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Political Competition, Campaign Contributions and the Monopolisation of Industries

by Peter Michaelis
July 1995

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Abstract. The present paper develops a model of endogenous policy making where a '*low regulation*' party *l* and a '*high regulation*' party *h* compete for campaign contributions spent by a dominating low-cost firm within a regulated industry. The model shows that assuming an *endogenous* market structure reinforces the economic impacts of lobbying activities compared to the case of a *fixed* number of firms. In particular, political competition can lead to a level of regulation where all firms using the high-cost technology decide to leave the market such the dominating firm becomes a monopolist. This outcome is c.p. the more likely, the larger the cost differential between the lobbying firm and its high-cost competitors is, and the less external financial sources like, e.g., governmental grants are available to the political parties. Moreover, ideological constraints that prevent the low regulation party from taking up its equilibrium position will also increase the probability of monopolisation.

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1. Introduction

Conventional wisdom usually assumes that industry lobbying aims at erecting entry barriers against potential competitors or at preventing the introduction of costly regulations such as, e.g., product norms and emission standards. In reality, however, it can sometimes be observed that certain firms within an industry behave atypically in that they lobby for a tightening of regulations.[1] As pointed out by OSTER [1982], the reason for this kind of strategic lobbying behaviour lies in the fact that administrative regulations often impose different costs on different firms within the same industry.[2] Yet, most of the theoretical literature on the economics of lobbying neglects this aspect by assuming that the industry under consideration can be treated as a single coalition with the same interest.[3] A recent exception is an article by MICHAELIS [1994] who analyses the political impact of strategic lobbying by combining the so-called "interest group cum electoral competition"-approach of endogenous policy making[4] with a heterogeneous Cournot-Nash-Oligopoly where the number of firms is *fixed*. However, a change in regulations due to lobbying activities may also change the market structure by attracting new firms or by driving out some of the old firms.[5] The present paper therefore extends the above mentioned analysis to the case of an *endogenous market structure*. It will be shown that the occurrence of strategic lobbying becomes even more likely if one (partially) allows for market entry and exit. Moreover, it will turn out that assum-

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1 A recent example is the call of the German *Volkswagen AG* for regulations concerning the fuel consumption of automobiles (see, e.g., HANDELSBLATT, June 24, 1994).

2 See also SALOP AND SCHEFFMAN [1983] on "raising rivals' costs" versus predatory pricing.

3 See, e.g., URSPRUNG [1991], MOORE AND SURANOVIC [1993], and GROSSMAN AND HELPMAN [1994].

4 This approach origins in the work of HILLMAN AND URSPRUNG [1988] and MAGEE ET AL. [1989].

5 Concerning the impact of environmental regulations on plant size and market structure see, e.g., PASHIGIAN [1983] for an empirical analysis and CONRAD AND WANG [1994] for a recent theoretical contribution.

ing an endogenous market structure reinforces the economic impact of lobbying activities. In particular, political competition in the presence of strategic lobbying can lead to a monopolisation of the industry under consideration.

The paper is organised as follows. Section 2 introduces the model, and Section 3 discusses the impact of regulation on the market structure as well as the conditions that must be satisfied to give rise for *strategic* lobbying. Based on these results, Section 4 analyses the characteristics of the political equilibrium in the presence of strategic lobbying activities, and Section 5 closes the paper with a summary of the main results and a discussion of possible extensions.

2. The model

The starting point of the analysis is a modified version of a model initially developed by MICHAELIS (1994). Consider a situation of electoral competition between two parties $i=h,l$. Each of them announces a policy programme which includes a certain regulation that imposes costs on the industry under consideration. The level of regulation proposed by party i is denoted by s_i. In determining their programme, both parties apply lexicographic preferences that cover their probability of election, w_i, as well as the degree of compliance with their ideological orientation. More precisely, each party chooses s_i as to maximise w_i. If, however, several programmes imply the same w_i, party h (the 'high regulation'-party) prefers the programme with the *highest* level of regulation, whereas party l (the 'low regulation'-party) prefers the programme with the *lowest* level of regulation. Both parties announce their programmes *simultaneously* and after this, there is no more possibility to deviate from the initial position.[6]

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6 The latter assumption excludes the possibility of "policy duplication" by the candidate who turns out to have the lower probability of election. For a discussion of this point see HOFER AND WOODRUFF [1994] and the reply by HILLMAN AND URSPRUNG [1994].

The regulation levels proposed by the parties have to comply with a set of legal and technical constraints that constitutes a lower bound $\underline{s} \geq 0$ and an upper bound $\bar{s} > \underline{s}$. Additionally, both parties are restricted by ideological constraints: party h is not allowed to propose a level of regulation that is *lower* than $\underline{s}_h$ ($\underline{s}_h \geq \underline{s}$), and party l is not allowed to propose a level of regulation that is *higher* than $\bar{s}_l$ ($\bar{s}_l \leq \bar{s}$). The probability of winning the election, w_i, depends on the share of campaign contributions Z_i received by party i (see, e.g., URSPRUNG [1991]):

$$(1) \qquad w_i = \begin{cases} x_i Z_i / (x_l Z_l + x_h Z_h) & \text{if } Z_l + Z_h > 0, \\ 0.5 & \text{if } Z_l + Z_h = 0. \end{cases}$$

The coefficient $x_i > 0$ denotes the relative productivity of campaign contributions. E.g., $x_l > x_h$ would imply that one Dollar spent by party l "buys more votes" than one Dollar spent by party h. Campaign contributions Z_i are composed of z_i, the amount of financial support received from the industry under consideration, and z_i^o, the amount of financial support received from other sources: $Z_i = z_i^o + z_i$. It is assumed that there are no strategic interactions between the industry under consideration and other donors of campaign contributions. Consequently, z_h^o and z_l^o are exogenous, whereas z_h and z_l depend on the chosen level of regulation s_i. In determining s_i the parties play a Nash-game, i.e. each party chooses s_i as to maximise w_i under the assumption that the other party's s_i is given. To connect this political part of the model with its economic part (see below), the analysis follows MAGEE ET AL. [1989] and assumes that the parties act as Stackelberg leader, i.e. in determining s_i they anticipate the lobbying payments from the regulated industry.

The industry under consideration is composed of two types of firms which produce a homogenous good: a single firm 1 that produces the output y_1 and n *identical* firms k= 2,3,...,n+1 that produce the aggregate output ny_k. Production cost of firm j (j=1,k)[7] are

[7] Note that the index 'j' refers to *all* firms j=1,2,..,n+1, whereas the index 'k' refers only to the n identical firms k=2,3,..,n+1.

composed of fixed cost $F_j \geq 0$ and constant marginal cost $c_j(s)$ that depend on the level of regulation: $\partial c_j(s)/\partial s > 0$. It is assumed that firm 1 has innovated a superior technology that guarantees $c_1(s) < c_k(s)$ and $\partial c_1(s)/\partial s < \partial c_k(s)/\partial s$ for any $s \in [\underline{s}, \bar{s}]$. Except for the patent held by firm 1 for its new technology, there are no barriers to entry.

Aggregate output is denoted by $y := y_1 + n \cdot y_k$ and market demand is given by the linear inverse demand function $p(y) = a - b \cdot y$. For any given level of regulation s, each firm j maximises its profit $\pi_j(s) = \left[p(y) - c_j(s)\right] y_j - F_j$ by choosing y_j under the assumption that the output of the rest of the industry is given. Based on the outcome of this Cournot-Nash game, firm 1 determines its optimal level of campaign contributions by maximising expected profit $w_l \cdot \pi_1(s_l) + w_h \cdot \pi_1(s_h)$ minus political outlays.[8] The overall structure of the present model is thus described by a two-stage game within the regulated industry and a one-stage game between the competing political parties, where both games are connected by the above Stackelberg assumption.

3. The impact of regulation on market structure and profits

Starting for explanatory reason with a *given* number of firms, profit maximisation yields (n+1) reaction functions $y_j[y_1(n,s), y_2(n,s), \ldots, y_{j-1}(n,s), y_{j+1}(n,s), \ldots, y_n(n,s), y_{n+1}(n,s)]$. which can be solved for the conditional Cournot-Nash-equilibrium in output:

$$(2) \qquad y_1^*(n,s) = \frac{a + n c_k(s) - (n+1) c_1(s)}{b(n+2)},$$

$$y_k^*(n,s) = \frac{a + c_1(s) - 2 c_k(s)}{b(n+2)}.$$

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[8] Note that the firms using the old technology have no incentive to spent campaign contributions because any profit created by lobbing activities would be dissipated by the entry of new firms [see OSTER 1982]. For an analysis of *competing* lobbying activites in the presence of mutual entry barriers see MICHAELIS [1994].

Assuming $a > \left[(n+2)\sqrt{bF_k} + 2c_k(s) - c_1(s)\right]$ guarantees an interior solution where the firms' profit is given by $\pi_j^*(n,s) = b \cdot y_j^*(n,s)^2 - F_j$. Moreover, differentiating $\pi_1^*(n,s)$ with respect s shows that firm 1 gains from a marginal tightening in regulation, i.e. $d\pi_1^*(n,s)/ds > 0$, if the ratio between marginal compliance cost satisfies the following condition (see MICHAELIS, 1994):

$$(3) \qquad \partial c_k(s)/\partial s > \frac{n+1}{n} \cdot \partial c_1(s)/\partial s.$$

This condition, however, applies only if the firms in the subgroup using the old technology are protected by entry barriers like, e.g., patent rights or licensing requirements, which ensure positive profits for any level of regulation $s \in [\underline{s}, \bar{s}]$. In the present analysis, it is assumed that such entry barriers do not exist. Consequently, any prospect for positive profits will attract additional competitors and the number of firms in equilibrium, $n^*(s)$, can be calculated from the non-profit condition $\pi_k^*(s) = 0$ (problems concerning non-integer values are neglected for simplicity):

$$(4) \qquad n^*(s) = \frac{a + c_1(s) - 2c_k(s)}{\sqrt{b \cdot F_k}} - 2.$$

Equation (4) shows that the number of firms in the subgroup using the old technology is c.p. the smaller a) the larger the cost differential between the two technologies is, and b) the higherthe level of regulation is. Inserting (4) into (2) yields the conditional Cournot-Nash-equilibrium for the case of an endogenous market structure:

$$(5) \qquad y_1^*(s) = \left[c_k(s) - c_1(s)\right]/b + \sqrt{F_k/b},$$

$$y_k^*(s) = \sqrt{F_k/b}\,.$$

Differentiating the accompanying profit function $\pi_1^*(s) = b y_1^*(s)^2 - F_1$ with respect to s reveals that a (marginal) tightening in regulation leads to an increase in $\pi_1^*(s)$ if:

$$(3') \qquad \partial c_k(s)/\partial s > \partial c_1(s)/\partial s.$$

Inequalities (3) and (3') can be interpreted as necessary conditions for the occurence of strategic lobbying in the case of a fixed or an endogenous number of firms, respectively. Since (3') is less demanding than (3), it can be concluded that the occurence of strategic lobbying is c.p. more likely in the case of an endogenous market structure. The rationale behind this result is straightforward because the firms in the subgroup using the old technology are more vulnerable to a tightening in regulation if they are not protected by entry barriers that would allow for positive profits.

However, in combining the above results with the lobbying approach introduced in the last Section, two caveats should be recognised. First, it cannot be expected that $\pi_1^*(s)$ is always monotonous in s, such that condition (3') applies only to *marginal* changes in a *given* level of regulation, but it cannot readily be used to compare two distinct levels s_i proposed by the two political parties. And second, if the upper bound $\bar{s}$ is sufficiently large, political competition can lead to a level of regulation where *all* firms using the old technology decide to leave the market. In this case, however, firm 1 becomes a monopolist and the above analysis does not longer apply. In order to cope with these problems, the remainder of the paper assumes that the firms' compliance costs can be described by exponential functions $c_j(s)=c_j \cdot s^\gamma$ with $c_k>c_1$ and $\gamma \geq 1$. This specification faciliates an explicit solution to the firms' maximisation problem where the monopolisation level of regulation, $\tilde{s}$, can be calculated from $\pi^*(s)=0$:

$$(6) \qquad \tilde{s} = \left[\left(a-2\sqrt{b \cdot F_k}\right)/(2c_k-c_1)\right]^{1/\gamma}.$$

The following analysis assumes that $\tilde{s}$ is *feasible* at least for the high regulation party, i.e. $\tilde{s} \in [\underline{s}_h, \bar{s}]$. Accounting for firm 1's behaviour in the case of monopolisation, the overall relationsship between its output and the level of regulation is given by:

$$(7) \qquad y_1^*(s) = \begin{cases} \left[(c_k-c_1)s^\gamma\right]/b + \sqrt{F_k/b} & \text{if } s < \tilde{s}, \\ \left[a-c_1 s^\gamma\right]/2b & \text{if } s \geq \tilde{s}. \end{cases}$$

The accompanying profit function depicted in Figure 1 shows that $\pi_1^*(s)$ is monotonous increasing for $s \leq \tilde{s}$. Hence, as long as s_h does not exceed the monopolisation level $\tilde{s}$, firm 1 will always choose to support the high regulation party h, i.e. z_l=0 and $z_h \geq 0$.

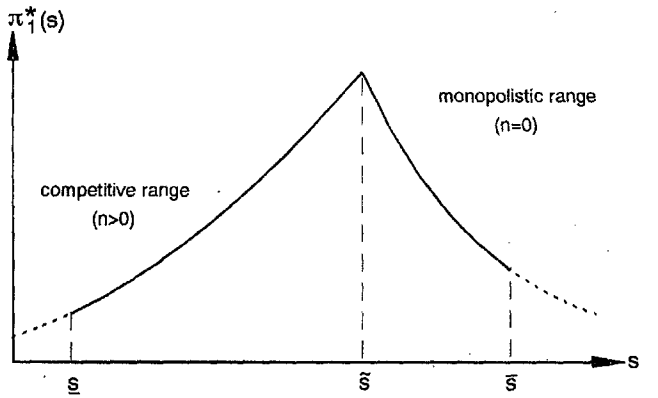

Figure 1. The impact of regulation on the lobbying firm's profits.

4. Political equilibrium with strategic lobbying

In order to identify the optimal level of campaign contributions, firm 1 maximises expected profits $w_l(z_h)\cdot\pi_1^*(s_l)+w_h(z_h)\cdot\pi_1^*(s_h)$ minus political outlays z_h. Denoting the *difference* in profits under the two policiy regimes, $\pi_1^*(s_h)-\pi_1^*(s_l)$ by $\hat{\pi}_1(s_h,s_l)$, the optimal level of z_h as a function of s_l is given by the following Kuhn-Tucker-condition (see MICHAELIS, 1994):

$$(8)\quad z_h^*(s_h,s_l)=\begin{cases}\dfrac{1}{x_h}\left[\sqrt{x_h x_l z_l^o \hat{\pi}_1(s_h,s_l)}-x_l z_l^o\right]-z_h^o & \text{if } \hat{\pi}_1(s_h,s_l)>\Omega(z_l^o,z_h^o)\\ 0 & \text{if } \hat{\pi}_1(s_h,s_l)\leq\Omega(z_l^o,z_h^o).\end{cases}$$

Equation (8) shows that firm 1's incentive for lobbying payments is driven by the respective difference in profits. However, a positive $\hat{\pi}_1(s_h,s_l)$ alone does not necessarily

imply $z_h>0$. Instead, firm 1 will spend campaign contributions only if $\hat{\pi}_1(s_h,s_l)$ is sufficiently large compared to the 'choke off'-level $\Omega\ (z_l^o,z_h^o)$. The latter equals the marginal productivity of the first Dollar spent on campaign contributions which, in turn, depends on the parties' exogenous financial endowments, z_i^o, as well as on their efficiency in buying votes, x_i:[9]

$$(9)\qquad \Omega(z_l^o,z_h^o) := \left(\left.\frac{\partial w_h}{\partial z_h}\right|_{z_h=0}\right)^{-1} = \frac{(x_l z_l^o + x_h z_h^o)^2}{x_l x_h z_l^o}.$$

Both parties aim at maximising their probability of election, w_i, taking into account firm 1's lobbying behaviour as described by (8) and (9). For the high regulation party, the following relationship between w_h, s_h and s_l can be derived from (1) and (8):

$$(10)\qquad w_h(s_h,s_l) = 1-\sqrt{x_l z_l^o / \hat{\pi}_1(s_h,s_l)}\,.$$

Hence, for any given programme of the low regulation party, maximising w_h requires to maximise $\pi_1^*(s_h)$. Party h will therefore choose the monopolisation level $\tilde{s}$ which yields the highest possible profit for firm 1 (see Figure 1).[10] Party l, however, knows that any payment from firm 1 to party h would deteriorate w_l. Consequently, party l will move towards party h's equilibrium position $s_h^* = \tilde{s}$ until the difference in profits $\hat{\pi}_1(\tilde{s},s_l)$ shrinks down to the 'choke of'-level $\Omega(z_l^o,z_h^o)$, such that firm 1 has no more incentive to spend campaign contributions.[11] Consequently, for any given s_h^*, the equilibrium position of party l, s_l^*, satisfies the 'no payments'-condition:

$$(11)\qquad \hat{\pi}(s_h^*,s_l^*) = \Omega(z_l^o,z_h^o).$$

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9 For a more detailed discussion of conditions (8) and (9) see MICHAELIS [1994, pp. 698].

10 Of course, this result depends on the assumption that the monopolisation level is *feasible*. In the general case party h will choose $s_h^* = \min\{\tilde{s},\bar{s}\}$.

11 Formally, this argument can be applied to *any* level of regulation chosen by party h. The *uniqueness* of the above quilibrium, however, is guaranteed by the parties' lexicographic preferences as introduced in Section 2.

Inserting $s_h^* = \tilde{s}$ into condition (11) and solving for s_l^* yields the low regulation party's equilibrium position:

$$(12) \quad s_l^* = \left\{ \left[\frac{b}{c_k - c_1} \right] \left[\left(\frac{a - c_1 \tilde{s}^\gamma}{2b} \right)^2 - \frac{\Omega(z_l^o, z_h^o)}{b} \right]^{1/2} - \left[\frac{\sqrt{b \cdot F_k}}{c_k - c_1} \right] \right\}^{1/\gamma} .$$

Condition (12) can be used to analyse the impact of campaign contributions on the political equilibrium and the market structure. In the absence of *external* financial support (i.e. $z_l^o = z_h^o = 0$), we obtain $\Omega(z_l^o, z_h^o) = 0$, and condition (12) reduces to $s_l^* = \tilde{s}$ such that *both* parties will propose the monopolisation level. Hence, within the framework of the present model, political competition will inevitably lead to monopolisation if the industry under consideration is the only source of campaign contribution. This result indicates, that the existence of *external* financial sources like, e.g., governmental grants, serves as an important corrective which restricts the lobbying firm's influence on the political equilibrium. For $\Omega(z_l^o, z_h^o) > 0$, condition (12) implies $s_l^* < \tilde{s}$ such that a limited number of firms using the old technology can stay in the market if party l wins the election (i.e., $n^*(s_l^*) > 0$). From (4), (6) and (12), $n^*(s_l^*)$ can be calculated as:

$$(13) \quad n^*(s_l^*) = \frac{a\hat{c} + c_1\sqrt{bF_k}}{\hat{c}\sqrt{bF_k}} - \frac{b(\hat{c} + c_k)}{\hat{c}\sqrt{bF_k}} \left[\left(\frac{c_1\sqrt{bF_k} - a\hat{c}}{b(\hat{c} + c_k)} \right)^2 - \frac{\Omega(z_l^o, z_h^o)}{b} \right]^{1/2} ,$$

with $\hat{c} := c_k - c_1$. Hence, the number of firms that would survive under the regime of the low regulation party depends on the cost differential between the old and the new technology, $\hat{c}$, as well as on the absolute level of per unit cost, c_j. Differentiating (13) verifies that $n^*(s_l^*)$ is c.p. the larger, the smaller the cost differential $\hat{c}$ is, the smaller the absolute level of c_k is, and the larger the absolute level of c_1 is.

A second interesting result of the above analysis relates to the amount of campaign contributions de facto payed in the political equilibrium. As implied by condition (11),

party l will move towards party h until the optimal amount of campaign contributions spent by firm 1 shrinks down to zero. Consequently, in political equilibrium there are no positive lobbying payments at all from the industry under consideration. Instead, the mere threat of altering the likely outcome of the election by eventually providing financial support is sufficient to discipline both parties up to a certain degree. This outcome, however, crucially depends on the implicite assumption that party l's equilibrium position s_l^* as described by (12) does not conflict with its ideological constraint $s_l \leq \bar{s}_l$. Yet, if party l is *not* allowed to propose s_l^*, it will instead choose the upper bound $\bar{s}_l$ and the optimal amount of campaign contributions spent by firm 1 is given by:[12]

$$(14) \quad z_h^*(\tilde{s}, \bar{s}_l) = \left[\sqrt{x_h x_l z_l^o \hat{\pi}_1(\tilde{s}, \bar{s}_l)} - x_l z_l^o\right] x_h^{-1} - z_h^o \; > \; 0.$$

In this case, the likely impact of lobbying on the market structure is two-edged. On the one hand, compared to the unconstrained equilibrium given by (12), party l proposes a *lower* level of regulation ($\bar{s}_l < s_l^*$) such that a *larger* number of firms could survive under its regime. On the other hand, however, party l's probability of winning the election is diminished by firm 1's campaign contributions to the high regulation party. Consequently, ideological constraints lead to an increased probability of monopolisation if they prevent the low regulation party from taking up its equilibrium position.

5. Summary and extensions

The present paper has developed a model of endogenous policy making where a 'low regulation' party l and a 'high regulation' party h compete for campaign contributions spent by a dominating low-cost firm within the regulated industry. The model shows that assuming an *endogenous* market structure reinforces the economic impacts of lobbying activities compared to the case of a *fixed* number of firms as analysed by

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12 Note that due to $\bar{s}_l < s_l^*$ we obtain $\hat{\pi}(\tilde{s}, \bar{s}_l) > \hat{\pi}(\tilde{s}, s_l^*) = \Omega(z_l^o, z_h^o)$ such that $z_h^*(\tilde{s}, \bar{s}_l) > 0$.

MICHAELIS [1994]. In particular, political competition can lead to a level of regulation where all firms using the high-cost technology decide to leave the market such that the dominating firm becomes a monopolist. This outcome is c.p. the more likely, the larger is the cost differential between the lobbying firm and its high-cost competitors, and the less external financial sources like, e.g., governmental grants are available to the political parties. Moreover, ideological constraints that prevent the low regulation party from taking up its equilibrium position will also increase the probability of monopolisation.

Of course, to most of us the idea of political parties which offer '*monopolisation for sale*' may sound somewhat exaggerated. And indeed, it seems not possible to find any empirical example that would support such an extreme outcome as predicted by the oversimplified model presented above. There are two routes that could be followed in order to escape from these extreme results by introducing more reality into the model. The first one is related to the use of more general cost functions. For example, if one allows for differences in the *slope* of the cost function used above (i.e. $\gamma_1 \neq \gamma_k$) it is possible to construct examples where the $\pi_1^*(s)$-schedule shown in Figure 1 attains a global maximum *before* the monopolisation level $\tilde{s}$ is reached.[13] In this case, firm 1 will lobby for a level of regulation which allows some of its competitors to remain in the market.

A second - and presumably more important - modification relates to the assumption that the proposed level of regulation has no impact on the party's probability of election except for possible campaign contributions spent by the industry under consideration. To some extent, this approach can be justified by the postulate that rational voters usually are uninformed and therefore "*susceptible to manipulation via election propaganda*" (URSPRUNG 1991:5). But nevertheless, it cannot be excluded that other donors of campaign contributions outside the regulated industry may generally disapprove of politi-

[13] A necessary (but not sufficient) condition for this case to occur is that $c_1 < c_k$ and $\gamma_1 > \gamma_k$.

cal programmes which seem too extreme to them. In order to capture this effect, one could introduce an additional mechanism which punishes the party's in terms of reduced external financial support if they significantly deviate from the socially optimal level of regulation.[14] In this case, z_i^o cannot longer be viewed as exogenous, and the parties in determining s_i have to weigh up the campaign contributions from the regulated industry against the potential loss in external financial support.

[14] Suppose, for example, the regulation under consideration requires a percentage reduction in emissions per unit of output, e_j, such that in equilibrium total emissions are given by $e^*(s) = (1-s)[e_1 y_1^*(s) + n^*(s) \cdot e_k y_k^*(s)]$. In this case, the socially optimal level of regulation maximises $\pi_1^*[y_1^*(s)] + c[y_1^*(s) + n^*(s) \cdot y_k^*(s)] - d[e^*(s)]$ where $c[\cdot]$ denotes consumers surplus and $d[\cdot]$ is the damage from total emissions.

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References

Conrad, K. and J. Wang [1993], "The Effect of Emission Taxes and Abatement Subsidies on Market Structure". *International Journal of Industrial Organization*, 11(4), 499-518.

Grossman, G. and E. Helpman [1994], "Protection for Sale". *The American Economic Review*, 84(4), 833-50.

Hilman, A. and H. Ursprung [1988], "Domestic Politics, Foreign Interests, and International Trade Policy". *The American Economic Review*, 78(4), 729-45.

Hilman, A. and H. Ursprung [1994], "Domestic Politics, Foreign Interests, and International Trade Policy: Reply". *The American Economic Review*, 84(5), 1476-78.

Hofer, T. and C. Woodruff [1994], "Domestic Politics, Foreign Interests, and International Trade Policy: Comment". *The American Economic Review*, 84(5), 1474-75.

Magee, S., W. Brock and L. Young [1989], *Black Hole Tariffs and Endogenous Policy Theory*. Cambridge University Press: Cambridge.

Michaelis, P. [1994], "Regulate Us, Please! On Strategic Lobbying in Cournot-Nash-Oligopoly". *Journal of Institutional and Theoretical Economics*, 150(4), 693-709.

Moore, M. and S. Suranovic [1993], "Lobbying and Cournot-Nash Competition - Implications for Strategic Trade Policy". *Journal of International Economics*, 35(3), 367-76.

Oster, S. [1982], "The Strategic Use of Regulatory Investment by Industry Sub-Groups". *Economic Inquiry*, 20(5), 604-618.

Pashigian, P. [1983], "The Effect of Environmental Regulation on Optimal Plant Size and Factor Shares". *The Journal of Law and Economics*, 27(2), 1-28.

Salop, S. and D. Scheffman [1983], "Raising Rivals Costs". *The American Economic Review - Papers and Proceedings*, 73(2), 267-71.

Ursprung, H. [1991], "Economic Policies and Political Competition". In: A. Hillman (ed.), *Markets and Politicians*, Kluwer Academic Publishers: Boston, 1-25.