Logistics Cost Accounting and Management in Malaysia: Current State and Challenge

Sahidah Zakariah and Jaafar Pyeman

***Abstract*—Logistics cost is an important factor affecting the competitiveness on both macro level (national) and micro level (firms). Logistics cost indicates the performance of logistics industry, efficiency level and its competitiveness. Despite of its significance, current state of logistics cost accounting and management in Malaysia has not properly addressed and the challenges surround logistics cost measurement remains incoherent. Therefore, this study aim to shed light on the current state and challenges of logistics cost accounting and management in Malaysia. This study conducted in two fold which are; 1) content analysis and, 2) survey analysis. Content analysis used to view current state and challenges in macro level with regards the concerned research, while survey analysis used to view current scenario in micro level. This study reveals three major challenges that become a barrier to fully understanding and implementing logistics cost accounting and management. First, there is no unified definition of logistics cost. Second, the measurement and cost component included in the calculation of logistics cost are not standardized. Third, there is a difficulty in collecting information and data both in published sources and direct sources. This study conclude with the importance of having standard logistics cost accounting measurement, which plays a vital role in determining the accuracy of the logistics cost and ascertain the efficiency level of logistics industry particularly in Malaysia.**

***Index Terms*—Logistics cost, logistics management, cost accounting, logistics.**

I. Introduction

Logistics industry in Malaysia continues to evolve and develop tremendously during the last two decades. Rather than being a merely supporting industry in the last two decade, logistics industry has become a strategic industry on its own [1], [2]. As a result, both scope and strategic importance of logistics industry have grown and revolutionized. Meanwhile, logistics cost has been used as an indicator to determine the efficiency of the logistics function. Several studies such as Havenga [3], and Zhao and Tang [4], have also identified logistics cost as a major driver which affects both firms and national competitiveness. Thus, it is important to measure logistics cost in order to quantify logistics performance and pave the way for corrective actions.

Unfortunately, current logistics cost accounting and management neither has aligned with the changing role and scope of logistics nor have been thoroughly examined and evaluated. Thus, letting the logistics cost measurement in isolation. As Rantasila and Ojala [5] indicates:

"The treatment of logistics costs tends to lack coherent terminology and methodology in the data collection and analysis. Existing national a5ccounts-based models are still mostly "black boxes", making replication and the adoption of best practices difficult in other settings, let alone in developing countries." (p. 5)

These issues had been further elaborated and discussed in the previous studies conducted by Jane [6]; Hua and Lan [7]; Baykasoglu and Kaplanoglu [8]; Botes, Jacobs, and Pienaar [9]; Bartels [10]; and Wallace [11].They have discover the need for a new measurement that is more precise, more integrated system for logistics costing. Nevertheless, barriers to fully implementing an integrated logistics costing are due to lack of accurate information, inappropriate measurement as well as less capacity in terms of valid cost accounting model for logistics costs [12].

The situation become more complicated when there is limited information that could be obtained from previous studies whether through literatures or academic discussion with regards to logistics cost [5]. In a view of limited researches conducted in relation to logistics cost especially in Malaysia, it is crucial to initially focused on analyzing the current state and practices on logistics cost accounting and management in the real business environment. Thus, this paper aims to provide information on the current state and practices of the logistics cost accounting and management in Malaysia.

II. The Concept of Logistics Cost

In order to achieve the aim of this study, it is crucial to know the overall perspective of logistics in general. Broadly conceived, logistics represent the connection point between production of good and delivery of finished goods to the customer locations, which are separated by time and space [13]. They include both activities undertaken in-house by the users of the services and the activities undertaken by external service providers (outsourced) [14]. Meanwhile, logistics costs can be identified with knowing the costs needed to perform logistics functions.

Generally, logistics cost include all of the cost required for the transportation, storage and handling of the material required for production until the distribution, handling and shipment of finished products from producer to consumer [15], whereby, present and future profitability will be maximized by cost effective realization of each activities [16]. Therefore, total logistics costs need to be clearly

Manuscript received April 20, 2013; revised June 19, 2013. This study is part of the continuing research project being conducted at Malaysia Institute of Transport and was funded by Malaysia Logistics Council through research grant no. 100-RMI/MITRANS 16/6/2 (19/2010).

Sahidah Zakariah is with the Malaysia Institute of Transport, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia (e-mail: sahidahzakariah@yahoo.com).

Jaafar Pyeman is with the Department of Finance, Faculty of Business Management, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia (e-mail: jaaf@salam.uitm.edu.my).

identify in order to understand the level of resources that are required to operate a logistics system [17]. Moreover, identifying total logistics costs accurately is useful in evaluating the tradeoffs between each cost of the logistics activities to optimize the use of available resources [4], [13], [18], [19]. The deepen understanding can provide practical guidance on how to overcome the complexity issue in the logistics cost management and find a balance between complexity and reliability, leading to a renaissance in logistics cost management use.

III. Methodology

This study was conducted in two fold. First, this study used content analysis to gather information on current state of logistics cost accounting and management in macro level (national). The content analysis conducted by analyzing currently available information and published data. The information and data source considered include Economic Report, Bank Negara Report, Industrial Master Plan, Malaysia Logistics Roadmap, Logistics Performance Index, Report on Transport Service Statistic Malaysia, Transport and Communications Services Statistics Report, Transport and Storage Services Statistics in Malaysia and Annual Report of selected public listed companies.

Second, this study also used survey analysis to gather information on current practice of logistics cost accounting and management in micro level (firms). A quick survey was distributed randomly to 100 logistics manager of manufacturing companies, which 100% were returned and completed by the respondents. The quick survey consists of two main part which pertaining the company details, the method used to evaluate total logistics cost, and the detail cost components that is incorporated in the evaluation of total logistics cost.

IV. Findings

A. Content Analysis Findings

Although logistics industry in Malaysia has improved significantly in recent years, however the improvement in the issue of logistics cost accounting and management is still relatively small in practice. Most of the discussion relating to logistics cost is not based on reliable statistics. The government relies heavily on the findings from Logistics Performance Index (LPI) and consultants' reports in determining its goals to improve logistics competitiveness by reducing the logistics cost as mentioned in the Industrial Master Plan 3 (IMP3) and Malaysia Logistics Roadmap. However, this goal seems to be difficult to achieve without a proper logistics cost measurement.

At present, there is no specific indicator to measure competitiveness with regards logistics system in Malaysia since logistics cost has not being included as one of the economic indicator. There is no specific standard in terms of accounting systems in Malaysia that can be used to effectively regulate the methods or approaches in documenting as well as reporting all transactions related to logistics cost. The difficulties in establishing the specific standard for accounting systems in Malaysia for logistics cost is mainly due to the complexities in calculating the logistics cost even on the micro level. The method to measure the logistics cost is different in each firms, which lead to the difficulties to make a comparison and benchmarking.

The logistics cost accounting and management has become more complicated due to limited availability and reliability of the data. There is lack of sufficient information on micro level that can support the measurement of logistics cost on macro level. The only available information that can be assessed on micro level is through published annual reports, which primarily produce to serve the accounting need such as financial analysis, bookkeeping and taxation.

Currently, there are two organizations in Malaysia that officially published the data relating to logistics namely Ministry of Finance (MOF) and Department of Statistics (DOS). DOS publishes the logistics data in the Report on Transport Service Statistic Malaysia, Transport and Communications Services Statistics Report, and the latest is Transport and Storage Services Statistics in Malaysia. While, MOF provides the logistics data and information in the Economic Report under the 'Transport and Storage' heading. The accuracy and reliability of the published data by both sources is not doubtful.

However, the data is not sufficient for the purpose of logistics cost calculation since transport and storage data published by both DOS and MOF is based on total gross income of primary service companies (logistics provider). This means that the transport and storage data from in-house logistics activities are excluded from the published figures, whereas it accounted for a large percentage of the total logistics costs. Furthermore, the 'transport' term used in the report published by DOS and MOF include public transport, whereas public transportation does not being a part of logistics system. Although current data exhibit a number of weaknesses, notably nonetheless make it possible to conduct some preliminary empirical analysis that can inform future measurement efforts.

Apart from the fact that there is no specific indicator and accounting system that can accommodate logistics cost measurement on macro and even on micro level, there is also a shortage in logistics professional. Although at present there are several numbers of higher educations in Malaysia is producing the logistics professional, it is still lack of logistics professional especially who is expert in both finance and logistics. Therefore, government and higher education institutions should provide resources and offer more logistics courses in order to foster the logistics industry in Malaysia.

B. Survey Analysis Findings

In total, 100 usable survey responses were obtained from a wide range of manufacturing companies which categorized under: chemicals, chemical and plastic products (13%); electronics, electrical machinery and appliances (30%); food, beverages and tobacco (7%); iron, steel and metal products (17%); machinery and equipment (9%); non-metallic mineral products (3%); rubber products (9%); textiles, apparel and footwear (2%); transport equipment (2%); wood products (2%); and others (6%). As can be observed from Figure 1, most of respondents (36% of respondents) said their primary method of evaluating total logistics costs is as a percentage of sales. Another 34% of respondents said their primary method of evaluating total logistics cost is absolute cost. This

compares with another 17% who said the primary method used is activity based and 13% who said they used per sales unit as the primary method.

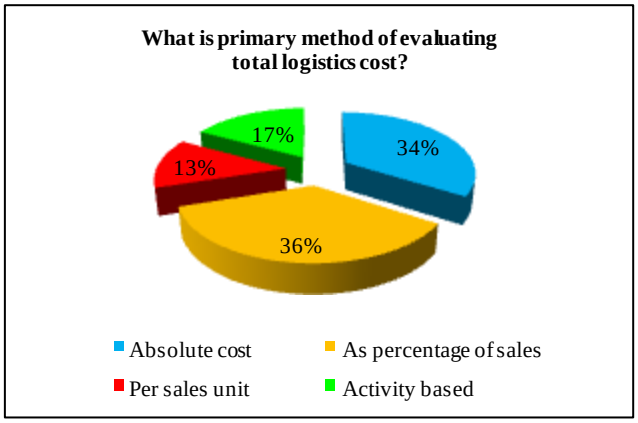

Fig. 1. Current method of evaluating total logistics cost.

TABLE I: PRIMARY METHOD OF EVALUATING TOTAL LOGISTICS COST IN CURRENT PRACTICE

Industry	What is primary method of evaluating your logistics cost?				
	Absolute cost	As percentage of sales	Per sales unit	Activity based	Total
Chemicals, chemical and plastic products	5	4	0	4	13
Electronics, electrical machinery and appliances	3	12	8	7	30
Food, beverages and tobacco	4	3	0	0	7
Iron, steel and metal products	4	10	2	1	17
Machinery and equipment	3	4	2	0	9
Non-metallic mineral products	3	0	0	0	3
Rubber products	9	0	0	0	9
Textiles, apparel and footwear	0	0	0	2	2
Transport equipment	0	1	1	0	2
Wood products	1	1	0	0	2
Others	2	1	0	3	6

As presented in the Table I, most of the companies which manufacture chemicals, chemical and plastics products; food, beverage and tobacco; non-metallic mineral products; and rubber products tend to used absolute cost. On the other hand, most of the companies which manufacture electronics, electrical machinery and appliances; iron, steel, metal products; and machinery are using percentage of sales as primary method to evaluate their total logistics cost.

Fig. 2 shows 100% of respondent include transportation in their total logistics cost. 94% respondents include warehousing cost, 92% include handling cost and 90% include customs cost. Other cost component that is included in total logistics cost are administrative (89%), inventory (86%) and packaging (82%). Surprisingly quite a large number of respondents also include risk and damage (79%), as well as reverse logistics (75%). Furthermore, 75% of the respondents include all cost components that is listed. Meanwhile, 4% of the respondents include other cost components that is not listed such as purchasing cost, distribution cost and procurement cost.

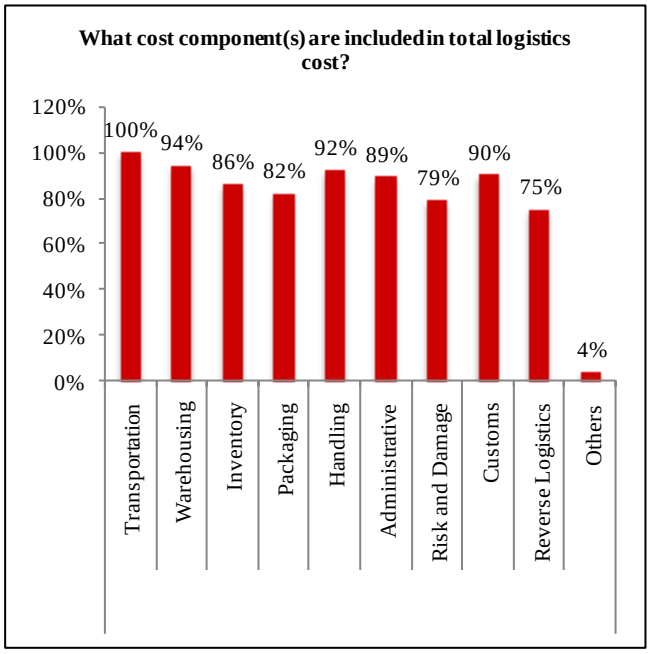

Fig. 2. Cost component included in the measurement of total logistics cost.

TABLE II: PRIMARY METHOD OF EVALUATING TOTAL LOGISTICS COST IN CURRENT PRACTICE

	Transportation	Warehousing	Inventory	Packaging	Handling	Administrative	Risk and damage	Customs	Reverse logistics	Others
a	13	12	12	11	13	12	13	11	9	2
b	30	26	22	29	26	24	27	28	21	1
c	7	7	7	5	4	7	5	5	5	0
d	17	16	16	11	17	15	11	16	14	1
e	9	9	9	5	9	9	7	9	9	0
f	3	3	3	2	2	3	0	3	0	0
g	9	9	7	9	9	9	8	8	9	0
h	2	2	2	2	2	2	2	2	2	0
i	2	2	1	1	2	2	1	2	2	0
j	2	2	2	1	2	1	1	1	0	0
k	6	6	5	6	6	5	4	5	4	0
	100	94	86	82	92	89	79	90	75	4

Note: (a) chemicals, chemical and plastic products; (b) electronics, electrical machinery and appliances; (c) food, beverages and tobacco; (d) iron, steel and metal products; (e) machinery and equipment; (f) non-metallic mineral products; (g) rubber products; (h) textiles, apparel and footwear; (i) transport equipment; (j) wood products; and (k) others.

As observed in Table II, about 75% of the respondents include all of the cost components listed regardless of the

type of good they manufactured. On the other hand, about 25% of respondents exclude several cost components that are listed and/or adding another cost components that is not listed. They indicate through their comments that in practice they exclude cost component that have been outsourced to the third parties. This is contradicting with the logistics cost concept by which logistics cost should include both in-house and outsourced logistics activities. Also presented in Table II is both non-metallic mineral products and wood product manufacturer exclude reverse logistics costs. The respondent commented that they exclude reverse logistics cost since reverse logistics is not performed by them in regular basis. Thus, confirm that most companies look at logistics cost and its cost components from several directions by which differentiating their definition and method.

V. Discussions

As depicted in the above section, both analyses are moving toward the same direction, which can be summarized as follows:

A. Definition of logistics cost is not unified

One of the major challenge in the logistics cost accounting and management in Malaysia is lack of uniformity in the definition of logistics cost or the method used in the calculation of logistics cost. In many cases, the reported logistic costs of companies are defined differently even within the companies of the same business. Frequently, the logistics cost differ more than justified by their logistics activities performed. Thus, the definition of logistics cost and method to calculate logistics cost remain incoherent. Therefore, it is difficult to compare the findings. Besides, it also leads to more complexities in logistics cost measurement and benchmarking process.

B. Cost component are not standardized

Other challenge in logistics cost accounting and management in Malaysia is a limited standardization in term of cost components that should be included in the total logistics cost. Some companies do not count interest and depreciation on inventories as logistic costs while others are vice versa. Besides, it is found that some companies also include the purchasing costs and in some cases even the purchase value of the procured goods is included in the logistic costs.

This issue has become a significant matter that frequently being discussed in both academic and the real business environment. As indicated by Havenga [3], it is macroeconomic imperative to track the cost components in total logistics cost measurement. As explained by Morash and Clinton [20], standardization of logistics cost components and measurement in practices and policies is an important integrative capability. The standardization create more predictable logistics flows and less susceptible to an exceptions basis. Hence, it is crucial to formulate generally acceptable logistics accounting system and standardize what cost components that should be included in total logistics cost, and the process of calculating the cost [7].

C. Difficulties in collecting transparent information

Another challenge which arises not only to the logistics cost accounting and management purpose is the difficulties in gathering data and collecting transparent information. On the micro level, most of the firms publish the cost information to serve its accounting need, and external requirement such as taxation. These create the inhibitor to cost transparency during the data collection process. As described by Pohlen, Klammer, and Cokins [21]:

"The firm's accounting needs create inhibitor to cost transparency, which then leads to deficient information, too narrow view of cost management, or differences in cost allocation of overhead costs, for example." [cited in Rantasila and Ojala (2012)]

Furthermore, the cost information that published by the Malaysian firm in its annual report is divided into operation cost and cost of sales. The operation cost includes administration cost, finance cost and marketing cost. There is no specific logistics cost items can be figured out directly from the annual report. Apart from the difficulties in gathering information from annual report, it is also difficult to get cooperation from the firms to disclose their financial data.

VI. Conclusion

The significance of standardized logistics costs measurement increases when acknowledging the logistics cost as an indicator for logistics performance. Hence, carrying out the study of the logistics cost specifically on the component that make up the total logistics cost, how to measure logistics costs as well as constructing logistics cost accounting model for logistics costs analysis is of great significance. The emphasis going forward should therefore be on compiling data that capture logistics cost more accurately, rather than merely sectoral input and output. Once such data become available there is no doubt that a number of interesting research avenues is available.

It is essential for the promotion of further development in logistics cost management, helping the government and logistics companies to identify the current problem in managing logistics costs, identify corrective action to control logistics costs and simultaneously maintain the logistics cost at optimum level. Achieving optimum level of logistics cost creates comparative advantage since its play an important role in promoting Malaysia as the best place for investment and becoming a global logistics hub in the future.

Acknowledgment

This study has been fully funded by Malaysia Logistics Council (MLC) through Ministry of Higher Education (MOHE) who then awarded the research grant to the researcher through Malaysia Institute of Transport (MITRANS), Universiti Teknologi MARA [22].

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Sahidah Zakariah was born in Kuala Lumpur, Malaysia on October 16th, 1985. She received the Diploma of Banking Studies in 2006; the Bachelor of Business Administration (Hons) Finance in 2008; and the Master of Business Administration in 2009 from Universiti Teknologi MARA, Malaysia.

She is currently a graduate research assistant as well as Ph.D. candidate for Doctor of Philosophy in Transport and Logistics at Malaysia Institute of Transport, Universiti Teknologi MARA Malaysia. Her doctoral research address key questions in relation to logistics cost measurement particularly in micro perspective. Her doctoral research is funded by Malaysia Logistics Council through the grant awarded to Malaysia Institute of Transport. Her current research interests concentrate on the areas of finance, investment, econometrics, economic growth, liberalization and logistics management (with great emphasis on logistics cost measurement in Malaysia).

Ms. Sahidah is the co-author of Value Versus Growth Investing (Shah Alam, Malaysia: UiTM Press, 2012), Persekitaran Pelaburan di Malaysia (Shah Alam, Malaysia: UiTM Press, 2012), and Strategi Pelaburan Ekuiti di Bursa Malaysia (Serdang, Malaysia: UPM Press, 2012). She has published and presented many papers, mainly on the area of finance, economic and logistics in the international conferences. She is an associate member of Malaysian Finance Association (MFA) and IEEE.

Jaafar Pyeman was born in Johor, Malaysia on June 22nd, 1969. He obtained his BBA Finance (Hons) from Northern University of Malaysia in 1992; MBA (Financial Management) from University of Hull, United Kingdom in 1995; and PhD (Finance) from Universiti Teknologi MARA in 2009.

He is an Associate Professor of Finance at Universiti Teknologi MARA (UiTM), where he is currently positioned as a Deputy Dean in the Faculty of Business Management. He is also a Research Fellow of Institute of Business Excellent (IBE) and Malaysia Institute of Transport (MITRANS). He holds more than 15 years of experience in teaching undergraduate classes and 5 years in teaching postgraduate classes. Prior to joining the academia, he has accumulated 5 years of industry experience in banking and financial sector as a credit officer. His research interests include financial economics, investments, corporate finance, credit analysis as well as financial modeling. Dr. Jaafar has published many articles on financial economics and investment in many leading journals. He has co-authored several books and also chapters in book, mainly in his area of specialization for national and international publication. He has presented many papers on finance, economics and investment in international conferences. He is a member of Malaysian Finance Association (MFA) and active member of Malaysian Association of Learning and Development (MyLeaD).