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Research Paper

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SERVICE QUALITY IN SELECTION OF DRY PORTS BY THE LOGISTICS INTERMEDIARIES

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ABSTRACT

As many countries are landlocked, all the countries have been compelled to use neighbor countries for its imports and exports. In order to ease some of the problems in the transit countries, they started constructing dry ports in its hinterland along the transit corridors. To reap the maximum benefit from dry ports, the efficient and effective performance of the dry ports is very crucial and to do that it is important to identify factors which influence the performance of dry ports along with the quality of services rendered. Therefore, this study tried to examine factors that influence the service quality of dry ports from port users perceptions. Primary data was collected from 450 sample customers of the port which are selected based on convenience sampling technique. The data was collected using questionnaire and the data was analyzed using Factor analysis.

KEYWORDS: *Dry ports, Service quality, containers, Third party.*

INTRODUCTION

A Dry Port is an intermodal terminal situated in the hinterland servicing a region connected with one or several ports by rail and/or road transport and is offering specialised services between the Dry Port and the overseas destinations. Normally the Dry Port is container oriented and supplies all logistics facilities, which are needed for shipping and forwarding agents in a port. While considering the main aspects of the Dry Port concept, the selection of location is important. The location should be chosen according to the individual case.

When the transport service is performed by a party other than the shipper or the receiver (e.g. industrial shipping, private transport, etc.), both shipping and inland transport providers may be regarded as third parties, or third party transport operators. Today, many shipping and inland transport operators are offering more than just a transport service, and could therefore be considered as third party logistics (3PL) providers. 3PL is also called logistics outsourcing or contract logistics. Its main core activities include transport, warehousing, inventory management, information systems, consolidation and distribution, freight management and consulting services. Other functions include value-added capabilities such as pick and pack, labelling and packaging, and telemarketing. A third party may provide any number of these services, including just one service. Traditional third party operators have focused their services on a single operational or managerial supporting service (transport, storage, information management, audit and payment, etc.), whereas recently some operators provide more than one auxiliary service involving or surrounding the flow of goods and products. These intermediaries select the dry port based on the nature of quality of the dry ports.

REVIEW OF LITERATURE

Roso*et al.*, 2008 studied that the quality of access to a dry port and the quality of the road/rail/waterway interface determines the quality of terminal performance therefore it is necessary to have scheduled, reliable, transport by high capacity means to and from seaport. Thus dry ports are used much more consciously than inland terminals with the aim to improve the situations caused by increased container flows, focus on security and control by use of information and communication systems.

World Bank-United Nations, 2014, analysed that Freight forwarders are agents not moving freight themselves play a critical role in organizing supply chains and moving goods on transit corridors. The role of freight forwarders is to organize international (or eventually domestic) logistics on behalf of shippers and consignee. This includes organizing transportations with railways or trucking companies, and customs representation activities at the border. They make a

key contribution to supply chains by linking with forwarding partners abroad, which essentially insures the continuity of the supply chain, and makes it possible to track shipments in transit (World Bank-United Nations, 2014). Hence, their interaction and collaboration with the port staffs and the activities of other logistics service providers is crucial in determining the performance of the dry port.

OBJECTIVE OF THE STUDY

The main objective of the study is to assess the service quality in selection of dry ports by the logistics intermediaries.

METHODOLOGY

This study employs simple random sampling, a type of probability sampling, which involves the probability of each and every item has a chance to participate in the study. Through this probability sample the final sample is drawn from the respondents who were logistics intermediaries. A survey was conducted among the intermediaries through self-administered questionnaires.

Statistical Tools used

1. Factor Analysis
2. Confirmatory Factor Analysis

ANALYSIS AND INTERPRETATION

Factor Analysis

The key concept of factor analysis is that multiple observed variables have similar patterns of responses because they are all associated with a latent (i.e. not directly measured) variable.

The below table indicates that KMO Measure of Sampling Adequacy test is significant (because the test value is greater than 0.700 at 0.795) and Bartlett's Test of Sphericity is also found to be significant (approx. Chi-square = 4241.623, df = 253, Significance 0.000). This indicates that the dataset is fit to perform factor analysis. Varimax Rotation Technique is used to examine the obtained factors, and all item loadings above 0.40 are considered for the scale in factor analysis.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.795
Bartlett's Test of Sphericity	Approx. Chi-Square	4241.623
	df	253
	Sig.	.000

Initial communalities are the estimates of the variance in each variable accounted for by all the components or factors. For Principal components extraction, this is always equal to 1 for correlation analysis. Extraction communalities are the estimates of the variance in each variable accounted for by the component.

Communalities		
Service Quality variables	**Initial**	**Extraction**
Availability of equipment & facilities	1.000	.538
Modern & proper functioning of equipment & facilities	1.000	.731
Fast service	1.000	.690
Reliable service	1.000	.727
Good professional attitude & behavior of the Staff	1.000	.600
Quick response to the enquiries and request by the staff	1.000	.752
Other Infrastructure	1.000	.761
Management & employees of the port	1.000	.644
Strong & stable financial stability	1.000	.629
Excellent shipment track and trace capability	1.000	.749
Ensures services in a consistent manner	1.000	.767
Error free invoice and related documents	1.000	.726
Comprehensive level of ICT applications in customer service	1.000	.673
Good relationship with other ports and Land transport service providers	1.000	.630
Service quality of the port	1.000	.574
Reference to other business partners	1.000	.675
Excellent warehouses, distribution and connection networks	1.000	.680
Fulfilling the service requirements	1.000	.643
Competitive price of the service	1.000	.747
Possesses the positive reputation & reliability in the market	1.000	.764
Ensures good record of operations & work safety	1.000	.728
Emphasizing environmentally responsible operations	1.000	.613
Continuity on the usage of the port	1.000	.594
Extraction Method: Principal Component Analysis.		

Only those components are considered as principal components which have an eigen value greater than 1. Here, the first seven components have an eigen value of more than 1, which explains 67.988% of total variance, and the remaining components explain 32.021% of total variance. The below table presents the total variance of the observed variables explained by each of the principal components / factors. For arriving at possible factors from total 23 variables, rotation was converged in 18 iterations through Varimax Rotation Technique.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.078	26.425	26.425	6.078	26.425	26.425	2.746	11.938	11.938
2	2.423	10.536	36.960	2.423	10.536	36.960	2.366	10.289	22.227
3	1.926	8.374	45.334	1.926	8.374	45.334	2.318	10.080	32.307
4	1.602	6.964	52.298	1.602	6.964	52.298	2.299	9.997	42.304
5	1.395	6.067	58.365	1.395	6.067	58.365	2.175	9.456	51.760
6	1.192	5.182	63.547	1.192	5.182	63.547	2.088	9.080	60.840
7	1.022	4.441	67.988	1.022	4.441	67.988	1.644	7.148	67.988
8	.846	3.677	71.665						
9	.800	3.480	75.145						
10	.745	3.239	78.385						
11	.649	2.821	81.205						
12	.579	2.518	83.723						
13	.501	2.179	85.902						
14	.452	1.964	87.866						
15	.422	1.833	89.699						
16	.413	1.794	91.494						
17	.361	1.571	93.064						
18	.352	1.532	94.597						
19	.302	1.312	95.909						
20	.273	1.187	97.096						
21	.244	1.060	98.157						
22	.230	1.000	99.156						
23	.194	.844	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix[a]

Short-term Description of variables		Component							Labeled as
		1	2	3	4	5	6	7	
SQ4	Reliable service	.757							Quick Response I (11.938)
SQ5	Good professional attitude & behavior of the Staff	.719							
SQ6	Quick response to the enquiries and request by the staff	.618							
SQ13	Comprehensive level of ICT applications in customer service	.598							
SQ3	Fast service	.595							
SQ14	Good relationship with other ports and Land transport service providers	Not Rotated							
SQ11	Ensures services in a consistent manner		.835						Track service II (22.227)
SQ12	Error free invoice and related documents		.764						
SQ10	Excellent shipment track and trace capability		.689						
SQ16	Reference to other business partners			.790					Distribution service III (32.307)
SQ15	Service quality of the port			.687					
SQ17	Excellent warehouses, distribution and connection networks			.682					
SQ8	Management & employees of the port				.766				Infrastructure IV (42.304)
SQ7	Other Infrastructure				.765				
SQ9	Strong & stable financial stability				.613				
SQ19	Competitive price of the service					.805			Reputation V (51.760)
SQ20	Possesses the positive reputation & reliability in the market					.763			
SQ18	Fulfilling the service requirements					.628			
SQ21	Ensures good record of operations & work safety						.730		Good Operations VI (60.840)
SQ22	Emphasizing environmentally responsible operations						.709		
SQ23	Continuity on the usage of the port						.658		
SQ2	Modern & proper functioning of equipment & facilities							.789	Equipments and facilities VII (67.988)
SQ1	Availability of equipment & facilities							.635	

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 18 iterations.

By performing the rotated component matrix the variable SQ14 – "Good relationship with other ports and Land transport service providers" have not rotated. Hence it was not included in the study.

Factor I – Quick Response

The variables SQ4 - Reliable service, SQ5 - Good professional attitude & behavior of the Staff, SQ6 - Quick response to the enquiries and request by the staff, SQ13 - Comprehensive level of ICT applications in customer service and SQ3 - Fast service constitutes factor I with 11.938 percent of variance.

Factor II – Track service

The variables SQ11 - Ensures services in a consistent manner, SQ12 - Error free invoice and related documents and SQ10 - Excellent shipment track and trace capability constitute factor II with 22.227 percent of variance.

Factor III – Distribution service

The variables SQ16 - Reference to other business partners, SQ15 - Service quality of the port and SQ17 - Excellent warehouses, distribution and connection networks constitutes factor III with 32.307 percent of variance.

Factor IV – Infrastructure

The variables SQ8 - Management & employees of the port, SQ7 - Other Infrastructure and SQ9 - Strong & stable financial stability constitute factor IV with 42.304 percent of variance.

Factor V - Reputation

The variables SQ19 - Competitive price of the service, SQ20 - Possesses the positive reputation & reliability in the market and SQ18 - Fulfilling the service requirements constitutes factor V with 51.760 percent of variance.

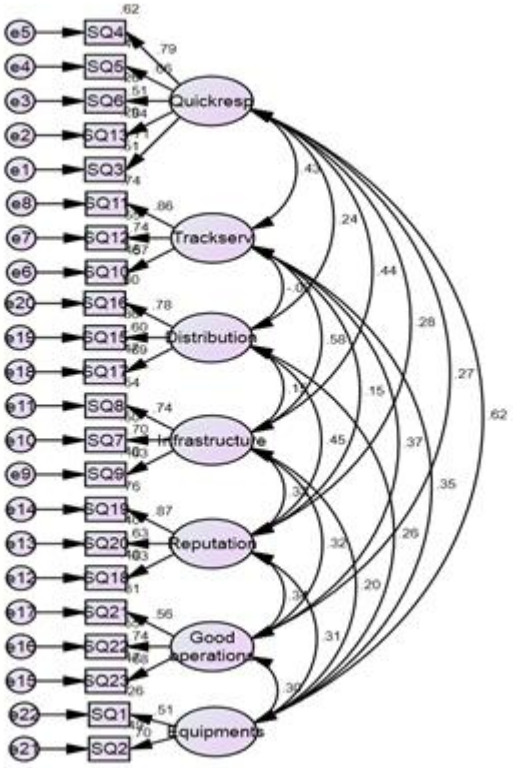
Factor VI – Good Operations

The variables SQ 21 - Ensures good record of operations & work safety, SQ22 - Emphasizing environmentally responsible operations and SQ23 - Continuity on the usage of the port constitute factor VI with 60.840 percent of variance.

Factor VII – Equipments and Facilities

The variables SQ2 - Modern & proper functioning of equipment & facilities and SQ1 - Availability of equipment & facilities constitute factor VII with 67.988 percent of variance.

Confirmatory Factor Analysis



Assessing Overall Measurement Model Fitness

The results shown in the below table provide a quick overview of the model fit, which includes the value (1245.972), together with its degrees of freedom (189) and probability value (0.000). In the table NPAR stands for Number of Parameters, and CMIN (χ^2) is the minimum discrepancy and represents the discrepancy between the unrestricted sample covariance matrix S and the restricted covariance matrix. Df stands for degrees of freedom and P is the probability value.

AMOS output showing Model Fit

Model	NPAR	χ^2	DF	P	CMIN/DF
Default model	64	1245.972	189	.000	6.592
Saturated model	253	.000	0		
Independence model	22	4043.289	231	.000	17.503

In SEM a relatively small chi-square value supports the proposed theoretical model being tested. In this model the χ^2 value is 1245.972 and is small compared to the value of the independence model (4043.289). Hence the χ^2 value is good.

Although the χ^2 seems good, it is also appropriate to check the value of χ^2 divided by df (Wheaton, Muthen, Alwin and Summers, 1977) as the χ^2 statistic is particularly sensitive to sample sizes (that is, the probability of model rejection increases with increasing sample size, even if the model is minimally false), and hence chi-square (χ^2) divided by degrees of freedom is suggested as a better fit metric (Bentler and Bonnett, 1980). It is recommended that this metric not exceed five for models with good fit (Bentler, 1989). For the current CFA model, as shown in the above table, χ^2D df was 6.592 (χ^2= 1245.972; df = 189), suggesting acceptable model fit.

The other different common model-fit measures used to assess the models overall goodness includes Goodness of Fit Index (GFI) - 0.808, AGFI is 0.743, NFI, RFI, CFI, TLI are 0.692, 0.623, 0.723 and 0.661 respectively. RMSEA is 0.112 and RMR is 0.160.

The Confirmatory factor analysis showed an acceptable overall model fit and hence, the theorized model fit well with the observed data.

CONCLUSION

Thus the service quality variables have been clustered into Quick Response, Track service, Distribution service, Infrastructure, Reputation, Good operations and Equipments & Facilities. These clustered variables have good fit model fit.

REFERENCE

1. *World Bank-United Nations (2014).Improving Trade and Transport for Landlocked Developing Countries: A Ten-Year Review. report in preparation for the 2nd United Nations Conference on Landlocked Developing Countries (LLDCs)*
2. *Roso, V. Woxenius, J and Lumsden.K (2009).The dry port concept: connecting container seaports with hinterland. Journal of Transport Geography, Vol 17, pp 338-345.*