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Racing the Rails: Bus Strategies Amid Tanzania's Standard Gauge Railway (SGR) Disruption

Racing the Rails: Bus Competition Strategies Amid Tanzania's Standard Gauge Railway (SGR) Disruption

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Abstract
Amid ongoing global efforts to modernise transportation, countries are investing in advanced rail systems to improve mobility, ease congestion, and promote regional integration. Tanzania's Standard Gauge Railway (SGR) links inland cities with Dar es Salaam, providing faster, more comfortable, and cost-effective travel options that are increasingly rivalling long-distance bus services. This study examined the impact of the SGR on bus operators on the Dar es Salaam–Morogoro and Morogoro–Dodoma routes, focusing on fare strategies, passenger demand, and profitability. Employing a mixed-methods approach, the research collected quantitative data from 164 transport stakeholders and conducted 12 key informant interviews. Grounded in Porter's Five Forces Model and Intermodal Competition Theory, the study utilised descriptive statistics and multiple regression analysis to evaluate four key hypotheses. The findings indicate that the primary reason for the decline in profit is the decrease in passenger numbers, rather than fare cuts. 61% of respondents reported a drop in ridership as travellers increasingly favoured the SGR. Regression analysis revealed that fare reductions had a significant impact on profits ($\beta = 0.757$, $p < 0.001$, $R^2 = 0.52$), although this strategy was not widely adopted by many firms. The strongest predictor of operational challenges was the shift toward the SGR ($\beta = 1.099$, $p < 0.001$, $R^2 = 0.41$), confirming a modal transition. Operational efficiency did not significantly mediate the link between load factor and profitability ($\beta = 0.230$, $p = 0.180$). Nonetheless, firm size played a significant role in cost management success ($\beta = 0.416$, $p = 0.018$, $R^2 = 0.17$), with larger firms demonstrating greater resilience. The study concludes that the SGR has fundamentally transformed intercity travel in Tanzania, threatening smaller bus operators while favouring larger companies that benefit from economies of scale. Implementing demand-driven strategies, promoting intermodal integration, and providing policy support for small operators are essential for maintaining sector sustainability. These insights provide valuable empirical evidence to guide transport policies and strategic planning in emerging economies.

Introduction

The expansion and modernisation of rail transport are crucial components of sustainable mobility strategies worldwide. Countries such as China, India, and those in the European Union have heavily invested in advanced railway systems to enhance transport efficiency, reduce traffic congestion, mitigate environmental impacts, and promote regional economic development(Beria & Bertolin, 2019; Chen, 2019). These efforts have led to significant modal shifts, especially for long-distance travel, where rail is becoming more popular than buses due to its reliability, speed, and affordability(Gerhard, 2023; Raturi & Verma, 2017). As railways become more competitive, traditional road-based operators, particularly intercity bus services, face increasing pressure to adjust their pricing strategies, enhance operational efficiency, and offer distinctive services to remain competitive in a rapidly evolving market. In East Africa, countries are increasingly upgrading their railway systems to strengthen regional integration and trade. Kenya's Standard Gauge Railway (SGR), which has been in operation since 2017, exemplifies this trend (Githaiga, 2021). It aims to connect Mombasa and Nairobi more efficiently, providing faster travel, lower costs, and improved service compared to traditional buses (Githaiga, 2021; Mchome & Nzoya, 2023). Research indicates that the SGR's introduction led to a significant decline in bus ridership along the route, resulting in many operators experiencing revenue losses and reducing their services (Awal et al., 2021; Mchome & Nzoya, 2023). Tanzania has followed a similar development strategy under its Vision 2025 plan, with the SGR as a key project linking Dar es Salaam to inland cities such as Morogoro and Dodoma, with plans to extend it to Mwanza and the Great Lakes region in the future.

Tanzania's SGR has delivered substantial economic gains but has also raised worries about its impact on traditional long-distance bus operators. These operators, essential for interregional travel, are facing declining passenger numbers, narrower profit margins, and heightened price competition. The benefits of the SGR, including government subsidies, improved infrastructure, and economies of scale, have widened the competitive disparity (Awal et al., 2021; Mchome & Nzoya, 2023). As a result, bus companies on similar routes, especially those already under financial pressure, often respond by lowering fares, expanding their routes, or offering overnight services to stay competitive (Anker & Version, 2018; Chen, 2019; Githaiga, 2021). Despite these obstacles, research on the competitive dynamics between the SGR and Tanzania's long-distance bus industry remains scarce. Few studies have thoroughly examined the impact of intermodal rivalry on the profitability, pricing, and efficiency of bus operators (Awal et al., 2021; Katuga et al., 2023; Mchome & Nzoya, 2023). To fill this gap, this study empirically examines the impact of SGR competition on the long-distance bus sector in Tanzania. It examines factors such as ticket pricing, passenger volume, operational efficiency, and company size. Therefore, employing descriptive and inferential analysis, the research aims to provide evidence-based insights that inform strategic planning for transport operators and support policies promoting fair and sustainable competition in the country's evolving transportation sector.

Literature Review

This study draws on two interconnected theoretical frameworks: Porter's Five Forces Model and Intermodal Competition Theory. Together, they offer a strong foundation for analysing the strategic and operational challenges facing Tanzania's Standard Gauge Railway (SGR) in the long-distance bus transport sector. These frameworks clarify the competitive pressures involved and guide the interpretation of four research hypotheses concerning ticket pricing, passenger volumes, operational efficiency, and firm size.

Theoretical Review

Porter's Five Forces Model

Porter's Five Forces Model (Gerard & Bruijl, 2018; Pangarkar, 2024) is a fundamental framework in strategic management for analysing industry competition and structure. The five forces include (1) threat of new entrants, (2) buyers' bargaining power, (3) suppliers' bargaining power, (4) threat of substitute products or services, and (5) industry rivalry. In this study, the SGR functions both as a significant new entrant and a direct substitute, introducing disruptive changes to the bus transport sector through government-subsidised fares, faster travel times, and enhanced service quality (Grant, 1991; Jaafar & Abdul-Aziz, 2005). The introduction of the SGR increases passengers' bargaining power by providing an efficient alternative, encouraging bus operators to rethink their pricing and service strategies. This supports Hypothesis 1 (H1): *Changes in ticket prices due to SGR competition significantly impact bus company profit margins.* When companies lower fares to maintain their market share, their profit margins often shrink, particularly if they do not reduce operating costs accordingly (Anker & Version, 2018; Romana et al., 2023; Tawfik, 2018). Additionally, Porter's model demonstrates how a company's resources and capabilities influence its competitive performance. Larger organisations tend to be more resilient due to economies of scale, varied strategies, or more efficient fleet management systems. This dynamic directly supports Hypothesis 4 (H4): *Company size moderates the relationship between operational costs and profit margins.* Firms that have more buses, improved logistics, and larger pools of human capital are typically better positioned to handle operational shocks or implement cost-saving strategies effectively (Hillman et al., 2009; Wright et al., 1994).

Intermodal Competition Theory

Intermodal Competition Theory examines how various transportation modes (e.g., rail, road, air) compete for passengers and freight, highlighting substitution patterns driven by cost, time, accessibility, and convenience (Saeedi et al., 2017; Xia & Zhang, 2025; Zhang & Wang, 2018). This theory is particularly relevant in the Tanzanian context, where the SGR, with its modern infrastructure and government investment, has emerged as a significant alternative to long-distance buses. This framework supports Hypothesis 2 (H_2): *Declining passenger numbers have a negative impact on the profit margins of bus companies.* The SGR's appeal, driven by comfort, reliability, and affordability, has led to a shift in travel choices among passengers, especially on competitive routes like Dar es Salaam–Dodoma and Morogoro–Dodoma. This substitution effect diminishes the revenue of bus operators, particularly those unable to compete on non-price aspects such as punctuality and safety (Paper, 2013; Working et al., 2019)(Working et al., 2019; Zhang & Wang, 2018). Intermodal Competition Theory also examines how transport operators adapt to modal threats by implementing strategies like route restructuring, schedule adjustments, or diversifying services. This aligns with Hypothesis 3 (H3): *Operational efficiency mediates the relationship between load factor and profit margins.* Companies that enhance their load factor, meaning they maximise seat occupancy per trip, tend to see better operational and financial results (Dou et al., 2022; Zhang & Wang, 2018).

Empirical Review

Studies worldwide consistently demonstrate that government-supported rail systems often lead to significant fare adjustments in the bus sector. For example, Cheng et al. (2025) found that China's high-speed rail caused a 30% reduction in bus fares within two years, especially in areas where rail travel was faster and more cost-effective. Fenske et al. (2023) observed that fare wars ensued in India's overlapping intercity routes following railway expansion. In Africa, the Addis Ababa-Djibouti Railway prompted road operators to lower fares by over 20%, which reduced profitability and drove smaller firms out of business (Mengistu et al., 2024; Mohapatra, 2020). In Spain, the introduction of high-speed rail between Madrid and Seville led to a decline in bus ridership (Brenna, 2024; Inglada, 1997), and in South Korea, the KTX service diverted intercity travellers from buses (Lee & Chang, 2004;

Suh & Lee, 2010). A similar pattern appears in Tanzania for travellers from Dodoma to Morogoro and from Morogoro to Dar es Salaam. The impact of operational costs and load factors on profitability is well understood. Operational efficiency also plays a key mediating role in these dynamics. Companies that use digital fleet management, mobile ticketing, and GPS tracking have improved their cost control and scheduling, strengthening their resilience against competitive pressures (Anker & Version, 2018; Bubalo & Rajsman, 2020; Li et al., 2021). Moreover, a company's size impacts how cost pressures affect profitability, with larger firms benefiting from economies of scale, easier access to capital, and diversified operations. Cantos et al. (2010) observed that larger operators can share fixed costs, negotiate better deals, and remain profitable despite rail competition. In South Korea, Lee and Chang, (2004); Suh and Lee, (2010) noted similar benefits. Conversely, smaller companies often shut down or leave the market due to financial struggles and declining demand. Therefore, the literature indicates that the SGR has led to significant changes in fare policies, passenger habits, and operational approaches in Tanzania.

Conceptual Framework

This study's conceptual framework examines the impact of Tanzania's Standard Gauge Railway (SGR) on the profitability of long-distance bus operators. It highlights four key factors affecting profitability: ticket prices, passenger numbers, operational costs, and the load factor, all of which are influenced by competition from SGR.

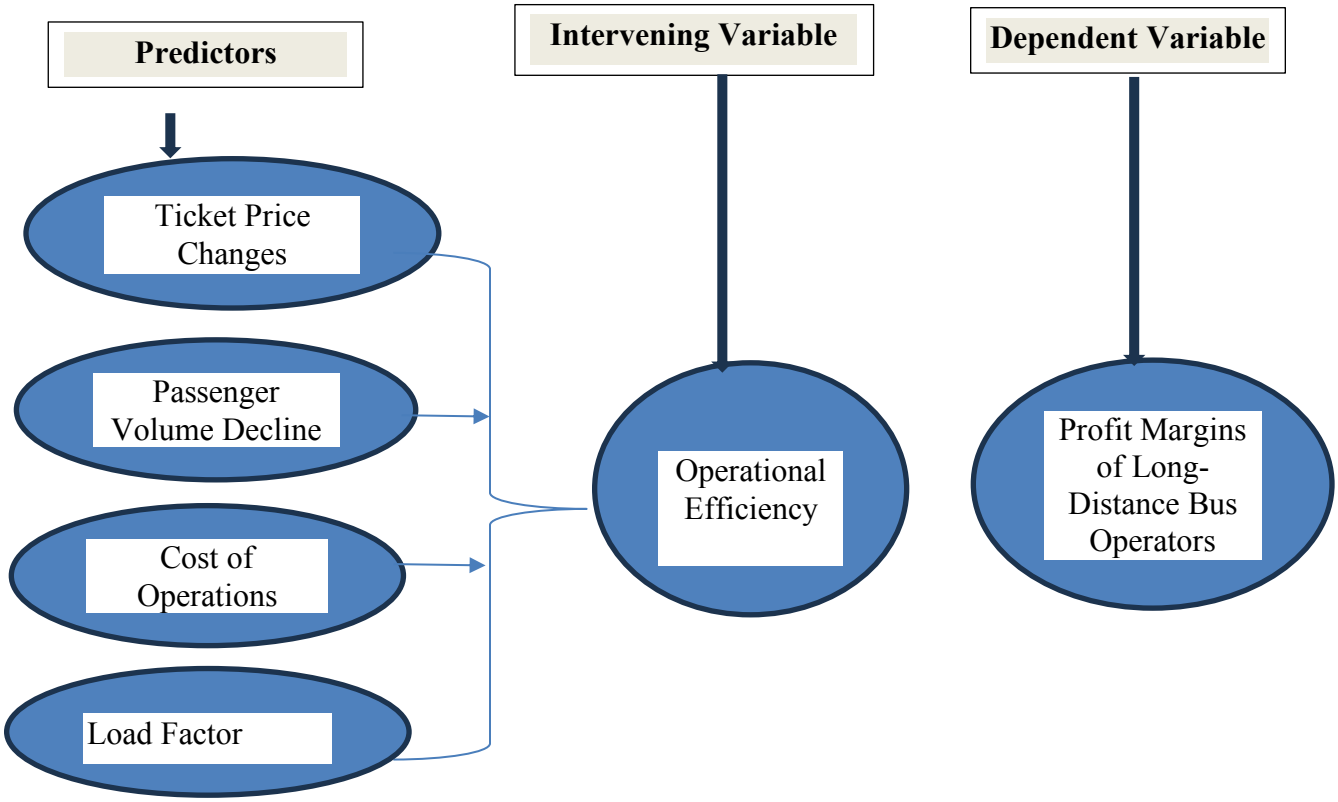

Figure 1: Conceptual Framework

Research Gap

Research both globally and locally shows that Tanzania's Standard Gauge Railway (SGR) has affected long-distance bus services by raising fares, diverting passengers, and reducing profits(Awal et al., 2021; Githaiga, 2021; Mchome & Nzoya, 2023). However, few studies have analysed firm-level data to

understand how bus operators, especially SMEs, are responding. The influence of operational efficiency and company size on profitability in the face of SGR competition remains uncertain. This study addresses these gaps through an empirical analysis at the firm level, examining how Tanzanian bus operators are adapting to these changes influenced by SGR.

Method

Study Design

This study employed a mixed-methods approach, integrating quantitative and qualitative techniques to examine the effects of Tanzania's SGR on long-distance bus operators. Using a convergent parallel design, data were collected simultaneously and analysed separately, allowing for cross-checking and triangulation, which enhanced both validity and reliability. The choice of a mixed-methods framework was driven by the study's complexity, which necessitated both numerical metrics and a contextual understanding. Quantitative data provided measurable operational insights, while qualitative data revealed stakeholders' strategic views and reactions.

Study Area

The study was conducted at Msamvu Bus Terminal in Morogoro, Tanzania, a key hub for long-distance buses serving regions affected by the SGR. Its central location on the Central Corridor makes it ideal for studying the competition between road and rail transport. Morogoro was explicitly chosen due to its growing significance in Tanzania's expanding transport network. The availability of both SGR infrastructure and established bus services provided a valuable opportunity to assess the railway's influence on the road transport sector.

Study Population

This study focused on key stakeholders in the long-distance bus industry, such as bus agents, drivers, supervisors, and terminal managers, who form the core operational team and are directly impacted by the competitive pressures from the SGR. A separate group of key informants, including senior transport managers and regulatory officials with deep sector knowledge, were also involved to provide strategic insights. Their input ensured that both practical experiences and policy perspectives were represented in the study.

Sample Size and Sampling

The sample size for the quantitative part of the study was calculated using Yamane's (1967) formula for finite populations to ensure accuracy and representativeness. The estimated population at Msamvu Bus Terminal was 520 active personnel, including bus agents, drivers, supervisors, and managers. Using Yamane's formula at a 95% confidence level with a 5% margin of error, the minimum sample size was determined as:

$$\boldsymbol{n} = \frac{N}{1+N(e)^2}$$

$$\boldsymbol{n} = \frac{520}{1 + 520(0.05)^2}$$

$$\boldsymbol{n} = \frac{520}{2.3}$$

$$\boldsymbol{n} = 226$$

164 participants were surveyed due to field constraints and non-response, which was slightly below the minimum but still sufficient for regression analysis. Selection focused on ease of access and data reliability. A stratified random sampling divided the population into agents, drivers, supervisors, and managers to ensure representative samples and reduce bias. Regarding qualitative insights, 12 key informants, including senior managers, regulatory officials, and terminal coordinators, were

purposively selected based on their roles. Initially, 20 key informants (KIs) were selected to capture stakeholder views; however, data saturation was reached after 12 interviews, with no new themes emerging. The 12 KIs, including regulators, managers, and terminal officials, offered strategic insights, ensuring thoroughness, credibility, and efficiency.

Data Collection Method

Quantitative data were collected through survey questionnaires at Msamvu Bus Terminal, covering ticket prices, passenger numbers, fuel costs, maintenance expenses, and perceptions of SGR competition. The questionnaire was pilot-tested on 20 respondents for clarity. Qualitative data were collected through semi-structured interviews with 12 key informants, who discussed strategic changes, fare policies, operations, and future competitiveness. Interviews were recorded, transcribed verbatim, and anonymised.

Data Analysis

Quantitative data were analysed using STATA. Descriptive stats summarised the respondents' characteristics. Multiple regression identified factors affecting competition between buses and the SGR; diagnostics showed low multicollinearity and normally distributed residuals. Qualitative data were thematically analysed by reading transcripts, coding ideas, and identifying themes like adaptive strategies, pricing, and operational shifts, which contextualised the quantitative findings.

Ethical Considerations

The study permission for data collection was obtained from Mzumbe University and the Msamvu Bus Terminal Authority, and ethical standards were maintained throughout. Participants received detailed study information and gave informed consent. They were assured of voluntary participation, the right to withdraw at any time, and the confidentiality of their data. Personal information was removed, and transcripts were securely stored, ensuring compliance with ethical standards for human research.

Results and Discussion

This chapter presents empirical findings on how competition from the Standard Gauge Railway (SGR) affects the profitability of Tanzania's long-distance bus operators. Data were gathered from 164 industry practitioners, including agents (51.8%), supervisors (31.7%), drivers (9.8%), and area managers (6.7%), providing both frontline and managerial insights. The sample was predominantly male (78%) and experienced, with 65% having more than four years of experience in the sector and 60% holding at least a secondary education. This indicates a skilled workforce capable of informing operational and strategic responses to market changes (Li et al., 2023; Zhang et al., 2022). Most respondents worked for medium- and large-scale firms, with 71% employed by companies operating more than five buses. Fleet sizes show that 29.3% of respondents belong to firms with 6-10 buses, 28.7% with 1-5 buses, and 23.2% with 11-20 buses, emphasising the prominence of operators most affected by SGR competition.

Descriptive Statistics of Key Variables

This study examined the impact of competition from the Standard Gauge Railway (SGR) on the profitability of long-distance bus operators at Msamvu Bus Terminal in Tanzania. Descriptive statistics for key variables related to the four main hypotheses revealed trends in perceptions of ticket prices, passenger numbers, operational efficiency, and company size, which were associated with profitability.

Effect of Ticket Pricing Changes on Profit Margins

Items Q1-Q4 assessed how ticket pricing adjustments influenced profit margins amid SGR competition. The low average for Q1 (2.06) indicates most respondents disagree with the need to reduce fares, suggesting fare cuts are uncommon. Similarly, Q2's average (2.30) shows little consensus that pricing strategies directly lower profits, reflecting scepticism about their effectiveness. Moderate averages for Q3 (2.78) and Q4 (2.41) raise concerns that aggressive pricing may threaten long-term financial stability. This suggests that only a few operators engage in price competition, but it is neither widespread nor regarded as the primary cause of declining margins. Recent research also indicates that fare cuts alone seldom enhance competitiveness and may harm margins unless complemented by service improvements (Lee & Chang, 2004; Suh & Lee, 2010; Working et al., 2019), emphasising the importance of innovation over price competition.

Table 1: Effect of Ticket Pricing Changes

	Mean	Median	Mode	Standard Deviation	Minimum	Maximum
Q1	2.060976	2	2	1.106008	1	4
Q2	2.29878	2	1	1.178435	1	4
Q3	2.780488	3	3	1.188125	1	5
Q4	2.408537	2	2	0.870893	1	4

Source: Field data, 2025

This is also supported by the interview conducted, where one respondent commented:

> *Although the SGR's launch has heightened competition in long-distance passenger travel, most bus companies have not reduced ticket prices. Increasing fuel prices have kept operating costs high, leading companies to maintain fares steady despite competition from the SGR (Interview, Bus agent, Msamvu Bus Terminal, 15th April 2025).*

Impact of Declining Passenger Volumes on Profit Margins

Survey results indicate a strong consensus that declining ridership has a negative impact on profitability, with high average scores for Q5 (4.43), Q6 (4.72), Q7 (4.57), and Q8 (4.44). Respondents generally concur that the SGR has drawn passengers away from buses through lower fares, greater reliability, and enhanced comfort. This transition results in decreased revenue and increased operational challenges for bus operators, who face high fixed costs and narrow profit margins. As one operator noted:

> *Before the SGR, their company dispatched up to four full buses each morning; now, only one or two leave, with fewer passengers. This drop has notably affected daily revenue and profits, underscoring the financial difficulties that bus companies encounter due to SGR competition* (Interview, Bus operator, Msamvu Bus Terminal, 16th April 2025).

Role of Operational Efficiency

Questions Q10-Q13 examined how operational efficiency impacts the relationship between load factors and profitability. Respondents reported strong use of cost-cutting strategies (Q10 = 4.35) and perceived efficiency benefits (Q11 = 4.18), yet their lower agreement on tangible financial gains (Q12 = 3.45) indicates mixed outcomes. Moderate confidence in the profitability of higher occupancy (Q13 = 3.80) suggests that combining efficiency measures with high load factors can improve results, supporting H3. However, inconsistent savings imply that benefits are contingent on firm-specific

skills, such as effective route planning and fleet management. Feedback from various participants reinforces this point:

> *In response to declining passenger numbers on routes competing with the SGR, several bus companies have shifted their focus to new or less-served routes and increased their night services. These strategies are designed to rival the efficiency and popularity of the SGR, demonstrating how operators are working to maintain profitability in a changing transportation environment* (Interview with bus agents, Msamvu Bus Terminal, 14th April 2025).

Influence of Company Size on Cost and Profitability

Items Q15, Q16, Q18, and Q19 examined how company size influences the cost-profitability link. The average scores (2.79-3.07) reflect mixed views: some larger firms enjoy economies of scale, while smaller ones encounter higher costs. These results partially support H4, suggesting that company size by itself offers limited advantages and interacts with factors such as cost structure, fleet size, and labour management.

Changes in ticket prices due to SGR competition

The regression model was statistically significant with F (2,161) = 87.13, p<0.001, accounting for 52% of the variance in perceived profit margin impact (Q2). Firms that reported reducing ticket prices due to SGR competition experienced significantly greater profit declines (β = 0.757, p < 0.001), highlighting a strong link between actual fare cuts and decreased profitability. Conversely, the belief that fare reductions are a common competitive tactic (Q3) was not significant (β = 0.033, p = 0.557), indicating that although some firms cut prices, this strategy is not widespread or predictive of changes in profit. Descriptive findings also revealed limited engagement in price-based strategies, reinforcing that fare adjustments are not a primary response among operators (Table 2).

Table 2: Changes in ticket prices

Source	SS	df	MS			
Model	117.656046	2	58.8280228	Numberofobs	=	164
				F(2, 161)	=	87.13
Residual	108.70371	161	.675178326	Prob>F	=	0.0000
				R-squared	=	0.5198
Total	226.359756	163	1.38871016	AdjR-squared	=	0.5138
				Root MSE	=	.82169

Q2	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval
Q1	.7569967	.0608112	12.45	0.000	.6369062	.877087
Q3	.0333537	.0566083	0.59	0.557	-.0784368	.1451441
_cons	.6458893	.1820519	3.55	0.001	.2863716	1.005407

Source: Field data, 2025

These findings suggest that fare reductions, when implemented, tend to decrease profitability, consistent with research indicating that price wars in passenger transportation diminish margins without securing lasting market share (Cheng et al., 2025; Paper, 2013). The limited use of fare cuts suggests that most operators avoid unsustainable price battles, aligning with Yang and Chen (2022) who reported similar patterns in Asian intercity markets. The findings highlight that service differentiation and demand-driven strategies are more successful than reactive fare reductions. Globally, evidence demonstrates that operators depending solely on price competition often struggle to stay profitable, whereas those emphasising service quality and route optimisation perform better

(Brenna, 2024; Mengistu et al., 2024). Therefore, in Tanzania, bus operators can improve service and target niche markets, offering a more sustainable strategy than engaging in destructive fare wars.

Declining passenger numbers and profit margins of bus companies

The regression model demonstrated strong explanatory power ($F(3,160) = 36.68$, $p < 0.001$), with an R^2 of 0.407, indicating that the predictors accounted for 41% of the variance in perceived operational difficulty. The most influential factor was the belief that most travellers now prefer the SGR, which was highly significant ($\beta = 1.099$, $p < 0.001$) and indicated a major shift in passenger preferences. The perception of declining ridership had a borderline effect ($\beta = 0.145$, $p = 0.072$), while perceived revenue loss was not significant ($\beta = -0.103$, $p = 0.392$), implying that revenue depends on factors beyond immediate passenger numbers. Overall, the results highlight that the growing preference for SGR is the main cause of operational difficulties faced by bus operators (Table 3).

Table 3: Declining Number of Passengers

Source	SS	df	MS			
Model	51.5015307	3	17.1671769	Numberofobs	=	164
				F(3, 160)	=	36.68
				Prob>F	=	0.0000
Residual	74.8887132	160	.468054457	R-squared	=	0.4075
Total	126.390244	163	.775400269	AdjR-squared	=	0.3964
				Root MSE	=	.68415

Q8	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Q5	.144505	.079829	1.81	0.072	-.0131494	.3021594
Q6	1.098868	.1561454	7.04	0.000	-.7904959	1.40724
Q7	-.1031586	.1202298	-0.86	0.392	-.3406007	.1342835
_cons	-.9159132	.5192844	-1.76	0.080	-1.941449	.1096224

Source: Field data, 2025

These findings align with global evidence that rail investments in emerging markets trigger significant passenger shifts, reshaping intercity transport competition (Beria & Bertolin, 2019; Chen, 2019; Fearnley et al., 2018). The near-significant decline in perceived ridership (Q5) signals a broader downward trend requiring continued monitoring as SGR services expand (Githaiga, 2021; Mchome & Nzoya, 2023). The non-significance of revenue loss (Q7) suggests that profitability depends not only on passenger numbers but also on adaptive strategies, such as cost control, service diversification, and targeting niche markets (Bubalo & Rajsman, 2020; Cheng et al., 2025; Li et al., 2021). Therefore, relying solely on fare competition or expecting ridership recovery is insufficient; operators must enhance service quality, explore underserved routes, and adopt technology-driven solutions, such as digital ticketing and dynamic scheduling, to remain competitive (Beria & Bertolin, 2019; Gerhard, 2023; Working et al., 2019).

Operational efficiency and profit margins

The data indicate that load factor is a key positive predictor of operational efficiency ($\beta = 0.114$, $p < 0.001$), suggesting that higher seat occupancy consistently enhances performance. Companies with

better seat utilisation experience lower costs per passenger, better resource allocation, and more efficient scheduling, leading to overall operational improvements. This relationship underscores the importance of transport management principles, where maximising seat occupancy is crucial for achieving cost efficiency and profitability (Cheng et al., 2025; Kleisari & Markaki, 2019; Lee & Chang, 2004). Higher load factors help spread fixed and variable costs across more passengers, lowering average expenses and increasing profit margins (Brenna, 2024; Githaiga & Bing, n.d.; Mchome & Nzoya, 2023). Research indicates that operators who maintain high occupancy rates following railway expansions tend to experience less revenue loss. Additionally, demand-driven scheduling and focusing on underserved routes can further enhance operational efficiency (Paper, 2013; Working et al., 2019; Zhang et al., 2025).

Operational Efficiency as a Mediator

Mediation analysis, based on Baron and Kenny (1986), revealed that operational efficiency does not significantly mediate the relationship between load factor and financial performance. Load factor (Q13) was a strong predictor of both operational efficiency ($\beta = 0.114$, $p < 0.001$) and financial performance ($\beta = 0.465$, $p < 0.001$). When operational efficiency was added to the model, its impact on financial results became insignificant ($\beta = 0.230$, $p = 0.180$), whereas the direct effect of the load factor remained strong ($\beta = 0.438$, $p < 0.001$). These findings indicate that profitability in long-distance bus services primarily hinges on demand: boosting seat occupancy leads to faster and larger financial benefits than minor efficiency gains(Brenna, 2024; Lee & Chang, 2004; Zhang et al., 2025). Approaches like targeting high-demand routes, flexible scheduling, and proactive marketing prove more effective than solely refining backend operations. This aligns with transport economics studies that emphasise passenger numbers as key to covering costs and securing profit, especially in markets with stiff competition from high-capacity rail services (Lee & Chang, 2004; Working et al., 2019).

Company size

The regression model was significant $F(3,160) = 11.26$, $p < 0.001$), explaining 17.4% of the variance in perceived profit margin changes. Results show that cost-control efforts negatively affect profitability ($\beta = -1.588$, $p = 0.005$), likely reflecting reactive measures by financially strained firms rather than proactive efficiency gains. Company size also had a significant adverse effect ($\beta = -2.207$, $p = 0.004$), highlighting the vulnerability of smaller operators to rising costs and competitive pressures from the Standard Gauge Railway (SGR) (Table 4)

Table 4: Company size

Source	SS	df	MS		
Model	39.4525791	3	13.1671769	Numberofobs	= 164
Residual	186.907177	160	1.16816986	F(3, 160)	= 11.26
Total	226.359756	163	1.38871016	Prob>F	= 0.0000
				R-squared	= 0.1743
				AdjR-squared	= 0.1588
				Root MSE	= 1.0808

q2	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval
Q10	-1.587628	.5583889	-2.84	0.005	-2.690391	-.4848644
Company size	-2.206872	.7501646	-2.94	0.004	-3.688374	-.7253711
interaction	.4162624	.1740602	2.39	0.018	.0725107	.7600142
_cons	10.25277	2.387676	4.29	0.080	5.537346	14.96819

Source: Field data, 2025

These findings align with previous studies indicating that small operators are more vulnerable during market disruptions(Brenna, 2024; Jaafar & Abdul-Aziz, 2005; Working et al., 2019). The significant interaction ($\beta = 0.416$, $p = 0.018$) indicates that firm size affects the profitability impact of cost-control measures. Larger firms benefit from economies of scale, diverse revenue streams, and improved management, which enable them to achieve cost reductions and financial gains (Githaiga, 2021; Lee & Chang, 2004). This supports transport economics research, demonstrating that organisational capacity and firm size enhance resilience against competitive shocks, while smaller operators find it more challenging to maintain profitability amid infrastructure-driven competition (Wu et al., 2016; Yousif, 2019).

Conclusion

The Standard Gauge Railway (SGR) has significantly impacted Tanzania's long-distance passenger transportation, lessening the market share of bus operators by offering lower fares and reducing passenger shifts between modes. This shift indicates a lasting structural change, driven by investments in public infrastructure and evolving preferences, rather than temporary fluctuations. Research shows that operational efficiency alone isn't enough for profitability; its benefits depend on structural factors such as company size, financial resilience, and asset scale. Larger firms leverage economies of scale to convert efficiency into profits, whereas smaller companies with less flexibility face heightened risks and risk being pushed out of the market. The SGR has introduced uneven competitive pressures, deepening existing disparities in the sector. Profitability now depends on a blend of infrastructure investments, company strategies, and regulatory oversight, rather than solely on internal process enhancements. These insights challenge the belief that managerial solutions alone can resolve systemic risks and emphasise the importance of policies that promote fair access, resilience, and inclusive growth. Tanzania's transportation future relies not only on expanding infrastructure but also on strategic market management that encourages competition and sustainability.

Empirical evidence shows that Tanzania's long-distance road transport industry is at a critical juncture. The introduction of the Standard Gauge Railway (SGR) has increased competition and significantly altered market conditions, revealing weaknesses in policy, regulation, and the private sector's readiness. These developments underscore the need for targeted policy measures that go beyond general sector support to address the specific vulnerabilities and structural issues exacerbated by SGR competition.

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