Chapter 62
Disaster Impact and Country Logistics Performance

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ABSTRACT

The study in this chapter seeks to answer the question whether a country's logistics performance has a correlation with the impacts of a disaster; impact being measured in average amount of affected, the average amount of deaths, the average amount of injured in a disaster or the average amount of economic damage. This is a quantitative study where the EM-DATs disaster data is analyzed through correlation analysis against the World Bank's logistics performance index (LPI). The findings do not show a significant relationship between countries LPI and the average number of deaths or injured persons in a disaster. A positive correlation between the variable LPI and the variable economic damage can be found. A negative correlation between the LPI and the average amount of affected can be found for countries with an average ranking LPI. Countries with low LPI and high disaster occurrence are further identified. Findings encourage the identified countries to take into consideration their logistics performance when planning and carrying out humanitarian response operations. Results also encourage humanitarian organizations to pay attention to the receiving countries' logistics performance in planning and carrying out humanitarian response operations.

INTRODUCTION

Each country or area has a different logistics performance in e.g. transporting goods. According to Hausman *et al.* (2005) it can take 93 days to export a 20-foot full container load (FCL) of cotton apparel in Kazakhstan while in Sweden it takes only 6 days. A country's logistics performance affects the country's trade competitiveness (Arvis *et al.* 2010), but is there an effect as well on a country´s ability to transport goods in the event of a disaster? A country's capacities to handle the effects of an event are fundamental in the determination whether an event is a disaster or not. It's fundamental since the effects of an event are not determined as a major disaster as

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long as a system or a nation has the capabilities to cope with the effects of the event. (Kovács and Spens 2007). A country's logistics performance is therefore important knowledge for humanitarian organizations in order for them to know when and if their assistance is needed.

A country´s own capacity to handle a disaster is seen to affect the impact of the disasters (Beresford and Pettit 2009). In the first 72 hours the affected country is most likely responsible for handling the effects of the disaster singlehandedly. In the case of an event where immediate relief is required, humanitarian organizations have in average the aim to reach the affected area within 72 hours of the disaster occurrence. And, when humanitarian organizations arrive on location, they still rely heavily on the resources in the country: can supplies and other resources be found locally and what kind of infrastructure is in place in the affected country? In recent years, humanitarian organizations' planning and preparing for disasters has improved (McEntire 1999) but an increased capacity building for country´s own planning has not been seen.

Countries' logistics performances vary and there are several different measurements in use for determining performance. There are variations in the level of infrastructure and large variations as well in country specific policies and procedures which in the commercial sector affect the trade competitiveness (Hausman *et al.* 2005). A country's trade competiveness has in empirical studies been found to have a statistical link with the county's logistics performance. The link has been found between transport cost and trade flows, and between the quality of the infrastructure and transport costs (Hausman *et al.* 2005; Limao and Venables 2005). The logistics performance of a country could be likened to the timeliness and cost in a humanitarian response operation in a similar manner it is linked to trade competitiveness. The logistics performance in a country might even have a larger significance for the humanitarian sector than for the commercial, since a disaster is determined by time and place uncertainty and the outcome of the operations is measured in lives (Kovács and Spens, 2007). In a relief operation the logistics performance of the affected country might therefore be crucial in successfully accessing and aiding the ones affected by a disaster.

IS THERE A CORRELATION BETWEEN DISASTER IMPACT AND COUNTRY LOGISTICS PERFORMANCE?

This study compares countries' logistics performance with the impact of occurred disasters. The aim is to analyze whether a country's logistics performance has a correlation with the average amount of affected population, the average amount of deaths, the average amount of injured or the average amount of economic damage per disaster.

The secondary aim of the study is to identify countries where disasters are re-occurring or where a high number of people are affected by the disasters and where the logistics performance is low. For example, between 1990 and 1998, approximately 94 per cent of major natural disasters and more than 97 per cent of all natural disaster-related deaths occurred in developing countries (World Bank 2001). Developing countries also have in average a lower logistics performance than developed countries when calculated in relation to income per capita (Arvis *et al.* 2010). In this study three hypotheses are tested through correlation analysis.

Hypothesis 1: There is a negative correlation between country logistics performance and disaster impact (low country logistics performance correlates with high disaster impact; high country logistics performance correlates with low disaster impact).

Hypothesis 2: The correlation between country logistics performance and disaster impact differ depending on the level of logistics performance (high, medium, low).