THE ROLE OF LOGISTICS IN REGIONAL DEVELOPMENT

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ABSTRACT
Gene technology, information technologies and logistics are ranked among the most important strategic sectors of 21st century. Particularly, the fact that production and distribution of goods and services are not satisfactory today; has both contributed to development of logistics within the supply chain by creating a value chain throughout the channel and introduced its aspect which supports regional development in economic sense. Logistics today, stands before us as the most important weapon of competitive advantage; and all investments made almost in all areas of logistics, aid regional development in micro scale and national development in macro scale. In the context of economic impact, the effect of logistics on GDP is significant. Logistics, in the same way, effects development and improvement of education, health and all other development related issues in its region through investments and improvements. In this study, firstly regional development is defined then the goals of regional development and the role and effects of logistics in regional development are presented.

Keywords: Regional Development, Logistics, Economic Impacts, GDP

INTRODUCTION
Logistics, assisting flow of goods, services, and values within the chain from the production spot to the consumption spot and oppositely, from the consumption spot to the production spot; signifies an important point in terms of development of economies. Share of logistics within GDP in most developing countries cannot be denied. Today, when separation of production from consumption, and execution of both activities within limits are in question; logistics management has gained importance and has become one of the important factors determining development levels of various regions within countries. The concept of regional development has been identified, and importance and objectives of regional development have been defined in the study. Besides, the role of logistics in regional development has been explained and the impact of logistics sector in development of Turkey has been presented through various numbers. As the method of the study, official institution resources, academic studies and internet resources covering statistics related to logistics and development have been analyzed, a research has been built up, and to put forth the role of logistics on regional development has been aimed.

Surging Concept: Regional Development
Though the term regional development does not have a deep history, the mentioned term has emerged in relation with development economics and has started to gain importance particularly in 1940s (Bildirir, 2005: 7). The term region, “regio” in Latin; has meanings including surrounding, environment, yet it is a multidimensional concept with multiple meanings, borders of which are hard to draw (Durgun, 2006: 39).

Regional development signifies the income growth as well as the revision of socio-economic structure in a region. Yet the regional development concept involves many different and more complex networks of relations compared to national development concept. Regional development might be defined as increasing the level of income and employment and improving the life quality by triggering own resources of the region and promoting entrepreneurship (Uzay, 2005: 19– 20). According to another definition, regional development concept is also defined as a sum of positive values providing effectiveness and wealth which do not impair the equilibrium of compatibility on consistence of sustainable development strategy in broad sense and national level (Ildırar, 2004: 16).

The Importance And Goals Of Regional Development
The goal of regional development is to facilitate harmonious distribution of all types of resources, economic activities and population among geographical regions (Kaya, 2009: 26).
Regional development policy has three main goals generated from the general economy policy. First, the goal of growth to generate preliminary conditions required in growth points in regions for general economy to grow faster, second the goal of stability to maintain stable development of employment and income in the economy to the maximum extent. Finally, the goal of balancing and equalization to maintain balanced and respectively equal distribution and endowment of economic resources among regions. The goals of regional development, in parallel to national goals, are based on development of the whole country (Ildırar, 2004: 19-20).

There is a strong relation between regional development and national development. Development of regions which constitute a country means development of the mentioned country. Maintaining effectiveness in resource distribution and realization of social justice in income distribution are the most important goals of regional development (Aydın, 2012: 13). Another goal of regional development is to minimize both economic and social and cultural imbalances between provinces among regions by following a balanced development policy. Therefore, the government values regional development policy in state development plans and promotes development of underdeveloped regions (Gündüz, 2006: 177).

The road to national development is in direct relation with realization of regional development. Exactly at this point, the benefits of regional development on state economy can be listed as given below (Tekin, 2011: 38).

- Realization of development rate by utilization of resources available in various regions of the country and domestic potential within economic activities.
- Establishment of population-resource balance in the country
- Integration of dualist economic structure
- Arrangement of economic place and urbanization in economic development in the most effective and convenient manner
- Minimization of differences occurring due to interregional welfare level and derivatives.

Logistics: Impetus Of A Growing Regional Economy

According to the definition of Logistics Management Council, logistics is a part of the supply chain process for planning, implementation, and control of effective and productive two way movement and storage of the materials, services and information flow within the supply chain from the production point of the products up to the consumption point of end use in order to meet the requirements of customers. There is a close relation between logistics and meeting customer requirements and customer satisfaction level; such that customer satisfaction level can be improved by an integrated logistics programming following the correct detection of customer expectations, and the success of the logistics system can be measured by properly maintaining the customer satisfaction level (Gourdin, 2001: 3).

Logistics is a system of business enterprises for profit maximization purposes which serves for designing an administrative responsibility to strategically store, maintain flow and control of materials, parts and defined products (Demir, 2008:5). Logistics functions and activities have a significant amount of overlap with the other functions and activities of a company and the functions with a high degree of overlap is finance, marketing, information technology and production (Kasilingam, 1998: 9).

Figure 1: The Logistics System
(Source: Kent N.Gourdin, Global Logistics Management, 2001: p.17)

Today, production and consumption are realized in a restricted area in some regions around the world; furthermore in Asian and African countries where famine and hunger are observed, people grow their needs themselves and import very small amount of things. (Ballou, 1998:3). In these countries the most significant reason
for such a state is that; they cannot make a proper distribution plan to transmit the products growing in various regions of the country to poor regions since they do not have a developed logistics system.

With development of logistics system, production and consumption separated from each other in terms of region; consumption of excess production is provided in different places in the same country or outside the country with reasonable costs and a correct planning; and the country is developed in terms of “competitive advantage” (Ballou, 1998:3). Logistics and supply chain management can provide a multitude of ways to increase efficiency and productivity and hence contribute significantly to reduced unit costs. Effective logistics and supply chain management can provide a major source of competitive advantage (Christopher, 2011: 4,6).

With the development of logistics, not only products but also the services are transmitted to different regions, and both products and services are mobilized, their advantages are improved with an impact to increase the added value (Demir, 2008:8). Today, most major enterprises in the logistics sector measure their customer expectations by various methods; manage delivery, distribution and other logistics operations within shortest possible time, and contribute to competitive advantage of their country (Gourdin, 2001: 10). The development of distribution capacity has made important impacts on social and economic human relations (Demir, 2008: 8).

The Affiliation With Logistics and Regional Development

Logistics sector appears as the most important factor of development in sustainable maintenance of regional development. Yet, for logistics sector to have an impact on development of a region; investment, sector knowledge and human resources have to be available in the same level (http://www.dunya.com). Considering their roles today and in the future, there is no doubt that the heart of the world trade is the logistics bases; and logistics bases, both sea and land, though carry out their activities in a certain area, give the opportunity to reach everywhere around the world. (Erdal, 2005). There is a strong coupling between logistics industry and other industries of national economy, it comes along with the great social demand to logistics activities. Today, while other input factors are gradually becoming perfect, logistics become the restrictive factor to increase of overall economic benefit and social benefits (Shuai, 2006). In socialized production, all industrial departments are interdependent, any industry can not produce and develop without logistics (Liu, 2009: 197). The utilization of logistics as an instrument for regional planning is relatively recent in the advanced economies. As a form of management of complex structures in competition, logistics is vital for the economic restructuring, increasing flows and reducing stocks in a spatial dimension that goes beyond the factory location and redefining the region as the optimum scale for an enterprise productive operation (Becker, 1993:3). Logistics assumes an important role as an instrument of territorial planning because it is capable of improving the transportation and communication structure, decreasing dead time on a regional scale as well as planning its future development, seeking to minimize costs and accelerate its rhythm of operation (Becker, 1993: 5). According to (Liu, 2009) which is one of the several studies about relationship between logistics and national economy income, reflects that logistics industry value added, total employment of logistics industry, new fixed assets investment, freight volume, and freight turnover have greater impact on economic increase, the two most important factors are logistics industry value added and freight turnover. Logistics industry value added is part of logistics scale, and freight turnover is part of logistics efficiency. This indicates that both the enlargement of logistics scale and the increase of logistics efficiency can bring tremendous influence on the development of national economy. That can be different regions have different level of logistics capacity and infrastructure within a country. Developed regions with having developed logistics capacity surely make better contribution to regional and national economy than the other regions. Related with this subject, the research about effects of logistics industry on
economic growth in Jilin province of China by Shao & Zheng (2011) results that the logistics industry contributes greatly to the regional economic growth. And the contribution of logistics industry on economic growth shows different trend in different stages. In the future the development of logistics industry in Jilin Province will enter into the fastigium, so government, enterprise and others must make unite development programming to foster main parts of logistics market, improve the logistics infrastructure, import and practice fast logistics technology and benchmark, and educate more logistics talents.

In the 1980’s, the role of ports in regional economies began to shrink. The economic impacts of ports and the port cities have been diminished. Ports were developed near industrial complexes and industrial complexes were developed near ports. Ports and relevant local economies have been developed reciprocally as international trade was heavily relied on maritime transport (Jung, 2011:23).

About the measuring and determining the effects of logistics performance of countries to GNP and development, Logistics Performance Index (LPI) is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries with which they trade, and experience of global logistics environment. Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work, data collected regarding basic topics such as customs, infrastructure, international shipments, logistics competence, tracking & tracing and timeliness for 155 countries (http://web.worldbank.org).

At the stage of LPI data collection by the World Bank, the income dispersion of the countries under the scope of the World Bank are also taken into consideration while creating the comments and charts:

**Table.1: Income Dispersion of Countries in LPI**

<table>
<thead>
<tr>
<th>World Regions / Income Groups</th>
<th>World</th>
<th>2010 LPI</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>LIC</td>
<td>43</td>
<td>37</td>
</tr>
<tr>
<td>Middle income</td>
<td>MIC</td>
<td>101</td>
<td>75</td>
</tr>
<tr>
<td>Lower middle income</td>
<td>LMC</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>Upper middle income</td>
<td>UMC</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>Low &amp; Middle income</td>
<td>LMY</td>
<td>144</td>
<td>112</td>
</tr>
<tr>
<td>East Asia &amp; Pacific</td>
<td>EAP</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>Europe &amp; Central Asia</td>
<td>ECA</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Latin America &amp; Caribbean</td>
<td>LAC</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Middle East &amp; North Africa</td>
<td>MNA</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>South Asia</td>
<td>SAS</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>SSA</td>
<td>47</td>
<td>36</td>
</tr>
<tr>
<td>High income</td>
<td>MIC</td>
<td>66</td>
<td>43</td>
</tr>
<tr>
<td>European Monetary Union</td>
<td>EMU</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>High income: OECD</td>
<td>OEC</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>High income: nonOECD</td>
<td>NOC</td>
<td>39</td>
<td>16</td>
</tr>
<tr>
<td>Heavily indebted poor countries (HIPC)</td>
<td>HPC</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Least developed countries: UN classification</td>
<td>LDC</td>
<td>49</td>
<td>37</td>
</tr>
<tr>
<td>Landlocked developing countries: UN classification</td>
<td>LLDC</td>
<td>31</td>
<td>26</td>
</tr>
<tr>
<td>Commonwealth of Independent States</td>
<td>CIS</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Organization of Petroleum Exporting Countries</td>
<td>OPEC</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>TOTAL COUNTRIES</td>
<td>210</td>
<td>155</td>
<td>74%</td>
</tr>
</tbody>
</table>


This table classifies all World Bank member economies and all other economies with populations of more than 30,000. For operational and analytical purposes, economies are divided among income groups according to 2008 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups are: low income, $975 or less; lower middle income, $976–3,855; upper middle income, $3,856–11,905; and high income, $11,906 or more. Other analytical groups based on geographic regions are also used. Geographic classifications and data reported for geographic regions are for low-income and middle-income economies only. Low-income and middle-income economies are sometimes referred to as developing economies. The use of the term is convenient; it is not intended to imply that all economies in the group are experiencing similar development or that other economies have reached a preferred or final stage of development. Classification by income does not necessarily reflect development status (http://www.worldbank.org).

Turkey, which was ranked as the 34th with a score of 3,15 according to LPI data in 2007, has fell back to 39th with a score of 3,22 in 2010. The most important criteria in score increase is the “Tracking & Tracing” criteria with a score of 56.
According to LPI data, ideas might be generated regarding the areas which require investment activities to be intensively carried out, by presenting the logistics issues and areas to be developed in Turkey. Each new investment shall improve the economic power, employment and income in its region by creating an exteriority; and strengthen this mentioned region. Yet, it shall not be right to expect each new investment to create such an impact. Today, considering the unmanned handling equipment, harbors and other logistics elements, it is not right to expect each investment to generate a positive result.

The Logistics Performance Index which measures the logistics growth and quality, has constituted one of the most important tools for decision makers in transport policies, since its first publication by the World Bank in 2007. Cost advantage of a country can be valued in the best manner if only the mentioned country has logistics connections with target markets (Cezayirlioğlu, 2012: 82). According to Cezayirlioğlu’s study, Logistics Performance Index (LPI) and Human Development Index (HDI) of 152 countries have been correlatively analyzed, a positive relationship has been found between LPI and HDI, and it has been presented that as the education years of individuals increased, their estimation values related to logistics performance improved. Existence of such a positive cyclic relation is projected between logistics and human development and therefore development. Improvement of education quality leads to an improvement in logistic performance, and improved logistics performance leads to employment of greater number of qualified people causing an increase in personal income in micro level and an increase in the share of logistics within country’s income in macro level.

Logistics activities have a significant position in state economies both with the added value they create in terms of business and society and their share in the gross national product; and logistics, which is a significant component of GNP is an effective element on inflation rate, interest rates, productivity, energy costs and availability and other components (Küçük ve Tanyaş, 2012: 349). When we consider the employment and basic indicators in industry and service sector in the Turkish Statistical Institute (TÜİK) 2009 data according sections, we see that there are 408,190 enterprises in transportation and storage area which constitute 16% of total number of enterprises in industry and service sector. On the other hand, total 923,375 persons are employed in transportation and storage area which constitutes 10% of the total employment (http://www.tuik.gov.tr). In accordance with the data of the same year in GDP values, Transportation, Storage and Communication sub-sector constitutes 13% of the total GDP value (Küçük ve Tanyaş, 2012: 349).

Whereas according to 2009 data of TÜİK, railway cargo and passenger transportation, highway cargo transportation cab transportation are among the most intensive areas in industry and services sector; the turnover of the enterprises in transportation and storage sector constitutes 5.8% of the total sector turnovers.

It is possible to exhibit the impact of logistics sector on regional development by in figures with the help of economic impact studies. According to Peters, common points of economic impact studies in transportation and logistics sector are defined as given below (adapted by Karayün, 2011:32):

- To provide perception of the economic relations among transportation activities, and with other sectors in national economy,
- It is used as a political tool to convince the public on contribution of transportation activities in state and regional levels,

**Figure.3:** LPI Scores of Turkey - 2010

- It provides extremely important data while carrying out investment analysis.
- By determination of the impact on state and regional level, it plays role as an important marketing tool related to the users of public transport infrastructure.

The economic impact studies carried out to exhibit the level of regional development related to logistics sector can be displayed in three manners as; direct economic impacts, indirect economic impacts and induced impacts. The total value of the mentioned three impacts displays the total value of the logistics activity/investment in terms of its region and indicates the direction of exteriority the activity/investment generates for the region. By determination of all these impacts, the value of the economic impact, and therefore the impact of logistics sector in regional sense, can explicitly be exhibited with the help of Keynesian Factor. The infrastructure and superstructure requirements required for the logistics sector are studied within the scope of primary economic impacts. The fees paid to people employed in these infrastructures and superstructures, collected taxes and other earnings and payments are studied within the scope of secondary economic impacts. The induced impacts signify the impact on other sectors by spending the disposable income of the persons who earn income through logistics activities.

Today, important investments are planned and realized in logistics sector. Logistics issues have significance in determination of places for private sector investments; and in order logistics to have an effective role on development, accessibility of a place should be improved, facilitated, and promoted in terms of all components of development including trade, tourism, industry, education, health, life, investment, foreign trade, transit trade etc (Küçük ve Tanyaş, 2012: 352).

Conclusions & Recommendations

Today logistics, which has given acceleration to development of economies, is an important power assisting development in regional sense with the exteriorities it generated. Development and usage of technologies in operational sense will lead to a requirement for logistics and other functions related to logistics to be managed by better educated people, to a requirement for superior infrastructure and superstructure facilities in terms of capacity causing a growth and development with the investments to be realized in this manner.

Yet, to be more clear regarding the direction and value of the impact, various economic tools are required. The information obtained through LPI data prepared by the World Bank, the TÜİK data, and reports of other independent audit and consulting companies, constitute important resources to determine and develop gaps of Turkey and other countries in logistics terms. In this context, the estimated employment value as a result of the investments, fee incomes, tax incomes, and the figures required for other economic and socio-economic indicators obtained by regional development agencies and other supporting institutions shall be displayed.

In the study, the role of logistics on regional development has been analyzed; yet not any intention has been in question to carry out data analysis via any analysis method. In further stage of the study, it is intended to carry out empirical studies in order to explain the impact of logistics investments throughout Turkey on regional development.

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