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Regulations, risk, and rent seeking behaviour

by

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Abstract

This paper seeks to address how political risk influences behaviour, in particular rent seeking behaviour. Such risk is important in many industries, which posts challenges both for policy makers and economic agents.

This paper studies how political uncertainty affects rent seeking, and what level of political uncertainty is "optimal" for society. We find that under some conditions, a higher level of political uncertainty might be beneficial to discourage rent seeking. On the other hand, high risk aversion among the agents decreases the optimal level of uncertainty, as risk averse agents suffer a higher loss in utility from a high uncertainty. It is possible to find several areas where this analysis is relevant. For instance, in fisheries, increasing uncertainty about whether or not to implement (or extend) a pay-back scheme will reduce the incentives for the fishermen to overinvest in vessels.

Introduction

In an important early paper, Kydland and Prescott, 1977 analyzed the regulator's best strategies, laying the foundations for a large branch of literature concluding that, to minimize negative side-effects, regulators should try to stick to objective rules, and limit their own possibilities to deviate from these rules in the future. The applications for this approach seem endless. Kydland and Prescott used patent policy as an example. Policy makers have incentives to promote research by offering patents (i.e., monopolist profit) to inventors, yet, once the invention is made, they have incentives to open for normal competition to maximize the social benefit from the invention. Other important applications have been central bank policy (e.g., Barro and Gordon, 1983) and environmental policy (e.g., Gersbach and Glazer, 1999).

These areas seem far from natural resource economics, yet we see similar problems where commitment to rules or objectives not necessarily solves the problem both in agriculture, fisheries, and aquaculture. A commonly debated problem today is CO_2 emissions and quotas. Future quotas are bound to, one way or the other, be affected by current emissions. Hence, the regulations here create counter-productive incentives, i.e., to increase emissions before the quotas are introduced, in order to increase one's own share of the quotas in the future (e.g., Brandt, 2002).

Two other classical examples are from fisheries, where some future quotas for individuals/vessels are based on their past or current catches. To maximize future quotas, fishermen have incentives to maximize current catch, thus effectively reducing the future stock. Also, governments have introduced buy-back programs for vessels to reduce the overcapacity in some fisheries. If fishermen expect that such programs might be repeated, they have incentives to invest in capacity today, thus undermining the objective of the program. This mechanism is probably one of the reasons why such programs have been less successful than expected (Wenninger and McConnell, 2000; Clark *et al*., 2005). These situations, at least at first sight, provide reasons to question whether governments always should try to reduce risk – as this should seem to encourage rent seeking efforts. This is in a sense the main problem we will study in this paper.

In aquaculture, there seem to be expectations that the government will bail out large producers in case of a crisis due to overproduction and low prices. If this expectation is widespread, it will lead to decreased risk aversion, higher investment and increased probability of a crisis. This is the same known moral hazard problem as we have seen in banking in recent years – confidence that government in the end will bail out large players gives these incentives to take on more risk, thus increasing the risk of a crisis.

In agriculture, one could argue that some of the same problems exist. In many countries, the industry is characterized by overproduction and (decreasing) subsidies, and to improve their bargaining position, farmers could have incentives to over-invest or otherwise act against the objectives of the policy maker. Again, we get the impression that rent seeking becomes easier and more profitable when the industry agents have high confidence about the government's future actions. Many of these examples are just anecdotal evidence to motivate the study of a link between political uncertainty and rent seeking. Nevertheless, they still suggest that the costs from rent seeking can be defined more broadly, such that it includes all costs to society arising from "sub-optimal" regulation, where the non-optimality is caused by interference of potential stakeholders in the process of determining regulation.

From the literature we know that regulatory interference (and expectations thereof) can have negative side-effects, both for individuals and for society at large, which consequently has led to the result that regulators should follow certain rules of thumb (as outlined by Kydland/Prescott) to reduce these side-effects. The recommendation of Kydland/Prescott implicitly implies to reduce political induced uncertainty to a minimum. However, compared to the above results, this paper shows that political uncertainty, under certain conditions, can have a welfare increasing effect, since it reduces wasteful rent seeking effort. If increasing political uncertainty reduces costs to society from reducing rent seeking effort more than it increases costs to society from larger political uncertainty, then a positive level of political risk is desirable.

To understand this result, we have to look at rent seeking. Rent seeking is a common problem in most situations with regulation and regulatory risk. Rent seeking could be defined as actions with the purpose of influencing or taking advantage of regulatory decisions - actions that are both socially inefficient and would not be undertaken without the possibilities of gaining from the regulations. These gains could come in the form of granted monopoly

power, quotas or other benefits, or in the form of political decisions considered helpful for the rent-seeker.

In food production, it is easy to think of various kinds of rent seeking behaviour. In fisheries, the main issue is quotas. Rent seeking behaviour could be undertaken to increase one's own quota, both compared to other competing fishermen, other vessel types, quotas of other species, and compared to quotas in other countries. In aquaculture, rent seeking behaviour could be used for obtaining production licenses at good locations, or in the fight for favourable trade agreements. In many countries, agriculture is particularly prone to rent seeking behaviour, as a very large share of farmers' income are various forms of direct subsidies, grants and transfers from the government.

The theoretical literature on the economics of rent seeking is large and growing - see e.g. Lockard and Tullock, 2001 for a review. One of the fundamental results is that firms will undertake rent seeking behaviour/lobbyism to maximize their expected utility. That is, they will spend resources on rent seeking behaviour as long as the expected utility of the investment is positive.

Tullock, 1967 and Posner, 1975 point out that becoming a monopolist is a competitive activity and hence the expected profit from obtaining the monopoly is zero. The mechanism is that each firm invests in rent seeking to the point where the last dollar spent equals the improved probability of obtaining the rent. The idea is that in order to obtain or maintain a monopoly (defend its position), it is necessary to engage in rent seeking expenditures. Total rent dissipation occurs when competition for rents is perfectly competitive. (In the words of Hillman, 2003: "With complete dissipation, we can measure the social cost of rent seeking by the value of the rent that was the price in the rent seeking contest."). Other analysis suggests that the level of rent dissipation depends on types of assumptions. For our purpose, Boyce, 1998 provides an analysis of rent seeking for a number of natural resources, concluding that a rent-seeking model might be chosen over an open-access model because full rent dissipation will be more difficult.

Less work is done on the *risk*[1] carried by the regulated firms and industries. Regulations and expected regulations might lead to changed decisions, but usually, one does not know whether or how the regulations will change in the future. On the one hand, this risk implies a cost for businesses. First, obviously, compared to the situation with certainty, they will make wrong/unprofitable decisions on a certain percentage of all occasions. Also, the presence of risk implies a direct loss of utility, as decision makers must be assumed to be risk averse. Some studies (e.g., Flaten *et al*., 2005 and Bergfjord, 2006) indicate that such regulatory risk is important for producers.

As the review above suggests, both rent-seeking and political uncertainty have large potential consequences. One could arguable that political uncertainty is a necessary condition for rent-seeking, and hence that too much political uncertainty leads to undesirable rent seeking. On the other hand, we will argue that total political certainty might not be optimal either. This could also increase rent-seeking, thus implying some kind of trade-off between political uncertainty and rent-seeking. Hence, it is interesting to study how this link works, and more normatively, what can be done to improve the regulations. These are the topics for the rest of this paper.

Some work is done in this area before. Most directly related to our problem are the papers of Hillman and Katz, 1984; van Long and Vousten, 1987; Konrad and Schlesinger, 1997; Cornes and Hartley, 2008; Yamazaki, 2009; and Treich, 2009, which all analyse various types of rent seeking games with risk averse agents. Their general result, with different generality and under different assumptions, is that risk and risk aversion typically decreases rent seeking efforts. Among related literature, Murphy *et al.*, 1993 find that rent seeking has a negative effect on growth and investment, whereas Brunetti and Weber, 1998 and references therein conclude that political uncertainty has a negative effect on investment. Skaperdas and Gan, 1995 study how risk-aversion affects the different agents' chance of winning a rent seeking contest, and find that under limited liability; the more risk averse agent will always have a higher chance of winning. Otherwise, risk-aversion will have no or ambiguous effects on the chance of winning. Finally, Bramoulle and Treich, 2004 study how uncertainty influences welfare and behaviour in the game of global pollution, and get the result that emissions will

[1] In a Knightian sense (Knight, 1921), some of the issues we are discussing are primarily "risky", whereas others are primarily "uncertian". However, as the distinction between the two seems to be vague (if existent at all) in modern literature, we do not differentiate between these terms.

be lower with high uncertainty due to risk aversion and that uncertainty can in fact have a positive impact on the welfare of the risk averse polluters.

The rest of the paper is organized as follows: Section 2 presents the basic model, while section 3 introduces political risks. Section 4 presents the main result that under certain condition a positive level of political risk is optimal, while section 5 concludes the paper.

Model

Assume *n* identical rent seekers who are equipped with the following utility function, which measures the expected utility for an individual from engaging in rent seeking activity:

$$U_i = p_i(x_i) \cdot u_i(R + I_i - x_i) + (1 - p_i(x_i)) \cdot u_i(I_i - x_i)$$

where I_i is the initial wealth of rent seeker i, p_i is the probability of "winning" for rent seeker i, i.e., that the rent seeking effort proves successful, R is the "prize" for successful rent seeking, and x is the rent seeking cost. All rent seekers solve the program:

$$\max_{x_i} U_i = p_i(x_i) \cdot u_i(R + I_i - x_i) + (1 - p_i(x_i)) \cdot u_i(I_i - x_i)$$

This approach makes it very complicated to derive the analytical result we are looking for.
We assume a simplification of this utility function given by

$$U_i = p_i(x_i) \cdot u_i(R + I_i) + (1 - p_i(x_i)) \cdot u_i(I_i) - x_i$$

That is, we let the utility function be quasi linear in x_i. Given this, we do not take into consideration how changes in x_i affects marginal utility, which is to say that we neglect the income effect coming from changes in x_i. Rather, we focus on the effect on the probability of winning from a change in x_i. This approach can be justified by assuming that x_i is (very) small compared to total welfare of the agents, which is usually the case.

Taking the other rent seekers' investments as given, this gives the following first order condition for optimal rent seeking behaviour of rent seeker *i*:

$$\frac{\partial U_i}{\partial x_i} = \frac{\partial p_i(x)}{\partial x_i} \cdot [u_i(R + I_i) - u_i(I_i)] - 1 = 0$$

We apply a commonly used contest success function (CSF), first used by Tullock (1980). A Contest Success Function (CSF) provides each player's probability of winning as a function of all players' rent seeking effort, such that increased effort of one agent enhance its probability of winning. We here assume the following a linear technology:

$$p_i = \frac{x_i}{x_i + \sum_{j \neq i}^{n} x_j}$$

Where *n* is the number of rent seekers. Due to the symmetry, we get the following expression (suppressing the subscripts for convenience):

$$\frac{\partial p}{\partial x} = \frac{1}{x} \cdot \frac{n-1}{n^2}.$$

Substitute this into the above expression for $\partial U_i / \partial x_i$ and solving for the optimal level of rent seeking yields:

$$x^* = \frac{n-1}{n^2} \cdot [u(R-I) - u(I)] \qquad [1]$$

Hence, without any uncertainty about the size of the price, we get the following expression for the optimal level of rent seeking:[2]

$$\frac{\partial x^*}{\partial n} = \left(\frac{n^2 - 2n(n-1)}{n^4}\right) \cdot [u(R-I) - u(I)] < 0 \text{ for } n > 2.$$

Introducing risk

It is showed by Hillman and Katz, 1984 and Konrad and Schlesinger, 2000 that risk aversion always leads to lower investment in rent seeking. The latter paper makes a distinction between rent seeking, where the investment affects the chance of winning; and rent augmenting, where the investment increases the potential price, and where the picture is more ambiguous. We, however, will focus on the first case, where the investment increases the chance to win.

[2] When talking about no risk here, we refer to a situation where no uncertainty about the size of the price from winning the contest exists. For the individual rent seeker, it still remains uncertain whether or not he/she wins the price, as described by the contest function.

With risk averse agents the result is that higher risk aversion (or, as in our case, higher political uncertainty), leads to less rent seeking. However, the higher risk (and/or risk aversion) also leads to less utility derived from any particular situation.

Hillman and Katz, 1984, made an early contribution to the literature on risk and rent seeking, and Long and Vousten, 1987 used their result to model the effect of uncertainty on rent seeking under certain realistic assumptions. The first assumption is that the rent to be achieved is relatively small compared to other wealth among the agents. While it is easy to imagine situations where this is not the case, in most cases, the rents related to any one particular investment are relatively small, as larger rent seeking scenarios often an be deconstructed into several smaller problems. The second assumption is that the number of potential rent seekers should be large. This is reasonable in most situations. Finally, the third assumption is that the prize has a fixed size, but that there is uncertainty about the share each rent seeker will receive. Given this, a smaller share of the rents are dissipated, and rent seeking decreases in risk aversion and variance, indicating that variance should be kept high to reduce social waste, as briefly mentioned by Long and Vousden. However, this ignores the effect on rent seekers.

To find the "optimal" level of political uncertainty, we would hence have to ask ourselves:

1) Should all rent seeking efforts be considered waste, or only a percentage of them? We do not study this in detail, but it seems clear that the damage to society from $1 of rent seeking investments might differ between different situations.
2) For what level of variance σ in the prize R will the benefits (smaller loss to society) be equal to the loss to rent seekers in terms of lost utility?

To study these questions further, we build on the general model from the previous chapter, and introduce political uncertainty to the model. It is assumed that the political uncertainty affects the prize (R). For this, assume that R is uniformly distributed over the range $[R^L, R^H]$, such that $E[R] = (R^L + R^H)/2$.

Now introduce a political uncertainty parameter $I_{PU} \geq 0$ where $I_{PU} = 0$ implies no uncertainty and the political risk is increasing in I_{PU}.[3]

Consider the situation where:

$$\frac{\partial E[R]}{\partial I_{PU}} = 0,\ \frac{\partial R^L}{\partial I_{PU}} < 0,\ \frac{\partial R^H}{\partial I_{PU}} > 0 \text{ and } \frac{\partial^2 R^H}{\partial (I_{PU})^2} = -\frac{\partial^2 R^L}{\partial (I_{PU})^2},$$

that is, a change in the political risk does not change the expected value of prize, but changes the variance.[4] The utility function in the presence of uncertainty is now:

$$u_i = p_i(x) \cdot [p^L \cdot u(R^L(I_{PU}) + I_i) + p^H \cdot u(R^H(I_{PU}) + I_i)] - (1 - p_i)u(I_i) - x_i$$

It follows that the optimal rent seeking as derived in equation 1 can be re-written as:

$$x^* = \frac{n-1}{n^2} \cdot [\ p^L \cdot u_i(R^L(I_{PU}) + I_i) + p^H \cdot u_i(R^H(I_{PU}) + I_i)] - (1 - p_i)u(I_i)$$

and

$$\frac{\partial x^*}{\partial I_{PU}} = \frac{n-1}{n^2} \cdot [p^L \cdot \frac{\partial u_i}{\partial R^L} \cdot \frac{\partial R^L}{\partial I_{PU}} + p^H \cdot \frac{\partial u_i}{\partial R^H} \cdot \frac{\partial R^H}{\partial I_{PU}}]$$

Note that it must be that $\frac{\partial p_i(x)}{\partial I_{PU}} = 0$ because *n* is unchanged, and the relative contribution of the contenders also is unchanged.

It follows that, by using the assumption that $-\frac{\partial R^L}{\partial I_{PU}} = \frac{\partial R^H}{\partial I_{PU}}$:

$$sign\{\frac{\partial x^*}{\partial I_{PU}}\} = sign\{p^L \cdot \frac{\partial u_i}{\partial R^H} - p^H \cdot \frac{\partial u_i}{\partial R^L}\}.$$

Finally, given the assumption about the uncertainty:

$$\frac{\partial^2 x^*}{\partial (I_{PU})^2} = \frac{n-1}{n^2} \cdot [p^L \cdot \frac{\partial u_i}{\partial R^L} \cdot \frac{\partial^2 R^L}{\partial (I_{pu})^2} + p^L \cdot \frac{\partial^2 u_i}{\partial R^L \partial I_{pu}} \cdot \frac{\partial R^L}{\partial I_{pu}} + p^H \cdot \frac{\partial u_i}{\partial R^H} \cdot \frac{\partial^2 R^H}{\partial (I_{pu})^2} + p^H \cdot \frac{\partial^2 u_i}{\partial R^H \partial I_{pu}} \cdot \frac{\partial R^H}{\partial I_{pu}}]$$

$$= \frac{n-1}{n^2} \cdot [p^L \cdot \frac{\partial^2 u_i}{\partial R^L \partial I_{pu}} \cdot \frac{\partial R^L}{\partial I_{pu}} + p^H \cdot \frac{\partial^2 u_i}{\partial R^H \partial I_{pu}} \cdot \frac{\partial R^H}{\partial I_{pu}}].$$

Since

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[3] See paper of Brunetti and Weder (2002), where different types of uncertainties are described.

[4] It follows that $\sigma^2(R) = \frac{1}{2} \sum_{R_i = \{R_L, R_H\}} (R_i - \bar{R})^2$, such that $\frac{\partial \sigma^2}{\partial I_{PU}} > 0$.

$$p^L \cdot \frac{\partial u_i}{\partial R^L} \cdot \frac{\partial^2 R^L}{\partial (I_{pu})^2} + p^H \cdot \frac{\partial u_i}{\partial R^H} \cdot \frac{\partial^2 R^H}{\partial (I_{pu})^2} = 0 .$$

It follows that

$\frac{\partial^2 x^*}{\partial (I_{PU})^2} \gtreqless 0$, depending on the size of P^L and P^H (Note that for $P^L = P^H$, $\frac{\partial^2 x^*}{\partial (I_{PU})^2} < 0$).

There are now two types of costs that the regulator has to consider when choosing the optimal level of political uncertainty. We use some standard results from microeconomics that the risk premium is positive if the agent is risk averse, and increasing the more risky the lottery is. The behavior of the regulator is assumed to minimize the total costs coming from rent seeking, $n \cdot x^*(I_{PU})$, and the cost associated with risk averse agent action under uncertainty, measured by the total risk premium, $n \cdot \Pi(I_{PU})$ such that the costs that the regulator minimizes are given by:

$C(I_{PU}) = n \cdot x^*(I_{PU}) + n \cdot \Pi(I_{PU})$,

First order conditions for optimal choice political uncertainty:

$$\frac{\partial C(I_{PU})}{\partial I_{PU}} = n \cdot \frac{\partial x^*(I_{PU})}{\partial I_{PU}} + n \cdot \frac{\partial \Pi(I_{PU})}{\partial I_{PU}} = 0$$

Given the way political risk has been defined, it follows that:

$\frac{\partial \Pi(I_{PU})}{\partial I_{PU}} > 0$, and $\frac{\partial^2 \Pi(I_{PU})}{\partial (I_{PU})^2} > 0$. Moreover, as already derived, $\frac{\partial^2 x}{\partial (I_{PU})^2} = 0$.

With $I_{PU} \geq 0$ as defined above, it follows that the condition for interior optimum is given by:

$\frac{\partial^2 C(I_{PU})}{\partial (I_{pu})^2} > 0$ and $\frac{\partial C(I_{PU})}{\partial (I_{PU})} = 0$ for $I_{PU} \in \mathbb{R}_+$.

For the following, it is convenient to be more precise about the range of the political uncertainty parameter, I_{PU}. There might be several reasons why policy makers cannot freely change I_{PU}, or there might be bounds on I_{PU} (see also discussion below). To catch this, let $I_{PU} \in [\underline{I}_{PU}(z); \overline{I}_{PU}(z)]$, where z is a vector of exogenous restrictions (conditions that restrict) on the range of the political uncertainty.

Because $x^*(I_{PU})$ is linear in I_{PU}, while $\Pi(I_{PU})$ is convex and increasing in I_{PU}, it is possible to identify a number of case to describe the optimal choice of I_{PU}.

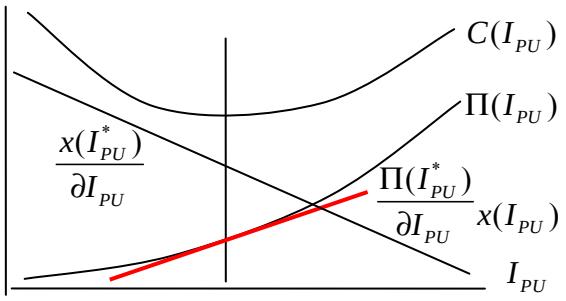
1) It is optimal to choose $I^*_{PU} > 0$ following the rule $\frac{\partial C(I^*_{PU})}{\partial I_{PU}} = 0$, if $\left|\frac{\partial x^*(I_{PU})}{\partial I_{PU}}\right|_{I_{PU}=0} > \left|\frac{\partial \Pi}{\partial I_{PU}}\right|_{I_{PU}=0}$ for $I^*_{PU} \in [\underline{I}_{PU}(z); \bar{I}_{PU}(z)]$.

2) It is optimal to choose $I^{'}_{PU} > 0$ where $I^{'}_{PU} = \arg\min C(I_{PU})$ s.t. $I_{PU} \in [\underline{I}_{PU}(z); \bar{I}_{PU}(z)]$ if $\left|\frac{\partial x^*(I_{PU})}{\partial I_{PU}}\right|_{I_{PU}=0} > \left|\frac{\partial \Pi}{\partial I_{PU}}\right|_{I_{PU}=0}$ but $I^*_{PU} \notin [\underline{I}_{PU}(z); \bar{I}_{PU}(z)]$.

3) It is optimal to choose $I_{PU} = 0$, if $\left|\frac{\partial x^*(I_{PU})}{\partial I_{PU}}\right|_{I_{PU}=0} \leq \left|\frac{\partial \Pi}{\partial I_{PU}}\right|_{I_{PU}=0}$.

We can identify three cases. Conventional wisdom suggests that reducing risk increases welfare. The first case, however, shows under what conditions an increase in the political risk increases welfare, when taking into consideration that increases in political risk reduces other types of distortions, in this case distortions from wasteful rent seeking activity. Such a case is shown in figure 1.

Fig 1: Choosing the level of political uncertainty I_{pu} that minimizes the total costs C(I_{pu}).[5]



If we focus on situations where the first condition holds, this gives us the following comparative static result:

[5] In the figure, it is assumed that $\partial^2 x(I_{PU}) / \partial (I_{PU})^2 = 0$.

1) The more rent seeking decreases with increased political risk, the more ”beneficial” is political risk (all else equal)
2) The more risk averse agents are, the more damaging is the political risk

The reason for 1) is that when the gain from an increase in I_{PU} increases in terms of reduced rent seeking, then, all else being equal, it is optimal to provide more political risk. The reason for 2) is it that when the costs from increasing I_{PU} increase, it is optimal to provide less political risk. This could be e.g., due to an increase in the agents' risk aversion, since higher risk aversion means larger $\frac{\partial \Pi}{\partial I_{PU}}$ (for the same level of I_{PU}).

In the second case, it is also optimal to increase the political uncertainty. Although it cannot be excluded theoretically, one obvious bound could be that $R_L(I_{pu}) \geq 0$, i.e., a negative prize should not be possible. The possible restrictions and interpretations of I_{PU} are discussed further in the next section.

Finally, there are situations like the third case, where it is optimal to keep the political uncertainty as low as possible. This will happen in situations where the gain from increasing political uncertainty in terms of reduced rent seeking outlets cannot fully compensate for the higher loss in terms of increased risk premium, even for small levels of political uncertainty.

Implications

Having obtained these results, the next question is what implications they have, both for policy makers and agents.

The variable to be controlled by policy makers here is I_{PU} - the level of political risk. Ideally, this uncertainty level should be kept at an optimal level, given the gains and losses outlined above. Obviously, other factors will also influence the chosen level. In particular, one might think that the need for future flexibility always will push up the political uncertainty. It is not possible, nor desirable, for government to eliminate all political risk by stating that “No matter what happens in the future, we have set out this set of rules, and they will be kept like

this forever." However, this can be taken into account when calibrating I_{PU}, such that $I_{PU} = 0$ is interpreted as "minimum political uncertainty, given these constraints". Also, changing the level of political uncertainty involves transaction costs. These are mainly ignored in our analysis, but it is clear that these could be substantial in real life, meaning that the optimal frequency and magnitude of such deliberate changes to the political uncertainty are likely to be relatively small.

Given all this, it seems reasonable to assume that policy makers should try to set I_{PU} such that society's costs from political risk are minimized[6]. In practice, a precise adjustment of I_{PU} is of course impossible, but a reasonable rule of thumb is that efforts should be made to reduce uncertainty where I_{PU} is higher than optimal, whereas uncertainty could be introduced in various ways in situations where I_{PU} is too low.

To view the political uncertainty as a control variable to be "manipulated" by the government and not a fixed parameter that ought to be as low as possible is a new approach compared to most of earlier literature. Our assumption that the level of uncertainty can be manipulated with great ease and precision is of course a simplification, but we argue that the government in fact should have considerable action space. If the present level of uncertainty is deemed to be too high, the government has several instruments available to decrease the risk. In some countries, a strengthened legal system might be necessary, including new laws limiting future government interference and more independent courts and judges. In other countries, all it takes to decrease the perceived political uncertainty can be rhetorical changes, for instance by emphasizing political and regulatory stability as important objectives. Other measures include different insurance schemes, longer term contracts and longer term budgeting.

If the present level of uncertainty is deemed to be too low, some of the measures above could of course be reversed. Legislation could be changed to increase future flexibility; the rhetorical focus could be moved from stability to flexibility etc. In situations where the rent seeking efforts are likely to be pure loss to society, more uncertainty and less rent seeking is, *ceteris paribus,* likely to be beneficial to society. One example of this can be found in NILF, 2006, which indicates that the total investment in Norwegian agriculture was at it lowest

[6] Here, we assume that politicians act rationally on society's behalf, and not rationally on their own personal or party's behalf.

around the vote about a Norwegian membership in the European Union – a vote which result would have large implications for future policy in Norway. As these investments on average yield very low or negative returns, this political uncertainty is likely to be beneficial to society both through the reduced rent seeking and directly through reduced investment. If we continue with this example, farmers are on the other hand typically quite risk averse (Flaten *et al*., 2005). This implies that increased uncertainty will be relatively costly for them in terms of utility. This utility loss will thus to some extent outweigh the social benefits from the increased utility.

If we study fishing and fish-farming, some of the "input variables" are different, yet the fundamental problem is the same. Fish-farmers and fishers seem to be considerably less risk averse than farmers (Bergfjord, 2006; Eggert and Martinsson, 2004). This implies that the social cost of high uncertainty is less in these industries, and that, *ceteris paribus*, the optimal level of political uncertainty is higher.

Some of the political risk will be exogenous to the decision maker. This could for instance be the perception of legislation from EU, or new international treaties. In such cases, it might be optimal for the national decision maker to counteract this by regulation of other types of risks to reduce the overall cost of society from such exogenous chocks.

Conclusion

In this paper, we have studied the link between political risk and rent seeking behaviour. In a simple model, we show that under some conditions (low risk-aversion, high social costs of rent seeking) some political uncertainty is beneficial to society, as this reduces the agents' optimal level of rent seeking efforts. Political uncertainty will, however, always impose a cost on (risk averse) agents by lowering their utility.

We assume that governments to some extent can control the level of political uncertainty, either by committing to future actions or, more subtly, by always acting in accordance with the agents' expectations. Even though it might be impossible to exactly calculate the optimal uncertainty level in every situation – and even more so to actually reach it – this means that governments should be aware of this trade-off. In situations where agents are risk averse, and rent seeking is uncommon and/or not very costly to society, governments should try to eliminate as much of the political uncertainty as possible. On the other hand, if rent seeking is

common and costly, and agents are more risk-tolerant, reducing the political uncertainty might in fact reduce the total social benefits. In terms of robustness, the main mechanism behind our argument is that the rent seekers will invest as long as the net benefit from doing so is positive. Given risk aversion, and when uncertainty is increased, then rent seeking investments will be reduced as net benefit is reduced. In this respect, our result is robust, since any mean-preserving, but risk enhancing situation, will imply a reduction in (wasteful) rent seeking investment. Konrad and Schlesinger (1997) find that rent aversion unambiguously reduces rent seeking expenditures in a competitive market, but this result is not necessarily robust when agents are acting strategic.

At this stage, it is also worthwhile pointing out possible extensions and further research. While our model simply assumes that the political uncertainty affects the variance of the prize, it would be interesting to explore situations where the political uncertainty affected other variables, for instance the probabilities of winning, the number of contestants, the size of the prize, or some combination of these. Although the general trade-off between risk and rent seeking would remain the same, the models and specific results would provide additional insights about the robustness of our results in this paper. Additionally, using different assumptions and comparing the normative model results with actual behaviour, both from regulators and agents, could give new knowledge about how political uncertainty in reality affects rent seeking, i.e., which of our assumptions are closest to reality.

Finally, it is clear that uncertainty in these situations in reality goes both ways. Governments impose uncertainty on (potential) rent seekers by their policy, but the uncertainty for rent seekers also introduces uncertainty for the government as to how common rent seeking will be, which in turn makes it more difficult for governments to implement optimal policies. We have only studied the uncertainty from government on rent seekers, an interesting extension could be to include.

Our paper addresses both the issue of rent seeking and the direct cost to society from (political) risk. By properly manipulating the political risk, the overall cost to society from such risk is minimized. Ideally, since the decision maker addresses two distinct problems, a first best policy would involve using two distinct instruments, That is, if there would exist a policy that could be optimally tailored towards the rent seeking problem, then it logically follows that the political risk should be set to zero. However, it is difficult to find such

instruments, for at least two reasons. First, it is difficult to restrain rent seeking without compromising the benefits from a free competitive market, and secondly, it is, as noted by e.g., Hillman, 2003, difficult directly to observe rent seeking activity.

Finally, it is worth pointing out that most of the situations where rent seeking is a problem, and where some positive level of political risk could be beneficial, are a result of underlying problems. This could either be "natural" causes for a market failure (for instance, well defined property rights to fish would solve some of these problems within fishery, yet such rights are difficult to establish). Other such problems are policy created, because other objectives have been considered more important than pure economic considerations. For instance, rent seeking in agriculture would be less common without subsidies, and less common in aquaculture if trade was free. While Kydland and Prescott, 1977, stated that rules are better than discretion, one could hence say that our proposition is that discretion (uncertainty) in some cases might be better than bad rules.

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