Determinants for the Development of a Logistics Hub

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Abstract : *The purpose of this study is to explore the concept of a logistics hub, identify key factors and milestones for its development, and give some recommendations and implications to developing countries. For this the countries competing to be Logistics hub in Northeast Asia (NEA), such as South Korea, Japan and China, are taken into consideration. These countries have under its priority policies the development of a logistics hub vision to become the central area of the region achieving microeconomic and macroeconomic prosperity. Based on the review of the relevant literature, five factors came up as key determinants for the development of a hub project: 1. Logistics services support and infrastructure. 2. Business environment. 3. Economic determinants. 4. Political support and 5. Access to international markets. These are going to be analyzed together with its different variables, using statistical methods.*

Key words : *Logistics hub, Foreign Direct Investments, Distribution Centers, Logistics Service Providers, Political Support*

1. Introduction

This work aims to examine the concept of logistics hub based on Northeast Asia studies, identifies key factors and milestones for its development, and gives some recommendations and implications for further development.

The world is facing a "globalization" environment, an obligatory progress of revolutionary developments in different industrial areas. With this "new" phenomenon the competition is strong not just among companies and countries but also especially between regions. Every region is trying to be more competitive and attractive using in the best way possible the scarce resources available.

The challenge of the different governments and project developers is to attract Foreign Direct Investments (FDI) and optimize internal capitals. To be successful various strategies are necessary and an integrated efficient platform of activities connecting the full supply chain must be developed. Customers, governments, companies, shippers, 4PL companies etc., need to interact under an efficient compatible network.

Important mega logistics hub such as Singapore or Hong Kong in Southeast Asia, Rotterdam or Lyon in Europe or Jabel Ali in Dubai are just some examples of the ideal for successful mega hub area. This city ports have developed its position as gateways to its regions on the basis of its excellent infrastructure and quality of services.

The most dynamic area of the world in the 21st century is Northeast Asia[1]. Due to its economic growth, the volume of container cargo is expected to increase to 100 millions by 2020. The ratio of intra-regional container cargo in Northeast Asia will be 46% in 2020, increased from 23% in 1995.

The international logistics system in Northeast Asia is expected to change over the next ten years as follows: markets will diversify and delivery times will be shorten; information will be immediate and near perfect; market segmentation will reach unprecedented levels of precision; and business models will be based on demand and time.

Like strategic areas in Korea, important cities of Japan, China and Taiwan are aiming to become regional hubs as part of their own national development strategies. According to experts, the main variables that will determine the winner in this race are timely achievement and effectiveness. In fact, most experts say that the window of opportunities is no longer than three or four years. Becoming the logistics hub will require two things: first, the establishment of clear goals and objectives, and second, the creation and execution of a detailed strategy.

For the defined aim of this study, literature related to Northeast Asia on supply chain management, Foreign Direct Investments, Special Economic Zone, Free Trade Zone, multinational corporation decisions for investment, government performance and distribution centers involved in hub is reviewed. A questionnaire was submitted to different

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1) The Northeast Asia region includes the countries of Korea, China, Russian Far East, North Korea, Mongolia and Japan.

companies, and experts in the topic in Korea, to identify important factors for the implementation of a hub according to their perspective. Quantitative analysis such as correlation, factor analysis, crobah a and regression technique are used to analyze the data by using SPSS software.

2. LITERATURE REVIEW

2.1 Logistics centers

High tech industries have been a new trend target for many regions due to its differentiation and capability to create added value products activating different markets. Table 1 shows determinants for a high tech hub(O'Brien, 2001).

Table 1 Factor that a high tech logistic hub may satisfy

1. A community desired to have a comprehensive hub development strategy	6. Supporting infrastructure at all terminal facilities.
2. Existence of comparative cost advantages.	7. A favorable fiscal environment.
3. Supporting human resources development programs.	8. Pool of high-tech research and development institutes.
4. Existing high tech manufacturing industry base	9. One-stop-shop local marketing organization that proactively promotes the location, supported by appropriate literature and materials.

Sources: O'Brien (2001)

With the nine factors, the study also reveals that the elements of time for customs clearance and overall transportation are more important to high-tech manufacturers than inherent cost. Therefore, locations of facilities near major airports are of primary importance.

A list of location determinants is shown in Table 2 (UNCTAD, 1998). The role of legal institutional policies and economic determinants are considered very important in attracting foreign investment. Although business facilitation measures are not considered to be as important as the other two categories, they are gradually receiving more attention as the world economy becomes increasingly globalized.

In United States, Friedman (1995) describes that there is a general consensus regarding the four factors that are most important in determining location for FDI. They are market size, wages rate, transportation infrastructure, and state promotion activities designated to attract foreign investment.

Although governments cannot control factors such as market size and wages rates, they can still improve their chances of being selected by providing tax incentives and by actively promoting themselves to foreign multinational companies.

Table 2 Determinants of location selection for Foreign Direct Investments

Determinants		Description
Policy framework		Economic, political and social stability
		Rules regarding entry and operations.
		Standards of treatment of foreign affiliates
		Policies on functioning and structuring of markets (especially competition and M&A policies)
		International agreements on FDI
		Privatization policy.
		Trade policy (tariffs and NTBs) and coherence of FDI and trade policies.
		Tax policy.
Economic determinants	Marketing seeking	Market size and per capita income
		Market growth
		Access to regional and global markets
		Country-specific consumer preferences, structure of markets
	Resources/Asset-seeking	Raw materials
		Low-cost unskilled labor
		Skilled labor
		Technological, innovative or other created assets (e.g brand name), including those embodied in
		Individual, firms and clusters; physical infrastructure (ports, roads, power, telecommunications)
	Efficient-seeking	Cost of resources and assets listened under B, adjusted for productivity for labor resources.
		Other input costs, e.g. transport and communication costs to, from and within host economy
		Costs of other intermediate products membership of a regional integration agreement
		Conductive to the establishment of regional corporate networks.
Business facilities		Investment promotion (including image- building and investment-generating activities and
		Investment-facilitation services
		Investment incentives
		Hassle costs (related to corruption, administrative efficiency, etc.)
		Social amenities (bilingual school, quality of life, etc.)
		Post investment services.

Sources: UNCTAD (1998)

Transport activities are important to remark marketing activities and cooperation between gates (air and sea), and the supply chain activities. Ports are main spot in the development of areas. Mega hub ports are always in healthy economic regions and vice versa; healthy economic regions require mega hub ports.

2.2 Foreign Direct Investments

Tae Hoon Oum and Jong-Huk Park (2003), studied the major factors that multinational corporations consider when they decided the location of their regional distribution centers (DCs). The critical determinants were identify as in Table 3.

Table 3 Critical determinants for locations of DCs

1. Geo-location linkage and market accessability.	5. Labor quality and labor peace
2. Market size and growth potential of catchment region.	7. Modern logistics service provider (3PL and 4PL)
3. Port, Airport and International facilities.	8. Cost probusiness officials and government. and
4. Skilled labour force	9. Political stability

Also, they stated that the heights of market-related and services related factors are generally higher than those of costs- related factors like labor-costs, land price and corporate incentives. Finally, the study suggested that in order to be the logistic hub, a nation needs to improve services to foreign firms currently doing business in the country, so that they voluntarily expand their activities. The hub needs to secure not only enough hardware facilities such as well developed transport and logistics infrastructure but also, needs to provide excellent software services by continuously improving government support. World-class logistics providers, support the different activities of investors.

Also, in the article "What attracts foreign multinational corporations to China?", Zhang (2001) indicates that multinational firms would allocate their investments among countries so as to maximize their risk-adjusted profit. The profit of FDI made by multinational firms in a country may depend on three groups of factors: factors within the firm that enable it to grow and diversify more successfully than others at home or abroad (such as property, technology and management expertise); factors in the host country that make the country as the best location for the firm to produce across countries (such as cheap labor, growing market size, and tax incentives); and factors associated with the firm's trade-off between FDI and exporting and licensing (such as transaction costs).

After reviewing relevant literature together with sessions of brainstorming with colleagues and professors in Korea Maritime University the following factors, with different variables, came up for the development of a logistics hub. Complete information is shown in Table 8.

① Access to international markets.
② Economic determinants.
③ Political support
④ Commerce determinants and
⑤ Logistics services and infrastructure.

The previous factors might be divided in two groups: factors of first order composed of factor two and three are more stabilized in developed countries and with the project of the SEZ of developing countries the target is to improve these factors necessary for attracting FDI and smooth performance of an economy.

Factors of second order composed of factor one, four and five are more related specifically to the logistics hub, to develop an effective movement of goods.

In a complex model of a mega logistics hub the factors of first order require harmony and the second order require

differentiation and being competitive. The strategic position is related to natural environment; for example, easy access to shipping lines and connectivity to the principal international trunk lines; and location of the country related to main markets.

In Northeast Asia all the different countries have a relative strategic position but in the other factors the competitive advantages are sui-generis. Time and strategies will make the differentiation.
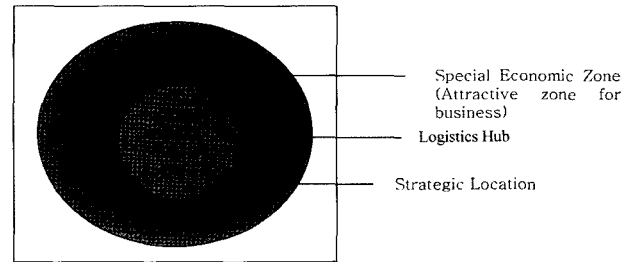

Fig. 1 Segregation of the factors

3. RESEARCH DESIGN

3.1 Research instrument

For this study, a questionnaire was developed based on the literature review together with discussion with professors and colleagues in logistics field. The questionnaire mainly consisted of two parts; the one designed to identify the expected major outcome of a logistics hub and the other to identify major determinants for the development of a logistics hub.

For the former the five outcome of a logistics hub were derived and given such as 'Increasing cargo volume', 'Settlement of foreign companies in the territory', 'Enhancement of productivity', 'Economic growth and efficiency' and 'Customer services'. For the latter, the five factors for the development of a logistics hub mentioned in previous section were provided.

The questionnaire was sent to private and public organizations, which interact in the development of a hub in an open down approach.

For the purpose of this paper various analytical methods were employed such as Correlation, Factor Analysis, Reliability Analysis and Regression Analysis by using the statistical tool, SPSS. Also, ANOVA and T-test procedures were completed to analyze perception among groups.

3.2 Sample design

Primary and secondary data were used in this research (See Table 4). Literature of China, Korea and Japan

regarding their studies and milestones in the development of a logistics hub was analyzed. Questionnaires sent by mail and e-mail were the primary source of data.

Table 4 Primary and secondary data collected

Secondary data	Description	Primary data	Description.
Internet search	Science Direct Generalsearch of logistic, SEZ, FTZ, FDI, and different business activities of the supply chain management.	Postal and e-mail questionnaires private and public sector	50 questionnaires were sent to public and private organizations.
Academic articles and journals	Logistics, marketing, ports, Investments, supply chain management	Informal personal interviews	With professors in the field.
Academic text books	Economics, port logistics and business logistics, supply chain management	-	-
Other published sources	Government publications, port brochure and transport statistics.	-	-

The ideal sample was private and public companies involved in commerce activities[2] in Korea, such as Logistics companies, IT companies, Manufacturer companies, Services companies, Ports and Public companies.

The questionnaires collected were not many, so it didn't represent the necessity of different groups of companies involved in the chains. The sample was tabulated according to the type of organization (divided into 5) and the size of the different companies(divided into 3).

4. EMPIRICAL ANALYSIS

4.1 Overview of sample

50 questionnaires were sent to the group of companies mentioned before. Out of them, 36 were the total questionnaires inputted for the analysis, due to inconsistency of the remained. The frequency concerning type of organization response is shown in Table 5.

Table 5 Frequency according to type of organization

Type	Frequency	Percent	Valid Percent	Cumulative Percent
1	2	5.6	5.6	5.6
2	13	36.1	36.1	41.7
3	14	38.9	38.9	80.6
4	4	11.1	11.1	91.7
5	3	8.3	8.3	100
Total	36	100	100	

Note : Type of organization:　1 Manufacturing companies, 2 Service companies, 3 Logistics companies, 4 Public companies and 5 others.

The bigger percentage of respondents was logistics companies, 38.9 percent codified as type 3 followed by Service companies with 36.1 percent codified as type 2. The respondents of public companies, codified as 4, were small. Table 6 shows the size of the company and the frequency of respondence (See Table 6).

Table 6 Frequency according to size of company

Type	Frequency	Percent	Valid Percent	Cumulative Percent
1	16	44.4	44.4	44.4
2	17	47.2	47.2	91.7
3	3	8.3	8.3	100
Total	36	100	100	

Note : Type 1) >100 employees, 2) Between 100 and 1000 employees, 3) < 1000 employees.

The major respondents were companies of less than 100 employees followed by medium companies; they represent 91.7 percent of the total. Big companies only represent 8.3 percent.

The result of the frequencies involving the five outcomes and a decision-making based on an ordinal scale of 1 to 5 shows in Table 7. As it is seen, 83 percent of the respondents consider the increase of cargo volume as the most important outcome of logistics hub, and only 17 percent consider it bellow 3 in the scale of importance. Settlement of foreign companies in the territory is ranked second and Customer service third.

Table 7 Level of importance according to ordinal scale.

Outcome	Less important	Important	Most important	Totals	%Totals
Increase cargo volume	17	7	6	30	83%
Settlement of foreign companies in the territory	4	11	7	22	61%
Enhancement of productivity	5	6	6	17	47%
Economic growth and efficiency	6	4	8	18	50%
Customer service	4	8	9	21	58%
Total	36	36	36		

4.2 Factor analysis

A correlation analysis was carried out for significant inter items relationship within the different groups of factors. Values of X>0.350 and Sig (2 tails) < 0.05 were required. Out of the 33 items, six coefficients were deleted due to their small value 0.35. With this analysis we look for the association but not necessary causation. The result may only show that the variables are simultaneously influenced by some third variable. The items marked with (*) in Table 8 were deleted based on results of the correlation test.

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2) Commerce activity involves aids for trade which are banking, insurance, 3pl et. al.

After the correlation analysis factor analysis was conducted by using a maximum likelihood method followed by varimax rotation with Kaiser Normalization. Using the scree method of factor determination five factors were determined, which explain 58 percent of the variance in the data with an Eigen values of 1.825. Factors loading of 0.649 and greater were used as determinant of the different variables, which loaded significantly on to the factors. These variables with the associated relevant factors loading denoted by shade colors and the coefficient alpha values for the constructs are shown in Table 9.

Reliability test were performed through the calculation of Cronbach coefficient alpha for each construct. All alpha results ranged from 0.622 to 0.867, indicating internal consistency of the scales.

Table 8 List of factors and items

Factors	Items
Access to international markets	Market opportunities and access to international markets.
	*Efficient multimodal system
	Air logistics
	Natural resources availability
	Connectivity of gates to international market
Economic determinants	Economic stability (inflation, Interest rates, exchange rates)
	Level of high tech industries in the area.
	Level of agglomeration of economies (clusters)
	GDP of the region.
	Efficient customer clearance procedures
	*Settlement of multinational corporations
	Favorable tax regimen to attract investors.
Political support	Cross trait relationship of the country (trading pact)
	development of active capital market.
	Location of the gates (ports and airports).
	Settlement of big stores (retailers) as home depot, Carrefour, Walmart etc.
	Availability of Free Trade Zone (FTZ)
	*Development of Special Economic Zone (SEZ)
Commerce determinants	Land costs
	Insurance optimal service
	Organization of trade fairs or Exhibition
	*Availability of market information
	Cooperation with important express transportation companies (FedEx, UPS etc)
	Skilled manpower available (including logistic sector)
	Efficient Just in time (JIT) procedures.
	Information and communication infrastructure
	Efficient infrastructure facilities
Logistics service support and infrastructure	Value added logistic services in the port.
	Banking optimal service
	High port connectivity and ship frequency
	High airport connectivity and flight frequency.
	*Rail logistics infrastructure
	*Availability of world class logistics providers
	Efficient rail and road network.

Table 9 Rotated components matrix

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Items	Cronbach alpha
X1	0.019	0.032	(0.101)	(0.092)	0.844	Market opportunities and access to international market	0.6215
X2	0.297	0.047	0.088	0.184	0.710	Connectivity of gates to international market	
X3	(0.143)	0.328	0.674	0.257	0.334	Economic stability (inflation, Interest rates, exchange rate	0.6977
X4	(0.003)	0.300	0.644	0.006	(0.004)	Level of high tech industries in the area	
X5	0.264	0.072	0.729	(0.106)	(0.000)	Level of agglomeration of economies (cluster	
X6	0.247	(0.186)	0.666	0.146	(0.248)	GDP of the region	
X7	0.138	0.340	(0.102)	0.654	0.137	Efficient customer clearance procedure	0.7018
X8	0.162	0.267	(0.145)	0.565	0.021	Favorable tax regimen to attract investor	
X9	0.134	0.012	0.199	0.791	0.095	Cross trait relationship of the country (trading pact)	
X10	(0.119)	0.080	0.294	0.687	(0.159)	Development of active capital mark	
X11	0.153	0.649	0.138	0.207	0.347	Location of the gates (ports and airports	0.8066
X12	0.097	0.763	(0.041)	0.138	(0.171)	Settlement of big stores (retailers) as home depot, Carrefour, Walmart etc.	
X13	0.085	0.636	0.076	0.047	(0.355)	Availability of Free Trade Zone (FT	
X14	0.013	0.511	0.270	0.145	0.099	Land costs	
X15	0.249	0.771	(0.054)	0.074	0.128	Organization of trade fairs or Exhibition	
X16	0.221	0.664	0.298	0.026	0.335	Cooperation with important express transportation companies (FedEx, UPS etc)	
X17	0.675	(0.147)	0.464	0.210	0.127	Efficient Just in time (JIT) procedure	0.8667
X18	0.742	0.217	0.165	(0.007)	0.121	Information and communication infrastructure	
X19	0.793	0.178	0.086	0.074	(0.038)	Efficient infrastructure facilities	
X20	0.712	0.067	0.079	(0.079)	0.287	Value added logistic services in the port	
X21	0.594	0.220	0.159	(0.294)	(0.108)	Banking optimal service	
X22	0.622	(0.094)	(0.107)	0.420	(0.127)	High port connectivity and ship frequency	
X23	0.675	0.088	(0.131)	0.197	0.029	High airport connectivity and flight frequency	
X24	0.764	0.269	0.154	0.157	0.187	Efficient rail and road network	

Factor 1, Logistics service support and infrastructure, focuses on commerce activities involving trade and aids for trade. The items support competitiveness improving service, time and costs issues. The factors encourage efficient cargo movement, main outcome of logistics hub according to the frequency analysis of the respondents.

Factor 2, Business environment, has external and internal influence. Its items develop good environment for settlement

of national companies and Foreign Direct Investments.

Factor 3, Economic determinant, is influenced by internal and external factors. It promotes attractiveness and shows the economic situation of the region.

Factor 4, Political support, is closely related to the efficiency of the government to activate the economy and be more efficient. Tax incentive is an item of hot discussion regarding World Trade Organization trends but it is still the main instrument of developing regions to attract important capitals.

Factor 5, Access to international markets, is influenced strongly by external factors, which means the government and projects developers have no influence on it. These items are involved directly in internationalization and aids for it.

4.3 Regression model

1) Factors of importance

Because the goal in developing the measurement model is to identify distinct factors, ideally, inter-factor correlations should be low. In this case it was proved the difference between factors; the model confirms the low correlation, maximum value, $X < 0.368$.

Single regression models were carried out to identify the association and to look which factors are important to focus more on. The model was made separately due to the different meaning of the outcomes (See Tables 10).

Table 10 Regression among outcomes

Dependent variable or outcome	Model	Independent	R Square	Unstandarized coeficient		Standarized coeficients	t	Sig.
				B	Std. Error	Beta		
Increase of cargo volume - Y1	(Constant)		0.84	3.003	0.838		3.581	0.001
	Factor 1			0.373	0.211	0.29	1.767	0.086
	(Constant)		0.081	3.168	0.761		4.162	0
	Factor 3			0.368	0.213	0.285	1.731	0.093
	(Constant)		0.095	2.849	0.865		3.249	0.002
	Factor 4			0.399	0.211	0.308	1.89	0.067
Settlement of foreign companies - Y2	(Constant)		0.177	2.087	0.786		2.656	0.012
	Factor 5			0.498	0.184	0.42	2.702	0.011
Enhancement of productivity - Y3	(Constant)		0.079	5.565	0.975		5.71	0
	Factor 5			-0.389	0.228	-0.281	-1.704	0.097
Economic growth and efficiency - Y4	(Constant)		0.093	2.254	0.912		2.471	0.019
	Factor 1			0.492	0.229	0.305	1.869	0.07
	(Constant)		0.272	1.667	0.647		2.575	0.015
	Factor 2			0.62	0.174	0.522	3.564	0.001

To develop the first dependent variable, Increase Cargo Volume (Y1), Factors 1, 3 and 4 are of special relevance. To develop dependent variable two, Settlement of Foreign Companies (Y2), Factor 5(access to international markets), is relevant. To develop dependent outcome three,

Enhancement of Productivity (Y3), also Factor 5 shows close dependence. Dependent outcome four, Economic Growth and Efficiency (Y4), shows close relation with the Factors 1 and 2. Last dependent outcome, Customer Service (Y5), shows a high sigma value in the different independent variables, which indicates that other external factors influence them.

2) One-Way analysis and T-test.

Finally, two procedures for analysis of variances, ANOVA and T-test, were included to confirm the perception of the different groups. In the case of the ANOVA test it was confirmed that the different types of companies referred as type 1 (Service companies), type 2 (Logistics companies) and type 3 (Other) have the same perception related to the different independent factors (from Factor 1 to Factor 5) (See Tables 11).

Table 11 Test of homogeneity of variances

	Sig	Between groups/sig
Factor 1	0.554	0.79
Factor 2	0.64	0.55
Factor 3	0.25	0.54
Factor 4	0.09	0.27
Factor 5	0.2	0.44

Note : Parameter for the probability of significance is >0.05 (Variance same) and <0.05 varianza different. Anova P.value higher than 0.05 indicates the same perception between groups.

A second ANOVA analysis was run to identify the opinion of the group related to the outcome chosen as the most important result of a logistics hub and the different factors affecting the result. (See Table 12). The result shows similar attitude of the group related to the factors beside factor 1 where the Sig shows a low value of 0.03 indicating discrepancy in opinion among groups.

Table 12 Anova test between outcome group and Factor1

	Sig	Between groups/sig
Factor 1	0.40	**0.03**
Factor 2	0.52	0.46
Factor 3	0.74	0.37
Factor 4	0.54	0.78
Factor 5	0.87	0.19

Finally a group comparison T-test was run to identify if the small or big companies have the same opinion about the factors affecting the development of a hub. The result shows same perception (Table 13)

4.4 Interpretations of results

According to the cross tabulation analysis, the respondents in Korea consider as main outcomes of a logistics hub: first, Increase cargo volume, and second, Settlement of Foreign Direct Investments.

Table 13 T-test relation between sizes of company

		Levene's Test for Equality of Variances	T -test of equality of means	
		F	Sig.	Sig. (2-tailed)
FACTOR 1	Equal variances assumed	0	0.986	0.975
FACTOR 2	Equal variances assumed	1.864	0.181	0.253
FACTOR 3	Equal variances assumed	0.256	616	0.469
FACTOR 4	Equal variances assumed	0.179	0.675	0.705
FACTOR 5	Equal variances assumed	0.256	0.616	0.469

* Note : Values Case I > 0.05 shows same criteria and II < 0.05 shows different criteria

The factor analysis result using Varimax rotation method with Kaiser Normalization shown on Table 11, indicates high level of importance to its factors, the items within factor loading between 0.6 and 0.9 shows the external consistency.

The cronbach coefficient alpha shows the good internal coefficient between factor items within a range of 0.622 and 0.867 indicating the internal consistency of the different items involved in the logistics hub.

The final consistent five factors involve commerce activities, adequate environment, economy issues, efficient of governments and internationalization.

The confirmatory factor analysis shows no significance relation between any of the five variables, which confirm a goodness fit for the model. The factor loading of each group is X<0.5 evidencing the opposite relation.

The separate regression model indicates level of dependency between factors and the different proposed five outcomes. The regression on outcome five indicates that external factors (other factors out of the model) affect its performance.

ANOVA and T test procedures confirm the similar opinion among almost all the established groups related to the type of organization, size and preference of outcome. In case of factor one, related to the different out comes group, is the only exception. The Sig. Value of 0.030 confirms the diverse opinion regarding Logistics Service Support and Infrastructure.

With this work it was specified how factors are important in the logistics hub and how they affect the dependent variables (Logistics performance). If logistics industries want to improve performance they can identify key points.

5. CONCLUSIONS

Main factors for the development of a competitive logistics hub according to Korean experience are identified as: Logistics service support and infrastructure; Business environment; Economic determinants; Political support; and Access to international markets. In the factor analysis, market opportunities and access to international markets shows the highest factor loading.

The main outcome of the logistics hub was considered as 'increase cargo volume'. According to the regression results Factors 1, 3 and 4 shows close dependence to this outcome. The second more important outcome was 'settlement of foreign companies' in the territory.

As detailed determinants for the successful development of a Logistics hub, several key ones can be mentioned. First, speed and efficiency are important considerations for implementation of logistics hub projects in any region. Provide better and more sophisticated integrated transport, information and a communication service is necessary for the different types of cargo and the well service to different distribution centers or Distriparks.

Second, integrated transportation is necessary in an efficient logistics hub, not only for the movement of imports or exports but also for the handle of transshipment cargo, efficient ports and airports are main factors for its development. The work of 3PL and now 4PL service providers are also important issue to integrate activities as transportation, IT or assembly necessary for the smooth flow of goods within the supply chain. These logistics providers have grown fast in the recent years and are main parts of successful logistics hubs.

As world trade agreements influence the flow of cargo it is necessary to examine where the flow of cargo is and will go as a mean of determining the best warehousing and distribution location. This includes the North American Free Trade Agreement (NAFTA), European Union (EU), and Asia Free Trade Agreement. With the new trend in commerce and regional integrations the imbalances problems in regions should be analyzed seriously among nations. As logistics hub can bring more imbalances.

Despite such conclusions, this study have limitations to provide some implication for the design of a logistics hub, particularly in developing countries due to the limited

number of respondent involved. Accordingly, the interpretation of the result needs to be considered with caution, and a comprehensive study needs to be conducted.

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