

Controlling the bureaucrat:

A model of the policymaking process

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1. Introduction

A few years ago I studied Public Administration (PA) at Leiden University. After a while there was some dissatisfaction with me about the theoretic approach in the field of PA. Many theories, generally North American, passed and seldom were they proved with figures or based on models. Theories seemed to come from nowhere and that is why I decided to start with the study Economics and Business besides PA. At the end of the third year I discovered that the Master Economics of Markets, Organisations and Policy (EMOP) could give me what I was missing in the study of PA. The EMOP Master fully met these expectations as a kind of “technical” PA. With the knowledge I have gained in my Master I want to examine one of the most important topics in PA, the relationship between politicians and bureaucrats. More specific, the thesis is about the continuous effort of the politician to constrain the bureaucratic discretion. It is not the purposes of this thesis to guide politicians and bureaucrats to ‘the solution’ for their difficulties. More the thesis aims to give insight into what elements are important in their decisions. A game theoretic model, where the thesis must eventually lead to, can create this insight as it shows the influence that different variables have on policymaking.

The thesis is structured in four parts. Section 2 gives an overview of theories about the bureaucracy. It aims to introduce the research topic and explain its relevance. The problems that arise with the necessary increase of bureaucratic discretion are discussed as they have to be remedied in the final model. The objective of Section 3 is to review some game-theoretic models that are already developed on this research field to become more familiar with this type of analysis. It covers several articles that deal with different elements of delegation as the delegation decision itself and the kind of bureaucrat that can best be chosen to implement a policy. Section 4 gives a short view of the methods and procedures that are used by the authority on which the final model is based, the Inspectorate of Education. Finally, in Section 5, a model is built that makes use of their methods trying to decrease the bureaucratic discretion. The thesis ends with a summery and conclusion.

2. Governmental structure

The model in Section 5 aims to approach governmental practices as close as possible. Therefore, this section gives a view of the structure of the bureaucracy nowadays. First the traditional approach is discussed to explore what lies at the origin of the current governmental structure of most western countries. This traditional or rational approach is particularly well known because of its highly hierarchical view of government. Based on more recent literature the second part of this section suggests that the rational approach has become outdated. This is initially because of developments in society and the governmental body itself. But also stakeholders as citizens and bureaucrats demand another approach with more attention for bureaucratic discretion. Also with providing more discretion problems and challenges arise. These are discussed in the last part of this section and return in the final model.

2.1 Rational approach

Max Weber, generally seen as most important advocate of the rational approach, developed his ideas in the very hierarchical structured Germany in the late 19th and early 20th century. Becker (2007) sets the ideas of Weber out in *Bestuurlijke Ethiek*. He noted that Weber promoted a clean, formal, and impersonal form of administration that acts as a machine. The organization should be efficient and the processes should be transparent. The actions of the bureaucrats should be guided by rules which are enforced with authority by the politicians. The bureaucrat has to be unconditionally loyal to the politicians. He must implement an order, even if he is opposed, “as if it corresponds to the bureaucrat’s own convictions”. According to Becker there still exists a wide consensus “that personal preoccupations and preferences may not spill into in the public domain”. The idea is also reflected in the Dutch political system. The ministerial responsibility, what means that the Minister is responsible for the actions of a bureaucrat, is a clear example of it. It is developed to give the power to the representatives and not the appointed bureaucrats. The consequence of the system is that the Minister must have the control over his organization. To conserve the fact that government actions are democratically legitimized a hierarchical administrative system seems thus required.

2.2 Challenges to the rational structure

The rational structure has to be more seen as an ideal structure than as structure that has to be followed step by step. Many difficulties arise with the rational approach. The main are discussed in this section starting with questions about the feasibility of the hierarchical structure nowadays. Second also the strong demand of citizens and bureaucrats for relaxation of the strict and impersonal rational structure is discussed. These demands cannot be seen separately as it is argued that a better motivated bureaucrat offers better service to the citizen.

2.2.1 Governmental changes

As Section 2.1 memorizes, the rational structure needs a Minister who controls his bureaucrats. According to the Scientific Council for Government policy of the Netherlands (WRR, 2000) this is very questionable, especially nowadays. First they argue that current government organizations are much larger compared to the time that the ministerial responsibility was introduced. To just give an idea, about 974.000 bureaucrats worked for the government in 2009 (Trendnota Arbeidszaken Overheid 2011). The government of the Netherlands of the 19th century, referred to as ‘Nachtwakersstaat’, tried to minimize interference with the public. It is already doubtful that the Minister could control or even overlook his ministry at that time, now this possibility seems excluded. Second the WRR mention that routine work in the government is strongly reduced. Also Harmon and Mayer (1986) argue that the ‘simple’ problems the bureaucrats were once hired to deal with are replaced by “wicked” problems, which according to them refer to problems that are not treatable by a known and acceptable solution. More and more experts made their entrance in government organizations. According to the WRR, such an organization more benefits from an approach that creates conditions for expertise and creativity instead of the rational approach that in detail indicates what a bureaucrat has to do.

2.2.2 Service improvement

Last decades, individuals and community groups “have generally become more demanding and less tolerant of bureaucratic rigidity” according to Vinzant and Crothers (1998). Citizens want bureaucrats “to tailor their responses to the situation at hand”. Also Becker (2007) observes that traditional institutions in the Netherlands have lost authority over the years and the individual has become more critical and detached against them. He attributes this changed attitude to the more

complex and turbulent society. Citizens are connected in networks that are more dynamic than the traditional connections, but also volatile and less binding. Because of this, Becker argues that the government has problems to reach the citizens. The rational approach seemed to work inadequate in responding to this phenomenon and therefore, as Vinzant and Crothers (1998) point out, governmental organizations decided to mimic their private sector counterparts. They tried to meet ‘customer’ wants and demands by empowering employees and giving more attention to results instead of inputs. This decentralization means that bureaucrats experience more discretion as before. Bureaucrats more determine the implementation of policies in response to the circumstances according to Becker (2007). The policies are generally formulated, more to set the tone than to control the implementation. The bureaucrat does not have a narrow defined task as with the rational approach but has to make judgments about people and situations. This applies particular to street-level bureaucrats. According to Lipsky (1980) they often work in situations too complicated to reduce to programmatic formats. Also a supervisor is not always present so to operate independently is often required.

2.2.3 Productivity improvement

The previous section showed that discretion is an essential condition for a government organization to meet the demand of citizens. Obviously the bureaucrat should still have to put some level of effort in the job. Governmental organizations thus face the question how to motivate bureaucrats to perform on a high or at least sufficient level. The rational approach almost ignores the possibility to extra motivate the bureaucrat and assumes that it is just obvious for a bureaucrat to implement what is instructed, according to Becker (2007). Denhardt (2004) mentions that scientific studies of worker behavior, as the Hawthorne Experiments and McGregor’s Theory X and Y, developed the discussion and led to the conclusion that more open and participatory styles of management would enhance workers’ productivity. Moreover, human values should be respected. It should be carefully examined what the bureaucratic values are because as Perry and Wise (1990) pointed out bureaucrats have “motives grounded primarily or uniquely in public institutions and organizations”. According to Buurman, Dur, and Van den Bossche (2009) the altruistic motivation, which it refers to, also emerges from investigations about the Dutch bureaucracy, at least for bureaucrats at the start of their tenure.

2.3 Disadvantages of discretion

The result of the arguments in the previous sections is that a bureaucrat “new style” is introduced which is, according to Becker (2007), no puppet of the central authority but someone who can operate within a certain discretion. But also increased bureaucratic discretion has some disadvantages. These are discussed in this section starting with the moral hazard problem which has a prominent position in the final model.

2.3.1 Moral hazard

In general it is hard for a manager to ascertain the effort a subordinate puts in a job. This problem for a manager only increases with more discretion. A well-known theory regarding this subject is the moral hazard theory. In the case of delegating policies it refers to the fact that the bureaucrat has an opportunity to implement a policy that is optimal for the bureaucrat but not for the politician or organization as a whole. It particularly applies to situations in which the bureaucrat has to make costs as time or effort to execute policies. The bureaucrat then performs less compared to the situation that the bureaucrat does not have to make costs.

2.3.2 Legitimacy

Vinzant and Crothers (1998) note that “the concept of discretion implies that the appropriateness or inappropriateness of the choices made can be evaluated”. They argue that various bureaucrats implement policies in various ways. Bureaucrats are not representatives of the public as politicians are. Strictly speaking, policies that are implemented by the government have to be the ‘choice of the people’ in a democracy as the Netherlands. Citizens do not want to be a victim of arbitrariness. Obviously that is why the rational approach prescribes that the politicians decide and the bureaucrats just have to carry out their orders in a neutral manner. With more discretion the question rises if the actions of the bureaucrats are legitimate.

2.3.3 Negative towards government

Many believe that the government is mismanaged. This antigovernment mood creates according to Vinzant and Crothers (1998) “pressure on public agencies with regard to the exercise of discretion. The desire to decrease the size and reach of the government leads to the thought that the bureaucracy should exercise less discretion and be less involved with policy.”

3. Delegation models

The model in Section 5 supposes to describe the relationship between a bureaucrat and a politician. The latter delegates the implementation of a policy to the former and wants to ensure that the former does not shirk. Many articles are written about the delegation of policies from a principal to an agent. In this section, three elements concerning delegation are highlighted. The kind of agent to whom the policy can best be delegated and the possibility to control the agent are reviewed in the second and third part. First the decision to delegate itself and the criteria that influence that decision are discussed.

3.1 Delegation decision

A well-known article that focuses on the decision to delegate is written by Aghion and Tirole (1997). They describe a situation in which the principal and the agent both search for information to decide about a project that has to be implemented. In one scenario the formal authority is with the principal. This so-called “integration” means that if the principal can find some information in support of a project *she* implements that project. If she does not find any information, she consults the agent and bases her decision on *his* information, at least if he has found any. Another scenario is that the formal authority is with the agent. This ‘delegation’ scenario works exactly the other way around. The principal faces a tradeoff, according to Aghion and Tirole, when deciding about delegating formal authority to an agent. The loss of control for the principal on one hand benefits the agent’s participation in the organization and his incentive to acquire relevant information on the other hand. Aghion and Tirole show with their model that delegating a decision is more likely when there is little cash for the principal involved or the agent can be trusted, and also if the decision is important for the agent. Aghion and Tirole also discuss real authority within an organization, which they describe as “the effective control over decisions”. Interesting is their analysis with respect to the span of control of the principal and the associated “overload costs”. It is showed that it is always optimal for a principal to be in a situation of overload. This is because the increased effort of the agent due to the reduction in oversight compensates the negative marginal profit, which exists if attention costs are higher than revenues, of an extra agent. A similar research on the criteria that determine who can choose

policy best is done by Alesina and Tabellini (2007). They specified their investigation on the politician and the bureaucrat. The latter is motivated by career concerns and the former just wants to be reelected. So both want to be recognized as persons with high ability, although both by a different audience. With effort, ability determines the policies they both carry out. Yet can ability not perfectly be observed by the audience through noise. The model shows that both actors put less effort in the job as performance can be less closely tied to talent or effort due to the effect of imperfect monitoring. The difference between both actors emerges as uncertainty about talent increases. The risk-neutral bureaucrat puts more effort in the job because then the perception of talent of the bureaucrat increases and it is assumed that the bureaucrat fully internalizes the benefits of this increase. The politician only wants to overcome a threshold value that is enough for reelection. Put more effort in a job so the threshold is more than exceeded is thus a waste for the politician. Therefore more uncertainty about talent favors the bureaucrat over the politician.

3.2 Delegate to a specific agent

If the decision to delegate has already been taken or is not relevant, the next decision is about what kind of agent has to be chosen to make or implement the policy to obtain the best outcome. An interesting article in this perspective is written by Dewatripont and Tirole (1999). They note that many organizations make use of competition between advocates of different interests to improve their policies. That in courts such a system is used with an attorney and a prosecutor is generally known. Both actors are not striving for social welfare but only for a specific cause. This is the same in government where even a Minister has no mandate to maximize social welfare. In fact, Ministers are often in conflict with each other all defending their own cause. Dewatripont and Tirole compare the “nonpartisan” case whereby one agent investigates two causes with the “advocate” case where two distinct agents both investigate their own cause. They showed that if information cannot be manipulated, so once found it automatically comes into possession of the principal, the “nonpartisan” agent is afraid of finding pieces of information in favor of the two different implementations options. That pieces offset each other through what the status quo, which gives lower rewards to the agent than implementing one of the two options, would prevail. This makes the agent reluctant to search for full information after finding some in favor of one option. With two advocates the principal only pays the advocate who succeed in moving the

policy away from the status quo to the advocate's favorite direction. The competition between the two advocates leads either to more information or to information at lower costs. Another interesting article concerning the choice of agent is written by Dur and Swank (2005). The agent in their model takes the role of adviser who can be hired by the decision maker because the latter cannot gain complete information. The adviser recommends implementing or maintaining the status quo to the decision maker after receiving a signal of which the quality is dependent on the effort that *he* put in his search. The recommendation is "cheap talk" and thus not verifiable for the decision maker. The adviser can have a different perception of what is in the interest of the public than the decision maker. Dur and Swank show that the more an adviser is biased towards one of the two alternatives, the less effort he exerts searching for information because the probability that new information can change his preferences is very small. The decision maker can do therefore best by choosing an adviser who is biased towards *her* preferred alternative, but less biased than she is. Then the decision maker does not have to worry that the adviser manipulates information because they have preferences in the same direction, and at the same time she ensures that the adviser puts effort in the job because his bias is not too strong.

3.3 Control the agent

An article written by Calvert, McCubbins and Weingast describes the possibility to control an agent (1989). They developed a model with an agent, an executive, and a legislature with all a preferred policy alternative. First, the executive and the legislature, who stand diametrically opposed each other, have to agree about the appointment of an agent that has to choose the policy. Then, the chosen alternative of the agent can be vetoed by both, the executive and the legislature. Calvert, McCubbins and Weingast show that the executive and the legislature have control over the agent in their basic model because of their appointing power and the fact that if there is no agent chosen or his policy is vetoed they all receive no payoff. The situation changes if the preferences of the agent that are expected by the executive and the legislature differ from the real preferences of the agent. The agent obtains some discretion now, what in this case refers to "the difference between the agency's choice and the choice the elected officials thought they were getting when they agreed on a nominee". Still the control over the policy is with the executive and the legislature as they determine the point of departure of the agent.

4. Case: Dutch Inspectorate of Education¹

Special authorities are created in the Netherlands to monitor and diminish externalities of bureaucratic discretion. At one end a citizen who feels harmed due to a bureaucratic decision can take action against it by going to court or consult the National ombudsman. On the other end the government can check itself. Since 2007, fifteen agencies that are entrusted with this task are grouped together in the Inspectorate Board. Well-known agencies are the Labor Inspectorate, the Health Care Inspectorate, and the Inspectorate of Education. This section, and also the model in Section 5, focuses on the third, the Inspectorate of Education. In this section their origin, and their methods and procedures are discussed. These methods and procedures return in the final model. In particular it is dealing with the procedures concerning primary schools.

4.1 Primary tasks

In 1801 a national education law was introduced. This law already included a part about the control of schools by education inspectors and can therefore be seen as the origin of the Inspectorate of Education. The inspectors then had to have free access to schools and the schools were obliged to provide them the information they needed. Based on this information the inspectors had to control if the schools stuck to the Dutch laws and regulations. They had to assess the quality of education, promote it, and report about the state of education. Nowadays the Inspectorate of Education, which is attached to the Department of Education, is become a very large organization. To give an idea, the total expenditures in 2009 were over 66 million euros of what more than a half were spent on salaries. Apart from the added control of the financial policy of a school, considered as an important condition for good education, the responsibilities of the inspectors have hardly changed over the years. However, the processes by which the control is carried out are developed. Recently a distinction is made between two categories: schools that are considered as ‘high risks’ and schools that are not. The former is placed under supervision and the latter is only controlled by random checks. Both are discussed in the next sections just as the risk analysis by which they are categorized.

¹ This section is based on information from: the Inspectorate of Education (*Analyse en waarderings van opbrengsten, Jaarverslag 2009, Jaarwerkplan 2010, Toezichtkader PO/VO 2009, www.onderwijsinspectie.nl*).

4.1.1 Risk analysis and interventions

In the new approach of the Inspectorate more attention is given to schools that are considered as high risks. These schools should be indicated after a risk analysis that is performed yearly for every school. Indicators of a potential risk school are school revenues, their annual reports, and signals and other information that are already known by the Inspectorate. School revenues are for example the level of literacy and numeracy of the children at the end and during their school period. Also the percentage of children that finishes primary school in the 'normal' term of eight years, their social skills, the fact that children with special needs are developing to their capabilities, and the advices of the school about, and actual performance of the children in secondary school are taken into account. All these revenues must emerge from the results that schools have to provide of regular tests such as the 'Cito' test. If the indicators show a negative picture of a school, then the school will be subject of a so-called expert analysis. The nature and background of the risk are then reviewed by using the same indicators as before. Schools for which is considered that, based on the last analysis, there is no risk receive a basic arrangement. Schools that are still considered as high risks are further investigated so that eventually the weaknesses can be formally documented. The next step is to execute an intervention on the high risk or 'very weak' school and publish the identified weaknesses on internet to inform citizens. The supervision that takes place focuses on a quick improvement of the quality of education. Already within a year is measured if the improvements occur. If a school is not improving despite the supervision the Minister is reported. She can fine the school with administrative or financial penalties and in the end even order to close the school.

4.1.2 Schools without observable risks

Schools without identifiable risks at first sight receive a basic arrangement what means that in principle no monitor activities are executed through the Inspectorate. To prevent that these schools are not monitored for a long time the Inspectorate randomly checks them, sometimes without prior notice. All schools are at least checked once in every four years. This takes for example place in terms of an investigation related to a specific topic as the teachers, the board, or the finances. If during these investigations the Inspectorate observes some weaknesses the school receives a similar treatment as the schools that were initially categorized as high risks. The random checks are also used by the Inspectorate to validate their analysis.

5. Model

In this section the model is developed step by step. First the basics are incorporated in a simple model between a politician and a bureaucrat. After that, extensions are added to create a model that close meets the practice of the Dutch Inspectorate of Education as discussed in Section 4.

5.1 The basic model

Initially, the model describes a one-stage game consisting two layers which form the government together: a bureaucrat and a politician. The former is a street-level bureaucrat (see Section 2). In this model, the bureaucrat serves as the only contact of the government with society. *He* observes the state of society μ , a stochastic term uniformly distributed on the interval $[0, h]$. After observing μ , he has to implemented a policy x . There are costs of action λ associated with the implementation of a policy. The preferences of the bureaucrat are as follows:

$$U_B = -\frac{1}{2}(x - \mu)^2 - \frac{1}{2}\lambda x^2 \quad (1)$$

On the second layer is a politician. As already mentioned, *she* is not in direct contact with society. This makes that μ is not visible for her. She only knows that μ is uniformly distributed on the interval $[0, h]$. So the politician can only make an expectation of the value of μ . The politician is only interested in being reelected. In this model it is assumed that she therefore has to ensure that the policy that is implemented meets the state of society as close as possible. Therefore the quadratic preferences of the politician are described by:

$$U_P = -\frac{1}{2}E(x - \mu)^2 \quad (2)$$

At this stage there are two scenarios. In the first scenario, the politician gives the bureaucrat discretion. The policy chosen then results from simply maximizing (1) with respect to x :

$$\begin{aligned} & \max \left[-\frac{1}{2}(x - \mu)^2 - \frac{1}{2}\lambda x^2 \right] w.r.t. x \\ & \rightarrow x = \frac{\mu}{1 + \lambda} \end{aligned} \tag{3}$$

Not surprisingly (3) shows that the chosen policy x is a function of the state of society μ . Because there are costs of action λ related to the implementation, the chosen x is generally just below μ .

In the second scenario, the politician wants to eliminate the discretionary power of the bureaucrat. She can achieve this by imposing a standard policy \bar{x} . The standard policy chosen by the politician without seeing the value of μ results from maximizing (2) with respect to x :

$$\begin{aligned} & \max \left[-\frac{1}{2}E(x - \mu)^2 \right] w.r.t. x \\ & \rightarrow \bar{x} = \frac{1}{2}h \end{aligned} \tag{4}$$

→ Proof: See Appendix A

Obviously because of the lack of information about μ , the politician chooses a standard policy exactly in the middle of the interval $[0, h]$.

At this stage, without any evaluation or control mechanisms as firing or punishing, the bureaucrat can do what he wants and chooses always for his optimal x . If these mechanisms are present, the politician has the choice between giving the bureaucrat freedom to choose his favorite policy and imposing the standard policy \bar{x} . The disadvantage of the standard policy is the fact that it does not take the value of μ in to account. So it is uncertain whether the standard policy matches with the state of society. The disadvantage of giving the bureaucrat freedom is the moral hazard problem as shown by Equation (3) (see also section 2.3.1). This problem is dependent on the value of λ , which is known by both actors. The higher the value of λ , the more influence the moral hazard problem has, and the better the standard policy can be chosen by the politician. The optimal decision for the politician results from taking her utility function with (3) included and equate that with her utility function with (4) included:

$$-\frac{1}{2}E(\bar{x} - \mu)^2 = -\frac{1}{2}E(x - \mu)^2$$

$$\rightarrow \lambda = 1 \tag{5}$$

→ Proof: See Appendix B

From (5) it follows that the politician chooses for the standard policy if $\lambda > 1$ and gives the bureaucrat freedom to choose if $\lambda < 1$. The costs of action are so low then that the underperformance of the bureaucrat is not that extreme compared to the distance that may be reached between the standard policy \bar{x} and the real state of society μ .

5.2 Multiple-stage game

So far a one-stage game is described. The attempt of the Inspectorate to control schools is a continuous process. Therefore the model should be extended to a multiple-stage model with repeated interactions. Because future utility is generally less valued than current utility the discount factor δ has to be included. This discount factor is located between 0 and 1, where close to 0 means that the bureaucrat cares very little about the future and close to 1 that he cares almost as much about the future as about the present. In this model the discount factor is fixed and known to both, the bureaucrat and the politician. The preferences of the bureaucrat in the first period ($t = 0$) are now formulated as follows:

$$U_B = \sum_{t=0}^T \left[-\frac{1}{2}(x - \mu)^2 - \frac{1}{2}\lambda x^2 \right] \delta^t \tag{6}$$

The optimal policy for the bureaucrat in the multiple-stage game results from maximizing (6) with respect to x :

$$\max \left[\sum_{t=0}^T \left[-\frac{1}{2}(x - \mu)^2 - \frac{1}{2}\lambda x^2 \right] \delta^t \right] w.r.t. x$$

$$\rightarrow x = \frac{\mu}{1 + \lambda} \tag{7}$$

Equation (7) shows the same outcome as (3). The discount factor does not make a difference. With repeated interactions, still the bureaucrat wants to implement $\left[x = \frac{\mu}{1+\lambda}\right]$.

5.3 Practice of the Inspectorate

Section 4 described the methods and procedures of the Inspectorate of Education. In this section the main elements are incorporated into the model. The politician, who takes the role of the Inspectorate, can monitor the performance of the bureaucrat, who takes the role of a primary school that is initially not considered as high risks (see Section 4.1.2). If the politician caught the bureaucrat while implementing less than the state, the bureaucrat has directly switch improve his policies to prevent worse. Also he is punished with supervising the next period by the politician. Both want to prevent this because supervision gives them high costs. For both the costs of supervising are as high as the absolute value of the difference between implementing $\left[x = \frac{\mu}{1+\lambda}\right]$ and $[x = \mu]$ for the highest state. The politician only considers checking in every first of two periods. The politician commits herself to this as well as to supervising. The model becomes a two-period game and could be infinitely repeated. The timing is as follows:

$t = 0$:

- The bureaucrat starts to implement policy x based on observation of μ .
- The politician receives a report about x and decides to check or not.
- If caught, the bureaucrat must directly switch policies.

$t = 1$:

- If checked and caught, the bureaucrat is supervised by the politician.
- If not checked or not caught, the bureaucrat implements less than the state.

5.3.1 Decision of the politician

The politician only considers checking the bureaucrat if her extra disutility of the bureaucrat implementing $\left[x = \frac{\mu}{1+\lambda}\right]$ instead of $[x = \mu]$ in periods 1 and 2 is higher than her costs of

checking and subsequently supervising. It is assumed that the cost of checking c is the inverse of the probability of checking p . Costs of supervising are already mentioned. The benefit she has if the bureaucrat implements $[x = \mu]$ instead of $[x = \frac{\mu}{1+\lambda}]$ is:

$$\frac{1}{2} \left(\frac{\mu}{1+\lambda} - \mu \right)^2 - \frac{1}{2} (\mu - \mu)^2 = \frac{1}{2} \left(\frac{\mu\lambda}{1+\lambda} \right)^2 \quad (8)$$

The politician is indifferent between checking and not checking if the state of society is:

$$\begin{aligned} \frac{1}{2} \left(\frac{\mu\lambda}{1+\lambda} \right)^2 + \frac{1}{2} \delta E \left(\frac{\mu\lambda}{1+\lambda} \right)^2 &= c + \delta \frac{1}{2} \left(\frac{h\lambda}{1+\lambda} \right)^2 \\ \rightarrow \bar{\mu}_p &= \frac{\sqrt{2c(1+\lambda)}}{\lambda} + h \sqrt{\frac{2}{3}} \delta \end{aligned} \quad (9)$$

→ Proof: See Appendix C

Interesting to see is the effect of the variables on the threshold value. The first derivatives to c , h , and δ are all positive. It is obvious to see that the higher the costs of checking, the less the politician wants to check and thus supervise. Also it is obvious that the threshold is increasing in h . That the threshold is increasing the more the future is valued comes from the fact that the supervising costs are so high. The first derivative to λ is negative. So the higher the costs of action, the more the politician wants to supervise. This is because then the gap between the optimal policy for the politician and the optimal policy for the bureaucrat gets bigger so the moral hazard problem is increasing then.

As mentioned the politician cannot see the state of society. Yet she can approximately obtain the state because, as in practice (see Section 4.1.1), she receives reports about the policy x that is implemented at that moment. Based on report $[x]$ the politician knows that the state is $[x]$ or $[x(1+\lambda)]$. Combining with (9), the politician does not want to check if she receives a report:

$$x < \frac{\sqrt{2c(1+\lambda)}}{\lambda} + h \sqrt{\frac{2}{3}} \delta / (1+\lambda) = \frac{\sqrt{2c}}{\lambda} + \frac{h\sqrt{2}\delta}{(1+\lambda)\sqrt{3}} \quad (10)$$

If (10) is satisfied then the state of society is lower than the state of (9). The politician does also not want to check if she receives the report:

$$x > \frac{h}{1+\lambda} \quad (11)$$

Such a report must always be linked to $[x = \mu]$. The only reports for which the politician wants to perform a check are the reports for which (10) and (11) are not satisfied, so:

$$\left[\frac{\sqrt{2c}}{\lambda} + \frac{h\sqrt{2\delta}}{(1+\lambda)\sqrt{3}} \right] < x < \frac{h}{1+\lambda} \quad (12)$$

5.3.2 Decision of the bureaucrat

The bureaucrat knows the methods of monitoring of the politician. So he knows that if he observes a state of society lower than (9), he is definitely not checked. He can just implement $[x = \frac{\mu}{1+\lambda}]$ then. The profit due to the less disutility is:

$$\frac{1}{2}(\mu - \mu)^2 + \frac{1}{2}\lambda\mu^2 - \frac{1}{2}\left(\frac{\mu}{1+\lambda} - \mu\right)^2 + \frac{1}{2}\lambda\left(\frac{\mu}{1+\lambda}\right)^2 = \frac{1}{2}\left(\frac{\mu\lambda}{1+\lambda}\right)^2 \quad (13)$$

If the bureaucrat observes a state of the world higher than (9) he knows that the probability that he is checked is p . He only chooses $[x = \frac{\mu}{1+\lambda}]$ if the possible change of policies in period 1 and the possible punishment in period 2 is lower than his difference in disutility between implementing $[x = \frac{\mu}{1+\lambda}]$ instead of $[x = \mu]$ in period 1, so he is indifferent between the two policies if:

$$\begin{aligned} \left(\frac{1}{2} \frac{(\mu\lambda)^2}{1+\lambda}\right) &= (p) \left(\frac{1}{2} \frac{(\mu\lambda)^2}{1+\lambda}\right) + (\delta p) \left(\frac{1}{2} \frac{(h\lambda)^2}{1+\lambda}\right) \\ \rightarrow \bar{\mu}_B &= \frac{h\sqrt{(\delta p)}}{\sqrt{1-p}} \end{aligned} \quad (14)$$

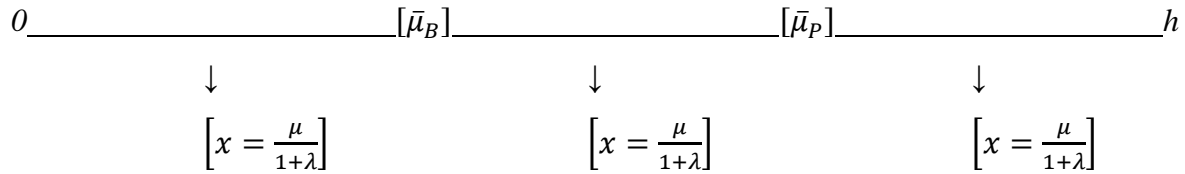
All three variables have influence a positive influence on the threshold value of the bureaucrat. For h it is obvious and also for the other two it may not be a surprise. The higher the probability of checking and the higher the future is valued, the higher is the disutility of being supervised.

Now it can be determined for which state the bureaucrat wants to choose for which policy. So:

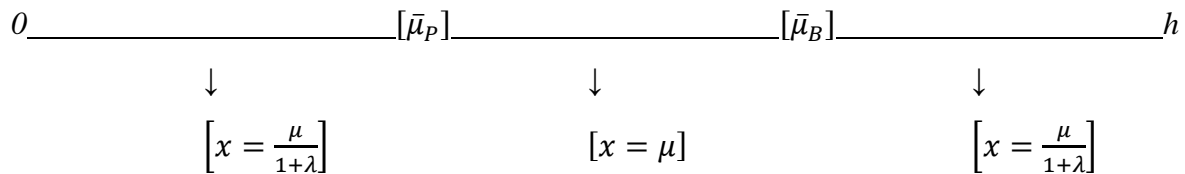
$$\begin{aligned} \text{If } 0 < \mu < \frac{h\sqrt{(\delta p)}}{\sqrt{1-p}} & \quad \text{then } x = \mu \\ \text{If } \frac{h\sqrt{(\delta p)}}{\sqrt{1-p}} < \mu < h & \quad \text{then } x = \frac{\mu}{1+\lambda} \end{aligned}$$

5.3.3 Politician and bureaucrat together

Two scenarios may arise from the foregoing. One in which the threshold of the politician is higher than the threshold of the bureaucrat, so $[\bar{\mu}_B < \bar{\mu}_P]$. Then the following occurs:



In this scenario the bureaucrat always implements $\left[x = \frac{\mu}{1+\lambda}\right]$. The only states for which the politician wants to control are so high that for the bureaucrat they are worth the risk of being controlled. The other scenario shows a threshold of the bureaucrat that is higher than the threshold of the politician, so $[\bar{\mu}_P < \bar{\mu}_B]$. Then implementation scheme of the bureaucrat is then as follows:



For lower states the politician does not want to control because the costs are higher than the benefits. The bureaucrat knows that and implements $\left[x = \frac{\mu}{1+\lambda}\right]$. For high states the bureaucrat can get such high benefits of implementing $\left[x = \frac{\mu}{1+\lambda}\right]$ that he does it although he knows that he might be controlled. For the intermediate states the bureaucrat dares not to risk that he is caught so he just implements what the state desires. The kind of scenario that applies thus results from the values of both thresholds. Unfortunately, the thresholds of the politician and the bureaucrat in this model are inconclusive.

6. Conclusion

The aim of this thesis was to model the relationship between a politician and a bureaucrat regarding policymaking. More specific it was about the political control of the bureaucratic discretion. Section 2 described that the ideal of the rational structured bureaucracy has become outdated. Especially the growth of government compared to the times that the rational structure was introduced contributes to this. Also the wants and demands of citizens and bureaucrats had influence on the changed approach. The former wants to receive more tailor-made services what can only be realized with more decentralized policies. So an important role is reserved for bureaucratic discretion. At the same time the bureaucrats feel comfortable with more discretion. More discretion does not only have advantages. Due to discretion, problems of moral hazard and legitimacy are increasing. The former was dealt with in the final model. Section 3 discussed some articles about delegating policies to an agent. It was dealing with the criteria that determine if a principal is delegating or not and, if delegating is preferred, to what kind of an agent can best be delegated. Also models about the control of the agent are reviewed. Section 4 gave an overview of the practice of the Inspectorate of Education. Based on the criteria discussed in the section, the Inspectorate categorizes all schools as ‘high-’ or ‘non-risk’. The high-risk schools are supervised directly but the policies of the non-risks schools are only randomly checked. If during such a check it shows that the school is violating the rules of the Inspectorate, the school is also placed under supervision. The final model in Section 5 tried to deal with limiting the discretion for the reasons discussed in Section 2, by sitting on the chair and using the procedures of the Inspection of Education as discussed in Section 4. Despite the fact that the results were not very surprising, the final model provided some good insights into the policymaking process. Both actors try to find an optimal threshold state independent of each other. Is de state of the world is below the threshold of the politician then checking is not profitable. The bureaucrat knows this and performs less than the state then. If the state is above the threshold of the politician it is important to see how it relates to the threshold of the bureaucrat. If the threshold of the bureaucrat is higher, then the bureaucrat wants always perform less than the state. If the threshold of the bureaucrat is lower than there is a range of intermediate states wherefore he meets the state.

7. Appendix

A: Equation (4)

$$\max \left[-\frac{1}{2} E(x - \mu)^2 \right] w.r.t. x$$

The value of μ is unknown, so:

$$\max \left[-\frac{1}{2} x^2 + xE(\mu) - \frac{1}{2} E(\mu^2) \right] w.r.t. x$$

The expected value of μ is $\frac{1}{2}h$ and the expected value of μ^2 is $(\int_0^h \frac{1}{h-\mu} \mu^2 \delta\mu)$, so:

$$\max \left[-\frac{1}{2} x^2 + \frac{1}{2} xh - \frac{1}{2} \left(\int_0^h \frac{1}{h-\mu} \mu^2 \delta\mu \right) \right] w.r.t. x$$

$\int_0^h \frac{1}{h-\mu} \mu^2 \delta\mu = \frac{h^2}{3}$, so:

$$\max \left[-\frac{1}{2} x^2 + \frac{1}{2} xh - \frac{1}{2} \left(\frac{h^2}{3} \right) \right] w.r.t. x$$

$$\rightarrow \bar{x} = \frac{1}{2}h$$

B: Equation (5)

$$-\frac{1}{2} E(\bar{x} - \mu)^2 = -\frac{1}{2} E(x - \mu)^2$$

The values of x are known but the value of μ is unknown (see Appendix A), so:

$$-\frac{1}{2} \left(\frac{1}{2}h \right)^2 + \left(\frac{1}{2}h \right)^2 - \frac{1}{2} \left(\frac{h^2}{3} \right) = -\frac{1}{2} \left(\frac{h^2}{3(1+\lambda)^2} \right) + \frac{h^2}{3(1+\lambda)} - \frac{1}{2} \left(\frac{h^2}{3} \right)$$

$$\rightarrow \lambda = 1$$

C: Equation (9)

$$\frac{1}{2} \left(\frac{\mu\lambda}{1+\lambda} \right)^2 + \frac{1}{2} \delta E \left(\frac{\mu\lambda}{1+\lambda} \right)^2 = c + \delta \frac{1}{2} \left(\frac{h\lambda}{1+\lambda} \right)^2$$

The expected value of μ^2 is known from Appendix A, so:

$$\frac{1}{2} \left(\frac{\mu\lambda}{1+\lambda} \right)^2 + \frac{1}{2} \delta \frac{\left(\frac{h^2}{3} \right) \lambda^2}{(1+\lambda)^2} = c + \delta \frac{1}{2} \left(\frac{h\lambda}{1+\lambda} \right)^2$$

$$\rightarrow \bar{\mu}_p = \frac{\sqrt{2c(1+\lambda)}}{\lambda} + h \sqrt{\frac{2}{3}} \delta$$

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