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Economic linkage in key economic zones: The case of Vietnam

Thi Van Hoa Tran[a*], Thi Hong Linh Phi[a], Manh Dung Tran[a], Van Hoa Hoang[a] and Vu Hiep Hoang[a]

[a]*National Economics University, Vietnam*

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A B S T R A C T

This study was conducted to measure the level of economic linkage in key economic zones in central Vietnam generally and to measure the level of economic linkage in the tourism sector. Secondary data were collected from the Statistical Yearbook published by the General Statistics Office and the Local Bureau of Statistics and primary data collected from surveys of 102 hotels and tourism firms in the center of Vietnam. We used the Moran Index (I) to quantify overall economic aggregation across the region and that scoring method was used to measure the degree of linkage in regional tourism. The results show that the level of overall regional economic linkages was very low and this was also relevant when analyzing the tourism sector in some areas of the center of Vietnam. Based on the results, some recommendations are given for strengthening economic linkages in key economic regions of Vietnam.

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1. Introduction

From the 1950s of the 20th century, regional economic space and regional linkage has developed quite well and it has considered in socio-economic development strategies of many countries in North America, Europe and Asia. Recently, the regional economic development policies and economic linkage are developed on many levels: intra-regional, inter-regional and multi-regional. Entities involved in regional economic development are also diverse: among regional governments to create a common policy institutional framework; among farmers to create interregional cooperative economic organizations; among corporates to create connections among regional, area, and global value chains. The linkage gives the opportunity for the beneficiaries to utilize the resources effectively, thereby creating sustainable development. In contrast, lacking linkage can cause many difficulties in the development process. In Vietnam, the development of key economic zones (KEZs) has been one of the important regional economic development policies implemented since 1997. Accordingly, some provinces and cities have favorable conditions defined as growth poles and growth centers. At the same time, the government also wishes that the results of development are shared, and spread to all people in the economy and in any geographical area of administration. Therefore, regional economic linkage is one of the ways not only to

* Corresponding author.
E-mail address: manhdung@ktpt.edu.vn (M. D. Tran)

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increase the specialization, and to increase resource-use efficiency to accelerate the development of the region, but also to spread the development results to slower growth areas. The KEZ of Central Vietnam was one of the first three KEZs of the country, with the expectation of becoming a growth pole and soon spreading its achievements to not only the Central but also the Central Highlands. In the past, despite the breakthroughs in institutional cooperation and development, the results have been quite limited. Economic linkage especially intra-regional economic linkage is considered not to promote the strength of each locals in the process of specialization and cooperation. Therefore, the KEZ of Central Vietnam is still behind in economic development. Meanwhile, in the context of Vietnam's integration with the rapid development of science and technology, many new issues have arisen posing the need to thoroughly solve the problem of economic linkage in the KEZ of Central Vietnam in order to mobilize and effectively use resources so that the KEZ of Central Vietnam can truly become a growth pole and have a spillover effect to other regions.

2. Literature Review

2.1 Regional Economic Linkages

According to existing literature, studies on regional economic linkage have focused on three main directions: The first group approaching regional economic linkage is to connect spatial economic activities by the effects of spillover effects from the "central area" or "growth pole" to the surrounding areas. This approach is derived from Perroux's (1955) under "growth pole" theory. He acknowledged that growth does not appear everywhere and at the same time, it appears at polar points or poles, with varying intensity, spreading across different channels and with different end effects for the whole economy. This means that some of advantageous places will develop beyond the rest to become "pole growth", thereby generating centrifugal forces and centripetal forces, thus forming a set of economic linkages between the "growth pole" with the surrounding areas. In his study, Perroux defined the growth pole as "abstract economic space", as "centers, or poles", so he views the difference between economic spaces and geographic spaces such as a region or a city, the poles may be firms, industries or corporate groups. Derived from Perroux's (1955) concept of "growth pole", Boudeville (1966) introduced geographic space into Perroux's economic space. Boudeville (1966) identified urban areas as growth poles, where they focus on a set of industries based on technology-based and innovative industries, developing key resources like iron ore or agricultural products from the surrounding area. The concentration of industries often affects the economies of geographic areas outside the central area. As such, economic linkage is created by the interaction between the growth pole and the regions in its effect.

Friedmann's "core-periphery" (1966) is also quite consistent with that of Boudeville (1966). He divided the process of economic development into four phases: (i) Pre-industrial society with a local economy consisting of small, scattered units, economic entities and goods) are low mobility; (ii) Concentration Phase: The economy begins to accumulate capital and grow from peripheral areas into the central region. Inter-regional labor mobility and trade intensity have increased significantly. However, the daily workforce is still scars, because the personal mobility of the people is still limited. Periphery is completely dependent on the political and economic center. The industries that produce the highest value added are in the core sector; (iii) Economic growth spread across the country: at this stage other growth centers emerged. The main cause of the decay is the lack of manpower and escalating prices in the core zone. In addition, the decay of economic units and population (dwelling places) also takes place within the metropolitan area: the daily intensity of individual mobility of people and the distance between work and home increase. However, the growth of urban and remote peripheries continues to decline; (iv) Spatial integration of the economy and achieving balance: According to Friedmann (1966), the distribution of the economic activities needs to achieve optimal balance. That does not mean that the trade and mobility of the population will decrease. On the other hand, in terms of different domains that specialize in certain functions, there will be division of labor among regions. An integrated model shows that a cyclical movement of the population is primarily due to age: the study of youth in large cities, suburban families, the elderly seeking the rural environment cheap and peaceful. Similar to the theory of these scientists, Krugman (1991) initiated the New Economic Geography Theory (NEG) to explain regional industrial

concentration and labor. Fujita et al. (1999) argued that most of the economic activities are geographically focused and that this concentration can create large, manufacturing entities. If this area is strong enough, it will become "economic centers" due to the centripetal force and surrounding areas becoming "peripheral" due to centrifugation through information spreading mechanisms.

In addition to the above-mentioned space linkages, there are many studies that focus on the link between urban and rural areas. For example, Douglass (1998) argued that rural development can best be achieved by connecting with urban development at the local level. He found that the relationship between rural and urban was seen as mutual reinforcement rather than a one-way causal relationship. Davoudi and Stead (2002) recognized that urban and rural areas are interdependent and connected through multiple flows, including people, capital, goods, technology, and information. In particular, the urban-rural divide may include seasonal workers employed by agricultural firms. Capital flows may be earned by rural entrepreneurs who sell their products outside their areas. Tiers can be products and services that are developed and produced in a rural location but are provided in urban areas. Finally, the flow of information may include knowledge, ideas, detailed information, etc. may originate from an urban location, but may be used by rural producers. The OECD (2013) also affirms that urban and rural areas connect through a variety of linkages, including demographic linkages (population, human capital, migration), transactions economics and investment, food supply, commodity and environmental goods exchanges and intergovernmental coordination.

The second group, approaching regional economic linkage is the inter-sector and inter-sectoral linkages in a region derived from input-output relationships. This approach is based on Hirschman's (1958) study. When researching the regional economic linkage, he used the concept of "backward linkages, upstream linkages" and "forward linkages, downstream linkages". He thinks backward linkages are due to the growth of a set of industries that stimulate the development of other industries, providing the raw materials for it. For example, when a steel plant is established, it will stimulate the demand for scrap steel, coal and other related goods, so that the production of these items will increase. At the same time, forward linkage is the growth of some industries due to the initial growth of raw material suppliers. For example, the expansion of the steel industry would encourage industrial plants to manufacture machines and tools using steel as their basic input. This Hirschman study facilitates the selection. The activities through which will generate growth with imbalances in the system, the industries with maximum linkage must be developed in advance. In addition to the above production linkage, Hirschman also refers to the type of link in consumption. However, Hirschman argues that unlike the positive effects of link production, consumer links can have negative effects such as "the decline of handicrafts as income rises, due to a shift in consumption" (Hirschman, 1977).

Hirschman's concept of forward linkage and backward linkage has been expanded and studied in various angles. A study was performed by Harthoorn and Wossink (1987) on the impact of agriculture on industries in the economy. In this study, the authors used the input-output (IO) inter-sectoral balance sheet to calculate the reverse and forward effects of the Dutch agricultural sector on increases in agricultural exports and consumption of agricultural products, including all indirect effects. Vogel (1994) studied on the impact of structural change on the agricultural sector on the industrialization of nations through the link between agricultural production and the rest of the economy. Cai et al. (2006) also investigated the relationship between tourism and related downstream sectors in the economy of Hawaii. The third group, the regional economic linkage is the link between firms in a certain space which forms the linkages between clusters and associations between domestic and foreign firms. Cluster linkage is derived from Marshall's (1890) study, with the term "industrial county" describing the concentration of industrial firms and their workers in a given geographic area. Many economists then went on to study of the benefits of geographic industrial concentration, such as Henderson (1974). Henderson emphasizes the positive spillovers between businesses that focus on geographic distances and the formation of clusters that reduce the cost of the business. In 1990, when examining the competitiveness of nations through the Porter Diamond Model (1990), the study also confirmed the importance of forming cluster linkage. The cluster linkage concept has quickly attracted the attention of economists, academics and governments. Until now, issues related to the cluster linkage continue to develop. Depending on the depth and complexity, cluster linkage has different structural forms.

However, a typical cluster linkage consists of firms producing final products or services; upstream businesses (input supply) and downstream businesses (using outputs); specialized suppliers, related industries and supporting institutions (infrastructure, training, finance). The production process will create link between the firms in the cluster and between firms in the cluster with the firms outside the cluster. This creates the link between localities in the region. According to Koschatzky and Lo (2007), spatially based, cluster linkage can be localized and inter-regional.

In addition to the studies on cluster linkage among subjects in a country, the researchers also refer to the linkages between domestic and foreign firms based on input-output relationship in the report of UNCTAD Global Investment (2001). According to this report, the link between firms consists of three types: vertical integration, cross-linking and linking firms with non-business units where cross-linkages are made between firms in the same field, vertical linkages consist of backward linkages and downsward linkages based on input-output relationships in the production process. In addition, UNCTAD (2001) mentions the spillover effects of business linkages, such as the spread of technological processes, rampant product design, and the impact of trained human resources.The method of grouping approach to the above-mentioned cluster linkage is only relatively because it considers the link between the inseparable entities. With this in mind, cluster linkage can be understood to include the linkage between economic actors of the region and elements in regional space.

2.2 Regional Economic Linkage Measurement

Regional economic linkage measurement based on using the I-O model

The IO was first introduced by Leontief in 1936 when he built up the entire supply-demand relationship for the American economy from 1919 to 1929. The IO model can be used for a variety of economic analyzes. These include identifying and measuring industries, analyzing relationships among sectors, studying the changing effects of demand and supply across the economy, analyzing the flow of goods and services across sectors and calculation of gross domestic product (GDP). Based on the Leontief IO model, Isard (1951) developed an inter-regional IO model that allowed not only analysis of economic activity in the region but also allows for analysis of economic activities between the region and other regions and between regions as well as those outside the country. As such, the I-O model has become a popular tool for regional economic analysis including regional economic development, including both regional and regional economic development. For example: (i) a study was performed by Hughes and Holland (1994) on the effects of the spread and the possible responses to the Washington economy when studying the LKKT between Washington and the periphery. In this study, the authors built a research model based on information provided from three IO panels, in which one was constructed for the Seattle-Tacoma urban center, a table constructed for the peripheral area and an aggregate table for both areas. The composite I-O was used to calculate the trade relations between the central and peripheral regions and the backward linkages between the center and the periphery. (ii) Akita and Kataoka (2002) studied on the impact of changes in economic conditions and government policies on the output growth of the Kyushu region from 1965 to 1990. The inter-regional IO panel consists of three regions: Kyushu, Kanto and the rest of Japan. The results indicate that the appearance of the processing and assembly area, along with the construction of new rail, highway and transport networks, promoted interregional industry links between Kyushu, Kanto and the rest of Japan. In addition, the transfer of production from Kyushu to Southeast Asia after the Plaza Agreement strengthened Kyushu's international industrial linkage. As such, the I-O table is a good tool for analyzing both local and regional statistics.

Measurement of regional economic linkage is based on spatial correlation

In addition to using the I-O model, another method used by researchers to measure regional EL is the use of the Moran (I) (Moran, 1950) and Geary (C) (Geary, 1954) spatial correlation coefficients. These indices are used to determine if neighboring observations of the same phenomenon correlate. In essence, Moran (I) and Geary (C) have the same meaning, but they are not exactly the same, Moran (I) is a measure of global

spatial autocorrelation, while Geary (C) is more sensitive to local spatial correlations (Jin et al., 2015). These indicators are now used by many researchers, especially Chinese researchers, to measure regional economic linkage. Yu and Wei (2008) used the Moran index (I) with the support of GIS spatial statistical software to analyze the spatial structure of Beijing regional growth based on GDP per capita data. The results indicate that the expansion of the available cluster linkages and the formation of new cluster linkages strengthened the EL in the Beijing area. Bai et al. (2012) studied on spatial spatial distribution and regional economic growth in China used the Moran (I) index based on GIS statistical analysis software. They analyzed linkages between 31 provinces in China from 1998 to 2008. The results of the study show an increase in inter-province linkages over time. Jin et al. (2015) analyzed the economic linkage among Beijing, Tianjin and Hebei (China) in addition to Moran (I) and Geary (C), with the support of SAS statistical analysis software, using the spatial GDP/person analysis and geographical coordinates of Beijing - Tianjin - Hebei. The results show that the economic correlations between these cities are positive, but the correlation was low, suggesting that the development cooperation of these three cities was still in the early stages and economic linkage is still low.

Measure regional economy using space regression function

Another method used to measure regional economic linkage is the use of spatial regression. Measurement of regional economic linkage, this method was carried out in the study of Li and Xu (2006). Based on the combination of the Barro regression model and the Gravity model, this study established a new way to measure boundary effects in administrative areas in the process of building a regional economy. They studied economic linkage of the Yangtze River Basin (YRD) and the spatial regression function was used to demonstrate and analyze the related border impacts between Jiangsu and Zhejiang provinces, between Shanghai and Jiangsu provinces, and between Shanghai and Zhejiang provinces in the late 1990s. This approach was also employed by Chen (2011) who constructed a regression model combining the Barro regression model and the Gravity model by adding a variable that controls the distance between cities and a dummy variable to estimate the level of Guangdong's economic linkage in eight provinces in the Yangtze River Region during the 1996-2000 and 2000-2006 periods.

Use the space statistical method

Another method used to measure the regional economy is the use of spatial statistical methods (Serrano et al., 2005), including geographic distribution of economic statistics such as labor, value added, output and export value to indicate geographic concentration, to identify the most important areas. However, the main limitation of this approach is that it shows a static image and in most cases it may lead to wrong conclusion based solely on the unique statistics of the area. Throughout the review, it is possible to see the linkages approached from different angles, so there is a difference in terms of concept, method of implementation and how to measure the level of linkage. These studies, however, have also shown a relatively comprehensive theoretical framework for the regional nature of regional economic linkage. An analysis was performed on the regional economic linkage as a link between economic actors, methods to measure the level of regional economic linkage and identified factors affecting regional economic linkage. This framework is the foundation for the development of a theoretical framework for regional economic linkage in Vietnam. However, the problem of regional economic linkage is strongly influenced by the characteristics of the administrative organization of each country, the level of development of economic entities in each region, the culture characteristics, the conditions of the data and this framework is not fully applicable to solve the problem of regional economic linkage in Vietnam. This is a suggestion for the study group on regional economic linkage in the KEZ of Vietnam. In this paper, we conducted a case study in the KEZ of Central Vietnam.

3. Research Methodology

3.1 Data Collection

The study uses primary data from the field survey including a survey of business units in the tourism industry in the region, by means of convenient sampling, based on the accessibility of the object. The study uses

typical case study to investigate economic linkage in the field of tourism as a tourist cluster in 3 localities of Hue - Quang Nam - Da Nang. Therefore, we survey the service businesses (including tour operators, accommodation service providers, transport units, catering service providers) in most concentrated tourism areas of the three localities in the districts of Hai Chau, Son Tra, Ngu Hanh Son, Thanh Khe (Da Nang), Hoi An, Cu Lao Cham (Quang Nam), Hue City (TT) and e-mail (made with hotels, guest houses and tour operators, including 308 addresses). The total number of votes is 420, with 102 votes. The questionnaire consists of three main parts: The first part includes the general information about the firm including the address, time of establishment, the main field of activity and the size of the business. The second part covers the activity information including questions about the cooperation of the firms with partners in the process of operation. The third section contains questions related to the need for business cooperation. Out of 102 questionnaires collected, 47.1% of the firms were in Da Nang, 22.5% of firms were in Quang Nam and 30.4% of firms were located in Hue.

Classified by main business sector: In the tourism sector, one business can operate a variety of services. This study identifies the main business area as answered by the business sector. Accordingly, food service establishments: 15.7%; Accommodation service establishments: 33.3%; Transportation service business establishments: 23.5%; Travel agency: 27.5%. Thus, the structure of the survey enterprise includes all major business areas in the field of tourism services, suitable for use as research samples. Regarding the structure of firms according to the time of establishment: 23.5% of firms have established over 10 years, 61.8% from 5-10 years and only 14.7% under 5 years. The results of this survey show that the survey sample is relatively good because of the high proportion of firms having many years of operation.

3.2. Data Processing

After the data collection, we analyze and process the data as follows:

(i) Measuring the overall level of regional economic integration: Basing on the overview of the above-said regional EL, when production and business entities between localities in the region establish relationships in the course of operation, which includes the flow of goods, the flow of capital, the spillover effect of technology and the spillover of economic policy. This will lead to regional interactions in the economy. Therefore, for the general evaluation of regional EL, the study will examine whether there is an interaction between regions in the economy or not, or to check the spatial correlation of economic variables. Appropriate criteria used by many researchers to measure spatial correlation are the Moran index (I). This index is calculated by the following formula:

$$I = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} Wij\ (Yi - \bar{Y})(Yj - \bar{Y})}{(\sum_{i=1}^{n}\sum_{j=1}^{n} Wij).\left\{\frac{1}{n}\sum_{i=1}^{n}(Yi - \bar{Y})^2\right\}}, \quad (1)$$

where n is the local number; Yi is the value of the local variable i; i = 1,2,3 ... n. In this study, the Moran index (I) was used to test the interactions among localities in the economy, so Yi was used as GRDP / person; is the average value of Yi.

$$\bar{Y} = \frac{1}{n}\sum_{i=1}^{n} \text{Yi}\, x\ Eq\ , \quad (2)$$

W_{ij} in Eq. (1) is the space-weight matrix. The spatial weight matrix can be set up by the adjacency weight matrix in the following way: (i) w_{ij} = 1 if neighbors are with common boundary and 0 for cases again; (ii) spatial weight maps can also be defined based on the longitude and latitude of the locality. The bandwidth is given by a certain distance, w_{ij} = 0 if the local band gap is greater than the band, equal to 1 if it is smaller (in the overview studies, the band is usually determined by the average distance 1 hour drive from the main road. The value of Moran (I) is in the range of {-1, 1}. Moran (I) implies that

neighboring locations will have positive correlations. In contrast, Moran (I) has a negative sign of negative correlation. If Moran (I) is zero, the locality is random. This means that if Moran (I) is positive, the localities in the area have the same technical direction. If Moran (I) is negative, localities in the region will compete in the development process. Moran (I) zero is the economic activity of localities in the region is independent, which means there is no economic linkage. To test the statistical significance of the Moran index (I) using z-score or p-value with the hypothesis that there is no spatial correlation between localities regarding the norms studied in the weight matrix used. Hypothesis H_0 is rejected when z-score <-1.96 or> 1.96.

(ii) Statistical methods, description: is used to process the primary data to analyze the status of tourism links. As follows:

In the regional economic linkage, the business entities are directly involved, playing a decisive role. Economic linkage between production and business entities may take place only between two or possibly between many firms. These links can be summarized in Table 1, below:

Table 1
Economic Linkages

Method		Market transaction	Short-term linkage	Long-term linkage	Stock relationship
Vertical linkage	Backward linkage	Purchase inputs for production	Signing purchase contract once or not often	Signing long-term purchase contracts, subcontracts that produce intermediate or final products	Joint venture with supplier; set up new businesses to supply inputs
	Forward linkage	Sell the output to the manufacturer at a later stage or to the distributor (consumer).	Signing contracts for the sale of goods once or irregularly	Signing long term contracts with distributors or regular delivery relationships with final consumers; long-term contracts provide intermediary products to manufacturers at a later stage	Joint ventures with distributors or final consumers; establishing of new distribution network
Horizontal linkage			One-time or irregular cooperation agreements	Project cooperation with competing firms	Joint venture with competitive firms; establishing new businesses in the same industry; forming a network that produces the details of a product
Supporting linkage			Signing a one-time or irregular contract with the support unit	Signing long-term contracts with support units	Joint venture, capital contribution with support units

Source: UNCTAD (2001)

Based on the linkages in Table 1, the research team assessed the level of economic linkage based on two aspects: one is the way in which the participants join and the other is the cooperation between the owners by scoring method, specifically as follows:

Scoring for each subject is based on how the subjects cooperate, with scores from 1 to 4 reflecting the degree of alignment of subjects from low to high, where point 1 represents the lowest degree of cooperation if the cooperation is made through purely market transactions or oral agreements, point 2 if short-term, implemented through one-time or irregular contracts, point 3 if the contract is long term and point 4 is the form of contribution of equity or joint venture. Finally, we calculate the total number of points earned by firms in the contents, divided by the number of contents and divided by the total

number of firms, based on that score, assessing the level of regional economic linkage into the following levels:

(i) The linkage is very low if the average score is 1 because at this point the main links are only made through pure market transactions (oral agreements).

(ii) The linkage is low if the score is {1 - 2}. The affiliate content is mainly made by short-term contracts.

(iii) The linkage is average if the score is in the range of {2 - 3} if the affiliate content includes the relative number of firms performing the contract via long term contract.

(iv) The linkage is high if the score is in the range of {3 - 4}, the main links are made through the signing of the contract or the relative number of firms contributing equity.

(v) The linkage is very high if the score is 4 and all the affiliate content is implemented through the form of equity contribution.

4. Results and Discussion

4.1. Economic Linkages in the Central Key Economic Zone

Using the GRDP/people data calculated from the GSO 2016 of the key economic zones of Central Vietnam, the results of the Moran Index (I) are as follows:

Table 2
Moran index (I) in the Central Key Economic Zone calculated according to GRDP/person

Year		0 to 65 km	0 to 130 km	0 to 195 km	0 to 260 km
2010	Moran (I)	-0.832	-0.678	-0.367	-0.243
	Z-score	-1.118	-1.44	-0.517	0.052
2011	Moran (I)	-0.828	-0.648	-0.358	-0.229
	z-score	-1.111	-1.337	-0.477	0.162
2012	Moran (I)	-0.902	-0.58	-0.337	-0.22
	z-score	-1.25	-1.1	-0.388	-0.225
2013	Moran (I)	-0.96	-0.473	-0.318	-0.220
	z-score	-1.36	-0.75	-0.3	0.231
2014	Moran (I)	-0.915	-0.492	-0.317	-0.224
	z-score	-1.28	-0.814	-0.298	0.200
2015	Moran (I)	-0.375	-0.402	-0.272	-0.196
	z-score	-0.241	-0.511	-0.102	0.412
2016	Moran (I)	0.201	-0.474	-0.354	-0.270
	z-score	0.867	-0.752	-0.465	-0.159

Based on the data in Table 2, all z-scores are in the range of {-1.96 - 1.96}, so there is not enough evidence to reject the hypothesis H_0 (Moran (I) = 0) and there is no correlation between GRDP/person in the Central KEZ, in other words, there is no indication of economic linkage.

4.2 Linkage Level in the Field of Tourism

The results of the survey on the situation of linkage among tour operators, firms engaged in the business of accommodation, catering and transport business firms are as follows:

(i) Horizontal linkage between businesses in the same business sector:

According to survey results, in the process of operation, 70.59% of respondents responded in cooperation with businesses in the same field. Not only cooperating with businesses in the same locality, businesses in three localities also cooperated with each other and also expanded cooperation with other

businesses in other localities such as Hanoi, Ho Chi Minh City. This shows that the link between businesses in tourism business in this area has been formed not only within a locality but also regional linkage and even interregional. Specifically in the following table:

Table 3
Situation of Horizontal Linkages of Tourism Firms (Unit: No. of firms)

Fields	No-linkage	Total	Linkage	
			Oral agreement	Contract when needed
Tourism firm	6	22	17	5
Hotel	4	30	20	10
Logistics	8	16	8	8
Restaurant	12	4	4	0

However, when considering the linkage among tourism firms, linkage through oral agreements was about 68.06%, the form of cooperation through contracts was accounted for 31.94%, including Joint venture formation and joint venture capital contribution was not virtually implemented in the region. Linkage through contracting is primarily a one time or irregular contract that arises when required, such as links made between tour operators to assist one another in terms of human resources which was only 7%, accommodation business firms to support each other during the high season was 33.3% and transportation firms supporting each other was 50%. Remainder of the agreements, the content of the cooperation mainly business firms exchange experience and exchange of information were accounted for 68.06% of the affiliated firms. From the above analysis, firms are aware of the benefits of implementing linkages and cross-linkages between tourism firms in three provinces of Hue - Da Nang - Quang Nam. Over time, this linkage is better. However, the linkage is spontaneous cooperation, official channels such as the associations have not been interested, the content of linkage is simple and the linkage is still loose.

(ii) Vertical link

The majority of the firms surveyed made vertical integration with suppliers of materials and materials (84.31%). Of these, 54.9% of the respondents were contracted for an infrequent contract, 22.55% signed a long-term contract, and 6.86% made a joint venture with a supplier. Specifically according to each business sector as follows:

For catering service businesses, 62.5% of respondents have signed contracts with suppliers, of which 70% for long-term contracts, 30% for joint ventures with suppliers. For lodging services, 70.5% had cooperation with suppliers, of which 58.3% contracted once, 25% signed long term contracts and 16.7% joint ventures with suppliers granted. 100% travel firms signed a contract with the supplier, of which 71.4% signed the contract once, 28.6% signed a long term contract. Carrier, 100% contracted, of which 91.7% signed a contract and 8.3% signed a long-term contract.

In addition, linkage between travel firms, hotels, restaurants and transportation were also implemented. The main role in doing this is the travel business. Survey data show that most tour operators in the three areas of Hue - Da Nang - Quang Nam have agreements with hotels, catering service businesses and transportation. The current form of cooperation is the tour operator signing a long-term framework agreement, where there is a need for the parties to carry out quotes and official contracts, accounting for 71.4%. The form of one-time contracts is irregular, accounting for 14.3% and the form of joint venture is quite limited (only 14.3%). The links of other units such as restaurants, hotels, transportation units are very few, mainly in the form of oral agreements or traditional relations to gain immediate benefits. For example, the transport unit to take tourists to restaurants or souvenir shops receive commissions, transportation units agreed with the hotel about parking spots to pick up guests.

(iii) Supporting linkage

Supporting industries play a very important role, directly affecting the quality of tourism products, but most of the tourism firms do not cooperate with support units such as banks, communities in tourist destinations and public services. Only some tour operators have a framework agreement with a number of private tourist destinations such as Ba Na, Than Tai mountain because of the discounts, the rest have no agreement on cooperation.

In terms of human resource training, 36.3% of respondents said they had the need to support human resource training. However, according to the survey results, almost no firms have agreed with the training institutions. Combining the level of economic linkage in the field of tourism is presented as below:

Table 4
Level of Economic Linkage in the Field of Tourism (Unit: No. of firms)

Method		Market transaction	Short-term linkage	Long-term linkage	Stock relationship
Vertical linkage	Backward linkage	16	56	23	7
	Forward linkage	74	4	20	4
Horizontal linkage		79	23	-	-
Supporting linkage		102	-	-	-
Total		**271**	**83**	**43**	**11**

Scores of EL performances of tourism business units are calculated according to the method given in Chapter 2 as follows:

{(271 × 1 score + 83 × 2 score + 43 × 3 score + 11 × 4 score): 4}: 102 = 1.5 score

From the above analysis, the association of units in the tourism sector of the three localities is still low, the content of the link is mainly performed in short form and the degree of cohesion is not high. According to survey results, there are many reasons why businesses do not implement links related to thinking given in Table 5 as follows,

Table 5
Causes of not Linking Business Units of Tourism Services

No.	Reasons not to have linkage	No. of comments
1	Small scale	16
2	Do not have plans to scale up	5
3	Low manpower	5
4	Do not have plans	22
5	Do not want to involve in other firms	2
6	Exclusive service, do not want the quality to be affected	3
7	Only sign contracts with the parties with good prices	4
8	Due to difficult business conditions	3
9	Do not know which association to join	10

According to the survey results, the main causes of unplanned linkages among firms are as follows:

(i) The firms do not thing on the long-term benefits of cooperation, mainly focusing on immediate benefits: “do not want to involve other firms”, the exclusive service, “do not want tthe quality to be affected”, or “Only sign contracts with the parties with good price”.

(ii) The level of development of business subjects is limited:

The scale of business entities is still relatively small, causing the demand for link development not much: “small scale”, “do not have plans to scale up”, “low manpower”, “do not have plans”, “lack of capital”,

In addition to these causes, some of the causes leading to economic linkages in KEZ are limited.

First, incomplete infrastructure: The infrastructure system, especially the axle transport infrastructure, has been improved, but not synchronous, complete, small scale, limited quality. Therefore, there is no connection, connection and smooth communication between localities in the region and inter-region.

Second, quality of human resources is low: the number and quality of scientific and technical staff are weak and lacking, especially experts in the field of socio-economy, High occupation is also a factor causing difficulties for regional economic linkage.

Third, legal framework for economic linkages in key economic regions is inadequate

In order to promote the linking of KEZ, the government issued a number of decisions to coordinate ministries, branches and localities in key economic regions. However, the principles of co-ordination and linkage have not yet demonstrated their abilities to organize implementation and legality in linkage activities, such as: (i) many core issues have not yet been concretized. Programs and content are coordinated, mainly to coordinate the issues that are oriented, not specific to actions, development programs, projects, specific production organization activities. This may lead to the planning content being given may be text, form, not implemented in practice; (ii) Lack of mechanisms for coordination and linkages in the regulation lack of content from economic actors, firms, coordinated contents; (iv) lack of content to develop and organize regional coordination and coordination and (v) lack of a monitoring mechanism for coordination.

In addition to the specific regulations for the KEZ, the 2013 Revised Constitution, the Local Government Organization Law (2015) also contains regulations on regional economic integration. The government has also made decisions to promote linkages between business entities in a number of sectors and areas, such as: linkage between producers and producers in commodity farm produce; Encourage the development of cooperation, link production associated with consumption of agricultural products, construction of large fields; Support small and medium firms to develop cluster linkages in the value chain of rural agriculture. However, these new documents are in the implementation phase, lack of specific regulations.

At the same time, localities have developed forums to develop a framework for the implementation of regional economic linkage. However, these documents do not have sufficient legal basis for the implementation of regional economic linkage in KEZ. Apart from the legal documents, the planning and the development orientation have been officially approved by central agencies as a legal basis for regional cooperation. However, some issues in planning development in Vietnam are as follows:

(i) the system of planning and development plans in Vietnam generally takes place at the administrative levels: central - province - district, commune. Particularly, the "master plan for socio-economic development" has more planning for the regional level. But Vietnam does not have an administrative structure at the regional level, so the regional planning is made without the corresponding management level, which makes monitoring of regional planning almost impossible. (ii) *planning sequence is quite "messy" between levels and across sectors*. (iii) *there is a lack of coordination between localities in the planning*. (iv) *the overlapping type of planning overlaps, sometimes overlapping, conflict*. Many points are not unified. This leads to conflicts between provincial planning, especially neighboring provinces, which are not uncommon.

Coordination mechanism of the regional development is still inadequate

+ Lack of relative stability: The chairman of the regional council is the president of the provincial or municipal People's Committee who is elected from among the provinces and cities directly under the Central Government in the key economic region for a two-year term. This will lead to discontinuity, monitoring, alignment, information capture, coordination needs, and interconnected status.

Moreover, the Regional Council is not an administrative level, so it is difficult to delineate the area of responsibility of local government, regional government and central government, as well as the legal relationship between local governments.

+ Personnel unit remains the main body of personnel: Personnel in all organizations such as Steering Committee, Steering Committee Office, Regional Council, Coordination Ministries and localities. It is very important that the regional coordination function can be effectively implemented.

+ Lack of market participation: In the current coordination structure, there are still political leaders and lack of participation of firms. This makes the promulgation of policies, organizations and affiliated activities unlikely to meet the market demand, making linkage difficult in practical implementation. In addition, the lack of participation of the business sector also leads to difficulties in implementing the financial mechanism for linkage.

+ Lack of participation of consultants: The consultants will provide consultancy on the contents related to the linkage activities: proposing the content of linkages, linking options, Linking or concatenating content into specific activities often helps the coordinating organization make better decisions about linkage.

In addition, there is a lack of financial mechanism for linking and financing the implementation of linkages. Therefore, it is impossible to organize the coordination and organization of linkage activities with regular nature and support among localities in KEZ.

Fifth, lack of policies to encourage regional economic integration

Apart from the legal framework, there should be some incentive mechanisms to create strong linkages between business entities in the inter-regional and inter-state regions. However, the Central KEZ still does not have the mechanisms to promote the regional economic development.

5. Conclusion

The study has made several contributions as follows: theoretically, the content of the regional economic linkage and the method of regional economic linkage measurement have been proposed in terms of both general and specific aspects of some sectors and conditions of Vietnam. Future studies may use this approach to test other economic regions. In practice, the study can be considered as the first study that clearly measures the level of economic linkage in the whole Central KEZ and in the tourism sector of the region. Based on the results of the study, a number of proposals were made to strengthen economic linkages in KEZs in order to create positive changes in the socio-economic situation of the region and to create a positive impact on the regions. (i) renovation of thinking and awareness of regional economic integration; (ii) improving the conditions for economic integration in key economic regions; (iii) improving the legal framework for economic linkage in the key economic region; (iv) completing the regional coordination mechanism; (v) strengthening policies to encourage regional economic integration.

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