Governance and Managerial Effort in Producer-Owned Enterprises

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Abstract

The governance of producer-owned enterprises (POEs) is challenging, with the source of the challenges lying in the complicated principal-agent relationships that exist between the members, the elected board of directors and the senior management. The purpose of this paper is to explore the governance problems that arise in POEs. To do so, the paper develops a political economy model of the board-manager relationship. In this model, the governance structure plays a key role in determining the power that the manager has vis-à-vis the board. A key conclusion of the paper is that weaker governance structures will have a direct deleterious effect on co-operative performance, since weaker governance structures imply greater power for managers. Weaker governance structures may also have an indirect negative effect on performance as POEs exacerbate the problem by paying the manager a smaller bonus. The payment of smaller bonuses is the outcome of two constraints facing the POE when setting the terms of the implicit contract that are common in POEs – the need to ensure that the manager accepts the contract and the need to ensure that the POE itself does not renege on the contract.

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The governance of producer-owned enterprises (POEs) is challenging, with the source of the challenges lying in the complicated principal-agent relationships that exist between the members, the elected board of directors and the senior management (Hueth and Marcoul, 2009, Cook, 1994, 1995). Given an objective function that is something other than solely profit maximization, POEs are unable to use profit sharing as a way of providing managers with explicit and extrinsic incentives that are in line with those of the organization. Instead, POEs rely on implicit contracts characterized by member and board member monitoring (Hueth and Marcoul, 2009). POEs may also contain elements of mission-oriented organizations, thus allowing them to benefit from the intrinsic benefits that managers with similar missions bring to such organizations (Besley and Ghatak, 2003, 2005). The result, however, is a level of remuneration that is often significantly less than that of their investor-owned firm (IOF) counterparts, making the attraction and retention of managers difficult.

POEs also struggle with the volunteer nature of their boards of directors and with ensuring strong governance structures. As a number of high-profile cases illustrate, POE boards (including co-operatives) are susceptible to being captured by powerful, over-optimistic managers who make excessive investments. Examples include the major – and often unprofitable investments – made by Saskatchewan Wheat Pool in the 1990s (Fulton and Larson, 2009), and by the UK's Co-operative Bank in recent years (Treanor, 2014, Myners, 2014). In both of these cases, governance problems have been identified as being important factors in the financial problems these organizations experienced.

The purpose of this paper is to explore the governance problems that arise in POEs. To do so, the paper develops a political economy model of the board-manager relationship. In this model, the governance structure plays a key role in determining the power that the manager

has vis-à-vis the board. The manager's power, along with his mission orientation and the bonus paid under an implicit contract, determine the effort that the manager exerts towards internal rent seeking and product quality.

A key conclusion of the paper is that weaker governance structures will have a direct deleterious effect on co-operative performance, since weaker governance structures imply greater power for managers. Weaker governance structures may also have an indirect negative effect on performance as POEs exacerbate the problem by paying the manager a smaller bonus. The payment of smaller bonuses is the outcome of two constraints facing the POE when setting the terms of an implicit contract – the need to ensure that the manager accepts the contract and the need to ensure that the POE itself does not renege on the contract. The next section develops the model. A conclusion and discussion follows.

The Model

The model developed in this section considers the relationship between a board of directors and the manager of a POE. The POE is assumed to produce a good that is purchased by a group of homogeneous members. The utility that the members get from this good depends on the price paid for the good and the quality of the good. The quality is determined by the degree to which the good meets some non-profit maximization criteria. Examples of such criteria include ethical practices and "localness" – i.e., the degree to which the POE takes into account the local economy when making its production and marketing decisions. A key element of this quality is that it is non-contractible – while members are able to observe the quality, it is not possible for this quality to be verified in the courts (Glaeser and Shleifer, 2001). Thus, it is not possible to write an explicit contract for the provision of this quality.

The operations of the POE are carried out by a manager who is hired by the board of directors to produce a good of quality sufficient to meet the needs of the members. Following

Hueth and Marcoul (2009), the manager's contract is implicit in nature and takes the form of a fixed wage plus a bonus based on subjective performance evaluation (see Baker, Gibbons, and Murphy (1994) and Bull (1987) for models of implicit contracts). The bonus is paid if the manager is successful in meeting the quality demands of the members. In addition to the financial bonus that is paid, managers may experience an intrinsic benefit from successfully meeting these quality demands. The modelling of intrinsic benefits follows Besley and Ghatak (2005).

The quality of the product is determined by managerial effort, which is costly to the manager. Managerial effort can also be used to exert power over the board. If obtained, this power can be used to receive greater remuneration, or to make investments or undertake projects that provide managerial benefits but have no value to the enterprise. The framework of Acemoglu and Robinson (2006) is used as the basis for the modelling of power.

The problem examined in this paper can be considered as a three-stage game. In the first stage the board of directors determines the bonus in the implicit contract that is offered to the manager (the fixed wage component is set to match industry norms). The board also determines the price for the good that will be provided to the members. In the second stage the manager makes a decision about the effort to allocate to enhancing the quality of the good produced by the POE and the effort to devote to obtaining power over the board. In the third stage the members observe the quality of the good that is provided, which in conjunction with the previously determined price determines the members' utility. Depending on the quality observed, a bonus is provided to the manager. The game is solved by backwards induction.

Consider first the consumption decisions made by the POE members. Following Glaeser and Shleifer (2001), the utility obtained from the POE-produced good by a representative member is given by:

$$U = U_0 + mq - p \tag{1}$$

where U_0 is a base level of utility, q is the level of quality produced by the POE, p is the price paid by the members, and m is a positive constant. Quality q is assumed to take on one of two values – either zero or one (i.e., $q = \{0, 1\}$).

The probability λ that $q = 1$ is determined by the effort e_q exerted by the POE manager. Specifically, assume that $\lambda = \mu e_q$. Assuming the implicit contract is honoured, a bonus b is paid if $q = 1$. With $q = 1$, the manager also obtains a non-monetary reward of θ if he produces quality $q = 1$. As Besley and Ghatak (2005) point out, the value of θ captures the degree to which the manager shares the mission of the POE. The larger is θ, the greater is the personal satisfaction that the manager receives from having met the quality demands of the members, quality demands that are presumed to be linked to the mission of the organization. Thus, if the bonus is paid, the manager obtains an aggregate benefit equal to $\omega + b + \theta$, where ω is the fixed wage. If the bonus is not paid, then the manager obtains only ω.

In addition to spending effort on product quality, the manager can exert effort e_p to influence his power over the board of directors. Following Acemoglu and Robinson (2006), assume the probability of the manager being able to obtain power is given by $F(\phi e_p - \eta)$, where $F(\cdot)$ is a cumulative density function, ϕ is a positive constant and η is the base power of the board.[1] If the manager is successful at obtaining power, then he is able to obtain a pay-off R. This benefit takes the form of monetary payments to the manager, or of investment spending that provides perquisites to the manager but that provide no benefit to the POE.

The base power η of the board is determined by the structure of the governance system in the POE. As a recent report into the governance system of the UK's Co-operative Group outlines, good governance encompasses a wide variety of aspects, including the expertise of the board members, board training opportunities, the match between representation and ownership,

[1] This result can be derived by assuming that the power of the manager is given by ϕe_p, while the power of the board is given by $\eta + \epsilon$, where η is the base power of the board, and ϵ is a random variable with probability density function $f(\epsilon)$ and cumulative density function $F(\epsilon)$. The probability that the manager's power is greater than the board's power is given by $F(\phi e_p - \eta)$. It is assumed that $f(\epsilon)$ is strictly decreasing. See Acemoglu and Robinson (2006) for details.

the democratic processes in place, the complexity of decision making, and conflicts of interest (Myners, 2014).

Given the above assumptions regarding the impact of manager effort, and assuming that the expected returns from the exercise of power are additive with the returns obtained from successfully meeting the members' quality objective, the problem facing a manager can be written as:

$$\max_{e_p, e_q} U_m = \omega + F(\phi e_p - \eta)R + \mu e_q(b + \theta) - \frac{1}{2}(e_p + e_q)^2 \tag{2}$$

where the term $\frac{1}{2}(e_p + e_q)^2$ represents the cost of total effort e, and $e = e_p + e_q$.

The first-order conditions for this problem are:

$$\frac{dU_m}{de_p} = \phi f(\phi e_p - \eta)R - e_p - e_q = 0 \tag{3}$$

$$\frac{dU_m}{de_q} = \mu(b + \theta) - e_p - e_q = 0 \tag{4}$$

Figure 1 graphs the relationships in equations (3) and (4). The optimal total effort e^* is determined by the intersection of the marginal benefit line $\mu(b + \theta)$ and the marginal cost of effort curve $\text{MC}_e = e$. Of this total effort, the optimal effort e_p^* is determined by equating $\mu(b+\theta)$ with the $\phi f(\phi e_p - \eta)R$ curve. The optimal effort e_q^* is then determined as the difference between e^* and e_p^* – i.e., $e_q^* = e^* - e_p^*$.

The comparative static results are straightforward and can be seen from Figure 1. An increase in μ, b and θ have the effect of decreasing e_p and increasing e_q; a decrease in e_p and an increase in e_q can also be generated with an decrease in ϕ and/or an increase in η.

One of the conclusions to derive from Figure 1 is that the POE has a number of parameters at its disposal to influence managerial effort. While the bonus b is the obvious instrument, a POE could also use mission orientation (θ) and governance structure (η) to reduce e_p and increase e_q. For instance, Lord Myners, in his review of the governance of The Co-operative Group in

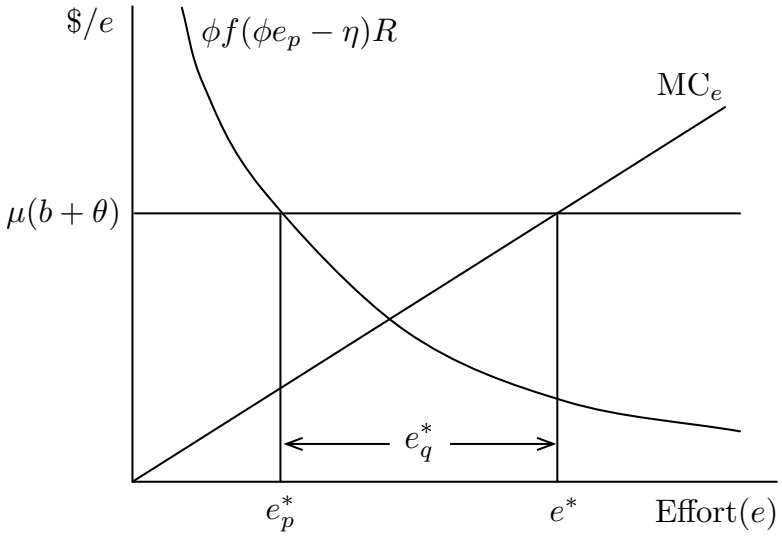

Figure 1: Determination of Optimal Effort

light of the financial problems it has been facing, suggests the use of both instruments as a way of addressing the Group's problems. The use of mission is captured in his recommendation that "all non-executive directors will themselves be members committed to co-operative values and principles" (Myners, 2014, p. 19), while his use of governance is reflected in his observation that "Unless the Group takes urgent steps to reform its governance and generate sustainable economic value, it will run out of capital to support its business" (Myners, 2014, p. 18).

Since the financial bonus is often the easiest parameter for a POE to manipulate, it is useful to examine in more detail the impact of the bonus b on the effort exerted by the manager and the subsequent returns to the POE members. As Figure 1 shows, an increase in b has the effect of lowering e_p and increasing e_q – i.e., $e_p'(b) < 0$ and $e_q'(b) > 0$.

Since an increase in b means that the marginal benefit of effort increases, the effect of an increase in b on the net utility of the manager is positive – i.e., $U'(b) > 0$. Figure 2 graphs manager utility $U(b)$ against the bonus b (for ease of illustration, the relationship is drawn as linear). The position of the $U(b)$ curve depends on the governance structure, with improvements

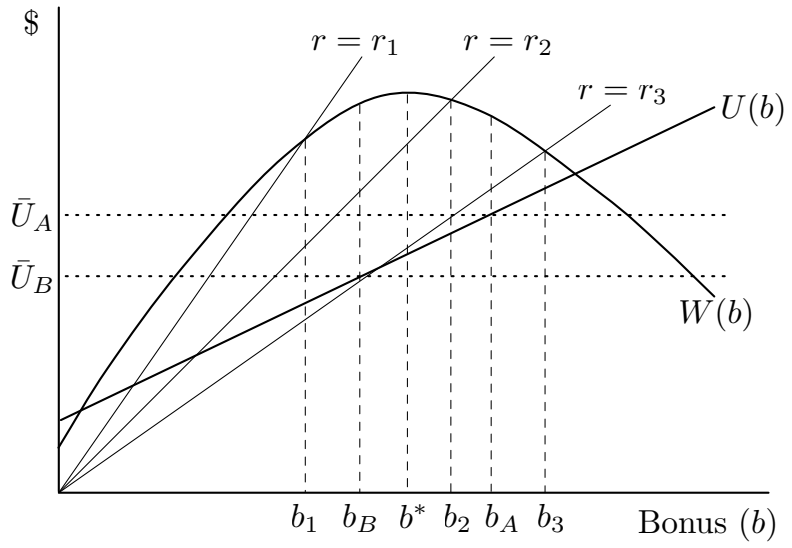

Figure 2: Member Well-Being, Manager Utility and the Bonus

in the governance structure – i.e., larger values of η – corresponding to lower manager utility. As well, managers with a greater sense of mission (larger values of θ) have greater utility.

With knowledge of the impact of b on e_p and e_q, the relationship between the bonus and member well-being can be determined. Assuming there are N members in the POE, member well-being $W(b)$ is given as:

$$W(b) = NU_0 + Nm\mu e_q(b) - \omega - F(\phi e_p(b) - \eta)R - \mu e_q(b)b \tag{5}$$

Equation (5) assumes that the members effectively pay a price equal to the average cost of producing the product. This can be accomplished by setting price equal to average cost, or by setting price above average cost (but less than or equal to the maximum willingness to pay) and then rebating the difference to the members.

Assuming the goal of the POE is to maximize W, the problem facing the board of directors in stage 1 is to maximize the expression in equation (5) by choosing the bonus b – i.e.,

$$\max_b W(b) = NU_0 + Nm\mu e_q(b) - \omega - F(\phi e_p(b) - \eta)R - \mu e_q(b)b \tag{6}$$

In carrying out this program, the board is subject to two constraints. The first constraint is an individual rationality constraints – the expected utility of the manager has to be greater than or equal to the utility that can be obtained from his next best alternative. This constraint can be expressed as $U(b) \geq \bar{U}$.

The second constraint is a credible commitment constraint – the bonus b must satisfy the conditions that ensure that the POE honors the implicit contract (i.e., that the bonus chosen satisfies a trigger-strategy equilibrium). As Baker, Gibbons, and Murphy (1994) show, this constraint can be expressed as $W(b) \geq rb$, where r is the discount rate of the members.

The key insights of the problem can be seen graphically in Figure 2. The curve $U(b)$ shows the utility of the manager. As discussed above, $U(b)$ is increasing in b. The curve $W(b)$ shows the well-being of the members and is concave in b with a maximum at b^*. The curves $r = r_1$, $r = r_2$ and $r = r_3$ graph the expression rb for different values of r ($r_1 > r_2 > r_3$). Finally, the lines $\bar{U}_A$ and $\bar{U}_B$ show two different values of the utility available to the manager from his next best alternative.

In the absence of constraints, member well-being is maximized with a bonus b^*. Providing the POE's discount rate r is sufficiently low (e.g., r_3), the POE will choose b^* if the manager's outside option is sufficiently low – e.g., $\bar{U}_B$. However, if the manager's outside option is higher than this – say $\bar{U}_A$ – then the POE would be required to pay a higher bonus – e.g., b_A – in order to entice the manager to work for the POE.

While paying a bonus of b_A satisfies the trigger-strategy equilibrium necessary to make the implicit contract self-enforcing if the discount rate is r_3, this is not the case if the discount rate

is higher. For instance, if the discount rate is r_2, then the POE cannot pay a bonus larger than b_2 if it wishes to be able to make a credible commitment to the manager that it will not renege on the implicit contract. Thus, when the manager's outside option is sufficiently large – as is the case with $\bar{U}_A$ – the POE will not be able to simultaneously pay a bonus that is large enough to entice the manager and a bonus that is small enough to be credible. This problem, of course, made worse the higher is $\bar{U}$ and the larger is r. As an example, with discount rate r_1, the bonus cannot exceed b_1, which means that even with a next best alternative of $\bar{U}_B$ the POE is unable to find a bonus that can satisfy all the constraints.

The inability in some instances for the POE to find a bonus that can satisfy the manager's individual rationality constraint and the POE's commitment constraint can have important impacts on the operation of the POE. One impact is that the POE needs to rely more heavily on other instruments. An obvious strategy for the POE is to try and attract managers that have high values of θ. Higher values of θ result in a shift up of the $U(b)$ curve and open up more room for the two constraints to be satisfied. Of course, finding and attracting managers that have high mission values and that are also highly competent is one of the problems with this strategy.

Another possibility is for the POE to relax its governance structure. As noted above, a weakening of the governance structure leads to a shift up of the $U(b)$ curve, thus making it easier for the POE to meet the manager's individual rationality constraint. Of course, weakening the governance structure also leads to a shift down of the $W(b)$ curve, thus making it more difficult for the POE to meet the credible commitment constraint. Since these impacts are not equal, it is possible that under some conditions that weakening the governance structure can make it easier to satisfy both constraints simultaneously. In this case, the POE makes a trade-off – in exchange for being able to hire a manager the POE opens up the possibility that the manager will capture the board and use his power to personally benefit at the expense of the POE.

The framework developed above can also be used to examine the impact of poor governance structures. Poor governance has been cited as a key factor in the demise of the Saskatchewan

Wheat Pool in Canada and in the financial troubles plaguing The Co-operative Group and the Co-operative Bank in the U.K. (Fulton and Larson, 2009, Myners, 2014, Treanor, 2014).

The weaker is the governance structure, the smaller is η and the further out and to the right is the curve $\phi f(\phi e_p - \eta)R$ in Figure 1, which in turn leads to higher effort e_p and lower effort e_q. A smaller η also leads to a shift up of the $U(b)$ curve and a downward to the right shift of the $W(b)$ curve in in Figure 2. The impact of these shifts on the optimal bonus depends on which constraints are binding. If the discount rate and outside alternative are sufficiently low that they are not binding, then a weaker governance structure can be expected to lead to a somewhat larger bonus. However, this increased bonus will not be large enough to offset the impact of weaker governance on e_p and e_q – the result is that the effort devoted to obtaining power rises and the effort devoted to producing quality falls.

If the discount rate is non-binding but the outside alternative is binding, then the weakening of the governance structure can lead to a decrease in the bonus. The reason for the decreased bonus is that with the shift up of the $U(b)$ curve, the POE does not need to pay as high a bonus in order to satisfy the individual rationality constraint. A fall in the bonus can also occur if the discount rate is binding, but the outside alternative is not. In this case, the shift down in the $W(b)$ curve means a fall in the b that satisfies the $W(b) \geq rb$ constraint. If the drop in $W(b)$ is sufficiently large then a self-enforcing contract implicit contract may not be possible to write. In the cases where the bonus falls, this fall further exacerbates the impact of the weaker governance structure in that e_p will be further increased and e_q will be further reduced.

Conclusion and Discussion

POEs and co-operatives often rely on implicit contracts with their managers (Hueth and Marcoul, 2009). The analysis in this paper shows that the use of such contracts can be problematic

under certain conditions. Specifically, implicit contracts can become non–self-enforcing when the manager's next best alternative and/or the POE's discount rate become too large.

The results also indicate how delicate the arrangement is between the POE and its manager, and how much this arrangement is influenced by external events. An increase in the manager's next best alternative – because of rising CEO salaries, for instance – could lead the POE to increase the bonus it pays, which then opens up the possibility of the POE reneging on its implicit contract with the manager. If this were to occur, the manager would devote his effort to obtaining power, with unfortunate consequences for the POE.

The model developed in this paper highlights the importance of the POE's governance structure, a factor that has been identified as being at the heart of the financial problems faced by a number of high profile co-operatives. Poor governance structures weaken the incentives for the manager to exert effort towards product quality and increase the incentives for managers to engage in non-productive activities (that are nevertheless beneficial to them). This direct effect of a weaker governance structure is further compounded if the POE decides to reduce the bonus; such an outcome is more likely to occur if the outside alternatives for the manager are very lucrative and/or if the POE has a high discount rate.

These results suggest that POE failures are more likely to occur during periods when managerial and CEO remuneration has been sharply rising, and when the POE is highly impatient. Both of these features have been present during the last decade or so, suggesting that they may have indeed been factors in the POE failures that have been observed (Fulton and Hueth, 2009). CEO salaries. of course, have risen dramatically over the last 20 years. As for an increasing impatience, there has been much discussion about the "tyranny of the quarter." While POEs should be immune to the need for immediate returns given that members do not have shares that fluctuate in value depending on profitability and performance, it is likely difficult for POEs to disregard what is happening in the dominant organizations around them. Greater competi-

tion in agricultural supply chains may also increase the discount rate if it pushes POEs to move quickly and achieve results sooner rather than risk being made non-competitive.

Given the important of governance structures to POEs, the question arises as to why this structure has become so problematic in so many organizations. Lord Myners, in his examination of the governance structure of The Co-operative Group, stressed that governance structures not only affect the benefits received by the members and the manager, they also affect the benefits received by different members. These differential benefits, along with differential access to influence, mean that changes to governance structures are likely to be difficult and that governance provisions put in place during one period will likely be difficult to alter when conditions change (Myners, 2014). The examination of the impact of governance structures on different members and the manner in which this impact affects the governance structures that are chosen is a subject for future research.

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