Improper Selection of High-cost Producers in the Rent-Seeking Contest *

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Abstract

The resources two rival businesses spend to raise their own chance of getting a unique monopoly license are a cost of rent-seeking. When those businesses differ in the costs of producing the monopoly good there is an additional cost of rent-seeking that has not been studied in the literature. If the high cost producer wins the license, the difference between his cost and the costs of his more efficient rival is a social loss from improper selection of producers by the political process. The loss becomes more severe when the ability to lobby of the inefficient producer outstrips that of the efficient producer. This may help to explain why specialized lobbying evolved. Specialized lobbying reduces the social cost from improper selection of firms by allowing efficient producers to hire expert rent-seekers and so to raise their chances of gaining monopoly concessions. *Keywords: Rent-seeking, economic efficiency. J.E.L.* classification: D61, D72

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1. Introduction

The rent-seeking literature has focused on the costs of the *contest* for government favour. Little attention has been paid to *who wins* the contest. In some rent-seeking contests who wins is important. Consider two cable companies pleading for a broadcast license. If the company with high transmissions costs wins the broadcast license, more of society's resources are devoted to sending TV signals than had the low cost company won. The difference in costs between rivals is a deadweight loss. Such deadweight losses are the focus of the present paper.

A comment by Vito Tanzi (1982) shows that the general notion of deadweight costs from improper selection has existed for some time in the public finance literature. In a paper on the underground economy Tanzi wrote that "Untaxed underground activities will compete with taxed, legal ones and will succeed in attracting resources even though these activities may be less productive...There will of course be significant welfare losses associated with this transfer." Tanzi was not talking about rent-seeking. Rather, his idea was that sometimes inefficient producers with good evasive skills can oust efficient producers with poor evasive skills. In a related paper (Palda 1998) I formalized this notion and suggested it could be extended to political markets. In the political market, there is a chance that high cost producers will win production rights from low cost producers. Demsetz (1984) touches briefly on this point in his piece *Purchasing Monopoly* in which he suggests that "The monopoly may turn out to be a more costly producer than the competitive industry being monopolized." I follow the lead given by these two scholars to suggest that the political process is a test of survival whose outcome may be at odds with economic efficiency. The costs of improper selection by the political process may rival traditional rent-seeking costs.

Deadweight losses sometimes attract the attention of political reformers eager to craft institutions that will lessen waste. The danger of loss from improper selection of firms by the political process may explain why the law allows specialized lobbying firms to peddle their services to businesses. Professional lobbyists allow efficient producers to raise their chances of winning government licenses. This cuts down on the deadweight losses from improper selection.

2. A rent-seeking model

The theme of this paper is that deadweight loss from the improper selection of high cost firms (called here "selection costs") may have to be added to the traditional costs associated with rent-seeking to guage the total deadweight losses from political contests. The "traditional" costs were catalogued by Buchanan (1980) as the efforts monopolists devote to getting a license, the efforts of bureaucrats to place themselves in a position to receive bribes from monopolists, and third-party distortions induced by the monopoly. The present paper adds a fourth category of loss from rent-seeking to this list. This fourth loss are the extra resources that feed production in the case where a high cost producer has walked away triumphant from a rent-seeking contest against a low cost producer, and where the high-cost producer cannot turn around and sell his license to the low cost producer. Examples include non-transferable fishing quotas, or cable broadcasting licenses handed out by a telecommunications regulatory board. The fourth loss is not the triangle-loss from monopoly, but rather the extra production costs from having the least efficient monopoly producing.

To analyse improper selection costs we need a benchmark model of rent-seeking. Tullock's (1967, 1980) model is a useful reference. This model provides the structure needed to develop the point of the present paper.

Consider a world of two producers. The one producer spends E_1 lobbying government for the right to be the sole provider of a cable television service in a region. The other producer spends E_2 in the same quest. The winner gets the right to monopoly revenues of $R^{monopoly}$. The probability that the first producer snatches the monopoly takes the logistic form familiar in rent-seeking models:

$$P = \frac{a_1 E_1}{a_1 E_1 + a_2 E_2} \tag{1}$$

where a_1 is a parameter that measures the first producer's ability to translate lobbying expenses into political pressure. The parameter a_2 is the second producer's lobbying ability and this producer's probability of winning is $(1 - P)$. I assume $a_1 + a_2 = 1$ for convenience. Figure 1 shows how the probability of candidate 1 winning varies as his own expenditures (E_2) vary and as the expenditures of his rival (E_1) vary, under the assumption that both candidates have identical political abilities ($a_1 = a_2$). The figure needs little explanation. The more a

candidate spends the greater his chances of winning.; the more his rival spends the less the candidate's chances of winning.

Equation (1) indicates that firm 1's probability of winning is a function both of its and its opponent's abilities to win (a_1, a_2) and of its and its opponents *willingness* to invest resources (E_1, E_2) to win. Ability and willingness are linked through the optimization the candidate follows. Each producer seeks the prize of a monopoly license worth $R^{monopoly}$. If the first producer has constant production costs of C_1, then he is competing for net revenue, or a "jackpot," of $J_1 = R^{monopoly} - C_1$. If the first producer takes his opponent's lobbying expenditures as given, then he chooses E_1 to maximize his expected gain from lobbying:

$$P(E_1, E_2)J_1 - E_1 \tag{2}$$

The Cournot equilibrium to this game is $E_1^* = J_1P^*(1-P^*)$ and $E_2^* = J_2P^*(1-P^*)$.[1] This means that the equilibrium probability that producer 1 wins P^* is

$$P^* = \frac{a_1E_1}{a_1E_1 + a_2E_2} \tag{3}$$

$$= \frac{a_1J_1P^*(1-P^*)}{a_1J_1P^*(1-P^*) + a_2J_2P^*(1-P^*)} \tag{4}$$

$$= \frac{a_1J_1}{a_1J_1 + a_2J_2} \tag{5}$$

$$= \frac{a_1(R^{monopoly} - C_1)}{a_1(R^{monopoly} - C_1) + (1-a_1)(R^{monopoly} - C_2)} \tag{6}$$

Figure 2 illustrates the above relation between lobbying ability and a firm 1's costs of production (the parameters of equation 6), and firm 1's probability of securing the monopoly right. The figure maps firm 1's probability of winning on the assumption that the monopoly revenue is $R^{monopoly} = 10$ and that firm 2's costs are 5. The figure shows what happens when firm 1's political ability varies from (0,1) and when its costs vary from (0,10). With

[1]Maximizing $P(E_1, E_2)J_1 - E_1$ with respect to E_1 gives as first order condition that $\partial P/\partial E_1 = 1$. This implies that

$$\frac{a_1(a_1E_1 + a_2E_2) - a_1^2E_1}{(a_1E_1 + a_2E_2)^2} = \frac{1}{J_1}$$

If we multiply both sides of the above equation by E_1 the resulting expression can be manipulated to give that $P(1-P)/E_1 = 1/J_1$ which implies that $E_1 = J_1P(1-P)$. The same holds for firm 2.

no political ability (a_1 = 0) firm 1's probability of winning is zero, no matter what its costs. When firm 1's costs are equal to the monopoly revenue of 10, firm 1's chooses a zero probability of winning. Firm 1 invests nothing in winning in this case because its production costs C_1 are equal to the monopoly revenue $R^{monopoly}$ so that firm 1 sees no point in paying money to win a rent-seeking contest with no net return. Figure 2 shows that firm 1's probability of winning falls as its costs rise, because as costs rise there is less to be gained from winning so the firm invests less in winning than when costs are low. There is a critical range of political abilities and costs above which firm 1's chances of winning the contract will be better than 50%. This range is marked off in Figure 2 by the intersection of firm 1's probability of winning function, and the plane where P_1 = .5. If firm 1's costs are high, then its political ability must also be high for it to want to invest in winning the contest.

So far much of this is standard, but the exposition sets the stage for examining how rent-seeking losses vary with the model's parameters. To find the equilibrium amounts spent on rent-seeking by firms 1 and 2, substitute P^* back into the formulae for E_1 and E_2 to give

$$E_1^* = \frac{a_1 a_2 J_1^2 J_2}{(a_1 J_1 + a_2 J_2)^2} \quad and \quad E_2^* = \frac{a_1 a_2 J_1 J_2^2}{(a_1 J_1 + a_2 J_2)^2} \tag{7}$$

Figure 3 shows how the rent seeking expenditures of both firms vary with the model's parameters a_1 and C_1. In the present example I have set C_2 = 5 and have allowed C_1 to vary around this from zero to ten. The expenditure graphs show the expected result that close races (where political abilities and costs are similar) produce similar, and high, lobbying expenditures by both firms.

The total costs of rent-seeking by both firms as traditionally conceived by Tullock (1980) are

$$E_1^* + E_2^* = (J_1 + J_2)\left[\frac{a_1 a_2 J_1 J_2}{(a_1 J_1 + a_2 J_2)^2}\right] \tag{8}$$

If political talents are identical ($a_1 = a_2$) and costs are identical ($C_1 = C_2$) then both firms vie for the same jackpot ($J_1 = J_2 = J$) and in equilibrium rent seeking costs are $.5J$; a familiar result (see Palda 1992).

When $C_1 > C_2$ (i.e. firm one is a less efficient producer than firm two so that its jackpot is smaller) there is still the traditional rent-seeking deadweight loss of $E_1^* + E_2^*$. There is

also an expected deadweight loss to account for. If the high cost producer should win the lobbying race, then the excess of his cost above that of the low cost producer must be counted as a loss from the rent-seeking process. The probability in equilibrium that the high-cost producer wins is P^*, so that the expected cost from selection of the high cost producer by the political process is $P^*(C_1 - C_2)$. This expectation of cost is the relevant social loss for drawing conclusions about the loss, over long-periods, from improper selection of high cost firms by the political process.

The sum of traditional and improper selection costs is:

$$\underbrace{(E_1^* + E_2^*)}_{traditional\ \ costs} + \underbrace{P^*(C_1 - C_2)}_{selection\ \ costs} = (J_1 + J_2)\left[\frac{a_1 a_2 J_1 J_2}{(a_1 J_1 + a_2 J_2)^2}\right] + \frac{a_1 J_1}{a_1 J_1 + a_2 J_2}(C_1 - C_2) \qquad (9)$$

How do rent-seeking loses that take into account the danger of improper selection of high cost firms compare with traditional costs? Consider how traditional and selection cost vary along with the costs of firms and with their political abilities (the parameters of the model). Figure 4(a) shows the sum of traditional rent-seeking costs of both firms as a function of firm 1's costs C_1, and political abilities a_1 (this figure is just the vertical sum of the superimposed expenditure curves in Figure 3. For simplicity I have assumed that $C_2 = 0$. I could have allowed firm 2's costs to vary but this would have given no insights beyond allowing firm 1's costs to vary. The figure shows that traditional rent-seeking costs at first rise with firm 1's political ability and then past some critical value of a_1 these rent-seeking costs fall. As a_1 rises towards the critical point, the rent-seeking contest between firms becomes progressively more even, and both contestants invest progressively more resources to win. As a_1 rises past the critical point the contest becomes progressively less close and the contestants both invest progressively less. When $C_1 = 0$ the critical point is simply $a_1 = .5$ because in this case the costs of production are the same for both firms and so do not play a role in determining how closely matched firms are in their abilities and *incentives* to win. As firm 1's costs rise the critical value of its political ability rises, meaning that for it to wish to invest as much as firm 2 in the contest, firm 1 must counterbalance firm 2's lower costs with a higher political ability.

The comparative statics of firm 1's costs are less obvious at first glance than the comparative statics of its political ability. Figure 4(a) shows that for relatively low values of a_1, traditional

rent-seeking costs fall as firm 1's costs rise. With low political ability it is not surprising that firm 1 will invest less than before as its cost rise. Firm 2 will also invest less as 1's costs rise because the contest becomes less even and so firm 2 can "relax" secure in the knowledge of a high probability of victory. When firm 1's political abilities are strong (a_1 is in the zone of .9 to 1), rent-seeking costs rise with firm 1s' production costs. How can this be? The reason is that when firm 1's political abilities are very strong, firm 2 finds itself with a low probability of winning. As firm 1's costs rise, firm 1 has less incentive to invest in winning than at low costs, and firm 2 suddenly perceives the contest as being closer. This emboldens firm 2 to increase its investments in rent-seeking in such manner as to outweigh the fall in firm 1's investments in the contest. This somewhat tortuous description illustrates the complexities behind the comparative statics of what seems a rather simple model of rent-seeking.

What about selection costs? Under my simplifying assumption that firm 2's costs are zero, selection costs are simply $P^*(J_2 - J_1) = P^*C_1$. This suggests that the comparative statics for selection costs are less complex than those for traditional rent-seeking costs, because the driving forces that raise selection costs unambiguously are the probability that the high-cost firm (firm 1) wins the rent-seeking contest, and the costs C_1 of the high cost firm. There is no doubt that large political ability will always contribute to firm 1's ability to win. So we see in Figure 4(b) an unambiguous rise in selection costs as 1's political ability a_1 rises. For rising C_1 there are two contradictory effects on selection costs. For low levels of C_1 a rise in C_1 will induce firm 1 to lower its investments in rent-seeking and so lower its probability of winning. This lowering effect on selection costs is counterbalanced by the rise in firm 1's costs of production so that the overall effect is to increase selection costs. When firm 1's costs are high, Figure 4(b) shows that a rise in production costs leads to a fall in selection costs. For high levels of C_1 an additional rise in C_1 has a progressively more discouraging effect on firm 1's incentive to invest in victory due to the exponential forces built into the rent-seeking model by my choice of the probability of victory function in equation (1). The rapid plunge in firm 1's probability of winning which the rise in firm 1's production costs engenders, more that outweighs the effect on selection costs of a rise in firm 1's production costs. The net result is that past a critical level of firm 1 production costs, selection costs P^*C_1 fall with the rise in C_1.

Perhaps the most interesting thing to note about Figure 4(b) is how selection costs tend to

rise as both firm 1's production costs and its political ability rise. Figure 4(b) suggests that a positive correlation between political ability and production costs leads to high selection costs from the rent-seeking contest. Readers who grew up in Al Capone's Chicago will grasp the point easily. This was the golden era of the "rackets." As Kobler (1971) explains, it was an era when hoodlums drove honest businessmen out of commerce. As a sideline to his gambling and alcohol businesses, Capone operated a chain of laundry cleaning shops. He became a partner in operations at the request of the legitimate owner, who had been intimidated by the gangs who operated rival cleaning shops. At the same time in New York, gangster Frankie Yale chased cigar producers out of the city and forced his own low quality smokes with his emblem onto shopkeepers. A "Frankie Yale" became the synonym of a high priced, low quality cigar. The same issues arise today in transitional countries. Are the heads of banks and oil companies there because they are the best managers of business or because they are good at managing violence and graft? The costs of rent-seeking in such situations are likely to be higher than the traditional rent-seeking analysis would suggest.

In Figure 4(c) I have superimposed the selection cost function of Figure 4(b) with the traditional rent-seeking cost function in Figure 4(a) to show that selection costs may rival or exceed traditional costs when the high cost firm has also a high political ability (I have rotated the axes slightly to give a good notion of the difference between the two types of rent-seeking cost). The high cost firm's strong political ability increases its chances of winning the political contest. Better chances for the high cost firm mean bigger expected deadweight loss from improper selection. When a firm's production costs are inversely related to its political talents, the radical effects of improper selection are toned down. As Figure 4(c) shows, when firm 1's costs are high, but its political abilities low, it is not likely to win the rent-seeking contest and the selection cost curve lies below the traditional rent-seeking cost curve.

3. Conclusion

This paper has proposed that rent-seeking wastes resources in two ways. One waste comes from the traditional striving for a government license. If the high cost firm wins the race there is a second form of rent seeking loss: the difference between what it would have

cost the high and low cost firms to produce. Social loss from improper selection of the high cost firm can rival traditional rent-seeking loss. The size of selection loss is especially large when inefficient producers are excellent rent-seekers.

The existence of selection loss may be a piece in the puzzle of why some countries develop and others stagnate. Selection loss is lowered if inefficient producers with strong political abilities are able to specialize in lobbying. Such firms would close their factories and open consulting offices. These offices would sell rent-seeking services to efficient firms that bumble in the corridors of power. There would still be a waste from the activities of these firms, but this waste would be a faint echo of the waste from having a high cost firm do the work of a low cost firm. It is perhaps the countries that manage to separate politics from production that take a great leap forward on the road to economic growth.

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Figure 1: Firm 1's Probability of Winning

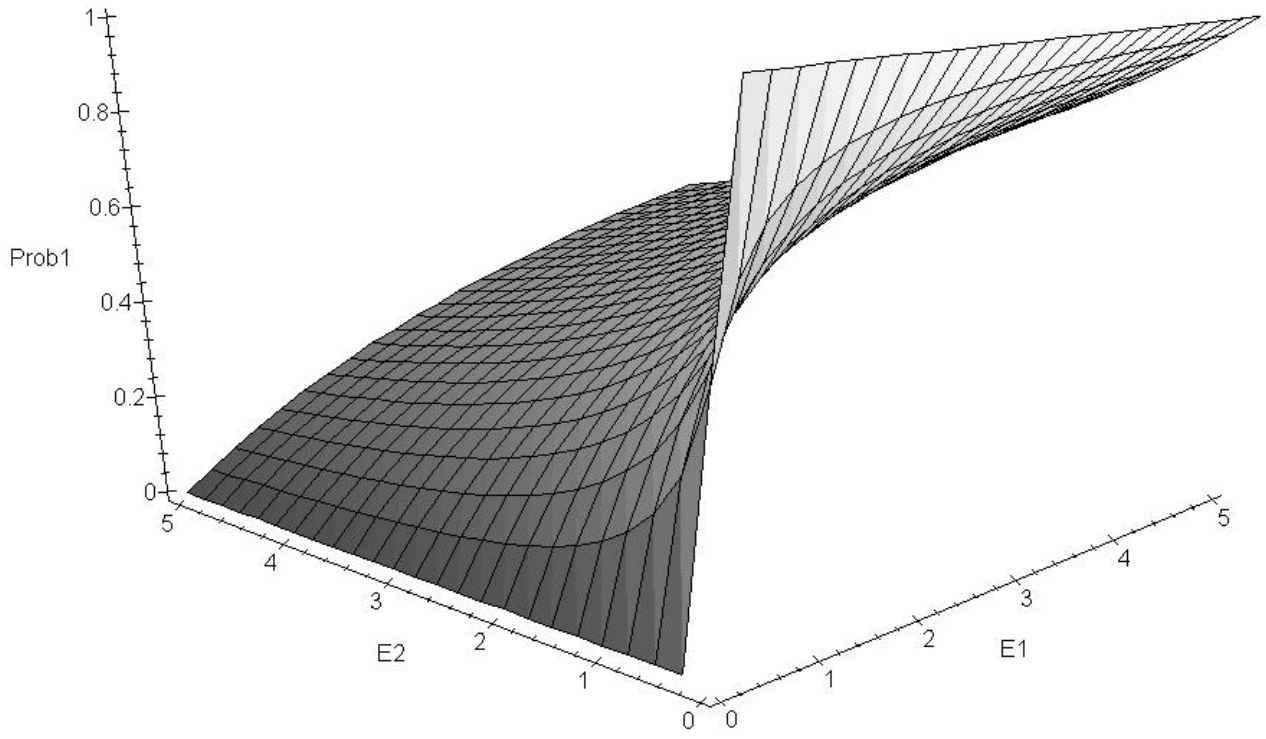

Figure 2: Firm 1's Probability of Winning

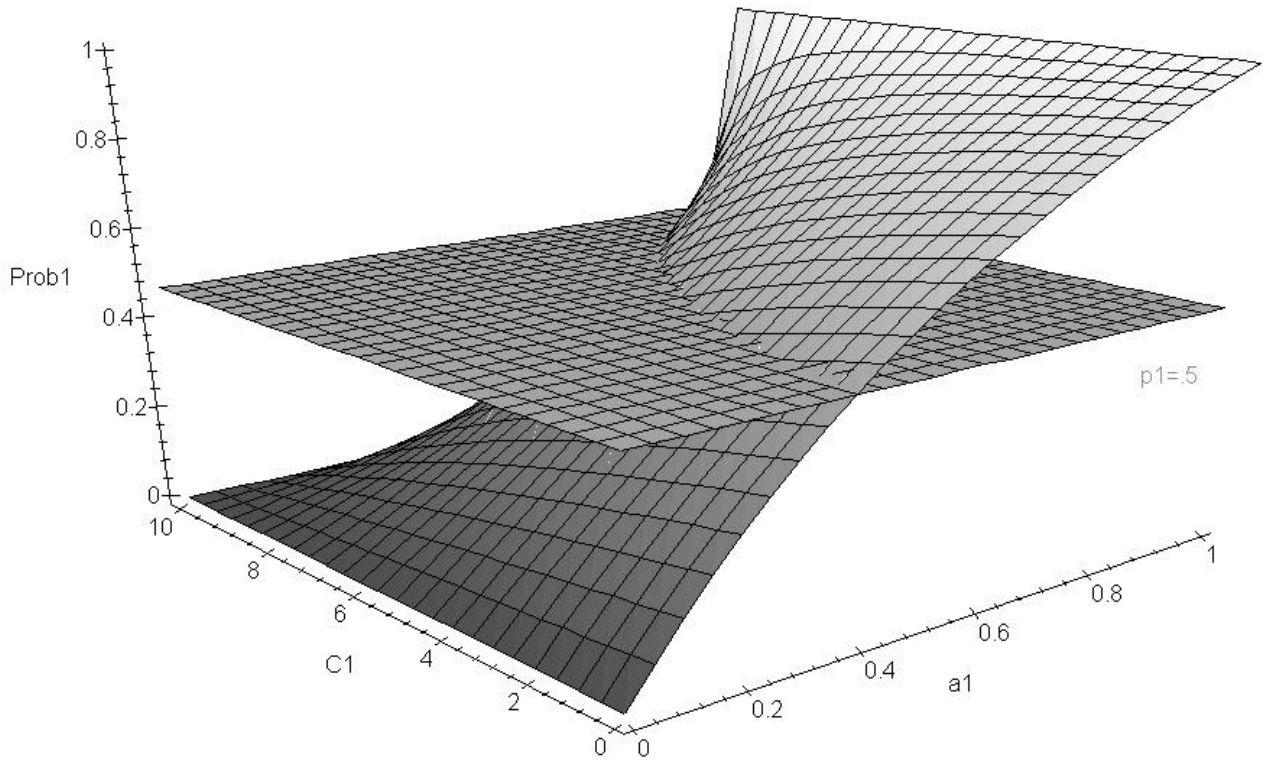

Figure 3: Firm 1 and 2's Lobbying Expenses

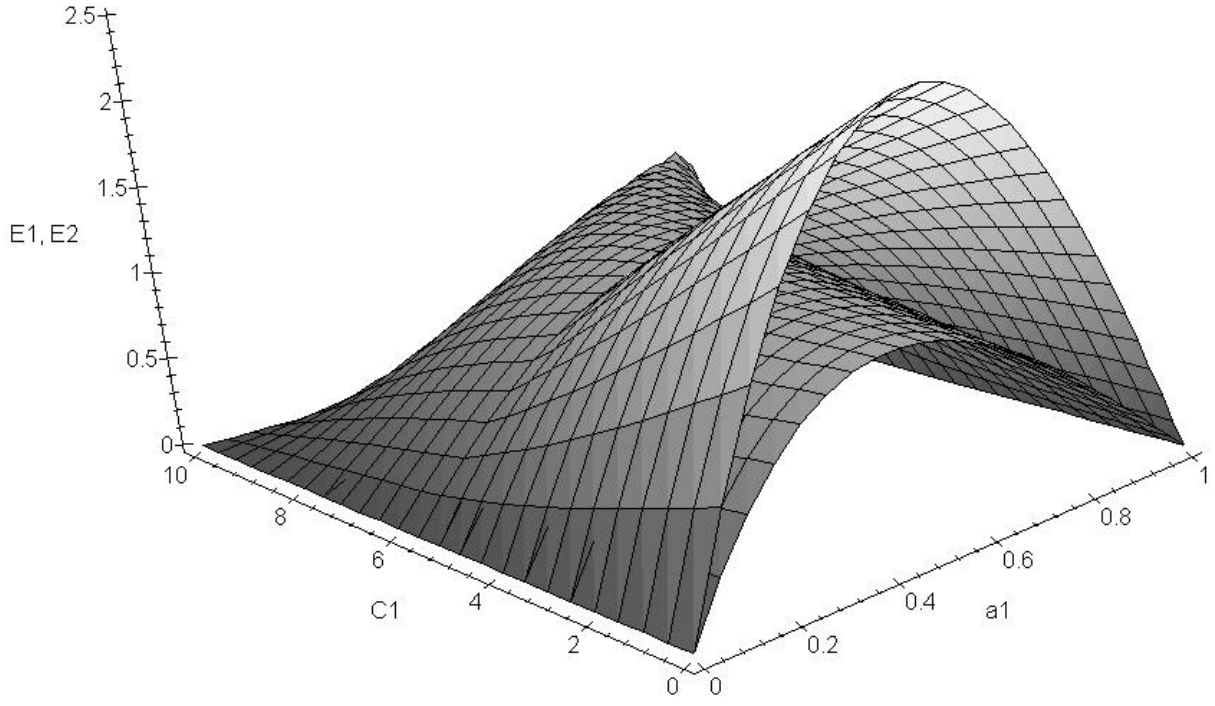

Figure 4(a): Traditional Rent-Seeking Costs

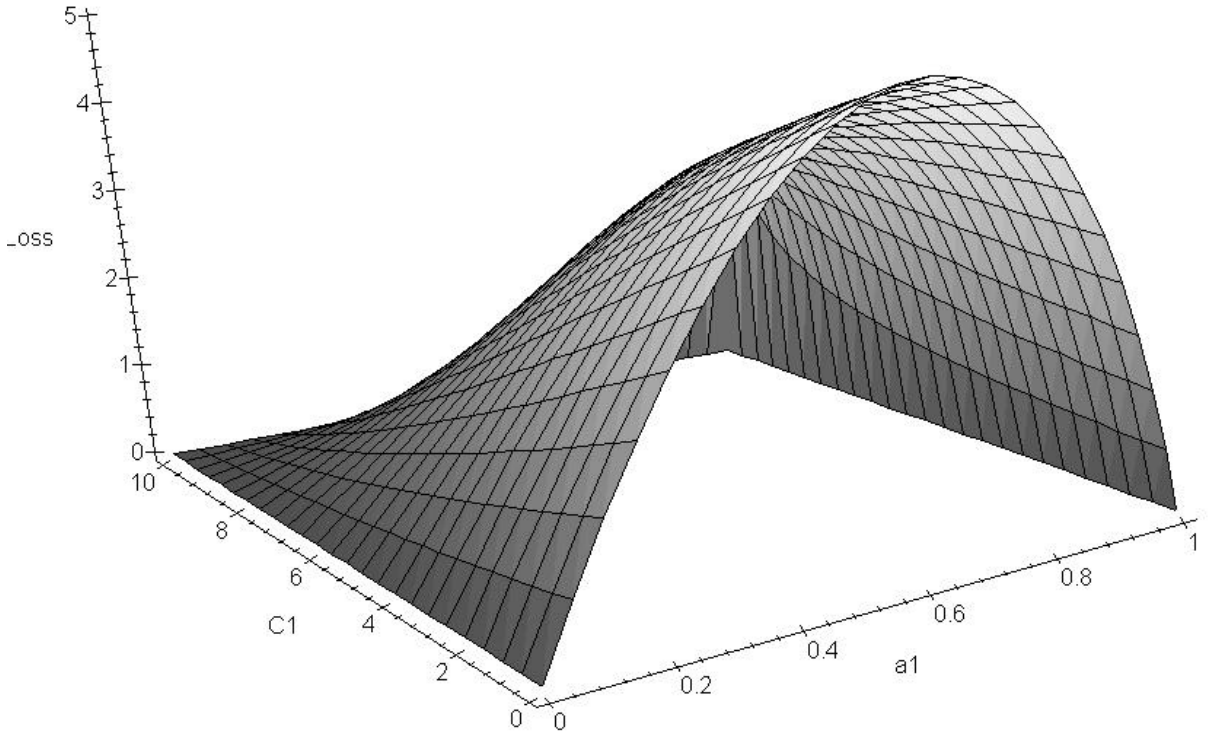

Figure 4(b): Selection Costs

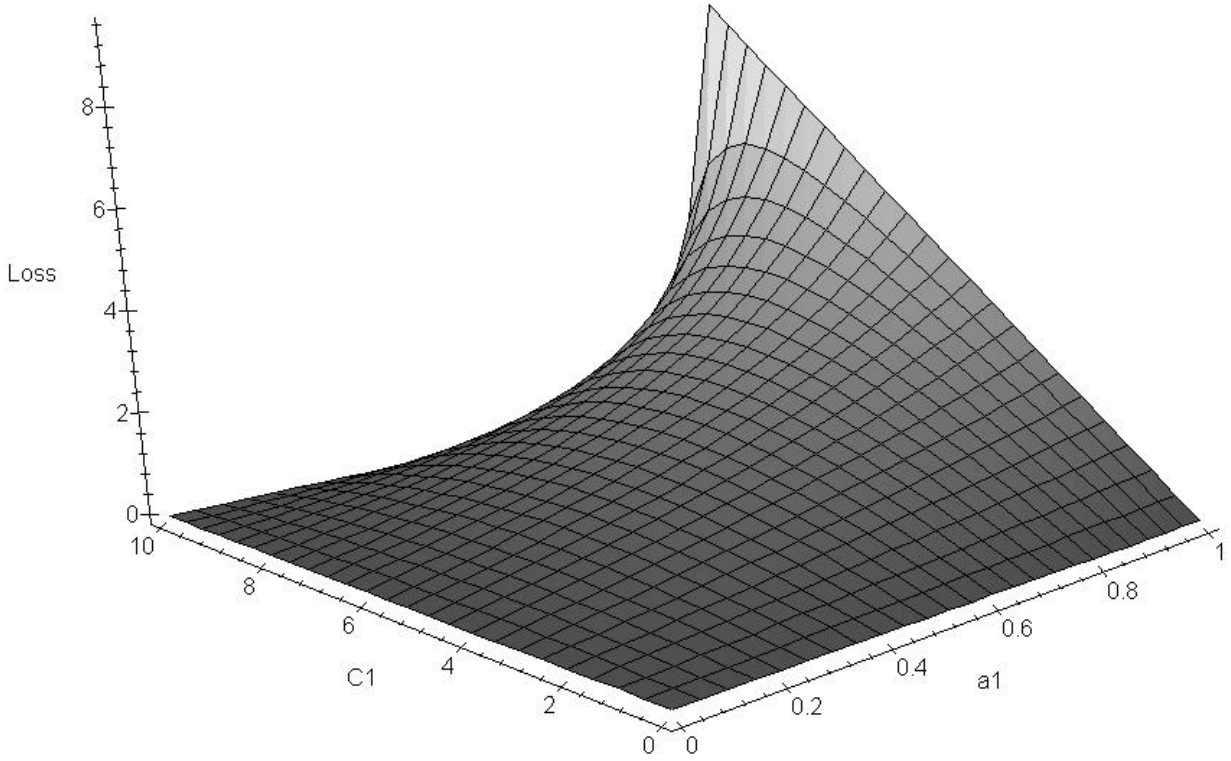

Figure 4(c): Traditional and Selection Costs