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Abstract

The paper investigated the effects of SGR cargo transportation policy on the cost of cargo transportation in Kenya. Descriptive research design using cross-sectional survey and concurrent mixed methods were employed. Primary data was obtained from freight forwarding companies and cargo owners and key informants in imported cargo transport sector. In realizing the study objectives, univariate, multivariate, cross tabulations and multinomial logit regression were adopted. The study established that enforcement of SGR cargo transportation had substantially increased the cost of transporting imported cargo from the port of Mombasa to the final destination through increases in last mile transport costs, return of empty container costs and demurrage charges. The paper recommends designing of costing model for SGR, which takes into account last mile transport costs and costs of returning empty containers to Mombasa port, this is in consultation with industry players. Kenya Railways Corporation to consider partnering with private trucking companies to provide last mile cargo transport services from ICD to Nairobi metropolis. SGR to provide return of empty containers services to the port of Mombasa for all containers that are transported through it; enhanced efficiency in cargo clearance at Nairobi Inland Container Depot; negotiate with shipping lines for more free days before imposing demurrage charges. Lastly, cargo owners should re-align their cargo transportation arrangements to SGR by prompt arrangements for documentation requirements and advance organization for last mile transportation services.

Keywords: *Standard Gauge Railways, policy, transportation cost, imported cargo and last mile*

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1.0 Introduction

Cargo transport policy entails regulation frameworks whose objects are realization of certain goals regarding public service delivery in the transport system. The policies facilitate regulation of cargo transport industry. The indispensable public services delivered by the cargo transport system call for government policy regulation (Slack et al. 9.1) Quality transportation services augment an economy's vibrancy in regional and international trade as well as stimulating economic growth. Implementation of apposite policy reforms has the potential to eliminate unproductive transport services to the public (van Wee et al., 2013). The world over, the need forcargo transportation policy is motivated by the appreciation that transport is key to the promotionand progress of all sectors of the economy (Slack et al., 9.1). Disquiets on higher transportation costs have arisen on the provision cargo transport services. Policy makers therefore analyze the contribution of cargo transport policies from diverse perspectives including travel time, costs, safety, cargo quantity, competition limitations, social impacts and infrastructure (Stopher & Stanley, 2014).

Evaluation of cargo transport policies across the world needs to encompass both benefits and costs of such policies. The benefits comprise cost reduction, improved accessibility, travel time reduction, and safety contributions (van Wee et al., 2013). Global policy challenge to rail cargo transport has been the need to reduce transportation costs, cargo lead-time and safety. Fundamental policy dilemma has been the agitation to meet wishes of cargo shippers of lowering costs of cargo transportation and improved rail cargo transport services (Aritua, 2019). High transport costs is among the countless challenges that cargo transport policies in Africa strive to remedy (Africa Development Bank, 2014). Transport sector policy regulations could have diverse effects on transportation costs. Therefore, the enactment of transport policies ought to be informed by complete appreciation of the prospective effects of such policies to the industry (Alila et al., 2005). Transport sector is an essential enabler in the achievement of Kenya Vision 2030 (Republic of Kenya, 2009).

Kenyan transport industry consists of: rail transport; road transport; marine and inland water transport; air transport; pipeline transport and non-motorized and inter-mediate means of transport (Republic of Kenya, 2009). The government owns railway transport in Kenya while Kenya Railway Corporation (KRC) runs railway transportation. Standard Gauge Railway (SGR) cargo transportation policy required that all imported cargo landed at the port of Mombasa, destined for Nairobi, hinterland and beyond must be transported through SGR to Nairobi Inland Container Depot. In an effort to improve efficiency in transfer of cargo and increase incomes generated by SGR, the government in July 2019 enacted imported cargo transfer policy on cargo landed at the port of Mombasa. The policy required that all imported cargo discharged at Mombasa port and destined for Nairobi, hinterlands and beyond be transported by SGR and their clearance be done at Nairobi Inland Container Deport (NICD).

It was approximated that the cost of transporting cargo through road from Mombasa to Nairobi is 729.4 US dollars compared to the cost of 500 USD by SGR. However, the overall cost of transporting imported cargo over the same distance since enactment of the policy is unclear. The SGR cost of 500 USD is exclusive of other costs of trucking cargo to yards of cargo owners. It is against this backdrop that the paper examines the effects of SGR cargo transportation policy on the cost of cargo transportation in from Mombasa to final destination. It has attempted to examine

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whether the SGR policy has been beneficial by lowering the cost of transporting imported cargo or it has been costly by increasing the cost of transporting imported cargo. In achieving its objective, the article hypothesized that Standard Gauge Railway cargo transportation policy has lowered the cost of cargo transportation in Kenya by providing an alternative means of cargo transport.

2.0 Theoretical framework

The article adopted Rational Choice Theory (RCT) founded by Adam Smith1776, which postulates that any policy decision is arrived at through a comprehensive analysis of the benefits, costs and the concomitant risks that the policy choice is likely to present to the public while maximizing the benefits. It is maintained that by implementing the policy on cargo transportation using SGR, there must have been a rational analysis of its costs and benefits. Additionally, there must have been other policy alternatives whose costs and benefits must have been analyzed against the SGRpolicy option. The alternatives policies included having a policy that permitted transportation of cargo using SGR alongside road transportation of imported cargo and a policy that allowed road and SGR modes of transport to compete equally for transportation of imported cargo. Elster (1989) emphasized that when confronted with a number of policy options, the policy choice arrived at should yield the highest benefit/outcome to the public. The paper employed Rational Choice Theory in its analysis of the effects of SGR cargo transport policy on the cost of transporting imported cargo from Mombasa to final destination. The RCT becomes relevant in examining whether the SGR policy was has been beneficial by lowering the cost of transporting imported cargo or it has been costly by increasing the cost of transporting imported cargo.

3.0 Research Design and Methodology

The study used a descriptive research design through a cross sectional survey in addition to concurrent mixed research method comprising quantitative and qualitative data. Application of mixed methods was vindicated on grounds that both numeric data and text information were collected using questionnaires and key informant interview guide respectively. Survey questionnaires were used to collect primary quantitative data from eighty-seven freight forwarding companies and shippers' companies/cargo owners who use cargo transportation services. The data collected includes costs (Ksh.) of cargo transportation, time taken (hours) to transport cargo, rating on cost, cargo safety during transportation and rating on the level of competition in cargo transportation since the policy was enforced.

Additionally, Key Informant Interviews method was employed in collecting qualitative data from four key industry players. This entailed the use of key informant interview guides. Interviewed institutions included Ministry of Transport and Infrastructure, Kenya Ports Authority (KPA), Kenya Transporters Association (KTA) and Shippers Council of East Africa (SCEA). Statistical Package for Social Sciences (SPSS) version 26 was employed in describing the study data accordingly. Consequently, the study conducted univariate analysis entailing descriptive statistics of the variables. Equally, cross tabulations and multivariate analysis were undertaken. Univariate analysis entailed descriptive analysis of the variables under investigation and presenting the outcome in terms of means, frequencies, standard deviations and variance. Multivariate analysis on the other hand involved description of the variables into frequency distribution tables, graphs, means, measures of central tendency but by attribution to nature of freight forwarding and by

attribution to whether the company was using SGR for transporting cargo or not.
With respect to attribution by nature of freight forwarding company, the different categories of freight forwarding companies on which the analysis focused on were domestic, international and both domestic and international freight forwarding companies. Further, the analysis focused on attribution with regards to whether the freight forwarding company and cargo owners were using or not using SGR for transportation of imported cargo.
Multivariate analysis by attribution of usage was performed on variables of cost of imported cargo transportation. This facilitated the interpretation of how SGR cargo transportation policy affected the different categories of freight forwarding companies and cargo owners in Kenya. Multivariate analysis and cross tabulations enabled the study to not only examine how the policy affected freight forwarders and cargo owners but also to investigate how SGR cargo transportation policy affected different categories of freight forwarding companies and cargo owners, that is domestic, international and both domestic and international. Additionally, Multivariate analysis and cross tabulations were performed by attribution to the use of SGR by freight forwarding companies and cargo owners for cargo transportation. This permitted interpretation with respect to how the policy affected freight forwarding companies and cargo owners that used SGR for transporting cargo as well as how it affected those that did not use SGR for the same for cargo transportation. Finally, multinomial logit regression was adopted in testing the hypotheses with respect to the how SGR cargo transportation policy has affected the cost of transporting imported cargo from Mombasa to final destination. The variable "Company using SGR for cargo transportation was the dependent variable, while the independent variables was overall cost of transporting imported cargo from Mombasa to final destination.

3.1 Description of Respondents

The article identified a select characteristic of freight forwarding companies and cargo owners deemed to be crucial; these include nature of freight forwarding and use of SGR for transportation of imported cargo

3.1.1 Nature of Freight Forwarding Companies

The freight forwarding companies and cargo owners were asked to indicate the nature of freight forwarding they were engaged in as either domestic, international or both domestic and international freight forwarding services.

Table 1: Nature of Freight forwarding Services

Nature of freight forwarding services	Frequency	Percentage	Cumulative Percentage
Domestic	17	19.5	19.5
International	3	3.4	23.0
Both domestic and international	67	77.0	100
Total	87	100	

Source: Author's own computation

Table 1 indicates that about 77% of the companies provided both domestics and international freight forwarding services, while 19.3% provided domestic freight forwarding services only. A meagre 3.4% of the companies provided purely international freight forwarding services. It is clear

that majority (77%) of freight forwarding companies in serve both domestic and international markets

3.1.2 Company Using SGR to Transport Imported Cargo.

To understand the usage of SGR for imported cargo transportation, the respondents were asked to state whether or not using SGR to transport imported cargo. Table 2 below details the analysis.

Table 2: Company Using SGR to Transport cargo

Company Using SGR to Transport cargo	Frequency	Percentage	Cumulative Percentage
Yes	81	93.1	100
No	6	6.9	6.9
Total	87	100	

Source: Author's own computation

Table 2 shows that usage of SGR by freight forwarding companies to transport imported cargo was high at 93.1%. According to table 2 above, it was apparent that freight forwarding companies that transported imported cargo from Mombasa to Nairobi were by and large using SGR. This was further elaborated by the response from the Ministry of Transport and Infrastructure that the policy was informed by Take or Pay Agreement (TOPA) between the Kenyan Government and China Exim Bank, in which the Kenyan Government had the choice of ensuring SGR had adequate cargo or pay for the cost of its construction from other sources of funds. Through the policy, SGR was guaranteed adequate cargo.

4.0 Results and Discussions

4.1 Rating of the Cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation policy

The objective of this article is to examine the effects of SGR cargo transportation policy on the cost of cargo transportation in from Mombasa to final destination. In realizing this objective, the study hypothesized that, Standard Gauge Railway cargo transportation policy has lowered the cost of cargo transportation in Kenya by providing an alternative means of cargo transport. Multivariate analysis (probability binary model) is utilized to test the hypothesis. In this regard, freight forwarding companies and cargo owners were asked "How would you rate the cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation policy". Data collected in this regard was therefore analyzed by nature of freight forwarding (section 4.1.1) and by usage of SGR for cargo transportation (sub-section 4.1.2)

4.1.1 Rating of the Cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation across different categories of freight forwarders.

The study analyzed the rating of cost of transporting imported cargo using SGR across the different categories of freight forwarding services. The intent of which is to comprehend how the policy affected different providers of freight forwarding services; that is domestic, international and providers of both domestic and international freight forwarding services, with respect to cost of transporting imported cargo. This is based on the presumption that a policy has the potential to affect different actors in diverse magnitudes in a given aspect. Table 3 presents the outcome.

Table 3: Rating of the Cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation across different categories of freight forwarding

Nature of freight forwarding services	Rating of SGR transport cost			Total
	Increased	Reduced	Same	
Domestic	13	2	2	17
	76.47%	11.76%	11.76%	100%
	17.81	25.00	33.33	19.54
International	3	0	0	3
	100%	0%	0%	100%
	4.11	0	0	3.45
Both domestic and international services	57	6	4	67
	85.07%	8.96%	5.97%	100%
	78.08	75.00	66.67	77.01
Total	73	8	6	87
	83.91%	9.20%	6.9%	100%
	100	100	100	100

Source: Author's own computation

Table 3 indicates that cost increases were felt by domestic (76.47%) international (100%) and both domestic and international (85.07%) of freight forwarders. The effects of the policy on increasing costs of imported cargo transportation was greatest on freight forwarders who provided international freight forwarding services(100%) followed those who provided freight forwarding services in both domestic and international (85.07%) and least effects on freight forwarders offering domestic(76.47%) freight forwarding services. However, the highest category of freight forwarders that indicated that the cost was the same were those providing purely domestic freight forwarding services (11.76%), this attributed to the fact that not all domestic freight forwarders were entirely bound to use SGR to transport imported cargo. Proportion of domestic cargo were destined to Kilifi and Mombasa neighborhoods which were transported by road, and did not incur any cost increases.

The differentiated effects with regard to cost increases are due to the fact that international freight forwarders, entirely use SGR for cargo transportation as their cargo is destined for transit. SGR policy required that all cargo destined for Nairobi, hinterland and transit to be ex-hooked directly to SGR, so by design, all international cargo had to be transported through SGR, hence they felt the most effects of SGR in terms of cost increase. Even though freight forwarders offering domestic freight services also felt the cost increases, the effect is lower (76.47%), which is explained in that they offered freight forwarding services in which not all their cargo are transported through SGR. The article finds that SGR cargo transport policy has affected domestic, international and both domestic and international freight forwarders in different magnitudes with respect to cost increases (see table 3).

4.1.2 Rating of the Cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation across SGR usage.

The study additionally analyzed rating by attribution to whether a freight forwarding company and cargo owner is using SGR or not. This enabled the study to differentiate how the policy has affected those who are using SGR for transporting cargo and those not using it to transport imported cargo, (see table 4 below)

Table 4: Rating of the Cost of transporting imported cargo with SGR since enforcement of SGR cargo transportation across SGR usage.

	Rating SGR Transport Cost			
SGR USAGE	**Increased**	**Reduced**	**Same**	**Total**
No	4.00	0.00	2.00	6.00
	66.67%	0.00%	33.33%	100.00%
	5.48	0.00	33.33	6.90
Yes	69.00	8.00	4.00	81.00
	85.19%	9.88%	4.94%	100.00
	94.52	100.00	66.67	93.10
Total	73.00	8.00	6.00	87.00
	83.91	9.20	6.90	100.00
	100.00%	100.00%	100.00%	100.00%

Source: Author's own computation

Table 4 indicates that, 85.19% of freight forwarding companies and cargo owners who were using SGR for cargo transportation rated the cost of transporting cargo through SGR to have increased. The main reason put by freight forwarders for the increase in cost of transporting imported cargo was last mile transport costs (see table 5 below). Higher percentage (85.19%) of freight forwarders and cargo owners who used SGR for cargo transportation rated the cost to have increased in comparison to those who were not using SGR to transport cargo (66.67%). This implies that SGR cargo transportation policy had more effects on freight forwarding companies and cargo owners who used SGR for cargo transportation in comparison to freight forwarding companies and cargo owners who did not use SGR for cargo transportation. Consequently, in as much as the policy had increased the cost of transporting cargo, it is freight forwarding companies and cargo owners who used SGR that felt the costs increases more. In overall, 83.9% freight forwarding companies and cargo owners indicated that the cost had increased while those who felt that the costs had reduced and remained the same were 9.2% and 6.9% respectively. A larger proportion of freight forwarding companies and cargo owners felt that the policy has adversely affected the cost of transporting cargo. This perception was informed by the fact that SGR cargo transportation involves last mile transport cost where an additional truck has to be paid to transport cargo to owners' premises and warehouses from ICD.

The study equally analyzed why freight forwarding companies and cargo owners felt that the cost of transporting imported cargo had increased. The explanations from freight forwarding companies and cargo owners were subjected to content analysis by categorizing them into themes as

illustrated in Table 5 below. Themed categories of the qualitative responses of freight forwarding companies and cargo owners

Table 5: Themed categorization of explanations why the cost of transporting cargo has increased.

Theme	Frequency of mention	Percentage
Last mile transport cost	76	87.4%
Costs of returning empty containers to shipping lines in Mombasa	22	25.28%
Demurrage charges by shipping lines	8	9.20%
Increased storage charges due to delays in clearing of cargo at ICD	2	2.3%
Railway development levy	1	1.15%

Source: Author's own computation

Table 5 shows that last mile transport cost (87.4%) was the most provided explanation by freight forwarding companies as to why they rated the cost of transporting imported cargo through SGR as increased since the enforcement of SGR cargo transport policy. Costs of returning empty containers to shipping lines in Mombasa, which was mentioned by about twenty-five percent (25.28%) of all the freight forwarding companies and cargo owners. Other explanation provided, though marginal were demurrage charges by shipping line (9.20%), increased storage charges (2.3%) and railway development levy (1.15%). It must however be noted that some freight forwarding companies mentioned more than one category of explanation hence the themed categorization are more than one hundred percent.

Content analysis of text responses from qualitative data indicated that the most common explanation put forward for this rating was the cost of last mile trucking of cargo from Nairobi Inland Container Depot to clients' doorsteps/yards. Equally, further content analysis of the same question shows that the cost of last mile was estimated to cost between Ksh. 15,000 and Ksh. 35,000 depending on the nature, size of the cargo and distance from ICD. Additionally, freight forwarding companies explained on the same that cargo transported from ICD through Nairobi CBD attracted higher last mile costs compared those being delivered outside CBD. Cost of transporting imported cargo has therefore been affected negatively by the policy.

Analysis of interview report from the Ministry of Transport and Infrastructure, Shippers Council of East Africa, and Kenya Transporters Association indicated that the policy is not redeeming cargo owners any costs on transportation but has increased transportation costs due to last mile cargo delivery costs. Key Informant from Shippers Council of East Africa when asked "What is your opinion on how SGR cargo transportation policy has affected the cost of transporting imported cargo", restated that "the government ought to ask why cargo owners are against the policy, if it is truly cheap, businesspersons want to save some money", it is because it does not make business sense to transport cargo through SGR from Mombasa to Nairobi.

Another freight forwarder in explaining the severity of high cost of SGR cargo transportation stated "In attempts to evade the high cost and use of SGR, cargo owners and shippers changed their Personal Identification Number (PIN) addresses from Nairobi to Mombasa. All cargo owners/shippers whose PIN address indicated Nairobi or beyond had their cargo ex-hooked to SGR for clearance at Nairobi ICD without their knowledge. However, the government through a gazette notice, made it an illegality to for shippers/cargo owners to amend their businesses PIN addresses''. The Key Informant interview with Shippers Council of East Africa expressed similar sentiments indicating that cargo owners/shippers had begun changing their PIN addresses from Nairobi to Mombasa in order to circumvent direct railing of imported cargo through SGR. Additionally, Key Informant from Kenya Ports Authority illustrated that "KPA became more concerned about the increasing PIN addresses change by cargo owners/shippers; a legislation on PIN address change by importers/cargo owners was put in place.

In explaining why they rate the cost of transporting cargo through SGR to have increased, freight forwarding companies expounded that "ICD is not the last point of destination for cargo and hence they have to incur an additional cost of trucking cargo from ICD to yards, which costs between Ksh. 15,000 and Ksh. 35,000 depending on the nature and size of cargo. This makes SGR more expensive than road using trucking. Moreover, freight forwarding companies and cargo owners indicated that ICD permits only four (4) free days for cargo storage after which a charge of 100 USD are imposed on stored cargo, consequently increasing overall cost of using SGR. Another freight forwarding company explained that, "It is very hectic to clear cargo at ICD within the four (4) days provided; one must have liquid cash. If you have say twenty (20) containers and you are unsuccessful in clearing within the given days , at that juncture it becomes extremely expensive to transport cargo using SGR unlike road where one can store cargo at Container Freight Services at reasonable charges as he mobilizes finances to clear them''.

4.2 Cost of transporting Imported Cargo by SGR compared with cost of Road transportation

In attempts to examine the effect of SGR cargo transportation policy on the cost of transporting imported cargo in Kenya, another question was presented to freight forwarding companies and cargo owners. The question stated "How does the cost of transporting imported cargo from Mombasa to Nairobi using SGR compare with cost of road transportation". Section 4.2.1 details the analysis.

4.2.1 How cost of transporting imported cargo from Mombasa to Nairobi using SGR compare with cost of road transportation by nature of freight forwarding services.

This sub-section the study analyzed how freight forwarders and cargo owners compared the cost of transporting imported cargo from Mombasa to Nairobi using SGR with the cost of road transportation by nature of freight forwarding services. Table 6 below presents analyzed data output.

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Table 6: How cost of transporting imported cargo from Mombasa to Nairobi using SGR compare with cost of road transportation by nature of freight forwarding services.

Nature of freight forwarding services	SGR-Road transport costs compared			Total
	More expensive	Cheaper	Same	
Domestic	13	3	1	17
	76.47%	17.65%	5.88%	100%
	17.81	33.33	20.00	19.54
International	2	1	0	3
	66.67	33.33%	0%	100%
	2.74	11.11	0	3.45
Both domestic and international	58	5	4	67
	86.57%	7.46%	5.97%	100%
	78.08	75.00	66.67	77.01
Total	73	9	5	87
	83.91%	10.34%	5.75%	100%
	100	100	100	100

Source: Author's own computation

Table 6 shows that all the three categories of freight forwarding companies and cargo owners; domestic (76.47%), international (66.67%), and both domestic and international (86.57%), found the cost of transporting imported cargo from Mombasa to Nairobi using SGR to be more expensive when compared to the cost of road transportation. The study therefore infers that, SGR cargo transport policy had a similar unidirectional effect on the cost of transporting imported cargo to freight forwarding companies and cargo owners who provided domestic, international and both domestic and international freight forwarding services, however, the scale of the effects varied across the three categories. The highest magnitude was felt by freight forwarding companies and cargo owners who provided both domestic and international freight forwarding services. The second highest magnitude was felt by freight forwarding companies and cargo owners who were engaged in provision of domestic freight forwarding services, while least magnitude was felt by freight forwarding companies and cargo owners who offered international freight forwarding services for imported cargo.

In overall, most (83.9%) of the freight forwarders and cargo owners were of the opinion that SGR is more expensive if they compared its cost to cost of road transportation, while 10.3% indicated that it is cheaper than road. However, only 5.7% felt that the costs were same. The differentials in opinion are occasioned by the reasoning that SGR is more expensive because for majority, there is an additional last mile costs of transportation. However, the 10.3% who felt that SGR is cheaper explained that this only applies until up to Nairobi ICD, but after ICD, SGR becomes more expensive. Further, the 5.7% who felt that the costs were the same when compared with road explained that their cargo final destinations are located next to Nairobi ICD and hence do not incur much on last mile transport cost. The analysis therefore reinforces the findings that SGR Cargo transport policy has made the cost of transporting imported cargo from Mombasa to Nairobi more

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expensive. Cost of transport is an important measure transport policy output. A policy that results in increases in cost of transport consequently has adverse effects on transport services delivery to the public.

Equally, further text analysis of qualitative data collected from freight forwarders and cargo owners showed that another reason why the SGR is considered more expensive for transporting imported cargo compared to cost of using road transportation was the cost of returning empty containers from Nairobi to Mombasa. A freight forwarder stated, "While the cost for transportation by road is inclusive of returning empty containers to the port of Mombasa, importers have to cater for an addition cost of between Ksh. 18,000 to Ksh. 20,000 for the same when using SGR". The policy has not redeemed cargo owners of any costs on transportation but has made them dig deeper into their pockets by incurring last mile cargo delivery costs and return of empty container costs.

Table 7: Estimated cost of transporting TEU and FEU of imported cargo using road and SGR across nature of freight forwarding company.

Nature of freight forwarding services	Road_TEU	SGR_TEU	Road_FEU	SGR_FEU
Domestic	65,000	60,089.29	87,678.57	89,267.86
International	70,000	60,000	90,000	87,500
Both domestic and International	69,333	56,342.74	89,126.98	85,108.06

Source: Author's own computation

Table 7 indicates that freight forwarders and cargo owners who provided domestic freight forwarding services incurred a cost of Ksh. 65,000 and Ksh. 60,089 to transport TUE of imported cargo using road and SGR respectively. SGR is cheaper by Ksh. 5000, if compared to road transportation. However, there is a rider that SGR only delivers cargo to ICD while road delivers cargo to clients' yards and doorsteps. Freight forwarding companies who provided only international freight forwarding services incurred a cost of Ksh. 70,000 and Ksh. 60,000 to transport a twenty feet (TEU) container of imported container from Mombasa to Nairobi by road and SGR respectively. Equally, SGR is still cheaper by Ksh. 10,000. Additionally, freight forwarding companies and cargo owners who offered both domestic and international freight forwarding services incurred Ksh. 69,333 and Ksh. 56,342.74 to transport a twenty feet (TEU) container, using road and SGR respectively from Mombasa to Nairobi. SGR is cheaper by Ksh. 12,900 to transport twenty feet containers cargo using SGR.

The study notes that across the three categories of freight services, that is domestic, international and both domestic &international, SGR costs less to deliver a twenty feet container cargo from the port of Mombasa to Nairobi ICD. It must nonetheless be appreciated that SGR costs of transportation are exclusive of last mile delivery costs to doorsteps, whereas road costs are inclusive of last mile delivery costs to doorsteps, which are approximately between Ksh. 18,000 to Ksh. 35,000 depending on the distance from ICD and the ones negotiation ability. Findings reveal that freight forwarding companies and cargo owners in domestic category of freight forwarding services incurred a cost of Ksh. 87,678 and Ksh. 89,267 to transport a forty feet (FEU) container from Mombasa to Nairobi using road and SGR respectively in 2021. We realize that in

this case the cost of SGR is already higher by approximately Ksh. 2,000, despite the fact that SGR ends at ICD while road terminates at clients yards.

In the case of freight forwarders and cargo owners in the category of international freight forwarding services, the study findings show that it costed freight forwarding companies and cargo owners an estimated Ksh. 90,000 and Ksh. 87,500 to transport a forty feet (FEU) container of cargo from Mombasa to Nairobi using road and SGR respectively in 2021. In this case, we note that SGR costs less by Ksh. 2,500 per forty feet container and the study also takes cognizance thatSGR costs are up to Nairobi ICD unlike road which delivers cargo clients doorsteps. Lastly, for freight forwarding companies and cargo owners in both domestic and international category of freight forwarding services, the study finds that it costed freight forwarding companies and cargoowners an estimated Ksh. 89,126.98 and Ksh. 85,108.06 to transport a forty feet (FEU) containerof cargo from Mombasa to Nairobi using road and SGR respectively in 2021. Just like in the category of international freight forwarding services, SGR costed less by approximately Ksh. 4,000 per forty feet (TEU) container. It must however, be appreciated that SGR does not deliver cargo to final destination unlike road.

From table 7, the study finds that in general, it costed freight forwarding companies and cargo owners less to transport imported cargo from Mombasa to Nairobi using SGR up Nairobi Inland Container Depot for both TEU and FEU and for all the three categories of freight forwarding services, that is domestic, international and both domestic and international. However, SGR involves last mile cargo transport cost and costs of returning empty containers to the port of Mombasa. These costs ranges between Ksh. 18,000 to Ksh. 35,000 for last mile costs while return of empty containers costs approximately Ksh. 18,000. As result it becomes more expensive to transport imported cargo using SGR compared to when road is used.

The paper pointss contrary to Cundill (1986) that cargo owners bestow extra importance to cost of transportation in selection of the means of transport, hence the result of transport industry policy restructurings ought not to lead to escalations in cost of cargo transportation. Similarly, findings controvert findings by Irandu and Owilla (2020) where SGR development in Kenya resulted in a decrease of 79% in costs of transporting cargo between Mombasa to Nairobi. The findings likewise contradicts van Wee et al.(2013) who advanced that transport policies should lead to decline in transportation costs as an outcome. SGR cargo transport policy dissimilarly increased the costs of cargo transport for cargo shippers and businessmen. On the same breadth, the study finding is inharmonious to the findings by Chen (2018) that Standard Gauge Railway infrastructure in Nigeria led to reduction in cargo transportation costs.

4.3 Influence of SGR cargo transportation policy on overall cost of transporting cargo to final destination by nature of freight forwarding services

In efforts to establish how SGR cargo transport policy has influenced the overall cost of transporting imported cargo from Mombasa to final destination, the study performs analysis on the overall cost across the three different categories of freight forwarding services provided by freight forwarding companies and cargo owners, that is domestic, international and both domestic and international. Table 8 presents outcome of our analysis.

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Table 8: Influence of SGR cargo transportation policy on overall cost of transporting cargo to final destination by nature of freight forwarding services

Nature of freight forwarding	Influence of SGR policy on overall costs		Total
	More Expensive	Same	
Domestic	13	4	17
	76.47%	23.53%	100
International	3	0	3
	100%	0%	100%
Both domestic and international	66	1	67
	98.51%	1.49%	100%
Total	82	5	87
	94.25%	5.75%	100%
	100	100	100

Source: Author's own computation

From table 8 about 76.47% of freight forwarding companies and cargo owners who provided domestic freight forwarding services felt that SGR cargo transport policy has influenced the overall cost of transporting imported cargo to final destination by making the overall cost more expensive. However, approximately twenty-three percent (23.53%) of freight forwarding companies and cargo owners who offer domestic freight forwarding services are of the opinion that the policy has not influenced the overall cost of transporting cargo to final destination and therefore the overall cost is the same/unchanged when compared to the period prior to enforcement of SGR cargo transportation policy. The study correspondingly establishes that all (100%) freight forwarding companies and cargo owners who provided international freight forwarding services felt that SGR cargo transport policy has influenced the overall cost of transporting cargo to the final destination by making the overall cost more expensive (Table 8). Similarly, 98.51% of freight forwarding companies and cargo owners who offered domestic and international freight forwarding services opined that SGR cargo transportation policy influenced the overall cost of transporting cargo to the final destination by making the overall cost more expensive.

The study establishes cohesion in opinion of freight forwarding companies and cargo owners from the three categories of freight forwarding services (domestic, international and both domestic and international), that SGR cargo transportation policy had made the overall cost of transporting imported cargo to the final destination more expensive. The degree of influence of the policy on the overall cost of transporting imported cargo to the final destination however, varies across the different categories of freight forwarding services. The highest degree of adverse influence on the overall cost is felt by freight forwarding companies and cargo owners in international category at 100%, followed by domestic and international at 98.51% and lastly, by domestic category at 76.47%. The study therefore finds that SGR cargo transport policy has adversely affected the overall cost of transporting imported cargo to the final destination, making the overall cost more expensive for freight forwarding companies and cargo owners.

Table 9 below indicates that SGR cargo transportation policy has increased the overall cost of transporting a twenty feet container of cargo from Mombasa to final destination by 35.29%.

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Making reference to table 9, the study notes that it costed on average Ksh. 59,000 to transport a twenty feet container from Mombasa to Nairobi ICD by SGR. However, content analysis of qualitative data from freight forwarding companies and cargo owners enumerates two other additional cost; last mile transport costs and return of empty container back to shipping lines in Mombasa. Table 4.6 below is a presentation of costs incurred to transport imported cargo using SGR and road. Computing the additional costs incurred when SGR is used, freight forwarding companies and cargo owners experience 35.29% increase in cost of transporting a twenty feet container of cargo.

Table 9: Overall costs of transporting twenty feet container of imported cargo from Mombasa to final destination using road and SGR

Costs incurred	**Road -TEU**	**SGR-TEU**	**% Increase in costs**
Cost of transportation	68,000	59,000	(13.2%)
Last mile costs	0	15,000	100%
Cost of returning empty container to shipping line in Mombasa	0	18,000	100%
Total	**68,000**	**92,000**	**35.29%**

Source: Author's own computation

Table 9 above shows that, when SGR is used to transport a twenty feet container of imported cargo, the overall costs increase by about 35.29%. It must be noted that road transportation costs are inclusive of all costs incurred during transportation including driver costs, fuel costs, weighbridge charges and inter-county transportation charges. SGR cargo transportation policy therefore has made it more expensive to transport imported cargo from the port of Mombasa to final destination. The findings is against the aspiration of Aritua (2019) that the principle policy impasse of transport policy makers, is how to appease the desires of cargo owners/shippers of having reduced cost of cargo transportation and satisfactory rail cargo transport services. Cundill (1986) adds that cargo owners/shippers attach more significance to cost of transportation when choosing the mode of transport to use, therefore the outcome of transport sector policy reforms should not be an increase in cost of cargo transportation. Our study conversely finds that SGR policy has led to increase in overall cost of cargo transportation. Equally, our findings contradict findings by Irandu and Owilla (2020) that the would-be welfare gains of SGR initiative in Kenya was reduction in cost of transporting cargo from Mombasa to Nairobi by about 79%.

The findings equally contradict van Wee et al. (2013) who postulated that transport policies ought to result in desirable outcome in the industry by reducing costs of transportation. SGR cargo transport policy on the contrary has increased the costs of transport service for cargo owners/shippers and traders. The study findings are likewise discordant to the findings by Chen (2018) on Standard Gauge Railway infrastructure in Nigeria that SGR reduced the cost of cargo transportation. SGR cargo transport policy as a policy shift in imported cargo transport ought to have led to reduction in transportation costs, conversely, the study finds contrary that SGR policy resulted increase in overall cost of cargo transportation to final destination.

The article findings are incompatible to the findings by Mboya-Kwanya (2022) postulating that the economic benefits of SGR included reduction in business costs by reducing cargo transportation cots per tone per kilometer. Our finding however shows that the cost of cargo transporting imported cargo from Mombasa to Nairobi has increased with the use of SGR. Wheat et al. (2019) postulated that policy reforms including restructuring of railway transport concessions and strengthening competition in rail cargo transport services are critical in attaining reduced transport costs in rail and road cargo transport. These reforms would result into reduced transportation costs, lead to competitive pricing of transport services and improve transport service delivery. The paper however finds contrary that SGR cargo transportation policy resulted in increase in cost of transporting imported cargo.

4.4 Why the cost of transporting cargo through SGR is more expensive since the enforcement of the policy.

In delving deeper on our examination of the effects of SGR cargo transportation policy on the cost of cargo transportation in Kenya, freight forwarding companies and cargo owners were asked the question "Why would you say the cost of transporting imported cargo through SGR since the enforcement of the policy is more expensive ". Collected data in this respect have been analyzed by nature of freight forwarding service (section 4.4.1)

4.4.1 Why the cost of transporting cargo through SGR is more expensive since the enforcement of the policy analysis by nature of freight forwarding services

The section analyses the reasons fronted by freight forwarding companies and cargo owners why the cost of transporting imported cargo through SGR since enforcement of the policy is more expensive, by differentiating the reasons presented by freight forwarding companies and cargo owners who offered domestic, international and both domestic and international freight forwarding services. Table 10 below provides our analysis.

Table 10: Why the cost of transporting cargo through SGR is more expensive since the enforcement of the policy analysis by nature of freight forwarding service

Nature of freight forwarding	Reason why SGR transport cost is more expensive since enforcement of the policy			Total
	Increases costs of clearing goods	Increases cost of last mile services	Has no effect on last mile costs	
Domestic	1	14	2	17
	5.88%	82.35%	11.76%	100%
	33.33	17.28	66.67	19.54
International	0	3	0	3
	0.00%	100%	0%	100%
	0.00	3.70	0.00	3.45
Both domestic and international	2	64	1	67
	2.99%	95.52%	1.49%	100%
	66.67	79.01	33.33	77.01
Total	3	81	3	87
	3.45%	93.10%	3.45%	100%
	100	100	100	100

Source: Author's own computation

Table 10 shows that the reason "SGR policy increases the cost of last services" was indicated by 82.35% (domestic) 100% (international) and 95.52% (both domestic and international) freight forwarding companies and cargo owners as the reason why they considered the cost of transporting imported cargo SGR to be more expensive. The study establishes uniformity in the reason provided by the three categories of freight forwarding services (domestic, international and both domestic and international) as to why the cost of transporting imported cargo through SGR since enforcement of the policy was more expensive. The reason put forward by the three categories of freight forwarding services is that SGR increases the cost of last mile services. The percentage of freight forwarding companies and cargo owners who posited that the cost of transporting imported cargo through SGR is more expensive because it increases the cost of last services was quite high across the three categories of freight forwarding services. Content analysis on qualitative data obtained from freight forwarding companies show costs of last mile services from Nairobi Inland Container Depot ranges from Ksh. 15,000 to Ksh. 35,000 depending on the size of the cargo, the distance from ICD and one's negotiation ability.

The study infers that even though there is variation in proportion across the three categories of freight forwarding services, SGR is more expensive because it increases the cost of last mile services. The study concludes that the reason why freight forwarding companies and cargo owners consider the cost of transporting imported cargo through SGR since enforcement of SGR cargo transport policy to be expensive is that SGR increases the cost of last mile services. The article reveals that SGR cargo transportation increases the cost of last mile services, which corresponds to postulations by Macioszek et al., (2017), that last mile cargo transportation is more cost concerted escalating overall freight transport costs. The study findings equally correspond to

findings by Agnusdei et, al (2022) who posits that last mile logistics costs a constraint to freight transportation industry.

4.5 Hypothesis Testing

This sub-section details hypothesis testing. The paper examined the effects of SGR cargo transportation policy on the cost of cargo transportation in Kenya. In this regard, the study hypothesized that Standard Gauge Railway cargo transportation policy has lowered the cost of cargo transportation in Kenya by providing an alternative means of cargo transport. The study employed multivariate analysis (probability binary model) to test the research hypothesis. Table 11 presents outcome of hypothesis testing.

Table 11: Hypothesis Test

VARIABLES	(1) Odd ratio	(2) Marginal effect
SGR Usage	13**	0.2962**
	(13.610)	(0.19359)
Constant	2	
	(1.732)	
Observations	87	87

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Author's own computation

Table 11 shows that by employing a multivariate analysis (probability binary model) to test the hypothesis, we obtain a marginal effect of 0.2962**. The obtained marginal effect of 0.2962 is significant at 95% confidence level (p<0.05). The marginal effect of 0.2962** shows that use of SGR by freight forwarding companies and cargo owners to transport imported cargo from Mombasa to final destinations is more likely to increase the cost of transporting cargo by 29.62% as compared to freight forwarding companies and cargo owners who did not use SGR to transport imported cargo. Equally, the obtained odds ratio of using SGR is positive (13**) and significant at 95% confidence level. This implies that usage of is more likely to be more expensive and increases the overall cost of transporting imported cargo from Mombasa to final by 29.62%. The study therefore rejects the research hypothesis that "Standard Gauge Railway cargo transportation policy has lowered the cost of cargo transportation in Kenya by providing an alternative means of cargo transport". In conclusion, the study finds that, enforcement of SGR cargo transportation increased the cost of transporting imported cargo from the port of Mombasa to the final destination by 29.62%.

5.0 Conclusion and Recommendations

The study found that Standard Gauge Railway cargo transportation policy which directed that all imported cargo discharged at the port of Mombasa and headed to Nairobi, hinterland and transit be transported through SGR resulted in increase in the overall cost of transporting imported cargo from Mombasa to final destination by 29.62%. The cost increases included last mile transport

costs, cost of returning empty containers back to Mombasa and demurrage charges. The policy therefore works against aspirations of promoting and facilitating trade as it increases the cost of doing business. This calls for the following policy recommendations:

- Kenya Railways Corporation (KRC) should design a costing model for SGR cargo transportation in consultation with industry players to ensure that the overall costs of transporting imported cargo to final destination is competitive. Correspondingly, the model to ensure that cost charged by SGR be determined by taking into consideration that ICD is not the final destination and cargo owners have to incur additional last mile costs and costs of returning empty containers back to shipping lines in Mombasa.
- To reduce the costs of transporting imported, KRC should explore partnerships with private trucking companies to provide last mile cargo transport services from ICD to Nairobi metropolis. Equally, SGR to provide return of empty containers services to the port of Mombasa for all containers that are transported through it.

- To eliminate cost escalation associated with demurrage charges, the study recommends efficiency in cargo clearance by Kenya Ports Authority at ICD to enable a shorter turnaround time for containers to be returned to shipping lines at the port of Mombasa.

- The Ministry of Transports and Infrastructure to consider negotiating with shipping lines to allow more free days from the current nine (9) before imposing demurrage charges

- Kenya Ports Authority to review its provisions on permissible free storage days and allow cargo owners additional free storage days from 4 days before levying storage charges.

- To enjoy the advantages of SGR, cargo owners/shippers should re-align their cargo transportation arrangements to SGR by prompt arrangements for documentation requirements and advance organization for last mile transportation services.

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