

# Inherent Relationship Between Transport Costing and Organizational Competitiveness: A Case of the Road Freight Sector in Zimbabwe

Tapiwa. C. Mujakachi<sup>#1</sup>, Marian Tukuta<sup>#2</sup>, Maria Tsvere<sup>\*3</sup>

<sup>#</sup>*School of Entrepreneurship and Business Sciences, Chinhoyi University of Technology*

<sup>\*</sup>*Life-Long Education, Chinhoyi University of Technology*

<sup>1</sup>*mujakachitc@gmail.com*, <sup>2</sup>*tmtsvere@cut.ca.zw*, <sup>3</sup>*mtukuta@cut.ca.zw*

Received May 11, 2023, Accepted: May 16, 2023, Published Online: Jun 30, 2023

Reviewers: Anonymous Peer Review

Citation: Mujakachi, T. C., Tukuta, M & Tsvere, M. (2023). Inherent Relationship Between Transport Costing and Organizational Competitiveness: A Case of the Road Freight Sector in Zimbabwe. *International Journal of Supply Chain Management*, 12(3), 52-58, <https://doi.org/10.59160/ijscm.v12i3.6183>

**Abstract**— The main aim of road freight transport is transporting of goods by road. It is the most developed area of transport. The advantage of road transport is the direct transport from the sender to the recipient, faster, easier transportation resulting from technology, availability and operability. The disadvantages of this type of transport are traffic intensity dependence on the state network of road infrastructure and negative impact on the environment. The significance of calculation in transport is so important. It helps carriers to inform on the efficiency and profitability of the services provided, also in allocation of pricing services for budgetary purposes, but also for reducing of cost. This study interrogated the inherent relationship between transport costing and organizational competitiveness in the Zimbabwe Road Freight Sector. The study was prompted by an observation that most road freight companies collapsed before even they reach the five-year mark of trading. Literature is awash with transport costing models and there seemed to be a disparity in the conceptualization and application of these to real business scenarios. That led to the use of somewhat firefighting costing strategies with no meaning results. This was a quantitative study of road freight transport sector across Zimbabwe with a population of 1256 registered companies and a randomly picked sample size of 384. A total of 384 questionnaires were distributed and 291 were retrieved giving a response

rate of 75.6%. study found out that the idea of transport costing was alien in the minds of many operators and managers as they used borrowed rates from competitors to price their own services without looking at the cost build up to the rate. This led to unprofitable operations. The study findings established that transport costing has a positive effect on organizational competitiveness. The study recommends training and development into transport costing and inclusion of this concept as a stand-alone module in Zimbabwean Education curriculum.

**Keywords**—Transport Costing, Organizational Competitiveness, Curriculum, Road Freight Sector

## 1. Introduction

The road freight sector is considered the lifeblood of any economy. The sector is key in employment creation, easing the cost of doing business and facilitating the free movement of cargo around various markets. The continued use of traditional, complicated, and incomprehensive transport models by firms in the Zimbabwean road freight sector appears to be the key cause of huge operational costs, increased rate of accidents, vehicle breakdowns, poor pricing structures and environmental pollution. These misfortunes have become an accepted way of life for owners and

managers in the road freight sector. The use of comprehensive transport costing models can aid can significantly reduce fuel and maintenance costs, increase productivity reduce road accidents and improve company reputation. For the everyday business transactions, there is a great need for costing data which have their ultimate impact on the business decisions [ 1]. Several studies have been conducted to address transport costing within the road freight sector [2];[3];[4];[5];[6];[7];[8]. However, most scholarly attention was not directed towards firm competitiveness. Moreover, there is a paucity of studies on the influence of transport costing on the competitiveness of road freight in Zimbabwe. For instance, most studies in Zimbabwe have focused on urban passenger transport [9] fleet management [10];[11]. None of these studies have exposed the moderating role of effect transport costing on competitiveness. This becomes a yawning research gap that this research seeks to fill.

## 2. Literature Review

The Road Freight Transport industry is a highly competitive market with low profit margins which is why the industry needs development and operational cost efficiency in order to gain a competitive advantage. More and more companies are outsourcing road freight transport activities to other stakeholders in the logistics and transport chain. In African, competition in the road freight sector is growing and knowledge of own price of the transport service represents competitiveness in the market. The widely held view is that growth in Africa has been muted in comparison with other regions on account of high trade barriers, poor institutions, and high transport costs [12]; [13];[14]; [15]. Road transport is the main mode of freight in intra-African trade (UNCTAD 2019), but the average price of transport in Africa still represents 7.7% of total export value, which is twice the world average of 3.7 % [15]. The World Bank Report

(2018) have observed that the huge shipment costs especially for landlocked countries have severely affected the overall pricing of transport services in the African road freight transport sector. This is echoed by [16] who asserted that transport costing is still in its infant stage in many countries in the sub-Saharan Africa.

In the same vein, [17] have pointed out that high operational costs have severely affected most transport companies as they are failing to reinvest in the same sector, service vehicles, properly remunerate their employees and meeting their environmental obligations. For instance,[18] revealed that most firms in the road freight sector in Nigeria are faced with high operational costs. Conversely,[19] stated that even though road freight companies in Morocco consider operational costs in the transporting costing model, there is great concern over their ageing fleet which contribute significantly to environmental pollution. In 2010 the logistics costs (excluding externality costs) for South Africa amounted to 12.7% of the GDP [20]. This is higher than figure from first-world countries where the average stands at 9.5% [21]. According to Standard Economic Theory it is highly likely that this 12.7% is being spent inefficiently, because the external costs are not accounted [22];[23].

There is overall agreement in transport literature that transport costing positively influence organizational culture [24]; [25]; [26]; [27]; [28]; [29]; [30]. Literature suggests that the organization's attitude towards the costs is directly linked to its culture [31];[32]. Organisations should ensure that they have a strong transport costing culture so that they are able to deal with issues of profitability [33]. This is supported by [34] who asserted that organizational culture affects the behaviour and decision making of managers and thus the firm's strategic orientation, performance, costs, and attitudes towards the environment. Managers can foster an organization's

environmental values and beliefs and include a vision of corporate sustainability that is ingrained into a business vision and mission that creates a common corporate identity [35].

### 3 .Research Methodology

The study was guided by a positivism philosophy to spot patterns and make logical deductions. Positivism is based on measurement, control, and systematic observation [36]; [37]. The researchers' main objective was to establish the influence of transport costing on competitiveness of firms in the road freight sector in Zimbabwe. This was a case study of 1256 registered road freight companies in Zimbabwe with Harare as the main hub for their operations. Quantitative research strategy helped researchers in analysing data in a formal and systematic manner [38]. To obtain a deep understanding of current reality, researchers constructed a model or prototype depicting the requirements, activities, parameters, costs, and organisational processes desirable for the success of the transport costing philosophy in road freight transport sector [39];[38]. The study adopted a cross-sectional survey design because it allowed researchers to use large samples hence the study's sample size was 384 large enough for cross-sectional survey to be employed. Additionally, cross-sectional design allowed for a large amount of data to be collected once over a short period of time giving room for the measurement of relationships grounded on the study's hypotheses [38]; [40] . Sample size was randomly determined from a population of 1256 registered road freight companies in Zimbabwe. The sample size for this study was determined using the formulae proposed by Krejcie and Morgan (1970);

Where:

$x^2$  = the table value of chi-square for one degree of freedom at the desired confidence level (3.841);

N = the population size;

P = the population proportion (assumed to be 0.50 since this would be the maximum sample size); and

d = the degree of accuracy expressed as a proportion (0.05)

Conferring to Krejcie and Morgan's (1970) formula the sample size for this study was 384 households at 95% confidence level. The sample size obtained was consistent with the principle that the sample should be at least 200 to meet the requirements of Maximum Likelihood Estimation (Hair, Ringle, & Sarstedt, 2013). Additionally, the sample size of 384 was also justified following the recommendations by [41] that a minimum sample size of 200 is required to allow statistical analyses such as factor extraction which was performed in this study. Furthermore, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was done and the sample was found to be statistically significant for each of the construct under investigation in the study [41].

$$S = \frac{X^2NP(1 - P)}{d^2(N - 1) + X^2P(1 - P)}$$

#### 4. Results and Discussions

Table 1 below presents a summary of the descriptive analysis of the responses for operational costs. There are 5 items that were used to measure operational costs.

**Table 1.1 Descriptive Analysis**

Codes	Items	Mean	Std. Deviation
OPC1	The company has been affected by skyrocketing fuel prices	4.15	.783
OPC2	There are high administration and remuneration costs	4.16	.799
OPC3	High insurance costs have hindered the company's operations	4.00	.832
OPC4	The company has experienced high vehicle repair and maintenance costs	4.17	.755
OPC5	Tolls and operator license fees have affected the company operations	3.84	.987
<b>Averages</b>		<b>4.06</b>	<b>0.831</b>

Source: Survey data (2022)

Results in Table 1 showed that the mean responses ranged between 3.84, SD = 0.987 (item OPC5) and 4.17, SD = 0.755 (item OPC4). The mean score was calculated and it averaged (overall mean = 4.06; SD = 0.831) agree out of a possible score of 5 (strongly agree). This implied that firms in the road freight

H<sub>1</sub>: Transport costing has a positive influence on organizational competitiveness.

**Table 2 Hypothesis Testing**

Hypothesis	Hypothesized Relationship.	SRW	CR	REMARK
H1	Transport costing → organizational competitiveness	0.421	8.346***	Supported

Notes: SRW standardized regression weight, CR critical ratio, \*\* significant at  $p < 0.05$ , \*\*\* significant at  $p < 0.001$

Based on the descriptive analysis above in Table 2, it was found out that transporting costing influenced organizational competitiveness of firms in the road freight sector of Zimbabwe. This implied that an organization's attitude towards costs and time was directly linked to its business culture. Ref [42] asserted that organizational culture affected the behaviour and decision making of managers and thus the firm's strategic orientation, performance, costs, and attitudes towards the environment. In addition, [43] observed that managers can foster an organization's environmental values and beliefs and include a vision of corporate sustainability that is ingrained into a business vision and mission that creates a common corporate identity. Ref [44] pointed out that the promotion and support environmental management initiatives by the top management are of utmost importance in improving the company's reputation. The adoption of corporate sustainability principles necessitates changes in

sector agreed that they incurred high operating costs during the period understudy. The objective of the study was to determine if transport costing influences organizational competitiveness. Thus, it was hypothesised that,

managers' and employees' values and beliefs emphasizing the need to reduce environmental pollution. It also enables change in actual practice towards sustainability throughout the organization.

Ref [45] posited that environmental values and goals must be embedded in and pursued by all corporate departments to achieve corporate sustainability. An organizational culture focused on sustainability can be a competitive advantage, for example in developing innovative ways of reducing costs. However, the adoption of a comprehensive sustainability culture can be difficult in firms that have strong subcultures in their different departments [46]. According to [47], those organizations that take care of their culture and consider their culture as one of the distinct and important parameters in terms of growth and profitability, will be considered among the best

growing companies in the world with a solid approach to an improve workforce productivity.

## 5. Acknowledgements

The researcher acknowledges the support from the faculty of Entrepreneurship and business school of Chinhoyi University of Technology. Special thanks go to Prof M Tukuta and Prof M Tsvere.

## 6. Conclusion and Implications

The study findings established that transport costing has a positive effect on organizational culture. This implies that the costs incurred by road freight companies influence the beliefs and norms shared by organizational member. In the process of conducting this study, the researcher identified gaps in two areas that require further research.

First, it is important to conduct research to establish impact of implementing transporting costing approach to all organisation's activities. This will help the road freight transport organisations and other organisations in this part of the world to establish the real benefits of investing in this initiative.

A multi case study on how to implement and effective transport costing approach in a rapidly changing business environment like Zimbabwe where organisations are forced to change or adjust their strategies frequently in order to remain relevant and survive. The Zimbabwean economy is highly fluid and volatile that companies have to change their costing strategies fast for them to survive and it presents an interesting opportunity for further study.

## References

- [1] Agrianti Komalasari. Activity Based Costing for the better Supply Chain Management: An Integrated Approach for the Business Performance. *International Journal of Supply Chain Management*. Vol. 7, No. 5, October 2018
- [2] Phumzile Ncube, Simon Roberts and Thando Vilakazi. STUDY OF COMPETITION IN THE ROAD FREIGHT SECTOR IN THE SADC REGION - CASE STUDY OF FERTILIZER TRANSPORT AND TRADING IN ZAMBIA, TANZANIA AND MALAWI. Working Paper 3/2015
- [3] Milos Poliak1, Adela Poliakova and Kristian Culik (2021) EAI Endorsed Transactions on Energy Web 11 2021 - 05 2022 | Volume 9 | Issue 38 | e3
- [4] Kędzior-Laskowska, (2019) EKONOMIA I PRAWO. ECONOMICS AND LAW Volume 18, Issue 4, December 2019 p-ISSN 1898-2255, e-ISSN 2392-1625
- [5] Mostert M, Caris A, Limbourg S. Road and intermodal transport performance: the impact of operational costs and air pollution external costs. *Res Transp Bus Manag.* 2017;23:75–85.
- [6] Carlan, V., Coppens, F., Sys, C., Vanelslander, T., & van Gastel, G. (2019). Blockchain technology as key contributor to the integration of maritime supply chain: Analysis of use cases. Integration of the Maritime Supply Chain: Evolving from Collaboration Processed to Maritime Supply Chain Network.
- [7] Demir, E., Bektaş, T., & Laporte, G. (2011). A comparative analysis of several vehicle emission models for road freight transportation. *Transportation Research Part D: Transport and Environment*, 16(5), 347–357.  
<https://doi.org/10.1016/j.trd.2011.01.011>
- [8] S Camisón-Haba, JA Clemente-Almendros, T Gonzalez-Cruz. *Journal of Innovation & Knowledge* 4 (3), 162-170, 2019. 91, 2019
- [9] Mbara, T.C. (2015). Achieving Sustainable Urban Transport in Harare, Zimbabwe: What are the Requirements to Reach the Milestone? Retrieved form: [http://www.codatu.org/wp-content/uploads/Ttenda-Mbara\\_pdf](http://www.codatu.org/wp-content/uploads/Ttenda-Mbara_pdf). Accessed 20 December 2017
- [10] Shakerod Munuhwa, Ephraim Govere, Munyaradzi Chibaro, David Chikwere and James Kanyepe. *Journal of Economics and Sustainable Development* www.iiste.org ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.11, No.10, 2020
- [11] Chiparo, J., Tukuta, M. and Musanzikwa, M. (2022) Vehicle Fleet Management Practices and Service Delivery in State Owned Enterprises in Zimbabwe. *Journal of Transportation Technologies*, 12, 159-171. doi: [10.4236/jtts.2022.122010](https://doi.org/10.4236/jtts.2022.122010).

- [12] Rodrigue, J-P (2018): "The Thruport Concept and Transmodal Rail Freight Distribution in North America", *Journal of Transport Geography*, Vol. 16, pp. 233-246;
- [13] Baliaoune-Lutz, M. and L. Ndikumana, 2017. "The Growth Effects of Openness to Trade and the Role of Institutions: New Evidence from African Countries." Policy Discussion Paper no. 6, Institute for Economic Development, Boston University.
- [14] Mbabazi, T. (2018). A sure friendly guide to research and research methods. Kampala: Jota in cold
- [15] UNCTAD (United Nations Conference on Trade and Development), 2013. Economic development in Africa report 2013: Intra-African trade - Unlocking private sector dynamism. United Nations publication, New York and Geneva
- [16] Raballand, G., Refas, S., Beuran, M. and Isik, G. (2012) Why Does Cargo Spend Weeks in Sub-Saharan African Ports?: Lessons from Six Countries. World Bank Publications, Washington DC. <http://dx.doi.org/10.1596/978-0-8213-9499-1>.
- [17] Rodrigue, J-P (2018): "The Thruport Concept and Transmodal Rail Freight Distribution in North America", *Journal of Transport Geography*, Vol. 16, pp. 233-246;
- [18] Chukwurah G.O., Okeke F.O., Isimah M.O., Igwe A.E. (2022). Assessment of the performance of railway transportation in Nigeria from 1970. to 2010. *Scientific African*. Retrieved February 28, 2022, from 10.1016/j.sciaf.2022.e01120
- [19] Rensma, M. and S. Hamoumi (2018), Dutch business opportunities: Transport & Logistics sector Morocco, Ministry of Foreign Affairs of the Netherlands, Barendrecht/Casablanca, <https://www.rvo.nl/sites/default/files/2018/05/Transport-and-Logistics-sector-Morocco.pdf>.
- [20] Škerlič, S & Sokolovskij, E. (2019). A Model for Managing Logistics Costs Throughout a Product's Life Cycle: A Case Study of a Multinational Manufacturing Company. *Transport*, 34(5), 517-528, ISSN 1648-4142, Vilnius Gediminas Technical University, <https://doi.org/10.3846/transport.2019.11080>
- [21] Sokhansanj, S, Ebadian, M, Townley-Smith, L & Lee, D. (2019). A simplified logistics model for integrating BIMAT and IBSAL to estimate harvest costs, energy input and emissions. *Canadian Biosystems Engineering*, 8, ISSN 1492-9066, Canadian Society for Bioengineering, <https://doi.org/10.7451/cbe.2018.60.8.1>
- [22] Balashova, E, Machin, I & Serdyukova, L. (2022). Accounting of logistics costs and their impact on pricing. *Transportation Research Procedia*, 63, 2114-2121, ISSN 2352-1465, Elsevier BV, <https://doi.org/10.1016/j.trpro.2022.06.237>
- [23] Drobyazko S., Okulich-Kazarin V., Rogovyi A., Goltvenko O., Marova S. (2019b). Factors of Influence on the Sustainable Development in the Strategy Management of Corporations. *Academy of Strategic Management Journal*. Volume 18, Special Issue 1 (Title: Strategic Research Directions), 2019. URL: <https://www.abacademies.org/articles/Factor-s-of-influence-on-the-sustainable-development-in-the-strategy-management-of-corporations-1939-6104-18-SI-1-439.pdf>
- [24] Ussahawanitchakit, P. (2017). The influences of management capability on export performance of leather businesses in Thailand. *Review of Business Research*, 7(5), 1–10
- [25] Rogers, RN. (2019). A Brief Overview of the Foundations of Organizational Culture. *Safety and Quality in Medical Transport Systems*, 3-10, CRC Press, <https://doi.org/10.1201/9781315607450-2>
- [26] Tung, D.D. (2022). A model of organizational culture for enhancing organizational commitment in telecom industry: Evidence from Vietnam., *Center for Open Science*, <https://doi.org/10.31219/osf.io/hqz8a>
- [27] Soltany, Z, Rostamzadeh, R & Skrickij, V. (2018). A Model to Evaluate Supply Chain Technology Implementation Influence on Organizational Performance. *Transport*, 33(3), 779-792, ISSN 1648-4142, Vilnius Gediminas Technical University, <https://doi.org/10.3846/transport.2018.5468>
- [28] Kim, Y, Lee, K & Lee, J. (2020). A Study on the Influence of Organizational Culture and Meta-cognition on Self-Efficacy According to Hotel's Organizational Integration Strategy. *Journal of Tourism Management Research*, 24(1), 139-161, ISSN 2092-528X, Tourism Management Research Organization, <https://doi.org/10.18604/tmro.2020.24.1.7>
- [29] Miryazdi, S.M & Jusoh, R (2015). Activity-Based Costing Diffusion, Strategy and Organizational Performance: Evidence from Iran. *Asian Journal of Accounting Perspectives*, 8(1), 68-91, ISSN 2672-7293, Univ. of Malaya, <https://doi.org/10.22452/ajap.vol8no1.5>
- [30] Gopalan, R.S., Ravibabu, M., & Sahu, Sasmita (2020). Alternative approach to costing on Indian Railways: Linking outputs and expenses to activity centres. *Asian Transport Studies*, 6, 100001, ISSN 2185-

- 5560, Elsevier BV, <https://doi.org/10.1016/j.eastsj.2020.100001>
- [31] Widodo, T, Hasaruddin, S.B & Wening, N. (2022). Analisis Budaya Organisasi Menggunakan Organizational Culture Assessment Instrument (OCAI) pada Karyawan PT Eddy Transport Raya. *Journal of Management and Social Sciences*, 1(4), 182-193, ISSN 2963-5497, Politeknik Pratama Purwokerto, <https://doi.org/10.55606/jimas.v1i4.101>
- [32] Putri, IJ. (2020). Analysis of the influence of compensation organizational culture, and work discipline on the performance of lecturer Surabaya Shipping Polytechnic. *Research, Society and Development*, 9(5), ISSN 2525-3409, Research, Society and Development, <https://doi.org/10.33448/rsd-v9i5.2746>
- [33] Susetyo, IH & Sumartik, H. (2022). Analysis of the Influence of Organizational Culture, Competence, and Employee Welfare on Organizational Citizenship Behavior at Company. *Indonesian Journal of Law and Economics Review*, 18, ISSN 2598-9928, Universitas Muhammadiyah Sidoarjo, <https://doi.org/10.21070/ijler.v18i0.871>
- [34] Juniar, A. (2022). Analysis of the Influence of Work Discipline, Work Environment, Organizational Culture, Organizational Commitment and Leadership Style on Employee Performance (Case Study at Pt. Herba Emas Wahidatama Purbalingga). *Proceedings of the 3rd International Conference of Business, Accounting, and Economics, ICBAE 2022*, 10-11 August 2022, Purwokerto, Central Java, Indonesia, EAI, <https://doi.org/10.4108/eai.10-8-2022.2320851>
- [35] Roughton, J, Crutchfield, N & Waite, M. (2019). Analyzing the Organizational Culture. *Safety Culture*, 35-52, Elsevier, <https://doi.org/10.1016/b978-0-12-814663-7.00002-9>
- [36] Peter M. Pruzan. Published by Springer International Publishing, Cham, Switzerland, 2016, 326 pages, ISBN-13 978-3-319-271668
- [37] Leavy, P. (2017). *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches*. New York, NY: The Guilford Press. ISBN 9781462514380. 300 pp.
- [38] Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage
- [39] Ralph, Paul & Yair Wand. 2009. A proposal for a formal defition of the design concept. In KalleLyytinen, Pericles Loucopoubs, John Mylopoulos & Bill Robinson (eds.), *Design requirements engineering: A ten-year perspective* (LNBIP 14), 103–136. Berlin: Springer-Verlag.
- [40] De Vaus, D. A. (2014). *Surveys in Social Research*. (6th ed). Australia: UCL Press.
- [41] Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage
- [42] Grohnert, T, Ennemoser, N, Orth, M & Gijsselaers, W. (2022). A Meta-Analysis Linking Organizational Learning Culture, Performance, Innovation, and Job Attitudes. *Academy of Management Proceedings*, 2022(1), ISSN 0065-0668, Academy of Management, <https://doi.org/10.5465/ambpp.2022.12044aabstract>
- [43] Yusuf, R, Wahid, A.H, Moneyam, S & Rosdi, S.A.M (2021). A Review of Culture and Communication Orientation Among Malay Workers Towards Silence Behaviour Tendency. *International Journal of Modern Trends in Social Sciences*, 4(15), 13-20, ISSN 2600-8777, Global Academic Excellence (M) Sdn Bhd, <https://doi.org/10.35631/ijmtss.415002>
- [44] Pugna, A.P, Potra, S.A & Negrea, R. (2020). A strategic decision-making tool for new product and service design. *Management Decision*, 59(2), 406-425, ISSN 0025-1747, Emerald, <https://doi.org/10.1108/md-01-2019-0110>
- [45] Bayrak, AE, McComb, C, Cagan, J & Kotovsky, K. (2021). A strategic decision-making architecture toward hybrid teams for dynamic competitive problems. *Decision Support Systems*, 144, 113490, ISSN 0167-9236, Elsevier BV, <https://doi.org/10.1016/j.dss.2020.113490>
- [46] Tzenios, N (2022). A Strategic Plan to Improve Police Response and Decision-Making during Major Incidents., Center for Open Science, <https://doi.org/10.31235/osf.io/9e4ru>
- [47] Trad, A. (2020). Applied Mathematical Model for Business Transformation Projects. *Handbook of Research on IT Applications for Strategic Competitive Advantage and Decision Making*, 269-308, ISSN 2327-3429, IGI Global, <https://doi.org/10.4018/978-1-7998-3351-2.ch015>