IJARIIT INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact factor: 4.295
(Volume 4, Issue 5)
Available online at: www.ijariit.com

Operations research in franchising decisions

Varun Nangrani
varunnangrani@gmail.com
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra

Srishty Jain
jainsrishty0805@gmail.com
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra

Sukhad Sahu
sahusukhad1999@gmail.com
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra

Tanya Rana
tanyarana@ymail.com
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra

Unnati Dholakia
unnatidholakia@gmail.com
SVKM's Narsee Monjee Institute of Management Studies, Mumbai, Maharashtra

ABSTRACT

Decision making as a progressive and analytical method in operations research serves the basis for estimating potential outcomes for any given subject matter. The objective of any rational business to stay competent is to optimize while deriving maximum utility. For an F&B industry, adapting to customer tastes and preferences is a highly challenging task. An aggressive industry in itself, the feasibility of the many different options through quantitative and qualitative analysis holds prudence. To enhance decisions, assignment problem as a technique helps to derive relevant conclusions, as in this case, the optimal assignment of a franchise with respect to its location on the many influential factors. This justification provides a necessary breakdown of how any firm facing expansion can consider the options available.

Keywords— *Operations research, Franchising decisions, Assignment problems*

1. INTRODUCTION

Penetrating the food and beverages industry, as it faces stifling competition, requires strategy and incentive-based planning to capture the targeted customers. It is accomplished through a structured analysis that seeks at minimizing the constraints of costs and maximizing the benefits of resource availability, thus considering various parameters of required investment and possible challenges can provide a proportionally upward trend in revenues and profits.

Understanding the factors that involve this decision-making process could be cumbersome for an entrepreneur; as to capture a divisive market as such, becomes a challenging task. It must, therefore, underpin its strategy on the marketing principles of STP (Segmentation, Targeting and Positioning) such that customers' demands are met and stakeholders' benefits are amplified. Using this as a foundation to raise stakes in the F&B (Food and Beverages) industry, many Indian origin entrepreneurs have been able to create a substantial portion of the market share for themselves. Complementing their STP, they have optimally customized their menus to serve in their customers' interests, thus, accomplishing another essential aspect. What forms their basis of serving is determined by their location planning, which our paper aims to determine as a consideration of the aforementioned criterions.

Taking an example of- "Chaat Lounge", under its parent company "Om Ganeshaya Food and Beverages Private Limited", has been able to successfully tap the taste-buds of a basic Indian consumer with its indigenous menu. Chaat Lounge, a franchise in itself, is mindfully constructing and situating itself in locations, maximizing the utility that arises out of a good succession planning.

Thus, our paper is aiming to construe the possibilities of venturing into this industry by holding an evaluative and assumptions-based approach of locating usefully.

2. LITERATURE REVIEW

The paper titled "**Modeling the new franchise creation decision: The relevance of behavioral reasons(Sept 2016)"** published by authors **Helder De Souza Aguiar, Sergu Pauli, Abraham Sin Oih Yu, and Paulo Tromboni De Souza Nascimento**, aims to identify the non-economic concerns that act as primary motivators for businesses to enter into Franchising agreements with the purpose of expanding their existing business. The paper states that there are many relevant theories that already exist to exercise the economic reasons for entering into franchising, one being the *Resource scarcity theory*.

Oxenfeldt and Kelly (1969) state that companies prefer to expand with their own units, but when faced with a scarcity of resources, they opt for franchising as an alternative to overcome this limitation. Another theory that was pointed out in their research was the *Agency Theory* which is a theoretical model for analyzing the relationships between the participants in systems in which the ownership and control rest with different figures, thus, giving rise to conflicts due to the existence of different interests. The franchisees may have different interests and levels of information from the franchisor. With different levels of information, it is possible to characterize the issue of information asymmetry (**Eisenhardt, 1989; Jensen & Meckling, 1976).** The franchisor enters into an agreement with the franchise, seeking to motivate the latter to act in accordance with the franchisor's pre-defined interests. The motivation is based on contractual incentives, seeking to mitigate unpredictable situations in the relationship, in addition to incentives based on the verified performance **(Jensen & Meckling, 1976).** The paper through interviews with business owners, found that franchisors are motivated not only by economic and rational factors, as suggested by the main theories related to franchising, but also by social and behavioral factors, akin to the *Theory of Reasoned Action* proposed by**Ajzen and Fishbein (1977),** illustrating how attitudes and subjective norms are combined to determine behavioral intentions. In this research, some respondents indicated that status and visibility, as a factor that influenced their decision for the franchising model, embody such attitudes and subjective norms. The same can be verified in case of business owners who justified their decision to the franchise by having a business that, in their opinion, seem to be unique and that there are businesses that are similar but never identical to their actual business.

In a study titled "**Entrepreneurs, Contracts, and the Failure of Young Firms(2001)**" by **Pierre Azoulay**- it has concluded that 91% of successful franchises have exclusivity in terms of territory. The authors conclude that exclusive territories do not slow the growth of new chains, as non-adopters otherwise claim. Instead, the absence of an exclusivity clause in the contract makes it difficult to attract franchisees to a new system. The article also talks about the lessons to be learned from the mistakes of Subway and the McDonald's. In the interviews, many of the franchisors had spoken of how they were following the norm of Subway and McDonald's not granting territorial exclusivity failing to compute that the two companies face chronic litigation from franchisees because of encroachment-related disputes.

3. SIGNIFICANCE AND OBJECTIVE

In economics, a general assumption is that a firm operates with an intention of minimizing their costs of production and maximizing revenues from sales, thus accordingly expanding profit margins. As a firm, it is imperative to understand the need for setting up a target market and establishing a position in aspects of pricing, promotional measures, and an essential product portfolio. This forms the basis of our proposed fast-food venture and will play a major role in its decision-making process.

With the use of our suggested mathematical model, we can test the feasibility of various factors as mentioned formerly. To acknowledge the pre-determined factors with that of consumer demand that makes use of economic and noneconomic conditions, helping the process of expansion. The primary survey conducted is a portrayal of consumers' tastes, preferences, and choices. There are also certain social and physiological settings that revolve around consumer purchasing behavior.

Every firm that is profit-motivated and wants to stand out against its competitors does it through optimizing costs and revenue setting. Therefore, to set up a fast-food outlet with the above considerations, an optimal assignment with respect to location, holds importance.

4. METHODOLOGY- THE SURVEY

The survey conducted of a hundred university students was filled through the medium of google forms. There were three questions asked to determine the students' preference of locations on factors pertaining to feasibility. We have based our industry model on three F&B food chains according to their consumer coverage and locations-Anand Stall, McDonald's and Zaffran. The analysis of the

respondents' choices is explained in the sequence of the survey.

Question 1:

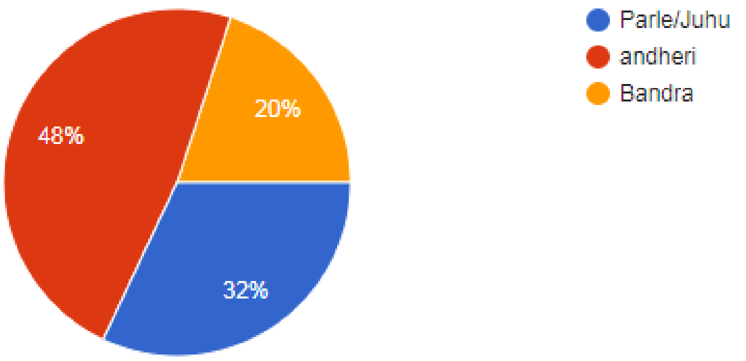

Fig. 1: Graph showing survey for "In which area would you most likely visit a Mcdonalds?"

McDonald's was founded as a family restaurant but over the years it has gradually shifted its image wherein it has become appealing in terms of affordability and well-crafted menu range to college students who like to visit its outlets. "48%" of the students have opted for McDonald's location in Andheri as this seemingly strategic position- public transport connectivity, offers convenience. Trains are a common mode of transportation for college attending students.McDonald's in "Parle" is mostly filled with high-school and college students because of its proximity to institutions and coaching classes. Also, many outstation students coming to Mumbai for educational purposes, tend to have their accommodation in this vicinity. "Bandra" makes up a very small percentage of the pie chart above as it accommodates for the customer base of mainly local residents.

Question 2:

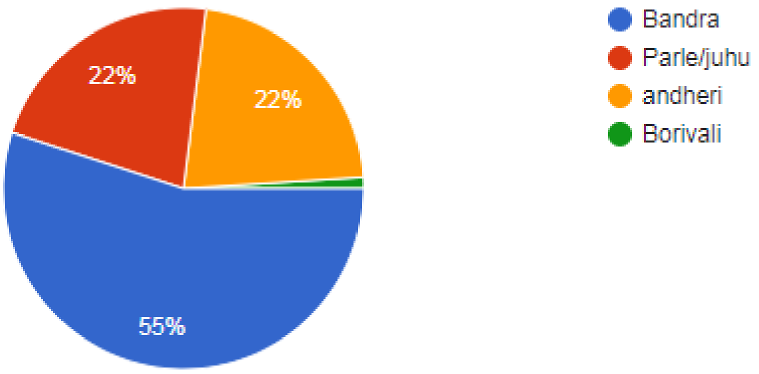

Fig. 1: Graph showing survey for "Which area would you visit for a fine dining experience?"

"Bandra" has fine dining restaurants that have placed themselves in the eyes of the elites as a go-to dining getaway on a weekend or a regular locale for conducting business-related meetings. It has, therefore, become a psychologically embedded parameter of consumers' preferences that drives this decision. "Parle/Juhu" is another area, as considered for the survey analysis, where a few 5-star hotels have established themselves due to its seashore location. "Andheri" being a residential area has its fair share of fine dining restaurants and a close proximity to the International Airport, equips it with a certain appeal too. Although catering to families, the primary reward is for any budget-based restaurant. "Borivali" in our survey is an outlier and irrelevant to our analysis.

Question 3:

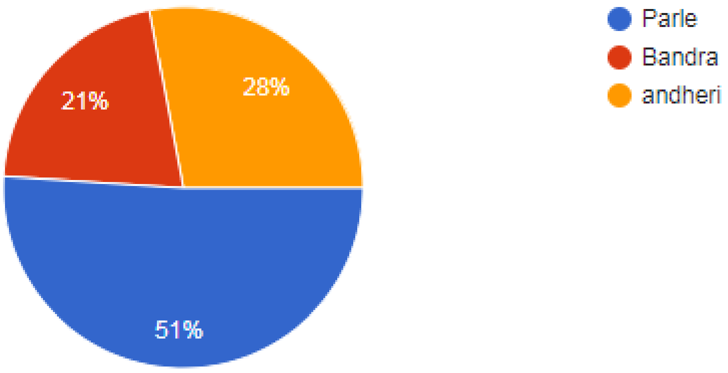

Fig. 1: Graph showing survey for "Successful area for a stall like Anand stall?'

Anand Stall can serve as a perfect example for making a small-scale business a grand success by placing it in the right place. Located opposite to one of the biggest chains of universities and a cinema hall, it is almost always full of college students who are looking for anything between a Dosa to a Sandwich. "Parle", therefore, becomes an ideal location for such a restaurant chain. "Andheri" constitutes of local markets like the "Lokhandwala" market and "4–bungalows" market that are visited by local shoppers who are often interested in a fast food delight.

5. MODEL

The paper aims at solving, through Hungarian Assignment Method (HAM) in Assignment Problems (AP), an optimal assignment i.e. the ideal location, for opening the three kinds of restaurants based on customer drove aforementioned factors. These three categories of restaurants include-fine dining as considered for a "Zaffran" outlet, and two fast-food chains based one an MNC and other a Mumbai based franchise- McDonald's and Anand Stall, respectively. These three restaurants position themselves to serve customers differently based on the factors of pricing, promotional measures, and an essential product portfolio, therefore, justifying the location of their outlets.

5.1 Revenue Model

The Revenue Model is constructed to maximize the outlet's everyday efficiency as a measure of revenues. The cost for a meal of one has been multiplied with the respondents' percentage of preference to visit the respective restaurants based on its location.

Step 1: Calculation of approximate everyday revenues (no. of respondents*cost per person)

MCDONALD'S (IN RS.)
Andheri - 48*250 = 12,000
Vile Parle/Juhu - 32*250 = 8,000
Bandra - 20*250 = 5,000

ZAFFRAN (IN RS.)
Andheri - 22*700 = 15,400
Vile Parle/Juhu - 22*700 = 15,400
Bandra - 55*700 = 38,500

ANAND STALL (IN RS.)
Andheri –28*100 = 2,800
Vile Parle/Juhu – 51**100 = 5,100
Bandra - 21*100 = 2,100

Step 2: Total Revenues Matrix

	Andheri	Vile Parle	Bandra
MCDonald's	12000	8000	5000
Zaffran	15400	15400	38500
Anand Stall	2800	5100	2100

Step 3: Opportunity loss matrix

	Andheri	Vile Parle	Bandra
MCDonald's	26500	30500	33500
Zaffran	23100	23100	0
Anand Stall	35700	33400	36400

Step 4: Reduced table 1- Row minima

	Andheri	Vile Parle	Bandra
MCDONALD's	0	4000	7000
Zaffran	23100	23100	0
Anand Stall	2300	0	3000

Step 5: Reduced table 2- Column minima

	Andheri	Vile Parle	Bandra
MCDONALD's	$\boxed{0}$	4000	7000
Zaffran	23100	23100	$\boxed{0}$
Anand Stall	2300	$\boxed{0}$	3000

Step 6: Assignments

McDonald's - Andheri - Rs. 12,000
Zaffran - Bandra - Rs. 38,500
Anand Stall – Vile Parle - Rs. 5100

5.2 Cost Model

The paper discusses the cost model as a measure of fixed costs of renting out the property in terms of its location as determined from a secondary data source.

Step 1: Calculating to minimize costs (rent per square feet) to determine per customer rates on a monthly basis (Fixed cost of rent/no. of respondents)

ANAND STALL (IN RS.)
Andheri – 55000/28 = 1964
Vile Parle – 60000/51 = 1176
Bandra – 190000/21 = 9047

MCDONALD'S (IN RS.)
Andheri – 90000/48 = 1875
Vile parle - 125000/82 = 3906
Bandra – 190000/20 = 9500

ZAFFRAN (IN RS.)
Andheri – 225000/22 = 10227
Vile parle – 160000/22 = 7272
Bandra – 280000/55 = 5090

Step 2: Determining the cost matrix

	Andheri	Vile Parle	Bandra
MCDonald's	0	2031	7626
Zaffran	5137	2182	0
Anand Stall	788	0	7871

Step 3: Reduced Table 1- Row Minima

	Andheri	Vile Parle	Bandra
MCDONALD's	$\boxed{0}$	2031	7626
Zaffran	5137	2182	$\boxed{0}$
Anand Stall	788	$\boxed{0}$	7871

Step 4: Reduced Table 2- Column Minima

	Andheri	Vile Parle	Bandra
MCDonald's	1876	3906	9500
Zaffran	10227	7272	5090
Anand Stall	1964	1176	9047

Step 5: Assignments
McDonald's– Andheri - Rs. 1,876
Zaffran– Bandra - Rs. 5090
Anand Stall– Vile Parle - Rs. 1176

6. ANALYSIS AND FINDING

6.1 Zaffran- Fine dining

Maximizing Revenue: A sample of 100 respondents gives us an absolute value for 55 students favoring Bandra. Using an average price per customer of Rs. 700 (Source: Zomato), the revenue per customer was calculated. The same was done for the other two options. As the current chain of restaurants, assumed to expand their business operations, operate in the mid-price segment, fine dining simply plays an analytical component for research purposes.

Minimizing cost: Assuming that a regular fine dining restaurant's area of a 1500 sq feet, an online real estate platform (Source: 99 Acres) was used to determine the cost of letting out with respect to the location. To compute the fair cost to the restaurant, per customer rates were computed. The result was that the minimal cost per customer for a fine dining restaurant is for the restaurant to be located in Bandra followed by Parle/Juhu and Andheri. Even though the rental rates in Bandra are exorbitantly high, the result is taken care of by a large number of people visiting the restaurant, thus, reducing the cost per customer, making Parle/ Juhu and Andheri unviable for a restaurant chain like Zaffran to do business.

6.2 Fast food segment

This is an important segment as, on an assumption basis, this is an existing operating business and therefore, expansion of business to earn a greater market share in the fast food business is to be expected. The current business is relatively new in this segment established competitors in the form of KFC, McDonald's, Subway, Jumbo King etc already have placed themselves in locations serving customers' interests.

Maximizing Revenue: Using an average price per customer of Rs 250, the calculations predict revenues for a fast food joint in the 3 different areas. Using the Assignment problem, it was found that Andheri is an ideal location to open a fast food joint compared to the rest. Even though the assumptions of Assignment problem states that a segment cannot be assigned to more than one place at a time, it is to be implied that Parle is another feasible location owing to its close competition with Andheri in terms of revenue. These two seemingly are the ideal locations to target because of the presence of various colleges, coaching classes and also the presence of many residential complexes. Another revenue driver in these areas is the presence of Andheri and Parle station which offer major concessions and convenience in transportation facilities used by the students.

Minimizing Cost: Assuming that an average fast food joint requires an area of 1000 square feet, three rates for letting out with respect to the locations were found out. The cost per customer is minimum in Andheri followed by Parle. This low cost per customer is caused by the great number of customers who are likely to visit a fast food joint in these areas. This cost per customer allocation helps a restaurant to price their products in a way such that their breakeven points are achieved as soon as possible allowing them a greater safety of margin. It is infeasible to open a fast food joint in Bandra mainly because of the multiplier effect of high rental costs coupled with a small customer base which makes the cost per customer unaffordable for the company and no amount of revenue will be able to provide compensation. The only way to tackle the high cost per customer would be to increase prices which ends up defeating the purpose of expansion in the fast food business serving meals that are fairly priced.

6.3 Snack shop

If we wish to diversify our business operations by changing our product portfolio, reducing our prices and targeting the mass Indian customer, it is essential for us to achieve economies of scale with the help of efficient franchising decision making which will help us achieve the target revenue and cost, reducing menu prices and not impacting margins.

Maximizing Revenue: Using an average price of Rs.100 per customer, the potential revenue of a street side snack shop will earn in 3 different areas is computed in our model. With the help of an assignment problem and the said objective, the ideal location to open a snack-shop is in Parle. The presence of various schools, colleges and coaching classes spread out in this area is a huge contributing factor. Students often love to grab some snacks on the go or in their break time to eat at such places. Andheri is a good place to open a street side snack shop as well because of the presence of commercial premises and residential complexes. Bandra cannot be considered for an optimal allocation in this regard.

Minimizing Cost: Assuming that the average size of a street-side stall is 500 square feet and using current rent rates, the minimum cost per customer is in Parle followed by Andheri. This is caused by the dual effect of cheap rental rates and a large customer base which helps us to distribute the costs per customer. This allows us to price our products low and at the same time maintain quality without compromising the profit margins. It will be irrational to open up a street side snack store in Bandra because of the extremely high property rates and the lack of an existing customer base.

7. ASSUMPTIONS AND LIMITATIONS

The snack- shop and fast-food (as a measure of menu costs) restaurants, Anand Stall and McDonald’s respectively, have been assumed to have a smaller area for its operations as compared to a fine-dining eatery (Zaffran). This is limiting as it involves intense back-end research to determine what size is suitable, but, this paper considers location based on consumer preferences only. Another consideration of this paper is that of the location being near-close to one another. Students filing the forms are attendants of the same university, restricting variety and disparities.

8. CONCLUSION

The findings in our study are certain evidence of the fact that operations research can be widely used in franchising decision making. With the use of the basic method of the Assignment Problem, the fundamental criteria for any business operation can be achieved. In this study, applications of operations research do not only account for the quantitative figures of revenue and cost but also bases these figures on assumable qualitative factors which in our case is the psychological and social motivations of the customers have filled out the survey. The final decision, using a rational and scientific approach, reduces the risk of uncertainty and errors to essentially provide a strong basis for evaluating the suitable areas to expand business operations. Operations research technique and a thorough due diligence to be done by franchisors using which they can make a robust business model that limits the scope of errors. Thus, as consistent without findings, it is relevant to open a franchise in areas between Parle and Andheri to expand business operations in the fast food segment. Achieving the right balance between promotional expenditure and, product, service and quality, existing and new customers would reassure the decision.

9. REFERENCES

[1] Azoulay, P., and Shane, S. (2001). Entrepreneurs, contracts, and the failure of young firms. *Management Science*, *47*(3), 337-358.
[2] Aguiar, H. D. S., Pauli, S., Yu, A. S. O., and Nascimento, P. T. D. S. (2016). Modeling the new franchise creation decision: the relevance of behavioral reasons.
[3] 99 Acres (www.99acres.com)- Website
[4] Zomato (www.zomato.com) - Website
[5] Om Ganeshya (www.omganeshaya.com) - Website

