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## **On the Evolution of Corruption Patterns in the Post-Communist Countries\*\***

**JEL Classification:** D73; P21; P37

**Keywords:** *corruption; Markov transition probability matrix; post-communist countries*

**Abstract:** *In this paper, we study the evolution of corruption patterns in 27 post-communist countries during the period 1996-2012 using the Control of Corruption Index and the corruption category Markov transition probability matrix. This method allows us to generate the long-run distribution of corruption among the post-communist countries. Our empirical findings suggest that corruption in the post-communist countries is a very persistent phenomenon that does not change much over time. Several theoretical explanations for such a result are provided.*

### **Introduction**

Corruption is a global phenomenon and no country in the world is completely free from corruption. In one characteristic or another, to a smaller or greater extent, it is present in all countries, at all stages of development and

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under all types of economic policies pursued by the state itself. Developed or developing, large or small, market-oriented or other, governments in all countries have fallen because of accusations of corruption. Top politicians not excluding heads of states have lost their offices, power, and sometimes even their lives in coups and revolutions caused by such allegations.

Corruption seems to manifest itself in all societies that pass a certain degree of complexity. It dates back to the very first instances of organized human life and has been present ever since (Klitgaard, 1988). One of the oldest examples of corruption is more than 2,300 years old. Chānakya, prime minister to the first Maurya Emperor Chandragupta (c. 340-293 BC), and the architect of his rise to power, analyzed the phenomenon of corruption in his work *Arthaśāstra* (Boesche, 2003; Bardhan, 1997). In China, the penal code of the Qin Dynasty (211-206 BC) included corruption and put heavy penalties on people accused of it. Dante Alighieri placed bribers in the deepest part of hell. Shakespeare gave corruption a prominent role in some of his plays. The American Constitution explicitly mentions bribery and treason as the two crimes that could justify the impeachment of a U.S. president.

The problem of corruption has always attracted a great deal of attention among the social scientists. However, due to the fact that limited empirical work exists on corruption prior to 1995 makes learning from history difficult. For example Bardhan (1997, p. 1329) notes that: “Although the requisite time-series evidence in terms of hard data is absent, circumstantial evidence suggests that over the last 100 years or so corruption has generally declined with economic growth in most rich countries”. One possibility is that corrupt deal exposure is much more probable in more economically developed countries. In addition to its clear impact on democracy, economic development improves the spread of education, literacy, and depersonalizes economical relationships – each of these ought to increase the likelihood that an misuse of public power will be detected and tackled (Treisman, 2000). Thus, the policies that boost growth, if successfully implemented, are likely to reduce corruption in the long run. Paldam (2002, p. 20) suggests that with “the complex transition from a poor traditional country to a wealthy liberal democracy also comes a dramatic reduction in the level of corruption. The corruption transition is not placed at a precise location along the transition path, but follows an underlying transition-trend toward less corruption.”

In the context of the post-communist countries of Central and Eastern Europe, the Baltics, the Commonwealth of Independent States as well as Mongolia corruption has been recognized as an integral part of the communist system (Sandholtz & Taagepera, 2005). However, despite 25 years

of transition and continuous economic development many people perceive that corruption, instead of falling, has risen in those countries after the fall of communism. The simultaneous processes of developing a market economy, designing new political and social institutions, and the redistribution of state-owned assets in the post-communist countries have created fertile ground for corruption to flourish. After the fall of communism, non-transparent privatization, stalled liberalization of prices and commerce, and underdeveloped legal and regulatory systems worsened the situation even further and have all come in for their share of sometimes well-deserved criticism. Not surprisingly, corruption in some of the countries that emerged from the former Soviet Union is perceived to be the heaviest in the world, imposing a heavy burden on their economies and slowing down their economic development.

The main aim of this paper is to study the evolution of corruption patterns in the 27 post-transition states during the period 1996–2012. The research methodology employed in this paper is as follows. First, we provide some stylized facts on corruption in the post-communist countries against a backdrop of various regions of the world using the Control of Corruption Index developed by the World Bank. Then, a corruption category Markov transition probability matrix is used to predict the long run distribution of corruption among the post-communist countries. Our empirical findings suggest that corruption in those countries is a very persistent phenomenon that does not seem to change much over time.

The structure of this paper is as follows. In Section 2 we briefly survey the literature on various types of corruption with the special focus on the post-communist countries. In Section 3 we discuss advantages and disadvantages of various measures of corruption. In Section 4 we study corruption patterns across the world and compare the whole group of the post-communist countries against other groups of countries and describe the corruption levels and trend in the particular post-communist countries. In Section 5 we investigate the stability of corruption patterns in the post-communist countries using the Markov transition probability matrix. Section 6 summarizes and concludes with policy recommendations and directions for further studies.

## **Overview of Corruption in Post-communist Countries**

Corruption is a complex phenomenon with multiple causes and effects as it takes on various forms and functions in different contexts. Accordingly, the

problem of corruption has been seen either as a structural problem in political sciences, as an incentive problem in economics or as a cultural and individual moral problem in other social sciences. In any case, corruption is a multifaceted problem even in its concrete appearance and no single model approach will be able to describe the whole picture in an adequate way. Consequently, there exists a whole multitude of definitions and each definition seems to be falling short in some aspect.

One of the most commonly used general definitions of corruption was introduced by the World Bank (2000) which defined it broadly as “the abuse of public office for private gain”. However, several subsequent World Bank studies attempted to go beyond this broad definition. These studies identified two forms of corruption and tried to capture qualitatively their extent (Hellman, *et. al*, 2000; 2003; 2004). Their authors employed survey data from the 1999, 2002, and 2005 Business Environment and Enterprise Performance Survey (BEEPS) collected from firm managers and owners in Central European and the Commonwealth of Independent States countries. The data was used to quantify two kinds of corrupt behavior.

The first type is called State Capture and refers to the capacity of firms to shape and affect the formation of basic rules of the game (i.e. laws, regulation, and decrees) through private payments to politicians. This type of corruption is also commonly referred to as “political” or “higher level” corruption. The second type is called Administrative Corruption and refers to so called “petty” or “low level” forms of bribery in connection to implementation of existing laws and regulations by the bureaucracy.

Undoubtedly, many other definitions and classifications of corruption can be found in the literature. In fact, most of the work in sciences other than economics is dedicated to provide a more complex picture of corruption. Anthropological studies go even as far as to say that no possible definition of corruption can exist since all human actions are incomparable to one another. In contrast, most studies in economics take a parsimonious view focusing only on ‘as if’ market outcomes of corruption. Therefore, for the purposes of this study we have decided to use the following definition: corruption is an act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game (Jain, 2001).

In the context of the post-communist countries corruption was often recognized as a heritage of the communist system. While the collapse of communist regimes in many countries across the region altered the structure of opportunities and incentives for corruption, it did not eliminate them. In the face of the fall of the command economic system, the structure of informal personal ties between people did not cease to exist, nor did the distrustful attitude towards the state. With a change in the post-Soviet polit-

ical regime after the subsequent progress of economic and social transformation initiated changes in the background and environment of corruption. Furthermore, privatization after the collapse of communism created new incentives and opportunities for corruption (Kaufmann & Siegelbaum, 1997; Stiglitz, 1999; Hoff, Stiglitz, 2004).

The possibilities and the scope for corruption in the post-communist countries – given the mixture of massive privatization, weak states, and underdeveloped civil societies – have been considerable. The simultaneous developments that occurred along with economic and legal transformation sometimes led to an increase in large-scale corruption. This indistinct flux and institutional vacuum produced many economic rents which were later captured by the corrupt. The totalitarian power of the state has been relaxed and the formal and informal institutions that controlled and organized corruption in the past were eliminated or were in a decline (World Bank, 2006). This allowed corruption to flourish, since most of the countries had no civil society and therefore the accountability of the reformers (some of which were communist politicians) was non-existent. Moreover, it was argued, that corrupt masses democratically generated new corrupt elites even when the former communist elites were forced out (Sandholtz & Taagepera, 2005).

Therefore, after the fall of communism many people perceived that corruption instead of falling had in fact risen in the post-communist countries. A massive process of property redistribution resulted in a restoration of the informal personal ties, presently on the borders between the formerly omnipresent state and the newly emerged private sector. As the economic process was taking place, the existence of corrupt practices was shifting from one sector of economic activity to another. Corruption shifted chiefly from the sector of general services and sales of goods to the region of state and administrative services.

Åslund (2002) provided an excellent account of the process of rent grabbing. According to him, these rents were used later to corrupt public officials and perpetuate the rents even further. This was easy, because the network of interpersonal connections between people of various public occupations had been already set up and deeply entrenched in the economy. As the captured rents were perpetuating and increasing, they soon brought about more money to be seized by the means of directly influencing the creation of law and regulation. Before long, the captured state was born.

The result of the strategy of stalled partial reform was the rise of the captured states, dominated by corruption. It is difficult to describe the model of such a country, as it is a rather indistinct mixture of laissez faire state with heavy state intervention, when it comes to the economy. The general

vision that was shared by the “founding fathers” of such states was “maximum freedom for us, maximum regulation and intervention for others”. Economic growth did not arise as an objective of such elites, as they were mainly concerned with capturing the wealth that had already been formed by the means of market distortions, caused by overregulation and certainly not in the formation of the new. Therefore, the larger the initial distortions, mainly caused by collapsing central planning and underdevelopment, the larger the rents.

The frequently quoted example of the captured state is the Russian Federation. Interestingly, the greatest fortunes in Russia were made not through privatization of state owned companies, but through privatization of the credit given out by the Central Bank of Russia (Dąbrowski, *et al.*, 2001), through arbitraging the differences between controlled prices for raw materials within Russia and free market prices abroad (Åslund, 1999), and through favoritism in natural resource based industries. “It was the Russian treasury, which was directly asset stripped, not the firms”, and the riches made during this period have maintained the political power of the oligarchs (Dąbrowski, *et al.*, 2001). The results analogous to the Russian experience can be observed elsewhere, and in many countries the situation is even worse.

While Estonia and Slovenia were initially relatively free from the state capture, Ukraine, Bulgaria, Moldova, and many countries of Caucasus and Central Asia could be used as perfect examples of such captured states. Because only a selected few had the access to the top officials being able to stall reforms, just these few gained on the process, creating immense wealth, at the cost of all of the public. Despite the common belief that the liberalization was the main source driving corruption, in reality, the relationship was opposite. Not privatization or stabilization stopped the post-communist economies in their tracks, but the outright extortion of rents and embezzlement of state assets. The money extracted, enabled to stop the necessary reforms, hence perpetuating corruption due to market distortions.

Therefore, in the subsequent sections we study the evolution of corruption patterns in the post-communist countries against the other regions of the world and then compare the levels of corruption among particular post-communist countries. However, prior to investigating the corruption patterns we discuss advantages and disadvantages of various corruption measures.

## **Measuring Corruption**

Despite the fact that a large number of press articles documenting individual cases of corruption in particular countries have been published, it is still difficult to estimate precisely the extent of corruption and to make cross country comparisons. No available quantitative information is based upon direct observation, with the exception of case studies that are extremely scarce and therefore not commonly used. The main problem in research on corruption has been the lack of systematic and internationally comparable statistical data. In a perfect world, the data used in empirical studies should be based on objective, direct, and firsthand observations of corrupt transactions made by unbiased observers who are experts on the rules and routines in the scrutinized sector.

However, the aforementioned conditions are rarely met in reality, as corruption is usually deeply concealed. None of the parties of the corrupt deal has incentives to inform anyone else about it since corruption is illegal. Moreover, in contrast to other crimes, corruption has typically no individual victim who would be motivated to report the crime. Furthermore, corruption usually takes the form of complex transactions taking place in large hierarchies to which outsiders have no access. It usually involves informational asymmetries and therefore its observation is very indirect. As a result, corruption is hard to measure and empirical studies on this issue are in a short supply.

Some researchers have tried to estimate corruption indirectly with disputable success. In their studies, corruption was calculated from micro level data, like data on infrastructure projects, the use of cement, or data drawn from firm-level surveys. Even if argued to be successful, these accounts do not enable a comparative analysis since they concern two countries at most. Examples of such studies include Wade (1982) for India, Murray-Rust and van der Valde (1994) for Pakistan, Manzetti, L. and C. Blake (1996) for Latin America, Svensson (2003) for Uganda, Kuncoro (2004), and Henderson and Kuncoro (2004) for Indonesia, and Golden and Picci (2005) for Italy.

Asiedu and Freeman (2009) discussed and classified various measures of corruption used in previous studies into three categories: internal, external, and hybrid. Internal measures include those based on the perceptions of firms that operate within a single country. The external measures are based on the assessment of risk analysts who typically reside outside a country. Finally, the hybrid measures combine corruption data from different sources into a single composite index. Each of those measures has its own advantages and disadvantages.



The typical procedure in constructing the internal measures is to survey firms in a particular country about their perceptions and experiences of corrupt practices. The main advantage of internal measures is that they reflect firms' perception of investment risks that affect firms' operational and investment decisions. At the same time, internal measures have several limitations. Firms that provide the corruption ratings operate in different countries face different economic and political environments and the collected data may not be easily comparable across countries. Moreover, the data can be affected by individual characteristics of firms, such as their age, size or industries in which they operate.

The external measures are compiled by commercial risk-rating agencies. The main advantage of those measures is that countries are rated by the same set of entities which makes the data more consistent and internationally comparable. External measures, however, suffer also from several disadvantages. The data coverage is usually limited and the country evaluations are usually not based on personal experience, but rather inferred from media reports. As a result, the levels of corruption reported by the consultants who compile those measures may not accurately reflect the actual levels of corruption.

The hybrid measures combine corruption data from different sources into a single composite index which allows to mitigate the problems associated with the internal and external measures of corruption. In order to address those problems, researchers from the non-governmental organization Transparency International (TI) and the World Bank aggregated, using slightly different methodologies, various data on corruption gathered from a wide range of sources to create the so-called corruption perception indices. These two hybrid measures are the most widely used measures of corruption. Due to similarities in their construction these two indexes are correlated with each other. These indices allocate numbers for the level of corruption to almost every country in the world of some economic significance. Although some countries change the position from an index to an index and have different rankings in the TI and WB datasets, there is an overall constancy to the rankings. Therefore, most studies use one or the other of these two indices.

Perhaps the most popular hybrid index is the annual TI Corruption Perception Index (CPI) which is a compilation of corruption surveys and assessments that are averaged each three years around a given year and computed since 1995. Constructed as a poll-of-polls index, the CPI is designed to capture the perception of well-informed people on corruption which are scored on a range of 0 (high) – 10 (low). The index aggregates the perceptions of respondents with regard to the extent of corruption – defined as the

abuse of public power for private benefit. Here the extent of corruption reflects the frequency of corrupt payments and the resulting obstacles imposed on businesses.

Although TI's CPI index has been the most popular hybrid index, it has not been free from criticism. For the 1995 and the historical data (1980–1985, 1988–1992), this index was constructed by taking simple averages after transforming the various different scales – drawn from different data sources – into 0-10 scale. The normal standardization technique was introduced in 1996, but stopped in 2001. The matching percentile technique and the beta-transformation were introduced in 2002 and have been applied since then. Due to these changes, the CPI cannot be regarded as a consistent time series.

The World Bank has made use of the underlying sources that make up the TI index and has produced its own Control of Corruption Index (CCI) using an arguably better aggregation method and including more countries and sources, in which zero stands for the average corruption level in the world. The index increases with the level of control of corruption, therefore it is inversely related to corruption level. Kaufmann, *et al.* (2006), the authors of this index, provide a very extensive rebuttal (with empirical proofs) of most of the arguments raised by its critics. Arndt and Oman (2006) in their extensive survey of the many different indicators referred to the World Bank Control of Corruption Index as "probably the most carefully constructed governance indicator".

Therefore, our measure of corruption used in this study is the Control of Corruption Index compiled by Kaufmann, *et al.* (2005). Since what actually matters in our empirical investigation are perceptions of outsiders, the World Bank data seems to be especially well suited. The World Bank index covers about 200 countries and is computed on the basis of individual variables relating to perception of corruption, drawn from about 40 data sources produced by more than 30 different organizations. In our study we focus on the sample of 27 post-communist countries for which data are available starting from 1996 until 2012.

Despite the fact that the CCI is "probably the most carefully constructed governance indicator", it has several weaknesses. In particular, it shares the common weakness of drawing on public opinion pools. Therefore, one must be aware that this index measures perceptions rather than being an objective measure of corruption. It could be the case that if a particular country's score differs from survey to survey, it occurs mostly so because of a shift in perceptions. For instance, media coverage of high-level corruption prosecutions may increase public's perception of corruption, while the "real" level of corruption may actually decrease. Another important draw-

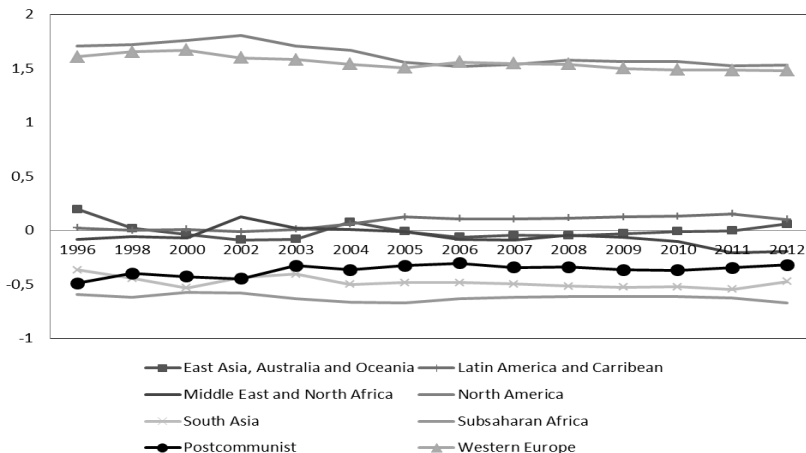
back of this index is that since the data are a composite measure, they do not differentiate among various forms of corruption, such as high-level versus low-level corruption or well organized versus poorly organized corruption or corruption with theft versus the one without, initiated by private party, extorted by the official and so on.

The most effective response to the arguments surveyed above is to be aware of the inherent limitations of any given statistical instrument. Despite all of the listed limitations and critiques, the hybrid indices provide a lot of useful information. They have laid solid foundations for anticorruption efforts of such prominent organizations as the World Bank, OECD, UNDP, IMF, and the EBRD.

### Corruption Levels and Trends in the Post-communist Countries

In this section we first study the general corruption patterns across the world and compare the whole group of the post-communist countries with other groups of countries and then we describe the corruption levels and trends in the particular post-communist countries. In Figure 1 we show the distribution of corruption across various regions of the world. The assignment of countries into each category follows the World Bank classification. The groups have been enumerated in the annex at the end of the paper.

**Figure. 1** Distribution of corruption among various country groups



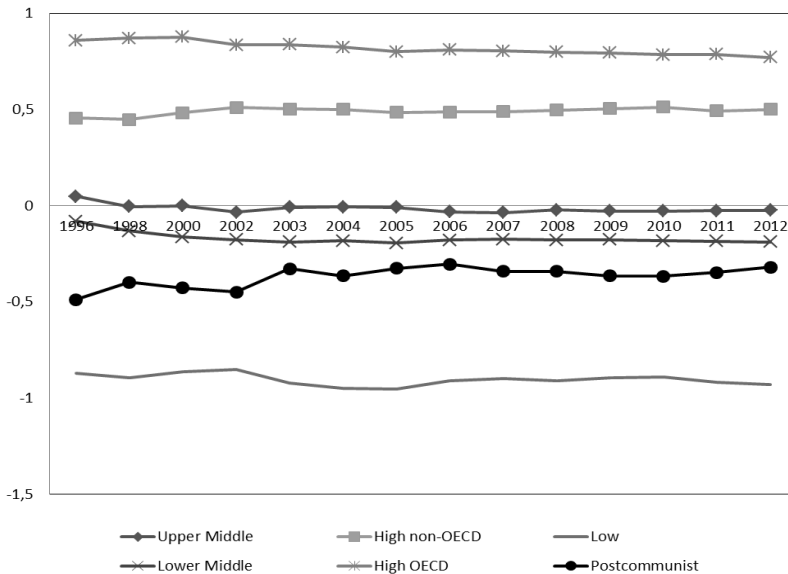
Source: own elaboration based on World Bank CCI data.

It can be seen from Figure 1 that the post-communist countries constitute one of the clusters of countries in the world, which show the highest levels of corruption. Not surprisingly, the level of corruption in post-communist states makes this region on par with the most corrupt countries in the world. In particular, post-communist corruption goes hand in hand with corruption in Sub-Saharan Africa and South Asia, and is visibly higher than corruption in the Middle East and North African (MENA) countries.

Until the early 2000s the post-communist countries as a group were the most corrupt countries in the world. Although there seems to be a positive trend, it is very weak and the post-communist countries still exhibit one of the worst instances of corruption. Thus, it could be concluded that despite the advances in reforms, the level of corruption in the post-communist countries remains high and does not seem to diminish significantly over time.

Moreover, a further point could be made that the post-communist countries exhibit a higher level of corruption than their level of development would suggest. This can be seen in Figure 2, which shows the income distribution of corruption.

**Figure. 2** Income groups distribution of corruption

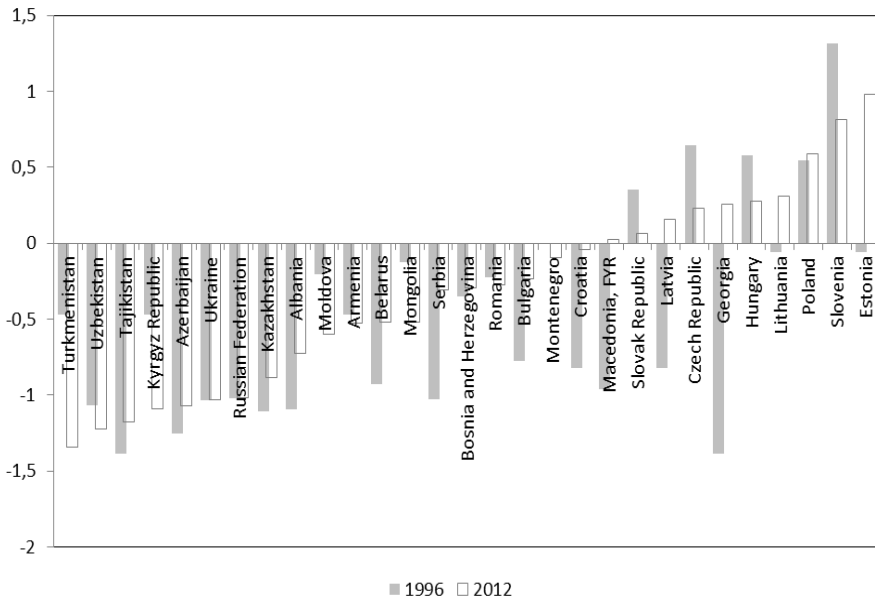


Source: own elaboration based on World Bank CCI data.

In terms of material wealth, majority of the post-communist countries fare between lower middle income and upper middle-income groups. Some of these countries even managed to reach the highest-income group, as seen in the appendix. However, it can be seen from Figure 2 that the group of communist countries displays corruption behavior of the in between the two low-income and lower middle-income countries.

In Figure 3, we compare the levels of corruption in particular post-communist countries in the first year of our sample – 1996 and in the last year – 2012.

**Figure 3.** Corruption levels in particular post-communist countries



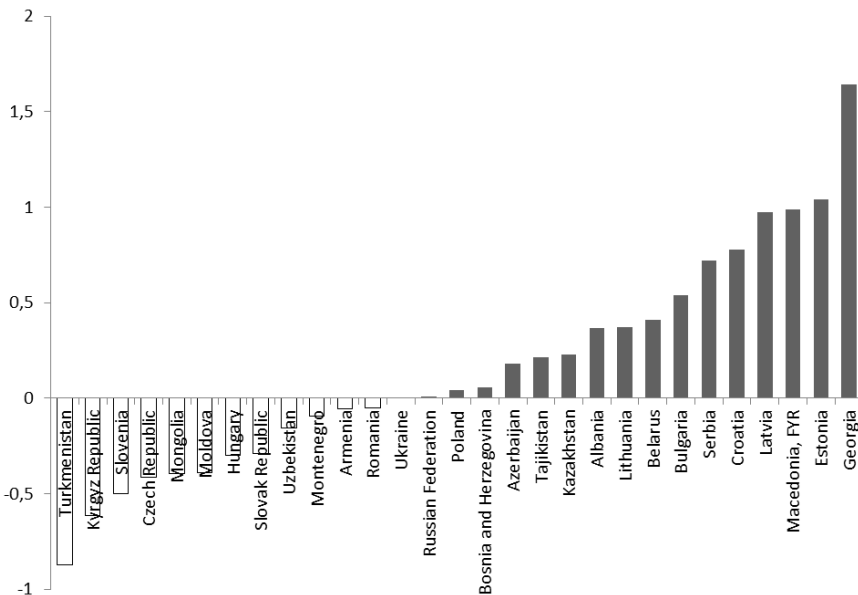
Source: own elaboration based on World Bank CCI data.

It can be noted from Figure 3 that a great deal of heterogeneity exists among the post-communist countries. The highest levels of corruption are reported in the successor states of the former Soviet Union with the exception of three Baltic countries that from the beginning opted for integration with the West, radically reformed their economies, and joined the European Union in 2004. Among those states, Estonia is the absolute leader in which has the lowest and even further decreasing level of corruption among all the post-communist countries. Among the former Soviet Union countries in which the levels of corruption are the highest are the Central Asian and the

Caucasus states such as Turkmenistan, Uzbekistan, Tajikistan, Kyrgyz Republic, and Azerbaijan. These countries are followed by the East European countries such as Ukraine and the Russian Federation. Among the least corrupted states, in addition to the Baltics, are the Central European countries such as Slovenia, Poland, and Hungary.

In Figure 4, we show the changes in the level of corruption for particular post-communist countries in the period 1996–2012. This allows us to identify countries in the region, which experienced the biggest decreases, and increases in the level of corruption.

**Figure 4.** Changes in corruption levels in particular post-communist countries



Source: own elaboration based on World Bank CCI data.

It can be noted that the level of corruption in the most corrupt countries in Central Asia such as Turkmenistan or Kyrgyz Republic has increased over time while the level of corruption in the majority of the least corrupt countries, such as the Baltic countries, decreased. Interestingly, in many Central European countries, such as Slovenia, the Czech Republic, Hungary, and the Slovak Republic, which initially started with low levels of corruption, corruption increased over time. The only exception in this group was Poland where the level of corruption slightly decreased. The most spectacular decrease in the level of corruption was reported in Georgia.

Other significant decreases in corruption were also reported in the Balkan countries such as FYR Macedonia, Croatia, Serbia and Bulgaria.

### **Corruption Persistence in Post-communist Countries**

In this section, we study the stability of corruption patterns in the post-communist countries using the Markov Transition Matrix (MTM). The MTM is a square matrix that contains the probabilities of moving from one state to another state. The use of MTM has gained popularity in social sciences, especially in economics to study the long-run world distribution of income among various groups of countries and to identify “growth miracles” and “growth disasters” (Jones, 1997; Goczek, 2012). By analogy, in our study we can identify “corruption miracles” and “corruption disasters” and study the long-run distribution of corruption among the post-communist countries.

For the purposes of our study, the post-communist countries were assigned to four different corruption categories: high, medium high, medium low, and low corruption. The categorization was carried out for the sample of 27 post-communist countries, which were divided into quartiles. Therefore, this categorization was based on the entire distribution of post-communist countries. We considered sixteen different types of transitions between these states, including staying in the same corruption category. This corresponds to the 16 quadrants of the transition matrix. If the probability of moving from category  $i$  to a category  $j$  at a given one time step is:

$$\Pr(j | i) = P_{i,j} \quad (1)$$

The four-state stochastic matrix  $P$  is given by using these probabilities, where

$$P = \begin{pmatrix} P_{1,1} & P_{1,2} & P_{1,3} & P_{1,4} \\ P_{2,1} & P_{2,2} & P_{2,3} & P_{2,4} \\ P_{3,1} & P_{3,2} & P_{3,3} & P_{3,4} \\ P_{4,1} & P_{4,2} & P_{4,3} & P_{4,4} \end{pmatrix} \quad (2)$$

Since the probability of transitioning from state  $i$  to some state must be 1, this matrix is a right stochastic matrix, so that:

$$\sum_j P_{i,j} = 1 \tag{3}$$

An initial distribution is given as a row vector  $V$  (presented in Table 2). A stationary probability vector  $\pi$  is defined as a vector that does not change under application of the transition matrix; that is, it is defined as a left eigenvector of the probability matrix, associated with eigenvalue 1:

$$\pi P = \pi \tag{4}$$

The Perron–Frobenius theorem ensures that every stochastic matrix has such a vector, and that the largest absolute value of an eigenvalue is always 1. In general, there may be several such vectors. However, for a matrix with strictly positive entries, this vector is unique and can be computed by observing that for any  $i$  we have the following limit,

$$\lim_{k \rightarrow \infty} (P^k)_{i,j} = \pi_j \tag{5}$$

where  $\pi_j$  is the  $j$ -th element of the row vector  $\pi$ .

This implies that the long-term probability of being in a state is independent of the initial state  $i$ . Thus, the system evolves, over time, to a stationary state. Intuitively, a stochastic matrix represents a Markov chain with no sink states, this implies that the application of the stochastic matrix to a probability distribution would redistribute the probability mass of the original distribution while preserving its total mass. If this process is applied repeatedly, the distribution converges to a stationary distribution for the Markov chain. This allows us to obtain the long-run distribution of corruption in the post-communist countries.

The calculated transition probabilities among particular states are reported in Table 1.



**Table 1.** Corruption level category transition probability for post-communist countries (Markov transition matrix)

<b>Corruption level</b>	<b>quartiles for post-communist countries</b>			
High	89.64%	09.89%	00.47%	00.00%
Medium High	10.25%	80.13%	09.62%	00.00%
Medium Low	00.16%	12.09%	82.79%	04.96%
Low	00.00%	00.00%	04.24%	95.76%
Corruption level	High	Medium High	Medium Low	Low

Source: own estimation.

It can be seen from the transition matrix that the probabilities of staying continuously in particular quartiles are the highest relating to large persistence in corruption results. In particular, the probability of staying in the low corruption quartile is the highest and close to one while the probability of staying in the medium high quartile is the lowest and equal to 0.8. Among the highest probabilities of changing the quartiles are the probability of moving from the medium low to the medium high quartile equal to 0.12 and the probability of moving from the medium high to the high quartile equal to 0.10. This suggests that in the long-run we should expect corruption in the post-communist countries to increase. This can be seen in the long run distribution of corruption in the post-communist countries shown in Table 2.

Comparing the initial and long run distributions of corruption in post-communist countries it can be seen from Table 2 that in the long run we should expect corruption to increase as the size of the high and medium high quartiles are going to expand at the expense of the medium low quartile. This result is not surprising given the fact that the probabilities of moving from the high and medium high levels of corruption to the lower levels of corruption are smaller than the probabilities of moving from the lower levels of corruption to the high and medium high levels. It seems that corruption levels are highly persistent across time. Some countries remain trapped in "corruption" traps characterized by pervasive corruption whereas others end up in high corruption equilibrium and stay there. Here, the im-

portant results concern the countries of the former Soviet Union, most notably Ukraine and Russia, which ascend in their corruption control in the mid-sample only to fall back to the lowest category.

**Table 2.** Initial and long-run distribution for post-communist quartiles

Starting distribution post-communist quartiles			
High Corruption	Medium High Corruption	Medium Low Corruption	Low Corruption
24.95%	25.42%	24.48%	25.15%
Limiting distribution post-communist quartiles			
High Corruption	Medium High Corruption	Medium Low Corruption	Low Corruption
26.45%	26.39%	21.73%	25.43%

Source: own estimation.

The most interesting cases are of course countries that managed to cross the borders between the corruption groups. Here most notable examples of such countries are the cases of Georgia and Estonia, which managed to "jump" two categories. In both countries, a significant liberalization has taken place associated with the withdrawal of the state from regulation, however, this was joined with institutional reform relating also to judiciary and crime prevention. This mixture provided the best results. The third case of a significant improvement was Croatia, which in the observed sample was in the process of accession to the European Union. This process required putting an anticorruption framework in place associated with significant deregulation of "national champions" - big state owned companies with significant market power in the local market.

## Conclusions

Over two decades of the simultaneous political and economic transitions in the region, a dynamic market economy has emerged in some countries, yet in some nothing changed, and the boundaries between the state and the economy remained murky. In this article, we studied the stability of corruption patterns in the post-communist countries. Though a small positive

trend is visible, it is mainly initiated by those post-communist countries that joined the European Union. In general, we should not expect radical changes in the levels of corruption in other countries. On the contrary, corruption in the long run in the post-communist countries may even increase. Nevertheless, the story of an overwhelming majority of the post-communist countries is staying on approximately the same corruption level.

A possible explanation for this is that “corruption corrupts” (Goczek, 2009), meaning that the expected profitability of engaging in a corrupt transaction relative to not engaging in it depends on the number of other people doing the same. Gain from being corrupt from the point of an individual depends on how many other individuals in the same organization or society are expected to be corrupt. This is so for many different reasons:

- It is harder to seek out and punish corrupt officials in environments where everybody is corrupt.
- Corrupt individuals prefer to interact with other corrupt individuals and continue to be corrupt if they have interacted with corrupt individuals in the past.
- The reward to rent-seeking relative to entrepreneurship is high in societies where most individuals seek rents and accept bribes.
- Internalized moral feelings of guilt by fraudulent behavior decrease as the number of corrupt officials increases.
- The stigma and reputation costs associated with breaking social norms are higher in a situation when few other staff members are corrupt. This stigma is especially low during transition periods (more on corruption in transition see Goczek, 2010).
- Officials act upon a social convention arising under the assumption that they tend to imitate relatively more rewarding behaviors either by learning from experience in dynamic interactions or by progenitors transmitting their strategy to their progenies.

Each of these mechanisms has the potential to make corruption self-reinforcing and to generate multiple equilibriums whereby organizations or countries with the same characteristics can experience very different corruption levels. This gives a role to history as a major determinant of corruption and explains its persistence. Countries can be “stuck” in density dependent equilibriums; the level of corruption in a country moves towards either a high or a low equilibrium depending on the initial situation. However, this setting leads to density dependant effects: i.e., critical population thresholds, which separate equilibriums with low levels of corruption from equilibriums with high levels of corruption. The presence of multiple equilibriums in turn raises the possibility of moving from a current “bad” equilibrium to one that is socially superior. This suggests that a ‘big push’ strat-

egy is needed to reduce corruption levels in societies where corruption is pandemic. The question of how to make such a move has apparently not received much attention other than reports of various institutions. We know only that some countries remain trapped in the bad equilibrium and that radical action is needed, but what exactly should be done is not exemplified in the literature. This shows pathways for further research on causes of post-communist corruption. An interesting extension of the current research would be to study the effects of European integration on corruption in the post-communist countries.

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