

RANKING ECONOMIES BY CORRUPTION AND TECHNOLOGY TRANSFER ON FOREIGN DIRECT INVESTMENT BASIS

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Abstract: *The paper aims, for 2008-2018, a case study regarding the ranking of the European Union countries (Eastern Europe) by two indicators: corruption in the public sector and intensity of the technology transfer associated to the Foreign Direct Investment (FDI). We use in our research the quantitative analysis method. As data panel, we have the values of corruption and technology transfer intensity delivered by Transparency International, Corruption Perception Index, and World Economic Forum, Global Competitiveness Reports. The paper begins with the definition of the corruption and is followed by the presentation of certain elements used inside the methodology of the index used to measure it. The characterization of the Eastern European economies through the Corruption Perception Index is doubled by the exposure of the values associated with the intensity of the technology transfer related to Foreign Direct Investments. For the last item, the paper also presents the set of elements necessary to attract it and some correspondent public policies, created and implemented by the public sector authorities.*

Keywords: *corruption; public; foreign direct investment; technology.*

JEL Classification: *H11; I31; H83.*

1. Generally Introduction or Background

The characterization of an economy requires its examination on two levels which take it the form of two distinct sectors, public and private. Generating public services essential for the society's members (education, health, defense, public order etc.), the public sector is governed by a particular form of monopoly, resulted from no competition between the state institutions which provides these services. At the opposite pole, the private sector is the place of competition, due to the existent alternatives regarding the goods and services provided to the final consumer. Governed by the need to make profit as a result of the activity carried out, the private sector is guided by the principles of efficiency. Looked as the other side of the same coin represented by the society they serve, appears the same concern for efficiencing the public sector, according to Ackerman et al. (2016). There are, however, a number of impediments, one of which being represented by the corruption level that we want to quantify. For countries ranking, we also consider the intensity of the technology transfer on Foreign Direct Investments (FDI) basis.

2. Corruption in the public sector

2.1. General framework for defining corruption

In general, the assessment of how a country is conducted is mostly done by reference to the value of GDP per capita, even if a nation's standard of living also depends on a number of other factors (the uneven distribution of income at the population level, the quality of the environment, the way of spending leisure time, etc.). As a result, the well-being of a nation can not be reduced to GDP and productivity alone, because its citizens face different political, social and cultural dimensions of their daily existence. As a cause of ensuring this well-being, Aevooe et al. (2018) said that good governance is absolutely necessary. That must be characterized by appropriate public policies, coupled with the existence of effective state institutions to implement them, especially in terms of attracting capital. Regardless of the type of economy that characterizes a country (developed, frontier or emerging) it suffers, to a greater or lesser extent, the state intervention, materialized in the objectives that government has set itself to achieve and quantified, through indicators associated with the governing power channeled to the following directions: *informing* (of various stakeholders, including the public, on the state of public finances and on the performance of government work); *assistance* (granted to the public or members of the society, for this one to opt for one action or another knowingly and to understand the impact that his/her actions have on public money); *the ability of the public to appreciate the performance of a government and its institutions*. The cumulation of these three directions will have the final effect of guiding society in the process of evaluating and redefining tasks to be met by the public sector, through its institutions, in order to strengthen democracy and national well-being. Of course, achieving this goal only through excessive public regulation, it is not necessarily an effective intervention tool because, on the one hand, has the effect of increasing workload in the informal sector (development, implementation and follow-up of the implementation) and on the other hand, induces according to Werner (2018) a permanent pressure on the citizen, who perceives the situation as a limitation of his freedoms. Simultaneously, at the level of regulatory authorities it can, and is usually reached to the situation of their corruption by potential "economic players". The latter are tending to "plunge" the legal framework, excessively cumbersome and restrictive, in the direction of favoring their own interests, to the detriment of the general interest. But how can someone define and evaluate the level of corruption in a state, given that this is a sensitive phenomenon to quantify and difficult to fight, ask themselves Shacklock et al. (2016)? This question exists because the analysis of the economic literature in the field, as Bardhan (1997) said, leads to the conclusion that we are confronted with the lack of a unanimous opinion about what the corruption means. That fact generates several questions and makes non-operational anti-corruption strategies. In many cases, corruption and illicit are seen as similar terms so we could conclude that a corrupt behavior is always the one that violates the lawfulness. We must, however, be mindful of this absolutism, given that not all illegal behaviors denote corruption, as not all corrupt behaviors are illegal (non-observance of the rules of movement by citizens does not denote corruption, but either ignorance or indifference; the little favors we make to relatives or friends, in the sense of serving them preferentially in exchange for little attention, denotes a corrupt but not necessarily an illegal behavior). Linked to corruption in the public

sector, Gardiner (2017) experience that the phenomenon may occur when to the taxpayers, which roughly can be seen as sources of public budget revenues (through the taxes they pay), are provided unsatisfactory public services, when some are preferentially served for a bonus, or when bribe is demanded by the civil servants. According to Karklins (2016), this state of affairs implies the combining of civil servants action (as executors of state institutions), of individuals, companies, industries and public officials, a motive for which we cannot exclude individuals and private businesses from defining corruption in the public sector. Starting from the idea of involvement of public officials in the corruption phenomenon, Newell (2018) concludes that any definition of it includes the political aspect expressed by the existence of an executive who, irrespective of the level at which they are located (central or local), acquires the attribute of being "for sale". The idea is circumscribed to the definition that the World Bank associates with corruption and where the phenomenon is perceived as "public power exerted in return for a gain", with its small and great valences, that can eventually reach till the state is captured by private interests. Summarizing, we can say that the most restrictive definition of corruption is that of government abuse, related to its monopoly on public services.

2.2. Determinants of Corruption in the Public Sector

Transparency International (TI), a world leader in the fight against corruption, defines this notion as "abuse of the invested power, for a private or own gain that affects anyone whose life, means of livelihood or happiness depend on the integrity of the persons invested with authority". An approach of corruption, related to the typology of causes which are defining the phenomenon, is presented in Figure 1.

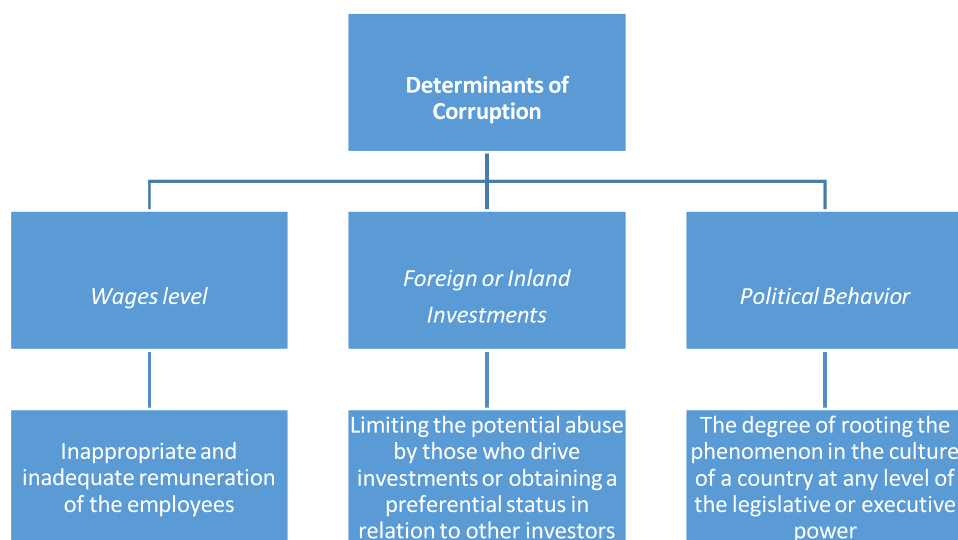


Figure 1: Determinants of corruption

Delia Ferreira Rubio, president of Transparency International, says that corruption is far more likely to flourish where democracy is weak and, as we have seen in many countries, where undemocratic and populist politicians can use it to their advantage. In respect to these ways of defining corruption, Eicher (2016) look more closely at

the abuse of power than to those who are corrupt. According to Figure 1, the inappropriate and inadequate remuneration of the employees in general, of the civil servants in particular, against the backdrop of some economies where the cost of living usually exceeds the monthly wage is seen as a contributing factor to corruption, at least at lower levels, if not within the whole system. This leads to an informal increase in the prices of public services if we take into account the amounts that the taxpayer has to pay as a bribe, against the background of corrupt civil servants, less concerned with morality and more of an extra gain for rising their incomes. In the investment plan, the channeling of an individual or collective energy towards identifying ways to deceive the system with the aim of gaining advantages or facilities, without often recognizing their membership to the system, can and usually has the effect of lowering productive effort at the level of the nation. In conclusion, the corrupt political behavior is characteristic of weak state institutions, where rules may be ambiguous, leaders are not accountable for their actions, and where the bribe, nepotism, or other disagreeable behaviors associated with corruption appears.

2.3. The Corruption Perception Index (CPI) used to Assess the Magnitude, Dispersion, and Dynamics of the Phenomenon in the Public Sector

The challenge of defining the corruption phenomenon is followed by the need to evaluate it, by calling on the corruption perception composite index (CPI) provided by Transparency International (TI). An international qualified body in the fight against corruption, TI conducts empirical research on the phenomenon, by combining qualitative and quantitative approaches, using macroeconomic indicators, analyzes made by experts and perceptual studies. From a descriptive point of view, the corruption perception index is an indicator that classifies countries in relation to the level of corruption in the public/state sector, based on corruption data provided by a variety of independent renowned institutions in that area. Regarding the number of economies studied between 2005 and 2018, the CPI methodology classified a number of countries from 159 to 183. The CPI used between 12 to 17 data sources and studies, from one significant number of independent institutions (Economist Intelligence Unit Country Risk Assessment, Global Insight Country Risk Ratings, World Competitiveness Year Book, Transparency International Bribe Payers Survey, World Bank Country Performance and Institutional Assessment, World Economic Forum Executive Opinion Survey (EOS), World Justice Project Rule of Law Index etc.).

Although any one of the citizens of a state is aware of the existence of corruption and decides on the phenomenon by using attributes as "generalized" or "high", its quantification means making "art", given that the necessary data can not be obtained simply by observing the economic environment in general, the public sector in particular. And we say this because corrupt behavior, irrespective of its nature, criminal or illicit, is often hidden from view. For our purposes (ranking economies inside the European Union area), the values of the Transparency International Index used to assess corruption are presented in Table 1.

According to Table 1, the CPI values show the highest level of corruption for Bulgaria, with an average of 3.95 (the minimum value for the analysed economies) followed by Romania (a 4.25 average). The cleanest economy is on Slovenia, with an average index of 6.13 out of 10.

Table 1: Perception Corruption Index for European Union (Eastern Europe)

Yearly values											
Country	A	B	C	D	E	F	G	H	I	J	K
Bulgaria	3,6	3,8	3,6	3,3	4,1	4,1	4,3	4,1	4,1	4,3	4,2
Croatia	4,4	4,1	4,1	4,0	4,6	4,8	4,8	5,1	4,9	4,9	4,8
Czech Republic	5,2	4,9	4,6	4,4	4,9	4,8	5,1	5,6	5,5	5,7	5,9
Latvia	5,0	4,5	4,3	4,2	4,9	5,3	5,5	5,6	5,7	5,8	5,8
Lithuania	4,6	4,9	5,0	4,8	5,4	5,7	5,8	5,9	5,9	5,9	5,9
Poland	4,6	5,0	5,3	5,5	5,8	6,0	6,1	6,3	6,2	6,0	6,0
Romania	3,8	3,8	3,7	3,6	4,4	4,3	4,3	4,6	4,8	4,8	4,7
Slovenia	6,7	6,6	6,4	5,9	6,1	5,7	5,8	6,0	6,1	6,1	6,0
Hungary	5,1	5,1	4,7	4,6	5,5	5,4	5,4	5,1	4,8	4,5	4,6
Perception Corruption Index - Average (2008-2018)											
Bg	Cr	Czh	Ltv	Lit	Pol	Ro	Slv	Hun			
3,95	4,59	5,15	5,15	5,44	5,71	4,25	6,13	4,98			
Values associated to the index: „0” – very corrupt economy; „10” – very „clean” economy, practically without corruption; according to the CPI methodology, a country's progress in corruption level requires a change of at least 0.3 points of the associated score.											

Legend: Bg – Bulgaria; Cr – Croatia; Czh – Czech Republic; Ltv – Latvia; Lit – Lithuania; Pol – Poland; Ro – Romania; Slv – Slovenia; Hun – Hungary; A – 2008; B – 2009; C – 2010; D – 2011; E – 2012; F – 2013; G – 2014; H – 2015; I – 2016; J – 2017; K – 2018;

Source: Transparency International, Corruption perception Index 2008-2018, available at <https://www.transparency.org/>

3. Corruption in the Public Sector: Background for the Intensity of Technology Transfer Related to Foreign Direct Investments

The mobility of production factors (labor and capital) has grown significantly in the context of globalization, any kind of foreign or indigenous investment being a dominant factor in economic development. In relation to foreign direct investment (FDI), Aevoae et al. (2018) consider that these are conditioned on the adoption, through state institutions, of stable, predictable and with the lowest risk factor public policies, in respect to attracting investors. Talking about public policies, in our paper we consider the following public policies types: *minimal policy* - refers to the passive level, ie to provide to an investor the ability to undertake certain economic activities in a particular country; *promotion policy* - marketing activities, made by a country to be known as the location of investment projects; *attraction policy* - contain, in addition to the promotion part, an active part of the bargaining, ie the part of the incentives used for the investor to establish its location in that country; *maintenance policy* - active investment maintenance measures (post-investment services and specialized personnel); *composed policy* - combinations of the previous ones. After Bințințan (2005), who was preoccupied in his research by the involvement of the public sector

in creating the economic and legal framework necessary for the FDI attracting, we present Figure 2.

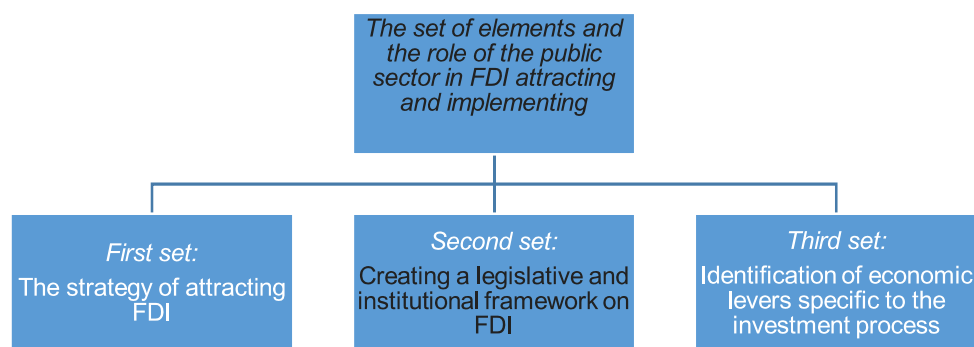


Figure 2: The set of elements involved in attracting FDI and the role of the public sector in their ensuring and implementation

Source: own processing after Bonciu, F. *Politici și instrumente de atragere a investițiilor străine directe*. București: Albatros, 2001.

The involvement of the public sector in each of the three sets of elements from Figure 2 is argued as follows: *the first set of elements* assumes the formulation of a strategy to attract foreign direct investment and specify their role for the economy (economic growth in areas such as research, production, distribution, labour market, etc.); requiring an adequate legal framework, these elements are related to the public power through a series of specialized institutions; *for the second set of elements* it is necessary to establish the conditions that govern the activity of the foreign investor, as well as the establishment of the institutions with which he will be in contact and which will implement such investments (is corresponding to the legislative and executive power of a country, no matter what country is); *for the third set of elements*, facilities and restrictions are needed on the use of direct investment flows, in respect to achieve the objectives set through the economic policy of a country (involve legislative and executive powers - first to create a legal framework for these and then, to implementing the legal norms. Regarding the FDI and related to public policies, the technology transfer was associated by Osano et al (2016) with the economic growth. As we know, the investment flows generate transfer of technology. We present, in Table 2, the intensity of the technology transfer on FDI basis, for the analyzed economies.

Considering the role of the public sector in creating the legal framework for attracting and implementing FDI, and implicitly, for the technology transfer associated to these, we ask ourselves if corruption in public sector influences the levels of investments and of the technology transfer. For that purpose, in Figure 3 we presented a comparative situation between the two indicators: the intensity of technology transfer on FDI

basis, as a driver of economic growth (through productivity gains), and the corruption in the public sector.

Table 2: Intensity of technology transfer on Foreign Direct Investment basis – European Union (Eastern Europe)

Yearly values										
Country	A	B	C	D	E	F	G	H	I	J
Bulgaria	4,1	4,2	4,2	4,1	4,1	4,1	4,3	4,4	4,7	4,7
Croatia	4,1	4,1	4,0	4,2	4,1	4,0	4,0	3,8	3,7	3,7
Czech Republic	5,5	5,4	5,3	5,3	5,3	5,1	5,0	5,0	5,1	5,0
Latvia	4,8	4,5	4,3	4,3	4,3	4,5	4,8	4,8	4,4	4,2
Lithuania	4,7	4,6	4,8	5,0	5,1	5,3	5,5	5,3	5,1	4,9
Poland	4,9	5,1	5,0	5,0	4,8	4,6	4,6	4,5	4,6	4,9
Romania	5,0	5,0	4,7	4,5	4,3	4,4	4,8	4,7	4,4	4,1
Slovenia	6,0	5,9	5,7	5,5	5,5	5,1	5,1	5,3	5,3	5,2
Hungary	5,5	5,2	5,2	5,4	5,4	5,3	5,1	4,9	4,4	4,7
Intensity of technology transfer on FDI basis – Average (2008-2018)										
Bg	Cr	Czh	Ltv	Lit	Pol	Ro	Slv	Hun		
4,29	3,97	5,20	4,49	5,03	4,80	4,59	5,46	5,11		

Values associated to the indicator: “1” – FDI brings little new technology; 7 – FDI is an important source of new technology

Source: World Economic Forum, Global Competitiveness Reports 2008-2018, <https://www.weforum.org/reports>

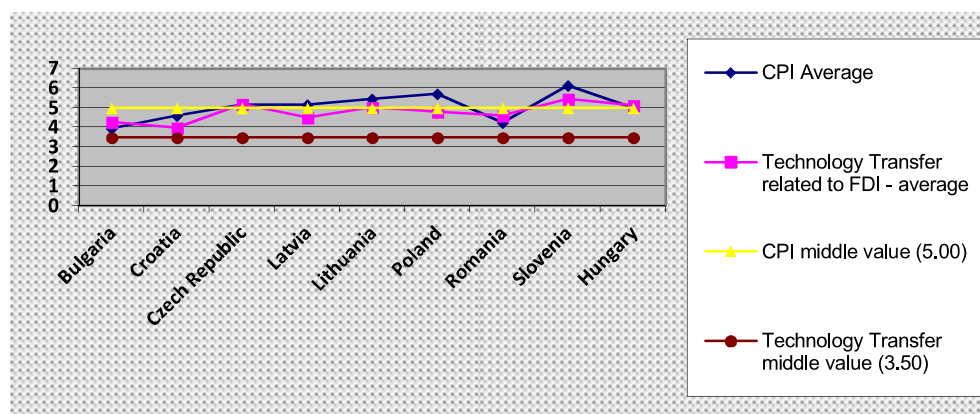


Figure 3: Intensity of technology transfer on FDI basis

Source: own processing according to Table 2

The data interpretation in Figure 3 shows that with regard to the intensity of the technology transfer on the FDI basis, the highest average value of the intensity is found for Slovenia and the smallest average for the technology transfer intensity, on FDI basis, corresponds to Bulgaria. As consequence of the interpretation of the perception corruption index and according to the data in Figure 3, we can observe

that the largest average value of the CPI indicator corresponds to the cleanest economy (Slovenia) and the smallest average value of the indicator corresponds to Bulgaria, the most corrupt economy.

3. Ranking economies by corruption and technology transfer intensity on FDI basis

To rank the analyzed economies in terms of public corruption and, respectively, in terms of the intensity of the technology transfer on FDI basis, we consider Figure 4.

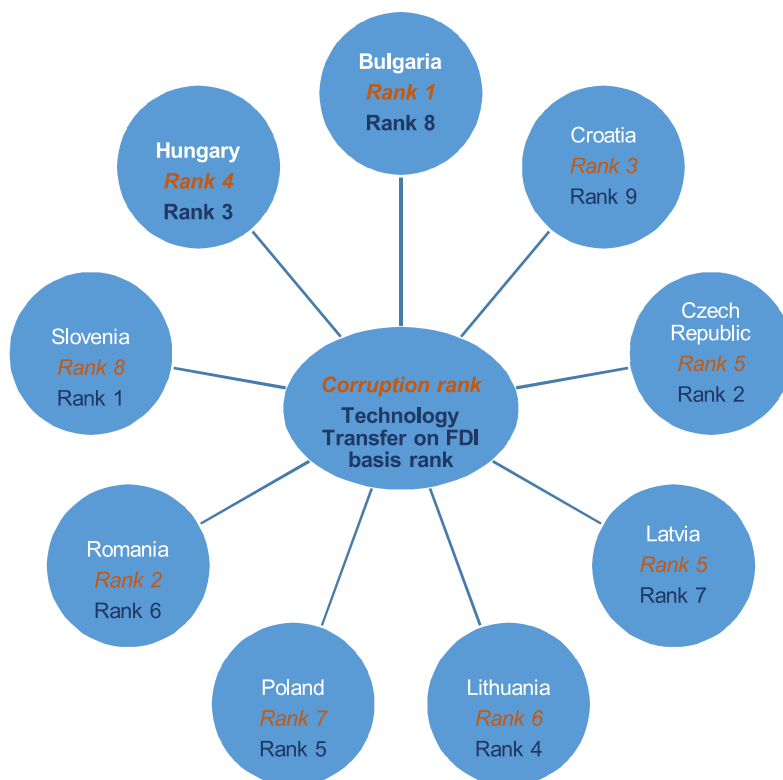


Figure 4: Ranking economies by corruption and intensity of the technology transfer on FDI basis

Legend: Corruption Perception Index: rank 1 – maximum level of corruption (most corrupted economy); rank 8 – minimum level of corruption (most clean economy); Technology Transfer on FDI basis: rank 1 – maximum level for the intensity of the technology transfer; rank 9 – minimum level for the intensity of the technology transfer;

Source: own processing according to Table 1 and Table 2

The evolution of the data in Figure 4 shows that in most of the cases exists a direct correlation between the index of corruption associated to an economy and the intensity of the technology transfer on FDI basis. Thus, a big CPI value means a clean economy which corresponds to a more intense technology transfer. A small

CPI value means a corrupt economy which corresponds to a poor transfer of technology.

4. In Conclusion

As a first conclusion, we can say that corruption, regardless of level, is a phenomenon that really matters. Although the phenomenon analyzed does not make direct victims, its implications produce unwanted effects on a large scale, such as: inhibiting or reducing the rate of economic growth and investment; the limitation of the economic development and welfare by reducing capital inflows; increasing infant mortality and reducing literacy, by incorrectly targeting of public funds; the shape of the countries economic policies; the influence exerted on governments about how to spend public money, by redefining the structure of government spending, to the detriment of future economic growth. Therefore, public corruption impedes economic development and may affect national security by distorting markets and competition, by spreading cynicism among citizens, undermining the rule of law, deteriorating the legitimacy of the government and corroborating the integrity of the private sector. Referring to the intensity of the technology transfer related to FDI, according to the analyzed data we can say that there is usually a direct correlation between this indicator and the corruption level in the public sector. As the economy is more corrupted (the index of corruption is smaller, therefore the economy is ranked first), the level of technology transfer is more reduced, due to the low level of FDI. We can also observe that in a cleaner economy (bigger values for the corruption index, therefore the economy is on the last places in the ranking of corruption), the intensity of technology transfer is higher.

References

1. Aevoae, G.M., Dicu R.M., Mardiros D.N. (2018) „How do the foreign direct investments flow? The case of the cross-border M&As in the European Union”, *Journal of Accounting and Management Information Systems*, Vol.17, Nr. 4, pp. 641-662.
2. Aevoae, G.M., Dicu, R.M., Mardiros, D.N. (2018) „A Quantitative Analysis of the M&As with Community Dimension in the European Union”, *Journal of Research in Industrial Organization*, IBIMA Publishing, pp.1-12.
3. Bardhan, P. (1997) “Corruption and Development: A Review of Issues”, *Journal of Economic Literature*, Vol.35, Nr.3, pp.1320-1346.
4. Djulius, H. (2017), „Foreign Direct Investment and Technology Transfer: Knowledge Spillover in the Manufacturing Sector in Indomesia”, *Global Business Review*, Vol. 18, Nr. 1, pp. 57-70.
5. Osano, H.M., Koine, P.W. (2016) „Role of foreign direct investment on technology transfer and economic growth in Kenya: a case of the energy sector”, *Journal of Innovation and Entrepreneurship A System View Across Time and Space*, Vol. 5, No. 31, pp. 45-58.
6. Ackerman, S.R., Palifka B.J. (2016) *Corruption and Government: Causes, Consequences, and Reform*, London: Cambridge University Press.
7. Eicher, S. (2016) *Corruption in International Business: The Challenge of Cultural and Legal Diversity*, New York: Routledge Press.
6. Karklins R. (2016), *The System Made Me Do it: Corruption in Post-communist Societies*, New York: Routledge Press.

7. Newell J.L. (2018), *Corruption in Contemporary Politics: A New Travel Guide*. United Kingdom: Manchester University Press.
8. Shacklock A. Galtung F. (2016), *Measuring Corruption*, London: Routledge Press.
9. John Gardiner J. (2017), *Defining corruption*, in Heidenheimer A. J., Johnston M. (Ed.). *Political Corruption, Concepts and Contexts*, 3rd edition, Chapter 2, New York: Routledge Press.
10. Werner S. B. (2018), *New Directions in the Study of Administrative Corruption*, in Bruce W. M. (Ed.). *Classics Of Administrative Ethics*, Chapter 13, New York: Routledge Press.
11. Transparency International, Corruption perception Index 2008-2018, <https://www.transparency.org/>
12. World Economic Forum, Global Competitiveness Reports 2008-2018, <https://www.weforum.org/reports>