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Contents

Introduction

Corruption is a very old phenomenon in many societies. Probably ever since men formed some kind of organisation there was an incentive to abuse the power granted to that organisation for personal gain. Jain (1998)[**33**, pp1] describes a 2500 year old Indian Manuscript »The Artshastra« that describes the effects of corruption on the economy and gives advice on how to combat it. In ancient China there was a bonus paid to state employees, Yang-lien, that could be translated as »incentivizing not to take bribes«.

Corruption always was and still is in fashion. Especially third-world countries suffer from the negative effects of corruption. The administration in Nigeria is, as members of a international organisation[**43**] put it, not only corrupt, but corruption is the fundament of the political and bureaucratic administration. Easterly (2006)[**22**, p.129] defines a corruption-democracy trap for third world countries. Even when free elections are guaranteed, corrupt politicans buy the votes instead of »earning« them with good government. Developing an opposition and overturning a corrupt government would need freedom of speech and freedom of press, which can be avoided by buying favours from the press, army or police and therefore avoiding publicity and repressing potential opposition.

Extreme examples of corruption could be observed in Indonesia under Suhartos regime or in Irak under Hussein where the ruling class expropriated gigantic amounts by designing a plainly corrupt administrative and political system.

However, bribing is not limited to developing or transition economies as a short screening of current news in Austria on corruption shows:

- A new book[**28**] describes the practice in pharma industry of bribing doctors to suscribe their drugs or influencing other doctors to do so.
- Police investigates against a lobbyist[**16**], the husband of a former secretary of state, for being involved in incentiving officials in the Czech Republic and Hungary by bribes to buy the tactical aircrafts of his principal.

- Police arrested over 30 professors and assistants at Zagreb university[**65**] for »selling« grades and diplomas. One of the arrested is the head of the Anti-corruption comitee of the Croatian government.

Corruption does happen in developed countries, it happens in countries that have a long democratic tradition and very strong institutions, and, obviously, it happens among very highly reputated persons as medical doctors or university professors.

Corruption is regarded as something ethically bad, mostly as economically inefficent and as a sign for bad administration or government and weak institutions.

Communists would argue that the capitalistic system automatically leads to corruption[**32**] as the funds are inequally distributed and therefore one group can buy the decisions from authorities.

Capitalists may argue that the high discretionary power that planners in Communist regimes have automatically lead to corruption as they have the power to produce artifical shortage in supply[**57**].

My thesis will summarize the economic discussion on corruption and is organised as follows:

Part I. summarizes economic theories on corruption

(1) First I shall try to derive a definition of corruption.
(2) The second chapter is dedicated to the forms of corruption and the classification of corrupt activities
(3) As corruption mostly happens within governmental bureaus, I will focus on the foundation and the goal of the state, its necessary child (or mother?), the government and its servant, the bureaucracy. The fundament of the interactions between the briber and the bribee is dicussed in the second part, namely the corrupt contract that differs fundamentally from ordinary contracts in legal deals.
(4) The determinants of corruption are discussed in the fourth chapter. I shall draw the distinction between two phenomena that increase the probability of corruption in an economy: The existence of economic rents in an

economy will open the possibility for extracting bribes. Secondly, various factors determine the expected payoffs of bureaucrats from corruption.

(5) In the fifth chapter I will first discuss a model that explains corruption as the usage of the price mechanism in the presence of a government failure. Corruption can be socially benefical in this special case. Corruption as a form of rent seeking is however mostly regarded as having bad effects on public welfare. I shall focus on these in the rest of the chapter.

(6) Corruption as the result of an agency conflict is modeled in chapter 6. A benevolent principal is assumed and corruption arises due to the adverse selection of agents and their subsequent hidden action or the misdesign of the contract and resulting moral hazards of the agent.

(7) Once corruption flourishes in a society it becomes hard to fight it. There are mechanisms that once corruption exists, further corruption can occur for less costs. The idea of self-enforcing corruption is modeled in chapter 7

PartII gives empirical evidence on the causes of corruption. The influence of economic development, legal origin, governental regulations, availability of means of information and politcal interest on the level of corruption are investigated.

I use the female form for both, bribers and bribees throughout my work, which is contrary to the common case in reality. Dollar et al. (1999) give evidence that the higher participation of women in labor force and in the legislative body of a state significantly and highly decreases its level of corruption.

Part 1

Corruption: the theory

CHAPTER 1

Definition

Almost every scholar writing on corruption stresses the dificulty to properly define it. Corruption includes a very wide set of activities and determinants as well as actors and is therefore, even though commonly well understood, hard to properly define for scientific purposes.

Corruption includes a principal-agent relationship; the principal assigns some discretionary power to an agent, who, in contrary to what she is supposed to do, abuses this power for her personal gain. The principal could be a government, a firm, a head of a department; the agent could be a bureucrat, a politician or an employee.

The first question in defining corruption that may arise is whether a third party and a bribe has to be involved. Is it corruption if an official steals public goods in the office? Is it corruption if an employee uses the company telephone for private calls?

The pure misuse of public funds without monetary gain that may be purely due to lazyness of the agent can be subsumed under corrupt activity though neither an increase of personal utility nor a bribe is involved.

In this work I shall define some elements that corrupt activities have to have in order to construct a fruitful economic analysis.

Claim 1. Corruption has to be a consequence of a decision of both, the bribe-taker and the bribe-payer.

A situation where one party has no other choice then to pay is rather extortion than corruption. This claim does not mean that any beneficial outcome can be achieved without paying a bribe but the actors can decide not to become corrupt. For example an entrepreneur who needs a license for a new machine and has to

pay a bribe for obtaining it can decide not to invest in the new machine. If she pays that would be a corrupt act. On the contrary in case officials threaten the entrepreneur that they would close the business if she does not pay a bribe is rather »protection money« than corruption.

Claim 2. The outcome of a corrupt act has to be mutually beneficial in comparison to not paying the bribe.

The outcome of the corruption does not have to be mutually beneficial in comparison to a world or a system without bribes, but given the design of institutions and the acting officials it derives mutual benefit to bribe. This claim follows actually from claim1. If a homo oecomenicus is free to decide whether to get corrupt, she will do so if, and only if she derives some utility. If the entrepreneur that wants to invest I for obtaining an income of Y and has to pay a bribe b than she will invest if $I + b < Y$; the bribe taking official will just act corruptly if the amount of bribe exeeds its (moral) costs and its potential costs (as the probability of getting caught, to pay a fine and to loose the job)

Claim 3. Both parties are better off when the corrupt transaction takes place, however both are worse off than if no corrupt act had taken place, if the corrupt act gets discovered by the principal.

In a system where it even pays for both parties to be corrupt if they get caught with securtity, the institution or the principals are either weak or unwilling to set actions against corruption. In both cases the principal does not act efficiently to prevent moral hazards of the agents.

Claim 4. Both parties in a corrupt contract are aware that their corrupt exchange is illegal.

Based on these assumptions corruption can be defined as:

> the side contracting of an agent by consciously abusing her discretionary power granted by a contract with a principal for private gain.

The personal gain does not have to be monetary. The head of some department that employs her daugther's boyfriend only because of her personal relationship to him derives some utility and therefore gains from that.

I focus in the following chapters on the forms of corruption where the principal derives her authority from the state, as public corruption is very widespread and the state can to some extend design the institutions.

CHAPTER 2

Forms and classifications of corruption

A basic element of corruption is the abuse of an principal-agent relationship. Defining the principal as the party that gets harmed by an act of corruption, only payments to an agent can be corrupt payments.

A second dimension that Rose-Ackerman (1999)[**55**] introduces is if the payment is done for an explicit quid pro quo or not. An explicit quid-pro quo payment requires reciprocity and could be literally described as a sale.

TABLE 1. Payment dimensions

	Quid pro quo	No explicit quid pro quo
Payment to principal	Price	Gift
Payment to agent	Bribe	Tip

The dimensions as described above allow to distinguish between price, gift, bribe and tip, whereas the common comprehension of gift as a morally positive or bribe as a morally negative transfer should not be stressed. If no explicit return service is expected for a payment, the payer could nevertheless expect some benefits from the payment in the future. One might make the police accepting tips and gifts and in turn the police is primed to do one a favour.

Corruption as defined above inevitably arises from bribes and may arise from tips.

2.1. What bribes are paid for

A demand-side utility approach explores why the bribe payer derives utility from paying a bribe. Rose-Ackerman (1999)[**55**]identifies three important situations where corruption occurs that give insight in who benefits from and who bears the cost of the government failure.

2.1.1. Bribes to reduce costs. Government puts cost on economic actors as taxes, customs duties or the obligation to obtain licenses. The bureaucrats in charge of enforcing the regulatory program normally have some discretionary power in how and how sharp to interpret the regulations, they therefore have a possibility to favourably interpret these regulations. Companies that bear the burden of a government regulation have in turn an incentive to lower their cost and gain competitive advantage in the market by bribing. The cost of the bribe to reduce costs are levied on the principal; the agent and the client share the benefits. In case of excessive regulations the bribe to reduce cost may however even be beneficial for the customers and increase public wellfare as it will be discussed in a later section.

2.1.2. Bribes to stimulate an incentive to bureaucrats. »Speed money« is paid by actors to accelerate the speed at which a public service completed. As public proceedings usually bind company's resources and slow down economic actions they might try to buy their way to the front of the queue for a public good. A bribe paid as speed money is a bribe to reduce costs, as the faster settlement reduces internal costs of a company.

In some countries[1], however, there exist public goods that will not be supplied at all without a sufficient bribe. Firms may refrain from entry to the market, as the bribes increase the cost and the burden of entry. The cost of this form of corruption is borne by the principal, the companies and all the citizens that do not gain from trade in natural equilibrium.

In an economy where the commercial register will not accept the company registration until a bribe is paid, the state-run telephone company will not install lines until bribe is paid and the customs duties will stop every truck until a bribe is paid, the business climate is so bad, the authorities behaviour so unpredictable that efficient economic activity is not possible.

[1]A drivers license in India for example amounts to1000 to 2000 rupees of additional bribe according to the Sunday times of India, December, 17 1995.

2.1.3. Bribes to equate supply and demand. A government that subsidizes the supply of a good that is traded on the market creates a rent for consumers that receive the good from state, as consumers could sell it on the market for the market price. The supply of the government-subsidized good is normally controlled by an bureucrat that is aware of the rent and has an incentive to grab a piece of it. To analyse the economic impact of the bribe to equate supply and demand Rose-Ackermann(1999) [**55**] distincts between fixed and variable supply of the governmental good.

Fixed supply. In the case of a fixed supply of the subsidized good the bureucrats will seek to skim the largest part of the rent until the price of the goods including the bribe equals the market price. The bureucrats benefit from the subsidy in the amount the government loses. The effect for the consumers is the same as if government would not engage in the supply of the good; if government supplied the good at market price, the rent that bureucrats pocket would go to governmental budget.

Variable supply. In the case of variable supply the bureaucrat can regulate the supply of the good. She can act like a private monopolist and create artificial shortage in order to maximize her bribe by maximizing the rent. The artificial scarcity will lead to an below-equlibrium supply of the public good and therefore to economic inefficiency.

2.2. The competitiveness in the supply of bribes

2.2.1. Market corruption. Market corruption is a competitive form of corruption where rents are allocated competitively to the actor paying the highest bribe. A high degree of transparency about the price and a simple evaluation of the quality of the corrupt service is possible. It is therefore irrelevant with whom a corrupt agreement is concluded and the price is set by the market as consumers can easily switch to an other supplier of corrupt service.

2.2.2. Parochial corruption. Parochial corruption[**35**] occurs in a market with few potential contractors and therefore a limited supply. The entry to the market for a corrupt service is limited which makes the connection to a corrupt supplier valuable, as good past experience with the supplier decrease the cost of carrying on the relationship. Searching new partners tend to be expensive or even impossible in the case of parochial corruption.

2.3. Forms of corruption

2.3.1. Bribery. Bribery is a form of corruption that includes one actor that disposes any item of value to an other actor in order to alter the behaviour of that actor in a way she would not have behaved without the transfer and in an abusive way with respect to the principal-agent relation. The altered behaviour does not have to be illegal, as it would be with speed money, where the bribe is simply paid to get public services delivered faster, but bribing itself is the illegal behaviour. Kickbacks are a example of bribery where an agent has public funds at her disposal and would transfer it to the party that reallocates the highest share of the funds back to the private funds of the agent.

2.3.2. Patronage. Patronage means favouring supporters for public jobs. Patronage is more subtle than bribery and therefore harder to prove, though it can be observed regularly. Patronage often happens when government changes and therefore jobs in bureaucracity have to be refilled. It is a fine line between illegal patronage and legal actions of politicians that select people due to their loyalty rather than according to their abilities.

2.3.3. Favouritism. Favouritism includes the preferred treatment of public officals toward friends (Cronysm) or towards family (Nepotism). The official abuses her discretionary power in the supply of public goods and favours inappropriately to her friends or relatives. They do so on the one hand to transfer a share of the public funds to people close to them and support them, on the other hand to have

loyal people around them that would not be denuncating possible abuse of power within the bureaucratic organisation.

2.4. Distinctions

2.4.1. Shadow Economy. Shadow economies are markets where the participants avoid to pay governmental fees like taxes by going underground and trading without official awareness. This black market may be due to the illegality of the traded goods or services (as drugs, weapons or prostitution) or simply due to the cost-saving effect of not paying taxes.

However there are relationships between corruption and shadow economy that Dreher and Schneider (2006)[**21**] explore and suppport with empirical evidence. They argue that in high income countries institutions are stronger and supply public goods more efficiently, so there is both - less need to go underground to avoid public treatment and less posibility to go underground due to stronger monitoring. Typically just a small fraction of the revenues within a company are generated underground. An official demanding a bribe in a high income country can always be brought to court.

In low income countries companies operate more or less fully underground as public goods are distributed less efficiently. These bigger companies are more easily detected by officials, so entrepreneurs often have to buy their way out in order to escape taxation and punishment. Corruption is needed to expand shadow economy, that, in turn, requires corruption.

Corruption and shadow economy are therefore complements in low income countries whereas they are substitutes in high income countries.

CHAPTER 3

Framework

Corruption can not be explained by a plainly neoclassical approach. The existence of governing institutions is ignored by neoclassicals although it actually leads to corruption. The formal norms set by government and, even more, informal rules[1] determine the level od corruption in a society. The pure self-seeking optimisation of personal utility is obviously not universally followed[**43**], people rather do regard the norms and societies expectations when deciding on whether to become corrupt.

3.1. Institutions

Exploring the economics of corruption inevitably requires an understanding of the institutions, their foundation and design. An institution like a state or a government, that has the power to organise human life and redistribute resources is obviously needed. Such institution, by definition a natural monopoly, only opens the possibility of opportunistic exploitation of its institutional power[**43**].

The State. The state is an important actor in economic activity. It levies taxes, subsidizes, employs and acts in many way as an »entrepreneur«. The most observable function it does is to redistribute resources, i.e. it collects higher taxes from high-income groups and subsidizes families with children. A more dynamic approach is that the state is an insurance. If people fall ill, lose their job or some catastrophe happens, the state would care for them. But where is the origin of state?

[1] or: social rules

The state as a solution for a prisoners dilemma. Mueller (2003) [**50**]gives insight about why the state exists.

If two actors in an economy benefit from trade with each other, one would even more benefit by deciding not to trade but rather steal. The same incentive has the other actor, so in a one-shot game a Nash-equilibrium (8,8) of mutual stealing is reached.

TABLE 1. The state as a prisoners dilemma

A/B	does not steal	steals
does not steal	(10, 9)	(7, 11)
steals	(12, 6)	(8, 8)

This Prisoner's Dilemma could be solved by assuming a supergame and a rational strategy such as tit-for-tat[**6**]. In such a supergame the actors can choose their next move based on the previous move of the opponent and therefore a system of cooperation and not-stealing can be reached.

In a 2-actors economy it is pretty easy to find out who stole, but assuming there are N actors, it may become difficult to find out who stole in the last shot and therefore to punish her in the next shot.

With increasing N it gets harder to detect noncooperative behaviour, the impact of one actor not cooperating on the whole society gets smaller and the communication among the cooperative members becomes more difficult.

Substituting the stealing in the example above with the decission on investing or not in some kind of public good as a firefighting brigade or national defense, there is much in common. There is still an incentive of not contributing to a public good; the personal utility would increase with the public good, however it would even more increase with not contributing to it as it is impossible to be excluded from a pure public good.

TABLE 2. Contributing for a public good

payoff for A	bridge gets built	bridge gets not built
contribute	5	1
dont contribute	6	4

As every member of the society has the payoff as shown in the table, no one would contribute to a beneficial investment. This market failure can be solved by the foundation of a formal institution that defines public interest, demands contribution to it, monitors, rewards and penalizes free-riders - the state.

The state as an answer to externalities. A second explanation that Mueller (2003) gives for the existance of state lies in externalities. Whereas with public goods all consume the same good, an externality is a good where the consumption of one party unintendedly affects the utility of a third party. An example would be the pollution in a valley caused by heavy traffic from trucks. To protect from the market failure occuring from externalities, the government levies taxes on the polluters or offers subsidies to the people living in the valley.

The grabbing hand. Maybe the most famous economic model is the Invisible Hand. People gain from trade; supply and demand meet in equilibrium »as guided by an invisible hand« and thereby determine price and quantity. The theory generally ignores the existence of the state; the state levies taxes and therefore produces a wellfare-reducing deadweight-loss. In an invisible hand's view, corruption is a government failure.

Another view, the helping hand, rewards the state with a very important role in economic life. The state interferes in the markets, e.g. by setting price ceilings, or owning large industrial companies. It corrects market failures by setting Pigou-taxes, funding a social security system or maybe even planning the citizens' needs and therefore the supply of goods. Corruption is a market failure that has to be fought by monitoring or incentive systems for the planners not to become corrupt.

It might be a too idealistic view that the state is an abstract, benevolent formation. State is made up by people as politicians or bureaucrats that might be interested in their personal utility rather than in maximizing the public welfare. Shleifer and Vishny (2002)[**57**]present this sceptical concept about states macrobehaviour that is a function of the micromotives of the people acting in the

state. The state is a Grabbing Hand, politicians are to some extend selfish rather than idealistic, and therefore try to maximize the benefits for their supporters, party members or for lobbys that supported a politican during election campaign. This attitude leads to wasteful use of public resources and possible reforms are not enhancing social wellfare but rather increasing the extractability of bribes. Politicians even create economic rents, e.g. by entry barriers just for the purpose of collecting the rent from the producers by lobbying and bribing the politicians. The only way to reduce corruption is to decrease the possibility to obtain a bribe by deregulations or reducing discretionary power of politicians and bureaucracity. The optimal design for instituitions is when the people acting have the lowest possible discretionary power in their decisions as this will inevitably lead to corrupt behaviour.

Bureaucracy. The main function of the bureaucracy in the state is to supply the governmental goods. These goods are by definition of a non-market nature, they are not distributed to the clients willing to pay the highest price but according to formal rules. Mostly bureaucrats have some discretionary power in deciding wheter to, to whom, or when a governmental good is to be supplied.

The output of a bureaucracy fundamentally differs from the output of a company, since it is hard to measure in monetary units. A fire inspection agency, the police or the courts do not maximize the profits, but rather social equality, security or conforming to the law jurisdiction.

The input of a bureaucracy is generally the budget set by the government. There is no market where a bureaucracy has to sustain its position. Due to this double-non-market nature of bureaucracies it is not possible to value the output in an objective way.

Managers of a corporation are in an agency relationship with their shareholders as bureaucrats are with their politicians or peoples. Managers can maximize their utility[**49**] by abusing the information asymetry with their principal and have excessive on-the job consumption as additional staff or consume too much

leisure. However, as the output can easily be measured in monetary units, each unit abusively spent and wasted will be missing in the period's profit.

This is not the case in a bureaucracy, therefore a bureaucrat has even more incentive to abuse her position for personal gain. On the other hand, a bureaucrat has less possibility to convert her power within the bureaucracity to income as its budget is set. The bureaucrat is therefore more likely to seek her additional income outside her organisation, in the market for bribes.

3.2. The corrupt contract

3.2.1. Trust and norms. Corrupt contracts always involve the risk of punishment if detected. Therefore it is almost impossible to bring the claim arising from a corrupt contract to a court in case of noncompliance of the other party[**43**], as this would mean admiting the own criminal behaviour. It is therefore essential to explore the special conditions under which a corrupt contract may be concluded. As there is no possibility to enforce the contract (and make the partner legally to stick to her illegal promises), one will only agree to a corrupt exchange if it can be assumed that the other party will fullfill its promises. Allready the offer of a bribe needs the expectation that the other party will not act in the legal way, go to the police and denounce the offer which would lead to negative sanctions to the offering party and eventually increase the benefits to the denuncing party as it proved to act legally. Reciprocity is therefore a key assumptions in corrupt-contract seeking; Lambsdorff (2004) illiustrates two different situations where corrupt contracts are concluded that are imaginable in daily life and show two sociologically completely different situations:

Situation1: A tourist on a south Italian[2] highway gets caught speeding by the police. She offers a bribe to the policeman before she was even asked for a driving license. The policeman takes the bribe, the tourist leaves and they never meet again.

[2]Italy could be easily replaced by other countries, however I left it here not because of my attitude towards Italians but because it might make the point most understandable for an Austrian reader

In this situation, the actors do not know each other and will most likely never meet again. They therefore have no idea about the past behaviour of the other party or her willingness to pay or take bribes and there will not be any possibility to sanction the other parties noncompliance in the future. The transaction is completed as there is a culture of corruption in the sense of informal rules that exist and that the tourist is aware about. She can offer a bribe to the Italian policeman, the chance of getting caught in the sense of »meeting« a honest policeman that would further prosecute the corrupt offer is small. This »culture of corruption« made the tourist dare to offer the bribe and she might never dare to do so back home; she trusted (in) the informal norms in an interaction with an Italian policeman. There was no need to have any further possibilities to enforce the contract as it was a pure spot-market transaction.

> **Situation2:** Somebody calls her old schoolmate and life-long friend who is a high-ranking police official, as she got caught speeding and is about to lose her driving license. The friend tells her that she should not worry, »it will be taken care of«.

Here the general informal norms are of less importance. The parties know each other for a long time and have interacted frequently; reciprocity is achieved between the old schoolmates, they trust each other and maybe did each other favours in the past that both parties benefited from.

In the absence of personal relationship in the sense of experienced or expected reciprocity in illegal behaviour, corruption will therefore only occur if there is sufficient expectation in the general norm of behaviour of agents. Once a corrupt relationship is established the parties might interact more frequently with each other and mutually benefit from that. In the case of non spot market contracts the briber might dispose assets to the sphere of the bribee who gains control over the assets and controls the payoff from the corrupt exchange. Therefore asymetric power arises from a non-spotmarket corrupt contract, that Coleman(1998)[**13**] explains by his Action Theory of Trust.

Entering to a corrupt exchange is a game, the potential gains (G) or losses (L) depend on the probability (p) of the other party acting in a cooperative way; p reflects the trustworthiness of the partner in the corrupt exchange, that increases with the frequency of successful corrupt exchanges so that

$$p = p(t)$$

and,

$$p_t > p_{t-1}$$

as the game will be stopped after the corrupt partner defected once.

A rational player will accept a corrupt offer if the probability of winning compared to losing is greater than the amount she would lose relatively to the amount she would win, or:

$$\frac{p}{1-p} > \frac{L}{G}$$

The trustworthiness p as a function of time can increase with experienced reciprocity in a corrupt relationship but it might also increase with impressions gained outside of corrupt exchanges or deepend relationships. A young politican that would not think about becoming corrupt might experience from the more senior colleagues their corrupt behaviour and could build up relationships to lobbys until the p to some lobby is high enough and she decides to become corrupt.

The distinction between market corruption and parochial corruption perfectly reflects the concept of trust and norms. Market corruption is transparent and mostly include spot market transactions, whereas parochial corruption bears a high degree of complexity and uncertainity. Therefore the costs of concluding, designing and enforcing a corrupt contract are much higher. These transaction costs, defined by Coase (1937) as the »costs of using the price mechanism«, are typically high in reality and therefore parochial corruption must be the dominant

form[**42**]. Due to the secret nature of corrupt side contracts the transaction costs arising here differ fundamentally from those in legal market exchanges.

3.2.2. Contract initiation. It is not possible to advertise for one's willingness to provide corrupt services or to pay bribes in a normal way. Forms of informing potential partners include spreading rumours about one's potential or past corruptibility[**42**] or word-to-mouth propaganda by »satisfied customers«. A phenomenon that is related to the concept of trust is a legal relationship becoming illegal as trust increases.

A corrupt partner must be capable to provide a corrupt service. In bureaucracies it might not always be easy for outsiders to identify who actually is in charge for a special service within the organisation; possible suppliers may only pretend to be capable to do so as they do not have to fear any sanctions and can extract a bribe.

The risk after finally having identified an individual capable to provide a corrupt service lies in adressing her with the corrupt offer, as she might either be a honest agent or she might from time to time denounce the request in order to show her untouchability. These benefits from denunciation to the potential partner must in turn be included to the corrupt offer [**42**].

3.2.3. Contract design. Corrupt contracts are typically not concluded in written form as this would produce evidence of the illegal behaviour. One party in a corrupt agreement might prefer the contract to be not too specified at the beginning[**42**]as this lack of precision may leave space for excuses in case on non-compliance and it is easier for the partner to regard the agreement as non-binding.

3.2.4. Contract enforcement. The fundamental problem that corrupt partners face is how to enforce the illegal agreement. In reality markets are, contrary to what formal models may predict, far from perfect; so costs arise even when enforcing a legal contract. Illegal agreements usually are not based on written contract or can not be witnessed, so it might be hard to prove whether a contract

existed at all and what obligations and rights, what rewards and punishment it specified. Even if the existence and specifics of a corrupt contract can be proven, legally enforcing an illegal contract is not possible under most jurisidictions; furthermore one would risk legal actions on herself as taking legal actions would mean admitting one's corrupt behaviour.

Corrupt partners must therefore establish ways to enforce their agreements; cooperative behaviour of both partners must be guaranteed by the contract itself or side-contracts that would express the consequences of breaking the agreement. Various ways to enforce corrupt contracts are presented in the literature (see Rose-Ackermann (1999)[**55**]; Lambsdorf (2002)[**42**])

Hostages. The side of a corrupt agreement that can be more affected by opportunistic behaviour of the partner may demand a valuable asset under her control. In case the other party does not comply, the loss following from the broken contract can be covered by the value of the asset. Lambsdorff (2002) describes the enforcement of corrupt contracts by linking it to a legal contract. The »weaker« partner gets the legal asset under her authority to dispose and can therefore protect herself against opportunistic behaviour.

Reputation. As the complexity and insecurity of products and contracts rise, reputation can be a substitute for both, the law-enforcement and the interpersonal trust (Rose-Ackermann (1999)[**55**]). If a corrupt official did not break her contracts in the past, it is less likely that she will do so in future exchanges. This reputation of being honest is a very valuable asset to officials that regularly engage in corruption and have a regular income from bribes. There must be some dishonesty towards the principal to become corrupt, however corruption paradoxicaly will not occur if agents are regarded as purely dishonest as potential customers will not adress these agents. Having broken contracts in the past will in turn lead to a reputation that increases the potential costs for partners in a corrupt service and may make it impossible to supply bribes in the future.

Reciprocity. Setting up a corrupt contract leads to transaction costs. After a partner is found and a contract is designed, the costs of setting up new contracts with the same partner are much lower. »There are economies of scale in setting up corrupt relationships« (Lambsdorf (2003)). These cost advantages must be valued by the partners and the costs of setting up a new contract must be regarded whan deciding whether to break a corrupt contract. A corrupt relationship is likely to be terminated after one party did not comply once. Cooperating in one transaction will be likely to ensure the partner to cooperate in the next transaction and will help to build up a fruitful partnership.

3.2.5. Intermediaries. A possibility to economize on transaction costs is to engage brokers in corrupt contracts. As companies have to stick to the rules of the economy where they operate, middlemen are often used by companies that plan foreign direct investments in countries where corruption is usual. These middlemen have the local knowledge and the connections to bureaucracy to »get things done«. Additionally, they provide a buffer between the company and the illegal payment; the manager engaging a middleman can claim not to have known the middleman's secret of why things work if paying to the broker. In many cases the service of the middleman has a legal appearance as a »consulting service« and the deal may even be based formally on contracts and invoices. The middleman is a party that both sides can trust, the cost of seeking corrupt partners are lowered. However, employing middleman could bear certain risk. Middlemen usually are well connected, so they fear less legal sanctions and enjoy more trustability from authorities. This asymmetric power can be used by middlemen to get even higher payments to avoid getting blackmailed by the middlemen for their illegal behaviour. The real nature of the contract with the broker might most often not be expressed in the contracts; therefore and because of their illegal nature these contracts are hard to enforce. Asymmetric information exist between the company and the middleman; the company does not know the amount of bribe, the broker has to pay to officials; additionally the company cannot always observe wheter a

possible mistake was caused by the broker or the official e.g. in case of not having the licenses in time.

CHAPTER 4

Determinants of corruption

The causes of corruption are multiple, yet it is hard to examine whether corruption »causes other variables or is itself the consequence of certain characteristics.« (Lambsdorff 1999)[**40**]. It is hard to exaimne whether »these indicators and corruption are sometimes two sides of the same coin. It can be helpful to observe the correlations that are reported, but to refrain from drawing iron-clad conclusions with respect to causality« (Lambsdorff 1999)[**40**].

The decision for a rational official to become a corrupt official, given she has the opportunity to, includes balancing the expected benefits and the expected costs. The costs include moral or social costs that can differ between cultures or religions.

Klitgaard (1991, p.75)[**54**]expresses the determinants of corruption in a stylized equation:

$$CORRUPTION = MONOPOLY + DISCRETION - ACCOUNTABILITY$$

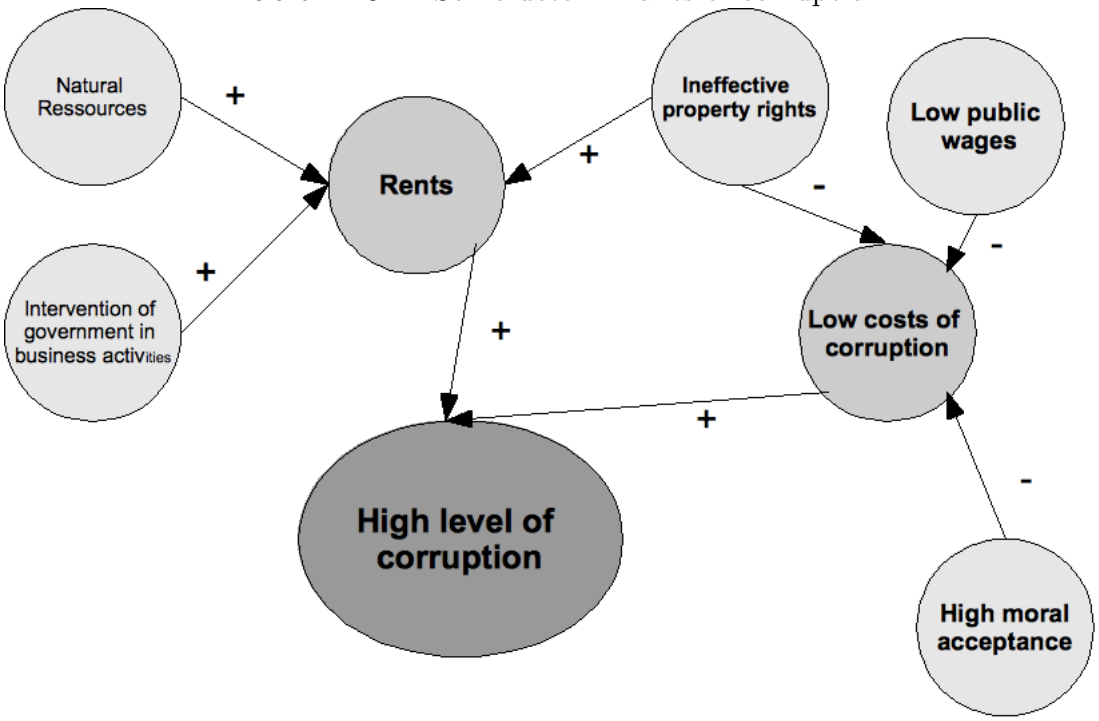
Corruption flourishes when agents have monopoly power over their clients and great discretion in their decisions that affect the clients. The costs of being corrupt increase and therefore corruption increases with accountability.

In analyzing determinants of corruption there are two connected though seperate effects:

(1) The more rents are created in an economy the higher is the level of corruption.

(2) The lower the costs for official to become corrupt, the higher is the level corruption.

FIGURE 4.0.1. Some determinants of corruption



4.1. Existence of rents

In perfecly competitive markets, the profits made in production will be driven down to zero in the long run, since competitors will enter the market and supply for less until the equilibrium is reached where the revenues equal the costs. In case of a shortage in supply, an economic rent exist in the amount of the difference between the price a supplier receives for his products or services and its average costs.

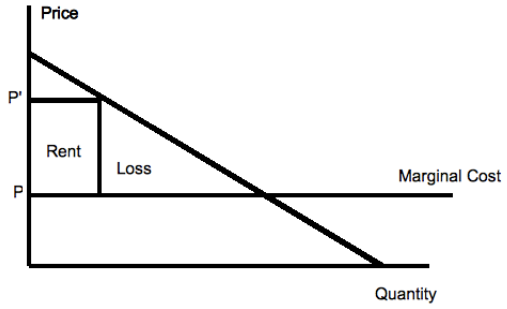
In perfect competition, the price of a product would equal its marginal cost. A shortage in supply increases the price to P' which has two effects: There is a total loss in wellfare due to the lost consumers' surplus and a rent that is a redistribution of income from consumers to producers. Rents can be created either through monopolies or regulations in economic activities or are due to naturally limited resources as crude oil or land and are characterized by an amount available without any contribution to economic activity. As rents are extractable without economic productivity and are »fast cash« that economic actors can get without

great efforts they tend to compete for the rent. Though a rent itself may be socially beneficial to some degree, solely its existence creates an incentive for the official in charge to create it or with the discretionary power to deny it to extract a part of the rent in form of bribes or gifts. As these officials can expect a large share of the rent, they have furthrt incentive to maximize its value and to keep it alive with no respect of the social targets of the past and their validity in the present or the future.

Djankov et al. (2002) [**18**] introduce the analogy with a tollbooth on a highway:

»Efficient regulation may call for one toll for the use of the road, or even no tolls if the operation of the road is most efficiently financed through general tax revenues. In political equilibrium, however, each town through which a road passes might be able to errect its own tollbooth. Toll collectors may also block alternative routes as so to force the traffic onto the toll road. For both of these reasons, political toll collection is inefficient«

FIGURE 4.1.1. The social cost of rents



4.1.1. Government regulations. Government regulations in free markets redestribute resources from one party to another and therefore create rents. Even if the level of governmental interventions is on its optimal level, the discretion power of bureaucrats may lead to misallocation, as they will try to extract a part of the rent either for them personally (via bribes) or for their bureucracy (i.e. excessive staff).

The regulation of entry. The helping hand theorists argue that entry regulations serve public interest. Quality of products increase, there are fewer damaging externalities and more protection for consumers.

However, if entry to markets can be regulated by officials, this discretionary power is extremely valuable to the actors in the market, as the competition is below equilibrium and therefore the suppliers can maintain a price that is higher than the marginal costs. Bureaucrats can get bribed by actors trying to enter a market and would just permit market entry for a sufficient bribe (toolboth view). The second source of bribes for officials are the actors that actually are in the market. As their profits are above equilibrium they value the rent and bureaucrats may charge part of the rent in order to go on regulating entry and taking care on the rent (capture view).

Djankov et al. (2002) [**18**]study the regulation of entry. They explore who gets the rent created through market regulations and which governments tend to regulate entry. Their study is based on 85 countries around the world and and use three measures of entry regulation:

(1) The number of procedures actors must go throgh,
(2) the official time required and
(3) the official costs

to complete the process of establishing an enterprise.

They find that stricter regulations of entry are not correlated with higher quality of products or less damaging externalities as pollution. The level of corruption is significantly higher in countries with a more burdensome procedure to open an enterprise, so a big part of the rent is extracted by politicians or bureaucrats, that seem to be the highest beneficiaries of entry regulation.

Countries with a more limited and representive government and with anglo-saxon or scandinavian legal origin have significantly lower regulations of entry. They also find that the lower the barriers to enter the political market, i.e. to found a party, to run in elections, the lower the regulation of market entries.

The findings of Djankov et al. are consistent with the public choice or the grabbing hand theory. Regulations primarily serve politicians and bureaucrats and have few impact on public wellfare.

Another example of regulation of entry are customs duties and import licenses. They become valuable to the companies that hold import licenses as their market is protected through these licenses, competition is lower and they might be willing to bribe the officials to keep the permits regulated (capture view). Companies that see a potential profit in the protected market are also willing to share them with the officials and might bribe them therefore (toolboth view).

Government subsidies. A common example for government subsidies are price controls that regulate the price of a good below its market value. This subsidies create an economic benefit for the demanders of the subsidized goods and they therefore try to maintain the flow of the goods to their disposal. In turn the subsidy creates an incentive for the actors in charge to supply the good, to auction the goods - which have been artificially made scare - to the demanders willing to share the highest part of the rent with them via kickback bribes.

One special case of price controls are multiple exchange rates. The effect of multiple exchange rates within one country on corruption is presented by Mauro (1997, p.9) [**46**] If there are different exchange rates used for different groups of actors (as importers, tourists or investors), the actors will tend to get the most favourable exchange rate even though it might not apply to the intended use. As the supply of foreign currency is usually regulated by a state-owned bank, actors demanding foreign currency will try to bribe officials in order to get the most favourable exchage rates.

4.1.2. Property rights. »Property rights define the accepted array of ressource uses, determines who has decision making authority, and describes who will receive the associated rewards and costs of those decisions« [**44**]

Unclear property rights therefore give raise to illicit economic behaviour as rent-seeking in general or corruption.

Opper (2004) [**58**]defines efficient systems of property rights as:

(1) universal - all resources are privately owned
(2) exclusive - the owner of a property bears all the costs and gets all the benefits
(3) transferrable - poperty rights can be transferred
(4) enforceable - effective instruments to fight violations of property rights are provided

In case the tasks of officials and owners or managment of companies are not clearly defined, corrupt officials will try to increase the transactions influenced by them. This increase in transactions influenced by officials will increase the corruption simply due to the increased possibility to extract bribes.

4.1.3. Privatisation. Privatisation as transferring the ownership of the companies from the state to private may reduce corruption in these companies as the decisions will be market-driven after the privatisation instead of influenced by the discretionary power of bueaucrats.

However, the process bears corrupt activities that are typical to every transaction with participation of officials, such as limitation of the number of bidders.

Rose-Ackermann (1999, pp.35) [**55**]identifies three factors that make the process of privatisation a special resource of corrupt income.

The Value of the company. A public company usually has some constraints in maximizing profits as the level of employees or the price at which it offers its products. Therefore a company to be privatized can not be valued like a privately owned acquisition target; uncertainities about the real value of the assets exist. Bureaucrats can sell their information to companies bidding in the privatisation process that have in turn a greater insight to the true value of the firm. In case the valuation of the company is done by external companies, bureaucrats can influence their decision by selecting the information passed to them.

Discretionary power of bureaucrats in presenting the company. Bureaucrats or politicians can present the company to be privatised as too weak to survive and

in »need for a strong« partner. Potential bidders that know the real value of the company that is much higher than the value presented to public may buy the company for a price that can be presented to the public as a big success in selling the company.

Regulations. Officials may assure a potential bidder not to stick to the legal regulations for the company, that may reduce investments for the buyer. Politicians may even offer to change the law in order to create rents for the buyer and extract them. Public companies are often monopolies. By »selling« the information that the market of the privatised industry will be regulated, i.e. by assuring that the monopoly will survive the privatisation process, an official creates a rent for a bidding company that can be extracted by the official.

4.1.4. Natural resources. Natural resources usually go in hand with two important causes of corruption. As their supply is limited by nature, this natural shortage in supply leads to a price above the marginal costs to produce, which leads to a rent. Secondly, the marketing of natural resources is usually regulated by state authorities.

The windfall profits from natural resources create incentives to economic actors to engage in rent-seeking.

The connection of natural resources and the level of corruption must be explored in connection with the effectiveness of property rights. The clearer the property rights are defined the harder it gets to obtain a share of the rent.

Bhattacharyya et al (2008)[**11**] show in their study that natural resources increase corruption if and only if the quality of the democratic institutions is below a certain treshold level, which is mainly due to short democratic tradition. Countries rich with natural resources that have strong institutions and a long democratic tradition as Norway do not show a high level of corruption.

4.2. Costs of corruption

Given the existence of a rent, the rational decision to become corrupt will be made, if benefits exceed actual costs and potential costs. The most obvious cost is the cost and the consequences of getting caught. Furthermore also other effects as moral costs or low wages in public service increase the marginal utility of corrupt side income and increase therefore the benefits of corruption.

4.2.1. Legal culture. Legal systems differ in the degree of protection that is offered to private property owners. The anglo-saxon common law tradition was originally intended to protect the parliament and the property owners against the ruling king or queen; it was designed by judges and land owning aristocrats to constrain the power of Crown. In contrary, the continental-european law system was made by dependent jurists that created a tool for the emperors to control economic life.

Treisman (2000) [**63**]shows that former british colonies that have adopted the common law system show a significantly lower level of corruption than former colonies of continental european countries. This evidence may refletct the greater protection the economic actors enjoy from authorities provided by common law. However Treisman stresses the fact that there is a slightly stronger evidence that the lower level of corruption is due to less regulations in former british colonies which leads to less available rent and therefore less corruption. The same conclusion is made by La Porta et al (1999) [**39**].

4.2.2. Moral costs. Moral costs are hard to define and therefore hard to test empirically. One objective way to explore the moral attitude and its influence on corruption is chosen by Treisman (2000) [**63**]via religion. In regions where more hierarchical religions as Catholicism, Eastern Orthodox or Islam dominate, office holders are less likely challenged by citizens as their position itself gives them the moral authority to expect to »take the right decisions«. Religion also determines the attitude of citizens towards friends or family that could influence the level of

favourism in an economy. He finds that a high share of protestants among citizen is a robust predictor for a low level of corruption. This finding could be due to stronger democracy and better economic development or the historical separation between the protestant churches and the state. An interesting argument is the idea that protestant societies stress the individual responsibility and might therefore be socially less forgiving in case of corruption.

These social stigmata in case of getting caught can have huge influence on the individual decision of getting corrupt. However there is a vicious circle that affect corrupt countries. In societies where everybody is corrupt, lives and explores corruption whenever in connection with state authorities, the social stigmata for becoming corrupt is low, which in turn increases corruption.

4.2.3. Property rights. Weak or unclear property rights as discussed above not only increase the size of the rent extractable by bureaucrats but may als decrease the cost for officials to become corrupt.

Efficent property rights are enforceable property rights. If affected parties can rely on a independent, effective court in case property rights are violated, the cost of actions against corrupt agents decrease. This decrease in cost for the clients will decrease the level of corruption, as the probability of the client deciding to go to court, in case asked for a bribe, instead of paying, increases.

Secondly clear separation of rights between the state and other stakeholders in a company increases the sensitivity of corruption, as it becomes more obvious to what extend a stakeholder is affected by corruption. This increased sensitivity leads to higher monitoring and increases the risk of getting denounced by stakeholders of a company.

As a third point the concentration of ownership in a company count. In a purely state-owned economy corruption may flourish as there is basically no gain for a single citizen (=owner) to monitor, as the fraction is as small as one divided by the number of citizens. As the share increases, the fraction becomes higher, monitoring officials and denuncing corrupt bureaucrats leads to higher gains.

4.2.4. Social Capital. The concept of social capital values social connections. Physical capital such as a machine, human capital such as education increase productivity and so do social connections or networks.

Social Capital measures therefore the ability to cooperate and the level of trust and honesty in the society. Social Capital arises due to the willingness of people to cooperate and needs the trust in other people that can mobilize resources that could not be activated otherwise.

Social Capital increases the importance of honesty and might therefore decrease corruption. On the other hand, as discussed above, trust is a necessary condition for some kinds of corruption.

Bjørnskov [**12**]models the connection between corruption and social capital in a principal-agent-Client model. He finds in an empirical study that a higher level of social capital causes less corruption due to fewer attempts to bribe as well as by reaching a higher level of honesty among agents.

4.2.5. Low wages in public service. If bureacrats receive relatively lower wages, their individual marginal utility of additional income to the bureaucrat is higher. But low wages do not only increase the benefits but also decrease the potential costs if caught. As bureaucrats usually lose their job when caught taking bribes, their wage is less of an incentive to not to take bribes. Especially when there is a big gap between wages in public and private sector, bureaucrats will include the additional wage they would get in private sector in their decision on whether to become corrupt. An extreme example of low wages for bureaucrats are capitulation wages. Capitulation wages are wages so low that the bureaucrats have no other chance to survive than by taking bribes. Bureaucrats cannot afford to be honest; this is known by governments that do not act to prevent corruption but rather let the bureaucrats have their bribes and therefore can pay wages below the need to survive.

CHAPTER 5

On the effects of corruption

Governmental goods are typically natural monopoly goods and usually not distributed using the price mechanism. Government failures and red tape may distribute goods through other burdens to potential customers. One commonly known example were the queues in front of shops in former communist countries where price for goods were low and demand exceeded supply. The goods were not distributed to the customer that was willing to pay the highest price but rather to the customers that were in the queue earlier than the others.

Introducing a price mechanism via bribery could enhance efficency in the case of a queue, as the potential customers, that value their time most, will tend to pay the highest bribe for a place in the front of the queue. The possibility to bribe the bureaucrat in charge allows the potential customers to introduce a price mechanism and model a rational market response that would be in force in absence of the government failure.

5.1. An equilibrium queuing model of bribery

A formal model was constructed by Lui (1985) [**45**].

In this model, public goods are distributed on a first-come first-serve basis in a bureaucracy. One can think of a public good that has a value to the customers; but there is no unavoidable need to queue since this good can be bought in the market; customers can therefore choose not to join the queue and either get the good from somewhere else or hire an agent to queue for them, which would lead to costs of P

Each customer values her time differently: the distribution of the time value of customers , v_n is represented by the distribution function $A(v)$.

Customers arrive at the end of the queue with a mean rate of m customers per time unit; the service processing time follows an exponential distribution with a mean service time of $1/u$. For simplicity in notation we define $r = m/u$. Customers coming to the bureaucrat's office do not see the queue before they have to decide wether not to queue or to pay a bribe, x that will place them in the queue before people that paid a lower bribe and after people that paid a higher bribe. The maximum bribe received by the bureaucrat is x^*. The distribution functions shall be $B(x)$ and $B(x^*)$ respectively with $B(x^*) \leq 1$. Customers choose their bribe strictly increaing with their time value $x = x(v)$. The expected waiting time by a customer that decides to pay a bribe is given by:

$$W(x) = \frac{r}{m\left[1 - rB(x^*) + rB(x)\right]^2}$$

In case a customer pays the highest bribe the waiting time is:

$W(x*) = \frac{\frac{m}{u}}{m} = \frac{1}{u}$;the processing time.

Lui defines the socially quasi-optimal queue in such way that for a given number of customers the average time costs are minimized. To minimize the average waiting costs the customers have to be ranked according to their values of their time which is ensured in the model as the ranking of x is the ranking of v or:

$x(v) > x(v^{'})$ if $v > v^{'}$

and therefore

$W(x(v)) < (W(x(v^{'})$ if $v > v^{'}$.

Not surprisingly, the average waiting costs are lowered by introducing the possibility to bribe.

The model assumes that the number of waiting customers is given. As there is no need to queue, customers can decide not to queue if the costs of queuing are too high. Bureucrats may artificially slow down the processing time in order to get higher bribes. However in slowing down the processing time, the queue wiould increase which would lead to less customers deciding to queue. Additionally, in

increasing the processing time the revenue from bribes decreases simply due to their lower efficency.

Bureaucrats have to keep in mind when maximizing the bribe income that the net gain for the customer with a time value of $v^{'}$ is:

$$G = P - x - v^{'}W(x)$$

Customers will decide to queue if $G > 0$, i.e. if the gain from queing excedd the bribe that has to be paid and the weighted waiting costs.

In choosing the processing speed bureaucrats have to weight two effects:

(1) If speed is too fast the waiting costs are low and people have less incentive to pay bribes.
(2) If speed is too slow too few people will decide to join the queue and pay bribes.

In maximizing the revenues of the bureucrats Lui finds that the optimal level of processing speed is where

$$r = \frac{mPA}{1 + mPA}$$

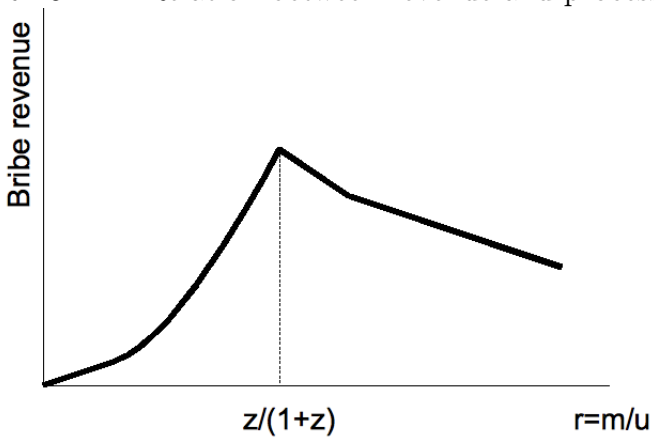
Let mPA be z than if $r < \frac{z}{1+z}$ the first effect counts and processing speed will be lowered.

As soon as $r > \frac{z}{1+z}$ the queue is too long and potential bribe payers decide not to join the queue.

The model assumes that there is a market for the good, so clients do not have to queue but can purchase the good somewhere else. This might often not be true with governmental goods. Without this assumption, increasing the processing time would always lead to an increase in the extractable bribe, as clients are not able to choose whether to queue or not.

If the good is not personalised, one could consider a rational client with a low value of time, let's say 0 to take the arbitrage opportunity to trade the good. As

FIGURE 5.1.1. Relation between revenue and processing time



it is assumed that the good is for free from official source whereas it has a Price at the free market, P , people with a time value of 0 will pay no bribes and have no waiting costs.

They could therefore sell the good for any price that is lower than the market price and make a costless gain from that.

The base for the model is the existence of inefficiency based on governmental failure. This inefficency makes it possible to use the price mechanism and may increase efficiency under the very restrictive assumptions above. However the efficiency is just increased in the micro-space of the queue; total social wellfare may decrease as people have an incentive to engage in rent seeking rather than in productive activities which will be discussed below. The general inefficiencies that corruption brings as transaction cost due to the secret nature of corrupt agreements remain in the queueing model . » The most fundamental weakness, however, is the implicit assumption that the government failure that the corruption is supposed to correct is exogenous and in itself unrelated to corruption, when, in fact, it may well be put in place and maintained by corrupt politicians preceisely because of its corruption potential« (Aidt (2003))[**4**].

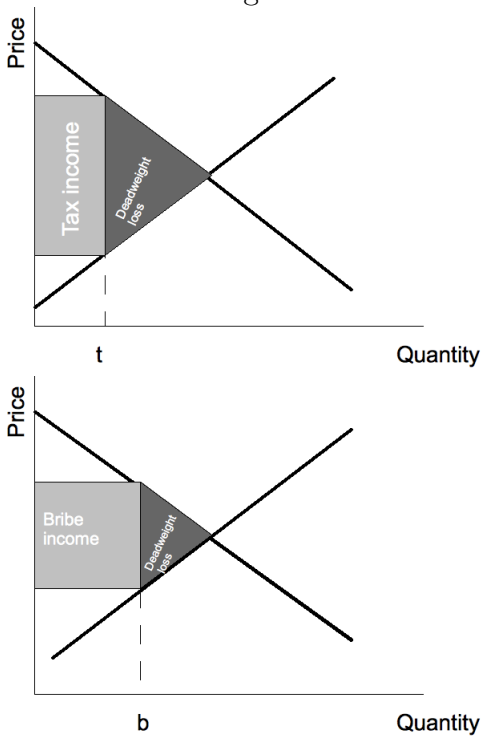
5.2. Deadweight loss reducing corruption

An easy example shows another possible positive effect of corruption on economic efficiency is considering a customs duty to be paid on importing a good. The custom duty reduces total surplus, since customers, that would buy and suppliers, that would sell in equilibrium will leave the market as the duty influences their surpluses. This deadweight loss represents economic waste as potential wellfare increasing trade does not happen due to the tax.

If companies can bribe the customs official for b, instead of paying the tax, t, paying a lower fee will reduce deadweight loss, as $b < t$.

The effect of the bribe is an increase in both, the consumers and the producers surplus, as more potential suppliers and demanders will meet with the bribe than they will do with the tax.

FIGURE 5.2.1. Deadweight loss of tax and bribe



Corruption and rent seeking can increase efficiency in a very narrow view. More precisely, the direct effects of corruption can increase efficiency, given a governmental failure. However corruption and rent seeking change the incentives of

economic actors, may lay burdens on entrepreneurs and will reduce the possibility of correcting a governmental failure, as it has become something valuable to rent seekers, namely a source of income. In the frest of the chapter these indirect effects of corruption and rent seeking are discussed.

5.3. The indirect effects of rent seeking

Rent seeking is an activity that does not bring an increase in productivity in an economy. It is therefore a trivial conclusion that, if actors, that could increase productivity by becoming workers or entrepreneurs, decide to become rent seekers, the productivity will decrease as these actors' abilities are not used in an economically sensefull way. Successful rent seeking needs a rent to be extracted from productive factors; therefore rent seeking also decreases the incentives for entrepreneurs or workers to increase efficiency.

5.3.1. Rent seeking and the Allocation of Talent. An explanation on how people choose whether to become rent seekers, entrepreneurs or workers is given by Murphy, Shleifer and Vishny (2002, pp.53) [**57**].

Different people have different talents and generally choose occupations that promise the highest payoffs with their given talents. Three points that detemine the attractiveness of an occupation are identified as follows:

- The higher the market size the higher the possible payoffs.
- Weak diminishing returns on scale in an occupation allow more talented people to spread their abilities over a larger scale
- Higher protection of theprofits in a sector increases security.

When markets are large, firms can be found and enlarged easily and people can be sure to be able to keep their profits, entrepreneurial activities flourish.

Murphy, Shleifer and Vishny (2002) define the income for entrpreneurs, y in dependence on the general level of technology, s, the specific ability of the entrepreneur, A, the production function, whose sole input is labour, $F(H)$, the per

unit cost of production, w and the fraction of income taken away by rent seekers, τ.

$$y = (s \times A \times F(H) - w \times H) \times (1 - \tau)$$

The factor $s \times A$ can be thought as the productivity parameter, where s is the general state of technology and A is the entrepreneurs' contribution; the income increases with the personal ability of the entrepreneur with a given level of input.

Rent seekers production function, $G(H)$ is an increasing concave function, Y represents the total net income so that $\tau * Y$ is available for rent seekers. Rent seekers can also employ workers and pay wages w.

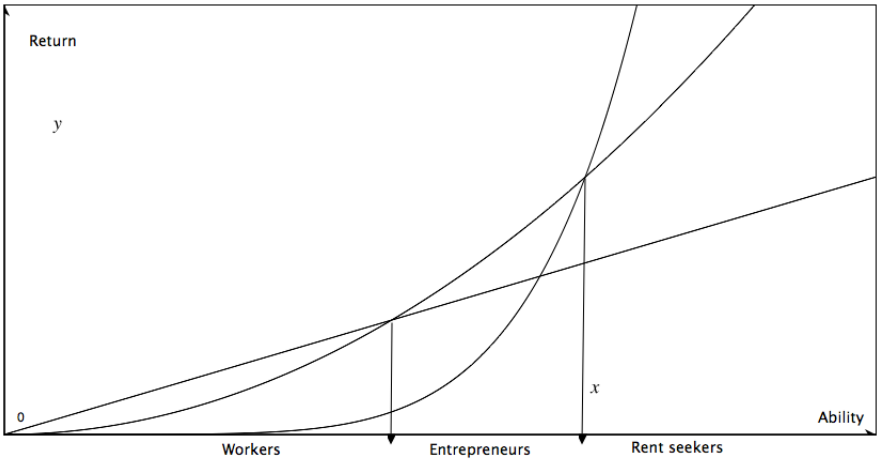
The rents collected are therefore given by:

$$R = \frac{A \times G(H) \times \tau \times Y}{\int AG(H)f(A)dA} - w \times H$$

Each person has now the choice to become a worker and receiving $w \times A$, entrepreneur or rent seeker and receive the payoffs defined in the equations above.

Murphy, Shleifer and Vishny (2002) show that the individual choice wether to become a rent seeker or an entrepreneur depends, given the personal ability, on the relative elasticities of the production functions $F(H)$ and $G(H)$. When the production function for rent seekers is more elastic than for entrepreneurs this implies that the abilitie can be spread over a larger scale which leads to a higher income.

FIGURE 5.3.1. The allocation of talent



The effect of the production function for rent seekers being more elastic is, that the most talented people become rent seekers instead of entrepreneurs. Assuming that the most talented entrepreneur sets the production standard in period t-1 that becomes state-of-the-art during that period and increases the common state of technology in t so that:

$s_t = s_{t-1} \times A_{t-1}^{max}$

In case the most talented person is not an entrepreneur but a rent seeker the growth rate in technology and therefore the level of productivity increaes is below its possible level.

The factors that have influence on the elasticity of the different production functions as shown by Murphy, Shleifer and Vishny (2002, pp.69) are presented in the table below.

TABLE 1. Factor favouring rent seeking or entrepreneurship

	Factors making rent seeking an attractive choice	Factors making entrepreneurship an attractive choice
Market size	Large resources go to official rent seeking sectors such as the army, the government or religion. Poorly defined property rights make wealth acessible to unofficicial rent seekers. Large wealth is up for grabs, especially relative to smaller goods markets.	Large market for goods. Good means of communication and transportation that facilitate trade.
Firm size	Substantial authority and discretion of rent seekers in the government, the army etc... enable them to collect large sums unhindered by law or customs.	Easy entry to markets and possibility to expand businesses. Few diminishing returns in operations, access to capital markets.
Contract enforcability	Ability to keep a large portion of collected rents. In general observability of output that yields appropriate rewards.	Clear property rights, patent projection easily possible. No expropriation of rents by rent seekers. Ability to start firms in order to collect quasi-rents on talent.

5.3.2. Rent-seeking and interaction with the productive sector. Murphy, Shleifer and Vishny (1993) [**51**] identify three mechanisms that lead to rent-seeking activities having increasing returns.

(1) Setting up a rent-seeking system as a lega system may be costly; however after it is set up it is relatively cheap to use the system for rent seeking.
(2) Rent-seeking activities provoke the demand for defense, which, in turn, opens the possibility for further growth in rent-seeking.
(3) Rent-seekers experience a strength in numbers. If only few citizen steal or only few bureaucrats are corrupt, the probability of getting caught is

high; as the number increases, the likeliness of potential costs like fines are low and returns are higher.

They model a small farm economy where every actor can choose wether to produce a product that is subject to rent seeking, A, and has an average payoff of α, to produce another product, B, that cannot be expropriated, is an input factor of A and has an average payoff of γ, or to become a rent seeker with an average payoff of β.

The ratio of rent seekers to producers of A and the per capita income are denoted by n and y respectively .

As long as there are no rent seekers, $n = 0$, the return on the product A is α'. The rent seeker is limited by her ability in physically taking all she can get. For the first rent seekers their payoff remains stable, as there are enough ressources to steal. The average return to producers of A fall with the number of rent seekers so that

$$\alpha = \alpha' - n\beta$$

as it is assumed that $\alpha > \gamma$ if the number of rent seekers is smaller; producers are still better off if they produce A than if they would switch to B.

After some critical level $n' = (\alpha - \gamma)/\beta$ is reached, the maximum potential of output for rent seekers is reached; it becomes more attractive to the producers of A to switch to B. As the fraction of rent seekers become higher than n', they have to start competing for the rent among each other as every further expropriation to producers of A lead to an increase in the number of producers of B; the size of the rent is fixed and the rent seekers dividing it among each other.

From this level, $\alpha = \gamma$, the return to the producers remains therefore constant while β decreases.

Three different payoff structures for the first actor becoming rent seeker are distinguished:

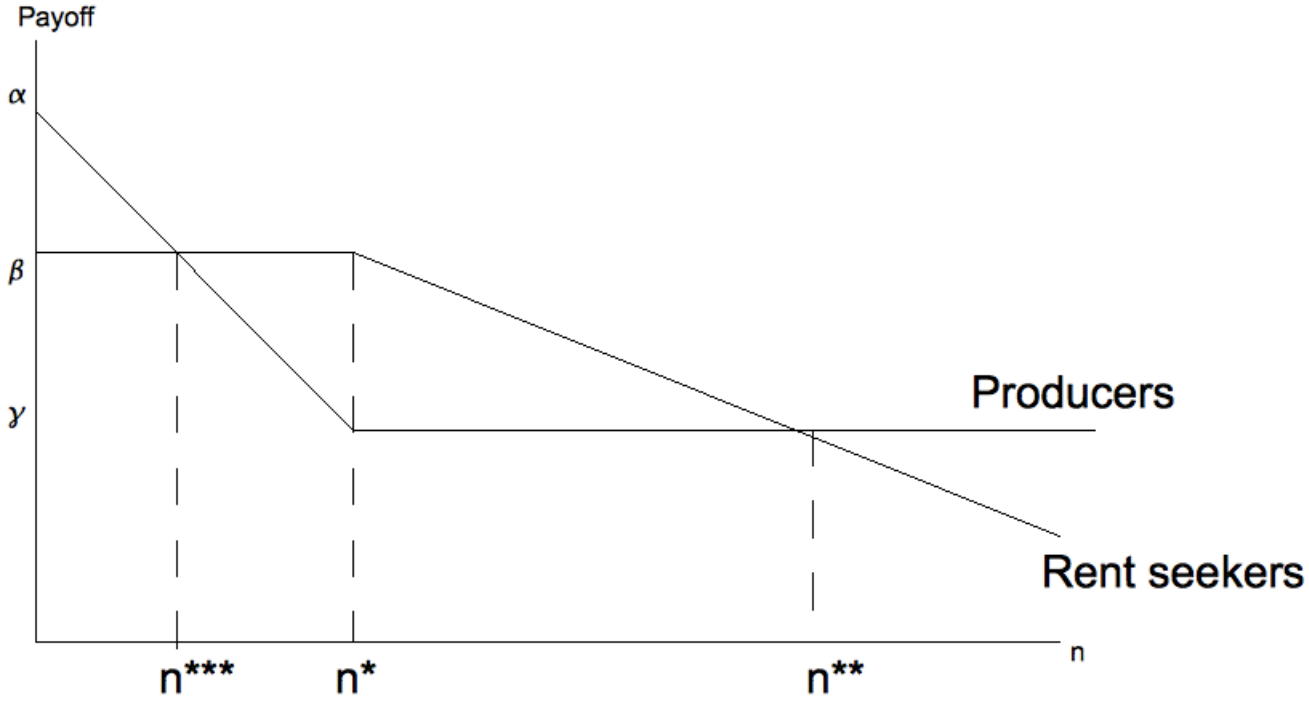
If $\beta < \gamma$ property rights are well protected, returns to rent-seekingare lower than for any producer and therefore no incentive to switch from production; The sole equilibrium exist were $n = 0$.

In case $\beta > \alpha$ the equilibrium is where $\alpha = \beta = \gamma$ rather than the market productivity α' where $n = 0$ as the entry to the market of rent seeking is attractive until then. This bad equilibrium is the sole equilibrium if payoffs to producers are not protected more effectively.

The most interesting case is where $\gamma < \beta < \alpha$ is presented in the figure.

The first rent-seekers have lower returns than the produers of A. As n increases to the level n^{***} the payoffs to rent seekers stay constant while the payoff to producers of A decline. This scenario is consistent with the assumptions above; rent-seeking has high set-up costs, while at lower variable costs, rent seeking enforces further rent seeking and the strength of numbers for rent seekers.

FIGURE 5.3.2. Payoffs to production and rent seeking



In this model there are four possible equilibria. At $n = n^{***}$ the average payoffs for producers of A and rent seekers are equal. However this is not a stable equilibria as the further entry of rent seekers will decrease the payoffs to producers

while the return to rent seekers stays constant. At n^{**}return to rent seeking starts decreasing as producers of A swith to producing B, $\alpha = \gamma$; rent seekers compete for the fixed size of the rent; however, they are still better off than if they were producers, which drives profits to all actors down to where $\alpha = \beta = \gamma$. There are two stable equliibria. On where $n = 0$, which is a »good« equilibrium as it maximizes productive payoffs, while the other stable equilibrium where $n = n^{**}$ drives the average payoffs to all actors down to the lowest possible level.

The model shows that rent seeking decreases the atractiveness of productive activities and therefore increases the incentives to engage in further rent seeking as its relative attractiveness has increased. Once the »bad« equilibrium, n^{**} is reached, it takes huge efforts to reduce rent seeking and rech the equilibrium where $n = 0$. Essentially for increasing the social wellfare are strict and effective property rights that increase α and γ and leave low potential for rent seekers, so that $\alpha > \gamma > \beta$ and there is no incentive to start rent seeking.

CHAPTER 6

A principal-agent model of corruption

The central dilemma in principal-agent relationships is how to get the agent acting in the best interest of the principal rather than in his own best interest. Agency are defined by Jensen and Meckling (1976)[**47**]as » an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interests of the principal.« These cost already arise when choosing clients, as there is an adverse selection problem. Dishonest agents may be rather willing to accept the role of an agent (i.e. employee, bureaucrat) as they add the additional income they may obtain by abusing the principal to their reservation wage, whereas honest agents just take their wage into account.

Having colluded a contract with an agent, the principal faces the problem of asymmetric information between herself and the agent that gives power to the agent. The agent may have other goals than the principal, who may not fully be able to observe the agents behavior and actions.

Formally the problem can be described as the utilty of Agent A, U_a that is based on the two actions: either to cheat on the principal, a_c or not to cheat on the principal, a_n and

$$U_a(a_c) > U_a(a_n)$$

- cheating is the dominant strategy in the absence of penalties.

Similarily, the Principal derives utility U_p of the actions of the agent that has the inverse relation so that

$$U_p(a_c) < U_p(a_n)$$

.

In order to minimize the possibilities for the agent to cheat on her, the principal may i.e. install supervisors that monitor the actions of the agents.

Bureaucracies are essential in governmental design. Authority and power has to be delegated in order to ensure the supply of governmental services. Modern administrations often include large horizontal and vertical hierarchies that assign a certain extent of discretionary power to the bureaucrats. The constitution in states of law usually include the seperation of powers that include jurisdiction of independent judges that have full discretionary power and a very weak monitoring due to their independence.

Governmental corruption can be therefore explained including a benevolent principal that misdesigns the contracts or the means of sureveillances and enables the bureaucrats to abuse their discretionary power in their own interest.

6.1. An example from customs office

Variations of the basic model of corruption in a principal agent framework is often used in literature and can be found i.e. at Aidt (2003), Rose-Ackermann (1999) or Ades and Di Tella (1999).

In a customs office the principal might be the head of the department or the ministry of finance who wants to assure high and honest collection of customs duties. Firms are obliged to pay a fraction λ of the value V of the imported goods as customs duties. The customs officers can however declare the goods to belong to a lower tax group so the fraction of the real value decrease to δ so:

$$\lambda V > \delta V$$

I assume for simplicity that bureaucrats and companies are risk neutral and therefore derive constant utility form income. The customs officers will just assign

the goods to the cheaper tax group if they receive a bribe b. There is still a risk of getting caught due to the illegal behaviour with the probability p and pay a fine f_o. Not only that the officers have to pay fines in case of getting caught, the same applies to corrupt companies that have to pay f_c. For the company it therefore pays to bribe if:

$$(1-p)(\lambda-\delta)V - pf_c > b$$

The officers would accept the bribe if its benefit exceeds its cost. The cost includes the fine, whereas the benefits not only include the bribe, but a official may also take into account the possibly higher wages he might get in the private sector. If w_b denotes the present value of the wage in bureaucracy and w_p the present value of the wage in private companies and $w_b < w_p$ a bureaucrat has the payoff of $b + w_b$ in case of not getting caught and $-f_o + w_p$ in case of caught so their payoff is

$$(1-p)(b+w_b) + p(-f_o + w_p)$$

or the bribe should at least be:

$$b > \frac{p}{1-p}(\Delta w - f_o)$$

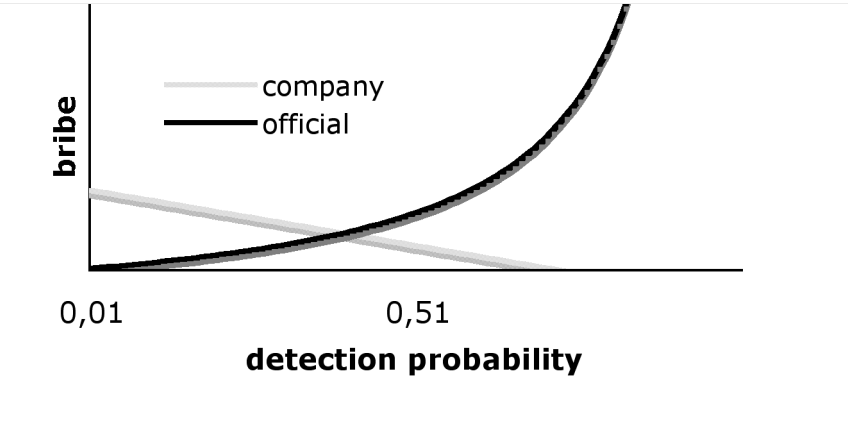
The bribe will therefore depend on the detection probability, the difference in wages in private and public sector, the value of the corrupt service and the amount of the fine paid by official and the company.

6.2. Detection probability

High detection probability decreases corruption. In the case of $p = 1$, every corrupt action will be dedected by the principal. Assuming strong institutions the fine for both parties will be sufficiently high to prevent corruption.

As the basic functional relationship above shows, the agents' demand for bribes is much more sensitive to the detection probability than the companies willingness

FIGURE 6.2.1. The Bribe as a function of detection probability



to bribe. While companies only have to pay a fine in case they are caught, their maximum bribe function is linear, while bureaucrats would not only have to pay a fine but also lose the bribe.

By employing supervisors, that monitor the agents, the detection probability can be increased. However employing a supervisor again includes an agency relation and related agency cost. This »trilateral problem« is described by Eskeland and Thiele (1999)[**23**]

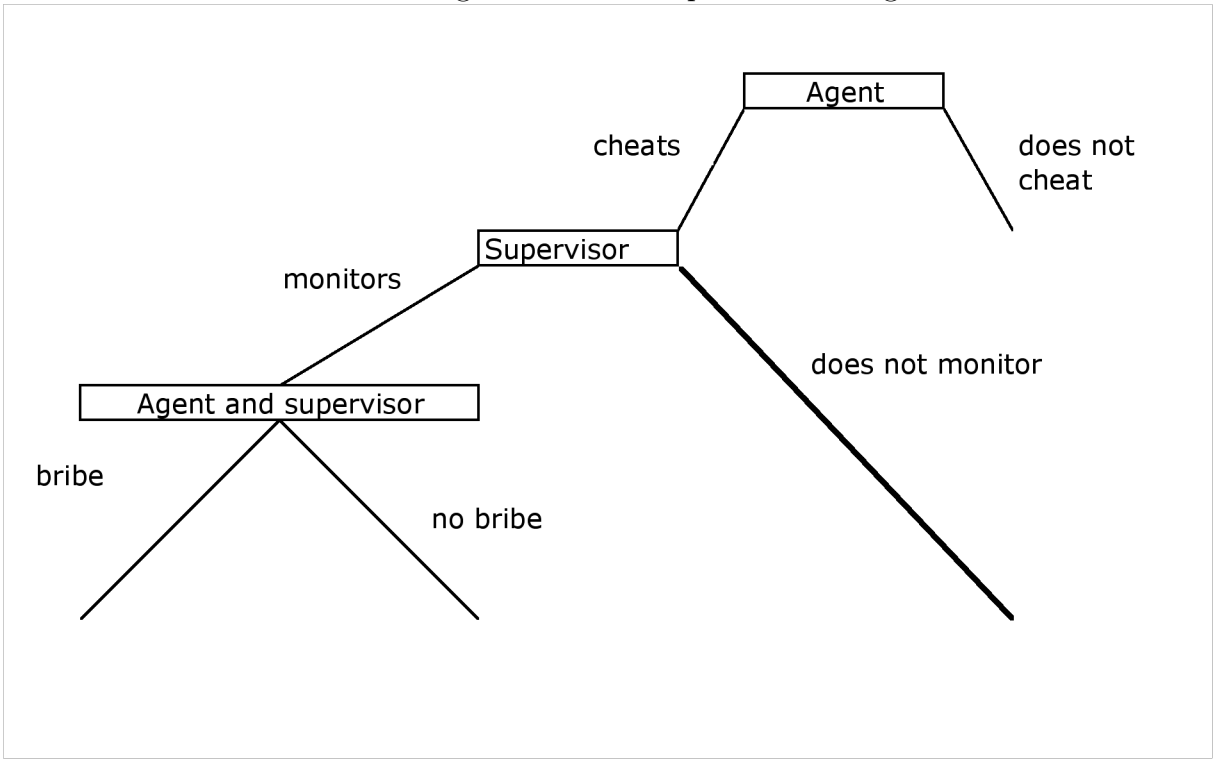
A supervisor is employed that is supposed to monitor the agent. Monitoring means cost to the supervisor, c_m that only occur if she decides to monitor; however these costs are sunk costs for the supervisor so they will not be regarded in the model. If the supervisor monitors, she catches the agent if she cheats with security and only then she can report the cheating agent to the principal who in turn has to pay the fine f_o and the supervisor gets a reward r.

A cheating agent can decide to bribe the supervisor who in this case reports nothing and receives a bribe b_s.

The possible collusion occurs in case the agent has cheated and the supervisor has monitored. The payoff for the agent were b, whereas the supervisor had the efforts of monitoring.

If there is no possibility for the principal to detect collusion between the agent and the supervisor, it is the dominant strategy for the supervisor to take the bribe

FIGURE 6.2.2. The game between supervisor and agent



instead of reporting the behaviour of the agent if the bribe to the supervisor, b_s is higher than the reward for being honest and reporting the agent.

If we assume that the principal investigates with the probability π, she will detect collusion between the supervisor and the agent with certainty. In that case both have to pay a fine $f_o^{'}$ and f_s respectively.

The maximum bribe the agent can offer to the supervisor depends on the bribe she received and depends on the supervisors bargaining power so that

$$b_s = kb$$

with $k\,[0;1]$ representing the bargaining power of the supervisor.

The supervisor will accept a bribe that is higher than the reward if reporting and the possible fine:

$$b_s > r + \pi f_s$$

The agent has to include the possible bribe to the supervisor in her decision to become corrupt. Her payoff is therefore:

$$(1-\pi)((1-k)b+w_b)+\pi(f_o+f_o^{'}+w_p)$$

and the minimum acceptable bribe:

$$b>\frac{\pi}{1-\pi}(\Delta w+f_o+f_o^{'})/k$$

Not surprisingly, the minimum acceptable bribe for the agent has increased, given the same detection probability, $p=\pi$ as she faces additional penalty if she gets caught and she has to share the bribe with the supervisor.

A principal can therefore reduce the level of corruption simply by introducing a supervisor who even may accept bribes if she can manage to keep the level of detection constant. The principal has to choose the right levels of $\pi, f_s; f_o, f_o^{'}$ that minimize corruption.

6.3. Efficiency wages

A way to reduce corruption is to increase the salaries to a level, where it does not pay to become corrupt and risking to lose the job. The principal agent model assumes constant marginal utility of income, but in reality state employees may rather have diminishing marginal return on income. High wages in bureaucracy additionally solve the adverse selection problem, since if the governmental salaries are above the reservation wage for most citizens, there is not only an incentive for dishonest ones to apply for public positions.

Salaries are therefore an important instrument to satisfy state employees to the extend that they would not be willing to accept bribes.

Aidt (2003) [**4**] derives an efficency wage from the inequation

$$b>\frac{p}{1-p}(\Delta w+f_o)$$

the governmental wage where no punishment for corruption is needed as it is too costly for agents simply to get dismissed as:

$$w_e = w_p + \frac{1-p}{p}b$$

where $\frac{1-p}{p}b$ represents additional payment to bureaucrats to compensate them for not taking the opportunity of engaging in corrupt behaviour. This markup still depends on the detection probability as the possible payoff from corruption must be compensated.

Efficiency wages may reduce corruption. If one relaxes the assumption of all agents being equally honest and introducing the moral costs for agents, efficency wages may reduce the number of corrupt acts and increase the value of the bribes as the potential cost of getting caught increases.

The efficiency wage view must additionally include the demand side of corrupt services. As companies are willing to pay bribes until the level of $(1-p)(\lambda-\delta)V - pf_c$ their payoff $(\lambda - \delta)V = X$ form bribing and the penalty they would face will actually determine the bribe. Therefore

$$w_e = w_e(w_p, p, f_c, X)$$

Efficiency wages for bureaucrats are expensive and are therefore not observed very often in reality. Being employed in governmental offices usually brings additional benefits as a secure job, higher reputation and additional social security.

A relatively cheap way in introducing a kind of incentive wage for bureaucrats is changing the structure in obtaining pension rights. In most countries people can retire at a certain age if they have been paying their (obligatory) pension insurance for a certain period; once the hurdle to get the pension is taken, agents get their pension with security.

If government would decide to pay the same wages as in private sector, $w_p = w_b$ and bank a fraction α of the efficency markup $\frac{1-p}{p}b$; so governmental payment structure is:

$$w_{'b} = w_p + \alpha \frac{1-p}{p} b$$

where $\alpha \frac{1-p}{p} b$ is not paid out but banked and will be paid after certain period of employment. If a bureaucrat gets caught once for a corrupt action, she will loose the banked amount.

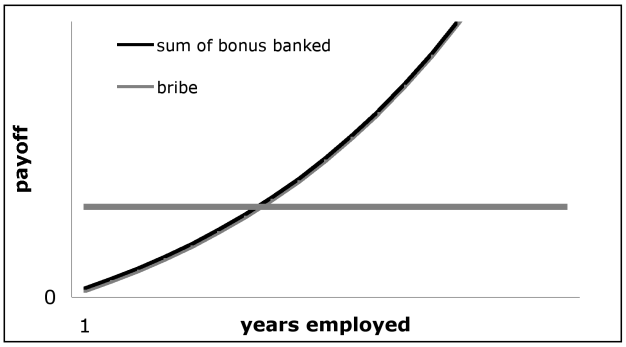
Agents now have an incentive to cheat on the government and to take bribes as they are not fully compensated for their honesty, as $0 < \alpha < 1$.

However assuming constant conditions in detection probability and the size of the bribe, as soon as

$$\sum_{1}^{n} \alpha_n > 1$$

the agents banked amount is higher than an additional bribe and she will stop corrupt activities.

FIGURE 6.3.1. Bonus bank to prevent corruption



The drawback of the payment schemes is clear: agents will take bribes when they are juniors and eventually will develop a culture of taking bribes. However, in extending the condition payoff to the responsibilities of supervisors, i.e. if their banked amount gets only payed if neither the supervisor nor any of her subordinates ever got caught taking bribes, there will be strong surveillance. As typically the size of discretionary power of bureaucrats increases with the time of her employment, the »bonus bank« will especially decrease larger-scale corruption.

6.4. Penalties

Penalties to corrupt agents and companies are probably the cheapest way to reduce corruption. However there will be limits for the size of the bribe. The fine for the company is constraint by the wealth of the company. It might be socially not optimal to fine corrupt company too high as this might cause companies to go bankrupt and therefore destroy economic productivity.

The fine for agents is may be limited according to the social values of the citizens. Most countries will therefore not set the penalties for corruption »indefinitely high«.

A way to examine the optimal fine is to explore the penalty where »corruption does not pay.«

Basu, Bhattacharya and Mishra (2005, pp.223) [**48**] introduce a penalty function where the size of the fine depends on the bribe.

$$f = f(b)$$

In expressing the fines from the standard model above, the fines should be at least:

$$f_o = \frac{(1-p)b - p\Delta w}{p}$$

for the officials and

$$f_c = \frac{(1-p)(\lambda - \delta)V - b}{p}$$

for companies respectively.

The maximum bribe the companies are willing to pay depend on their expected payoff from bribing, the detection probability and the fine. The expected payoff, to the companies, $(\lambda - \delta) * V$ is identical with the loss the principal suffers due to corruption.

CHAPTER 7

Self-enforcing corruption

As discussed above, corruption needs -at least expected - cooperation to flourish. In relations where the agents can not observe the behaviour or cannot punish misbehaviour, corruption will be less likely. In larger organisations the contracts might tend to be more complex and the agent may be able to influence the informativeness of the signals that agents and clients can observe from each other. Given that the Principal's general goal is to have the lowest level of corruption possible, Pechlevanos (2001) **[53]**describes two ways, the principal can affect the informational flows between the agents and the clients:

- Monitoring the agents' performance
- Imposing penalties on the agents

7.1. Monitoring and penalties

Monitoring has the obvious effect that it increases the probability of getting caught for the agent and therefore makes corrupt deals more costly. However there is a more complex effect, assuming that the clients know that monitoring happens:

If the agent does not supply the corrupt service, the client can not be sure if it is due to the agent, that did not support the client or wether he did support her, but was monitored and therefore could not supply the corrupt service.

Formalising this relation with auditing as a random variable and assuming the agent has perfect information about auditing, whereas the client can only observe the outcome. To bribe and to supply the corrupt service is costly to the players, costs are denoted by K, the benefits, B, are larger, so a mutual gains from trade exist.

TABLE 1. Game if no auditing

Agent/Client	deliver	not deliver
bribe	$B-K;\ B-K$	$-K;\ B$
not bribe	$B;\ -K$	$0;0$

TABLE 2. Game if auditing

Agent/Client	deliver	not deliver
bribe	$-K,\ B-K$	$-K;\ B$
not bribe	$0;\ K$	$0;0$

This stage game has a unique maxima value sustained equilibria at the point where the agent can not be trusted and therefore no corrupt action takes place.

If the game gets indefinitely repeated, the clients can accumulate their observation from the last periods and judge about the degree of cooperative behaviour of the agent. As the level of auditing increases, the fact that the favour is done to the client, is a stronger signal that the agent behaved in a cooperative way.

Pechlivanos (2001) shows, that the maximum normalized equlibrium payoffs to the clients (v_C^m) and to the agents (v_A^m) are dependent on the probability of auditing, p as:

$v_C^m = pB - K$

$v_A^m = B - \frac{1}{p}K$

The largest value of corruption that can be sustained using a self-enforcing arangement can therefore be found by summing up the individual maximum payoffs to:

$$v_m = (1+p)B - \frac{1+p}{p}K$$

So, surprisingly, v_m is increasing in p due to the fact that higher monitoring will give the clients a clearer picture about the behaviour of the agents- the corrupt agents will be trusted more and thus will have more chances to engage in corruption.

Penalties have two different effects on the incentive to become corrupt:

- They increase the cost of the corrupt services and therefore decrease the level of corruption.
- If penalties are observable for everybody, including the clients, they might get a clearer signal about wether the agents cooperated.

It seems plausible that the higher the penalties, the more they are observable; the principals therefore faces a trade-off between these two effects and might therefore decide for mild punishent in order to decrease the observability for outsiders.

7.2. The bribers dilemma

There is a positive relation between the level of corruption of society and the cost to fight it.

As an example, in a competitive market the good can only be imported to the country. If it is imported and declared properly, its price is p_h. However, instead of paying the full custom duties, the importers can decide to bribe the officials in charge and therefore have a lower price, p_c. Being a company in this highly competitive market, as soon as the first company starts to import the good in the corrupt way and charging $p_c + K < p_h$ the price starts to fall to the level where $K = 0$ and the new equilibrium is where all companies in the market import corruptly and sell for p_c. The only way to stay in this market is to act corruptly, otherwise the prices are not competitive.

Part 2

The Causes Corruption: Empirical Evidence

Cross-country studies that try to gain insight why corruption is so widespread and hard to fight in some countries whereas it almost disappeared in other countries in short time increased recently. One problem was the lack of a generally agreed measure of corruption.

The Corruption Perceptions Index (CPI) as a »poll of polls« has been first publisherd at the University of Passau in 1995 and became popular in scientific work on corruption.

»The goal of the CPI is to provide data on extensive perceptions of corruption within countries. The CPI is a composite index, making use of surveys of business people and assessments by country analysts. It consists of credible sources using diverse sampling frames and different methodologies..... The goal of the Index is to examine the degree to which corruption is perceived to exist among public officials and politicians« (www.transparency.org)

The CPI, as the name predicts, is an indicator for perceived corruption, which is by definition subjective. In the discussion on why it can be used in scientific work, despite of this property, is presented by Treisman (2000)[**63**]:

He finds that the subindices that lead to the CPI are highly correlated with each other; even if they used completely different methodologies or time scopes, they lead to significantly similar results. The CPI minimizes the biases that might be included in some studies and therefore is the most robust measure of perceived corruption. The ratings by Transparency International are furthermore highly correlated among themselves over time.

The criticism that the CPI as a subjective outcome of perceived, and therefore subjective feeling of, corruption is used, can be easily countered that there is no objective measure of corruption, as it is hidden and forbidden, which leads to the impossibility of having data on it.

In the following I discuss two broad explanations on the level of corruption, based on two studies. One derives the level of corruption as a function of the history of countries; religion or the legal origin have large influence on corruption.

The other study explains corruption as a phenomenon that increases with the available rents in an economy- the higher the states interference in economic life, the higher the extractable bribes.

In the third part I reinvestigate these findings, try to merge and extend these analysis by other possible explanatory variables.

CHAPTER 8

The Past

Treisman (2000) argues that the level of corruption in a country is largely influenced by its past. Religion, the legal origin and the level of federalism in a country has a large impact on the level of corruption; therefore political campaigns to fight it lead to different results depending on these determinants. His main findings are:

8.1. Colonial heritage

Corruption is lower in a country with common law system.

Corruption is lower in former British colonies.

Colonial heritage is a very significant variable in explaining the current level of corruption; namely former British colonies- that usually also have their law based on the Anglo-Saxon tradition, have significantly lower levels of corruption. Treisman does not find any significant relationship in the level of perceived corruption in countries that were French, Spanish or German colonies; even with countries that were never colonized, the impact on the level of corruption varied within studies. Though the countries with British influence vary largely in geographical position, level of development or the length of the Brits ruling (i.e. USA vs. Bangladesh), there is this significant effect.

The outcome was controlled for protestantism, more open trade or the fact that former british colonies tend to be more democratic; however there still was a significant dependence of CPI on the »Former British Colony« variable.

Not surprisingly, there is a very strong corellation between the former british colonies and the common law countries. However, the few countries that have

never been colonized by the British empire but have their law based on common law tradition, show a significantly higher level of corruption.

> An explanation for this significant dependence is the »better government« in former british colonies. »It may reflect the greater protections against official abuse provided by the common law legal system. But slightly stronger evidence suggests that it is due to superior administration of justice in these countries« (Treisman, 2000).

8.2. Religion

Corruption is lower in countries with protestant tradition

The level of protestantism in a country has a significantly negative influence on the level of perceived corruption;

Protestantism may indirectly influence the level of corruption via two ways:

- The GDP per capita is significantly higher in protestant countries which may be due to the Weberian protestant ethics.
- Protestantism helps in sustaining a robust democracy.

But even controlling for these effects, protestantism still reduces corruption significantly. As Treisman expresses: ».....had Ireland have as high a proportion of protestants as Denmark, its corruption rating would almost be one point lower on the 10-point scale«

An explanation for this finding might be the higher individual freedom that usually goes along with protestantism. The protestant idea of self responsibility might leave more room for questioning the authorities and the state; the personal »luck« is viewed as the outcome of personal responsibility and efforts. A second exegesis would be that protestantism does not focus on the family as much as catholicism or Islam does; there is therefore less favourism.

However, there might be a bias in this finding. Even when controlling for the level of development, the high fraction of high and highest developed countries

(Scandinavia, Switzerland, The Netherlands or Germany) may bias this finding due to the lack of »underdeveloped« counterparts (only Jamaica and Namibia).

8.3. Democracy

> Corruption is lower in countries that have a longer democratic tradition

Countries that were democratic continuously since WWII turned out to be significantly less corrupt, controlling for economic development or openness for trade. Surprisingly Treisman found that the fact that a country was currently a democracy did not influence the level of corruption. This finding might support the theory that a democracy establishes a culture of non-corruption and therefore it does count how long a democracy had been established. When including the years of democracy in the regression, Treisman found a threshold level at roughly 20 years of constant democracy that reduce corruption significantly.

8.4. Economic development

> Corruption is lower in countries that are economically more developed, where people are more educated and where property rights are clearly defined.

Log GDP per Capita is found to explain 73% of the corruption in a country. The big question is the direction of causation. Having a high level of corruption will lead to less fruitful economic activity and therefore to less economic development.

In turn less economic development will lead to more insecurity, lower wages in public sector, lower level of general education and therefore to a higher level of corruption.

Treisman argues that other factors that influence economic development but do not have any influence on the level of corruption may be used to test for the causality. Namely a country's closeness to the Equator influences the economic development but can not influence corruption.

He finds that, whatever the effect of corruption on growth, higher economic development does per se reduce corruption.

8.5. Federal structure

Corruption is higher in federal states.

Federal States were defined by Treisman as states where at least two level of government rule the same land and people, each level has an area of actions where it acts autonomously and this autonomy is guaranteed by constitution.

The countries included are for example Austria, Germany, the USA, Russia or Nigeria.

Controlling for economic development, countries that were federal had a higher level of corruption. Federalism may lead to »local lords« that enjoy greater discretionary power in burdening firms when doing business and extracting bribes.

Especially fiscal decentralisation turned out to be very corruption increasing.

CHAPTER 9

Governmental influence

The logic of the public choice theory on corruption is intuitive: The more extractable bribes, the more bribes will actually be extracted and therefore the higher the level of corruption.

An empirical test on this hypothesis was constructed by Djankov, La Porta, Lopez-de-Silanes and Shleifer (2002)[**18**]. They tested for the procedures, the time and the costs of starting a business in 85 countries for 1999 and regressed it for the level of corruption.

Their major finding is that entry regulations and the level of corruption is positivley related whereas they do not find that stronger regulations would lead to a socially better outcome. This supports the idea, that the sole purpose of entry regulation is to extract bribes.

Their conclusion is that the regulations are used as a mean to extract the bribes from companies that tend to enter the market rather than from the companies allready in the market for protecting »their market«.

English legal origin countries tend to significantly less regulate entry which might be one explanation for the lower level of corruption as discussed above.

The main beneficiaries of entry regulations are therefore politicians and bureaucrats and nor the people.

CHAPTER 10

Corruption: The past, the governmental interference and some extensions

Empirical investigations presented above analyzed on the one hand the influence of legal origin, religion, economic development or democracy and on the other hand the influence of entry regulations on the level of corruption. As the determinants presented by Treisman can not be changed by current policymakers, they give an interesting insight to the nature of corruption but may not be used in current politics. However the size of current governmental interference in economic life can be changed. It might therefore be of interest to examine whether, e.g. a country whose legal system is based on Anglo-Saxon law tradition can further reduce corruption by reducing trade barriers, entry regulations or taxes. There is, as allready shown by Treisman, a correlation between English legal origin and reduced governmental interference in economic life.

10.1. Construction of the database

The data collected for this study includes 102 Countries around the world. I collected the data on the Corruption Perception Index for 2007 from Transparency International's homepage. The data on human development is from the United Nations Development Program's statistical division, which also provided the data on GDP for 2007. Data on Voters' turnover include the average voters turnover for all countries that had more than two free elections for their lower house since 1950; due to this long time horizon, this data might be biased strongly; i.e. the countries of the former eastern block experienced less elections and might therefore be less »tired« of democratic processes. This data was collected at the Institute for Democracy and Electoral Assistance.

TABLE 1. Data collection

Variable		Webpage
CPI	CPI	www.transparency.org
legal origin	LO	https://www.cia.gov/library/publications/
GDP PPP	GDP	http://hdr.undp.org/en/statistics/
HDI	HDI	http://hdr.undp.org/en/statistics/
development level	DL	http://hdr.undp.org/en/statistics/
internet users p 100	IU	www.worldbank.org/data
telefone lines p 100	TL	www.worldbank.org/data
time to start business	TB	www.worldbank.org/data
voters turnover	VT	http://www.idea.int/vt/
avg. Tariff	AT	www.worldbank.org/data
transfers % of GDP	TGDP	www.worldbank.org/data

All other data was collected from the statistical division of the World Bank; the newest data was taken and included the years 2005-2007.

The data for phone lines and internet users per hundred inhabitants was just applicable for 70 countries; they are included in the analysis in a later stage.

10.2. Variables

As explanatory variables I define the Gross Domestic Product competing with the Human Developmet Index (HDI) for explanatory power. Whereas the GDP represents the »hard, monetary facts«, HDI is, though including the GDP per capita, largly influenced by soft facts. The concept of HDI was developed by the United Nations Development Program and includes life expectancy, literacy or educational measures.

The rationale of including the internet user (IU)s and telephone lines (TL) per capita is, that higher availability of means of communication may increase the chance to be informed about administrative procedures and campaigns and therefore clients will have higher probability to detect corrupt behaviour and, in turn, bureaucrats have higher detection probabilities.

The time required to start a business (TB) is included as a measure for general regulation in economic life. The basic idea is, as it was shown by Djankov et al. (2002), that entry burdens may be here to have bribes extractable.

The voters turnover may be a measure for general political interest in a country. Higher voters turnover will to participate in democratic votes might be a sign of general interest in the authority's behaviour and will lead to less corruption. The problem with this variable, as allready mentioned above, is the long time horizon and the different democratic traditions in different countries. As only free elections are included, there might be a general bias, as only countries with at least some democratic elements are included.

The average applied tariffs for custom clearance is a measure for the openness to trade. Similarly to other entry barriers, as the time or cost to set up a business it gives some power to bureaucrats that might be abused. These data are the unweighted average of applied tariffs.

The relation of governmental budget and GDP is used as a general measure of state interference in economic life. As every kind of interference increases possible bribes, it might increase corruption.

From these variables I derive the following hypotheses:

(1) Corruption will be lower in countries where the GDP is higher.
(2) Corruption will be lower in countries where the HDI is higher.
(3) Corruption will be lower in countries where the legal system is based on Anglo-Saxon tradition.
(4) Corruption will be higher in countries where the legal system is based on socialist tradition.
(5) Corruption will be lower in countries where the internet users and telephone lines per capita are higher.
(6) Corruption will be lower in countries where the time to set up a business is shorter.
(7) Corruption will be lower in countries where the voters' turnover is higher.
(8) Corruption will be lower in countries where the average tariff is lower
(9) Corruption will be lower in countries where the relation of governmental transfers to GDP is lower

10.3. Results

Economic Development - CPI, GDP and HDI. The interdependence of economic development and corruption is the most obvious and probably most discussed in economic literature on corruption. The direction of causality is, as mentioned above, not clear. Corruption and economic development may enforce each other, which may lead to a corruption-development trap. However, if a country develops, there is a very high probability, that corruption will decrease; whereas the impact of corruption on economic development is not so direct: If only the level of corruption decreases, this may lead to higher economic activities, less rents and therefore more development, but the sole fact of diminishing level of corruption will not per se lead to higher economic development.

The GDP per capita in a country explains most of the corruption perception index and is used in most literature to capture the economic development.

I included not only the GDP to my analysis but also the Human Development Index. The intention is to include other elements of the standard of living in the countries to the study; so the HDI might capture this broader definition.

Calculating the correlation table shoews that the GDP or rather the square root of GDP correlates much better than the HDI with CPI.

Table 2. Correlation of CPI, GDP and HDI

	CPI	GDP	squR GDP	HDI
CPI	1,00			
GDP	0,83	1,00		
squR GDP	0,85	0,97	1,00	
HDI	0,71	0,74	0,85	1,00

GDP and HDI are, not surprisingly, highly correlated since they are dependent; namely the per capita GDP is included in HDI.

The scatter plot of GDP and the CPI deliveres the R-squared value of approximately 72%. This isin the range of Treisman who found a 74% R-squared. Interesting outliers are Kuwait, Venezuela and Russia, that have a higher level of corruption than their per-capita GDP would predict. This finding could be

TABLE 3. GDP, HDI and CPI

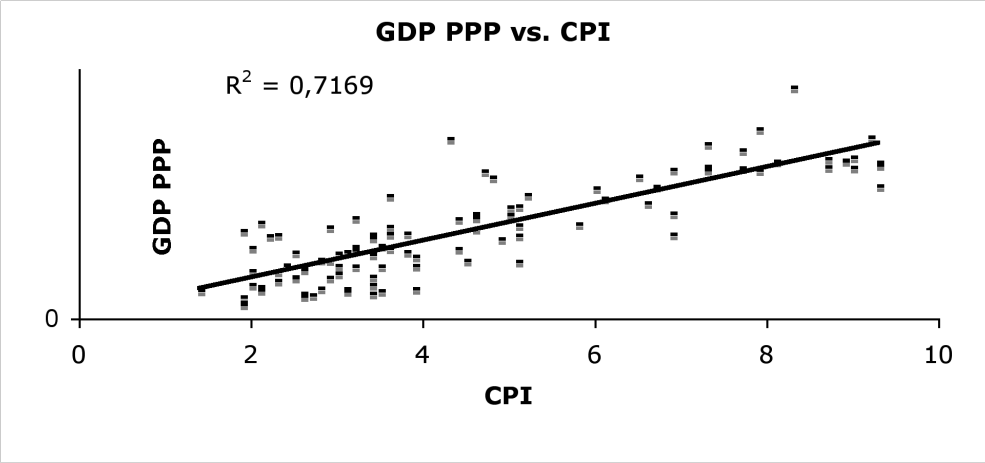
	Coefficients	P-value	
Intercept	1,04	0,13	
GDP	0,00	0,00	
HDI	2,58	0,01	
R Squared			0,72

interpreted either as the influence of natural resources (Kuwait and Venezuela are important crude oil producers, Russia is an important gas producer) and the influence of the simple existence of rents on the level of corruption.

A competing hypothesis would be that Russia has long time been and Venezuela still is a communist country; Kuwait is an emirate with no effective political participation of people.

In merging these hypothesis, the existence of natural ressources lead to a higher level of corruption if, and only if, the country has not been a democracy for a long time and if the property rights are very weak.

FIGURE 10.3.1. GDP vs. CPI



As the high correlation between GDP and HDI may predict, there is almost no additional power added when HDI is included when regressing against CPI. In the following statistics I will therefore concentrate on GDP as the sole variable to capture economic development.

10.3.1. Introducing the legal origin.

TABLE 4. CPI, GDP and legal origin

	Coefficients	P-value	
Intercept	0,84	0,16	
GDP	0,00	0,00	
Nordic	3,65	0,00	
French	1,81	0,00	
English	2,89	0,00	
Socialist	1,23	0,09	
German	2,01	0,00	
R Square			0,77

The legal origin data in my sample include, in contrary to what was used by Treisman (2000), a socialist legal origin subsample. The intention is to capture the effect of long-time socialist government in these countries. Though f.e. the Russian legal system is based on German law systems, it is very likely that there was a very different development at least after the second world war.

The countries of the socialist-legal origin include the former republics of the USSR Russia, Georgia, Moldova, Armenia, Ukraine and Kazhakstan. Mongolia, though never part of the USSR was largely influenced by Soviet political and legal habits. The GDP of the socialist legal origin countries rank from 13.200 (Russia) to 2.900 (Mongolia).

Including the legal origin dummy variable to the regression increases the R-squared value from 0,72 to 0,77.

As Treisman found, English legal origin seems to be a robust and significant determinant for less corruption. Esspecially the comparison of english and french legal origin's influence on perceived level corruption evidences the superiority of Anglo-Saxon legal system with respect to corruption. Both groups include highly developed as well as developing countries, that have similar geographical conditions or a similar democratic tradition (i.e. United Kingdom vs. France, Morrocco vs. Egypt or Ivory Coast vs. Ethiopia). Both coefficients are significant on the 99% confidence level and the English legal origin's coefficient is almost 60% higher than the French one.

The coefficient of the Nordic legal origin countries is the highest but - as mentioned above - is very likely to be biased due to including just highly developed countries.

Socialist legal origin is not significant at the 95% confidence level, which may be due to the few countries that are included in this group. However it is significant at 90% confidence and is obviously an indicator for high corruption.

The countries included are currently not ruled by a socialist government, though, as a part of Soviet Union, they were solely and totally ruled by the Communist Party of the Soviet Union for almost 60 years. The core idea of the economic life was the absence of private property and it might be likely that the distinction between private and governmental property is still not as clear as it is in other countries. Governments in these countries may still enjoy broader freedom and discretion in their decisions, there might be much fewer organisations that oppose to the official policy. These specifica might make these countries more corrupt.

10.3.2. Governmental interference. The three variables that capture the governmental influence in economic life may influence the level of corruption due to the possible missuse of bureucrats' discretionary power. The attractiveness of these variables is that they are independent of GDP; as it does not have influence on the days to open a business, the average customs tariffs or the governmental transfers as a share of GDP. These data are rather due to pure political decision on the general fiscal policy, the freedom of trade or the ease of opening a business.

Time to open a business (TB). The time to open a business is the average time that is needed to register a business and start operations. The actual time of the prospective entrepreneurs can be influenced by the authorities or the single bureucrats in charge for the different licenses needed for an enterprise to officially come to existence.

The days needed range from two in Australia to 202 in Haiti; Australia ranked ninth in the sample and Haiti had the lowest CPI of the sample. The average time

TABLE 5. Correlation of governmental influence

	CPI	TB	AT	TGDP
CPI	1			
TB	-0,41	1		
AT	-0,59	0,28	1	
TGDP	0,58	-0,27	-0,54	1

to start a business equals 34 days, there are no significant differences among legal origins.

Average applied tariff (AT). The actually applied unweighted average tariffs indicate the ease of importing goods to the respective country. High tariffs may not only stand for high monetary burdens when importing goods but may also indicate high bureaucratic efforts when importing. The higher these efforts the more power the officials have in collecting bribes from importers. Especially in highly competitive markets the only way to stay in the market might be when bribing the customs authorities.

Governmental Transfer as a share of GDP (TGDP). The governmental transfers as a share of total GDP is meant to capture the total effect of government's interventions in economic activity. The rationale of the hypothesis that higher TGDP would increase corruption is, similar to the two variables before: the more funds are collected from individuals and business, the more possibility to extract part of it as bribes.

The Results. All three variables have a significant influence on the CPI, their joint R-squared value is 49%.

As expected, the time to open a business and the average tariffs are negatively correlated with the CPI; the tariffs variable being more significant than TB.

Surprisingly, the transfers as a share of total GDP have a sigificantly positive influence on the CPI. Even when checking for all countries that do not have Scandinavian legal origin (and therefore have a very broad social welfare system, thus less corruption) or just for countries that are below a certain level of HDI or GDP, this significant correlation did not disappear.

TABLE 6. Governmental influence and corruption

	Coefficients	P-value	
TB	-0,016	0,003	
AT	-0,147	0,000	
TGDP	0,102	0,000	
R Square			0,49

When analysing only the countries that have a TB or AT above a certain level I expected this connection to disappear, and my conclusion could have been something like: »If countries have high tariffs or there are large burdens for entrepreneurs to start their business, the fact that they have a large TGDP increases the chance that they are more corrupt.«

Even when just including the high-corruption and therefore low-CPI countries, this positive correlation did not vanish and remained -though naturally less significant - at the 95% confidence level.

The absence of a negative correlation could be, that TGDP, in contrary to AT or TB does not represent a direct possibility of a bribe. Whereas the time to open a business and the applied tariff can be influenced by the discretionary power of a bureaucrat, TGDP does not express how the funds are collected. Furthermore, TGDP is more of an outcome, whereas the two other variables give an insight to the procedures.

From these arguments one would expect no significant relation at all; however the finding is a significantly positive relation.

The multiple regression might have its interpretation in the following rationale: Countries that have less corruption might have a higher governmental budget in relation with their GDP, however they do not collect it from sources that interfere in free trade or freedom in business activities. Another hypothesis on why these countries do not collect their taxes on tariffs might even be the fact, that these taxes are very easily subject to corruption.

However, even the single regression of TGDP and CPI leads to an R-square value of 0,34 and a significantly positive coefficient. This finding is actually supporting the helping-hand approach on governmental objectives.

A hypothesis on this might be that »good« governments, that tend to fight corruption, also care about general infrastructure, about education or the enforcability of property rights. Therefore they need a bigger part of the GDP to invest and, in turn: if they need a bigger part of GDP, it can not only be the personal utility of politicians and bureaucrats, but they will invest more in public welfare.

Another hypothesis might be that low-level bureaucrats that are in charge of custom clearance or the registration of business are more alike to take bribes and care more about their own well-being than politicians that could eventually gain from a high TGDP.

10.3.3. Information applicability. During the 2008/2009 financial crisis, governments around the world launched programs and invested in their local economy to keep the unemployment low and the financial system working.

Governmental programs, especially of this size, can be easily exploited by corrupt officials or politicians for their personal gain.

For the US-recovery program, the administration of President Obama launched the website www.recovery.gov, that expresses its object in:

> »Recovery.gov is a website that lets you, the taxpayer, figure out where the money from the American Recovery and Reinvestment Act is going. There are going to be a few different ways to search for information. The money is being distributed by Federal agencies, and soon you'll be able to see where it's going – to which states, to which congressional districts, even to which Federal contractors. As soon as we are able to, we'll display that information visually in maps, charts, and graphics.« (www.recovery.org)

TABLE 7. Correlation information applicability

	CPI	GDP	IU
CPI	1,00		
GDP	0,83	1,00	
IU	0,81	0,80	1,00

TABLE 8. Information applicability

	Coefficients	P-value	
GDP	0,00	0,00	
IU	0,04	0,00	
TL	0,00	0,77	
R Square			0,75

Having the usage of public funds transparently and available for-the-whole-world publicated has a very straightforward implication: Everybody can always see who received public funds and why. This full transparency makes it easy for every citizen to monitor what happened to her money and may increase the sinsitivity towards missuse of public funds, including corruption.

The internet is a very convenient tool for spreading information and a project like recovery.org shows how it can be used for fighting corruption.

Means of information may influence the level of corruption. If there are no telephone lines, no newspapers, no internet access points or maybe even no paved roads or public transport available, local bureaucrats may enjoy more freedom in abusing their authority as there is simply no fear for them to get caught.

Telephone lines (TL) and internet users (IU) per 100 inhabitants vary very much across the countries, most likely influenced by the level of development. As it proved before as a more significant indicator, I decided to use GDP instead of HDI to capture this effect.

As this subsample only includes 70 countries, the R-square of the single regression of GDP is 0,69.

Adding TL and IU gives the following picture:

Internet users per 100 turn out to be significant at a 99% confidence level, whereas telephone lines are highly insignificant.

The R-squared value when using just GDP and IU as explanatory variables increases for 18% points to 0,88. This high explanatory power might be biased by the low mount of included observations (only 70 countries included), however it proves the high explanatory power of IU.

The inverse causality - that lower corruption ceteris paribus leads to a higher usage of the internet seems quite unlikely. There might be influence (i.e. if the governmental telecommunication company might only install the line if bribed), however they are not likely to account for the grand picture of perceived corruption in a country.

The availability of the internet to the citizen therefore decreases corruption and this connection may have many causes.

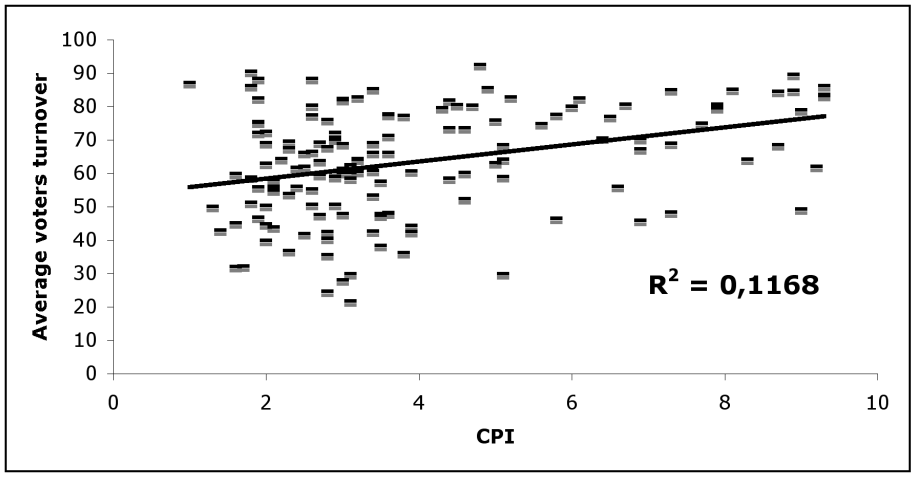
Higher internet usage means not only that information can be spread faster and to a broader audience, it may also mean that governmental procedures could be partly automatized using the world wide web. This might lead to higher standardization and make it more costly or less possible for a single bureaucrat to add his »services« for a bribe.

An example for a successfull way to fight corruption by increased usage of information technology is the electronic custom clearence system established in the European Union with some partner countries. By declaring the good in the export country and submiting the informations of the exported good to the importing country, single customs officers are less free to change the declaration for a lower tariff.

10.3.4. Political interest. Political interest in a country is hard to capture on a macro level.

However political interest might be a sign for a higher fraction of people in a country that do question the governing parties, the administrative system and the bureaucrats in charge. This higher interest could lead to more public monitoring and may prevent corruption to some extent.

FIGURE 10.3.2. CPI and voters' turnover



The regression of voter's turnover explains 12% of the CPI for the subsample of 146 countries, the coefficient of 0,05 is significant with the confidence of 99,9%. The weaknesses of this test are various: First, the data range for a time period of up to 50 years, depending on since when democratic elections are held in the country. Secondly, only free votes are included in the sample so no data for pure and »official« dictatorships are included. Even within democracies, there might be a bias, as »free elections« might not be a binary variable but there might be different aspects of freedom in how to vote and to what extent they are fullfilled in these countries.

There is no obvious trend from the data plot, especially along the low-CPI countries there is a cloud of data points.

Though there is very few explanatory power, there is one finding when analysing the data: The countries with the lowest CPI are also among the countries with the lowest voter's turnover.

Switzerland with an average turnover of 49% and a CPI of 9 might be regarded as an exemption, as the peoples participation is very intensive in Switzerland's highly direct democracy and some people might be tired of elections.

Concluding remarks

This thesis summarized the economic discussion on how to model corruption.

Corruption was defined as »the side contracting of an agent by consciously abusing her discretionary power granted by a contract with a principal for private gain.«

As corruption, according to this definition, can only occur if some person or institution grants some discretionary power to an agent, it is essential to explore the foundation of the most important institution in the context of corruption: the state.

Corruption harms the principal, who will therefore - at least to some degree - try to punish her agents in case they are detected taking bribes. The illegality of corrupt behaviour leads to the special nature of corrupt contracts, which fundamentally differs from legal contracts. It is reasonable to assume that it is impossible to either publicly advertise for corrupt services or to legally enforce corrupt agreements in case the other party does not stick to its promises.

The institution and the nature of corrupt contracts provide the framework for the further analysis of corruption. There are two important determinants for the level of corruption:

The existence of rents. Rents as an economic inefficiency leads to an extractable amount that corrupt actors will compete for. Rents are the cause why, ceteris paribus, countries with a more protected economy or with natural resources tend to be more corrupt.

The costs of corruption. Once a rent as an extractable amount exists in an economy, actors will decide on whether to compete for it or not according to the costs that will occur from rent seeking. The obvious costs include the possible

fine if getting caught; however there are also moral or social costs associated with corrupt behaviour that have influence on the level of corruption. Higher salaries in public services will increase the economic cost of corruption and therefore decrease the level of corruption.

An essential question when analyzing corruption is: Is corruption always bad for public welfare?

As shown, there might be situations where corruption allows to use the -more efficent- price mechanism for the allocation of public goods.

However, corruption changes the incentives to economic actors and increases attractiveness of unproductive rent-seeking sectors. Corruption is not inevitably decreasing efficiency, but its indirect effects on the behavior of actors do.
"The more corrupt the state, the more laws". Almost twothousand years ago, Publius Cornelius Tacitus (56-117 p.Chr) did not only express the connection between escalating administration and corruption; he even directed the causality as modern public choice theory would do - higher corruption leads to more governmental influence for the sake of more corruption.

The idea is straightforward - if there is no state, there is no public corruption; therefore more state leads to more public corruption. The connection and the causality was proved by Dajnkov et al. (2001): higher regulations do not lead to a socially better outcome but they lead to a higher level of corruption.

The state is a fact in modern world; democracies are most commonly regarded as the superior form of government. Democracies are per definition »owned« by the people; the government in charge for administering the public funds own as a tiny fraction as everybody else does. Therefore they care as less about »the people's property« as everybody else does, or, even worse, actively abuse their discretionary power for private (or the party's) gain.

The main purpose of this work is to present the three approaches on how to prevent corruption:

- By reducing governmental influence in economic life and therefore reduce possible room for bribes.
- By reducing the discretionary power of every single official.
- By increasing the costs of corrupt behaviour.

The most important factors that influence the level of corruption are the economic development and the legal origin of a country.

This might not be very satisfactory to policymakers, as both factors can not be influenced by in reasonable time. However, there are ways to, ceteris paribus, decrease the level of corruption. These ways are evidenced in the empirical part of this work. The main findings are:

- Corruption can be reduced by increasing the availability of means of communication to a large part of the citizens.
- Higher political interest may lead to less corruption due to increased sensitivity towards authority's actions.
- Direct regulations of the freedom of trade or entry to business increase the level of corruption; or the level of corruption decreases the ease of trading and doing business.

In contrary to what I expected, the total governmental budget as a share of GDP has a positive correlation with the CPI, even when controlling for GDP or legal origin. My hypothesis for explaining this connection might be, that the »good« governments levy taxes on the taxable entities that leave less discretionary power to the single bureaucrats, as income taxes or value added taxes. »Bad« governments, in contrary, may introduce taxes that leaves the famous »room« for extra income to the bureaucrats.

Therefore not the quantity, but rather the quality of governmental involvement may have significant impact on the level of corruption in a country.

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Appendix

	CPI	LO	GDP	HDI	IU	TL	TB	VT	AT	TGDP
Denmark	9,3	Nordic	35.125	0,952	64	166	6	84	2	21
New Zealand	9,3	English	25.260	0,944	79	141	12	86	4	11
Sweden	9,3	Nordic	34.056	0,958	77		15	83	2	21
Singapore	9,2	English	47.426	0,918	59	163	5	62	0	4
Finland	9	Nordic	32.903	0,954	68	148	14	79	2	20
Switzerland	9	German	37.396	0,955	61	173	20	49	0	14
Iceland	8,9	Nordic	35.814	0,968	65	172	5	90	3	8
Netherlands	8,9	French	36.099	0,958	92		10	85	2	23
Australia	8,7	English	33.035	0,965	53	148	2	84	3	12
Canada	8,7	English	36.687	0,967	85		3	68	4	10
Luxembourg	8,3	French	77.089	0,956	72	178	26	64	2	20
Austria	8,1	German	35.523	0,951	51	158	28	85	2	27
Germany	7,9	German	31.766	0,94	52	183	18	81	2	28
Norway	7,9	Nordic	51.862	0,968	81	152	10	80	1	17
Ireland	7,7	English	40.823	0,96	39	162	13	75	2	11
United Kingdom	7,7	English	32.654	0,942	66	173	13	75	2	14
Belgium	7,3	French	33.243	0,948	49	140	4	85	2	25
Japan	7,3	German	31.951	0,956	74	115	23	69	3	18
USA	7,3	English	43.968	0,95	73	139	6	48	3	13
Chile	6,9	French	15.997	0,874	34	104	27	46	2	9
France	6,9	French	31.980	0,955			7	67	2	25
Uruguay	6,9	French	10.203	0,859	29	120	44	70	9	13

	CPI	LO	GDP	HDI	IU	TL	TB	VT	AT	TGDP
Slovenia	6,7	German	25.021	0,923	64	138	60	81	2	21
Estonia	6,6	German	19.155	0,871	58	185	7	56	2	12
Spain	6,5	French	29.208	0,949	44	150	47	77	2	15
Portugal	6,1	French	20.845	0,9	33	165	7	82	2	20
Israel	6	English	24.405	0,93	28		34	80	2	11
Botswana	5,8	English	12.744	0,664	4	83	108	47	6	11
Czech Republic	5,2	German	22.004	0,897	43		17	83	2	25
Costa Rica	5,1	French	9.889	0,847	34	66	77	68	6	3
Hungary	5,1	German	18.154	0,877	42	142	16	64	2	21
Jordan	5,1	French	4.654	0,769	20	94	14	30	11	11
Malaysia	5,1	English	12.536	0,823	56	104	24	59	6	6
Latvia	5	German	15.389	0,863	52	126	16	63	2	9
Slovakia	5	German	17.837	0,872	44	134	25	76	2	19
South Africa	4,9	English	9.087	0,67	8	99	31	86	8	6
Italy	4,8	French	28.828	0,945	54		13	93	2	22
Greece	4,7	French	31.290	0,947	23	163	38	80	2	17
Lithuania	4,6	French	15.739	0,869	39	169	26	60	2	12
Poland	4,6	German	14.675	0,875	42	136	31	52	2	19
Turkey	4,6	French	11.535	0,798		109	6	74	2	3
Namibia	4,5	English	4.819	0,634	5	45	99	80	6	4
Croatia	4,4	German	14.309	0,862	45	155	40	74	3	21
Tunisia	4,4	French	6.958	0,762	17	89	11	58	0	10
Kuwait	4,3	Islamic	46.638	0,912	34		35	80	5	6
El Salvador	3,9	French	5.477	0,747		105	26	44	5	3
Georgia	3,9	Socialist	4.009	0,763	8		11	61	1	9
Ghana	3,9	English	1.247	0,533	3	34	42	42	13	1
Colombia	3,8	French	6.381	0,787	26	91	42	36	11	9

	CPI	LO	GDP	HDI	IU	TL	TB	VT	AT	TGDP
Romania	3,8	French	10.433	0,825	56	126	14	77	2	11
Bulgaria	3,6	German	10.295	0,834	52	160	32	78	5	15
Mexico	3,6	French	12.176	0,842	22	84	27	48	0	8
Peru	3,6	French	7.088	0,788	27	65	72	48	9	3
Trinidad and Tobago	3,6	French	21.669	0,833	17	100	43	66	8	9
Burkina Faso	3,5	French	1.084	0,372			18	38	12	4
Morocco	3,5	French	3.915	0,646	24	73	12	58	13	7
Thailand	3,5	English	7.613	0,786	21	91	33	47	10	2
Albania	3,4	French	5.884	0,807			36	85	6	2
India	3,4	English	2.489	0,609	18	24	33	61	14	5
Madagascar	3,4	French	878	0,533		12	7	66	12	0
Panama	3,4	French	10.135	0,832	16	86	19	53	7	6
Senegal	3,4	French	1.592	0,502	7	35	58	43	13	5
Serbia	3,4	German	9.468	0,821			23	69	7	22
Algeria	3,2	French	7.426	0,748	10	90	24	64	16	12
Bosnia and Herzegovina	3,2	German	6.801	0,802	28	93	54	83	7	14
Lesotho	3,2	English	14.610	0,496	3		73	64	8	11
Sri Lanka	3,2	English	3.896	0,742	4	54	39	61	11	6
Benin	3,1	French	1.259	0,459	2	22	31	60	13	1
Jamaica	3,1	English	6.409	0,771	56		8	59	7	1
Mali	3,1	French	1.058	0,391	1	21	26	22	13	0
Bolivia	3	French	3.989	0,723	2	41	50	61	6	6
Dominican Republic	3	French	6.093	0,768	17	66	22	69	9	7
Mongolia	3	Socialist	2.887	0,72	12		20	82	5	8
Argentina	2,9	French	11.985	0,86	24	126	31	71	11	7
Armenia	2,9	Socialist	4.879	0,777			18	51	3	5
Moldova	2,9	Socialist	2.396	0,719	18	78	23	61	0	13

	CPI	LO	GDP	HDI	IU	TL	TB	VT	AT	TGDP
Egypt	2,8	Islamic	4.953	0,716	11	55	9	25	17	9
Zambia	2,8	English	1.273	0,453	4	23	33	41	14	3
Togo	2,7	French	792	0,479			53	69	14	0
Ethiopia	2,6	English	700	0,389	0	3	16	77	17	9
Honduras	2,6	French	3.553	0,714			21	55	5	1
Indonesia	2,6	French	3.455	0,726	6	44	105	88	7	11
Uganda	2,6	English	888	0,493	6	14	28	51	12	9
Nicaragua	2,5	French	2.441	0,699			39	62	5	9
Pakistan	2,5	English	2.361	0,562	11	52	24	42	15	4
Ukraine	2,5	Socialist	6.224	0,786	22	147	27	66	0	22
Paraguay	2,4	French	4.034	0,752	5	78	35	56	8	3
Cameroon	2,3	French	2.043	0,514			37	54	19	2
Iran	2,3	Islamic	10.031	0,777	32	75	47	68	21	7
Philippines	2,3	French	3.153	0,745	6		52	70	5	3
Kazakhstan	2,2	Socialist	9.832	0,807	12	102	21	64	8	4
Bangladesh	2,1	English	1.155	0,524	0	22	74	56	15	3
Kenya	2,1	English	1.436	0,532	8	31	44	44	13	1
Russia	2,1	Socialist	13.205	0,806	21		29	55	8	11
Côte d´Ivoire	2	French	1.632	0,431			40	40	13	3
Ecuador	2	French	7.145	0,807		89	65	45	10	2
Papua New Guinea	2	English	3.238	0,516			56	69	5	4
Burundi	1,9	French	333	0,382			43	75	12	3
Congo, Republic	1,9	French	281	0,361	0		155	75	18	0
Sierra Leone	1,9	English	630	0,329	0		26	47	0	2
Venezuela	1,9	French	11.115	0,826	21	105	141	72	12	16
Haiti	1,4	French	1.109	0,521	10		202	43	3	1

Abstract

Korruption und Wege, diese zu bekämpfen sind seit langem auf den Agenden der Politik.
Seitdem die Menschheit eine Form des Zusammenlebens organisiert hat, passierte Korruption. Korruption ist weder auf eine bestimmte Entwicklungsstufe eines Landes noch eine geographische Region begrenzt; trotzdem unterscheiden sich Länder in der Verbreitung und den vorkommenden Formen der Korruption.
Obwohl Korruption im allgemeinen Sprachgebrauch verwendet und verstanden wird, existiert in der ökonomischen Literatur keine allgemeine Definition.
Für diese Arbeit definierte ich Korruption als den „*absichtlichen Missbrauch des von seinem Prinzipalen eingeräumten Ermessensspielraumes durch einen Agenten bei Nebenkontrahierungen für den persönlichen Vorteil.*"
Ich unterschied zwischen der Bestechung (die Zahlung für eine korrupte Gegenleistung), dem Preis (als der Zahlung an den Prinzipalen) und Trinkgeld oder Geschenk (die in Ermangelung einer expliziten Gegenleistung nicht als Korruption angesehen werden können).
Marktkorrution ist die Korruption auf hoch kompetitiven Märkten; die Identität des Vertragspartners spielt hier eine geringe Rolle. Im Falle der parochialen Korruption, der Markt ist limitier auf einige wenige potentielle Vertragspartner; hier sind persönlich Beziehungen und das Vertrauen zwischen den Partnern essentiell.
Korruption passiert hauptsächlich in öffentlichen Ämtern, weshalb ich das Fundament und das Ziel des Staates sowie seine notwendige Exekutive im weitern diskutierte.

Ich beschrieb das Fundament der Interaktionen zwischen den korrupten Partnern, namentlich den korrupten Vertrag, der sich in wichtigen Punkten deutlich von legalen Verträgen unterscheidet.
Die Determinanten der Korruption können in zwei breiten Kategorien unterteilt werden;

- Die Existenz von ökonomischen Renten eröffnet die Möglichkeit, Bestechungsgelder zu lukrieren.
- Wenn eine ökonomische Rente existiert, werden die ökonomischen Akteure je nach potentiellen Kosten entscheiden ob sie sich am Rent-seeking beteiligen. Diese Kosten inkludieren die Strafen in dem Falle, dass die korrupte Aktivität aufgedeckt wird, sowie moralische oder soziale Kosten die den Grad der Korruption determinieren. Höhere Gehälter im öffentlichen Dienst, erhöhen die Opportunitätskosten von korrupten Aktivitäten und verringern deshalb die Korruption.

Eine wichtige Frage in einer ökonomischen Analyse von Korruption ist, ob diese unabdingbar die ökonomische Effizienz verringert.
Ein Model, welches Korruption als den Gebrauch des Preismechanismus beim Vorhandensein eines Fehlers in der bürokratischen Distribution beschreibt, zeigt dass Korruption in diesem (speziellen und eher unrealistischen) Fall sozial vorteilhaft wäre.
Korruption ändert jedoch die Anreize der Akteure insoferne als es attrktiver wird, ich mit unproduktivem Rent-seeking zu beschäftigen.
Korruption ist an sich nicht automatisch Effizienz verringend, wohl aber ihre indirekten Einflüsse auf das Verhalten der Akteure.
Korruption gemäß obiger Definition braucht eine Prinzipal-Agent Beziehung.

Ein Prinzipal gewährt dem Agenten einen Ermessensspielraum, der diesen, im Gegensatz zu der Erwartung des Prinzipalen, zu seinem persönlichen Missbrauch ausnutzt.
Ein wohlwollender Prinzipal wird hier angenommen und Korruption ist die folge eines Problems der adversen Selektion der Agenten und die folgenden versteckten Aktionen oder die falsche Incentivierung der Agenten.

Im zweiten Teil wird die empirische Forschung der Korruption diskutiert.
Der Einfluss von der wirtschaftlichen Entwicklung, der Rechtstradition, öffentlicher Regulierungen, dem Vorhandensein von Kommunikationsmitteln und politisches Interesse auf den Grad der Korruption wird erforscht.

Zu den Möglichkeiten, Korruption zu bekämpfen zählen:

- Reduzierung des staatlichen Eingriffes in das wirtschaftliche Handeln Reduzierung des Ermessensspielraumes der Beamten
- Erhöhung der Kosten im Falle korrupten Verhaltens

Die wichtigsten Faktoren die Auswirkung auf die Korruption eines Landes haben sind die wirtschaftliche Entwicklung sowie die Rechtstradition eines Landes.
Beides ist schwer oder unmöglich zu ändern in einem Land.
Jedoch existieren Wege um, ceteris paribus, die Korruption zu verringern. Die wichtigsten empirischen Erkenntnisse dieser Arbeit sind:

- Korruption kann verhindert werden durch eine erhöhte Verfügbarkeit von Kommunikationsmitteln.
- Höheres politisches Interesse führt zu weniger Korruption, möglicherweise durch erhöhte Sensibilität gegenüber staatlichen Aktionen.
- Direkte Einschränkungen der Handelsfreiheit erhöhen den Grad der Korruption oder der Grad der Korruption mach freies wirtschaftliches Handeln schwerer.

Abstract

Corruption and ways how to fight is have been on the agenda of policymakers for a long time. Maybe ever since men founded some kind of organization, corruption occurred. It is not limited to countries of a special level of human development or geographical area. However, there are differrences in how widespread or in which form corruption among countries.

Corruption, though commonly well understood, is not consistently defined in economic literature. For this work I defined corruption as „ *the side contracting of an agent by consciously abusing her discretionary power granted by a contract with a principal for private gain.*"

I distinguished the bribe (as the payment used for corrupt activities) to the price (which is the payment to a principal) and to tips or gifts (which are lacking the expectation of an explicit quit pro quo)

Market corruption happens in highly competitive markets, where the identity of the counterpart does not matter, whereas parochial corruption is limited to a few potential contractor with the importance of personal relationship and trust among the corrupt partners

As corruption mostly happens within governmental bureaus, I further focused on the foundation and the goal of the state, its necessary child, the government and its servant, the bureaucracy.

I explored the fundament of the interactions between the briber and the bribee, namely the corrupt contract, that differs fundamentally from ordinary contracts in legal deals.

The determinants of corruption can be classified in two broad categories:

- The existence of economic rents in an economy will open the possibility for extracting bribes.
- Once a rent as an extractable amount exists in an economy, actors will decide on whether to compete for it or not according to the costs that will occur from rent seeking. The obvious costs include the possible fine if getting caught; however there are also moral or social costs associated with corrupt behavior that have influence on the level of corruption. Higher salaries in public services will increase the economic cost of corruption and therefore decrease the level of corruption

An important question in an economic discussion on corruption is, whether corruption is always bad for economic efficiency.

I present a model that explains corruption as the usage of the price mechanism in the presence of a government failure. Corruption can be socially beneficial in this special case.

However, corruption changes the incentives to economic actors and increases attractiveness of unproductive rent-seeking sectors. Corruption is not inevitably decreasing efficiency, but the indirect effects of corruption and the behavior of actors does.

Corruption needs some kind of agency relationship according to the definition above. A principal grants some discretionary power to an agent, who, in contrary to what he is supposed to do, uses it for personal gain. A benevolent principal is assumed and corruption arises due to the adverse selection of agents and their subsequent hidden action or the misdesign of the contract and resulting moral hazards of the agent.

In the second part I discuss the empirical evidence on corruption.
The influence of economic development, legal origin, governmental regulations, availability of means of information and political interest on the level of corruption are investigated.

Ways to fight corruption include:

- By reducing governmental influence in economic life
- By reducing the discretionary power of every single official.
- By increasing the costs of corrupt behavior.

The most important factors that influence the level of corruption are the economic development and the legal origin of a country.
These facts are hard or impossible to change in a country.
However, there are ways to, ceteris paribus, decrease the level of corruption. These ways are evidenced in the empirical part of this work. The main findings are:

- Corruption can be reduced by increasing the availability of means of communication to a large part of the citizens.
- Higher political interest may lead to less corruption due to increased sensitivity towards authority's actions.
- Direct regulations of the freedom of trade or entry to business increase the level of corruption; or the level of corruption decreases the ease of trading and doing business.

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