

ERASMUS UNIVERSITEIT ROTTERDAM

Corruption, Competition, and Judiciary Independence in the Eastern-European airline market

Cross-country analysis with focus on the Republic of Moldova

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Abstract

The airport industry in Eastern Europe has undergone a lot of changes in the last decade due to liberalization, commercialization, privatization and regulatory changes. However, in some developing countries like the Republic of Moldova has been suffering from high level of corruption and weak judiciary independence. In this paper, we analyze the key aspects of the airline market's barriers. How does corruption affect the number of operating firms in the airline market? Does higher concentration level create a barrier to the potential businesspersons? After a review of the literature on corruption, competition in the airline market, judiciary independence and concentration index, we analyze the number of operating airlines in ten Eastern European countries.

Key words: Airline Market, Corruption, Judiciary Independence, Competition, Concentration

Introduction

The Moldovan airline market history dates back from September 19, 1944, when it was started the Moldovan Independent Aviation Squadron, also considered to be the official day of the Civil Aviation foundation in the Republic of Moldova. Since then, the Chisinau Airport is the main air gateway of the Republic of Moldova. Nowadays, 19 airlines are operating in the Moldovan airline market, of which 4 are home and 15 are foreign carriers, who connect Chisinau to 29 destinations around the world. In 2013, 1,321,362 passengers were processed in the Chisinau Airport, an increase of 8.26% in comparison with 2012, which is a record number in the Airport's history (Aeroportul Internațional Chișinău, 2014).

However, Republic of Moldova is still one of the most expensive air flight destinations in Europe. Moldova and Belarus are the only European countries where low-cost flights were not operating until fall 2013 because the market was not liberalized. From the collapse of the Soviet Union in 1991, every Moldovan government have been declaring that they want air transport liberalization. Unfortunately, Greceanii government's strategy adopted in 2008, and the Alliances for European Integration I and II, that prioritized air transport liberalization, failed to reach considerable achievements due to clashes of government programs and the public desire with the sector specific interests that want to retain the protectionist barriers favoring the national air carrier (Institute for Development and Social Initiatives "Viitorul", 2011).

On June 26, 2012 the Republic of Moldova has signed the European Common Aviation Area Agreement (ECAA), a bilateral agreement between European countries about a single market in aviation services, with the European Union. Since then, not much has changed due to prices remaining high and number of establishments operating the airline market remained the same. Only one low-cost carrier joined Moldovan airline market in September 2013. It is crucial to understand that Moldova is far behind its competitors at the moment, in comparison with a similar country. The population of Latvia is about 2.2 million, while Moldova's population is 3.6 million, however, the number of transported passengers in Latvia in 2009 was 4.1 million, whereas in Moldova it was 806 thousand people (Institute for Development and Social Initiatives "Viitorul", 2011). The difference is obvious. Yet one might argue that in 2009 Moldova did not have visa-free regime with the European Union, however

back then, smaller airports from countries without visa liberalization with the European Union like Lviv or Odessa in Ukraine also provide cheaper tickets than Chisinau.

Researches made by the Ministry of Transport and Roads' Infrastructure of the Republic of Moldova have concluded ambiguous and shady reasons standing behind the closed airline market in Moldova. Results of these researches have not provided society with proper answers to the issues that bother the whole country.

Therefore, the research question is: *Why businesspeople hesitate to enter the Moldovan airline market?*

This paper investigates the issues of the Moldovan airline market's slow development going beyond mainstream problems that are of main focus by the research institutes and which are neglected by the government. Focus would be given to the corruption perception, concentration of the airline markets, global competitiveness and judiciary independence of the countries. The analysis will look for a pattern by testing the hypotheses on an Eastern European scale, which we will discuss further.

First, the hypotheses will be discussed in detail supported by the existing literature concerning this subject, and expectations will be revealed. Second, the data used and the methodology will be explained in order to present the validity of the hypotheses and focusing on the model used to test the hypotheses. Afterwards, the results of the regression analysis will be discussed, and last, conclusions will be drawn and the limitations of the paper will be discussed.

Background and Hypotheses

Corruption is recognized as one of the most significant obstacle to economic and social development. It was identified in the World Economic Forum's Global Competitiveness Report as one of the top five impediments to doing business in 58% of the 144 countries analyzed. In the aviation and travel industry, the complexity of the corruption problem is unparalleled given the global reach of value chains in this industry and the countless third parties involved. As aviation and travel companies' operations in emerging markets grow, so do the risks and complexity of corruption for the industry. Corruption is now seen as a key

impediment to investment in some emerging regions, which may partially explain why there is a significant relationship between perceived corruption, and travel and tourism sector competitiveness (World Economic Forum, 2014).

The relationship between corruption and economic growth has been broadly studied in the literature. Corruption is one of the most pervasive obstacles to economic growth and social development, as it is well observed that some countries with poor economic performance like the Republic of Moldova also suffer from severe corruption. From the theoretical point of view, many researchers attempt to explain this phenomenon by addressing various issues in the macroeconomics of misgovernance (e.g., Ehrlich & Lui, 1999; Sarte, 2000). A considerable amount of empirical evidence shows that corruption directly deters economic growth and development (e.g., Keefer & Knack, 1997; Knack & Keefer, 1995; Li, Xu, & Zou, 2000; Méon & Sekkat, 2005).

Competition in markets promotes equal opportunity. With free entry, smaller entrepreneurs and those who lack social or network connections, often the poorer members of society, have a better chance at undertaking productive activities. With more international competition and trade, and greater access to industrial country markets and technology, poor countries have a better chance at developing their markets. Competition is an important force in promoting institutional change as well as economic development and growth. Competition can create demand for more effective institutions, and it can sometimes also substitute for complicated regulation—a very important benefit, given the often limited capacities of developing country governments. The priority for countries in promoting competition in product markets is trade liberalization—and removal of entry and exit barriers for firms, which is what Moldavian governments are trying to succeed. In many developing countries, barriers to competition in domestic markets arise from public policy: onerous regulations on potential new entrants or exit barriers can deter entry. Such regulations often discriminate against poor or small entrepreneurs, who are least able to pay the higher costs associated with them as well as the costs of corruption, which is facilitated by overregulation of business activity. The number of procedures is associated with larger unofficial economies and a higher level of corruption. Governments can address private and natural barriers to product market competition using competition laws and competition authorities. Some of the more

prominent examples of private barriers to product market competition are monopolies, cartels, and vertical restraints. The priorities for developing countries in promoting competition should be liberalizing international trade and reducing government-erected entry and exit barriers in product markets (World Bank, 2002).

At the moment, there are many departments in the Republic of Moldova where corruption has become a norm of their life. It is unclear that unless this trend is checked, the country cannot make any progress and cannot achieve targets, which is why the abovementioned government programs failed to succeed in their goals regarding liberalizing the airline market in Moldova (Kazmi, 2013).

The independence of the judiciary has been and still is an issue of major concern in the Republic of Moldova. The inclusion of the guarantee of the independence of judiciary among the major government strategic documents is perhaps the best evidence of the problems faced. Hence, an inefficient judiciary and the persistence of corruption are one of the weaknesses mentioned in the National Development Strategy for 2008-2011 and ensuring the independence of the judiciary is stated to be a medium term goal. Since then, not much has changed (Hanganu & Hriptievski, 2012).

The behavior of some individual judges, noted back in many of the SCM divisions, civil society and international organizations' reports, denotes a lack of independence and understanding of the judges' role in a democratic society. The conclusion noted back in 2003 regarding the main obstacles to reforming and ensuring the independence of the judiciary, namely lack of patience, perseverance and will of the political class, and lack of understanding of their role among many judges, is, regrettably, still valid. Judges who do not see themselves as independent, irrespective of governmental or other political or group interests, and do not act accordingly, are the biggest threat to judicial independence. In addition, financially the judiciary is still not adequately resourced, as regards the salaries of both judges and auxiliary personnel, court buildings and equipment and the budgetary process. This raises incentives for a more corruption amongst judges (Hanganu & Hriptievski, 2012).

Next to that, we will look at how the concentration of the markets in the Eastern European economies have an influence on the entry levels of potential businesspersons into the

economy. Empirical studies of the airline market shows that, as market concentration increases, so does the average price level (Severin, 1992; Morrison & Clifford, 1990), which is observed in the Republic of Moldova.

To find an answer to the research question, the following hypotheses will be tested:

H1: Level of corruption deters entry into the Moldovan airline market.

H2: The judicial system affects positively the number of operating airlines in the Republic of Moldova.

In this paper, the corruption index and judicial index will be taken as measurement, because various researches has proven that the entrepreneurial activity in the Republic of Moldova is suffering from a phenomena of bribery and local influence, be that societal or political. Anyway, the majority of population bears the failures of the economic system.

H1: Level of corruption deters entry into the Moldovan airline market.

Corruption is one of the most significant impediments for the reform and for the economic recovery of the Republic of Moldova. Not only does the inefficient system of governance be the main reason for poor economic performance, rather there are many reasons for that:

- Unfavorable economic conditions;
- Constantly changing environment;
- Lack of understanding and support from population;
- Lack of political will and fear of making major steps towards market reforms.

These factors are important; however, the single factor that most negative impact is affected on the governance and the development of the country is the corruption (Carasciuc, sd).

The Moldovan airline market is not an exception. There have been multiple reports written on the corruption of the employees at the Chisinau airport, who were caught on falsifying documents, contraband, protectionism and illegal immigration (Antena 3, 2007).

These factors create more unwillingness for the businesspersons to consider Moldovan airline market as an opportunity.

H2: The judicial system affects positively the number of operating airlines within a country.

Second main impediment for the airline market development is the independence of the judiciary of the Republic of Moldova. As we have seen before, judicial independence has an influence on whether a foreign investor and/or businessperson can join the Moldovan airline market. However, in practice, it creates doubts whether the government contributes to competitive environment and not to granting monopolistic powers through shadowing the real reasons and benefiting certain individuals, who hold share in the only airport of the Republic of Moldova.

The next section describes how the relevant data was collected and explains the reasoning behind each variable.

Data

To test the two hypotheses mentioned earlier in this research, a quantitative study will be done. Via statistical techniques, which will be specifically explained later in the paper, an answer to the research question will be found.

The collected data for the first hypothesis comes from the global coalition against corruption “Transparency International”. Transparency International is one global movement sharing one vision: a world in which government, business, civil society and the daily lives of people are free of corruption. They have been collecting and analyzing data for more than 20 years and are not affiliated by any of the external forces. The data proves to be non-biased and most reliable amongst all available sources.

The variables of interest are: corruption perceptions index, global competitiveness index and judicial independence index.

- The Corruption Perception Index ranks countries/territories based on how corrupt a country’s public sector is perceived to be. It is a composite index, drawing on corruption-related data from expert and business surveys carried out by a variety of independent and reputable institutions.

- The Global Competitiveness Index provides a comprehensive picture of the competitiveness landscape in countries around the world at all stages of development.

The index comprises of 12 pillars: institution, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, innovation (Transparency International, 2014).

In addition to the model, a Herfindahl Index will be added to the model. The Herfindahl index (also known as Herfindahl–Hirschman Index, or HHI) is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them. The reason for the use of this variable is to establish and acknowledgment about the concentration of the airline market in the Republic of Moldova.

The data for the second hypothesis is an addition to the model for the first hypothesis. We will add to the model a variable responsible for the judicial system in the Republic of Moldova, the Judicial Independence variable.

- Judicial Independence is an indicator in the Global Competitiveness Index produced by the World Economic Forum. It measures the perceived extent in which the judiciary of the country is independent from influences of members of government, citizens, or firms (Transparency International, 2014).

This variable will help us understand to which extent is the judicial system in the Republic of Moldova influenced by the external players in the economy and how it affects the entrée blocks to the business field in the country. Hence, a broader picture of the situation will be observed.

In the analysis we are dealing with 10 Eastern European countries (according to the United Nations Statistics Division): Belarus, Bulgaria, Czech Republic, Hungary, Republic of Moldova,

Poland, Romania, Russia, Slovakia and Ukraine. As these countries differ in terms of size, a logarithmic value of total population per country is added to the model.

In addition, the logarithmic value of GDP per capita variable will be used. The Gross Domestic Product(GDP) is one of the primary indicators of a country's economic performance. It is calculated by adding up the value of all final goods and services produced in the economy during the year. The GDP per capita is especially useful when comparing one country to another because it shows the relative performance of the countries. Data for GDP will be taken from World Bank for the year the study was conducted.

Next to it, a variable, responsible for the number operating airlines in the market will be added to the model and will be used as the dependent variable.

The descriptive statistics are shown in the table 1 of the Appendix. The data for the model is taken for the year 2011. The reason is that the year 2011 is the last year when the data from Transparency International was last published. Therefore, the study will be conducted for all other variables for the year 2011 as well. The next chapter describes the methodology used to predict the number of establishments in an airline market of a country.

Methodology

In order to examine the hypotheses effects, I will look at the effects in countries in Eastern Europe that have the same important characteristics with Moldova: economical background, history, influence by Russia or EU, geolocation, wage levels.

The key determinants found to be of influence on the number of operating firms are Corruption Perception Index, Global Competitiveness Index, Herfindahl Index and Judicial Independence Index. To test whether these determinants have a different effect on the number of establishments in the airline market, a Poisson regression model is used.

In statistics, Poisson regression model is a form of regression analysis used to model count data and contingency tables. Poisson regression assumes the response variable Y has a Poisson distribution, and assumes the logarithm of its expected value can be modeled by a

linear combination of unknown parameters. Since our dependent variable is a count variable, it is most appropriate to use Poisson regression model to test the two hypotheses.

The equation for the first hypothesis is scheduled below:

$$(1) \#(\text{Operating firms in the airline market } i) = \alpha + \beta \text{HerfindahlIndex}_i + \delta \text{LogGDPperCapita}_i + \varphi \text{LogPopulation}_i + \gamma \text{CorruptionPerceptionIndex}_i + \tau \text{GlobalCompetitivenessIndex}_i + \varepsilon$$

— Where i denotes country, and ε is the error term.

As mentioned earlier in the paper, the expectation is that the probability of new firm establishment in the Moldovan airline market is low due to high concentration of the airline market in the Republic of Moldova and the corruption perception index is relatively high to bear the risk. So the prediction is that γ has a negative sign.

Concerning the second hypothesis, the effect of the Judicial Independence variable is added to the model to observe how it might have a result on the regression analysis. This could be seen in the next equation:

$$(2) \#(\text{Operating firms in the airline market } i) = \alpha + \beta \text{HerfindahlIndex}_i + \delta \text{LogGDPperCapita}_i + \varphi \text{LogPopulation}_i + \gamma \text{CorruptionPerceptionIndex}_i + \tau \text{GlobalCompetitivenessIndex}_i + \omega \text{JudicialIndependenceIndex}_i + \varepsilon$$

— Where i denote country, and ε is the error term.

The prediction is that the judicial independence index has a positive effect on the number of operating firms in the market.

Results

With the help of the abovementioned Poisson regression model and the check for the main effects of the variables in the model, some interesting results have been found. The results for the first hypothesis are shown in the table 2. The continuous variable information is presented in the table 3 in the Appendix.

Table 2: Poisson regression results for the model (1).

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	- 8,428	3,2150	-14,729	-2,127	6,872	1	,009
GDP per Capita Logarithm	-,051	,2791	-,599	,496	,034	1	,854
Population Logarithm	,424	,1297	,170	,678	10,675	1	,001
Herfindahl Index	5,582	1,5561	2,532	8,632	12,869	1	,000
Corruption Perception Score	- 1,497	1,8649	-5,152	2,159	,644	1	,422
Global Competitiveness Index	7,021	7,3016	-7,290	21,332	,925	1	,336

Dependent Variable: Operating Airlines.

Model: (Intercept), GDP per Capita Logarithm, Population Logarithm, Herfindahl Index, Corruption Score, Global Competitiveness Index.

As it can be observed, the *Population logarithm* and the *Herfindahl Index* have a significant effect on the number of establishments in the airline market within a country, proving our expectations that concentration of the market presents an effect on the airline establishments. However, the effect is positive for the Herfindahl Index, meaning that an increase in the concentration index of a country leads to an increased number of new establishments in the airline industry, which counteracts our predictions. In the airline industry, the most efficient number of firms is very low, this is because of economies of scale, therefore, a higher concentration ratio could be beneficial in this industry, however, as we can observe, there might be still room for the new airlines in the market. In addition, none of

the other variables of interest, except for the constant and Herfindahl Index variables, have shown to be of significant values in the model. In addition, an increase in the population has a positive effect on the number of establishments in the airline market of a country.

Next, the Judicial Independence Index is added to the model. The results for the model (2) are shown in table 4. The continuous variable information is presented in the table 5 in the Appendix.

Table 4: Poisson regression results for the model (2).

Parameter	B	Std. Error	95% Confidence Interval		Wald Hypothesis Test		
			Lower	Upper	Wald Chi-Square	df	Sig.
(Intercept)	-11,927	5,9596	-23,607	-,246	4,005	1	,045
GDP per Capita Logarithm	-,091	,2820	-,644	,462	,103	1	,748
Population Logarithm	,492	,1615	,175	,808	9,277	1	,002
Herfindahl Index	5,896	1,6393	2,683	9,109	12,934	1	,000
Corruption Perception Score	1,610	4,7596	-7,719	10,938	,114	1	,735
Global Competitiveness Index	11,984	10,3764	-8,353	32,322	1,334	1	,248
Judicial Independence Score	-3,782	5,3411	-14,251	6,686	,502	1	,479

Dependent Variable: Operating Airlines

Model: (Intercept), GDP per Capita Logarithm, Population Logarithm, Herfindahl Index, Corruption Score, Global Competitiveness Index, Judicial Independence Index.

From the table above is can be seen that the *Herfindahl Index* and *Population Logarithm* variables still remain statistically significant, while all other variables have shown to be insignificant. Moreover, Herfindahl Index still shows a positive relation with the number of firms operating in the airline industry of a country. As discussed before, this does not follow our predictions regarding the results of the model.

Conclusions

The issues of the Moldovan airline market liberalization has been of primary interest for all of the governmental programs in the last decade, however, unfortunately, yielding no results for the society nor businesses. In this study, the different effects on the airline market industry have been studied. Data has been gathered from the Transparency International and World Bank, and the Poisson regression model has been used to test the two hypotheses.

First, the results provide information on whether the Corruption Perception index along with market concentration index have an effect on the number of established firms within airline industry. Consequently, it can be said that nor the corruption perception index nor GDP per capita have proven to be influencing the number of firms operating in the market, which rejects the first hypothesis, meaning that corruption index does not influence the decision of the investors to consider entering the Moldovan airline market. In return, the population of a country does count for the number of establishments within the airline industry of a country.

Second, the effect of the Judiciary Independence Index also does not have a significant influence on the number of firms in the airline market industry. The population and Herfindahl Index variables remain statistically significant. As a result, the second hypothesis is rejected as well.

In turn, it is the Herfindahl Index and the population of a country that affects the decision of the businesspersons to consider entering the airline market industry. However, there are a few shortcomings in the model, which are described in the limitations part of this paper.

Limitations

The main limitation of the analysis is the limited data and the study would surely benefit from more-extensive data. In particular, data should be collected about the entries and exits of foreign firms at each of the airports of Eastern European countries. As a recommendation, extra explanatory variables must be added to the model to check the effect of the number of establishments in the airline market industry, that includes: political stability, demand for the tickets, salary to ticket-price ratio, monopolistic rights, entry and exit number of procedures and others.

In addition, Eastern European countries have been suffering a change in the political regime and have been influenced by Russia in the Moldovan and Ukrainian territories, a fact, that increases uncertainty in future prospects of maintaining business for businesspersons. A time-series data analysis would considerably shed some more light on legitimacy of the model, however in that case, research data must be conducted carefully due to unavailability of it and/or biasness.

Appendix

Table 1: Descriptive statistics of the variables used.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Operating Airlines	10	4,00	148,00	23,7000	44,01023
GDP per Capita Logarithm	10	7,04	9,61	8,6963	,83128
Population Logarithm	10	15,09	18,78	16,5422	1,12769
Herfindahl Index	10	,08	,38	,1590	,09098
Corruption Perception Score	10	,25	,60	,4100	,11662
Judicial Independence Score	9	,30	,61	,4356	,10956
Global Competitiveness Index	9	.56	.64	.6033	.02614
Valid N (listwise)	9				

Table 3: Continuous variable information for the model (1).

Continuous Variable Information						
		N	Minimum	Maximum	Mean	Std. Deviation
Dependent Variable	Operating Airlines	9	4,00	148,00	25,8889	46,09893
Covariate	GDP per Capita Logarithm	9	7,04	9,61	8,7181	,87868
	Population Logarithm	9	15,09	18,78	16,5954	1,18272
	Herfindahl Index	9	,08	,38	,1489	,09034
	Corruption Perception Score	9	,25	,60	,4233	,11533
	Global Competitiveness Index	9	.56	.64	.6033	.02614
	Judicial Independence Score	9	,30	,61	,4356	,10956

Table 5: Continuous variable information for the model (2).

Continuous Variable Information						
		N	Minimum	Maximum	Mean	Std. Deviation
Dependent Variable	Operating Airlines	9	4,00	148,00	25,8889	46,09893
Covariate	GDP per Capita Logarithm	9	7,04	9,61	8,7181	,87868
	Population Logarithm	9	15,09	18,78	16,5954	1,18272
	Herfindahl Index	9	,08	,38	,1489	,09034
	Corruption Perception Score	9	,25	,60	,4233	,11533
	Global Competitiveness Index	9	.56	.64	.6033	.02614
	Judicial Independence Score	9	,30	,61	,4356	,10956

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