Chapter 32
Linkage Between Regional Accessibility, Economic Development, and Logistic Infrastructure

Ana Vulevic
Institute of Transportation (CIP), Serbia

ABSTRACT

This chapter reviews regional accessibility and relationship between regional accessibility, the logistic infrastructure and regional economic development. The purpose of this chapter is to emphasize the complexity and causality of this relationship. Transport infrastructure is an important policy instrument to promote regional economic development. In addition, development of logistics is a very important part of the transport policy, while accessibility is an important determinant of the attractiveness of regions for logistics activities. Accessibility indicators measure the benefits households and firms in a region enjoy from the existence and use of the transport infrastructure. Economic development may determine transportation needs and lead to infrastructure improvements and accessibility. The theoretically is defined and empirical evidence that transport accessibility suggests that there is a link between the accessibility of the region and its competitiveness and, therefore, regional economic growth.

1. INTRODUCTION

The accessibility of a location is a key factor for the location decision of logistics companies. Better accessibility results in lower transportation costs and a shorter time to the market (Limão & Venables, 2001). Here, the linkage between the regional accessibility, economic development and logistic infrastructure is illustrated and defining accessibility based on three different modes of transportation, namely (main) road, rail and air transportation. In this chapter, we contributed to the subject by illustrating the linkage of the logistic transport infrastructure and economic development through the review by proposed indicators: gross domestic product per capita (GDP per capita), accessibility, the market (economic) potential accessibility indicator, transport infrastructure endowments indicators and logistic performance index.

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Analyzed the concept of accessibility as a baseline for territorial and market potential accessibility indicators of transport infrastructure is developed in more detail in the chapter. Relevant accessibility models and their indicators are presented. The chapter is providing a comprehensive review of the different definitions and measures of accessibility found in the literature and in transportation planning practice.

The transport infrastructure is an essential part of logistic systems and the lack of it has a strong influence on economic growth. This chapter provides a brief review on existing indicators for transport networks and services. The starting point is that the quality of transport infrastructure in terms of capacity, connectivity, travel speeds etc. determines the quality of locations relative to other locations, i.e. the competitive advantage of locations which is usually measured as accessibility. However, today approaches relying only on accessibility or potential measures have been replaced by hybrid approaches where accessibility is one of several explanatory factors of regional economic growth, including soft location factors. Also the accessibility indicators used have become much more diversified by type, industry and mode (see Schürman, Spiekermann, & Wegener, 1997). The SASI model - Regional economic model SASI (Socio-economic and Spatial Impacts) is model of this type incorporating accessibility among other explanatory variables and considers transport a production factor of great importance for regional economic development.

Transportation considerably affects the performance of the logistics system and it is necessary for the execution of logistics operations. On the other side logistic systems can help improve the organization and development of transport. Therefore, the efficiency of the transport process, i.e. the quality of transport logistics is crucial in the chain of delivery and supply.

Transport infrastructure investments positively influence a region’s economic growth if three conditions are met: it increases accessibility within a region, transport is a relevant input for the processes of the firms in the area and the infrastructure does not generate significant negative environmental externalities (Berechman, 1994).

Investment in transport infrastructure leads to changing locational qualities. “A well-developed transportation system provides adequate access to the region, which in turn is a necessary condition for the efficient operation of the manufacturing, retail, labor, and housing markets” (Ozbay, Ozmen, & Berechman, 2006). One of the key factors to a region’s economic performance is a reliable and efficient transportation. This allows for an analysis of the accessibility focusing on four different modes of transportation: road, rail, water and air.

This paper analyzes the relationship between regional accessibility, economic development and logistic transport infrastructure. A relation between the quantity and quality of transport infrastructure and the level of economic development is apparent. High density transport infrastructure and highly connected networks are commonly associated with high levels of development. When transport systems are efficient, they provide economic and social opportunities and benefits that result in positive multipliers effects such as better accessibility to markets, employment and additional investments. When transport systems are deficient in terms of capacity or reliability, they can have an economic cost such as reduced or missed opportunities and lower quality of life (Rodrigue, Comtois & Slack, 2013).

The aims of the chapter are: (1) to show the view on the logistic from the view point of regional accessibility as of spatial indicator of transport infrastructure; (2) to provide an overview of the existing logistic infrastructure indicators, and (3) to illustrate the relationship between the regional accessibility and economic development.