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34

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**Independence of a Regulatory
Institution – A Means to Alleviate
Credibility Problems in the CEE
Countries**

Warsaw, 1999

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I. Introduction [1]

In Hungary and the Central-European region, state regulation has been at the forefront of interest since the beginning of the economic transition. Among the many interesting questions raised, we would like to analyze the problem of building an appropriate regulatory system allowing the industry to operate efficiently from a social point of view. We use the term „regulatory system" for the description of decision rights. A particular regulatory system amounts to the allocation of decision rights between the different actors in a regulatory game (regulatory agency, government, courts, consumer organizations, competition office). We do not propose a specific incentive scheme, which must be enforced (and is enforceable), instead we concentrate on the possible enforcement mechanisms.

This approach can be labeled as an institutional one, because according to many neoclassical economists [2], institutions provide nothing else than a process for the allocation of decision rights [3]. Beyond that, they claim (and we also take this approach) that institutions matter only if contracts are incomplete and enforcement mechanisms are not perfect. If complete (comprehensive) contracts could be written and enforced by the courts, then appropriate contracts could substitute institutions, and it would solve the problem of decision right allocation. In this paper we will argue that enforcement problems play a greater role in our region than the question of how to design a good incentive scheme (e.g. a price-formula in state regulation).

What are the goals to pursue when designing a regulatory system? Among others, the following features characterize a good regulatory system:

1. Accountability of the regulator.
2. Sufficient guarantees for investors that their investments will not be appropriated.
3. Avoidance of regulatory capture.

We will concentrate on the second feature, as it is a key problem in transition countries. The reason lies in the fact that the legal enforcement mechanism is not mature yet, and the government has a large discretionary role in making regulatory decisions. A good example is the Hungarian electricity sector in which the Minister of Economic Affairs sets energy prices. On many occasions, the government has misused this power

[1] We would like to say thank to Zoltan Papai and Andrzej Baniak for their helpful comments during earlier phases of this research. They are not responsible for any remaining errors.

[2] See Tirole (1994) for an example of that approach.

[3] There are other (older) approaches of institutionalism. Levy-Spiller (1994) places much bigger emphasis on historical factors when analyzing regulatory institutions. The two kinds of institutional analysis have got different roots but very similar questions and somewhat similar answers.

to gain short run popularity by prohibiting the electricity companies from increasing prices, although price increases would have been justified according to a price-adjustment formula.

We will claim that a regulatory system, which gives a central role to an independent regulatory authority in making decisions, can assure investors that their interests will not be neglected. The problem can be thought of as a dynamic inconsistency problem [4]. The government would like to assure investors *ex ante*, that it will not abuse its power, but when it is the time to decide it will have every motivation to act opportunistically. An independent regulator with a different objective function from the government, will not misuse its power because it has no incentives to do that. So if the government can credibly delegate its decision right to an independent regulatory agency (with an appropriate objective function) then the investors will make the needed investments. However, if there is no such guarantee then investment will not occur and a socially suboptimal outcome will occur.

We will analyze the limitations of this idea in the concluding Section but we can note the following here. Regardless of the several problems raised by a completely independent regulatory body, it can solve the dynamic inconsistency problem, which cannot be addressed by a fancy incentive scheme. The focus of this paper is not to propose a specific institutional arrangement in the regulatory system of our region, but to show that enforcement problems must be carefully analyzed before any specific incentive scheme is designed. From the methodological point of view, we claim that neoclassical economics can and must analyze enforcement problems along with the more traditional questions of incentive schemes.

From the substantive point of view, we think that the economic (political, legal, etc.) institutions of our region deserve more attention in future economic research, since enforcement problems are more numerous than in countries, with more mature legal, economic and political systems. On the other hand, this immaturity can also be advantageous, because we are able to design certain institutions without being constrained by the rigidity or the inertia of old institutions that hinder efficiency. Topics that can be analyzed using this approach include the following: legal and constitutional system of the transition countries, competition policy, monetary policy, tax policy, distribution of power between local and central government, etc.

[4] See Rogoff (1985) for a similar model of an independent central banker.

2. A Simple Model of an Independent Regulator [5]

This model analyses the effects of different institutional arrangements in state regulation with special respect to the problem of commitment. Our starting point is the missing commitment possibilities of the government. In Hungary and our region (Central and Eastern Europe) state regulation is in the forefront of interest since the privatization of the energy – and the telecommunication industry. The political system is a significant source of uncertainty, in particular, investors have to be worry about the discipline of the government.

Our main conclusion is that this problem can be eased by establishing an independent regulatory agency who has the right to make regulatory decisions instead of (or on behalf of) the government, namely the government delegates its right to decide to this agency.

In this model we try to adopt the arguments developed in the central bank dynamic inconsistency literature to this regulatory problem and incidentally to apply incomplete contract approach to the theory of central bank independence. We will argue that observed regulatory capture is not necessarily bad from the point of view of social welfare.

Before setting up our model we have to explicitly state the similarities with the model of Watts (1997). We assume the same technology and demand function as Watts does, only the form of the commitment will be different [6].

The timing of our model is as follows. First the government determine the level of commitment. In our model (which we can also call Rogoff-model) the government commits by choosing a regulator with known type and let him decide about price. We suppose that there are an infinite number of potential regulators, who are different only in their evaluation of profit relative to consumer surplus, this difference will be characterized by a single parameter.

After that the firm makes its investment decision, with which it can decrease the marginal cost of production. At the next stage the uncertainty about the marginal cost resolves and finally the authority in control picks a price after observing the level of marginal cost (marginal costs are observable but not verifiable so not contractible). The chosen regulator is the one who picks the price without any constraint.

Second period production costs are linear, so $C(q) = (C - l)q$, where C is a uniformly distributed random variable on the interval $[c - r, c + r]$, and l is the previously taken level of

[5] This model is taken from Virag (1998b).

[6] In the case of the Watts-model this amounts to choosing a minimal price, which the final price can not exceed and the government does not delegate any decision right.

investment. Investment costs are the following: $v(l) = l^2d/2$, so monotone and convex function of d . Let the inverse demand function be linear, so $p = a - bq$.

Social welfare is considered as a weighted average of profits and consumer surplus:

$$U^{soc} = W^{soc}E(\pi) + E(CS)$$

where W^{soc} is the preference-index of the government, because of several reasons the usually assumption is that $W^{soc} < 1$ [7]. $E(\pi)$ is the expected value of profits and $E(CS)$ is the expected value of consumer surplus. These are random variable because when the government takes its decision concerning regulation (so when the regulator is appointed) the realization of the stochastic component of the cost function is not yet known.

In his model Watts gives two desirable characteristics of a regulatory system: flexibility and commitment. Our model gives a third one, this is the level of profits (rents). This question matters because if the weight of profits in the social welfare function is less than that of the consumer surplus, then we want to extract the rents of the firm.

Now we start analyzing our model. We solve our model backward, first we look at the problem of a W -type regulator, who after observing $C - l$ chooses a price p . His objective function is:

$$U = W\pi + CS$$

where W not necessarily equals W^{soc} . He maximizes U with respect to p . We take q the choice variable, which yields the same problem because of no demand uncertainty. At the time of this decision profits and consumer surpluses are deterministic functions of q since C is already known.

The profits can be expressed as follows:

$$\pi = p(q)q - (C - l)q - l^2 d/2, \quad (1)$$

The first part of the right hand side is the allowed revenue, the second is the variable component of production costs and the last is the investment cost.

[7] If taxes create social (dead-weight) losses and we would like to distribute wealth to consumers then it is desirable to avoid taxation. This redistribution can be done by appropriate decisions in state regulation with the help of low prices and low profits.

Consumer surplus is

$$CS = \int_0^q p(t) dt - p(q) * q \quad (2)$$

First we solve the problem of the regulator.

$$\text{Max } W\pi + CS \quad (3)$$

What will be the optimal decision if $1 \geq W$? In that case profits are not as important for the regulator as consumer surplus. If $W = 1$ then we will have the usual welfare problem that will have the maximum where price equals marginal cost, i.e. $p = C - I$. Then profit will be $-I^2/2$ and no investment will occur. If $W < 1$ the situation will be even worse, so if we want some investment to take place (and we will see that no investment can not be an optimum) then we have to set $W \geq 1$. This is somewhat paradox, since we have to choose a regulator who is biased toward the firm (alternatively we could speak about some regulatory capture) to induce investment. This phenomenon will be discussed later.

The first order condition is

$$FOC_q: W(p + qp'(q) - (C - I)) + p - p - qp'(q) = 0, \quad (4)$$

where $p = a - bq$, $p'(q) = -b$.

After some calculations

$$q(W) = \frac{W(a - C + I)}{b(2 * W - 1)} \quad (5)$$

$$p(W) = \frac{(W - 1) * a + W * (C - I)}{2 * W - 1} \quad (6)$$

We supposed that it is never optimal not to produce so we know that $a > C - I$ always holds. In that case $q > 0$ and we will not have corner solution ($q = 0$). Price is a weighted average of marginal cost and demand parameter a . Because $a > C - I$ we know that $p > C - I$. If $W = 1$ then p equals marginal cost $C - I$ and if W is very high p is approaching the monopoly price. We can also see that if W is larger than also p will be higher. Second order condition trivially holds.

Knowing the decision rule of (6) concerning price the problem of the firm is the following:

$$\text{Max } E_c[\pi(p(C,I,W))] \quad (7)$$

|

After some calculation we can rewrite this problem as

$$\text{Max } W(W-1)[(a - (c - I))^2 + r^2/3] - (2W - 1)^2 bI^2/d/2 \quad (8)$$

|

Second order condition holds if inequality (9) holds.

$$db \geq 2 - 1 / [2W (W-1)] \quad (9)$$

First order condition is sufficient for optimum if (9) holds and we ignore the possibility of corner solutions. If we suppose that $W > 1$ (and we have to if we want positive investment) then $I = 0$ can not arise in optimum since the marginal benefit of investing is positive in (8) and the marginal cost is zero, if $I = 0$. From this and supposing hereafter that (9) holds we can characterize optimal investment decision by the first order condition of (8):

$$2W(W - 1) [a - (c - I)] = dI (2W - 1)^2 b,$$

from that

$$I = \frac{2 * (a - c) * W * (W - 1)}{d * (2 * W - 1)^2 * b - 2 * W * (W - 1)} \quad (10)$$

The first remark is that optimal investment level does not depend on r . It is due to the simple specification of our model. One unit of investment always reduces marginal cost by one unit. If we look at the expected profit in expression (8) we can see that bigger uncertainty goes hand in hand with larger profits. The reason of this is the following. When the stochastic component of marginal cost is lower, then production and profit increase and it is not perfectly counterbalanced by the case when cost-shocks are unfavorable. This property has got to do with the convexity of profit function [8]. So the more significant uncertainty, r is the lower the level at which we have to set W to assure that the firm will reach zero expected profit. The only role of uncertainty is to increase expected profit for a given W . From now on we ignore uncertainty (so suppose that

[8] See Chapter 5 of Varian (1992).

$r = 0$) because it seems that in such a simply specified model uncertainty does not alter the main conclusions only makes mathematical analysis more difficult. A huge difference from Watts's result is that in the absence of uncertainty we do not have the result that perfect commitment would be optimal. In his model it was possible to pick an optimal minimal (and final) price p_0 at an appropriate level but in our model the government can't commit to a given price, only could choose an appropriate regulator. Perfect commitment would mean to choose a very big W so the firm would get monopoly profit because of the high price. This can not be the aim of state regulation. Later we will have more words about the different welfare effects of W in our model.

Now we can analyze how W influences I :

$$\frac{\partial I}{\partial W} = \frac{2 * (a - c) * db * (2 * W - 1)}{[db(2 * W - 1)^2 - 2 * W * (W - 1)]^2} > 0 \quad (11)$$

We have the conventional result. The larger commitment is the more the firm invests. From equation (10) we see that investment takes place if and only if $W > 1$. If $W = 1$ then $I = 0$ and $p = C - I = C$.

We can easily see that if W increases then profit also increases. In that case if the firm invests the same amounts it will have bigger profit and can (and surely will) further increase its profit by investing more. So investment can be induced only by increasing W , but in that case profit also increases. So in our model the solution will not mean zero profit. Because zero profit only occurs if W equals I which means zero investment. This is not socially optimal. In the regulatory optimum profit will be positive. The firm will have a rent from the fact that no complete contract is possible and only institutional solution (the delegation of decision rights) can ease the commitment problem. There is interesting similarity with the standard asymmetric information case; in order to induce the firm to invest we have to allow it some rent [9].

There are several important differences however between the two cases. In the asymmetric information models the problem to be alleviated by leaving the firm with rent is its incentive to disguise its real efficiency and mimic high-cost firms. In our model the point is the following. Commitment is indispensable for investment but commitment also brings positive profit for the firm.

We prove that at any type of W investments will be less than the efficient, cost-minimizing level at any given level of production. First we solve for that efficient level. This is given by solution of the following problem:

[9] See for example Laffont-Tirole (1993) Chapter I.

$$\text{Min } (C - I)q + I^2 d/2$$

I

The solution is $I = q/d$ as can be easily checked.

Using equation (5) and (10) and after some calculations we attain the following expression for the level of investment:

$$q = \frac{d * I * (2 * W - 1)}{2 * W - 2}$$

from that $I = [(2W-2) / (2W-1)] q/d < q/d$ so the level of investments is suboptimal. This is the well-known underinvestment effect. This effect can be perfectly overcome only by increasing W infinitely so allowing the firm monopoly price, which means the total absence of regulation.

Let us see what are the three effects of parameter W on welfare!

1. The larger W is the less possibility there is to react flexibly. So if we bring back uncertainty, r for a moment we can say that under stronger uncertainty flexibility is more important so we have to choose a lower W . If we set W at a high level then the prices won't be sufficiently sensitive to supply shocks.

2. The bigger W is the bigger profit is what is unfavorable for the society, since profits are evaluated less than consumer surpluses in our social welfare function.

3. A larger type W induces more investment and more efficient production.

The third effect works in the opposite direction than the first two and offsets them in the margin in optimum.

Now we turn to the formal analysis of how to choose W optimally and from now we will no longer let uncertainty work. ($r = 0$)

The problem of the government:

$$U = \text{Max}_W W^{soc} * \pi(W) + CS(W) \tag{12}$$

where $\pi(W)$ is the profit under type W regulator and $CS(W)$ is consumer surplus.

Let us suppose that it is not optimal to set W at an infinitely large level. (So some regulation is better than none.) We will prove that $W > 1$ must hold under weak conditions in optimum so positive level of investment will be implemented. We analyze the effect of W on social welfare in equation (12)

$$\frac{\partial U}{\partial W} = W^{soc} * \frac{d\pi}{dW} + \frac{\partial CS}{\partial p} * \frac{dp}{dW} \tag{13}$$

If W increases it will have three effects on profit. First if W increase than p increase at a given l so profit will also increase. This is term $(\sigma\pi/\sigma p)$ ($\sigma\pi/\sigma W$). Second l changes at a given level of p and so profit will also respond (because investment costs increases and production costs decreases). This second term is as follows: $(\sigma\pi/\sigma l)*(\sigma l/\sigma W)$. Lastly W has an effect on l , l has on p and the change of p alters the level of profit. Formally: $(\sigma\pi/\sigma l)*(\sigma l/\sigma p)*(\sigma p/\sigma W)$. The sum of these three effects are the total effect on the profit.

The effect of W on consumer surplus is easier because now there is only the indirect effect through the price. So only the first and the third term will be present in this case.

Summing these effects up yields:

$$\frac{\partial U}{\partial W} = W^{soc} * \left(\frac{\partial \pi}{\partial p} * \frac{\partial p}{\partial W} + \frac{\partial \pi}{\partial l} * \frac{\partial l}{\partial W} + \frac{\partial \pi}{\partial p} * \frac{\partial p}{\partial l} * \frac{\partial l}{\partial W} \right) + \frac{\partial CS}{\partial p} * \left(\frac{\partial p}{\partial W} + \frac{\partial p}{\partial l} * \frac{\partial l}{\partial W} \right) \quad (14)$$

The first order condition of the firm's problem with respect to investment is

$$\frac{\partial \pi}{\partial l} + \frac{\partial \pi}{\partial p} * \frac{\partial p}{\partial l} = 0 \quad (15)$$

Making use of equation (15) we can rewrite equation (14). The results will be simpler because the second and the third effects of W on the profit will disappear. This is the consequence of envelope theorem.

Substituting our special demand and cost function we can express the necessary terms as:

$$\sigma\pi/\sigma p = (a - 2p + c - l) / b > 0$$

$$\sigma\pi/\sigma W = (a - c + l) / (2W - 1)^2 > 0$$

$$\sigma CS/\sigma p = (p - a) / b < 0$$

$$\sigma p\pi/\sigma l = -W / (2W - 1) < 0$$

$$\sigma l/\sigma W = 2(a - c) db(2W - 1) / [db(2W - 1)^2 - 2W(W - 1)]^2$$

First we would like to prove that if $W = 1$ then if some weak conditions hold we can improve welfare by increasing W slightly so there will be no corner solution. After some calculations and evaluating the derivative at $W = 1$ yields:

$$\sigma U/\sigma W = (a - c)^2 (W^{soc} - 1 + 2/db) / b \quad (16)$$

From (16) we can see that if $(W^{soc} - 1 + 2/db) > 0$ then $W > 1$ is optimal and in that case it is sufficient for the solution if the first order condition of equation (12) holds as an equality, if the second order condition holds. The right hand side of expression (16) is positive if we evaluate profits as much as consumer surplus or b is small (so demand is elastic) or d is small (so investments are cheap). But if neither of these three conditions then it is possible that $W = 1$ is optimal since it is too costly to induce investment. If d is high then direct investment costs are also high and if b is high then in order to induce investment we should commit and because of the inelastic demand function there will be a huge loss in consumer surplus due to this commitment.

We have the following first order condition which implicitly gives the optimal W if we have interior ($W > 1$) solution.

$$W^{soc} (a+c-I(W)-2*p(W))(a-c+I(W))+[p(W)-a]*[a-c+I(W)-\frac{W*(2*W-1)^2*2*(a-c)*db}{[db(2*W-1)^2-2*W*(W-1)]^2}] = 0$$

I and p is a function of W so there is only one unknown W in the above equation. Using the implicit function theorem yields:

$$\frac{\partial W}{\partial W^{soc}} = -\frac{\frac{\partial^2 U}{\partial W^2}}{\frac{\partial^2 U}{\partial W \partial W^{soc}}} > 0 \tag{17}$$

The nominator is negative if second order condition holds and after some calculations we can rewrite the denominator as:

$$(a - 2p + c - I) (a - c + I) > 0 \tag{18}$$

So we can conclude that the greater the social weight on profit the more profit oriented regulator must be chosen. This is a nice and intuitive result. The preference index of the regulator (W) must be always larger than the social one (W^{soc}) and now we proved that there is a positive correlation between the two indices. The inequality $W > W^{soc}$ also holds in Rogoff original model on central banks. In our model this is necessary to induce investment while in the other to lower inflation. In both model a dynamic inconsistency problem is solved by choosing a decision maker (regulator, central banker) who has different preference parameter than the whole society.

It would be interesting to know how W influences price p , i.e. does commitment increases or decreases price? We can write the effect formally as:

$$\frac{dp}{dW} = \frac{\partial p}{\partial W} + \frac{\partial p}{\partial I} \frac{\partial I}{\partial W} \quad (19)$$

The first term is the direct effect which is positive because parameter a is higher than $C - I$ by assumption. The indirect term is negative since if the firm invests more then according to equation (6) the price will be less. So commitment will have an ambiguous effect.

If $W = 1$ then $I = 0$ and $p = C$. If W goes to infinity then from equation (10) I approaches $\underline{I} = (a - c) / (2db - 1)$ and p goes to monopoly price $\underline{p} = [a(db - 1) + cdb] / (2db - 1)$. If $db > 1$ then $\underline{p} > C$ so if W is very large then price will be greater than when $W = 1$. This condition means that monopoly price is bigger than marginal cost without investment. This is not a too strong assumption. Having this condition we can be sure that function $p(W)$ is increasing somewhere since has a larger value at infinity than at zero. We can ask : Is it decreasing somewhere or is it a monotone increasing function?

We can see that

$$\frac{dp}{dW} = \frac{db(a - c)}{db(2 * W - 1)^2 - 2 * W * (W - 1)} * \left(1 - \frac{2 * W}{db(2 * W - 1)^2 - 2 * W * (W - 1)}\right) \quad (20)$$

It can be proved that if $db < 2W^2 / (2W - 1)^2$ then expression (20) is negative. If it never holds then the only reason to commit is to improve production efficiency. Since function $2W^2 / (2W - 1)^2$ is decreasing, then if condition $db < 2W^2 / (2W - 1)^2$ holds for some cut-off value of W then it will hold for every W less than this cut-off value. So there will be a point till which p is decreasing before it starts to increase. If $db > 2$ than $p(W)$ will be an increasing function for all W and if db would be less than 0.5 then $p(W)$ would be a decreasing function everywhere. We supposed that $db > 1$ which rules out the last possibility.

It would be important to know what will be the relation between the final price and the price that is the lowest along function $p(W)$. We analyze only the most interesting interior case of $1 < db < 2$. In the following we show that in the optimum function $p(W)$ is increasing so optimal type W will induce a higher price than the minimal one. Let us suppose that this is not the case so $dp/dW < 0$ holds in optimum. In this case consumer surplus is increasing in W since it is decreasing in p . We have already seen that profit is an increasing function of W . If we look at welfare problem (12) we can conclude that social welfare U would increase if we would set W at a higher level. So we can not be in optimum. Hence in optimum dp/dW is positive. From our result we can draw the

following conclusion. The regulator is more biased than it is necessary to reach the least possible price. This excess bias can be interpreted as some regulatory capture.

3. Conclusion

In this Section we would like to assess the above model by pointing out its constraints, suggesting pathways for future research and shading some light on the concept of independence as it appeared in this essay. We try to analyze the possible policy implications for the region, but will not overstress this issue. For more on this subject see Virag (1999) where we analyzed the regulatory structure of the Hungarian, Polish and Czech electricity industries.

The first constraint of the model is that it assumes symmetric and even perfect information between the parties. This simplification helped to retain the tractability of the model, but the question of how to design incentive mechanisms can not be assessed with this model. However, the problem of institution design, which is the main topic of this paper can be tackled by this approach [10].

Another extreme assumption is that no contract could be written on any of the relevant variables of the model (investments, prices or transfers) so decisions are completely discretionary. This is not the case in reality, but again this assumption helped us to focus on the question of regulatory independence and institutions. Future research easing this assumption (along with the assumption of perfect information) could be used to gain a more realistic model of our regulatory situation.

The biggest question – lying at the heart of this paper, is the interpretation we give to the concept of independence. Following Rogoff (1985) we supposed that an independent policy maker (regulator) has the right to make the decision on the policy question, without outside (especially governmental) influence. We also made the assumption that perfect independence can be reached by simply appointing someone as „chief regulator“, but there are several conditions that have to be fulfilled to have a truly independent regulator. First we have to give him the formal authority in the area he is responsible for. Without that, independence is only virtual and will not have the desired effects. Additional conditions include personal (fixed time appointment and no personal dependence on governmental officials) and financial independence of the agency. Even if these conditions all are fulfilled it takes time for the public to believe that an independent agency is established [11].

[10] For more on the differences between mechanism design and institution design see Tirole (1994).

[11] For more on this see Levy-Spiller (1994).

We have to explain why is it possible for a government, which can not avoid dynamic-inconsistency problem when deciding itself, to establish an independent agency and to delegate its decision rights credibly. The most important reason is that if we have a separate institution, then there will be decision-makers with their own preferences, which resist the government's intention to influence their decisions. It is easier to assure a correct decision by establishing an independent regulatory agency, than by giving the government discretionary power, because in the earlier arrangement the government will face higher costs if it wishes to behave opportunistically. It will face the cost of removing the decision rights from a formally independent institution, an institution which will of course expose this government intervention to the public. We do not want to say that the legal declaration of independence solves all the problems, but we do stress that a new institution, with appropriate man-power in an appropriate political and legal system can provide better answer to contractual problems than a government with discretionary decision rights.

Another substantial problem is the accountability of an independent regulator. It is especially important, since in our model we required some regulatory capture of the regulator [12] to achieve our results. We need to insure that investors yield a reasonable return but not at the expense of the consumers. Only the use of subtle institutional mechanisms will solve this problem [13]. It is possible that regulatory capture could be a bigger problem than the misbehavior of the government. It can be the case in principle but we argue that in the case of the Central-European electricity industry the biggest task is to constrain the discretion of the government.

Finally we would like to draw attention to the possible policy implications of this simple model. We conclude that an independent regulator in these countries could improve the credibility of regulatory systems. Investors would be more likely to invest in the region and even the prices could be smaller; a Pareto-improvement could occur.

However, there are some problems to address; the accountability of the regulator must be assured, regulatory capture must be somehow avoided and the appropriate expertise must be attained by the regulatory agencies. However, one can conclude that regulatory independence could ease the enforcement problems caused by the immaturity of the legal and political systems of these countries [14]. There are signs that our politicians also understand this question and are ready to create more independent regulatory authorities. It is a big lesson though that until enforcement problems are adequately addressed there is no sense in designing fancy incentive schemes of regulation that can not be enforced. We can hope that more attention will be paid to enforcement questions in the future research of our region.

[12] See the classical article, Stigler (1971) for the theory of regulatory capture.

[13] See Spiller-Vogelsang (1997) for the example of the British Telecommunication Industry where this problem could be solved satisfactorily.

[14] For more on this question see Virag (1999).

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