

ECONOMICS OF CORRUPTION IN ENGINEERING

Simran Khurana, Angad Kataria
*Student, Department Of Information Technology
Dronacharya College Of Engineering, Gurgaon*

Abstract- In this paper, we focus on the economic research of corruption. In the first part, we define corruption, types of corruption, its factors and ways to measure it. This section brings together various definitions by notable authors of this domain, such as Begovic, Tanzi, Mauro or Lambsdorff. Before moving to the second section, we are presenting definitions, typologies and factors already researched by acclaimed authors. In the second part, we focus on the channels by which corruption transmits its effects through the economy. This section consists of two major sub-parts, the first one in which we take part in a vivid scientific discussion with the ‘‘apologists’’ of corruption, i.e. with those economists who underline positive roles of corruption. In the second sub-part of the second section, as a logic continuation of the previous sub-part, we are listing three important consequences of rampant corruption in one economy: consequences to economic growth, foreign direct investments and economic efficiency. Major contribution of this paper is compilation of significant scientific discoveries in the area, as well as bringing new arguments in the discussion on the economic consequences of corruption. The paper uses traditional approach of the New institutional economics (NIE), by underlining the importance of governance, transaction costs and rent seeking.

I. INTRODUCTION

Corruption has become one of the major economic issues of our time, up to the point where we consider this phenomenon as one of the most important obstacles to the development. However, the economic research of corruption is relatively new. It is only in the Susan Rose Ackerman’s article ‘‘Economics of corruption’’ that corruption has become a subject of one serious economic work. Ackerman’s work cannot be fully comprehended out of the scientific framework set up by the school of public choice and Gary Becker. This economist has shed light on the problem in his famous 1968 article ‘‘Crime and Punishment’’. He has focused a special economic interest on one form of crime, i.e., on corruption; by modeling the

costs of the crime and costs of the penal system for one society.

Corruption itself does not belong only to the economic domain. This problem can also be approached from the aspects of law, criminology, sociology, and other sciences. However, we research corruption on the grounds of the economic methodology. As an economic problem, corruption can be researched on two levels: macroeconomic (for instance what is the role of corruption within one economy) and microeconomic (for example, what are the incentives for one economic agent to take part in one corruptive activity). Our methodology has mostly a macroeconomic optic of this problem, because we want to see the concrete consequences of corruption for one economy.

For these reasons, we will ask the following questions: what is corruption? Can we approach this problem by using strictly the economic methodology? Which agents take part in a corruptive activity? What is the role of the state? Why and how is corruption embedded in one economic system? Which are the economic consequences of corruption? In order to give an adequate answer to these questions, we are going to present a paper divided on two sections, which will be divided on several sub-sections further on. In the first section, we will present the definitions, factors, typology and different measures of corruption. In this part we wish to describe *what* corruption is *per se*, which factors contribute to its development, what kinds of corruption there are, and how are we able to measure this problem. In contrast with the first chapter, in the second section we try to answer how does corruption affect one economy, how does it transmit its effects, and does it have only negative, or maybe some positive aspects too? We believe that these two sections are deeply complementary, whereas the first one tries to describe corruption, and the second tries to situate it inside an economic context. In the both sections,

we will heavily rely on the contemporary literature and econometric findings.

II. DEFINITIONS, FACTORS, TYPOLOGY AND MEASUREMENT OF CORRUPTION

2.1 Definition of corruption

What is corruption? Is it a cultural phenomenon or not? Can corruption be understood by every human being the same way? As Rose Ackerman (2004) puts it, corruption is a term whose meaning shifts with the speaker. So how can we use the economic methodology in a domain where not all of the economic agents are ready to cooperate, because of the fact that their activities are condemnable by the society?

Historically, it was considered that corruption is a phenomenon of the corrosion of the social material. This means that it was a question of morality. As moral is too vague of a concept, we have to search for another, more stable definition. For example, Begović (2007, p. 51) offers a very elegant solution. According to Begović, corruption can be defined as a behavior that spreads away from a certain norm; whereas the norm is defined as a set of legislative, public interest or public opinion criteria. This elegant solution has at least two major problems. First, there is an institutional problem: there are different judicial interpretations of corruption, which treats the notion of corruption the different way. A problem linked with this one is that the law system is a human – built, social system. This means that it is prone to promulgation of certain laws that are not favorable in diminishing corruption, but on the contrary, they aggravate it. Secondly, corruption can not be approached only from the judicial point of view. There has to be more sociological and economical explanations.

A more comprehensive definition is proposed by Tanzi (1998). Corruption, according to Tanzi (1998, pp. 6-7), exists if there is an intentional violation of the principle of impartiality in the process of the decision making in order to appropriate a benefice. Tanzi also adds that corruption is an abuse of the public power for private benefits. We shall underline five important implications drawn from these definitions

1. Principle of impartiality – interpersonal relations should not have any importance in the decision making process. Any other behavior raises doubts of corruptive activities.

2. Differentiation of corruption from other forms of abuse – corruption is not extortion or fraud, stricto sensu. There has to be two sides in consent for a corruptive activity to take place.

3. Corruption is not only a public sector phenomenon – it exists also in private organizations

4. Not every corruptive activity is connected to bribe – the benefit does not always have to be material. Bribe is only a specific form of a corruptive ``tax``

5. Corruption is a transaction – between the corruptor and the corrupted

2.2 Factors of corruption

As for the definition, there is a number of typologies of corruption. We are going in this section to present some of the most important.

Begović (2007, pp. 135) proposes the following factors:

1. Rents
2. Size of the state
3. Incitation to the public functionaries
4. Pressure from the civic society
5. Extent of democracy
6. Culture and tradition
7. Economic (in) equality

Johan Graf Lambsdorff (2005a, p.14) proposes a similar typology:

1. Size of the state and decentralization
2. Institutional quality[
3. Competition
4. Liberty of the medias
5. Extent of democracy
6. Culture and tradition
7. Other variables
 - 7.1 Colonialism effect
 - 7.2 Natural resources effect
 - 7.3 Corruption in the neighboring countries
 - 7.4 Percentage of the women in the public institutions

Jean Cartier Bresson (2008, p. 63) proposes this typology:

1. Economic causes
 - 1.1 Information asymmetry
 - 1.2 Extent of discretionary power
 - 1.3 Rent seeking

- 2. Political causes
 - 2.1 Transparency of the funding of the political parties
 - Low paid politicians
 - 2.3 Clientelism
 - 2.4 Neo-corporatism
 - 2.5 Extent of the democracy
 - 2.6 Extent of centralization
- 3. Administrative causes
 - 3.1 Bureaucratic market
 - 3.2 Poverty and inequality
 - 3.3 Public approval of corruption

Mauro (1997) focuses on the size of the state and those government politics that provoke rent seeking activities. For example, according to Mauro, if the regulations are omni-present and if the functionaries have a large set of discretionary powers in hands, the economic agents will be incited to offer them bribes so they might obtain certain rents. If the regulations are too complicated, the absence of transparency and the rents coming out of government politics, represent a trigger factor of corruption. When it comes to the rent seeking, Mauro shows the origins of this phenomenon. The first origin is the commercial barriers. For instance, these barriers might take the form of the quantitative restrictions of the imports, under pretext of protection of domestic businesses. In his article (1997) Mauro shows a statistically significant relation between the level of openness and corruption. Some other sources of rents might be subventions, price control systems, even fixed exchange rates in some extremely corruption ridden economies. Mauro also stipulates that certain economies might suffer from corruption if they are rich in natural resources and poor in terms of institutional quality. Finally, Mauro underlines the importance of the sociological factors, such as the ethnic or linguistic fragmentation of a country. This might be an important source of clientelism, particularly in those countries that have weak democratic and regulatory institutions.

Finally, Tanzi proposes this typology:

- 1. Regulations
- 2. Taxation
- 3. Public expenditures
- 4. Public procurement at prices different from market ones

- 5. Political parties financing (transparence and regulation)
- 6. Indirect factors
 - 6.1 Quality of bureaucracy
 - 6.2 Salary level

1. Corruption with collusion – where there is an agreement between the corruptive parties. Whilst the first type of corruption is effectively extortion, corruption with collusion represents a voluntary pact.

2. Centralized vs. decentralized corruption – where the difference between the two represents the hierarchical level of a corruptive person or a group. For example, a highly centralized corruption is where the president and clique, make ask for “voluntary contributions” from the economic agents of some particular country. The decentralized corruption is the most common one – for instance the one that appears in various government, health or education institutions.

3. Administrative corruption vs. the state capture – difference between the two is situated at the level of institutional regulations. According to Begović (2007, p. 99), the administrative corruption is linked to the execution of certain rules. Put simply – whilst the rules of the game rest intact, their application is altered. The state capture is where the rules of the game are changed in order to be more convenient for one or various economic agents that have influenced this particular change. Needless to say; the latter type is difficult to detect and to determine its particular scope, because it tends to embed into the economic and political system

III. INEFFICIENCE OF THE INSTITUTIONS AND CORRUPTION. Influence of corruption on the economy

3.1 Is corruption tonic or toxic?

Many authors like Cazorra (2008) claim that corruption may be positive for the economy. In the academic circles, especially in the 80's, some economists have been comparing corruption to a lubricant that makes the “economic wheels” turning around. In this paper we will present the main arguments of the apologists of corruption, and afterwards we will try to refute them.

The first apologist argument (A): if the regulations aren't optimal or are inefficient, corruption helps to escape from its application. In the post-socialist economies, corruption had the deregulation role. In

this way, the barriers for market entry were neutralized, which allowed stronger competition. Nevertheless, we think that this argument does not hold, because of three reasons: 1) costs, 2) integrity of public policies, 3) incitation to the bureaucrats to complicate the regulations further on.

As for the costs, we make difference between two types of imposed costs. First of all, by bribing the bureaucrats, the economic agents are paying for obtaining a service for which these bureaucrats were already paid by their salary. This is why we think that the "institution" of bribe is an irreparable economic loss of resources that could have been used in productive activities. Second type of cost that we refer to is the transaction costs. Escaping to respect the inefficient regulations can boost the economic efficiency in the short term. In the long term, it makes the regulation disappear, by creating a situation in which the economic agents are forced to "muddle" through a non regulated institutional system. In this kind of situation, the transaction costs tend to elevate, which leads to a smaller number of transactions on the market, with further repercussions on the level of specialization and finally on the economic efficiency. So, basically, even if it looks as if corruption may be positive for efficiency in the short term, it is negative in the long run.

3.2.1 The efficiency and corruption

The efficiency drops as a consequence of four reasons: drop in specialization, barriers to competition, incapacity to protect the lender and the indirect cost.

As for the first reason, our argumentation is based upon a double presumption: that every exchange needs a contract, and that the decrease in level of exchange leads to a decrease in specialization direct costs

The second reason is a rise in competition barriers. Corruption affects competition in two ways. The first way is that the institutional fragility makes the transaction costs higher. In corruption free countries, the economic agents, because of low transaction costs, have the ability to change partners very often. Contrary to this, in corruption ridden economies, the rational agents should be incited to form partnerships, in order to protect themselves from high transaction costs.

As for the third reason, it is not possible to keep the credit system, because the law and economic system is incapable of protecting a lender. In this kind of system, these are the borrowers who are

protected, because they are not forced to return the resources they have borrowed, because the judicial system is unstable

There are three indirect costs that affect the efficiency. The first are the costs of the corruptive transaction. As corruption is normally illegal, the partners in this activity are not protected by the court of justice. This is why they have to protect their "contractual" interests themselves

3.2.2 The growth and corruption

The second consequence is the growth. There are many authors who underline the significant connection between the economic growth and corruption. For instance, Pellegrini and Gerlagh (2004, p.7) show the significance of corruption on the growth. The regression they have obtained is the following

3.2.3 Foreign direct investments (FDI) and corruption

Finally, Robertson and Watson (2004) show the link between the FDI and corruption inversely. They are not looking to explain the influence of corruption on the FDI, but on the contrary, what kind of effect do the FDI have on corruption. The authors stipulate that the rapid afflux of the FDI might raise corruption, but that this effect might take place even if there comes to a drop in the FDI.

IV. CONCLUDING REMARKS

We have tried in this paper to focus the attention to the problems of corruption in modern economies. In the first part of this paper, our intention was to show what is corruption, how does it appear, what aggravates it, how can one measure it. In the second part, our intention was to show how corruption transmits its effects through an economy. The focal point is the transaction costs, whereas the rise in corruption makes those costs more important, and thus lowers the overall efficiency of one economy. The body of literature presented in the paper confirms our ideas. In spite of the growing body of corruption literature, there is still a live discussion on the question whether corruption is tonic or toxic for the economy, whereas we choose the latter answer.

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