Oligarchs and the Russian government: fight against corruption or the private business?

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Oligarchs and the Russian Government: Fight Against Corruption or the Private Business?

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Abstract

Many scholars have interpreted the Russian government's attack on the private oil companies, as in the most famous Yukos Crisis, as a legitimate battle against corruption. However, in the transition economies, the state can abuse its power by acting like a monopoly and not letting any competitive firms to operate. It can easily do so, by disguising its aim of retaining its monopoly power as a "fight with corruption". In this paper we build a game between the state firm (government) and the private firm (oligarchs), where the oligarchs can be of "strong" or "weak" type. Oligarchs use the amount of bribe to signal their type, and try to influence the government's decision of whether confiscating the private firm by accusing it of being corrupt, versus letting her operate and collecting bribe.

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This paper is in the stage of proposing the game, and therefore could not address to strong results or conclusions yet. Comments and suggestions are most welcome.

I. Introduction

Many scholars have interpreted the Russian government's attack on the private oil companies, as in the most famous Yukos Crisis, as a legitimate battle against corruption. However, in the transition economies, the state can abuse its power by acting like a monopoly and not letting any competitive firms to operate. It can easily do so, by disguising its aim of retaining its monopoly power as a "fight with corruption".

The issue of privatization, corruption and the difficulties faced by transition economies received the most attention for years. A broad literature has been accumulated on corruption and the transition process from centrally planned economies to capitalism since 90s. But the emphasis of the institutional deficiencies of the post-Soviet economies is relatively new in economic literature. Knowledge of this literature might shed light to a better understanding of the economic and political environment in the post-Soviet Russia that gave rise to corruption and crime, and furthermore, a solution plan could be suggested.

Building market-enhancing institutions during the adaptation period to market economy is crucial. A successful transition to market economy was only a dream in the case of Russia. The underlying institutions were not ready to carry on market economy. Those institutions can be political (formal constitution and a strong democratic structure), legal (respect for the rule of law), economic (concept of private property, stock ownership, and property rights), and social institutions (development of labor market).

This paper reviews the existing literature on transition economies, rent seeking and corruption; and then tries to explain the interactions between the government and the businessmen (oligarchs) viewed as game, inspired by the Russian government's fight with corruption. In the transition economy, since the government can still exercise a substantial degree of arbitrary decision making, we are assuming that the government can decide to allow a private company to exist, in receipt of an adequate amount of bribe; or shut it down by accusing it of corruption. On the other hand, the new market economy needs loans from the international organizations in order to undertake investments. The international institutions give the loans on the basis of the country's credibility; i.e. 'not being corrupt', following the principles of free market economy, privatizing a reasonable amount of state owned facilities…etc. In making the decision of letting or not letting the private firm to operate, the government is calculating the emergence of a potential "rival" versus the risk of losing its 'credibility' in the international community.

The following section gives some background on the Russian oil production, the period of transition from communism to market economy, corruption in Russia after the breakup, some surveys done in the subject matter, the creation of the so called "oligarchs" or mafia. Section III discusses the relevant literature on rent seeking and corruption, with the aim of describing the place of the current paper in the literature. Section IV presents the model.

II. Background

Russian Oil

Until 1991, the Soviet Union was the world's largest oil exporter. Soviet oil production and exports declined in the 1980's, and especially in the aftermath of the breakup of the Soviet Union in 1991. After the collapse of the Soviet Union, Russia restructured its oil industry. Emergence of vertically integrated, private oil companies helped the country's oil production and exports to rise again. Russia is now the world's second largest oil exporter, behind only Saudi Arabia. Crude oil exports are a key source of income for Russia, as revenues from exports provide approximately 25% of the Russian government's income. (Source: http://www.russianoil.ru)

Most of Russian oil is exported via terminals in the Baltic Sea and Black Sea. However, with the increased production of the Russian oil producers there has been environmental concerns and hence the need for alternative export routes.

Also, two other problems facing the Russian oil producers have been the restriction on exporting 30% of their production by a long-standing quota arrangement; and the discrepancy between export and domestic prices (Russian prices are typically just over half of the world market price). These problems altogether make increased sales abroad more and more difficult.

Transneft (Russia’s state pipeline monopoly) maintains an exclusive control on exports. This has led the oil producers to attempt to challenge Transneft’s monopoly position on export pipelines by developing pipeline projects of their own. The oil companies seek alliances with Western companies in an effort to open up new export routes to China and elsewhere. Yukos, one of the largest oil companies in Russia, is negotiating with the Chinese government to build an oil pipeline to China. A deepwater oil terminal at Murmansk that would enable Russian oil exporters to ship their oil to the United States also has been proposed. Huge investments in infrastructure will be needed to bring these pipelines and terminals online. Yukos has been accused by corruption claims, and its main production unit Yugansk has been sold to state-run oil company Rosneft.

Period of Transition

The transition from a centrally planned economy to a market economy has demonstrated some similar characteristics across Eastern European countries and Russia. Among these, a substantial share of shadow economy (unreported incomes, revenues); excessive intervention in the economy by the ruling authorities; weak financial system; low wages paid to the civil servants; and lack of legal protection can be mentioned as significant.

There is undeniable fact of corruption in all of these transition economies. One other point of view to note is that corruption served as a ‘lubricant’ that facilitated the transition to the new economic system.

The Western policies to help the transition of Russia totally disregarded the institutional aspects of the reform. What mainly steered corruption in 1990s was the government’s starvation for cash. The burden of debts of Soviet era, which had climbed up to $50 billion, fell on the new government after 1991. The loans from IMF and World Bank, which were supposed to ease the problem, only worsened the problem. The loans were ineffective largely because of the rapid-transition policy, and the subsequent panic in the economy. IMF and World Bank had two choices to restore Russia’s disturbed economy: One choice was the immediate transition to capitalism, with both economic and political aspects. This prescribed sudden privatization of all the assets. The second option would be giving Russia enough time to slowly adjust to the market economy, and allow it to make gradual changes in its structure. West chose the first option.

Murphy, Shleifer, and Vishny (1992) in their paper "Transition to a Market Economy: Pitfalls of Partial Reform", give the portrait of transition economies, which are characterized by "**partial economic reforms**". In a partial reform, the government still controls the output and price decisions of the firms, but gives them a limited freedom as to what to produce or to whom to sell their output. They give the example of the 1988 reforms in Russia, and note that by mid-1991 partial economic reform had clearly failed. They show that such a reform can result in a movement of some resources to private sector and shortages in the state sector; thus causing an overall decline in total output in the end. Their main argument is that the reform should be of the form "big-bang" with radical liberalization of all prices. And in contrast to the Russian case, they note, the Chinese government had kept quota restrictions to prevent the resource diversion problem.

Corruption in Russia since 1990

Corruption in Russia is nothing new to Russia, it is a direct legacy from the Soviet Era, decades of bureaucratic control and underground economy. During communism the government interfered in all aspects of life, and bureaucrats were at the center role. They would demand payment for everything they did. There were no standard rules, the rules varied from one official to the next. Mafia had been operating in the Soviet Union since the 1960s, so that was nothing new either. During Soviet rule a parallel informal structure grew up alongside the official party structure in which people engaged in illegal trade, exchanged favors. It is known that during the Soviet era there were underground firms operating under the cover of state owned enterprises, since at least 1952. All large-scale Russian criminal operations are mostly based on former connections. When communism collapsed, certainly the Russian way of thinking did not collapse. Moreover, the economic and political reforms of 1990s that were supposed to cure Russia from corruption worked just the opposite way.

The whole phenomenon of corruption in the aftermath of the collapse of the Soviet Union could be interpreted by means of "**demand or no demand for the rule of law**". Stiglitz and Hoff bring this question in their study "After the Big Bang" (Columbia University Discussion Paper, 2002). Rule of law is defined as well defined and enforced property rights; and no rule of law means a legal regime that does not protect investors' returns from arbitrary confiscation, and that does not enforce contract rights.

The following year after the USSR collapsed in December 1991, the so-called "Big Bang Reforms" were implemented which involved mass privatization of state enterprises.

1995-97: Second wave of privatizations (metals, oil, utilities) occurred through a program called "**loans for shares**". The main actors behind this scheme were not red directors (former Party officials), but some new bankers. (Vladimir Potanin of Oneximbank, Mikhail Khodorkovsky of Menatep..etc.)

In their static model of the demand for the rule of law, Stiglitz and Hoff treat a variable that was previously treated as exogenous as endogenous-the political environment (the rule of law). They describe a coordination game in which the agents either **build up value** or **strip assets**; and majority of agents are strictly better off building value under rule of law than stripping assets. The optimistic view behind the rapid privatizations that took place after the collapse of the Soviet Union was that privatization would create a class of individuals who stood to gain enormously by building up the value of their firms and thus demand the rule of law.

> p.14 "*Those who have an advantage in asset-stripping relative to wealth creation may also have an advantage in converting corporate and social assets to private use, and accordingly will not support the rule of law even when they themselves have assets to protect*."

Thus, building value may be rational, and stripping assets may be rational, too.

A popular view regarding the corruption and crime environment in the post-Soviet Russia is that Russia today is experiencing an earlier stage of capitalism. The questions that have provoked more careful research are:

> -"Is the lack of rule of law, and the prevailing corrupt environment in post-Soviet Russia somewhat like US in the mid 1800s?"
>
> -"Can the newly emerged business elite (oligarchs/mafia) in post-communist era be compared to the robber barons of 1800s in the US?"

This way of thinking is somewhat optimistic, because it implies that as Russia progresses in its route to capitalism, the rule of law will automatically be established, and lawlessness and corruption will vanish. Unfortunately, Annelise Anderson (1995), in her paper "The Red Mafia: A Legacy of Communism" (In Lazear, Edward P., ed. Economic Transition in Eastern Europe and Russia: Realities of Reform. Stanford, Calif: The Hoover Institution Press, 1995) shows that it is not very likely that time will naturally solve the problem of corruption in Russia. She argues that there is little similarity to 19th century US, because US was characterized by a respect for the rule of law since its formation and even before. Anderson points to the differences in the mafia phenomenon in Russia and in the early United States: there was no "gangs as primitive states" in the early US; in contrast, the mafias in Russia, fraud, violence, have arisen from the legacy of the communist era: excessive bureaucratic regulation, massive illegal markets. The government officials themselves are the beneficiaries of the underworld, which was very different from the case of the early US.

Corruption Surveys

A different dimension of the corruption phenomenon in Russia is the one that takes place in the daily life. A very interesting survey done by **INDEM** (Information Science for Democracy) involves personal interviews with several business leaders in Russia in late 1999-early 2000, to investigate the nature and the extent of corruption. (INDEM was founded in October 1997, and its purpose is to promote the emergence and development of democratic institutions in Russia.)

According to the study "Diagnosing Corruption in Russia: A Sociological Analysis" (Russian Social Science Review, Vol. 46, no.1, January-February 2005. pp 19-

36) the top seven corrupt departments are export licenses and quotas, budget transfers, tax offsets, servicing of budget accounts, barter and in kind debt payments, privatization, taxes and customs fees, and the banking sphere. They reported that the subsidized regions have the highest level of corruption, whereas the scale of corruption deals is bigger in the wealthy regions, especially those regions where export component is greater.

Corruption creates a direct (financial) loss and indirect loss. The direct loss, in the form of exporting the capital by corrupt means is estimated $20 to $25 billion per year. Losses due to flaws in the tax system add up to about 25 percent of the GDP, and bribe payments to the government officials are estimated to add up to 10% of the value of the deal. The indirect losses relate to the destruction of the state apparatus and law enforcement system, which in turn brings obstacles to the normal functioning of market economy, and economic growth. Corruption makes investment risky, and adds extra uncertainty to the financial environment. The social effects can be listed as the deteriorating of the daily lives of the citizens, widening of income gap, and emergence of social tension. Another indirect loss is in the form of political costs. The lack of trust makes political life unstable, and this poses a threat to democracy.

The INDEM interviews have defined and summarized the situations of interaction between citizens and government authorities where there is a risk of getting into a corrupt deal. According to their study, corruption is seen most in the dealings with traffic police, where 59.3% of all interactions involve corruption. Enrolling in a higher education institution, and transferring to another institution involves corrupt means 36% of the time; solving a problem related to military service: 32.6%; obtaining legal right to housing:28.9%; getting an operation or treatment in hospital:25.8%; registration/passport or permission to get weapons: 19.7%; acquiring a plot of land: 14.9%; obtaining free medical help in a polyclinic: 22.2%

In the similar spirit, another very interesting study to mention is the one called " 'Foolish to Give and Yet More Foolish Not to Take'. In-Depth Interviews with Post-Communist Citizens on Their Everyday Use of Bribes and Contacts" by Ase B. Grodeland, Tatyana Y. Koshechkina, and William L. Miller. (Europe-Asia Studies, Vol. 50, No. 4, Jun 1998, pp 651-677)

Mafia/ Oligarchs

The two main power groups that dominate the Russian business and political decision-making are the clans and the oligarchs. The former Soviet elite, **nomenklatura,** have benefited for years from the privatizations of the state assets and the reforms under Gorbachev. They used these advantages to get rich very fast. Today the clans operate on all levels of the Russian society.

Besides the clans there are a number of powerful men, called oligarchs. The 'loans for share' program gave rise to the term "**oligarchs**" to refer to the small group of bankers and industrialists who received billions of state assets in exchange for help in re-electing President Yeltsin. After 1998 the term 'oligarch' was generally adopted and soon gained an equivalent meaning to the popular term "Mafia". They have power in financial areas such as banks; in media, such as television companies, newspapers and publishing houses; in industrial areas such as oil, gas and metals. They also have political connections with the leaders of the country. They can finance election campaigns and in return they can get some benefits like licenses for their commercial activities, or access to communication and energy by privatization.

The might of oligarchs surely has an exaggeration in it, but nevertheless it has some truth. By the end of 1980s a business class emerged in Russia, which were notorious for their close ties with the government; even to the point of influencing the politicians. The idea of the self-image of Russian tycoons as 'politicians' (or as 'designers of politics') is expressed in the work by Hans-Henning Schroder, and Claudia Bell "El'tsin and the Oligarchs: The Role of Financial Groups in Russian Politics between 1993 and July 1998". [Europe-Asia Studies, Vol. 51, No. 6 (Sep., 1999), 957-988]

There is now a widely held agreement that the Russian Mafia is a continuance of the informal economy and related corruption that was a significant part of the economy of the Soviet Union. The paper by Annelise Anderson (1995) presents a deeper discussion of Russian mafia. There are certain characteristics that should be met by a group to be called 'mafia'. A gang that robs banks is not a mafia, although organized, Anderson states.

The crucial distinction between an ordinary robber gang and mafia lies in the ability of mafia to perform governmental functions, law enforcement and criminal justice (in spheres where legal judicial system refuses to exercise power/ or unable to do so.) Another characteristic of mafia is: their influence in the legal law enforcement. (bribing the police, courts…etc). She writes down the 3 historical conditions that lead to the development of mafias, as an answer to the general question "Why do mafias develop?"

1. Abdication of legitimate government power. (Possibly encouraged by population's rejection of governmental authority) e.g. Sicily
2. Excessive bureaucratic power.
3. Financial potential of illegal markets. (In US prohibition years: alcohol)

2 and 3 were characteristic of Soviet Union before break-up. Shortages of consumer goods provided the opportunity for additional income.

Russian mafia has been considered as different from the classic mafias of US and Italy, in that the execution of violence was not done by the underworld leaders, but by those in positions of government. The government officials themselves competed for the monopoly rents, not the underground operators. Usually the government took no step toward the punishment of the criminal activities of a local mafia upon the complaints by the citizens. Since mafia and the government were almost indistinguishable from each other, exposure of their crimes often brought about a chance for the mafia to attack on those who have complained. "*Government knows exactly who is dealing with what. Arrests are made only when there is larger political reason*."(O'Hearn 1980, 219)

Authorities saw no need to provide cooperatives with protection (mid 80s when they were permitted) As one former police officer said "…*we were all taught to regard private property as somehow illegitimate. Police stayed away. When these cooperatives were threatened by black-marketeers, they had no choice but to go along*." (Handelman 1993, 30)

How did the oligarchs get rich?

From several studies done by Anders Aslund, the director of the Russian and Eurasian Program in the Carnegie Endowment for International Peace, it can be deduced that there were 3 major ways that the entrepreneurs in the immediate aftermath of the collapse of the Soviet Union made their fortune, and came to be called the "oligarchs",

The first way was selling/or trading raw materials (including oil) at below market prices. The raw materials were then sold in the West at market prices, and the individuals pocketed the difference.

> *In the spring of 1992 the state price of oil was 1 percent of the world market price; the domestic prices of other commodities were about 10 percent of world prices. Managers of state companies bought oil, metals, and other commodities from the state enterprises they controlled on their private accounts, acquired export licenses and quotas from corrupt officials, arranged political protection for themselves, and then sold the commodities abroad at world prices. Their gains can be calculated easily by multiplying the average price differential by the volume of commodities exported and deducting export taxes. The total export rents were no less than $24 billion in the peak year of 1992, or 30 percent of GDP, since the exchange rate was very low that year. The resulting private revenues were accumulated abroad, which led to massive capital flight.* (Anders Aslund with Martha Brill Olcott, eds., Russia after Communism, Carnegie Endowment for International Peace, Washington, D.C., 1999; with Martha

Brill Olcott, "Introduction", pp. xv-xxiii; with Mikhail Dmitriev, "Economic Reform versus Rent Seeking, pp. 91-130.)

Secondly, borrowing money from the Central Bank of Russia constituted a means to get rich for many bankers. The Central Bank gave credits as a favor to well-connected businessmen, which amounted to 32% of the GDP in 1992. (Aslund, 1999) The bankers' argument, on the other hand, was that the credits were "Keynesian", that is, it would help the demand and supply of industrial production to expand.

The third way of making an enormous fortune in the transition period was taking advantage of the import subsidies for food from Western humanitarian organizations that are designed to help alleviate the ongoing threat of famine across Russia. (1991-1992) The subsidies allowed the importer to pay only 1% of the current exchange rate when he purchased essential food items. After importing them, the importer sold the foods relatively freely on the domestic market and pocketed the subsidy for herself.

III. Literature

Theory of Rent Seeking

Economists have studied rent seeking for decades. The brief definition of rent seeking is the procedure of spending resources by individuals or groups in order to obtain benefits in the form of monetary or political gains. In the literature so far, there are three broad categories of viewing "rent seeking". (Hartle, 1983)

The first point of view emphasizes the loss of resources when parties compete with each other during the rent seeking process. Bhagwati (1982) can be cited as an example, as he invented the term DUP (Directly Unproductive) Activities to describe rent seeking.

Secondly, rent seeking can be seen as the relationships between government and interest groups, government being another rationally self-interested agent. The seminal work of Stigler (1971) "The Theory of Economic Regulation" explains that regulation is beneficial to the industries; therefore industries seek to receive governmental regulations. It is the first paper to picture the government as a utility maximizing body. His main point is "as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit" (Stigler, 1971). He is the first author who talks about demand and supply of government regulation, therefore pioneered the study of the field called (after his 1971 paper) "economic theory of regulation". Stigler listed four main policies, which an industry (or occupation) that has enough power will seek of the government.

- Direct subsidy.
- Control over entry by new rivals.
- Policies that affect the substitute or complement industries.
- Policies that involve price controls by law.

Along this line, some other influential works can be mentioned, too: Mancur Olson (1965) in his "The Logic of Collective Action" portrays the government and interest groups similarly, by expressing the ways in which interest groups organize efficiently in order to get the desired regulation from government. Peltzman (1976) "Toward a More General Theory of Regulation" generalizes Stigler's point, and shows regulation as an outcome of the competition between interest groups. Many economists later on adopted the idea of competition between interest groups. (e.g. Becker (1983) “A Theory of Competition Among Pressure Groups for Political Influence”)

The third way of viewing rent seeking is as a game between rational, utility maximizing agents. The use of game theory in explaining economic and social, and institutional changes is gaining increasing emphasis in the literature. Among the significant works, Acemoglu- Robinson (1999, 2000); Vishny- Shleifer (1994) “Politicians and Firms” can be mentioned.

Literature on Corruption

In the literature a very common approach to analyze corruption has been through incorporating rent seeking into the models of endogenous growth. Ehrlich and Lui (1999), and Barreto (2000) can be cited as the most formal studies of corruption, which are done in endogenous growth context.

Barreto (2000) uses Barro’s (1990) growth model. Barreto models the government as a monopoly supplier of a public good. The government agents take illegal advantage of their position by extracting rents, but are constrained by the possibility of being caught in the act of corruption and punished. The underlying assumption is common with Stigler (1971), which is “self seeking government”. Barreto states that the existence of the monopoly position of the public sector generates lower growth rates and sub-optimal levels of income.

Ehrlich and Lui (1999), in their endogenous growth model, where the investment in human capital is the engine of growth, show the corruption as the inevitable aspect of government intervention in economy. They define another type of capital, which they call "political capital" which has no beneficial effects on productive capacity; as opposed to human capital, which generates growth. Their interpretation of the rent-seeking activities as "investment in political capital" brilliantly introduces corruption into the formal endogenous growth model. Balanced growth, in their model, means the balancing of the accumulation of human capital and political capital. They analyze the cases of homogenous agents versus heterogeneous agents who have different endowments and investment strategies. The homogenous agents each of whom is both worker and bureaucrat have two choices of actions: investing in either Human Capital (which is productive) or in Political Capital (which is not productive-hence called rent-seeking). It is a multiple equilibrium model, which brings about 3 equilibria: Low-level stagnant equilibrium (poverty trap); Stagnant "development" equilibrium (unstable); and Persistent "growth" equilibrium. Investment in political capital is found to be highest in Low-level stagnant equilibrium, and moderate in stagnant "development" equilibrium, and lowest in persistent "growth" equilibrium. Investment in human capital is ranked just the reverse. (Highest in the persistent "growth" equilibrium, etc.) This finding supports the idea that corruption is high in less developed countries and low in more developed countries. Next issue that is addressed in Ehrlich Lui (1999) paper is the role of government intervention. Some exogenous changes in the government size are given and the results are analyzed. Increased government intervention is found to be lowering the short run level and long run rate of growth of per capita income in the "growth" equilibrium; and lowering the level of per capita income in the stagnant equilibrium.

Vito Tanzi studies the link between public investment and corruption (Tanzi, 1997) and finds a positive relationship among them. The connection between trade, openness, and rent seeking has an important share in the trade literature. Starting with Krueger (1974) and Bhagwati (1982), many economists have argued that barriers to trade increase rent seeking. Grossman and Helpman (1994) look at the lobbying aspect of interest groups when it comes to the choice of trade policies.

A recent paper by Mohtadi, Roe and Polasky (2004) is using the Krueger idea of openness to trade and a model that is borrowed from Romer; and presenting the signaling game between agents. The existence of the protected intermediate sector creates monopoly rents, hence possibility of corruption, in a somewhat similar fashion to Barreto (2000) where monopoly rents represent corruption, and result in slower growth and sub-optimal levels of income; and also in that the agents are limited in their pursuits of capturing all the rent through the risk of getting caught and the punishment.

Dynamic models, among which Dixit, Grossman, and Gul (2000); Ellis and Fender (2003) can be mentioned, capture the time element and the temporality of the government positions. The main idea is that the individuals who are in power today decide on the distributional and ideological issues, but once others replace them, the newcomers reverse what has been done so far, according to their own interests. But there can be mutual benefit from intertemporal smoothing. Each ruling party is willing to compromise if it could trust the other. A dynamic game is introduced and studied.

"Corruption and Transparency in a Growth Model" by Christopher J. Ellis and John Fender (2003) is another paper where, and corruption is an inevitable part of the economy. Their claim is that there exists an "irreducible" level of endogenously determined corruption, which constitutes rents for which potential governments compete. Ellis and Fender use dynamic optimization techniques in a Ramsey type model of economic growth, in which public capital is the engine of growth. Public capital is a public good that is financed by taxes on private output. Government can do two things with the taxes it collects: It can either use the taxes to fund public capital (hence contribute to economic growth) or consume the taxes, which in other words can be called as "corruption". Governments choose the time path for public capital investment. The model's steady state and dynamical behavior along the saddle path are the main subjects of their paper.

An alternative (perhaps, rather than alternative, we should call it "pure") way of viewing corruption is through addressing the role of government and the room for corruption during the process of correcting the market failures. Therefore, corruption, as different from being inherent in the economy through a totally self-interested government or monopoly rents, may come from the abuse of positions by the government officials for private benefit Shleifer and Vishny (1993); Acemoglu and Verdier (2000).

According to Acemoglu and Verdier (2000) government intervention, which originates from market failures, transfers resources from one party to another. This creates incentives for corrupt behavior. Government tries to correct the market failures, but the moment it steps into the economy, some degree of corruption is certainly introduced. This is referred to as the "unavoidable price of dealing with market failures". Government intervention has two instruments: the number of bureaucrats and their wages. When there is a large number of bureaucrats, there is a small punishment for being caught in the action of taking bribes (corruption), the amount of corruption is less.

But on the other hand when the number of bureaucrats are little, there is more room for corrupt behavior, and there is greater punishment accordingly.

The concept of shadow economy has links to rent seeking and corruption. Ekaterina Vostroknutova, and Acemoglu model the rent seeking as coexisting with production in an economy where the agents try to allocate their resources between productive and unproductive activities depending on their payoffs. Corruption is seen as an unproductive activity. In Vostroknutova (2003) the producer is able to hide part of his output from bribery and taxation; and that constitutes a “shadow economy”. The presence of a shadow sector has different implications for different countries, depending on their level of rent seeking. Vostroknutova gives a special emphasis to the former socialist economies, because the kinds of problems that arise with corruption are most evidently seen in those countries. The common problems of those economies are mainly associated with transition to a market economy: lack of established property rights, legacy of rent seeking, lack of applying the rule of law, hence the strengthening of mafia and finally corruption. Multiple equilibria arise. In the end the introduction of a shadow sector eliminates the “bad” equilibrium, and makes the system converge to a path with low level of rent seeking. Policies to reduce the size of the shadow economy are shown to vary in their impacts, which depend on the level of corruption. For low corruption levels, these policies work better, but for corrupt economies the result is a decrease in the production levels and increase in corruption.

Shleifer and Vishny (1993) focus on **principal agent model of corruption**, where the principal is the top level of government; and the agent is an official who takes bribe from individuals who are interested in government produced good, in exchange for illegal action. But political competition opens up the government, increases transparency, and therefore reduces corruption. In their model government-produced good can be passport/ or import license; and the officer might commit corruption in two alternative ways: with theft or without theft.

1. With theft: Government official takes money in exchange for reducing the payments, such as taxes or tariffs, which the briber owes to the government.
2. Without theft: Government official takes additional money in exchange for giving the briber the goods such as permits, to which he is entitled without the bribe.

Corruption without theft raises costs; corruption with theft reduces costs (spreads with competition). Their two broad reasons why corruption may be costly to economic development: The first reason is that corruption implies a weak central government, which makes it easier for government officials of various ranks to impose independent bribes on individuals. That in turn makes investment very difficult. For example, if a foreigner wanted to invest in Russia, he had to bribe every agent. The second reason is that corruption distorts the country's investment from health and education to "potentially useless projects" (like defense or infrastructure) if the agents find better opportunities for receiving bribes.

Shleifer and Vishny (1994) also describe a model of bargaining between politicians and managers, which enables us to analyze political influence on firms. The model is a 3-player game between the public, the politicians and the enterprise managers, with an emphasis on the role of transfers between the public and the private sectors, including subsidies to enterprises and bribes to politicians. The exciting part about their model is that rather than distinguishing sharply between public vs. private firms, they assume that a fraction α of firm's cash flow is owned by manager, and (1-α) owned by Treasury. (For a private firm, α is close to 1, for a public firm α is close to 0) α as continuous variable,

In the game proposed by Shleifer and Vishny (1994) the politician derives some political benefit from the extra employment, therefore wants the firm to employ some extra labor, L. To persuade the manager to hire L, politician can subsidize the firm (transfer the amount t from Treasury to the firm). Their main points are that privatization of cash flows encourages restructuring when the government is limited in subsidizing profitable firms with rich private shareholders. (implies that potentially profitable firms are best candidates for privatization); and privatization is more likely to be implemented when the reformers want to restrict government spending and cannot obtain large political benefits from public firms.

IV. The Model

Keeping in the background the Russian oil companies story, in this model there are 2 identical oil-producing firms: one owned by the state, and the other private (owned by the so-called 'oligarch'). The revenue of the state firm directly goes to the government's budget, and the government controls its actions; therefore it can be considered as indistinguishable from the "government". The revenue of the state firm is referred to as "government's revenue" for simplicity. The output, X, (oil) is produced according to identical production functions by the two firms.

The study by Hamid Mohtadi, Stephen Polasky, and Terry Roe (December 2004, AEA Conference) adopts a signaling game approach to study the role of trade in an economy. In their model there is a domestic competitive final goods sector (Y) and a protected, monopolistic intermediate goods sector (X), which can be called a trade sector. The trade sector receives protection from the government and thus generates monopoly rents. Such rents are thought to be the source of corruption. If government opens this sector to trade, then monopoly privileges disappear, and thus there will be no more corruption possibilities arising from being monopoly. But the trade sector offers some portion of these monopoly rents as bribe to the government, in exchange for government's protection. Government in turn, can be of two types: honest or corrupt.

In this paper, however, government is itself a player, and there's no doubt that government is interested in corruption (i.e. a self-interested agent, which tries to maximize its utility by weighing the costs and returns of different actions, whether be called 'corrupt' or not.)

In the transition economy, since the government can still exercise a substantial degree of arbitrary decision making, we are assuming that the government can decide to let the private firm operate, or not. On the other hand, the new market economy needs loans from the international organizations in order to undertake investments. The international institutions give the loans on the basis of the country's credibility; i.e. not being corrupt, following the principles of free market economy, privatizing a reasonable amount of state owned facilities…etc. In making the decision of letting or not letting the private firm to operate, the government is calculating the emergence of a potential "rival" versus the risk of losing its 'credibility' in the international community.

The Government (The State Firm)

Government has two choices of actions:

-Letting the private firm operate (L for "Let"), or

-Not letting it operate (D, for "Don't Let"), by accusing it of being corrupt.

Government can allow a private oil company to exist, provided that the firm supplies him with an adequate amount of bribe. In this case, there is a risk of being caught while taking bribe and being punished. The punishment is in the form of a huge political scandal, also resulting in the loss of the loans that are being received by the country from the international economic organizations.

But, shutting down the private firm is also as difficult. In this case the government starts a campaign to "fight against corruption", and accuses the firm of being corrupt. By using the "fight against corruption" argument, the government hopes to legitimize its confiscation of the private firm, without being viewed by the international community as "violating the market economy principles". Nevertheless, there is no certainty regarding this outcome. There is always a risk of a cut of loans, and a punishment for abusing the state power and arbitrarily seizing a private property.

The Oligarch (The Private Firm)

The oligarch on the other hand, can be of two types, which are unknown to the government:

-Strong (S) or

-Weak (W) (The type is unknown to the government)

The Strong Type of oligarch, in the case of any injustice done against itself by the government, can consult international judicial bodies, and make the case known widely. This would result in the punishment of the government and the consequent loss of the loans. The Weak Type of oligarch, in contrast, cannot complain to the international courts. (It either lacks the financial means, or skills, or both, to do so) Therefore upon confiscating the weak firm, the government still keeps being "credible" and at the same time enjoys the doubling of its revenues.

One Period Game, Passive Oligarch

In the trivial one period setting the government is the only actor who responds to the amount of bribe that is offered by the oligarch; and the oligarch is passive since she cannot act after the government makes the decision. Simply, the game ends. In that case, what makes the government decide to "let" or "not to let" the private firm to operate is the amount of bribe that is offered.

The utility function of the government is:

$$U_G = kX + \alpha b + \beta \Lambda - \delta C - \gamma \mathrm{M}$$

where

X: the amount of output produced by a firm

k captures the decision of government to allow or not to allow the private firm to operate.

$$k = \begin{cases} 1 & , if \ the \ government \ allows \ the \ private \ firm \ to \ operate \\ 2 & , otherwise \end{cases}$$

b: the amount of bribe the government collects from the private firm in exchange for granting her the right to operate.

$$\alpha = \begin{cases} 1 & ,\text{if the government allows the private firm to operate} \\ 0 & ,\text{otherwise} \end{cases}$$

Λ: the loan that the government receives from international economic organizations to help ease the burden of transition.

$$\beta = \begin{cases} 1 & ,\text{if the oligarch is strong type} \\ 0 < \beta < 1 & ,\text{if the oligarch is weak type} \end{cases}$$

C: the punishment to the government for getting caught while engaging in corruption (taking bribe from the private firm).

$$\delta = \begin{cases} 0 < \delta < 1, & \text{if government allows the private firm to operate} \\ 0 & , \text{otherwise} \end{cases}$$

M: the punishment to the government for anti-democratic behavior in the case of not allowing private firms to operate.

$$\gamma = \begin{cases} 0 & ,\text{if the government allows the private firm to operate} \\ 0 < \gamma < 1 & ,\text{otherwise} \end{cases}$$

Therefore the payoffs of the government conditional on the different types of oligarch could be summarized as

$$\begin{aligned} &Let, S &&: X + b + \beta\Lambda - \delta C \\ &Let, W &&: X + b + \Lambda - \delta C \\ &Don't\ let, S &&: 2X + \beta\Lambda - \gamma M \\ &Don't\ let, W &&: 2X + \Lambda - \gamma M \end{aligned}$$

Therefore, when faced with the strong type, the government chooses to “Let” if :

$$b - \delta C \geq X - \gamma M$$
$$b \geq X + \delta C - \gamma M$$

.And when faced with the weak type, the government chooses to "Let" if:

$$b \geq X + \delta C - \gamma M$$

Thus, the government allows the private firm to operate provided that a threshold level of bribe, b*, is met.

The Signaling Game

This model is highly inspired by Acemoglu and Robinson (2000).

Nature chooses the type of the oligarch from the set $T = \{S, W\}$,with the probabilities p^S for strong type (S) and p^W for the weak type (W). $\sum p^t = 1$, $where\ \ t = S, W$ The government does not know the types.

The informed party (the oligarch) moves first, and offers a bribe amount, thus signals its type. Government, upon observing the bribe amount, decides to take one of the following actions from the action set $A = \{L, D\}$(To let him operate, L, or do not let, D). The posterior beliefs of the government regarding the type (t) of the oligarch, as a function of the bribe is $\pi^t(b)$ with $\sum \pi^t(b) = 1$ for all levels of bribe.

After observing the actions of the government, L or D, the oligarch decides to fight back or not. She chooses one of the actions from her action set F = {F, DF}. Fighting back means carrying the case to the international courts, and blaming the government of being unlawful, either because of taking bribe (if government chooses L), or because of acting in an antidemocratic fashion (if government chooses D).

If the oligarch fights back, the payoff that the government gets depends on the type of the oligarch (S or W).

If the strong type (S) decides to fight back, she always wins without cost. Fighting back is costly for the weak type (W), by a lump-sum amount of Γ^L, if the government chooses L, or with the cost of Γ^D, if the government chooses D. ($\Gamma^L < \Gamma^D$ assuming that the lawsuit will not be as big in the case of government action L, as compared to the case of the government action D)

In the case of fighting back, the government nevertheless loses some credibility, i.e. the very fact that a lawsuit has been pursued against the government casts some suspicion and distaste, therefore the international organizations cut the loans. ($\Lambda = 0$)

The punishment against corruption is more likely to be realized if the oligarch is a strong type (The probability of detection of the bribe is higher: $\delta^S > \delta^W$), in the case of Fighting back; whereas it doesn't matter in the case of No Fighting back. δ is then the same across types.

If the oligarch doesn't fight back in the next step after observing the government's action L, or D, then simply the amount of bribe determines the fate of the oligarch. In order not to end up with zero (action D) the oligarch offers a high enough bribe and receive the payoff of $X - b$,

Summary

The sequence of the events could be summarized as follows:

- Nature chooses the type of oligarch from T = {S, W} (Type not observed by the government).
- Oligarch offers bribe, b.
- Government observes the bribe, and updates her belief regarding the type. Government chooses the action 'Let' or 'Do not Let', from A ={L, D}
- Oligarch chooses to "Fight back" or "Do not Fight back" from the set F = {F, DF}
- Payoffs are realized.

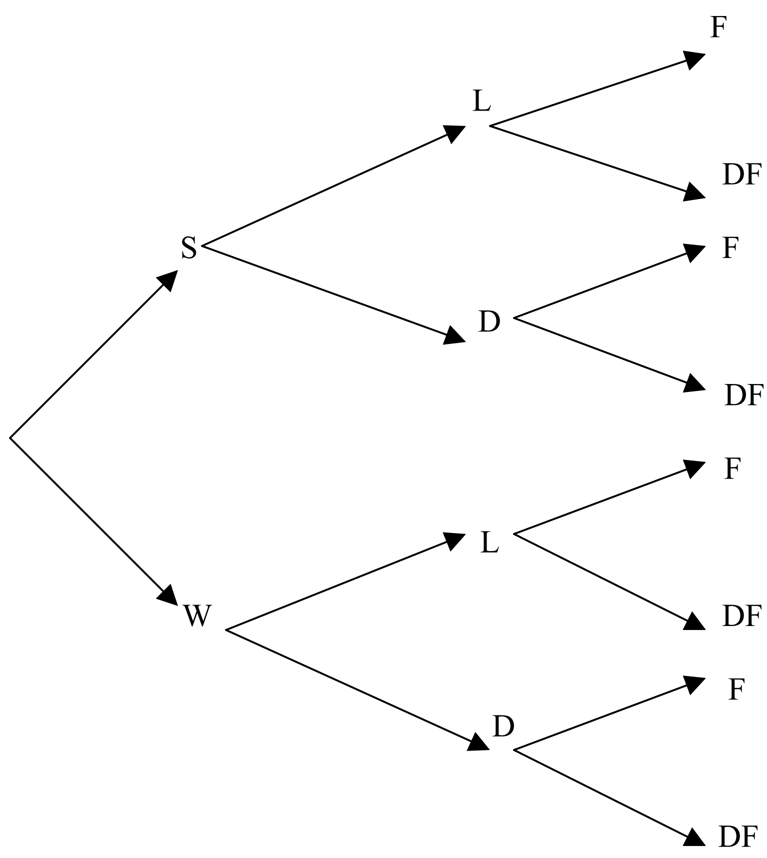

Table 1 shows the payoffs to the government and the oligarch in the upper and the lower rows, respectively.

	Oligarch fights back		Oligarch doesn't fight back	
	S	W	S	W
Let	$X+b+\pi^S(b)[-\delta^S C]+(1-\pi^S(b))[-\delta^W C]$		$X+b+\beta\Lambda-\delta C$	
	$X-b$	$X-b-\Gamma^L$	$X-b$	$X-b$
Don't let	$\pi^S(b)[X-M]+(1-\pi^S(b))[2X-\gamma M]$		$2X+\beta\Lambda-\gamma M$	$2X+\Lambda-\gamma M$
	X	$-\Gamma^D$	0	0

Table 1

$L,S,F \quad X+b+\pi^S(b)[-\delta^S C]$

$L,S,DF \quad X+b+\beta\Lambda-\delta C$

$L,W,F \quad X+b+(1-\pi^S(b))[-\delta^W C]$

$L,W,DF \quad X+b+\beta\Lambda-\delta C$

$D,S,F, \quad \pi^S(b)[X-M]$

$D,S,DF \quad 2X+\beta\Lambda-\gamma M$

$D,W,F \quad (1-\pi^S(b))[2X-\gamma M]$

$D,W,DF \quad 2X+\Lambda-\gamma M$

The government is clearly better off in the case that the oligarchs do not fight back, regardless of the type of the oligarch, S or W.

The aim of the paper is to show the perfect Bayesian equilibria of this game. Having introduced the fact that the bribe can be used as a signal by the oligarch to distinguish herself from the other types, we will attempt to model the cases of identical and different bribe amounts, therefore the pooling and separating equilibria.

Conclusion

The transition economies have been characterized by high levels of corruption. Therefore, the first step in attempting a solution to the problems faced by the post Soviet type of economies is to understand the phenomenon of corruption. There has developed a vast amount of literature on the subject matter, and one aim of this paper is to review and organize that literature.

In this paper corruption is viewed no differently than maximizing one's own welfare, and the key to solving corruption is through removing the incentives that lead to corrupt acts. The governments in the transition economies, however, are of special interest; since they can exercise arbitrary actions of shutting down private firms, violate the rule of law, etc., at a very little or no cost, contrary to the governments in the developed market economies.

The example of the current tension between the Russian government and oligarchs sets forth a different dimension to the corruption phenomenon. The authoritarian-inclined governments of the transition economies can use the weapon of "fight against corruption" to masquerade their intentions of restoring their state monopolies by taking over the private firms.

The model presented in this paper is just a proposal, and will be developed to offer meaningful propositions, which could shed light to the game that has implicitly been played between the Russian government and the oligarchs. This might contribute to the ongoing efforts to analyze and solve the problems faced by all of the transition economies.

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