Chapter 24
Evaluation of LPI Values of Transition Economies Countries With a Grey MCDM Model

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ABSTRACT

This study has three objectives. First, there are many publications in the literature on the countries of transition economies. However, there are few publications in the literature on the logistics performance of countries of transition economies. This study analyses the logistics performance of countries of transition economies to fill this research gap. Second, only a few studies on LPI considered the period in calculating LPI values. This study considers the period in LPI calculation by using grey MCDM methods to fill this research gap. Third, this study proposes a new integrated grey MCDM model consisting of grey SWARA and grey MOORA. Both grey methods are more practical compared to other grey methods. Both methods were preferred in this study as they have simpler and less processing steps than other grey MCDM methods. According to the results of grey SWARA, the most important criterion is determined as "Infrastructure" (I) criterion. According to the results of grey MOORA, the country with the best logistics performance has been identified as "Serbia."

INTRODUCTION

Since the end of the 20th century in the world; important changes have started to take place in terms of economy, politics, culture and geographical borders. The most important of these is the fall of the Berlin Wall at the end of 1989 and the unification of East Germany and West Germany. After this event, at the end of 1991, the Soviet Union was completely disintegrated, and in 1993 and after, Yugoslavia and

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Czechoslovakia were disintegrated. While these events took place on the world agenda, they initiated a process that would lead to permanent changes in the world economy and politics. In the context of the collapse of the Eastern Bloc and new developments, countries that have started the transition to a market economy have a large geographical area and population. Especially after the 1990s, the changes were not limited to the geography of the Soviet Union. The Central and Eastern European countries, which had to adopt the socialist system after World War II and took the central planning economic system as a role model, started to make radical changes in the social and economic field. It has become possible to examine the countries entering the transition economies as qualifying as transition to the market economy or transformation countries.

Transition economies are studied in different groups because their countries are located in different regions and geographies. Transition economy countries can be listed as follows; EU countries (Bulgaria, Czech Republic, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia), Southeast Europe Countries (Albania, Bosnia-Herzegovina, Kosovo, Montenegro, Macedonia, Serbia), Community of Independent States (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan), East Asia Countries (Cambodia, China, Lao P.D.R., Mongolia, Vietnam) (IMF, 2000; Bulut, 2019).

There are many publications in the literature on the countries of transition economies. However, there are few publications in the literature on the logistics performance of countries of transition economies. Logistics can be described as one of the vital veins of a country's economy and it is also an important part of international trade. Countries can identify their position and status in international trade by controlling their performance in logistics activities. One way to control their logistics performance is to assess LPI (logistics performance index) values of them. WB (World Bank) releases the LPI values of countries every two years. In the computing of LPI value for each country, six indicators, which are tracking and tracing (TT), logistics quality and competence (LQC), international shipments (IS), customs (C), timeliness (T) and infrastructure (I), are considered. While identifying the LPI, the World Bank makes scoring (one to five) surveys. Scores (one to five) indicate that countries with close to five scores have high logistics performance, while countries with near to one scores have low logistics performance. In the literature, many studies have listed the countries with respect to LPI values by MCDM (multi-criteria decision making) methods (Çakır, 2017; Martí et al., 2017; Rezaei et al., 2018; Yildirim and Mercangoz, 2019). This study will evaluate the LPI values of transition economies countries by applying an integrated grey MCDM (multi criteria decision making) model consisting of grey SWARA (step-wise weight assessment ratio analysis) and grey MOORA (multi-objective optimization on the basis of ratio analysis). Countries wishing to increase their LPI values do not know which criterion should pay more attention since WB considers all criteria (indicators) equally weight in the calculation of LPI. By using grey SWARA, the weights of criteria are determined in this study and grey MOORA method is used to rank transition economies countries. The grey MCDM methods used in the study, unlike crisp MCDM methods, will enable the evaluation of the data of the countries in more than one year. The proposed method is not based on a single year, and instead of this, a period is taken into account. Thus, a more robust approach is proposed to analyse the LPI values of transition economies countries. This study has three objectives. First, there are many publications in the literature on the countries of transition economies. However, there are few publications in the literature on the logistics performance of countries of transition economies. This study analyses the logistics performance of countries of transition economies to fill this research gap. Second, only a few studies (Yildirim and Mercangoz, 2019) on LPI considered the period in calculating LPI values. This study considers the period in LPI calculation to