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Research Paper

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EFFECTIVENESS MEASURES OF LOGISTIC SECTOR IN AIZAWL, MIZORAM

¹Prof.Lalhriatpuii, ²Prof. Vanlalchhawna

I. INTRODUCTION

Logistics is a collection of functional activities such as transportation, inventory control, etc., which are repeated many times throughout the channel through which raw materials are converted into finished products and consumer value is added. Because raw material sources, plants, and selling points are not typically located at the same places and the channel represents a sequence of manufacturing steps, logistics activities recur many times before a product arrives in the marketplace. Even then, logistics activities are repeated once again as used products are recycled upstream in the logistics channel (Ballou 2006). Most of the goods consumed in Aizawl city are imported from outside the state and since there are very little outgoing consignments from the states, the major logistics player in the supply chain mechanism consists primarily of other states' logistics firms, suppliers and transporter. In order to study their performance - shopkeepers, dealers, wholesalers, importers within the city and those who are closely in touch with these logistics providers and those who are aware of the current supply trend were surveyed to rank their respective logistics providers on a scale of 1 to 5, where 1 stands for very bad and 5 stands for very good. These rankings given were prepared carefully, keeping in mind the performance trend of logistics sector prevailing in the neighbouring regions and from their past experiences.

IMPORTANCE OF LOGISTICS PERFORMANCE MEASUREMENT : The logistics sector has become a leading industry which plays an important role in social and economic development. Nowadays, the globalization of the economy and the deepening of social division labour have led logistics sector an important component in the planning of economic strategies and gradually cause for concern. Thus the interaction between logistics and economic growth has also become a research spot. Logistics is important in supply chain because it creates value – value for customers and suppliers of the firm by defining value in terms of time and place. Products or services have little or no value unless they are in the possession of customers when and where they want to consume them. It also provides a large employment opportunity to people with different skills and a stable employment to unskilled labour as well.

AREA OF STUDY : Aizawl is the state capital of Mizoram. It is home to 293,416 persons according to 2011 Census. The city is connected with the national transport network by the National Highway 54, and it is connected to all parts of the state by road linkage. It is the centre of administration, trade and business hub for the rest of the state. Financial sectors and business activities that have their branches spread across the state have their main offices situated at Aizawl. Moreover, majority of all trades in goods and equipment as well as services within the state are carried out through Aizawl either physically or on papers. It can thus be said that a study on the performance of sectors of business activities in Aizawl city to a large extent will be representative of the performance in the state.

OBJECTIVES OF THE STUDY : To examine the overall performance of the logistics sector using effectiveness measures such as timeline, fulfilment of required quality, fulfilment of required quantity, security and tracking in the study area.

II. METHODOLOGY

Data was collected through structured questionnaire, asking respondents to provide qualitative information based on their experience is deemed suitable. It comprises of the following core components of key indicators of logistics performance.

- Timeliness
- Quantity fulfilment
- Quality fulfilment

- Security and safety

To measure the overall performance of logistics sector, the following product heads (industry-wise) are selected in order to include wide and varied logistics providers. The item heads are as given below:

- Clothing items
- Consumption goods and confectionaries
- Consumer durables
- Electronics
- Hardware items
- Medicine
- Raw materials for industries including semi-finished products
- Vegetables, fish and meat
- Vehicles, spare parts and machineries.

The respondents then rank their logistics providers on the above indicators from 1 to 5; 1 being very low and 5 being very good. In order to attain reliable response, the respondents have to be fairly knowledgeable about the market supply chain of goods in Aizawl city. This requirement is met by including wholesale owners, distributors, dealers of different goods, importers and retail outlets that have close connection with suppliers from outside the state and their logistics providers. Sample size of 45 respondents has been selected for this survey, 5 respondents for each item head or industry. And the results were then analyzed using relevant statistical tools.

LIMITATION OF THE STUDY: This research work has certain limitations. Firstly, the study is done from the perspective of the consignees only. The ratings of the logistics providers like the suppliers and the carriers and forwarders are not taken which make it one-sided in aspect and render the results useless for inter-regional comparisons. Secondly, time and cost data of incoming and outgoing cargo records, way bill records, custom clearances, etc., are not obtained because of lack of accessible accurate data set to calculate the actual performance in terms of quantity.

EFFECTIVENESS MEASURES OF LOGISTIC SECTOR: ANALYSIS: Effectiveness measures rate the performance of logistics sector on completing task to satisfy customers’ requirements. While efficiency means ‘doing things right’, effectiveness means ‘doing the right things’. It basically measures the performance of the logistics sector on their material service of the customer demands. The following basic fields were selected and studied based on the respondents’ reactions for effectiveness measures.

Timeliness: One of the most important aspects of specializing in logistics service is being able to provide goods and services to the customers as and when they are needed. Goods required today may not be useful tomorrow or they may decrease in value and utility. Thus timeliness is first and foremost to measure the effectiveness of logistics sectors. Again, the following tables and graphs show ratings of the logistics sector in Aizawl city given by the respondents on different fields and sectoral ratings respectively. Here, respondents were asked to rate their logistics providers from 1 to 5 where 1 represents never on time and 5 represents that the consignments always reach on time. With respect to timeliness of consignments in the surveyed area, responds varied across respondents.

Table 1: Timeliness

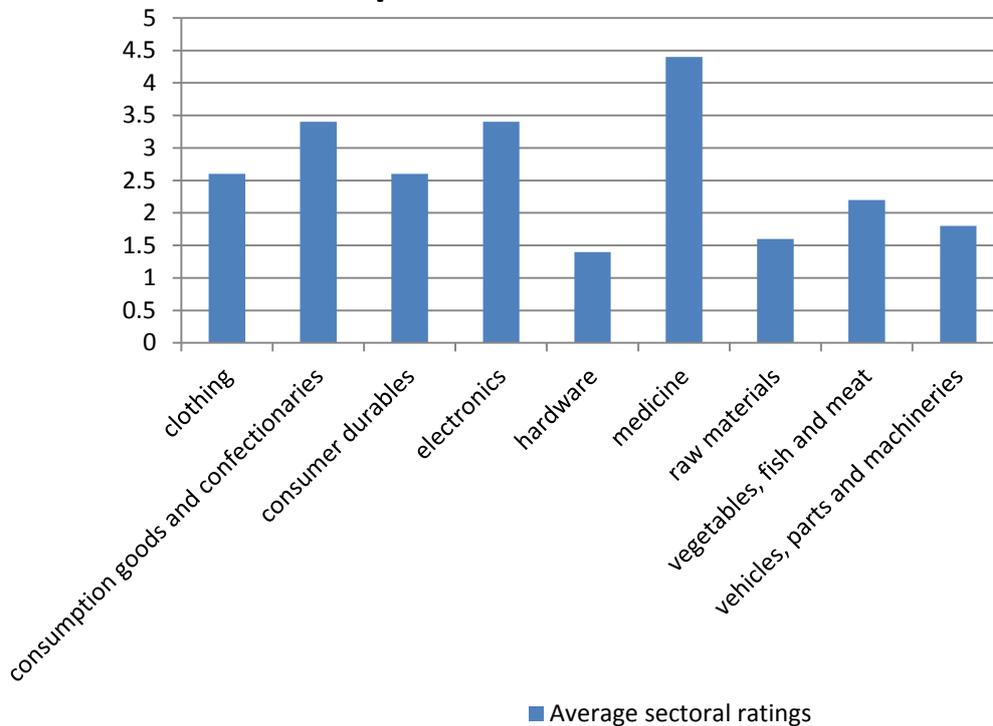
Ratings (1)	Number of respondents (2)	Value (1×2)
1	7	7
2	16	32
3	13	39
4	6	24
5	3	15
Total	45	117
Average rating	2.6 out of 5	

Source: Field Survey

As can be seen from the table above, 7 out of 45 respondents confided that their consignments never reach on time. And 3 respondents receive their goods always on time. The rest of the respondents’ replies swayed towards the lower spectrum. This is shown by the average low rating of 2.6 out of 5 on timeliness of receipt of consignments in Aizawl city.

From the survey conducted, it has been found out that delay in transport due to bad road conditions in Mizoram state has been one of the major problems faced by all as shown by the low rating of only 2.6 on average. Time taken in the processing of orders for goods is another problem faced by raw materials importers and vehicle parts dealers. Sometimes orders for goods are waited and accumulated until a there is truck load of orders to be despatched. The remoteness of the city and the distance of factories and industries play a vital role in timeliness of delivery and also lead to higher chances of delays. Transporters, sometimes, as a way of creating bargaining power, intentionally delay shipping.

Graph 1: Timeliness



Medicine supplies show relatively higher ratings (ranked 4.4 out of 5) on timelines of delivery. Items which are high in demand and quickly consumed like hardware (ranked 1.4 out of 5) and raw materials (ranked 1.6 out of 5) are often short in supply and therefore not delivered on time. Vehicles, spare parts and machineries (ranked 1.8 out of 5), clothing (ranked 2.6 out of 5) are procured from distant parts of the country and foreign countries; hence, their ratings are relatively low. For perishables items – for vegetables, fish and meat products, a slight delay could cause a great disaster; thus their ratings of their logistics providers are lower in general (2.2 out of 5). Sectoral analysis of the timeliness of consignments provided by respective logistics providers reveals that medicine dealers are quite happy with their logistics providers in term of timeliness. Other than that, overall responds showed that logistics providers in Aizawl city need improvements in terms of timeliness in order to rightly respond to customer needs.

Fulfilment of Required Quality: Quality of items delivered depends upon the competitiveness of firms, genuinity of products, transportation process, packaging process, storing techniques, etc. Detailed survey data analyses are as under.

Table 2: Fulfilment of Required Quality

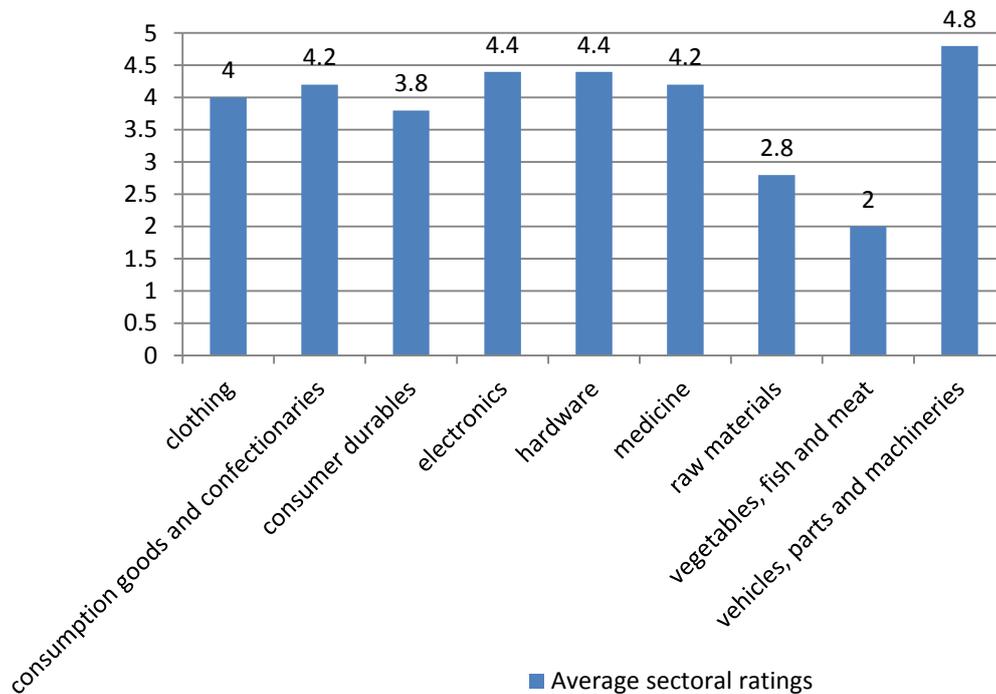
Ratings (1)	Number of respondents (2)	Value (1×2)
1	1	1
2	5	10
3	7	21

4	19	76
5	13	65
Total	45	173
Average rating	3.84 out of 5	

Source: Field Survey

In today’s highly competitive market, manufacturers and distributors as well as transporters are always competing to provide goods and services of the best quality especially when there are competitors in the market. The ratings given to logistics providers in Aizawl city are generally high in terms of fulfilment of required quality. Out of 5, the average rating score is 3.84. Only 1 respondent gave the rating of 1 and 5 respondent gave the rating of 2. Out of 45 respondents, 32 respondents are satisfied with the quality of products received and they rate their logistics providers above 3.

Graph 2: Fulfilment Of Required Quality



When there are large numbers of manufacturers and demand for item is high and the manufacturing process of which can be carried out fairly easy, quality of products tend to be mixed up between good and bad products. Quality of perishable items greatly depends upon technology and time taken in transits, which is shown here with low rating of 2 out of 5. There is also a difficulty in getting the required quality of raw materials and the ranking given is 2.8. apart from consumer durables (rated 3.8), the rankings scored for logistics providers of all the other product groups is above 4 with vehicles and parts dealers ranking their logistics providers the highest at a score of 4.8 out of 5. It can be concluded that, in terms of quality management, the logistics providers within Aizawl city are doing fairly well especially when there is fierce competition in the market. Thus the ratings are generally high except for perishable items.

Fulfilment of Required Quantity: Another important aspect of good performance of logistics sector in supply chain mechanism is fulfilment of required quantity. This attribute shows the capacity of the logistics sector to fulfil what is demanded of them. Time factor also plays an important role here. The scores here actually rank the logistics sector on the basis of fulfilment of required quantity on time. Even when there is adequate amount on the suppliers’ side, logistics sectors may not be effective and efficient enough to store, transport and deliver the required amount to the consumers. With respect to fulfilment of quantity required, logistics sector are doing fairly

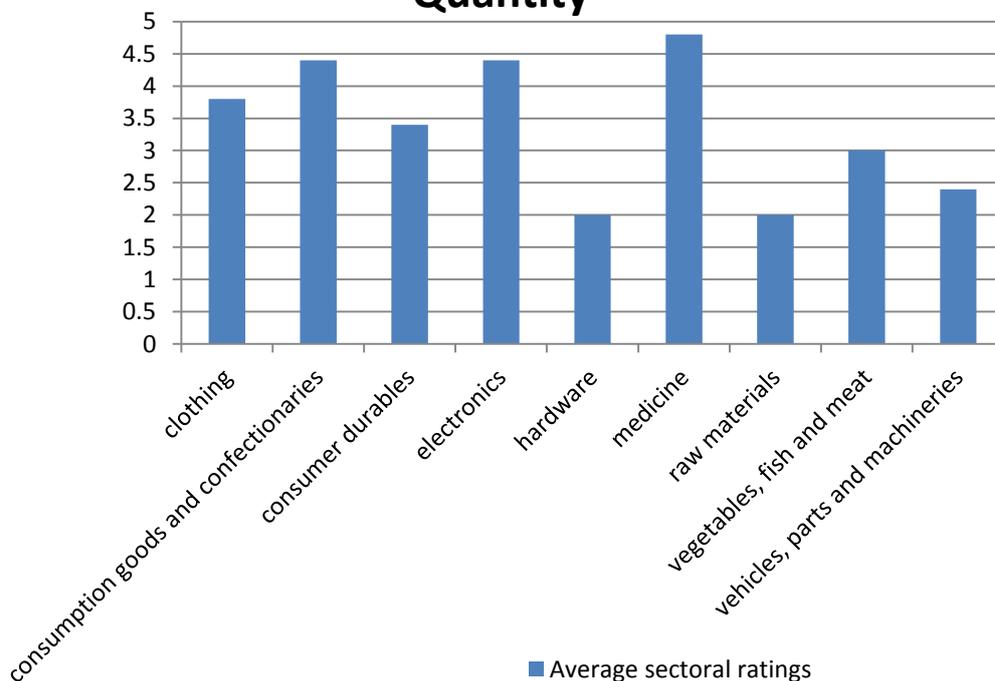
well with average rating of 3.35 out of 5. The ranking distributes around the mid-point, with only 2 respondents giving the score of 1 and 9 respondents giving the score of 5 as shown in the table below.

Table 3: Fulfilment of Required Quantity

Ratings (1)	Number of Respondents (2)	Value (1×2)
1	2	2
2	11	22
3	10	30
4	13	52
5	9	45
Total	45	151
Average rating		3.35 out of 5

Source: Field Survey

Graph 3: Fulfilment of Required Quantity



The graph above representing sector wise rating reveals that the customers are less satisfied in terms of quantity fulfilment where there are greater demands for the items in, and where items are bulky and a truckload of which met only a few proportion of the demands in case of vegetables, fish, meat, hardware, raw materials and vehicles. This rating is also greatly influenced by business experience, terms of relationships built between the concerned players and how influential the customer is to the logistics providers.

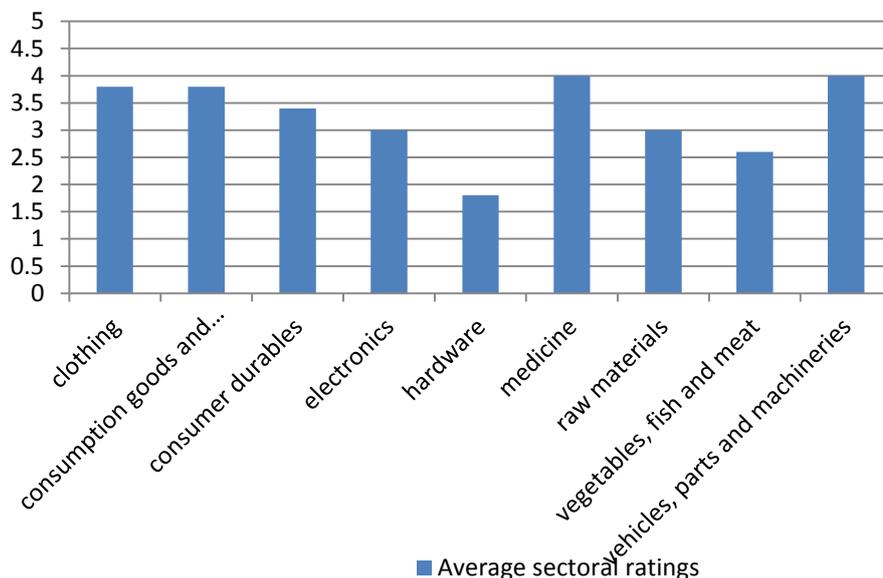
Security and Tracking : Logistics sector effectiveness is also influenced by security conditions of the region. Highway robbery, hostility, prevalence of bribery, etc can largely influence the cost of operation and time taken in transits. Other aspects of security include security of payment method, level of responsibilities taken by the transporters, incidences of unscheduled stoppages, etc. In congruent to this, tracking possibility of order processed, the whereabouts of consignments, customer care, communication maintenance, etc. enhance security and overall effectiveness.

Table 4: Security

Ratings (1)	Number of respondents (2)	Value (1×2)
1	2	2
2	8	16
3	14	42
4	18	72
5	3	15
Total	45	147
Average rating	3.27 out of 5	

Source: Field Survey

The overall average rating on security of consignments is 3.27 out of 5. 2 respondents out of the total feel that the environment and supply procedures are very unsafe and gave a score of 1 out of 5. At the same time, 3 respondents rate the overall security 5 out of 5. On average, the environment and transit process is safe and secure.

Graph 4: Security

From the survey data, hardware retailers are the ones that face security problems with their consignment the most and their ranking is only 1.8 followed by vegetables, fish and meat (scored 2.6 out of 5). Although Mizoram is a peaceful place, truck drivers from outside often face problems with the local thugs and highway robbery is not a rare situation. It is often carried out but only in small magnitude that it does not get noticed to most people. Many items are procured from outside via maxi cabs and passenger transport where the drivers of the vehicles take little or no responsibility on the safety of the goods.

Table 5: Tracking

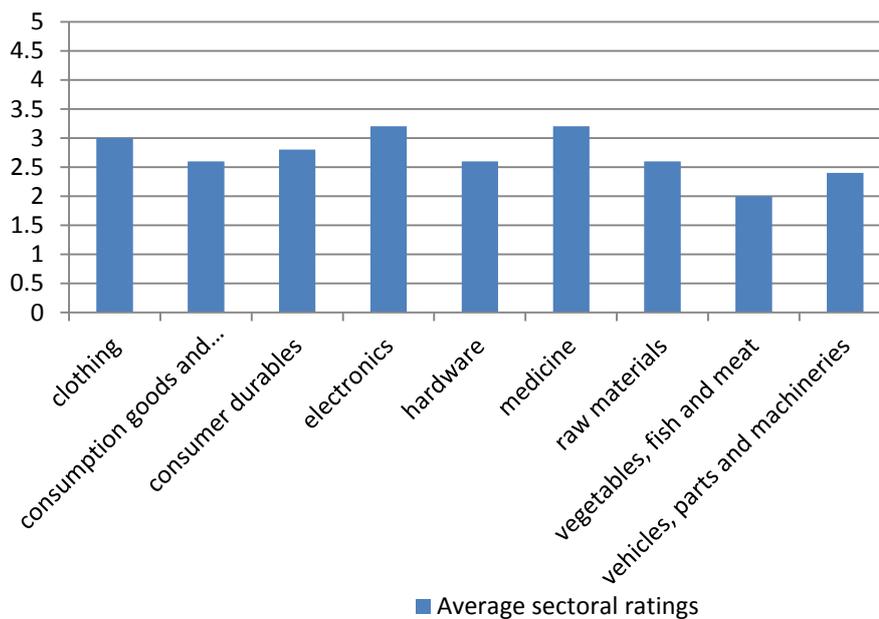
Ratings (1)	Number of respondents (2)	Value (1×2)
1	2	2

2	17	34
3	20	60
4	6	24
5	0	0
Total	45	120
Average rating	2.67 out of 5	

Source: Field Survey

As shown by the table above, none of the respondents ranked the logistics sector in Aizawl city more than 4 out of 5 in terms of possibility of tracking feature. The average rating of logistics sector in this field is only 2.67. by studying the table, one can conclude that tracking possibility of the progress of order placed and the situations of the consignment can be improved upon by the logistics sector in the surveyed area.

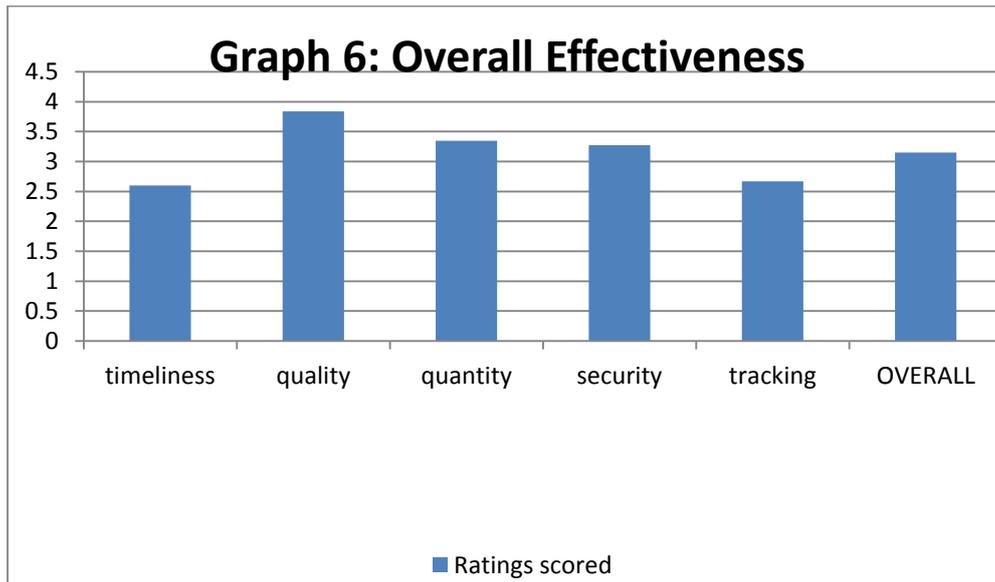
Graph 5: Tracking



From the survey, it was studied that time taken for order processing is one of the main reasons for delays which make it difficult to forecast delivery days. The result does also reveal that, even though tracking provisions are made available, there is a tendency for unscheduled delays and stoppages even after despatch.

Tracking of consignments, nowadays, is made possible by mobile phones and internet. But there exist language barriers and other uncertainties relating to roads and the morale of some players towards customer care that makes tracking unreliable and difficult.

Overall Effectiveness : The overall effectiveness of the logistics sector can be represented in the form of graph as under.



The overall effectiveness of logistics sector in Aizawl city is rated 3.15 out of 5. Lowest score of 2.6 is recorded in the case of timeliness of delivery followed by the score of 2.67 attributed to tracking possibility of the consignments. Fulfilment of quality and quantity are given rating score of 3.84 and 3.35 respectively. Meanwhile, overall security of the consignments is given a rating score of 3.27.

III. CONCLUSION

Logistics sectors can be utilised as a means of gaining competitive advantage by forming alliance or by integration. There had been an increasing trend of opinion regarding the advantage of tying up a formal business contract with logistics service providers. There had however been lack of empirical research and evidence in the field. But theoretically, the process of integration had been regarded as a step towards better management skills, superior resources and the resulting innovation and cost efficiency and the ability to distinguish oneself by improving interactions with customers. An effective connection with buyers will also result in better outcome for both the buyers and the firms. Communication and trust building is considered the key to a successful partnership.

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