

Operational Challenges Encountered by Food Truck Businesses: A Study on Food Truck Entrepreneurs in Tier 1 and Tier 2 Cities of Tamil Nadu, A State in India

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Abstract

This article comprehensively examines the issues faced by food truck entrepreneurs in Tamil Nadu's tier 1 and 2 cities, focusing on legislative, operational, and cultural barriers. The study employs a rigorous quantitative technique, with data collected via standardised questionnaires from a purposeful sample of 220 food truck operators. Significant challenges were found through thorough statistical research, including getting permissions, determining appropriate sites, distinguishing products, managing high starting and maintenance expenses, and engaging customers. The investigation also found that ownership structure and expertise in the food service business were important variables in addressing these difficulties. Experienced operators displayed improved negotiation skills when faced with restrictions such as limited preparation space and regulatory compliance. The study suggests that simple legislation, strong security requirements, and personalised support are critical for increasing the flexibility and growth of food truck businesses. Addressing these obstacles through supporting legislation, infrastructural development, and capacity-building programmes is critical to maximising the potential of Tamil Nadu's food truck business. By fostering an enabling atmosphere, food truck entrepreneurs may continue to contribute to the region's vibrant culinary culture and economic landscape. This study fills a key research vacuum by shedding light on the particular problems encountered by food truck entrepreneurs in Tamil Nadu, adding to the body of knowledge on urban food systems and entrepreneurial resilience.

Keywords: Culinary, Entrepreneurs, Food Truck, Mobility, Regulatory.

Introduction

Food has vital social roles in addition to biological necessities, such as communicating friendship, status, and commemorating key incidents in life, as well as symbolising social connections and shifts in many communities (1). Food is fundamental to life, influencing our sense of self, society, and history. It shows who we are, where we came from, and is essential for personal and social ties (2). Food has cultural significance beyond nourishment, addressing societal concerns such as socioeconomic status, gender roles, and globalisation. It's a rich subject that reflects society ideals and conventions (3, 4). Food businesses include restaurants, cafeterias, and catering businesses. It includes marketing methods for quality, cost, and service (5). The food business sector is a vibrant and dynamic industry that contributes significantly to the economy by meeting customer requirements and preferences. Understanding the numerous elements influencing

the profitability as well as the longevity of food enterprises is critical for business owners, researchers, and regulators (6). Food-based entrepreneurship entails taking risks and chasing possibilities in the local food system, bringing together farmers and enterprises in supply, manufacturing, and distribution chains to promote economic development and sustainability (7). "Food business refers to the operations of manufacturing, selling, and handling food goods. Safer Food Better Enterprise helps such enterprises manage their food safety (8). Street food plays an important role in the food business; Street food refers to ready-to-eat or lightly prepared meals served by vendors (9). Street foods are food industry firms that focus on the rapid manufacturing and selling of semi-finished items from street stalls (10). Street foods are food-related firms that focus on the rapid manufacturing and selling of semi-finished items from street

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booths (11). Street food is ready-to-eat food served in public locations, traditionally by sellers on the move and today by food trucks and carts, popular in numerous nations (12). It became a major worldwide phenomenon, growing quickly across North America, Europe, and Asia. Originally unofficial, it has developed into a highly regulated industry that is essential to metropolitan cuisine. Food trucks appeal to both customers and business owners due to their portability, affordability, and variety of culinary alternatives. These companies support local economies around the world by providing creative eating experiences, but they all deal with the same issues, like staying in compliance with regulations, obtaining desirable sites, and upholding standards for food quality. Social media and adaptable operations have been used by successful models in well-established marketplaces to get beyond these challenges. The basic characteristics of mobility, regulation, and consumer engagement are essential to the global success of food trucks, despite the fact that regional problems vary. This provides Tamil Nadu businesses with pertinent insights.

Food Trucks

Food trucks are restaurants on wheels that provide food on the go, delivering a variety of high-quality meals at reasonable costs, appealing to customers as a handy and fun dining choice (12). They have progressed from conventional street food sellers to dedicated movable carts and trucks that are popular in many metropolitan environments (13). Simply Food trucks are mobile businesses that serve food (14), they often located in various parts of a city, serving a range of foods to the public (15). Food trucks are a popular retail alternative because of their inexpensive startup costs and technological integration. They provide a variety of dishes and utilise social media and applications like Squared for sales and legal administration (16). Food trucks display a variety of features, according to research findings. Studies in Poland and Brazil raised concerns about the cleanliness of food truck surfaces, emphasising the necessity for strict hygiene measures and monitoring systems to assure customer safety (17). Furthermore, in Malaysia, the service provided by food trucks was connected to consumer happiness and commitment, with factors including tangibles, dependability, and assurance playing key roles in influencing customer views and loyalty to these

mobile eateries (18). Furthermore, the expansion of food trucks, notably in Europe and North America, has resulted in benefits such as job creation and economic regeneration, as well as drawbacks such as appropriation of culture and environmental concerns. Events in Rio de Janeiro included a varied selection of foreign and local cuisines served by food trucks, with a concentration on North American and Italian meals, as well as worries about sanitation at these events (19, 20). Food trucks in Tamil Nadu have tapped into the rising need for convenient, economical, and high-quality street cuisine, catering to a wide and discerning customer base.

Food Trucks- India

Food trucks in India are seeing substantial development and popularity, especially among Millennials, because of its appeal in presenting new culinary experiences and cultures (21). Studies undertaken in places such as Coimbatore, Bengaluru, and Belagavi have emphasised many elements of food truck operations, including consumer behaviour, sanitary procedures, and variables that influence purchase intent (21-23). While customers like the convenience, diversity, and live atmosphere offered by food truck parks, worries about sanitation and environmental dangers have been recognised as contributing variables impacting consumer views and visit intention. In addition, study on street food taint in India has highlighted the necessity of adequate hygiene measures among food sellers in preventing food-borne diseases and ensuring the safety of street food customers (5). According to recent research, India faces a number of significant obstacles for entrepreneurs, especially in urban regions like Tier 1 and Tier 2 cities. The complicated regulatory environment is a significant obstacle for entrepreneurs, who must manage onerous licensing, taxing, and compliance regulations that may cause delays in business operations. Another crucial issue is access to financing, since small firms, especially those operating in unorganized industries like food trucks, sometimes struggle to obtain funds because of strict lending regulations and a lack of collateral. Inadequate workspace and erratic public utilities are examples of infrastructural constraints that further complicate operations and lower efficiency. Overall, the Indian food truck business is growing to suit new consumer wants while

addressing critical challenges such as hygiene and customer happiness (24).

Food Trucks in Tamil Nadu

The food truck sector in Tamil Nadu has grown significantly, favourably impacting the region's unique culinary environment and entrepreneurial ecosystem. This expanding industry is distinguished by its agility, inventiveness, and distinctive capacity to provide varied gastronomic experiences. One of the key factors of the food truck industry in Tamil Nadu is a strong cultural attachment for food. The state's rich culinary legacy, which includes a diversity of regional cuisines, gives plenty of ideas for food truck owners. Traditional Tamil cuisine, such as dosas, idlis, and biryanis, have been effectively blended into menus, alongside modern and fusion options, to appeal to both locals and visitors. Because of its flexibility and cheaper initial costs than traditional eateries, the food truck industry has grown in popularity in Tamil Nadu. However, a number of operational obstacles prevent food truck entrepreneurs from succeeding in their businesses. Although food trucks are becoming more and more popular, little research has been done on the particular challenges these business owners confront in the context of Tamil Nadu's market and regulatory environment. By examining the operational difficulties faced by food truck businesses, this study seeks to close this gap. Through the identification of crucial elements including financial restrictions, competitiveness, and regulatory compliance, this study offers entrepreneurs and policymakers practical insights that can help create a more hospitable climate for food truck enterprises in Tamil Nadu. This study will also add body of knowledge on food truck

entrepreneurship and provide useful information for business owners, legislators, and local authorities. It is anticipated that the results will guide plans for strengthening legal frameworks, promoting operational effectiveness, and improving the general business climate for Tamil Nadu food truck businesses.

Theoretical Framework with Research Model

The theoretical frameworks for food trucks include a variety of approaches. The Norm Activation Model (NAM) is used to analyse consumers' responsible intents at sustainable food truck settings, emphasising aspects like expected emotions and moral standards (25). Furthermore, the theory of planned behaviour (TPB) and the theory of consumption values (TCV) shed light on consumers' intentions to visit food trucks, emphasising the significance of attitudes, subjective norms, and perceived behavioural control, as well as the effect of taste, health, emotional, and epistemic values on attitudes. Furthermore, the theory of planned behaviour (TPB) and the theory of consumption values (TCV) shed light on consumers' intentions to visit food trucks, emphasising the significance of attitudes, subjective norms, and perceived behavioural control, as well as the effect of taste, health, emotional, and epistemic values on attitudes (26). Furthermore, a conceptual framework created from prior research on factors affecting food truck entrepreneurs and their sustainability emphasises the importance of both inside and outside variables in the success of food truck businesses, offering insights for policymakers and practitioners in order to enhance the sustainability and profitability of food truck ventures (27).

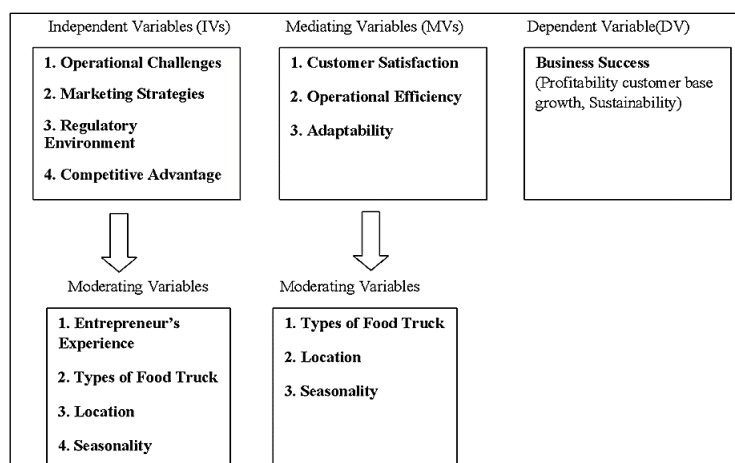


Figure 1: Variables Incorporated Model for Various Dimensions of Food Truck Entrepreneurs

This above adopted model Figure 1 provides a structured approach to studying the various dimensions of food truck businesses, allowing for a comprehensive understanding of the factors that contribute to their success and the challenges they face. Integrating theoretical perspectives into a research model for food trucks, the food truck industry has arisen as a vibrant segment within the larger food service market, with distinct potential and problems. To have a thorough understanding of the success elements and challenges that food truck enterprises confront, several theoretical views must be integrated. According to entrepreneurial philosophy, food truck operators seek freedom, financial gain, and personal fulfilment (28, 29). The Theory of Planned Behaviour holds that an individual's intention to engage in a behaviour is impacted by their attitudes, subjective standards, and perceived behavioural control (30). This hypothesis can explain how decisions are made of both food truck owners and customers. The Resource-Based View (RBV) emphasises internal resources and competencies that give businesses an edge (31, 32). Culinary talents, distinctive recipes, branding, and a strong social media presence are all important tools for food trucks. Urban sociology theories investigate the function of street food in urban culture and public places, arguing that it contributes to the vitality and social fabric of cities by providing accessible and inexpensive food alternatives while promoting social contact (33, 34). This integrated theoretical framework enables a full examination of the food truck sector by investigating how operational issues, marketing tactics, regulatory contexts, and competitive strategies influence company performance. Competitors in the market, particularly from bigger and more established companies, makes it harder for small businesses to stand out from the competitors. Building consumer trust and overcoming quality perceptions are two sociocultural obstacles that entrepreneurs must overcome in food-related endeavors. Nevertheless, a lot of business owners are using digital tools like social media and mobile payments to get over these obstacles, reach a wider audience, and improve client interaction. These difficulties and approaches are especially pertinent to Tamil Nadu food truck owners since they mirror more general patterns observed in the Indian business

environment. Mediating variables like customer happiness and operational efficiency give further insights into the mechanisms by which these elements influence outcomes (35-39), whilst moderating variables aid in understanding the situations under which particular variables have a greater impact. In consolidated industries, small businesses use a variety of tactics to compete with larger companies. These include addressing community needs, establishing cooperative agreements with other small businesses, and striving for distinction through a wide range of products and services. Small restaurant operators frequently use traditional methods to stand out from the competition, even though e-commerce might offer advantages. By taking use of particular industry and company characteristics, some small businesses are able to successfully compete directly with larger rivals; yet, this strategy may eventually become vulnerable. In addition to offering value, successful small businesses that compete with big chains place a strong emphasis on building excellent relationships with their clients, staff, suppliers, and the community. Although previous study suggested small business focus methods, more current studies indicate that aggressive pricing and greater promotional activities might also be beneficial in competing with them (40-44).

Research Gap

Existing study on food truck enterprises has been focused on developed nations, looking at issues such as legal compliance, competitiveness, and marketing techniques. In India, studies have looked at larger issues of street food and the informal sector, but none have explicitly investigated Tamil Nadu's food truck entrepreneurs. Tamil Nadu has distinct cultural, legal, and urban factors that shape the food truck sector. These include the state's diverse culinary traditions, particular regulatory rules, and differing infrastructural and economic situations in its tier 1 and tier 2 cities. Despite the expanding prominence of food trucks, there is a huge study vacuum in understanding the unique hurdles these entrepreneurs confront while transitioning to the established restaurant business. This study seeks to fill this vacuum by conducting a thorough examination of the issues encountered by food truck operators in Tamil Nadu, particularly in tier

1 and tier 2 cities, and providing insights into their regulatory, functioning, and cultural obstacles.

Research Question

The study aims to address the following research question: "What are the operational challenges faced by entrepreneurs in the food truck business in tier 1 and 2 cities of Tamil Nadu, and which are the primary regulatory and market challenges affecting their business operations?" This research intends to give insights into the regulatory, operational, and cultural problems that food truck entrepreneur's encounter, therefore contributing to successful growth and sustainability initiatives.

Hypothesis

In this study, we investigated three null hypotheses to investigate the operational challenges encountered by food truck entrepreneurs in food truck sector of Tamil Nadu. To begin, we hypothesised that there is no relationship between the obstacles experienced by the food truck business and years of expertise in the food service sector. Second, we claimed that there is no link between the issues confronting the food truck industry and its ownership structure. Finally, we proposed that there is no link between the obstacles encountered by the food truck industry and the educational background of the proprietors.

Methodology

This research adopts a rigorous quantitative technique to examine the problems that food truck entrepreneur's encounter as shown. In Figure 2 as it mentioned, Purposive sampling was used to choose individuals based on certain traits relevant to our study aims, also it was used to select participants who met predefined criteria, such as operating a food truck in Tier 1 and Tier 2 cities of Tamil Nadu for at least six months, this sampling technique ensured that participants had relevant

experience and could provide insights into the specific operational challenges faced by food truck entrepreneurs (45-47). A suitable sample size of 220 participants was chosen (48-50), including food truck entrepreneurs from one Tier 1 city and eight Tier 2 cities in Tamil Nadu. With the qualitative research plan, in a unorganised sector it has its own characteristic in the streets of those cities it reached the at most 220 which also laid way for the future research in deep and large samples as well. The complete distribution of this sample is shown in below source Figure 2. A standardised questionnaire (51-53) was used to obtain quantitative data on the problems that these entrepreneurs face, after getting the in person interview data from them, the verbatim has been transcribed for analysis, setting the variables, identifying the themes, in the particular context it has been still a non-explored area, connected to that repeated themes were removed, using notes as an additional insight material to support the analysis also developing notes helped in running those analysis, which support the design and testing methods of the research. The study's principal statistical approach for analysing these issues and assessing hypotheses was the non-parametric Kruskal-Wallis's test (54), this methodological approach permitted the collection of specific and relevant data, allowing for a more thorough understanding of the issues that food truck firms confront.

Demographic Profile

Demographic profiles play an important part in many research because they provide significant understanding into the character traits of the group being studied. In this Table 1, Overall, demographic profiles give a fundamental understanding of the community being studied, allowing for the formulation of targeted tactics and measures based on certain demographic traits.

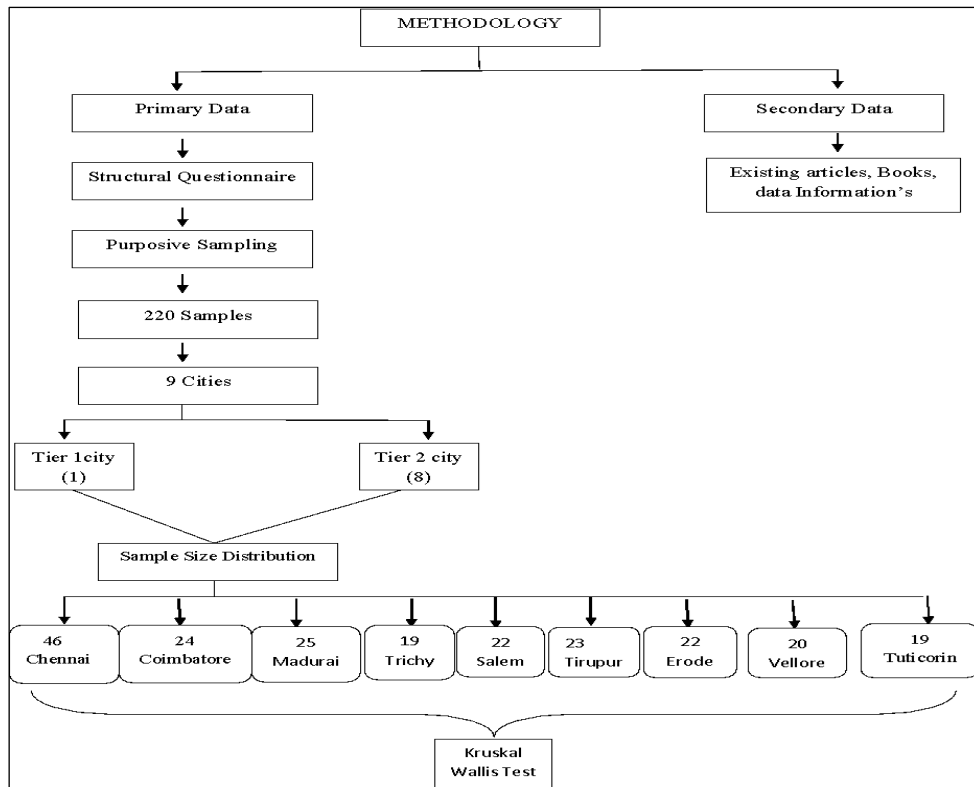


Figure 2: Methodology and Design of the Study

Table 1: Demographic Profile of the Respondents

S.No	Characteristics	Distribution	Frequency	Percentage
1	Age	18 - 24 Years	13	5.9
		25 - 34 years	63	28.6
		35 - 44 years	117	53.2
		45 - 54 years	18	8.2
		Above 55 years	9	4.1
2	Gender	Male	164	74.5
		Female	56	25.5
3	Educational Background	No Formal education	9	4.1
		High School	49	22.3
		Diploma	115	52.3
		Bachelor's Degree	40	18.2
		Master's Degree	7	3.2
4	Years of Experience in the Food Service Industry	Less than 1 year	19	8.6
		1 - 3 years	104	47.3
		4 - 6 years	87	39.5
		7 - 9 years	6	2.7
5	Years in Food Truck Business	more than 10 years	4	1.8
		Less than 1 year	109	109
		1 - 3 years	111	111
6	Average Monthly Revenue	Less than Rs.50,000	45	20.5
		Rs.51,000 - Rs. 1,00,000	96	43.6
		Rs. 1,00,001 - Rs.1,50,000	61	27.7
		Rs.1,50,001 - Rs. 2,00,000	15	6.8
		More than Rs.2,00,001	3	1.4

7	Number of Employees of your Food truck Business	1 - 3 persons	154	70.0
		3 - 6 persons	53	24.1
		7 - 9 persons	9	4.1
		More than 10 persons	4	1.8
8	Ownership Structure of your food truck business	Sole Proprietorship	144	65.5
		Partnership	66	30.0
		Limited Liability Company	6	2.7
		Corporation	4	1.8
9	Initial investment required to start your food truck business	Less than Rs.1,00,000	21	9.5
		Rs.1,00,001 - Rs.5,00,000	134	60.9
		Rs.5,00,001 - Rs.10,00,000	50	22.7
		Rs.10,00,001 - Rs.15,00,000	11	5.0
		More than Rs.15,00,001	4	1.8
10	Work Hours per Week on your food truck business	Less than 20 hours	10	4.5
		21 - 30 hours	33	15.0
		31 - 40 hours	50	22.7
		41 - 50 hours	89	40.5
		More than 51 hours	38	17.3

Various research articles demonstrate the importance of demographic characteristics in food truck investigations (55). Studies done in Belagavi, India and Curitiba, Brazil, revealed the usefulness of demographic analysis in assessing customers' willingness to purchase from food trucks (23, 56). Table 1 displays Male respondents to this poll typically range in age from 35 to 44, accounting for 53.2% of the sample. A sizable fraction also falls into the 25 to 34 year group (28.6%). Males make up 74.5 percent of the gender distribution, while females make up 25.5%. In terms of education, the majority of respondents (52.3%) are bachelor's degree holders, while other respondents (22.3% and 18.2%) only have high school diplomas. Just 4.1% of the population does not have any formal education, with the remaining 3.2% falling into the 'Others' group. Regarding experience, almost half (47.3%) have worked in the food service sector for 1-3 years, followed by 39.5% with 4-6 years, and only a small percentage (1.8%) have more than 10 years. Those who have operated a food truck for less than a year and those who have had one to three years of experience are equally divided. 43.6 percent of monthly revenue is generated between Rs. 51,000 and Rs. 1,00,000, while 27.7 percent is generated between Rs. 1,00,001 and Rs. 1,50,000. 1.4% of the population makes more than Rs. 2,00,001. The majority of enterprises (70.0%)

employ one to three people, a smaller percentage (24.1%) employ three to six people, and a very small percentage (1.8%) employ ten or more people. The ownership structure is dominated by sole proprietorships (65.5%), followed by partnerships (30.0%), corporations (1.8%), and limited liability companies (2.7%). Initial investments usually fall between Rs. 1, 00,001 and Rs. 5,00,000 (60.9%), with 22.7% of investors falling in this range. Just a small percentage (1.8%) needed to invest an initial sum of money greater than Rs. 15,00,001. With 22.7% working 31-40 hours and 17.3% working more than 51 hours weekly, respondents work an average of 41-50 hours per week (40.5%), which indicates a high time commitment to their food truck operations.

Weighted Average

As seen in various research studies, the weighted average method plays a critical role in supporting the content validity of structured questionnaires. Weighted average considerations in the context of food trucks are also present in different dimensions (57), highlighting the importance of the weighted average method in ensuring the reliability and validity of structured questionnaires, ultimately increasing their effectiveness in assessing various domains of interest (58).

Table 2: Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu Tier 1 and 2 Cities

S.No	Statement	Weight Score					Total weight Score	Std. deviation	Variance	Mean Score	Rank
		SDA	DA	N	A	SA					
		1	2	3	4	5					
1	Difficulty obtaining necessary licenses and permits.	10	37	39	76	58	795	1.175	1.380	3.61	5
2	Challenges in finding optimal locations with high foot traffic.	10	24	50	92	44	796	1.064	1.132	3.62	4
3	Difficulty differentiating offerings to compete with traditional restaurants.	12	24	42	98	44	798	1.088	1.185	3.63	3
4	Limited space for food preparation and storage.	5	50	61	76	28	732	1.035	1.070	3.33	19
5	High startup costs and ongoing operational expenses.	6	55	41	78	40	751	1.129	1.276	3.41	15
6	Building and maintaining customer engagement.	4	36	64	76	40	772	1.027	1.055	3.51	8
7	Impact of infrastructure and utility issues on operations.	9	41	54	67	49	766	1.149	1.319	3.48	10
8	Recruiting and retaining skilled staff	7	42	57	64	50	768	1.133	1.283	3.49	9
9	Addressing cultural preferences and dietary habits.	6	55	44	66	49	757	1.167	1.362	3.44	12
10	Integrating technology into food truck operations.	8	41	67	62	42	749	1.104	1.219	3.40	16

11	Sourcing fresh and quality ingredients consistently.	11	51	61	53	44	728	1.176	1.383	3.31	20
12	Ensuring compliance with health and safety regulations.	11	38	51	74	46	766	1.149	1.319	3.48	10
13	Impact of local government policies on operations.	7	54	40	81	38	746	1.129	1.274	3.40	17
14	Adapting menu offerings to changing customer preferences.	11	48	52	64	45	744	1.178	1.388	3.38	18
15	Implementing sustainable practices.	4	51	59	61	45	752	1.109	1.231	3.42	14
16	Competing with unlicensed street food vendors.	6	44	50	64	56	780	1.152	1.327	3.55	7
17	Ensuring the security of the food truck and its assets.	7	27	42	48	96	859	1.184	1.402	3.90	1
18	Encountering legal disputes or liabilities.	6	24	52	67	71	833	1.096	1.201	3.79	2
19	Influence of local cultural festivals and events on business.	14	44	34	59	69	785	1.289	1.662	3.57	6
20	Effects of weather conditions on operations	10	51	40	72	47	755	1.190	1.415	3.43	13

Table 2 shows the analysis of the operational challenges faced by food truck businesses in Tamil Nadu reveals several key challenges. Ensuring the security of the food truck and its assets is the most significant challenge, followed by encountering legal disputes or liabilities. Differentiating offerings to compete with traditional restaurants and finding optimal locations with high foot traffic are also notable concerns. Obtaining necessary licenses and permits poses substantial hurdles, as

does the influence of local cultural festivals and events on business operations. Competing with unlicensed street food vendors, building and maintaining customer engagement, and recruiting and retaining skilled staff are persistent challenges. Additionally, the impact of infrastructure and utility issues, ensuring compliance with health and safety regulations, and addressing cultural preferences and dietary habits are significant. Weather conditions, implementing

sustainable practices, and managing high startup costs and ongoing operational expenses further complicate operations. Integrating technology into food truck operations and navigating local government policies also require strategic efforts. Adapting menu offerings to changing customer

preferences, limited space for food preparation and storage, and sourcing fresh and quality ingredients consistently are additional challenges that food truck businesses must navigate to achieve success in this competitive industry.

Table 3: Reliability Statistics

Case Processing Summary				Reliability Statistics	
		N	%	Cronbach's Alpha	No. of Items
Cases	Valid	220	100	.883	20
	Excluded	0	0		
	Total	220	100		

According to the case processing summary Table 3, every one of the 220 cases that were gathered was legitimate and included in the study; thus, the dataset was full. With a Cronbach's Alpha coefficient of 0.883 for the 20 items, the reliability statistics demonstrate a high degree of internal consistency. The survey's items are extremely reliable and consistently measure the difficulties food truck firms have in Tamil Nadu, as indicated by the high Cronbach's Alpha value. The robustness and validity of the survey findings are supported by the thorough inclusion of all cases and the high dependability of the items, offering a solid foundation for inferences regarding the difficulties these organizations face.

Results

Kruskal – Wallis Test

The Kruskal-Wallis (KW) test is a popular statistical approach, in the framework of food

trucks, quantitative research and defined surveys are used (59). The test is important in quantitative research because it allows researchers to analyse data and derive relevant findings across a wide range of areas. Its application in many contexts demonstrates its value (60-62).

The Kruskal-Wallis test was used to look at the association between the Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu and Years of Experience on food service industry.

H0: There is no association between the Operational Challenges Faced by Food Truck Entrepreneur's in Tamil Nadu and years of Experience on food service industry.

H1: There is an association between the Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu and years of Experience on food service industry.

Table 4: Hypothesis Test Summary for Operational Challenges and Years of Experience

S.No	Operational Challenges Faced by Food Truck Business in Adapting to Tamil Nadu	Test	Sig.	Decision
1	Difficulty obtaining necessary licenses and permits.	Kruskal – Wallis Test	.621	Accepted the Null Hypothesis
2	Challenges in finding optimal locations with high foot traffic.	Kruskal – Wallis Test	.414	Accepted the Null Hypothesis
3	Difficulty differentiating offerings to compete with traditional restaurants.	Kruskal – Wallis Test	.455	Accepted the Null Hypothesis
4	Limited space for food preparation and storage.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
5	High startup costs and ongoing operational expenses.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
6	Building and maintaining customer engagement.	Kruskal – Wallis Test	.035	Rejected the Null Hypothesis
7	Impact of infrastructure and utility issues on operations.	Kruskal – Wallis Test	.002	Rejected the Null Hypothesis

8	Recruiting and retaining skilled staff	Kruskal - Wallis Test	.000	Rejected the Null Hypothesis
9	Addressing cultural preferences and dietary habits.	Kruskal - Wallis Test	.000	Rejected the Null Hypothesis
10	Integrating technology into food truck operations.	Kruskal - Wallis Test	.001	Rejected the Null Hypothesis
11	Sourcing fresh and quality ingredients consistently.	Kruskal - Wallis Test	.001	Rejected the Null Hypothesis
12	Ensuring compliance with health and safety regulations.	Kruskal - Wallis Test	.305	Accepted the Null Hypothesis
13	Impact of local government policies on operations.	Kruskal - Wallis Test	.000	Rejected the Null Hypothesis
14	Adapting menu offerings to changing customer preferences.	Kruskal - Wallis Test	.014	Rejected the Null Hypothesis
15	Implementing sustainable practices.	Kruskal - Wallis Test	.014	Rejected the Null Hypothesis
16	Competing with unlicensed street food vendors.	Kruskal - Wallis Test	.853	Accepted the Null Hypothesis
17	Ensuring the security of the food truck and its assets.	Kruskal - Wallis Test	.178	Accepted the Null Hypothesis
18	Encountering legal disputes or liabilities.	Kruskal - Wallis Test	.041	Rejected the Null Hypothesis
19	Influence of local cultural festivals and events on business.	Kruskal - Wallis Test	.126	Accepted the Null Hypothesis
20	Effects of weather conditions on operations	Kruskal - Wallis Test	.011	Rejected the Null Hypothesis

Asymptotic significances are displayed. The significance level is 0.5

The Kruskal-Wallis test in above Table 4, determined whether the difficulties food truck companies of Tamil Nadu are related to years of expertise in the food service sector. The test findings show that there is a substantial correlation between years of experience and numerous problems, with a significance level of 0.05. P-values less than 0.05 indicate significant differences in the challenges that businesses face, including limited space for food preparation and storage, high startup costs, building and maintaining customer engagement, infrastructure and utility issues, recruiting and retaining skilled staff, addressing cultural preferences, integrating technology, sourcing quality ingredients, impact of local government policies, adapting to changing customer preferences, implementing sustainable practices, encountering legal disputes, and weather-related effects. This implies that operators with more expertise approach these problems in a different way than operators with less experience. This P-values show that the all these challenges are reject the null hypothesis (Ho) and accept the alternative hypothesis (H1).

On the other hand, since their p-values are greater than 0.05, difficulties with obtaining necessary licenses and permits, finding optimal locations, differentiating offerings, ensuring compliance with health and safety regulations, competing with unlicensed street food vendors, ensuring the security of the food truck, and the influence of local cultural festivals do not significantly correlate with years of experience. As a result, it seems that similar difficulties are encountered by people with varying degrees of experience. This P-values show that the all these challenges are accept the null hypothesis (Ho).The Kruskal-Wallis test was used to look at the association between the Operational Challenges Faced by Food Truck Entrepreneur's in Tamil Nadu and Ownership Structure.

H0: There is no association between the Operational Challenges Faced by Food Truck Entrepreneur's in Tamil Nadu and Ownership Structure.

H1: There is an association between the Operational Challenges Faced by Food Truck Entrepreneur's in Tamil Nadu and Ownership Structure.

Table 5: Hypothesis Test Summary for Operational Challenges and Ownership Structure

S.No	Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu	Test	Sig.	Decision
1	Difficulty obtaining necessary licenses and permits.	Kruskal – Wallis Test	.007	Rejected the Null Hypothesis
2	Challenges in finding optimal locations with high foot traffic.	Kruskal – Wallis Test	.007	Rejected the Null Hypothesis
3	Difficulty differentiating offerings to compete with traditional restaurants.	Kruskal – Wallis Test	.001	Rejected the Null Hypothesis
4	Limited space for food preparation and storage.	Kruskal – Wallis Test	.880	Accepted the Null Hypothesis
5	High startup costs and ongoing operational expenses.	Kruskal – Wallis Test	.001	Rejected the Null Hypothesis
6	Building and maintaining customer engagement.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
7	Impact of infrastructure and utility issues on operations.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
8	Recruiting and retaining skilled staff	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
9	Addressing cultural preferences and dietary habits.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
10	Integrating technology into food truck operations.	Kruskal – Wallis Test	.241	Accepted the Null Hypothesis
11	Sourcing fresh and quality ingredients consistently.	Kruskal – Wallis Test	.220	Accepted the Null Hypothesis
12	Ensuring compliance with health and safety regulations.	Kruskal – Wallis Test	.055	Accepted the Null Hypothesis
13	Impact of local government policies on operations.	Kruskal – Wallis Test	.704	Accepted the Null Hypothesis
14	Adapting menu offerings to changing customer preferences.	Kruskal – Wallis Test	.712	Accepted the Null Hypothesis
15	Implementing sustainable practices.	Kruskal – Wallis Test	.685	Accepted the Null Hypothesis
16	Competing with unlicensed street food vendors.	Kruskal – Wallis Test	.340	Accepted the Null Hypothesis
17	Ensuring the security of the food truck and its assets.	Kruskal – Wallis Test	.128	Accepted the Null Hypothesis
18	Encountering legal disputes or liabilities.	Kruskal – Wallis Test	.050	Accepted the Null Hypothesis
19	Influence of local cultural festivals and events on business.	Kruskal – Wallis Test	.462	Accepted the Null Hypothesis
20	Effects of weather conditions on operations	Kruskal – Wallis Test	.172	Accepted the Null Hypothesis

Asymptotic significances are displayed. The significance level is 0.5

The Kruskal-Wallis test assessed the relationship between food truck businesses' ownership structure and the challenges they face in adapting to Tamil Nadu's restaurant industry in the Table 5, with a significance level set at 0.05, the results reveal that ownership structure significantly affects several challenges. Notable issues such as obtaining necessary licenses and permits, finding optimal locations, differentiating offerings from traditional restaurants, managing startup costs and operational expenses, engaging customers,

dealing with infrastructure and utility issues, recruiting skilled staff, and addressing cultural preferences all show significant associations with ownership structure. So these challenges are rejecting the null hypothesis (Ho) and accept the alternative hypothesis (H1). This indicates that different ownership models face these challenges differently. However, challenges related to integrating technology, sourcing quality ingredients, complying with health and safety regulations, navigating local government policies,

adapting menu offerings, implementing sustainable practices, competing with unlicensed vendors, securing the food truck, encountering legal disputes, and dealing with local cultural events and weather conditions do not show significant differences based on ownership structure. So these challenges are accept the null hypothesis (Ho). These results suggest that while some challenges are influenced by ownership structure, others remain consistent across various ownership types.

The Kruskal-Wallis test was used to look at the association between the Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu and Educational Background.

H0: There is no association between the Operational Challenges Faced by Food Truck Entrepreneurs in Tamil Nadu and Educational Background.

H1: There is an association between the Operational Challenges Faced by Food Truck Entrepreneur's in Tamil Nadu and Educational Background.

Table 6: Hypothesis Test Summary for Operational Challenges and Educational Background

S.No	Operational Challenges Faced by Food Truck Business in Tamil Nadu	Test	Sig.	Decision
1	Difficulty obtaining necessary licenses and permits.	Kruskal – Wallis Test	.001	Rejected the Null Hypothesis
2	Challenges in finding optimal locations with high foot traffic.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
3	Difficulty differentiating offerings to compete with traditional restaurants.	Kruskal – Wallis Test	.021	Rejected the Null Hypothesis
4	Limited space for food preparation and storage.	Kruskal – Wallis Test	.013	Rejected the Null Hypothesis
5	High startup costs and ongoing operational expenses.	Kruskal – Wallis Test	.049	Rejected the Null Hypothesis
6	Building and maintaining customer engagement.	Kruskal – Wallis Test	.016	Rejected the Null Hypothesis
7	Impact of infrastructure and utility issues on operations.	Kruskal – Wallis Test	.942	Accepted the Null Hypothesis
8	Recruiting and retaining skilled staff	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
9	Addressing cultural preferences and dietary habits.	Kruskal – Wallis Test	.002	Rejected the Null Hypothesis
10	Integrating technology into food truck operations.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
11	Sourcing fresh and quality ingredients consistently.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
12	Ensuring compliance with health and safety regulations.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
13	Impact of local government policies on operations.	Kruskal – Wallis Test	.008	Rejected the Null Hypothesis
14	Adapting menu offerings to changing customer preferences.	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis
15	Implementing sustainable practices.	Kruskal – Wallis Test	.167	Accepted the Null Hypothesis
16	Competing with unlicensed street food vendors.	Kruskal – Wallis Test	.012	Rejected the Null Hypothesis
17	Ensuring the security of the food truck and its assets.	Kruskal – Wallis Test	.002	Rejected the Null Hypothesis
18	Encountering legal disputes or liabilities.	Kruskal – Wallis Test	.124	Accepted the Null Hypothesis
19	Influence of local cultural festivals and events on business.	Kruskal – Wallis Test	.082	Accepted the Null Hypothesis
20	Effects of weather conditions on operations	Kruskal – Wallis Test	.000	Rejected the Null Hypothesis

Asymptotic significances are displayed. The significance level is 0.5

The findings of the Kruskal-Wallis test in the Table 6, show a significant association between educational background and various challenges that food truck businesses face in Tamil Nadu. The

majority of the problems show that educational background has a significant impact on these challenges, with the null hypothesis being rejected at a significance level of 0.05. In particular,

obtaining necessary licenses and permits, finding optimal locations with high foot traffic, differentiating offerings from traditional restaurants, managing limited space for food preparation and storage, high startup costs and ongoing operational expenses, building and maintaining customer engagement, recruiting and retaining skilled staff, addressing cultural preferences and dietary habits, integrating technology into operations, sourcing fresh and quality ingredients, ensuring compliance with health and safety regulations, navigating local government policies, adapting menu offerings to changing customer preferences, competing with unlicensed street food vendors, ensuring the security of the food truck, and dealing with weather conditions all show significant associations with educational background. However, challenges related to the impact of infrastructure and utility issues, implementing sustainable practices, encountering legal disputes or liabilities, and the influence of local cultural festivals and events do not show significant differences based on educational background. These findings point to areas where varying educational backgrounds may result in different approaches or difficulties and indicate how food truck operators view and manage distinct operational obstacles.

Discussion

The study focuses on the Operational challenges faced by Tamil Nadu's food truck entrepreneur's to the regional scene. According to the respondents' demographic profile, most of the respondents are men between the ages of 35 and 44 with bachelor's degrees and one to three years of experience working in the food service sector. This demographic information provides a framework for understanding the results and a means of interpreting the adaption tactics used by these companies. Several key challenges were identified, including ensuring the security of the food truck and its assets, encountering legal disputes, differentiating offerings to compete with traditional restaurants, finding optimal locations with high foot traffic, and obtaining necessary licenses and permits. These challenges highlight the multifaceted nature of a food truck business, which requires addressing operational and regulatory hurdles. Strong internal consistency among the survey items is indicated by the high

Cronbach's Alpha coefficient of 0.883, which suggests that the issues mentioned are accurately quantified and reflective of the experiences of the respondents.

Further insights are provided by the Kruskal-Wallis's test results, which indicate a substantial correlation between many issues and years of experience in the food service business as well as the ownership structure of food trucks. Skilled operators appear to possess more ability to handle obstacles including restricted areas for food preparation and storage, substantial initial and continuous operational costs, establishing and preserving client relationships, and hiring and retaining qualified personnel. This implies that the development of successful techniques to get beyond these obstacles depends heavily on experience. Similarly, the ownership structure impacts challenges related to obtaining necessary licenses and permits, finding optimal locations with high foot traffic, and differentiating offerings to compete with traditional restaurants. Different ownership structures might entail varying levels of resource availability, decision-making processes, and strategic flexibility, which in turn affect how these challenges are addressed. The results underscore the necessity of more robust security protocols to safeguard food truck enterprises' assets, streamlined regulatory structures to alleviate the paperwork associated with acquiring licenses and permits, and innovative approaches to set oneself apart in the cutthroat food service industry. Furthermore, more convenient access to high-traffic prime locations and customized support for various ownership structures could greatly improve food truck enterprises' ability to adapt to Tamil Nadu's sector. The conversation as a whole emphasizes how critical it is to handle operational and legal issues with focused approaches that take into account the particular circumstances and traits of food truck enterprises. Food truck owners can successfully manage the industry's difficulties and achieve long-term growth by concentrating on these areas.

Limitations and Future Directions

It is important to recognize the limitations of this study. First, although 220 responders are a reasonable sample size for the analysis, it might not accurately reflect all food truck owners in Tamil Nadu, which could limit the findings' generalizability. Second, the technique used to

collect the data relied on self-reported replies, which are prone to biases like recall bias and social desirability bias. Thirdly, the study narrows the scope of the problems that Tamil Nadu's food truck enterprises encounter, limiting the generalizability of the findings to other areas or nations. Fourth, because the study is cross-sectional, it is not possible to examine how the variables change over time or what causes the changes. Lastly, even though the Kruskal-Wallis's test is suitable for non-parametric data, it might not fully capture the subtleties of the correlations between the variables; alternative research approaches could yield more insightful findings. Future studies on the difficulties food truck entrepreneur's encounter in Tamil Nadu's restaurant sector may find value in a number of approaches. First off, broadening the sample size and incorporating food truck owners from various parts of Tamil Nadu as well as other states will improve the findings' generalizability. It would be possible to perform longitudinal research to monitor shifts in obstacles and tactics over time, offering insights into the evolution and adaptation of food truck enterprises. Furthermore, the utilization of mixed methods research, which integrates quantitative surveys and qualitative interviews, may provide a more thorough comprehension of the intricate experiences and tactics of food truck owners. Examining how new technologies and online platforms affect the food truck business model may also be a worthwhile research topic, especially given how much the food service sector is becoming digitalized. Finally, studies that compare the difficulties faced by food truck companies in various regulatory and cultural contexts may offer insightful information to decision-makers and business owners who wish to foster and expand this industry.

Conclusion

The research concludes that food truck entrepreneurs in Tamil Nadu's tier 1 and 2 cities face substantial obstacles, particularly in obtaining required permits, finding optimal locations, differentiating their offerings, managing high startup and maintenance expenses, and connecting with customers. The study concludes that ownership structure has a substantial impact on how these issues are managed, with experienced operators better able to negotiate constraints such as limited preparation space and compliance with

regulations. The report also recommends the need for simplified regulations, robust security standards, and personalised support to improve the flexibility and growth of food truck enterprises. Future study should increase the sample size, include longitudinal studies, and use mixed techniques to acquire a better understanding of the changing dynamics of the food truck sector, as well as the influence of digitalization and new technology. Authorities ought to make it easier for food truck owners to obtain licenses and permits. New business owners may find it easier to enter the market if bureaucratic delays are reduced by a single-window clearance system. The high initial investment expenses could be decreased by offering financial incentives like startup grants or tax breaks. This would assist aspiring food truck owners in getting past one of the biggest obstacles the study found. Digital tools like social media and smartphone apps can be used by entrepreneurs to increase consumer interaction. Food truck owners can expand their clientele by using online ordering and real-time location tracking. Customer transactions can be made easier by implementing mobile payment options like digital wallets or QR code payments, which would increase overall sales efficiency. The study's conclusions that technological adoption improves operational success are consistent with this technology integration. Training courses on financial management, customer engagement tactics, and food safety laws ought to be provided by small company incubators. These courses can give food truck owners the know-how to successfully handle legal and operational obstacles. Organizing networking events that allow food truck owners to interact with local government representatives, suppliers, and other business owners would foster cooperation and resource exchange, which would further boost company expansion. Comparative research across regulatory and cultural contexts might help to shape methods for helping food truck businesses. Addressing the aforementioned difficulties through supporting legislation, infrastructural development, and capacity-building efforts is critical to realising the full potential of Tamil Nadu's food truck business. By creating an enabling atmosphere, food truck owners may continue to contribute to the region's rich culinary culture and economic landscape.

Abbreviation

Nil.

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Author Contributions

All authors contributed equally.

Conflict of Interest

The authors declare no conflict of interest.

Ethics Approval

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