilibrium payoff is $(1/N)V - M\widehat{x} \geq 0$. Therefore, we require $\widehat{x} \leq V/NM$. Comparing Eqs. 2 and 4, it is straightforward to see that $x^* = \widehat{x}$. However, this will only hold subject to a non-negative payoff condition for each player. I shall elaborate below.

[4] See Amegashie (2002) for a model in which committee members have different sensitivities to rent-seeking and an explicit function for $P_i(S)$ is specified.

[5] We assume that the second-order conditions for a maximum hold.

It is important to note that no player has the incentive to deviate from the symmetric equilibrium above. A similar result was obtained in Amegashie (2002). This is because, in equilibrium, if the i-th player were to deviate by increasing his rent-seeking effort on committee member h and reduce his effort on member k, his probability of success will not change because $\partial P_i(S)/\partial x_{ik} = \partial P_i(S)/\partial x_{ih} = 1/V$, $\forall h \neq k$. The continuity of the success probabilities stems from the assumption that a committee member does not necessarily vote for the contestant who exerts the highest rent-seeking effort. If each committee member voted for the contestant who lobbies him the most, then the symmetric equilibrium above will not hold. The success probabilities will be discontinuous functions and each contestant will target a subset of committee members (i.e., majoritarian coalitions).[6]

Now suppose $x^* = V/NS$. This means that there is full rent dissipation when the composition of the committee is known. In general, there will be full rent dissipation if the number of contestants is sufficiently large (i.e., N is large) and/or the sensitivity of the judges to rent-seeking expenditures is sufficiently high (i.e., $\partial P_i(S)/\partial x_{ik}$ is high). For an example, consider Eq. 4 in Amegashie (2002), where the Tullock probability function is used and the size of the committee is 3. It is easy to show that, given $S = M = 3$ and committee members have the same sensitivity to rent-seeking efforts (i.e., $\alpha = \beta = \gamma > 0$), aggregate rent-seeking expenditure is $\alpha\left(1 - \frac{1}{N^2}\right)V$. Then aggregate rent-seeking expenditure is equal to V, if α and/or N is sufficiently high.

If $x^* = V/NS$, then $\widehat{x} \neq x^* = V/NS$. To see this, recall that we require that $\widehat{x} \leq V/NM$. However, given $M > S$, we know that $V/NM < V/NS$. Hence, the optimal solution is $\widehat{x} \leq V/NM < x^*$. Therefore, in a symmetric equilibrium, $\partial \pi_i(S, M)/\partial x_{ik} = V\left(\partial P_i(S)/\partial x_{ik}\right) - 1 > 0$ at $x_{ik} = \widehat{x} < x^* \forall i$. In this equilibrium, $\partial P_i(S)/\partial x_{ik} = \partial P_i(S)/\partial x_{ih} \forall h \neq k$. Hence, as argued before, no player has the incentive to deviate. Aggregate expenditure is $NM\widehat{x} \leq V$. This leads to the following proposition:

Proposition 1: *When the composition of the awarding committee is known and there is full rent dissipation* (*i.e., if* $x^* = V/NS$), *then there could also be full rent dissipation when the composition of the committee is unknown but the rent-seeking effort per committee member is higher when the composition of the committee is known.*

Now, suppose $x^* < V/NS$ (i.e., rent under-dissipation). Then it is possible to have $\widehat{x} = x^* \leq V/NM < V/NS$. Aggregate expenditure is $NMx^* \leq V$, when the composition of the committee is unknown and is $NSx^* < V$ when the composition is known, where $NMx^* > NSx^*$. This gives the following proposition:

Proposition 2: *When the composition of the awarding committee is known and there is rent under-dissipation, then* (*a*) *there could be full rent dissipation when the composition of the committee is unknown, and* (*b*) *the rent-seeking effort per committee member is never smaller when the composition of the committee is known.*

[6] See Congleton (1984), Myerson (1993) and Amegashie (2003).

3 Discussion and conclusion

Propositions 1 and 2 imply that holding the size of the awarding committee fixed,[7] the new ISU rule will (at best) reduce and will (at worst) not increase the rent-seeking expenditures directed at each member of the panel of judges but it will not reduce aggregate rent-seeking expenditures. The former objective is probably the goal of the ISU.

Notice when the composition of the committee is known and there is rent under-dissipation, there is full rent dissipation when the composition of the committee is unknown and the number of potential members, M, is sufficiently large. The intuition is simple. If the contestants have a positive surplus when the composition of the committee is known, they simply dissipate part or all of their surpluses when extra potential committee members are added. This also accounts for the counter-intuitive result that there may be no change in the rent-seeking effort directed at each committee member, even if it is known that some of the members will not be part of the final awarding committee (i.e., $x^* = \widehat{x}$ is possible).

It is important to note that our propositions will not significantly change if the contestants are not identical (i.e., if the Vs are different). This is because our key argument which enabled us to write $P_i(S, M) = \frac{1}{m}\sum_{g=1}^{m} P_i(S) = P_i(S)$ hinges on the assumption of identical judges not on identical contestants. It also hinges on the assumption that the size of the awarding committee is the same in each of the m possible scenarios.

The paper has offered some insights into rent-seeking expenditures under committee administration when the composition of the committee is unknown relative to the case where it is known. The analysis was applied to the recent changes by the ISU with regard to the selection of its panel of judges. The new rule *may* reduce rent-seeking effort directed towards each panel member but will not reduce aggregate rent-seeking expenditures. However, the results hinge crucially on whether there is full rent dissipation or rent under-dissipation when the composition of the committee is known.

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[7] In Amegashie (2002, 2003) and Congleton (1984), the size of the awarding committee is varied. To focus on only the effect of random selection of judges, I keep the size of the committee fixed.

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