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Aims and Scope

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An Empirical Investigation on Decisiveness and Usage of Revenue Management Techniques in Hotel Industry in Sri Lanka

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ABSTRACT

Revenue Management is an integrated systematic approach widely accepted in the global hotel industry to achieve optimum revenue of service organizations through the manipulation of various strategies. Based on the industry specific characteristics, location, and availability of resources the applications of revenue management in different setups are profoundly varied. The solicitation of revenue management has more strategic and technologically driven practice and hence selecting a most appropriate display for the hotel revenue management in competitive business environment is controverted over the years. This study was conducted to understand and critically evaluate the revenue management practices and techniques, comparative to the hotel demographics and use of pricing and non-pricing revenue management tools in star graded hotels in Sri Lanka to deliver an overview of the application of this global concept in the local context. A self-administered questionnaire consisted with seven sections was distributed among the top managers responsible for revenue decisions of each star graded hotel in Colombo district and collected responses from 27 hotels (represented 82% of intended population). Descriptive statistics was used to identify the level of application of diverse practices while t-Test and ANOVA were used to identify the differences. The results were congregated the demographic data of the sample, various revenue-generating services in in each hotels, revenue management tools applied at the hotel, revenue management team, RM software and distribution channel management, revenue management process, level of knowledge and application of different metrics and forecasting methods used for revenue management. The findings of the study provide ample indications for policy makers and hoteliers to intensify the importance of different revenue management tools and techniques in the hotel industry to meet the expected revenue hallucinations.

Key words: hotel, revenue management, star graded, Sri Lanka

INTRODUCTION

Revenue management is a widely discussed strategic approach in various industries which integrates a systematic approach to maximize the revenue of service organizations through the manipulation of the rates offered to customers. The strategic importance of Revenue Management (RM) has made it an essential instrument for matching supply and demand bydividing customers into different segments based on their purchase intentions and allocating capacity to the different segments in a way that maximizes a particular firm's revenues (Haddad, Roper & Jones, 2008). Kimes (1989) and Kimes & Wirtz (2003) has defined RM as the application of information systems and pricing strategies to allocate the right capacity to the right customer at the right price at the right time. This puts RM practice into the realm of marketing management where it plays a key role in demand creation (Cross, Higbie & Cross, 2009) and managing consumer behaviour (Anderson & Xie, 2010). RM theory has also benefited strongly not only from marketing management research, but more profoundly from operations (e.g. Talluri & van Ryzin, 2005) and pricing research (Shy, 2008).

Kimes (2003) underlined that RM can have a necessary contribution for a businesses that share several characteristics such as: perishable inventory, restricted capacity, volatile demand, micro segmented markets, availability of advanced reservation, and low variable to fixed cost ratio (although Schwartz (1998) shows that these do not need to be necessarily fulfilled in order RM to be successfully implemented). Further, Revenue Management research have been divided generally into three streams as; (1) descriptive (application of revenue management concepts to various industries), (2) pricing control (development and improved management of pricing strategies), and (3) inventory control (improved management of customer arrivals and use patterns) (Kims, 2003).

Revenue management provides core competencies to the hotel industry as a business process designed to maximize revenue at all levels of demand and allows to strategically managing that demand throughout the year. With technological and management support, revenue management must be and is being integrated into all aspects of hotel management marketing and operating strategies (Cross, Higbie and Cross, 2009). During the past several decades, the lodging industry has used RevPAR (revenue per available room) as a key indicator to evaluate a firm's performance and to make investment decisions (Chen, Koh and Lee, 2011; Cross, Higbie and Cross, 2009). However, selecting the most appropriate display for the hotel revenue management in various departmental operations is controverted over the years.

BACKGROUND

However, application of RM techniques in hospitality sector was started before three decades and there are number of implications given by past researches in room revenue management, restaurant, and function space revenue management, etc. In a more comprehensive approach, RM will consider total revenue contributions, including group business and its ancillary revenues whereas hotels will need to consider customer price elasticity and not simply match competitors' prices, with a goal of optimizing prices since prices are essentially transparent (Cross, Higbie and Cross, 2009).Average Daily Rate (ADR) and RevPAR were used over years and Revenue Generating Index (RGI) and Revenue Optimization Model (ROM) were developed gradually overcoming the issues of performance measurement at transient room revenue generation and did not take into consideration yet that could be generated from groups, public space, catering, and other sources of the hotel (Cross, Higbie and Cross, 2009) and Gross Operating Profit Per Available Room, (GOPPAR) was emerged in the industry.

However, the price a customer has to pay for the accommodation in hotels has a considerable deviation. Guests also probably do not possess the precise and sufficient insights on these diverge. In this context, Thrane (2007) emphasized the importance of a multidimensional concept of quality to be associated with hotel prices in a more or less linear fashion: a higher quality equals a higher price. Simply, the price differences are used to indicate the quality differences among hotels. In the real situation, the existence or non-existence of different hotel elements (eg, a spa, a restaurant, a central location etc.) will be among the dynamics that most people will anticipate to stimulus hotel room prices. In addition, it stands to reason that lodging in hotels possessing many desirable attributes will be more expensive than lodging in hotels in which few or no such attributes are presented. Accordingly, the amount charged from the guest and also the amount ready to pay by the guest will be functionally determined. Hence, it is an essential to examine how number of different hotel attributes will clearly disclose the variation in room rates for different room categories in a given period of time.

Moreover, the application of RM in the hotel industry has developed a paradigm in the hotel performance as it deals with segmentation, demand forecasting, revenue strategy, operational

forecasting, interdepartmental integration, strategic pricing, inventory control strategies, and internal performance analysis (Tse and Poon 2012).

With respect to the rapid progress of revenue management research in the global hotel industry, either practicing the theoretical approaches and techniques or carrying out domestic research on hotel revenue management in Sri Lanka is relatively much more fall behind. Hence, it is important to explore the level of usage and awareness on revenue management applications in the Sri Lankan context.

Since start graded hotels are having comparatively more standard well organized operational practices compared to other sectors, researcher has limited the scope of the study to the star graded hotels. Accordingly, this study was intended to investigate the room revenue management practices currently available in the star graded hotels in Sri Lanka?

LITERATURE REVIEW

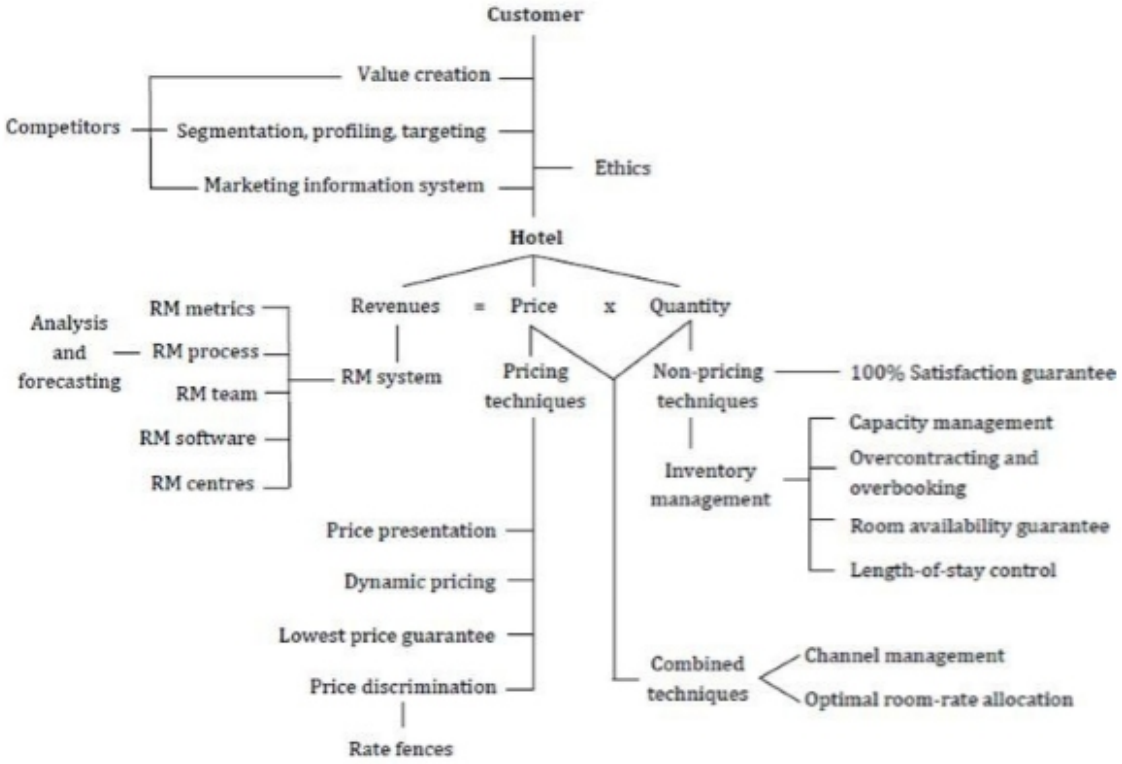
Revenue management is a prolonged concept originated from the airline industry. For the better understanding on the concept, the researcher has discussed several definitions on revenue management grounded by previous researchers.

The fundamentals of revenue management were evolved based on the economic theory of supply and demand. A room for sleeping is the primary item to sell in the lodging industry and revenue management techniques seek to optimize the revenue of the property through the aggressive management of their unique products—the guest rooms that make up the hotels' rooms inventory (Hayes & Miller, 2011). Accordingly, a hotel can alter the rates to get more incremental revenue, since different guests are willing to pay a different price for using the same amount of resources. There are number of concepts and metrics that are used to show the effectiveness and the efficiency of hotel revenue performances (Mauri, 2012).

Evolution of Revenue Management in Hotel Industry

\The application of revenue management in the hotel industry has mainly been on optimizing room revenue potential from existing demand. Supported by technological developments, revenue management decision-making has been started to incorporate the offerings from other revenue streams of the hotel operation (Cross, Higbie, & Cross, 2009). The fitness of products for the application of revenue management is determined by a combination of the characteristics of customers and product features that include a relatively fixed and perishable capacity of the product, and customers who have a diverse willingness to pay (Kimes & Wirtz, 2003). As the revenue management originally initiated by the airline industry, this has developed and applied into several other service sector businesses such as golf courses, shopping malls, telephone operators, conference centres, tourism and hospitality and other companies (Heo & Lee, 2009; Chiang, Chen & Xu, 2007; Cross, 1997; Ng, 2009). However, the theories and practices of revenue management have not widely accepted yet in the hospitality industry (Ivanov & Zhechev, 2012) .

Figure 01- Revenue Management Constellation Concept Map



Source: Ivanov (2014)

The hotel industry however has realized that the revenue management is no longer approaching only to room pricing management; it also has been integrated into all the aspects of marketing and operational strategies that explains the total hotel revenue contributions in a wider perspective.

Revenue Management Tools Applied in Hotel Industry

In the room revenue management in hotel industry, there are two major revenue management tools are utilized as pricing and non-pricing revenue management tools. Non-pricing revenue management tools mainly focus on inventory management of the hotel (i.e. the quantity of supply) and it include the strategies such as capacity management, over-contracting and overbookings, room availability guarantee, length-of-stay control, and 100% satisfaction guarantee (Ivanov, 2014). Aziz, Saleha, Rasmya & ElShishiny (2011) also pointed out that the revenue management has three main decisions, as structural decisions, pricing decisions, and quantity decisions, where structural and quantity decisions fall under the non-pricing revenuemanagement decisions. Consequently, capacity management and overbookings are considered as the two most influential non-pricing revenue management techniques and, at the same time, the most controversial issues in revenue management (Ivanov, 2014).

Accordingly, the revenue management contributes to an organization in making profitability by determining the optimal inventory sharing and price setting for different services. The complexity and distribution of pricing and non-pricing revenue management tools and techniques in a hotel have been summarized by Ivanov (2014) as given in the figure 01.

METHODOLOGY

All the official star graded hotels in Colombo district were identified using the Sri Lanka Tourism Accommodation Guide (May-October 2018) published by SLTDA. It included all 33 star graded hotels (One Star, Two Star, Three Star, Four Star and Five Star) in Colombo district.

Survey method was adopted by the researcher and questionnaire was developed based on the literature. Face validation of the questionnaire was completed using a sample of 10 representing different fields to assure the understandability of the questionnaire as two persons from academia, two persons from sales and marketing in hotel industry, two chefs, two persons employed in travel agency operations, and two undergraduates. The comments and feedbacks given by the selected sample for the face validation were useful in fine-tuning the questionnaire for better communication of the questions using more relevant terms, correct the grammatical mistakes, and avoid unnecessary wordings, etc. Data collection of the study was completed during August to December 2018. Both face to face discussions and telephone survey were occupied by the researcher based on the availability of managers and time allocation from the manager. Each hotel was given only one questionnaire to be filled by the revenue manager or a senior manager responsible for revenue decisions. However, questionnaires were received only from 27 hotels reporting 81.8% respond rate and it included 04 five star hotels, 04 four star hotels, 09 three star hotels, 03 two star hotels and 07 one star hotels.

A structured questionnaire was adopted from Ivanov (2014) and consisted of several sections focused on hotel demographics, different revenue management tools applied at the hotel, s revenue management team, RM software, distribution channel management of the hotels revenue management process based on RM metrics and forecasting methods respectively. All the hotels which did not apply a particular tool or its impact on sales was not measured were excluded from the analysis of a tool's impact on sales.

Contemporary room revenue management practices of the hotels were investigated using descriptive statistics. Further to that, the impact of category, size, location and chain affiliation on the application of different revenue management practices of star graded hotels in Colombodistrict also were examined. Researcher has occupied the parametric test ANOVA and independent sample t-test in the study (Ivanov, 2014; Baggio & Klobas, 2011), as well as chi square test to identify the differences of hotel demographic variables over the usage of various revenue management tactics and strategies used in the hotels.

RESULTS AND DISCUSSION

The sample in this study was comprised of all the star graded hotels in Colombo District. Study samples for the first three objectives are explained in this section. Currently practicing room revenue management tools and their usage were examined and elaborated in this chapter. Profile of the sample was analyzed to understand the context and then the room revenue management practices are discussed.

Profile of the Sample

Table 1 - Profile of the sample

Factor	Indicators	Number of respondents	Percentage
Category	1 Star	7	25.9
	2 Star	3	11.1
	3 Star	9	33.4
	4 Star	4	14.8
	5 Star	4	14.8
Size	1-50 Rooms	6	22.2
	51-100 Rooms	9	33.3
	101-150 Rooms	1	3.7
	151-200 Rooms	2	7.4
	201-250 Rooms	1	3.7
	Over 250 Rooms	8	29.6
Type of ownership	Chain affiliated Independent	13	48.1
	ownership	14	51.9
Location	Sea View	11	40.7
	City View	16	59.3

Source: SPSS output on survey data, 2019

This table (Table 1) provides an overview of the study sample used in the study. Accordingly, majority of the hotels are independent with less than 100 rooms, located with city view and fall under the Three Star and below categories.

Average length of stay, proportion of foreign guests in the hotel and the average growth rate of the occupancy for last five years were investigated to get a further idea on the sample and descriptive results are given in Table 2.

Table 2 - Detail on Occupancy in the Sample

	Mean	SD
Average length of stay (Number of nights)	2.811	1.6992
Average growth of occupancy for last five years	0.0304	0.0194
Average occupancy of foreign guests	0.58	0.1026

Source: SPSS output on survey data, 2019

Average occupancy rate of the foreign tourists in the star grade hotels in Colombo district accounts 58 per cent and the rest is occupied by the local guests. It also showed 0.3 per cent growth of occupancy for the last five years. This can be a result of the increasing number of arrivals of foreign tourists to the country for last few years. Colombo hotels are more recognized as business hotels by its meaning and operation. Hence, having 2.8 nights of average length of stay can be accepted and it can also be reported as a fairly good enough for the business hotels located in a capital city.

Application of Pricing Room Revenue Management Tools in Star Graded Hotels

Respondents were asked to specify the level of agreement on usage of different revenue management tools in day-to-day operations of the hotel using a scale from 5- completely agree to 1- completely disagree. These tools were identified under two categories as pricing and non- pricing room revenue management tools. The revenue management tools were identified under two categories as pricing and non-pricing. Usage of the pricing tools in room revenue management was examined and showed in the table 3, and the non-pricing revenue management tools are described in table 3.

Table 3- Application of pricing room revenue management tools

Pricing Revenue Management Tools	Mean	SD
Price Discrimination		
Frequency of application	2.96	1.427
Importance for the industry	3.41	1.448
Impact on property sales	4.56	0.506
Price Parity		
Frequency of application	4.41	0.636
Importance for the industry	5	0
Impact on property sales	4.44	0.577
Use of Last Minute Offers		
Frequency of application	3.78	0.974
Importance for the industry	4.3	0.724
Impact on property sales	4.52	0.802
Early Bird rates		
Frequency of application	3.3	1.382
Importance for the industry	4.63	0.629
Impact on property sales	3.07	1.567

Source: SPSS output on survey data, 2019

Price is one of the key elements in the hotel's marketing mix which is the only one directly linked with hotel's revenues. Hence, scholars have acknowledged the prominence of pricing as an extensively used revenue management tool that includes price discrimination, dynamic pricing, lowest price guarantee, price presentation and, price parity (Choi & Kimes, 2002; Hanks, Cross & Noland, 2002; Koenig & Meissner, 2010; Lieberman, 2011; Mauri, 2012; Noone & Mattila, 2009; Schwartz, 2006, 2008; Steed & Gu, 2005; Tranter, Stuart-Hill & Parker, 2008; Tse & Poon, 2012; as cited in Ivanov, 2014)

Amongst them, price parity and the last minute offers are the most frequently used pricing room revenue management tools in the star graded hotels in Colombo district. Price discrimination has not been utilized as a pricing revenue management tool and respondents have accepted that the price discrimination has a high impact over the property sales. However, they have not perceived it as an appropriate strategy in the industry. Moreover, price parity and last minute pricing too make a high impact over the property revenue. Early bird rates have been indicated as an important tool for the hotel industry, but the impact over the revenue and the frequency of usage were not in the accepted level.

Application of the Non-pricing Room Revenue Management Tools

How The frequency of different non-pricing revenue management tools are used, whether they are important for the hotel industry and the managers' perception on the importance of each tool on the property sales were examined and explained in table 4.

Table 4 – Usage of Non-pricing Revenue Management Tools

Non-pricing Revenue Management tools	Mean	SD
Over-contracting		
Frequency of application	1.67	0.679
Importance for the industry	2.41	0.844
Impact on property sales	3.11	1.396
Overbooking		
Frequency of application	3.7	1.203
Importance for the industry	2.89	1.311
Impact on property sales	3.67	0.92
Minimum Length of Stay Control		
Frequency of application	2.33	1.359
Importance for the industry	1.96	1.018
Maximum Length of Stay Control		
Frequency of application	1.63	0.742
Importance for the industry	3.48	1.369
Length of Stay Control		
Impact on property sales	3.3	1.436
Lowest price guarantee		
Frequency of application	4.3	1.305
Importance for the industry	3.04	1.531
Impact on property sales	2.74	1.509
Cross Selling		
Frequency of application	4.59	0.501
Importance for the industry	4.56	0.506
Impact on property sales	4.59	0.572
Up Selling		
Frequency of application	4.63	0.492
Importance for the industry	4.74	0.447
Impact on property sales	4.67	0.48
Room Availability Guarantee		
Frequency of application	5	0
Importance for the industry Impact on property sales	4.33	0.784
	4.67	0.48

Source: SPSS output on survey data, 2019

According to the descriptive statistics, overbooking and length of stay control were not occupied in the start graded hotels in Colombo as revenue management tools whereas Room Availability Guarantee, Upselling, Cross Selling, and Lowest Price Guarantee are the mostly applied strategies respectively.

Although overbooking is in practice, respondents have not perceived it as an important strategy. Over-contracting, and length of stay control were totally rejected by the respondents. These findings are little different from the findings of some of the international contexts. Ivanov (2014) studied on Bulgarian hotel market and found that price discrimination and price parity were the mostly used strategies in the particular destination.

Capacity management and overbookings have been introduced as two of most influential techniques as well as the most controversial issues in revenue management (Karaesmen & van Ryzin, 2004; cited in Ivanov, 2014). Apparently, overbooking, confirming more rooms than the available capacity of the hotel (Ivanov, 2006), is a well-recognized practice in the hotel industry to face uncertainties such as no-shows and last minute cancellation. Hoteliers may be worried on the possible conflicts triggered by overbooking such as; destroying the longstanding relationships with guests and travel agencies (Kotler, Bowen and Makens, 1996; cited in Ivanov, 2014), perceived unfairness or change in the nature of the service, perceived lack of customer appreciation, potential of future lost business, and poor word-of-mouth on the property (Wirtz et al, 2003).

Analysis on the Usage of Revenue Management Tools

Researcher further analyzed whether there was any difference of the responds based on the demographic characteristics using Analysis of Variance (ANOVA) and independent sample t- test.

Results of the one sample ANOVA test (table 4.5) indicated a significant difference in applying price discrimination strategy ($p=0.000 < 0.05$), between star grades of the hotels as well as hotel size in terms of number hotel rooms ($p=0.031<0.05$). In practice, hotels may charge various room rates based on the type of room, room standard, food board, room view, period of accommodation, time of booking, booking terms (cancellation, amendment and payment terms), length-of-stay, distribution channel, guests' characteristics, their loyalty, group size, etc. (Ivanov, 2014) and obviously this might vary on the size of hotel or hotel grade.

Table 5 – Usage of Revenue Management Tools

Revenue Management Tools	ANOVA				t-test			
	Star Grade		Number of Rooms		Type of ownership		Location	
	F	Sig.	F	Sig.	T	Sig.	T	Sig.
Price Discrimination								
Frequency of application	9.15	0	3.187	0.031	-0.294	0.771	0.449	0.658
Importance for the industry	1.723	0.186	0.984	0.455	1.291	0.21	0.642	0.53
Impact on property sales	0.665	0.624	1.123	0.384	1.216	0.237	-0.332	0.743
Price Parity								
Frequency of application	1.661	0.2	0.8	0.564	-0.309	0.76	0.157	0.877
Importance for the industry	0.561	0.694	0.343	0.88	1	0.339	0.84	0.41
Impact on property sales	1.992	0.137	1.772	0.17	0.34	0.737	0.997	0.33
Use of last minute offers								
Frequency of application	1.022	0.421	0.479	0.787	1.836	0.082	0.184	0.856
Importance for the industry	3.198	0.035	0.537	0.746	-0.672	0.508	0.799	0.433
Impact on property sales	0.843	0.515	0.59	0.708	-2.419	0.03	-0.512	0.614
Early Baird rates								
Frequency of application	0.509	0.73	0.827	0.547	-0.714	0.483	0.263	0.795
Importance for the industry	0.486	0.746	0.62	0.687	-1.076	0.3	0.177	0.861
Impact on property sales	1.021	0.422	1.305	0.305	0.652	0.521	0.894	0.386

Over-contracting								
Frequency of application	2.738	0.059	0.544	0.74	-1.265	0.219	0.103	0.919
Importance for the industry	0.541	0.707	0.377	0.858	2.532	0.021	-1.073	0.295
Impact on property sales	1.322	0.298	0.332	0.887	-1.71	0.101	0.725	0.476
Overbooking								
Frequency of application	2.476	0.079	2.171	0.103	1.715	0.105	0.838	0.411
Importance for the industry	1.842	0.162	1.73	0.179	1.406	0.174	1.399	0.176
Impact on property sales	3.193	0.036	1.544	0.226	0.959	0.348	1.428	0.167
Minimum Length of Stay Control								
Frequency of application	0.803	0.538	1.186	0.355	-0.506	0.618	-1.137	0.268
Importance for the industry	1.397	0.273	0.899	0.503	2.18	0.042	-1.59	0.135
Maximum Length of Stay Control								
Frequency of application	0.587	0.676	0.64	0.672	0.907	0.374	0.684	0.501
Importance for the industry	1.513	0.238	1.884	0.147	-1.75	0.094	-0.918	0.369
Length of Stay Control								
Impact on property sales	1.884	0.155	0.75	0.597	1.023	0.317	-1.495	0.149
Lowest price guarantee								
Frequency of application	2.269	0.1	3.991	0.013	-0.528	0.603	-1.416	0.188
Importance for the industry	7.254	0.001	0.631	0.679	0.133	0.896	0.233	0.819
Impact on property sales	2.394	0.087	0.756	0.593	1.35	0.191	-0.939	0.358
Cross Selling								
Frequency of application	0.735	0.58	1.151	0.371	-0.842	0.409	1.194	0.245
Importance for the industry	1.011	0.426	1.246	0.329	0.804	0.43	-0.677	0.505
Impact on property sales	1.758	0.179	2.16	0.105	0.842	0.409	-0.565	0.578
Up Selling								
Frequency of application	1.283	0.311	0.701	0.371	1.254	0.223	0.619-	0.542
Importance for the industry	1.572	0.222	2.118	0.11	0.92	0.368	1.354	0.196
Impact on property sales	0.805	0.537	1.212	0.343	1.254	0.223	-1.049	0.306
Room Availability Guarantee								
Frequency of application	1.95	0.143	0.974	0.46	-0.92	0.368	-1.354	0.196
Importance for the industry	3.422	0.029	3.6	0.02	0.886	0.385	0.147	0.884
Impact on property sales	1.436	0.261	3.176	0.031	0	1	4.163	0.001

Source: SPSS output on survey data, 2019

However, the price differentiation strategy may have different useful remunerations for the hotel whereas some criteria such as nationality, is illegal (eg. in Bulgaria) or recognized as unethical in practice. Revenue manager‘s perception on the importance of last minute offers indicated a significant difference between star grade ($p=0.035<0.05$), as well as the perception on the impact of last minute offers on the property sales had a significance difference between the ownership of the hotel ($p=0.030<0.05$). Based on the ownership type, a significant difference designated by the perception on the importance of over-contracting strategy ($p=0.021<0.05$), and importance of minimum length of stay control ($p=0.042<0.05$). Impact of overbooking over the property sales indicated a significance difference between star grades ($p=0.036<0.05$). According to the test results, usage of lowest price guarantee indicates a difference between hotel size ($p=0.013<0.05$). Perception on the importance of lowest price guarantee strategy in the industry implied a significant difference between star grades of the hotel ($p=0.001<0.05$). Further to that, perception on the level of importance of room availability guarantee as a non-pricing room revenue management strategy in the industry has a significant difference between star grades ($p=0.029<0.05$), and hotel size ($p=0.020<0.05$). Moreover, managers‘ perception on the level of impact of room availability guarantee strategy on the property sales indicates a significant difference between hotel size ($p=0.031<0.05$), and location of the hotel ($p=0.001<0.05$).

Revenue Management System

Researcher examined the revenue management systems practiced in the star graded hotels in terms of three major areas

- Revenue management team and responsibility
- Usage of revenue management software
- Revenue management process, metrics and forecasting methods

Revenue management team and responsibility

Revenue management responsibility of star graded hotels in Colombo was headed by different designated positions.

Although the revenue management is one of the important functions in a hotel, only 26 per cent of hotels have occupied a specialized team or a revenue manager for this task. Majority of the hotels have given this responsibility to the sales and marketing managers/s (29.6%). Around 26 per cent of hotels have allocated this responsibility for the general manager or the owner of the hotel. Ivanov (2014) has reported that only 6% of the accommodation establishments in Bulgaria have employed a revenue manager or a revenue management team and two-thirds of the cases, revenue management was the responsibility of the general manager and the marketing manager. This is very much similar to the Sri Lankan context as identified in the current study as 67 percent (precisely two-third of the hotels) have given this responsibility to the general manager, front office manager, sales and marketing manager/s, or the owner. However, Colombo hotels have clearly identified the importance of a specialized person/ persons for this task.

Moreover, researcher asked that _If your hotel does not have a revenue manager or revenue management department/team, would you consider hiring a revenue manager?‘ and all respondents answered positively.

Around 58 per cent of the respondents mentioned that they have recognized the importance of hiring a revenue manager/ team, and 42 per cent reported that they are still not ready but may consider hiring a separate person for this task in the future. However, recruiting a separate position for revenue manager may financially be feasible only larger properties, not for the smaller properties.

More than 33 per cent of hotels have occupied specialized software such as IDEAS and Protel for Revenue Management function and a great majority (nearly 42%) of the hotels have not used any type of software at least do not utilize the PMS for this task. However, when researcher asked _Do you think a specialized software helps (would help) to manage better revenue of your hotel?‘, all respondents positively agreed (100%).

Revenue Management Metrics and Forecasting Methods

Estimating or forecasting the future revenue trends is one of the important tasks carrying on by the managers to formulate for future period. Researchers tested the types of methods they use for this purpose and are given in table 4.9.

Accordingly, all the hotels (100%) were using passed data for the forecasting and a very few of them (only 29%) were using personal experiences. Statistical method was fairly a popular method occupied by 54 per cent of the hotels in the sample. However, since a great majority was not using specialized software, they may be unable to practice a systematic method to maintain their database and practice

statistic methods for the forecasting. One, two and three star hotels were using personal experience where none of the four and five star hotels have occupied this method.

Revenue Management Metrics Used in the Hotels

Different revenue management metrics most commonly used by hotel managers in Colombo district are reported in Table 6. According to the respondents, all the hotels were using one or more metrics for the day today operation.

Table 6 - Revenue Management Metrics Used in the Hotels

Description	Percentage (%)
Occupancy Rate (OCC)	100
Average Daily Rate (ADR)	100
Revenue Per Available Room (RevPAR)	79.2
Gross Operational Profit per Available Room (GOPPAR)	62.5

Source: SPSS output on survey data, 2019

Occupancy and average daily rate are the most popular and often applied due to their simple calculation, while RevPAR and GOPPAR have been reported to be used by majority of the respondents.

Table 7- Identifying Association between Hotel Demographics and Usage of Revenue Management Metrics

	Chi square test statistics					
Description	Star grade		Size		Owners-hip	
	÷2	P	÷2	P	÷2	p
Use of a software for RM	18.426*	0.018	16.908	0.076	0.9	0.638
Use of personal experience for forecasting	4.178	0.382	8.471	0.132	1.815	0.178
Use of statistical methods for forecasting	3.477	0.481	2.517	0.774	4.196*	0.041
Calculating RevPAR	9.564*	0.048	10.611	0.06	0.253	0.615
Calculating GOPPAR	2.921	0.571	5.511	0.357	0.178	0.673
How often calculating metrics	15.826*	0.045	19.361*	0.036	3.818	0.148

α=0.05

Source: SPSS output on survey data, 2019

Using a software for revenue management indicated a significant association between the star categories ($\chi 2=18.426$, p=0.0.018<0.05). All the 4 and 5 star graded hotels use a specialized software or at least PMS for the revenue management purpose while there was no specialized RM software usage in 1 and 2 star hotels. However, very few of them have occupied the PMS for RM purpose whereas majority of them are not using any. Some of the three star hotels also have the specialized RM software while some are using the general hotel PMS. Calculation of RevPAR as a revenue management metrics in day-to-day operation was popular among higher star grades. All the three four and five star graded hotels have calculated the RevPAR whereas only some of one and two star graded hotels practice it. Accordingly, there was a statistically significant association reported between star category and calculating RevPAR in day-to-day operation ($\chi 2=9.564$, p=0.048<0.05).

Use of statistical methods for forecasting has reported a significant association with type of ownership ($\chi 2=.4.196$, p=0.041<0.05). Majority of the chain affiliated hotels reported that they were using

statistical methods for forecasting while a few of independently owned hotels have used such methods. Moreover, frequency of calculating different metrics (daily, weekly, or, monthly) has reported a significant association with star grade ($\chi 2=15.826$, $p=0.045<0.05$) as well as hotel size (in terms of number of rooms) ($\chi 2=19.361$, $p=0.036<0.05$). Larger hotels with more than 100 rooms have calculated the metrics at least daily or weekly. Hotels more than 250 rooms reported that calculations of metrics were done daily. However, smaller hotels were mostly calculated them weekly or monthly.

Overlooking the results, it is not an astonishment to see that, the chain affiliated and larger hotels with higher star grades are typically practicing a robust revenue management practice compared to the smaller and lower star graded hotels. These hotels may have a common procedure andwell-established management process with virtuous SOPs to maintain an operational streamline in all properties under their brand. Further, they can invest more on business development due to the higher profit. However, the smaller hotels, precisely the independently owned smaller hotels with lower star grade may have less significant capacity of recruiting more advanced technology or labor due to the limited business dimensions.

Usage of Rate Fences (Different Rates for Different Segments) in the Hotels

Rate fences or the Rate restrictions can be defined as ―logical, rational rules or restrictions that are designed to allow customers to segment themselves into appropriate rate categories based on their needs, behaviour, or willingness to pay‖ (Hanks et al., 1992). It is not a surprise to see that many hoteliers are currently progressing rate fences by segmenting customers and charge different prices to different segments based on demand (Wei, Guillet, & Law, 2014).

Researcher investigated the types of rate fences used by all the star graded hotels considered in the study and presented in table 8. Rate fences were identified under three categories as product related characteristics (guest room type, room board, room category, and room view), consumption related characteristics (length of stay, individual/ group booking, customer loyalty, period of stay/ seasonality of the reservation, day of the week of the reservation, and nationality of the booking guest), and supply related characteristics (lead period restrictions, distributor, cancellation and amendment terms).

Table 8 - Usage of rate fences (N=27)

Category	Item	Percentage
Product related	Room type	100
	Room board	100
	Room category	100
	Room view	45.8
Consumption related	Length of stay	83.3
	Individual/ group booking	100
	Customer loyalty	100
	Period of stay (seasonality)	100
	Day of the week	45.8
	Nationality	54.2
Supply related	Lead period restriction	100
	Distributor	83.3
	Cancellation and amendment terms	45.8

Source: SPSS output on survey data, 2019

All the product related characteristics were commonly applied by all the hotels as rate fences. Accordingly, different market segments were given different prices based on mostly the product related characteristics. Type of booking (individual/ group), customer loyalty, and period of stay had a greatest adoption and were used by all the hotels. Day of the week (consumption related) and cancellation and amendment terms (supply related) were adopted by less than half of the respondents whereas, all the other consumption and supplier related fences were reported being applied by more than half of the respondents.

Generally, the published room rates for a given date or period of time are not constant and these rates are subject to change due to various reasons. Most popular methods of rate fences in the current study were Room type Room board, Room category, Individual/ Group booking, Customer loyalty, Period of stay (seasonality), and Lead period restriction. Generally, there are no universally accepted rate fences in the hotel industry and they are imposed as the situation occurred based on the industry norms. However, in practice, hotels execute such rate fences to safeguard a certain rate from certain patrons when two or more rates are existent to customers at the same time (Wei, Guillet, & Law, 2014). Nevertheless, revenue managers and marketing professionals in the hotel industry should be vigilant and brainy when setting the appropriate rate fences as poorly designed restrictions might lose the customer base turning some guests away.

Table 9 - Frequency of Changing Published Room Rates, (N=27)

Period of changing the rates	Percentage
Daily	16.7
Two or more times a week	45.8
Once a week	8.3
Once/ twice a month	8.3
Less often than once a month	4.2
Price kept constant	16.7

Source: SPSS output on survey data, 2019

Hence, respondents were asked to report the frequency of changing their prices for a particular date once they were published in their web sites or any other sources (Table 4.13). Accordingly, majority of the hotels reported that they change their prices published for different segments were more towards changing at least once or more times within a week. Accordingly, it demandsthat accommodation sector, particularly the star graded hotels do not follow a conservative price strategy and they are more active and aggressively divergent over the risk with often price changes.

Distribution Channel Management

Although the distribution channel management was paid very less attention in academic literature, it covers a very important part in revenue management that might significantly influence the ADR, RevPAR and the entire revenue management system of the hotel (Ivanov, 2014). Respondents reported the types of distribution channels that they use for the room sales and the importance of each for their day-to-day operation and described in table 4.14.

GDSs, and Direct sales (regardless of whether offline or via the website of the hotel/hotel chain) were appeared as the most important distribution channels for the hoteliers and OTAs and Travel Agents also were strongly accepted as the more important distribution channels.

Table 10– Use of different distribution channels

Description	Mean	SD	ANOVA		t-test	
			Star (F)	Size (F)	Owners hip (t)	Location (t)
Global Distribution Systems (GDSs)	5	0.00 0	-	-	-	-
Online Travel Agents (OTAs)	4.75	0.67 6	4.051**	3.488**	-0.596	-1.964*
Tour Operators	3.92	0.83 0	0.936	0.609	-0.983	-0.081
Travel Agents	4.29	0.80 6	0.622	0.811	-0.752	-0.983
Group Buying Websites	2.83	1.27 4	2.412*	0.73	-0.632	0.533
Hotel Website	5	0.00 0	-	-	-	-
Other Direct sales	5	0.00 0	-	-	-	-

****= P<0.05, *=P<0.1**

Source: SPSS output on survey data, 2019Test results of the ANOVA indicated that means are statistically significantly different among the star categories (p=0.015<0.05) and hotel size (p=0.022<0.05) for the importance of OTAs as a distribution channel. One to three star hotels indicated higher mean values for the importance of OTAs. Recent growth and popularity of OTAs (like Booking.com, Agoda.com, Expedia.com, etc.) in the country especially during the last few years, with their convenient agency model may have definitely influenced for the growth of room revenue in the sector for recent years. Moreover, the hotels with less than 100 rooms and more than 150 rooms were more striking towards OTAs. Accordingly, the lower star graded hotels with less number of rooms were more attractive for the OTAs. Myung, Li & Bai (2009) also has highlighted the positive performance and satisfied relationship of hotels with e-wholesalers regardless of the conflicts with them.

Booking through the GDSs are guaranteed bookings which charge the room rate at the booking time itself by authenticating credit card details. Although managers have reported it as the most important channel, they may have to pay a higher commissions and fees to maintain them. But, it has a wider accessibility in the market since any hotel gets the ability of reaching thousands of intermediaries who use the GDS which has signed the contract with particular hotel without signing separate contracts with thousands of other intermediaries. Hence, this may not an appropriate channel for the smaller operations with fewer rooms, but, will work for bigger hotels such as higher star graded with larger number of rooms or chain affiliated hotels.

An OTA is a platform available in both agency and merchant model which has a greater flexibility in operation. They generally work with a commission-based model that might charge a set percentage on each reservation made through the particular platform. For an instance, the commission percentage of Booking.com, selected OTA by the researcher in this study, varies between 10% - 25%, depending on the type of property and location (country and region), and even on whether it should be appeared on top of the search results (booking.com partner hub, 2019). However, this is very popular among all types and sizes of accommodation establishments since the commissions are charged on the guests show up (commissions are not charged for the cancellations and no-shows).

However, the results are contradictory with the results of Ivanov (2014) where he found that higher star categories with higher number of rooms were more attractive towards OTAs, as well as GDSs indicated the lowest contribution in Bulgarian hotels.

General Revenue Management Tactics Used in the Hotels

During the revenue management process, different tactics were used in the hotel industry and researcher investigated the level of agreement for the usage of these tactics by respondents by rating from 1- completely disagree to 5- completely agree and results are presented in table 4.15.Accordingly, respondents agreed that each customer is important for the property sales without any discrimination, and selling additional services other than merely the rooms to increase the sales revenue with the highest mean values. Respondents believed that, if the occupancy for a particular date is low, decreasing the room rate will work worthy to increase the revenue of the property.

Table 11 - Usage of General RM Tactics

Item	Mean	SD
If occupancy is low it is best to lower the prices	4.71	0.464
Each customer is equally important for the hotel	5	0
We try to attract every potential customer	4.33	1.523
If competitor decrease prices we decrease our prices too	2.79	1.215
If competitor increase prices we increase our prices too	2.5	1.063
Customers prefer lower prices than higher quality	3.83	1.239
Maintaining good relations with the distributors is important for property‘s revenues	4.67	0.482
Selling additional services is important for property‘s revenues	5	0
When we set the prices and booking terms we consider customers‘ perception of these	3.46	0.884
In general, the application of the RM tools contributes positively to the revenues of our property	4.71	0.464

Source: SPSS output on survey data, 2019

Hoteliers were always trying to attract every potential customer for the property and they have to strategically work on this since it may cause segmentation barriers. Similar to the customer relationship, maintaining a strong relationship with the distributors also is very important factor for the property's revenue. Moreover, respondents agreed to the fact that customers are more price-concerned than the quality. Hence, the managers should be very careful when they develop the value proposition since the guests are being more price sensitive. On the other hand, it is a challenge for the hoteliers to maintain high quality for a lower price. If hoteliers start to compete over price neglecting the quality, that may create industry turmoil. Considering the customer perception when deciding the booking terms and prices was at the moderate level and customer may agree with the given prices and terms. However, competitors' price was not a determinant factor for deciding the prices of the property. Generally, respondents agreed that the application of RM tools were progressively contributing towards increasing the property revenue.Moreover, importance of each RM tactics identified in table 4.15 has been tested with the hotel demographics for further analysis to identify any significant differences and results are presented in table 16.

Table 12 - Hotel Demographics Vs. RM Tactics

Item	ANOVA				t-test			
	Star		Size		Ownership		Location	
	F	Sig.	F	Sig.	T	Sig.	t	Sig.
If occupancy is low it is best to lower the prices	8.989	0	4.05	0.012	-0.432	0.67	-0.965	0.345
Each customer is equally important for the hotel	-	-	-	-	-	-	-	-
We try to attract every potential customer	2.478	0.079	0.635	0.676	-2.345	0.039	-1.488	0.198
If competitor decreases prices we decrease prices too	0.955	0.454	0.22	0.949	-0.164	0.871	0.028	0.978
If competitor increases prices we increase prices too	4.201	0.013	0.929	0.485	-2.049	0.053	-1.611	0.121
Customers prefer lower prices than higher quality	2.785	0.056	0.476	0.789	-3.688	0.002	0.218	0.829
Maintaining good relations with the distributors is important for property‘s revenues	3.341	0.031	0.372	0.861	-1.773	0.091	-0.565	0.578
Selling additional services is important for property‘s revenues	-	-	-	-	-	-	-	-
When we set the prices and booking terms we consider customers‘ perception on these	1.182	0.351	1.714	0.182	-0.685	0.501	1.14	0.267
In general, the application of the RM tools contributes positively to the property revenues	1.3	0.305	0.642	0.671	0.432	0.67	-2.966	0.011

Source: SPSS output on survey data, 2019

According to the test statistics of ANOVA (Table-16), a statistically significant difference indicated in the star category for the usage of lower prices when the occupancy is low ($p=0.000<0.05$), increasing the prices when the competitors increase their prices ($p=0.013<0.05$), and maintaining good relation with distributors ($p=0.031<0.05$). One, two, and five star graded hotels have indicated higher mean values for the decreasing prices when the occupancy is lower. Higher graded hotels have strongly rejected the increasing prices following the competitors. Hotel size indicated a statistically significant difference over the decreasing room rated whenever the occupancy is lower ($p=0.012<0.05$) and small and large hotels had more tendency to practice this tactic compared to the medium sized hotels. Type of ownership indicated a statistically significant difference for trying to attract every potential customer ($p=0.039<0.05$), and customer preference for lower prices compared to the higher quality ($p=0.002<0.05$). However, independent hotels were keen on attracting every potential customer and think that customers are more price sensitive than the quality.

Determinants of Room Rates

The key determinants that might be considered by revenue managers when they decide the room rates were also investigated by the researcher during the survey (Table 13). These determinants were examined under three categories as; Hotel demographics; In-room amenities and; Property.

Table 13 - Revenue Managers' Perception on the Importance of Various Determinants on Room Rate Decision

Description	Mean	SD
Availability of in room amenities	4.21	0.884
Room size	3.79	1.285
Star category	5	0
Distance from the city center	4.38	0.824
Distance from the international airport	4.29	0.859
Availability of facilities and services (i.e. Gym, Spa, free Wi-Fi, etc.)	5	0

Proximity to the beach	3.25	1.511
View from the hotel room	4.71	0.464
Number of restaurants/ bars available	3.79	1.318
Proportion of foreign guests to the hotel	2.04	1.367
Number of employees	2.46	1.351
Availability of banquet/ function facilities	3.58	1.816
Availability of differently abled facilities	4.92	0.408
Average length of stay	4.08	0.776
Room category	4.96	0.204

Source: SPSS output on survey data, 2019

Table 13 explains the managers' perception on the importance of various determinants on deciding the room rate of star graded hotels in Colombo District. Accordingly, star category, availability of various facilities in the hotels, availability of differently abled facilities, and room category were rated as the most important contributing factors with highest mean values nearly 5.00. Moreover, availability of in-room amenities, distance to the hotel from the city center and international airport, view from the hotel room, and average length of stay also were demanded elements (M>4.00). However, proportion of foreign guests, and number of employees working in the hotel were not important determinants of pricing decisions.

Table 14 - Hotel Demographics Vs. Room Rate Determinants

Item	ANOVA				t-test			
	Star Grade		Size		Ownership		Location	
	F	Sig.	F	Sig.	T	Sig.	T	Sig.
Availability of in room amenities	0.662	0.626	0.279	0.919	-0.226	0.823	0.422	0.677
Room size	1.279	0.313	6.132	0.002	-0.155	0.878	2.539	0.019
Star category	-	-	-	-	-	-	-	-
Distance from the city center	2.116	0.119	1.653	0.197	1.254	0.228	0.619	0.542
Distance from the international airport	3.552	0.025	0.908	0.497	-0.705	0.488	1.529	0.14
Availability of facilities and services (i.e. Gym, Spa, etc.)	-	-	-	-	-	-	-	-
Proximity to the beach	1.561	0.225	1.01	0.44	-1.377	0.182	-0.134	0.895
View from the hotel room	1.156	0.361	2.991	0.039	-0.432	0.67	0.811	0.426
Number of restaurants/ bars available	1.289	0.309	3.46	0.023	0.767	0.451	2.038	0.054
Proportion of foreign guests to the hotel	0.555	0.698	1.577	0.217	-1.048	0.306	1.419	0.17
Number of employees	1.114	0.379	1.204	0.433	0.445	0.66	-0.477	0.638
Availability of banquet/ function facilities	0.916	0.475	1.379	0.279	1.131	0.27	0.486	0.632
Availability of differently abled facilities	1.319	0.299	-	-	1	0.339	-1	0.343
Average length of stay	3.997	0.016	2.038	0.122	1.055	0.303	0.614	0.545
Room category	1.319	0.299	-	-	1	0.339	-1	0.343

Source: SPSS output on survey data, 2019

Test results of the ANOVA (Table 14) revealed a significant difference of star categories for the usage of distance to the hotel from international airport as a room rate determinant (p=0.025<0.05). Three and above star grades have considered it as an important determinant of room rate. Hotel size indicated a significant difference of using room size (p=0.002<0.05), view from the hotel (p=0.039<0.05), and number of bars/ restaurants available in the hotel (p=0.023<0.05) as important pricing determinants and hotels with more than 150 rooms have mostly agreed as they were important elements in room rate decisions. Independent sample t-test results (Table 14) indicated that the location of the hotel has also a significant difference of using room size as a pricing element (p=0.019<0.05) and mostly the sea view hotels have used it.

CONCLUSION AND RECOMMENDATIONS

This study contributed to the comprehension of currently available room revenue management practices and identifying whether and how different hotel attributes are associated with room rate in star graded hotels in Colombo district. All the hotels graded from one to five stars located in Colombo district were studied to meet the study objectives.

Although there are number of revenue centers available in a star graded hotel, the researcher has limited the scope only to the room revenue management. Results proposed the lesser understanding and attention of hoteliers on systematic revenue management process in the hotel industry. Number of pricing and non-pricing revenue management tools was in practice with or without proper understanding on the substantial importance and effective usage of them. For an instance, length of stay control, overbooking management, and price discrimination are very popular room revenue management practices in some other countries (Karaesmen & van Ryzin, 2004; Ivanov, 2014) even though they are in less use in Sri Lanka.

Surprisingly, some of the hotels have not yet identified the importance of allocated resources and technical importance of revenue management strategies as they have paid a very less attention on it. For an instance, room pricing decisions are still at the scope of front office manager, sales and marketing department, or general manager or owner. Hence, calculation of revenue metrics and other important statistical analysis are not properly implemented which may lead to lose a considerable amount of short term and long term revenue. The overall conclusion of this study is that the existing knowledge and practical implementation of revenue management strategies is still limited and poorly understood. Therefore, scholars and practitioners should work on this area for the development of revenue management in the hospitality sector. Hence, there is a strong need on the vast ground of industry level strategic development. The hotels should invest on necessary resources that might be helpful in applying healthy revenue management practices such as necessary staff development, technical and technological applications, etc. more importantly, they should identify different revenue centers in the hotel and should developappropriate revenue strategies for each center. Further, the contribution to the revenues and profit of the property by each revenue center should be identified and analyzed.

The hoteliers should identify the right type of customer or the right target market/s in the hotel since that might important in increasing revenue. They should develop a long lasting relationship with the customer to ensure healthy revenue generation. Further, the right value proposition should be developed and it should be properly communicated to the right customer through a most identical value chain. Hence, the healthy relationship with all the channels is very much important. This might be helpful in increasing length of stay, and number of bookings during a given period of time which leads to increase the life time value.

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Othe Impact of Resettlement Program on the Inc Me of Households in Guto Gida Woreda, East Wollega Zone, Oromia Regional State, Ethiopia.

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A B S T R A C T

The study evaluated the impact of resettlement program on the households' inc ome in Guto GidaWoreda of East Wollega Zone Oromia, Ethiopia. Some of the resettlement schemes around theworld failed, while some others were successful. The objective of the study was to identify facators that cause resettlement and evaluate the impact of resettlement on was to identify the household's Tannual income in study area. The study was based on cross-sectional data collected from asample of 140 households (81 were program participants and 59 were non-program participants) using purposive and stratified random sampling techniques. Descriptive statisticsand econometric models were employed to analyze the data. The Logit model indicated education status of the households, availability of credit access, availability of agricultural inputs, land farm size holding by household, farm income of household were negatively and significantly related to program participation while shocks, livestock holding by household, access of extension service, and total asset of household were positively affect and significantly associated with program participants. Propensity score matching shows, that the average annual income of resettlement program participants more than income of non participant by19,162.6463ETB. Based on encouragement of resettlement the findings, the study suggests that strengthening the program have crucial role towards improving the income of households in the study area. Finally, the policy implication of the study is that income sources diversification, incorporated development program, practical based extension service delivery, access to credit service for the purchase of agricultural inputs and its preparations are needs policy attention.

dKey Words: Resettlement Programme, Propensity score matching, Househol Gida Woreda.

1. INTRODUCTION

Resettlement is a population movement planned directly by the government or private developers, where an area is chosen in order to resettle the population (Sherbininet al., 2010). If, resettlement is effectively used, it is a vital to realize these entire notions, and to proactively plan for resettlement as part of equipped protection approach (UNHCR, 2012). The effect of resettlement is more on women than men (Bisht, 2009, Terminski 2013). The resettled households have restricted options to rebuild their livelihoods (Wilmsen et al. 2011 and 2015) Ogwang et al. 2018b).

Many African governments to respond to the mismatch of Population numbers and environmental conditions, inter alia, to cope with landscapes that could not sufficiently care for their inhabitants have employed resettlement (Tilt B, 2016).

The other way of resettlement scheme would be implemented through centrally planned s coordination of the government policy intervention. This was really practiced in Ethiopia at different administrative regime where the areas were selected by resettlement administering authorities, without consultation

of the host communities and assessment of the area (Adugna M. 2012). On the other hand, a change in any one of these assets may result in a difference in the income assets of the settlers either positively or negatively (Zeleke,T., 2014,P 3).

As several researchers have tried to assess the resettlement schemes and identified practical evidences on factors affecting success or failure of resettlement program s, some of the resettlement schemes around the world failed, while some others were successful. This is due to the proper planning, site selection, size of land allocated to settlers, land tenure and farming systems, management and administration. (Woldeselassie, 2014, Gebregzihabher, 2014).In a China, studies found that resettlement is associated with a range of negative impacts on communities, such as reduced land holdings (Tilt, B.; Gerkey, D, 2016), reduced access to natural resources and ecologic 2011), declined household include services (Wilmsen, B.; Webber, M.;2015 mes (Sikka, G.; Mathur, V, 2015).Besides, and Yuefang, D. McDonald et al. (2018) investigated different villages after resettlement and found that some villages have higher incomes than others. Most existing literature on resettlement in developing regions, including Africa, has focused on the general effects (Quetulio-Navarra et al. 2014; Kyomugasho 2016: Ogwang et al. 2018a). A major cause of resettlement in Africa is the exploitation and transportation of raw materials and the creation or expansion of conservation areas. During the 1970s and 80s, the most drought stricken areas were limited to northern Ethiopia, especially Wallo and Tigray. Previous studies found that resettlement have negative impacts on the socio- economic conditions of the local regions (FAO, 2016). For instance, Desalegn (2018) identified that resettlement would cause disruption by causing impoverishment of host communities, destruction of productive assets, and disruption of the social fabric. Dwivedi (2017) added that resettlement could result in asset and job losses, the breakdown of the social and food security, credit, labor exchanges, networks, social capital and kinship ties. In addition, Heggelund (2010) found that the resettlement in Three Gorges Project displaced local people to dissimilar places, which caused their social networks to become disconnected and also led to potential variation with the new host community. Studies by Kassahun and Shiferaw (2017) shows that relocation was said to have preserve the life and was a dark spot in the settlement history of the country.

The suffering brought by displa ement and resettlement makes it hard for the women to adapt in the new environment (Terminski 2013). A study by Ogwang et al. (2018b) in the Albertine region of Uganda indicated that shortage of land and exploitation of the cash from compensation on treaties and freedom by me led to family collapse. The resettled households have limited options to reconstruct their livelihoods (Wilmsen et al. 2011). A study by Yan son et al. (2018) indicated that several challenges such as water scarcity, decreased access to forest products such as charcoal and firewood, and reduced access to fertile soils constrain the coping strategies of resettled communities. Hence, this researches that assess the impact of resettlement on the income of settler population is expected to play an important role in filling the existing knowledge gap, in terms of understanding the impact of resettlement on the income of settler population on lives of resettled people in their demographic factors economic factors and social capital. As the best knowledge of the researcher has checked that other researchers have not conducted studies on this title in Guto Gida Woreda, East Wollega Zone Oromia Regional state of Western Ethiopia. Therefore, this research contributes to fill the gap in the literature in this regard. So the research goal is to respond the following research questions:

1. Did resettlement affect (positively or negatively the income level of the households? If yes,) by what amount
2. What are the major challenges faced to settler households in the study area?
3. What are the impact of the resettlement programme on the household's annual income?

Resettlement at the international level

Resettlement is a lifeline open to some of the world's most vulnerable refugees (InaStrøm, 2017). According to the WBED report, transportation was the cause of 24.6 percent of resettlement projects between financed by orld Bank and active in 1993. We have therefore only random data on the scale of displacement accompanying the most spectacular projects of this kind (Terminski, 2013). Resettlement is recognized today as a vital instrument of international protection, integral to comprehensive protection and durable solutions strategies(UNHCR, 2011, 2017). In 2010, a massive earth uake in Haiti displaced over 1.5 million people. By 2012, more than 100,000 transitional shelters had been built across Haiti and 420,000 individuals had resettled in the United States of America. Extreme weather events in 2015 and 2016 further affected food access and agricultural production (NMUN.NY, 2016).

Resettlement in Africa

In Africa, resettlement is a serious matter of current as well as future concern. Africa's share of displaced people has been exceptionally high (Ohta and Gebre 2005). In some cases, local congestion was so serious that people were no longer able to produce enough food to feed their families and had to be assisted with food by the government (Mwiza, 2010). Resource redistribution is also another factor for displacement. The contested land reform and resettlement programme of Zimbabwe and Namibia is a typical example (Chimhowu and Hulme 2006).

Resettlement in Ethiopia

During the mid-1980s, the Ethiopian government relocated about 600,000 peo affected and over-populated regions to different resettlement sites, namely, le from drought- etekel, Metema, Assosa, Gambella, and Kefa, located in the western and southwestern parts. Of the total figure, over 82,000 people moved to etekel area (also called Pawe or Beles area), Western Ethiopia, originally inhabited by the Gumz shifting cultivators (Yntiso, 2002). Resettlement under the Imperial regime: The major objective of the plan was not food insecurity and famine as they were principal causes in the later government rather to relive population pressures in the highlands (Desalegn, 2003b).

Nevertheless, these were habitually small in size, informal in nature, and were mainly designed to achieve specific and limited objectives (Berhane 2003).

Resettlement under the Derge: Thebasic rational to design the policy of the Derg in relation to resettlements was the defective estimate of unutilized and underutilized land resources found particularly in the southwestern parts, and south of Ethiopia. Consequently, between 1975 to 1984 following the 1975 land reform proclamation, the resettlement authority (RA) and the relief and rehabilitation commission (RRC) jointly lunched the first phase planned resettlement programmes and thereby resettled 110,090 persons in 88 0 different sites (Mengistu, 20 5). The rational for this programme was that existing arrangement of dispersed settlements made it difficult to provide social services and to use resources efficiently (Kassahun 2000 and Desalegn 2003b).Planned resettlement gained currency and gathered momentum after the initiation of the innovative process in 1974 (Berhane 2003). Resettlement under the EPRDF:The basic assumptions behind the current resettlement programme remain similar to those made during previous periods (Imperial and Derg E regime). Official declaration, voluntary resettlement is view as a main and essential factor of endeavours aimed at addressing the paramount problem of food insecurity in 2001).

Cause of the resettlement in Ethiopia thiopia (GFDRE The official objective of resettlement plans in Ethiopia, both in the past and current regimes, as a stated in various documents, w s to prevent famine

or attain food security) by moving people from drought-prone and overloaded areas to lightly populated regions and unoccupied virgin lands (Yntiso 2002).Resettlement programmes in Ethiopia are taken as part of rural development strategy(Alula Pankrust, 2004).

The rapid population growth particularly in rural areas has decreased the size of land holding leading to landlessness and deterioration of the environment m which were considered as causes of migration and resettlement (Ahmed Moha med, 2005).Due to a long history of improper land use the soil in these regions unwisely used infertile and in capable of supporting productive capacity of the land (Asrat Tadese, 2009).

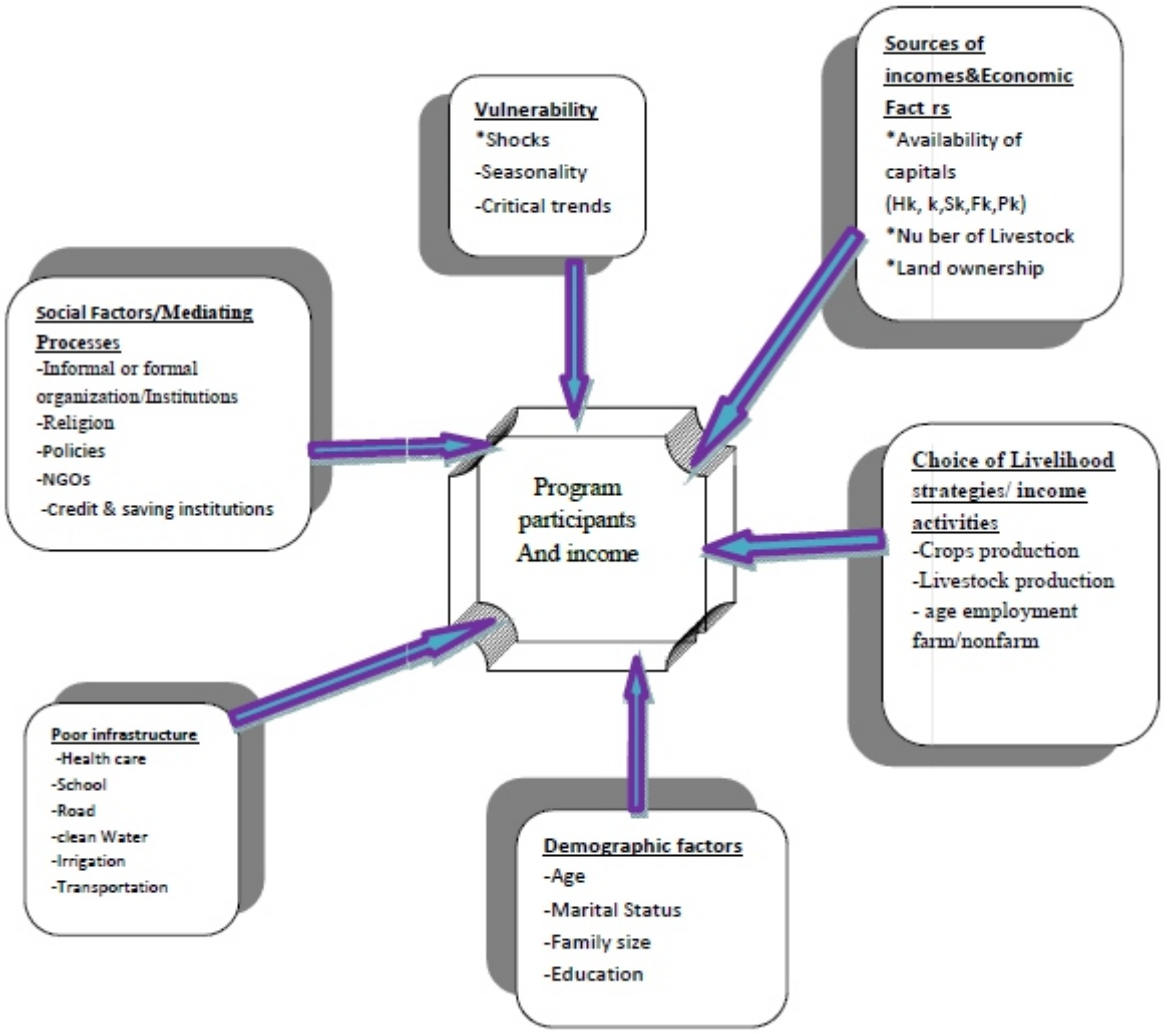
Functions of Resettlement

States are not obliged to accept refugees for resettlement, but rather voluntarily offer resettlement 0 places as a tangible expression of international solidarity (UNHCR, 2 14).The current resettlement program is narrowly focusing on shifting of people from the densely populated to sparsely populated areas of high potential agricultural land. Farmers continue to practice the unsustainable system of production in virgin lands thus presenting grave consequences creating catastrophic environmental conditions. Following the resettlement program there is considerable damage to the natural vegetation of the study area. Large areas are cleared of their vegetation for crop production, to build homesteads and to acquire fuel wood (Haile, 2007).

Conceptual and Analytical Framework

To know the concepts of key issues of the study and analytical framework is extremely significant. In this chapter, it is endeavour to give the importance to unusual issues that are raised in t is study and what analytical framework was followed for investigation. There are varied types of approaches and logical frameworks to study income of the settler peoples. In this paper sustainable income, approach is used as guiding framework. The framework consists of different mechanism, which is interrelated to each other being one factor dependent on the other factor. The major components of the framework are the context (trends, shock, local cultural practice and seasonality, landless, jobless, homeless, poor infrastructure, shortage of food, famine, drought, erratic rain falls poor soil fertility and etc that affecting income or livelihoods), income assets (human, social, financial, natural and physical assets), me livelihood strategies (farming, off farm, and nonfarm activities) (Genanew, A. 2011).

Figure 1: Conceptual Framework.



Source: Adopted From Different Literatures (2020)

Figure 1: Conceptual Framework.

2. METHODOLOGY

The researcher was used qualit tive and quantitative data and cross-sectional design. The data had been collected using open ended and closed ended questionnaires. For the analysis of the data both descriptive and econometric analyses was employed. The sampling frame for this study was rural resettled and non settled households that are living in lowland/kol . The study was employed different sampling te hniques to select the representative samples due to obtain both residents. Guto Gida Woreda has 23 kebeles of which 20 was rural and three (3) were Town Vulnerability *Shocks -Seasonality -Critical trends Sources of incomes&Economic Facters *Availability of capitals (Hk, k,Sk,Fk,Pk) *Nu ber of Livestock *Land ownership Social Factors/Mediating Processes -Informal or formal organization/Institutions -Religion -Policies -NGOs -Credit & saving institutions Program participants And income Choice of Livelihood strategies/ income activities -Crops production -Livestock production - age employment farm/nonfarm Poor infrastructure -Health care -School -Road -clean Water -Irrigation -Transportation Demographic factors -Age -Marital Status -Family size -Education kebeles having resettlement dwellers. Firstly, the Guto Gida Woreda was pur osively selected.

In addition to this, three kebeles which had settler's and non-settler's populations namely, Madda Jalala, Gadisa Oda and Kenafi had been selected from 23 kebeles of the Wored purposively and by simple

The selection of these kebeles are due to the majority of the households dwellers are new r settlers, which were settled in 1995EC/2003GC coming from Western Harargeh and the origin populations were less than these settlers. The total populations survive in the selected kebeles were 13145. The sample frame of the settlers and non-settlers from the three kebeles were13,142 from these (5764)settler populations and (7378)original populations of which 2657 male and 4721 female non-settlers and 2567 male and 3197 settlers).

From the total population 1314 of the three kebeles 5,224 are male and 7,918 female. Thirdly, adequate Respondent households had been selected from both settlers and non-settlers by using systematic Random sampling t chniques from selected kebeles. Hence, 140 households had selected randomly for the study from these sample kebeles including both headed households (Source: Guto Gida Woreda office, 2020). male and female-

METHODS OF DATA ANALYSIS

The study was employed both descriptive statistics and Econometric model. Statistical descriptions like table, graph, frequency descriptive, inferential statistical methods and percentages, Logit model and Propensity Score Matching method (PSM) were employed for analyzing and interpreting the data.

Conventionally, linear regression analysis was widely used in most economic and social investigation because of availability of simple computer packages, as well as ease of interpreting the results. However, according to Amemiya(1981), Maddala(1997) and Gujarati(2004) the linear probability model has an obvious defect in that the estimated probability values can lie outside the normal 0-1range and that it models the probability of Y=1as being linear:

$Pr(Y=1|X)=\beta 0 +\beta 1$ X. If we were to use an OLS regression line, we would get some straight line-perhaps at high values of X we would get values of Yabove1and for lo values of X we would get values of Y below 0. Nevertheless, a probability cannotbelessthan0orgreaterthan1.This nonsensical feature is an inevitable consequence of the linear regression model. Thus, t e predicted probability should remain within the [0, 1] bounds, i.e. $0 \leq Pr(y = 1|x) \leq 1$ due to bound between [0, 1] for all X. This req functional form for the probability such as "S-curve". ires a nonlinear

ECONOMETRIC MODEL SPECIFICATION

The study was affected by the independent variables such as demographic factors, social factors, Economic factors, and sources of income factors, household education, and factors causes' resettlement. The major pillars of this model are individuals, treatment and potential outcomes The treated households were from the resettlement programme participants and the control group will from the non-participants for comparison. In order to overcome the problem Propensity score matching method will be applied for impact evaluation in the absence of baseline survey data. Imbens (2000) and Lechner (2001) when leaving the binary treatment case the choice of multinomial logit is quite relatively preferable mathematics easier to analyze dichotomous variables al performance to estimate. In the cause of and approaches binary treatment the treatment indication Di equals 1 if individual i received treatment and 0 otherwise. The potential outcomes were then defined as Yi (Di) for each individual i, where i =1…, N and N denoted the total population. The treatment effect for an individual i was written as: $T = Y(1) – Y(0)$

A logit model would be used to estimate propensity scores using a composite of pre-intervention characteristics of the sample households (Rosenbaum and Rubin,1983) and matching was then

performed using propensity scores of each observation. In estimating the logit model, the dependent variable was resettlement programme participation, which took the value of 1 if a household participate in resettlement and0 otherwise. The specification of the logit model was as follows:

We begin from the linear probability model of the form:

$$\Pi(\psi=1/\xi_t)=Z_t=\beta_0+\beta_1\xi_1+\beta_2\xi_2+---+\beta_\kappa\xi_\kappa----------(1)$$

$\mathbf{Pi=\frac{1}{1+e^{-zi}}}$ **is simplified to:**

$$\mathbf{Pi=\frac{e^{zi}}{1+e^{zi}}}\text{ ----------(2)}$$

Where, Pi is the probability that the i^{th} households will participate in resettlement, z_i -is a linear function of 'n' explanatory variables (x) and will be expressed as:

$$Zi=\beta_0+\beta_1\xi_1+\beta_2\xi_2+\quad -\square+\beta_\kappa\xi_\kappa+Y_t-----------(3)$$

Where, þo -intercept, þi - regr ɛssion coefficients to estimate, U_i– is an error term.

$\mathbf{1-Pi=\frac{1}{1+e^{-zi}}}$ **is simplified to:**

$$\mathbf{1-Pi=\frac{1}{1+e^{zi}}}\text{ ----------(4)}$$

Where 1 – Pi is the probability tlat a household belongs to the non-programme participant.

$$\frac{Pi}{1-Pi}=(\frac{1+e^{zi}}{zi})=e^{zi}\text{or }_{1+e-}$$

$$\text{Or }(\frac{Pi}{1-Pi})=(\frac{e^{zi}}{1+e^{-zi}})=e^{(\beta_0+\beta_1\xi_1+\beta_2\xi_2+---+\beta_\kappa\xi_\kappa)}\square-----(5)$$

This is known as Odds ratio. Taking the natural logarithm of the Odds ratio, thelogit model is:

$$Li=\ln[\frac{Pi}{1-Pi}]=\ln e^{(\beta_0+\beta_1\xi_1+\beta_2\xi_2+---+\beta_\kappa\xi_\kappa)}=\beta_0+\beta_1\xi_1+\beta_2\xi_2+---+\beta_\kappa\xi_\kappa\square\ 6$$

Where x_1, x_2, --------, x_k are demographic, social and Economic factors that cause resettlement which will be included in the above econometric model.

Propensity scores and PSM Prior to analyzing the impact f resettlement program by employ PSM mat hing algorithms, logit regression model is used a a necessity to identify the program participant's annual income in order to understand the importance of resettlement program. As indicted in the former sections the dependent variable in this model is a twofold variable indicating whether the household head is resettlement program participant or non-participant. The model is estimated with STATA software using the propensity score-matching algorithm developed by Leuven and Sianesi (2003). Propensity score matching (PSM) build a statistical evaluation group that is based on a model of the probability of participating in the treatment, using observed characteristics.

Program participants are then atched on the basis of this probability, or propensity score, to nonparticipants of the program. The average treatment effect of the program is then deliberate as the mean distinction in outcomes across these two groups. The validity of PS depends on two circumstances: (a) conditional participation) and (b) sizable independence (namely, that unseen factors do not affect common support or overlap in propensity scores across the participant and nonparticipant samples (Shahidur R. Khandker,Gayatri B. Koolwal & Hussain A. Samad, 2010).

Relocated people suffer from th loss of farmland, forestland, houses and other properties, which may then reduce their income (Wang, P, 2013, Tilt and Gerkey 2016). McDonald et al. (2018) found

resettlement could have ositive impacts on maintaining and raising the income level of the resettled community. Galipeau et al. (2013) compared the distinction between a resettled community and a non-resettled community in term of income and landholding, showing that resettled communities have a higher income level.

The establishment of this counterfactual often creates problems where before intervention situation remains missing. Impact through this outcome variable was obtained by matching an ideal comparative group (non-s ttler farmers) to the treatment group (settler farmers) based on propensity scores (P-scores) of X. X was the set of observable characteristis that determine settlement participation. By so doing, the selectivity bias was largely eliminated.

Equation 1 below presented the basic evaluation problem comparing outcomes Y across treated and non-treated individuals i:

$$Yi = \alpha Xi + \beta Ti + \varepsilon i \quad \text{..... (1)}$$

Here, T is a dummy equal to 1 for those who participate in resettlement program and 0 for those who do not participate in the program. X was set of other observed characteristics that determine participation in resettlement and 'ε' is an error term reflecting unobserved characteristics that also affect Y. To develop the PSM model, let Yibe the outcome variable of household i, such that Y1i and Y0i denote household outcomes with and without participating in resettlment, respectively. A dummy variable Ti denotes rettlement participation by household i, where Ti = 1 if the household had participated in resettlement and, T0 = 0, otherwise. The outcome observed for household i, Yiwas defined by the switching regression (Quandt, 1972).

$$Yi = TiY1i + (1-Ti)Y0i \quad \text{..... (2)}$$

The impact of resettlement on income of settler i's is given by;

$$\Delta iYi = Y1i - Y0i \quad \text{..... (3)}$$

Where, ΔiYi denotes the change in the outcome variable of farmer i, resulting from participation in resettlement. A farmer cannot be both ways, therefore, at any time, either Y1i (resettling farmer) or Y0i (non-resettling famer) is observed for that farmer. This gives rise to the selectivity bias problem (Heckman et al., 1997). The most commonly used evaluation parameters are averages (Heckman et al., 1997), i.e., using the average treatment effect, (ATE) and the average treatment effect on the treated (ATT). For this study, ATT was used to estimate the impact of rettlement on income of settler population and it was represented as follows:

$$ATT = \{E(\Delta i|Ii=1)\} = E\{Y1i - Y0i|Ii=1\} = E\{Y1i|Ii=1\} - E\{Y0i|Ii=1\}\ldots \quad \text{..... (4)}$$

From equation (4), E{Y0i|Ii=1} was the missed data representing the outcomes of non-resettling group. The outcomes of non-res ttling farmers could rewritten as:

$$E\{\Delta i|Ii=1\} = E\{Y1i|Ii=1\} - E\{Y0i|Ii=1\}\ldots \quad \text{..... (5)}$$

However, a bias of the magnitude indicated in equation (6) below results when non-resettling farmers were selected for comparison with settling farmers, without controlled for the non- random resettlement assignment (Namara, 2014).

$$Bias = E\{\Delta i|Ii=1\} + \{E[Y0i|Ii=1] - E[Y0i|Ii=0]\}\ldots \quad \text{..... (6)}$$

Finally, up on establishing common support for the resettler farmers, the ATT of resettlement on settlers' income can then be estimated using the following equation:

$$ATT = [E(\Delta_i | I_i = 1] = \frac{1}{I} \sum_i (\quad_{0i}) I_i = \frac{1}{I_i} \square \square_i I_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

Table 1: Summary of Variables included in the models

S/n	Variable		Units of measurement	Expected Sign
1	Progptn	participation in resettlement Programme	Dummy (Program participant=1, not participant=0)	
2	Totinc	Total annual income(outcome variable)	Continuous: Measured in Birr or total annual income in birr.	
3	Gen	Gender of household	Dummy: 1 if male, 0 otherwise	-ve
4	Age	Age of house hold head	Continuous Measured in year	+ve/-ve
5	Educ	Educated household	Dummy: 1 if Literate , 0 Otherwise (Illiterate)	+ve
6	Famsize	Family size of lousehold	Continuous	+ve/-ve
7	Farmsize	Farm size	Continuous in hectare	+ve/-ve
8	Shoc	Shocks	Dummy, 1(if there is drought & famine), 0 otherwise (shortage of land)	-ve
9	Nfarminc	Total Non-farm income	Continuous: measured in br.	+ve
10	Farminc	Total farm income	Continuous in Ku or Kg	+ve
11	Craa	Credit access	Dummy (No=0 , Yes =1)	+ve
12	Extns	Extension service	Dummy (access=1, no access=0)	+ve
13	Acoirrin	Access of irrigation	Dummy 1 If irrigation access, 0 if no access	+ve
14	Dismark	Distance to market	Continuous: Walk hours	-ve/+ve
15	Livestock	Livestock hol ding	Continuous measured in TLU	+ve
16	Tot asset	Total household asset	Continuous Measured in br/number/hectare	+ve
17	Agrinp	Access of agricultural input	Dummy: 1 if access to agri. input, 0 otherwise.	+ve/-ve

Source: Own Estimation, 2020.

3. RESULT AND DISCUSSION

Descriptive Analysis of Sample Households' Characteristics

The results of descriptive analyses were presented in the form of mean, mean difference, standard deviation, frequency distributions and percentage. The descriptive statistics was runned to observe the distribution of the independent variables. The socio-demographic, socio-economic and institutional characteristics of the respondents' household heads were analyzed. The sample under consideration consists of 140 households. Of the total, sample respondents 81 (57.86%) were participants of the program and 59 (42.14%) were non-participants of the program.

Chi-square (χ 2) and t – statistics tests were used to identify whether the explanatory variables are statistically significant or n t significant. The t-test was used to test the significance of the mean value of continuous variables of the two groups of participants and non-participants and chi-square (χ 2) was used to test the significance of the mean value of the potential discrete (dummy) explanatory variables. Generally, in this section socio-demographic characteristic of sample households such as gender of household heads, age of household heads and total family size; economic characteristics of sample

households such as livestock holding, farm land size and inputs of production used; households characteristics or attributes such as education status of household heads and accessibility to information; institutional characteristics such as availability of extension services and credit services characteristics of sampl households and distance of household residence from nearest to water source, nearest to health, nearest to school and nearest market center for discrete as well as continuous variables were anal zed.

Households' Socio-Economic haracteristics

Households' farmland size holding: The average mean of land holding of the surveyed households equal to 3.69 ha with a minimum of 2and a maximum of 12 ha. This figure is larger than the average national figure, which is 1.2ha (CSA, 2008) indicating the existence of relatively higher land holdings in the study area. Even though this figure is over than the national average, there exists a high gap among farmers based on their farmland holdings. The average mean of land size for program participants and non-participants were 5.54 and 2.35 respectively with the mean difference of 3.197. This implies that mass of resettlement pr gram participant farmers had small land size. However, they were economically active age groups while host households or non-program participant farmers had large land size. Land size here consists of both cultivable and non-cultivable lands owned by the household farmers. No are mostly used for grazing and other purposes. The main source of labour fo in the study area is family labour due to they have excess productive force as t -cultivable lands crop production e researcher was observed the study area. The average family size of the surveyed farm households equals to 8.06. This is slightly higher than the national average of 6 members (CSA, 2008).

Households' Livestock Holding: This reveals the total livestock the farmer own in tropical livestock unit. It is a proxy variable for the wealth position of the farmers. The study area was known by mixed crop- livestock farming. Average livestock owned in TLU by each farm household equals to 7.79. The minimum and maximum livestock owned is 1 and 20, respectively. The draught power used for different farming activities was take as major source of production in the study area. The household farmers with higher number of oxen would be more confident to produce more crop grains rather than counterparts because they had one of the most important factors of production, which creates confidence in hearts of the household's farmer for crops production. T is was mainly because one with higher number of oxen could finish farming activities efficiently on time. The result of FGD and field observation by the researcher were indicates that most of the household heads undertook beef farming activities in the study area. Majority of farmer households attained their income from mi ed farming (like beef cattle rearing for commercialization and production, rarely dairy farming, grain crop production and others). The average number of livestock owned by each farmer was equal to 7.79 in TLU with standard error of 0.245and a 95% confidence interval of [7.308 8.278].

Household heads access to Agricultural input (agrinp): Regarding to agricultural inputs from the total sampled households 85(60.71%) access to agricultural inputs while 55 (39.29) farmers were not access to agricultural inputs. The mean difference between those g ined agricultural inputs in the program participation and non-participation were 0.27. Generally, the null hypothesis' was rejected, due to our variable, access to agricultural input was our study.

Institutional Factors: From the total 140 farm households 83 (59.29%) households had been credit access while the remaining 57 (40.71 %) households did not have access to credit. The mean difference between program participants and non-participants on credit a cess was 0.56. It is statistically

significant at a significance level 1%, 5% and 10% [2.624, 1.761, and 1.345] respectively. Therefore Ho: is rejected. It means that our variable was important in our study. Of the total respondents, 105 (75%) households had access to extension while the rest 35 (25%) did not have access to extension.

The average mean of credit access of those participating in resettlement program were 0.73 while non-program participants mean average of access to credit were 0.78. Usually, the null hypothesis' was rejected, due to our variables (access to credit, and access to extension services) we e more vital in our study.

Hypothesis testing and econo

1. Hypothesis Testing

Table 2: Summary results of LR test of hypotheses for the aforementioned results

Null hypothesis	Calculated LR ratio	Critical LR at 5% level	Decision rule
$\beta_1 = \beta_2 = \ldots \beta_{14} = 0$	139.66	6.57	Reject Ho
$\delta_1 = \delta_2 = 0$	8.36	0.013	Reject Ho
$\beta_1 = \beta_2 = \ldots = \beta_6 = 0$	34.56	1.635	Reject Ho

Source: Own computation from survey data (2020)

Results of Logit model for resettlement program participation decision of the sample households As already mentioned, this st dy employed the logit model to estimate and conclude the parameters of the determinants of farmers' resettlement program participation decision in the study area. The frequency distribution of resettlement program participation reveals that out of the 140 total sampled households, 81 households (57.86%) were participants in the program while the remaining 59 (42.14 %) were non-participants of resettlement program. Thus, the result expose that more than half of the sampled respondents were program participants.

Table 3: Estimates of Maximum-likelihood logit model on the determinants of resettlement program participation.

Progptn	Coef.	Std. Err.	Z	P>z	[95% Conf.Interval]	
Gen	-.1659368	1.805019	-0.09	0.927	-3.703709	3.371835
Educ	-2.098819	.9166884	-2.29	0.022**	-3.895496	-.3021432
Craa	-1.884239	1.010618	-1.86	0.062*	-3.865014	.0965356
Extns	2.453423	1.123667	2.18	0.029**	.2510768	4.65577
Agrinp	-1.697162	.86886	-1.95	0.051*	-3.400097	.0057718
Shoc	3.157063	1.2286	2.57	0.010**	.7490517	5.565074
Famsize	.3221672	.2140418	1.51	0.132	-.097347	.7416813
Age	-.0125211	.0564392	-0.22	0.824	-.1231399	.0980976
Dismark	-.0623245	.0576121	-1.08	0.279	-.1752422	.0505932
Livestock	.3418422	.1365745	2.50	0.012**	.0741612	.6095233
Farmsize	-1.26825	.3594521	-3.53	0.000***	-1.972763	-.5637372
Nfarminc	3.50e-06	9.65e-06	0.36	0.717	-.0000154	.0000224
Farminc	-.0000226	7.93e-06	-2.85	0.004***	-.0000382	-7.08e-06
Totasset	.0000279	.0000117	2.38	0.017**	4.95e-06	.0000508
Constant	.1390963	3.129724	0.04	0.965	-5.99505	6.273242
Logit Regression						
				Number of observation	140.000	
Mean of dependent Var.	0.579			LR chi2(14)	139.67	
SD of dependent Var.	0.496			Prob> chi2	0.0000	
Log likelihood	-95.304848			Pseudo R2	0.7328	
***p<0.01, ** p<0.05, * p<0.1						

Source: Own computation from survey data using stata14.2 (2020)
*****, ** and * shows significance at 1%, 5% and 10% significance levels, respectively.**

Out of the total 14 explanatory variables, 9 variables of which 5 were dummies and 4 continues variables were found to be significantly creating variation on the probability of farmers' resettlement program participation.

The coefficients of gender of household head, age of household heads in years, family size of household heads in number, distance from market in kilometres and non-farm income were not % statistically significant at all 1 % 5% and 10% significance levels implying that they were less important in affecting the probability of participation in resettlement program.

Nevertheless, under logit model coefficient of the variable have no direct interpretation; as a result, we can use Marginal effect. Logit is all about prediction for interpretation and hence, we must find predicted probabilities to interpret the significant variables. Therefore, interpretation can be derived from the marginal effects after logit.

Table 4: Estimation of Marginal effects after logit regression Marginal effects after logit
y = Pr (progptn) (predict)
= 0.76763364 Variable dy/dx

Variable	dy/dx	Std. Err.	z	P>z	[95% C.I.]		X-bar/mean
gen*	-.0283911	.29758	-0.10	0.924	-.611638	.554856	.957143
educ*	-.3821786	.14572	-2.62	0.009	-.667778	-.096579	.457143
craa*	-.3045143	.15859	-1.92	0.055	-.615346	.006317	.592857
extns*	.5150614	.20673	2.49	0.013	.109879	.920244	.75
agrinp*	-.2734329	.13802	-1.98	0.048	-.543953	-.002913	.607143
shoc*	.4686937	.12067	3.88	0.000	.232194	.705193	.392857
Famsize	.0574657	.04044	1.42	0.155	-.021805	.136736	8.06429
Age	-.0022334	.01015	-0.22	0.826	-.02213	.017663	45.3857
Dismark	-.011117	.00989	-1.12	0.261	-.030497	.008263	17.6214
livest~k	.0609752	.02561	2.38	0.017	.010785	.111165	7.79286
Farmsize	-.2262206	.07985	-2.83	0.005	-.382727	-.069714	3.69286
Nfarminc	6.24e-07	.00000	0.37	0.711	-2.7e-06	3.9e-06	22201.4
Farminc	-4.03e-06	.00000	-3.25	0.001	-6.5e-06	-1.6e-06	124758
Totasset	4.98e-06	.00000	2.29	0.022	7.1e-07	9.2e-06	181864

(*) dy/dx is for discrete change f dummy variable from 0 to 1
Source: Own computation from survey data using stata (2020)

Interpretation of Significant Variables

Education status of household head (educ): The coefficient of this variable was significant at 5% level of significance and it is influencing resettlement program participation negatively. Our result was showed that educated household heads did not more involve in resettlement program. The marginal effect result shows that, negative sing which implies educated households had a lesser probability to involve in resettlement program. Educational attainment by the household head could lead to awareness f the possible advantages of resettlement program in order to innovation of new site due to enhance household incomes.

This shows households with better educational background are less likely to involve in resettlement program rather than illiterate households. The marginal effect of t e variable shows that keeping all other variables constant at their mean value, educated household heads have 38.2% times less probability of participation in resettlement program than those illiterate household heads. It is agreed by the finding of Vande Walle (2000) and Melaku (2014).

Credit access (craa): Farmers who have credit access are fewer participants in resettlement program. This is mainly because of the fact that even if their farm production is affected due to different factors they can start a business without participating in the resettlement program.

Therefore, access to credit influences the farm households' participation in resettlement negatively. The study result also reveals that credit access is statistically significant at 10% level of significance and a change from no credit access to access decreases the probability of the decision to join resettlement program other things remain constant, households those had access to credit has30.45%less probability to participate in the programme than their counterpart. It is supported by Muez (2014) and Adugna, (2012).

Access to extension services (extns): access to extension service influences the farm households' participation in resettlement program is positively associated with household total income and statistically significant at 5% of probability level. This may indicate that in the study area, those households who get technical advice, training or those who participated on field demonstrations are well aware of the advantage of agricultural knowledge and willing to generate more production, in this manner improving the household annual income. This result was decided with Adugna, (2012) and Muez (2014). The marginal effect of the variable indicates that household access to extension service of the discrete effect change from 0 to 1 in access to extension service decrease the probability of participation in resettlement program by 51.51 percentage points than their counterparts others remain constant at their mean value.

Access to agricultural input (agrinp): Farmers who have access to agricultural input can increase their income rather than those who have no access agricultural inputs. So this implies that decrease the participation in resettlement program as compared to those who do not have access. Those who have access to agricultural input have the chance of producing more output. Therefore, access to agricultural input influences the farm households' probability of participation in resettlement program negatively. The study result also reveals that access to agricultural input is statistically significant at 10% level of significance and a change from no access to access agricultural input decreases the probability of the decision to join the program

Shocks (shoc): The coefficient on the shocks (drought & famine) is significant at 5% level of significance with positive sign. It puts forward that a farmer who is facing challenges coming from drought and famine is more likely to participate in resettlement program as compared to those who are not facing droug t and famine. The result indicates that being exposed to shocks (droughts and famine) increase the likelihood of household participation in the resettlement program by 46.87% than households not exposed to shocks. It is agreed by A. Arnall (2014).

Livestock: livestock holding, measured in tropical livestock unit, was found to have positive and significant effect at 5% level of significance on the probability to participate in resettlement program. The positive relationship indicates that households with larger livestock holding may migrate to new

site to feeding his/her livestock's. Moreover the implication of the result was that livestock are an important source of income in rural areas to allow purchase of farm inputs that are needed to enhance farmer's production/income. Households who have huge number of livestock might consider their asset base as a mechanism of cover any threat associated with the participation of resettlement program. In the study area marginal effect of this variable shows that as the number of livestock in tropical livestock unit increases from its mean value by one unit, the chance to participate in resettlement program increase by 6.098% points, while keeping all covariates constant at their mean value. The evidence of this finding reflected in contrast to the idea that farmers who have enormous number of livestock are wealthier and have sufficient number of oxen to plough their field timely as a result of which they quickly decide to participate in the resettlement program. This is in line with the result of Asayehegnet, al. (2011) and Hadush (2014).

Farmland size in Hectare (fa rmsize): This is the total land size owned by each sampled household heads given in hectare. The result of this study showed that size of farmland has a negative significant effect at 1% level of significance on the probability of farmers' decision to participate in resettlement program. Farmer households that had large farm size did not participate in resettlement program since he/she has sufficient land used for mixed farming system both crop production and livestock rearing. The marginal effect of thi variable reveals that, a marginal change in farm size from the average of 3.693hectare is associated with a 22.62% points decrease in program participation, keeping other variables constant at their mean average. This resultagainst the expectation supported by Asayehegn et al., (2011), as Asayehegn finding households having large cultivated land has more income but my finding were against this finding.

Farm income of Household (farminc): The result of this study shows farm income from different farming activates were also one of the variables that affect participati n in resettlement program. The coefficient on farm income of the household's head is significant at 1% of significance level with negative sign. The marginal effect of this variable shows that as farm income from mixed farming s urce increases from mean value (124758.2) by one Birr, the probability of participation in resettlement program less by 4.03x10-6percentage (-0.000403%) than their counter parts, while other variables were kept constant at their mean value. The result of this finding is in line with the findings of Jamal Haji & Mohammed Aman (2013).

Total asset owned by house hold (totasset): Household's total asset was found to have a positive effect on the program and significant influence on the probability of participation in resettlement program of the household heads. Total asset owned by sampled household obtained from different assets or capital sources such as: [human, social, financial, physical and natural] capitals. The FGD conducted there showed that human capital was one of the household assets. Some seasonal diseases affect the household's asset in study area. As the residence said that physical capital less in the study area, this indicates that some projects are infant stage as a researcher observed a study sit . Example [New airport site and asphalt]. Financial and social resources were to some extent available, while natural capital like land resource was the abundant assets for each sampled households in the study site as the researcher discussed with respondents. This variable is statistically important at 5% level of significance. The marginal effect results showed that a one Birr increase in total asset of household heads from the average/mean 181,864increases the likelihood of participates in resettlement program by 4.98x10-6percentage whereas other factors remaining constant.

The major challenge faced to esettlement Program participants

Different challenges were faced to resettlement program participants and non-participants during resettlement program were intended. As the researcher was undertook FGD with the sampled household heads they were raised more ideas regarding to challenges problems faced to them.

Especially those program participant households were talk different factors that challenged them to involve in the program. Those factors are shock (drought and famine), shortage of own land size in hectare, family size mean that over populated and joblessness while non program participants were talked problems like shortage of land size due to it shared for settler household and other social resources which is common for all societies. The major problem was famine, drought and shortage of farming land. Desalegn was stated that a lot of problems and challenges had characterized history of resettlement program in Ethiopia, especially the resettlement under taken during the Derg regime (Desalegn, 2003b).

Impact Evaluation

An impact evaluation is essentially a problem of missing data, because one cannot observe the outcomes of program participants had they not been beneficiaries. Without information on the counterfactual, the next best alternative is to compare outcomes of treated individuals or households with those of a comparison group that has not been treated. In doing so, one attempts to pick a comparison group that is very similar to the treated group, such that those who received treatment would have had outcomes similar to those in the comparison group in absence of treatment. Successful impact evaluations hinge on finding a good comparison group (Shahidur R. Khandker,Gayatri B. Koolwal & Hussain A. Samad, 2010).

Propensity scores

Prior to analyzing the impact of resettlement program by employ PSM matching algorithms, logit regression model was used as a necessity to identify the program participant's annual income in order to understand the importance of resettlement program. As indicted in the former sections the dependent variable in this model is a twofold variable indicating whether the household head was resettlement program participant or non-participant. The model was estimated with STATA 14.2 computing software using the propensity score-matching algorithm developed by Leuven and Sianesi (2003). The validity of PSM depends on two circumstances: (a) conditional independence (namely, that unseen factors do not affect program participation) and (b) sizable common support or overlap in propensity scores across th participant and nonparticipant samples (Shahidur R. Khandker,Gayatri B. Koolwal & Hussain A. Samad, 2010).

Evaluation of Impact of Resettlement on Income of Settler household by Propensity Score Matching

Under this, Propensity score use logit model to estimate the probability of each group i.e., resettlement participants and non-participants as a function of observable covariates. The result of propensity score matching of program participant and their counterpart was sed to define the common support region. Supplementary, the quality of matching algorithms also identified in orientation to the propensity scores pseudo R2 and significance level of each covariates. Table {4} shows the logit estimation results or marginal effect after logit of sample household head in the program were used to create propensity score.

The Pseudo R2 which makes clear to how well the regressors explain the participation probability is 0.7328 for logit model is larger. A large pseudo-R2 value shows that resettlement program participants' households do have some divergent individuality overall and automatically finding a good match between participants and non-participants households becomes less challenging.

Depending on the propensity score-matching distribution of both resettlement program participants and non-program participants, the common support region was identified. As shown on table {5} below the estimated propensity scores vary between 0.0442142 to 1 for the program participant and 1.36x10-15to 0.908626 for non-participant.

The common support region is area, which lies between 0.0442142 up to 1, is larger than that of none program participant common support region [1.36x10-15 to 0.908626]. Therefore, household who estimated propensity score is less than 1.36x10-15and larger than 0.908626 were surplus from common support region. So observations which lie outside this region are discarded from analysis. It is support by (Marco & Sabine Kopeinig, May, 2008). Thus, 56 households from program participant were out of the common support region while 25 household heads' were involved in common support region.

Table 5: Distribution of estimated Propensity Score matching.

Resettlement program	Sample size	Mean	Std. Dev.	Min	Max
Total observation	140	0.5791825	0.4341378	$1.36x10^{-15}$	1
Participants	81	0.9030572	0.1930847	0.0442142	1
Non-participants	59	0.1345411	0.229484	$1.36x10^{-15}$	0.908626

(Source: Own computation survey data, 2020)

Matching algorithms

According to Khandker et al (2010), comparing different matching methods results is one approach to check robustness of average treatment effect. Four matching algorithms (i.e., Nearest Neighbour matching, Radius matching, Calliper matching, and Kernel matching) were checked to choose the best matching methods. The choice of matching estimators was based on pseudo R2, matching sample size; mean test referred to as to balance test and insignificancy of variables in analysis after PS matching.

Low pseudo R2 value and large matched sample size is preferable. In order to accept the findings of PSM, it is suggested that the standardized mean difference needs to be at most 20% and the pseudo R2needs to be low after the matching process (Rosenbaum, 2005; Calierdo and Kopenig, 2008). In line with those authors, the researcher would be obtained the least amount of pseudo R2 that was 5.5% and 80 number of matched observation.

Thus depending on the kernel matching criteria, kernel(0.5) was selected in which the mean difference of the two groups explanatory variables were significant, Pseudo R2 is the lowest compared to other matching categories and finally balance 80 sample size.

Table 6: Performance of Propensity Score Matching Estimators

Resettlement program	Sample size	Mean	Std. Dev.	Min	Max
Total observation	140	0.5791825	0.4341378	$1.36x10^{-15}$	1
Participants	81	0.9030572	0.1930847	0.0442142	1
Non-participants	59	0.1345411	0.229484	$1.36x10^{-15}$	0.908626

(Source: Own computation survey data, 2020)

Testing the balance of propensity score and covariates

The common support or overlap condition assumes that units (sampled households') with the same covariate values have a positive probability of being both treated and untreated. As shown in table (7), the PS distributions appear with sufficient common support region that allows for matching. PSM require the fulfilment of the balancing property, i.e., the covariate means between participants and non-participants should be similar after matching. The aim of this is belonging to verify that treatment is independent of unit characteristics after conditioning on the observed covariates (Dagne and Fischer, 2015).

Table 7: Propensity Score Matching and Covariate balancing.

Variable	Samples	Mean		Reduction Bias %	t-test	
		Treated N=81	Control N=59		T	p>|t|
Gen	Before Matching [Unmatched]	.96296	1	-17.9	-1.75	0.081
	After Matching [Matched]	.94118	.98279	-20.2	-0.62	0.540
Educ	Before Matching [Unmatched]	.30864	.16049	31.4	2.25	0.026
	After Matching [Matched]	.58824	.42662	34.3	0.93	0.361
Craa	Before Matching [Unmatched]	.35802	.91358	-140.7	-8.94	0.000
	After Matching [Matched]	.47059	.50386	-8.4	-0.19	0.852
Extns	Before Matching [Unmatched]	.7284	.93827	-48.5	-3.71	0.000
	After Matching [Matched]	.58824	.71385	-29.0	-0.75	0.458
Agrinp	Before Matching [Unmatched]	.49383	.17284	68.7	4.58	0.000
	After Matching [Matched]	.64706	.4531	41.5	1.12	0.269
Shoc	Before Matching [Unmatched]	.64198	.76543	-32.9	-1.73	0.086
	After Matching [Matched]	.29412	.14581	39.5	1.03	0.311
Famsize	Before Matching [Unmatched]	8.8395	13	-154.9	-9.38	0.000
	After Matching [Matched]	7.8235	9.2754	-54.0	-1.22	0.230
Age	Before Matching [Unmatched]	46.185	60.395	-133.1	-8.89	0.000
	After Matching [Matched]	42.353	46.455	-38.4	-1.07	0.294
Dismark	Before Matching [Unmatched]	17.272	24.654	-95.3	-6.83	0.000
	After Matching [Matched]	18.588	17.914	8.7	0.24	0.813
Livestock	Before Matching [Unmatched]	8.4938	10.012	-53.4	-4.14	0.000
	After Matching [Matched]	7.4706	6.5769	31.4	0.91	0.371
Farmsize	Before Matching [Unmatched]	2.3457	4.642	-127.5	-14.08	0.000
	After Matching [Matched]	3.0294	3.5056	-26.4	-0.72	0.474
Nfarminc	Before Matching [Unmatched]	23173	2441.4	30.6	2.88	0.005
	After Matching [Matched]	11699	10353	2.0	0.15	0.881
Farminc	Before Matching [Unmatched]	1.3e+05	1.8e+05	-115.7	.7.11	0.000
	After Matching [Matched]	1.3e+05	1.4e+05	-31.3	-1.00	0.327
Totasset	Before Matching [Unmatched]	1.8e+05	1.4e+05	87.2	5.94	0.000
	After Matching [Matched]	1.7e+05	1.8+05	-15.4	-0.46	0.648

The whole balance indicators of covariates										T= Treated group C=Control group
Sample	No. of Observation			Ps R2	LR chi2	p>chi2	Mean Bias	Med Bias	B	R	%Var
	140	T	C								
Unmatched	64	64	0	0.717	158.1	0.000	75.4	68.7	206.9*	20.71*	44
Matched	76	17	59	0.255	12.02	0.678	25.4	29.0	126.5*	0.99	11

Source: Own computation from survey data, 2020

As shown in the table 7 above, matching reduce total bias, reduce pseudo R2 from 0.717 before match to 0.255after match and any difference between the two groups covariates mean in the matched sampled has been reduced and after matching nine variables are significant as before matching and were balanced treated and control group.

Table 8: Impact of resettle ent program participation decision on household income (ATT-Average treatment effect on treated)

Variable	Sample	Treated	Controls	Difference	S.E.	T stat
Totinc	Unmatched	133555.914	115582.22	17973.6932	6351.13923	2.83
	ATT	134445.476	115282.83	19162.6463	15933.3126	1.83

Source: Own computation from survey data, 2020

Average Treatment effect on the Treated (ATT) was estimated depending on Kernel (0.5). The Kernel (0.5) algorithm estimated the average annual income of the matched treated household farmers to be 1, 34,445.476ET and of the matched control of household head farmers to be1, 33,555.914ETB. Hence, the ATT for that reason resettlement program participant was received 19, 162.6463ETB annual income. In summary, the empirical findings suggest that involvement of resettlement program parti ipation is enhanced households' annual income for treated households in a significant way. This is supported with the finding results of Adugna (2012), Jamal Haji and Mohamed Aman (2013).

4. CONCLUSION S AND RECOMMENDATIONS

Conclusions

Resettlement is a recovery liberate to some of the world's most vulnerable displacement. From the research findings, it could b concluded that resettlement program is play a fundamental role in increase of household income in the study area due to resettled in favourable site. Farmers household have confirmed that they were benefit greatly from these resettlement program and they had been improved their income living standards. To sustain the positive impacts of the program and to enable treated households make optimum resettlement participation. Purposely, expansion of new habitat and creating additional access of infrastructures and to obtain fertile/virgin land for agricultural productivity on a sustainable basis and thereby increase smallholder farmers' household annual income.

The logit regression shows that from the fourteen variables included in the analysis, nine of them were significantly affecting the households those participating in the programme. Shocks (drought and famine) and farm land size of household heads were the more susceptible for the programme participation. Household's heads in the study site were not more educated rather than they were performing agricultur alive.

l and non agricultural tasks to achieving enough income for stay Generally resettlement programme in the study site attained a positive impact on the resettlement program participant households' annual income in improving livelihood like physical asset, natural asset and stipulation of social services like human health service by constructed health centre in the study site, health xtension service at each Kebele, agricultural extension service, veterinary health post service at each Kebele, and as well as availability of all weather road connecting each rural Kebele of the study site and other resettlement sites in the study area. This study concluded that, participation in resettlement program had been a deep impact on improving the annual income of household farmers in the study site.

Recommendations

This study had been indicated that involvement in resettlement program enabled farmer households to increase their annual income. Even though, the detailed studies selection of non- program participants from original places is the best way for comparison as a control group. Regarding the impact of resettlement program on household income, the following main points needed to be considered as a possible policy implications forwarded in order to improve the goal of resettlement program for the rural households.

• The study showed that most of the farmers households' head in this study were depending on agricultural production or obtaining their income from faming activities rather than non-farm income due to low diversification of non -far activity during comparison with farm income in study area. So it is better if local or regional government giving more attention to improve source of income for rural households.

• Farmers need modern agricultural inputs. However not adapting more utilization of all modern agricultural inputs such as improved seed varieties, improved animal breeds for milk, and meat and poultry production for egg, commercial fertilizer and different chemicals. The fact is that the farmers could not have enough money to buy all the required agricultural in uts on cash and lack of habit to use short-term credit from financial institutions in the last cropping seasons. So, it is necessary for the national and regional policy makers t assess and find out ways in which farmers to get the tradition of use credit service for purchase of agricultural inputs in order to produce excess product for food achievement.

• Household head's education level was found to be negatively significant determinant of the resettlement program participation. This shows that educated house olds had enough potential to changing their environment as it is favorable to survive. Therefore, government will gives a great attention as the farmers should be educated by a means that fits with their living condition, such as adult education.

• Shocks is one of the main determinant cause of resettlements program participation as the researcher undertook analysis from sampled respondents in the study area; therefore, favorable environment should be improved by concerning body to enable farmers easily stabilize their surroundings to living.

• In each three study kebeles development agents were assigned for peasant association to give extension service. Those assigned DA's were only giving theoretical advice for the farmers which was not practically supported and show. It is obvious that extension service provision in training and practical demonstration of farmers has a great contribution to increase production and productivity of the farmers in order to improve their annual income. As a result, it is more important to redesign policy measures for farmers training centers (FTCs) as a practical training and demonstration center of research outputs support level as per the national level farmers training program to build up the producing capacity of the farmers to increase their income.

• Large cultivated land size in the study area were held by economically inactive households heads rather than economically active farmer households, so it is better if local government or other concerned body readjusting the farm land allocation.

• Livestock were the major source of income in the study area but the farmer households were little knowledge about livestock rearing and using modern technology like animal breeding system, it is better if concerning body make awareness regarding to how the farmers increase livestock rearing by the way of modern technology for enhance their annual income.

• During data collecting survey supervision, key informants interview and FGD final result, it was observed that the study area has a potential of commercialization farm land. To increase rural household farmer's annual income, it requires the local government, agriculture development office, development centre offices, the policy makers and other concerned parties has crucial role interest to aware and building the capacity of the farmers to use these potential resources effectively and efficiently.

• Generally, as the study showed that resettlement program is the vital alternative to overwhelm the shortage of income and the rural access of land for agricultural production by providing virgin on unutilized cultivable land and accessing necessary basic infrastructural facilities within the intra-regions. Again to enhancing the households total fixed asset in the study area the concerned body would be take appropriate action to design incorporated development strategy by creating common feeling in wise utilization of the existing resources under sustainable way.

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Effects of Turn Around Strategies on Service Delivery of Microfinance Institutions: A Case of Rafiki Microfinance Bank, Mombasa County, Kenya

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ABSTRACT

Turnaround strategies are extremely important for the management, stabilization, financing and fixing poorly performing firms. Micro-finance Institutions (MFIs) have been facing reduced support from donors as well as change in rules in financial services in the industry and intensive competition in the Banking sector. This pushed for an urgent need for re-strategizing. The study thus focused on the effect of turnaround strategies on service delivery of microfinance institutions: A case of Rafiki microfinance Bank in Mombasa County, Kenya. The study's geographical setting was in Mombasa County. The study was guided by the following specific objectives: To establish the effects of strategic repositioning on service delivery of MFIs in Kenya; to determine the effect of reorganizing on service delivery of MFIs in Kenya and to analyze the effect of strategic expansion on service delivery of Rafiki Microfinance bank in Kenya. The study provides information for all the micro financial institutions (MFIs). The study used survey research design and was anchored on the following theories; Dynamic Capability Theory, Organizational Theory and Resource Based Theory. The target population was Rafiki microfinance bank branches found in Mombasa County, and the respondents were three levels of management staff which included top level management, middle level and lower level management from each branch of Rafiki Microfinance Bank Limited in Mombasa County. Data analysis was through Linear Regression Model. Overall, the study findings revealed a strong correlation between the independent and independent variables with a P value of 0.0028 and R2 as 0.763, which is the depicted a significant effect on service delivery. The independent variables under study showed a mixed relationship against the dependent variable whereby Strategic Repositioning had a P value of 0.151, whereas Strategic Reorganization scored a P value of 0.809 and Strategic Expansion had a P value of 0.000. This suggests a very strong relationship between turnaround strategies and service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya. Microfinance institutions must therefore incorporate turnaround strategies in their long term strategic objectives if they were to enhance service delivery. The study furtherrecommends the need for a strong governance system that would enhance successful implementation of turnaround strategies.

Key Words: Turnaround Strategies; Strategic Repositioning; Strategic Reorganization; Strategic Expansion; Policy and Practice, and governance System.

BACKGROUND OF THE STUDY

The challenges in the external environment risks and uncertainties have brought about competition increase in the business environment. Turnaround strategies are extremely important for the management, stabilization, financing and fixing poorly performing farms. The strategies give basic guidelines for measures and forms a ground for coordinated actions towards attaining strategic business objective. Top level leadership is assigned the task of working out acceptable business plan in line with

the farms missions and visions this helps the company cope up with the challenge from the external environment (Pearce & Robinson, 2007). For that reason, turnaround is a transformational change which is experiencing low performance or is may to do so in future (Burns, 2004).

Over the numerous years, establishments of a variety offer microfinance services has expended in rural and urban set ups. MFIs kept on having difficulties in conveying microfinance services to expanding demands for microfinance services, which unfavorably sway their future development, frameworks, just as financing system (CGAP, 2008). MFIs are a great booster of informal sectors; though currently it is faced by challenges of decrease in donor support and high competition (Macher & Mowery, 2009). MFIs in Kenya are enlisted among nine distinct enactments. Where some of them don not satisfactorily address issues in regards to proprietorship, administration and clear accountability subsequently these gaps contributed to low production.

Different researchers like (Abdullah, 1985, Katagiri, 1989 & Shawkey, 1995) noted that, the deployment of Automatic machines by MFIs brought in more noteworthy turnover in services without expecting to enroll more staff and open more branches, thereby reducing transaction costs and in the end improving profitability. Generally, it may be viewed as the measure of proprietors' resource accessible to help the company's business (Athanasoglou et al, 2005). Worldwide Microfinance Institutions (MFI's) have grown substantially in scale and have had major changes in their mode of operation. (MFPED 2008),

In Sub-Saharan Africa MFIs had more than 6.0 million people borrowing and 16.0 million investors by end of 2008 (CBK, 2012). These Institutions plays a crucial role in enhancing inclusion of the low-income in the financial sector and has therefore promoted economic development (MFPED, 2008). In developing countries like Uganda, they cannot meet the cost of staying competitive and (Wangwe 1999) recommends that the expansion and developing of SMEs is challenged by economics, substandard technology, substandard infrastructure, unfavorable legal framework, and insufficient finance the effect of HIV/AIDS and poor market and social linkages.

MFI organizations transactions in Kenya are licensed and controlled by the CBK. They are registered by the Microfinance Act of 2006 and micro finance regulations for deposit taking. (Omino, 2005). Growth of Central Bank of Kenya regulation on monetary services provide advices to the enactment of microfinance Act 2009 and Microfinance Act Amendment 2013 which sat the guidelines and silencing of deposit taking MFIs in Kenya present microfinance Banks. The SME environment build a significant role to the gross domestic product in Kenya (19.5%) but there is small or no evidence to propose that any notable and sustainable impact of microfinance services on customers in terms of SME expansion, increased earnings or level of employment (Chowdhury, 2002). Sharma (2008) posits that MFIs can help in the setting up of family enterprise, likewise, making the difference between poverty alleviating and improve life style. On the same breathe (Berger 2009) indicated that finance institution stabilized rather than increase earnings and tends to protect rather than to create employment in Kenyans. Coleman (2010) village bank credits has no any significant and visible asset accumulation.

Rafiki Banks limited is the premier relationship microfinance organization in Kenya, it was the first owned by Chase Bank limited in the Kenyan. Chase Bank Ltd between 1984 was very tumultuous for the banking sector, at the end of 1994, 28 banks and financial intuitions were in liquidation, under management or merged into consolidated Bank of Kenya. United Bank ltd being among the banks under management of CBK of all the Banks that collapsed during this period and subsequent periods,

Only the seven banks that were merged into consolidated bank and united bank still exist in some form today. All the others were liquidated (Central Bank of Kenya 1994). Consolidated Bank of Kenya is classified small at number 28 out of 44 banks, market share equivalent to 0.50% while chase Bank was number 13 equivalent to 2.4% (Central Bank of Kenya, 2014). This history gives the background of seeking to understand the turnaround and success of chase Bank. Rafiki Microfinance Bank limited as a sub branch companies of chase Bank (Kenya) Ltd went the same turnaround process.

An organization is said to be declining when it experiences a resource lose, (Cameron et al. 1987). A turnaround said to have taken place when a farm returns to its usual activities and starts enjoying its benefits, mainly it is termed to have persevered a performance crisis and recovered, (Barker & Duhaime 1997; Pearce & Robbins 1993). Ability to implement turnaround strategy is the deciding factor between success and failure of a company's strategy. MFIs play a very important role which creates a need for turnaround strategies to be developed in order to obtain meaningful profitability and attain market leadership through competitive advantages (Daniel & Storey, 1997).It is a fact that a number of studies have been done on turnaround strategies. Although various turnaround management studies have been done in other countries, very few have been conducted on Kenyan companies Yawson, (2005). The studies however failed to address the effect turnaround strategy on service delivery of microfinance institutions. For instance, Randa (2012) assessed the challenges of executing of turnaround strategy of the large MFIs in Nairobi and found out that the major obstacle is the conflicting objectives of social and profit that they want to maintain. This study fails to address the aspect of performance. Similarly, Gatwiri, Bichanga, Loki, and Makau, (2014) carried out a research on competition and execution of microfinance institutions in Cameroon and found out that competition have a positive effect on service delivery. From these studies, the aspect of turnaround strategy which is key to service delivery of microfinance institutions has not been addressed adequately. Therefore, this points to the need to carry out the study and address the question of the effects of turnaround strategies on service delivery of microfinance institutions in Kenya.

OBJECTIVES OF THE STUDY

The study was set to address the following specific objectives;

i. To establish the effects of strategic repositioning on service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya.
ii. To determine the effects of strategic reorganization on service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya.
iii. To analyze the effects of strategic expansion on service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya.

LITERATURE REVIEW

The study was built on three theories, namely Dynamic Capability, Resource Based and Organizational theory. Dynamic Capabilities Theory was advanced by Teece, Pisano and Shuen (1997). The argument is that dynamic skills help to create unique values for the external business environment. Eisenhardt and Martin (2000) posit that dynamic capabilities are processes that support procurement, integration, reconfiguration and release of resources, resulting in new resources and new positions. Dynamic abilities directly affect the competitive advantage which requires both the use of internal and external company-specific capabilities and the development of new capabilities. The theory investigates the way organizations mingle, build, and rearrange their inside and outside services to form firm-specific ability into new strengths to bench match themselves with environment (Teece et al., 1997). Further to this, the theory is based on the assumption that firms with higher dynamic capabilities outperform farms

with lower one. The aimof the theory is to know how farms apply it to generate and undergo a competitive advantage over other organizations by answering to and creating environmental adjustments (Teece, 2007).

Resource Based Theory was introduced by Barney (1991). The theory states that companies that identify and possess unique internal capabilities tend to remain superior in competition and realize improved performance levels overtime. The basis is that with unique resources, a company becomes superior in terms of competition Crook, Ketchen, Combs & Todd, (2008). Ambrosini & Bowman, (2009) remark that this theory is largely concerned with how firms generate and sustain competitive advantage. Based on the theory, companies try to ensure value maximization by executing activities using the special and unmatched resources and capabilities (Sirmon, Hitt & Ireland, 2007). The theory aspires to explain the internal sources of a firm's sustained competitive advantage (Kraaijenbrink, Spender & Groen, 2010).

The basis of the theory is that a firm has resources and capabilities which are made up by the material, monetary, human and invisible assets. An organization can translate the resources and capabilities to a strategic advantage, useful, in-imitable where the company is re-organized to utilize these funds. According to Rose, Abdullah & Ismad, (2010), if the resources possessed by an organization can easily be replicated by competitors then the advantage will not last long. The theory, therefore, focuses on the ability of the organization to sustain a combination of resources, which could not be possessed or built up in a homological way by competitors. Any organization should in depth analyze ways to build dynamic capabilities and therefore avoid imitation of their resources in order to reach the highest level of profit performance. Danneels, (2002) contended that it is crucial for the Resource Based View to poses a dynamic perspective, to be able to know how organization developed over period through their deployment and acquiring of revenue.

In as far as the Organizational Theory is concerned, it evolved between 1800s and 1900s, a time when Industrial revolution began. Max Weber (1864–1920), said that bureaucracies, staffed by bureaucrats, constituted the ideal farm's form. He based his model bureaucracy on legal and absolute power, logic, and order. In Weber's idealized organizational structure, tasks for employees are clearly explained and behavior is deeply controlled through use of policies, regulations and procedures. Daft and Armstrong (2012) emphasized that the theory is a macro examination of firms because it analyzes the whole farm as a unit. It deals with people aggregated into sections and farms and with the differences in structure and behavior at the organization level of analysis and is directly relevant to top and middle management concerns and partly relevant to lower management. Organizational theory investigates organizations to recognize patterns and structures for the way they solve issues, maximize efficiency and productivity, and meet the owner's expectations. Organizational theory uses these patterns to articulate normative theories for how organizations function to their best.Strategic Repositioning is a deliberate action taken by an organization in the process of adjusting to a changing business environment. The term used by organizations who are looking to maximize the use of opportunities for their basic technologies in industries which are far away from their territories. It is essential for many organizations in the industry who find that radical structural move in their surroundings becomes a threat to their viability. This strategic shift often represents a basic change in the underlying value proposition of the organization as it changes its aimed market segments and or its basis of differential advantage' (Turner, 2003). He also points out the importance of a farm reconciling changing external market requirement and internal capability to meet the needs. Main error by Cable and Wireless was to embrace a process of repositioning that was too radical, and which required to be more practical.

A farms' long-term competitive advantage stems, from positioning transactions. Measure the effectiveness of a certain offering's position in the marketplace requires identification of what exactly positioning strategy is pursued and to what increase that selected strategy actually influence performance. Operationalization of positioning concerns the adapting of tangible characteristics and intangible perceptions of a marketable benefits in relation to the competition in the market (Blankson & Crawford, 2012). Kamau and Wafula (2015) argued that, always it has been known that prompt, efficient and quick customer service alone holds the customers to continue and attract new consumers to try the services provided by a MFIs. Effective positioning strategy to take place, it must be profit-making to the marketer and customer. Positioning is applicable strategic concept, and a major development in client marketing, which has identical applicability for industrial production of products and services. MFIs marketing management had to adopt strategic concepts due to forces from the competitors and schemes in positioning their services so as to convey value to their customers. MFIs service in Kenya can be thoroughly positioned through non-functional and functional earnings, non-functional gains involves corporate identity and image, though functional benefits comprises of developing brand new attributes for the products, (Kamau & Wafula, 2015).

Strategic Reorganization is a trial to prolong the life of an enterprises under insolvent through a particular positioning and restructuring so as to keep down the possibility of previous situations reoccurring. Hoshino (2013) argue that reorganization is a broad description of any shift in the inner administration of a farm. The motive of reorganization is to help strategies of repositioning. It demands changing the extent of decentralization, the planning structure, or organizational culture. Over a three-year reorganization period victorious farms were found to be most likely to take up cost and cutting down expenses, distribution of non-core assets, reduction of organization size and while operational strategies aimed at reshaping internal affairs and systems were not likely to be connected with triumphant organizations Sije, Omwenga & Iravo (2016). Similarity of reorganization measures with the confirmed reorganization plan can affect production positively.Kontes (2004) posit that top leadership should think of redefining the all activities in the organization and restructuring the organization to become a powerful enabler and not a barrier to, superior producer. Sawchuk (2001) came up with a case study on union based and education pursuit generated in response to restructuring in the Canadian telecommunication industry and workshop reorganization. Finding proposed that an education planted in the union local assists to build the potential for workplace democracy and organizational capacity in the development of labour. Strategic Expansion is strategic option for growing specifically for undeveloped countries like Kenya due to very poor product penetration and utilization levels. In the financial industry demands that enterprises must have successful systems in place to counter unforeseeable happenings that can sustain transactions and risks minimization involved through expansion strategies Gatwiri, Bichanga, Loki & Makau (2014). Growth and other alike phases used in the trading and corporate strategy literature do not every time mean market expansion. Glueck & Jauch (2009) proposed that concentration, integration, diversification, cooperation, and internationalization as distinct ways to growth. But the plan of action does not automatically lead to growth of market for a certain production class.

Ansoff (2007) emphasizes on market extension strategy and the penetration into the market strategy through his product-market growth matrix. At present and in future competition may be unhealthier to undertake in some of countries due to differences in industrial formation and business practices. Degree of significant marketing, economic and other transmission required for preparation varies a big deal within countries in availability, depth and reliability Mutuma, (2013). One more angle of extension has been approached by Dunning & McQueen, (2006), Using economic theories to describe the strategies

embraced by some enormous banking farms when enlarging their business. Strategies of business growth in banking industry has been considered sometimes by investigators who could not differentiate strategies from processes. However, organic expansion and permitting had been considered as the major strategies for banks business expansion. Rugman and Hodgetts (2009), he emphasized on the importance of monitoring the environment, he maintains that the facts resulting from this procedure may be used for strategic focus. It is their view that the increased complexity, the acceleration in the rate of shift and the variability in the boundary and resulting trends brought about a need for management to develop ways of monitoring the soundings.

RESEARCH METHODOLOGY

The study adopted a cross-sectional survey research. The population targeted was 55 employees working at Rafiki Microfinance Bank, Mombasa County, Kenya. This included staff from three levels of management, this include the top level, middle level, and lower level management. These staffs were targeted since they were presumed to have the necessary information and experience concerning turnarounds strategies and their effects on servicedelivery. A census technique was employed where researchers sampled all the staff at the study area. Data was collected using a structured questionnaire. Content validity was used as sample test items. The reliability was determined using Cronbach alpha coefficient where Chong, (2012) and Bryman & Cramer (1997) advocates a reliability coefficient of 0.70 and above. Collected data was studied, examined and compiled. The coded questionnaires were posted into a computer with the help of statistical package for social science (SPSS) V. 21. Data was analyzed using linear regression, which can be given as follows: -

$$y= \beta_0+\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

y = Service Delivery

β_0 = Constant Variable

β_1, β_2, and β_3 are Regression coefficients

X_1 = Strategic Repositioning

X_2 = Strategic Reorganization

X_3 = Strategic Expansion

ε = Error term

RESULTS AND DISCUSSION

A total of 55 questionnaires were distributed to the staff at Rafiki Microfinance Bank in different levels of management. This included the top level, middle level, and lower level management. From the 55 questionnaires distributed, 49 questionnaires were filled with 6 remaining unfilled. This represented a response rate of 89%. This response rate is in concurrence with what Ott & Longnecker (2015) asserted that a response rate of over 70% is considered adequate for investigation.

Regression Model Summary

The model summary below is a regression output showing the research results between the independent variables and the dependent variable. The analysis is as given in the Table 4.10:

Table 1: Model Summary

Model	R	R_2	Adjusted R^2	Std. Error
1	.874[a]	0.763	0.758	0.2531
a. Predictors: (Constant), Strategic Repositioning, Strategic Reorganization, and Strategic Expansion				

From the model summary R value is 0.874 implying that, turnaround strategies and service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya are positively related. This manifests a positive relationship between independent variables and dependent variable.

The results also show a strong correlation between the dependent and the independent variables as shown by the value of R2 as 0.763, which is the determinant of coefficient or variation. This suggests a very strong relationship between turnaround strategies and service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya. The R2 value can be translated as 76.3%, which indicates how much of service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya is due to turnaround strategies done. This means the variation that has been found is 76.3%. This connotes that the turnaround strategies under study account for 76.3%, while the remaining turnaround strategies have an effect of 23.7%. From these findings, and an advise is given to the Rafiki Microfinance management not to ignore any other turnaround strategies that have not been captured in the study like liquidation and divestment.

Analysis of Variance

Table 2: Analysis of Variance

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	1.038	5	0.447	0.4636	0.0028[b]
Residual	1.074	43	0.097		
Total	**3.192**	**48**			
a. Dependent Variable: Service Delivery					

Basically, the Analysis of Variance (ANOVA) statistics was used to test the fitness of regression model and the significance F value of 0.4636 with P value=0.0028 was realized, which is within the significance level of 0.005. This therefore means that the regression model obtained was fit and can be deemed fit for prediction purposes. Further the implication is that strategic repositioning, strategic reorganization and strategic expansion reliably predict service delivery of Rafiki Microfinance Bank in Mombasa County, Kenya.

Regression Co-efficients

Table 3: Regression Co-efficients

Unstandardized Coefficients			Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	0.541	0.227		2.389	0.021
Strategic Repositioning	0.27	0.185	0.302	1.464	0.151
Strategic Reorganization	0.041	0.166	0.047	0.243	0.809
Strategic Expansion	0.387	0.088	0.428	4.39	0
a. Dependent Variable: Service Delivery					

Source: Research Findings (2020)

After the analysis of the findings revealed that Strategic Repositioning had a P=.151, which is slightly above the significance level of 0.005. This connotes a very strong relationship between this variable with the dependent variable under study. Secondly, Strategic Reorganization had a P=.809, still connoting a relative relationship between it and the service delivery of Rafiki Micro-finance Bank in

Mombasa County. Finally, Strategic Expansion had a P value=.000, which is also within the significance level of 0.05 signifying a very strong relationship with the dependent variable. Therefore, as per the variable coefficients results generated, the earlier multiple linear regression for the study was;

$$y= \beta_0+\beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Based on the findings, a multiple linear regression model for the study can be established as:

$$y =.541 + .270X1 + .041X2 + .387X3 + \varepsilon$$

This is a clear indication that out of the three turn around strategies studied, two of them, i.e. Strategic Repositioning and Strategic Expansion had a very strong effect on the service delivery of Rafiki Micro-finance Bank in Mombasa County, while Strategic Repositioning had a relative relationship. It is imperative upon the management of the bank in question to ensure that they incorporate these strategies and many others in order to enhance their service delivery.

DISCUSSION OF FINDINGS

The main purpose of the study was to establish the effects of turnaround strategies on service delivery of Rafiki microfinance bank in Kenya. The specific focus was to establish the effects of strategic repositioning, strategic reorganization and strategic expansion on service delivery at Rafiki Microfinance bank in Kenya. Based on the study findings strategic repositioning strongly affects service delivery of Rafiki Micro-finance Bank in Mombasa County. In as far as this finding is concerned, (Kamau & Wafula, 2015) are in support of this by arguing that microfinance institutions for them to remain relevant in the market have to adopt strategic approaches so as to outwit their competitors for the target customers. Further, they assert that microfinance services in Kenya can be thoroughly positioned through non-functional and functional earnings, non-functional gains involves corporate identity and image, though functional benefits comprises of developing brand new attributes for the products. On the same breathe, (Turner 2003, Blankson & Crawford, 2012) in echoing of the findings remark that a farms' long-term competitive advantage stems from positioning transactions. Measure the effectiveness of a certain offering's position in the marketplace requires identification of what exactly positioning strategy is pursued and to what increase that selected strategy actually influence performance. This implies that for quality service delivery and profitability among microfinance institutions strategic repositioning is essential.

On the effects of Strategic Reorganization on service delivery of Rafiki Micro-finance Bank in County, the findings are in agreement with other studies, for example (Sije, Omwenga & Iravo, 2016) assert that similarity of reorganization measures with the confirmed reorganization plan can affect production positively. They further argue that submission and reorganization scheme information improve standard in terms of suitability nevertheless do not significantly improve classification accuracy. These sentiments are also supported by (Kontes 2004) who posits that Company leadership should think of redefining all activities in the firm and restructuring it (organization) to become a powerful enabler and not a barrier to superior producer. This suggests that failure to strategically reorganize the Company or organization can lead to poor or no productivity and thus negatively impacting on the banks service delivery due to compartmentalization.

Finally, on the effects of Strategic Expansion on service delivery of Rafiki Microfinance Bank, the findings are for instance supported by (Gatwiri, Bichanga, Loki & Makau 2014), they posit that expansion is strategic option for growing specifically for undeveloped countries like Kenya due to very poor product penetration and utilization levels. On the same note, (Glueck & Jauch 2009) proposed that

concentration, integration, diversification, cooperation, and internationalization as distinct ways to growth. Further, (Ansoff 2007) concludes that market extension and market penetration are vital when done through a combination of product-market growth mixture. The implication of these findings is that for reliable and accessible bank service delivery, strategic expansion is inevitable component of turn around strategies. To improve on Micro-finance Institutions' service delivery, it is advisable for Rafiki Micri-finance Bank in Mombasa in particular to make use of these turnaround strategies and any other emerging ones for sustainable competitive edge in the market.

CONCLUSION

From the study it was found that strategic repositioning, strategic reorganization and strategic expansion have a strong effect with service delivery of Rafiki Microfinance Bank in Mombasa County. This therefore, connotes that the service delivery of Rafiki Microfinance Bank in Mombasa County greatly is affected by strategic repositioning, strategic reorganization and strategic expansion.

On strategic repositioning staff emphasized that if there are common definitions for continuum services across the organization believe that to some extent repositioning will be very significant. On strategic reorganization employees argued that if there are organizational practices required to reinforce service delivery matters a lot for effective reorganization. On Strategic expansion, respondents alluded if moving to new locations is emphasized in my organization then will greatly yield fruitful strategic expansion for the organization.

RECOMMENDATIONS

The recommendations are based on the application of the study regarding practice and policy. Regarding practice, the study recommends that Microfinance institutions should incorporate turnaround strategies in their long term strategic plans if they need to enhance service delivery.

Further, the management of such institutions should ensure that enough resources are made available in ensuring effective implementation of the turnaround strategies. There should also be good leadership to support strategic reorganization that requires extensive management of change and guidance to subordinates.

Regarding policy, the study recommends the need for a strong governance system that would enhance successful implementation of turnaround strategies. There is also need for capacity building on the subject of turnaround to enable stakeholders to take an active role in the process. Equally, a multi sectoral approach and wide consultations need to be adapted in order to develop realistic guidelines that will ascertain effective implementation of turnaround strategies. This is because turnaround strategy is more challenging to realize considering that they take a longer period and require more resources to stabilize the organizations before profitability can be achieved.

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Implementation of Industry 4.0 in Logistics Industry: A Case Study With Special Reference to Jamtrans Logistics Pvt Ltd (JLPL), Bhubaneswar

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ABSTRACT

Supply chain and logistics are the backbone of a country's industrial growth. Almost 90% of the survival of industries depend on these two important operation processes. Efficient transportation and cost-effective flow of goods are the keys to the rapid movement of goods and services across the borders and states. However, the biggest challenge the transportation industry facing is ill network of transportation, poor management of warehouse & distribution facilities.

Logistics is a manpower-driven industry and in order to be successful skilled and trained people with multi-faceted efficiency is highly needed, otherwise there will be high levels of losses, damage of stocks. So in this context Jamtrans Logistics Pvt Limited has adventured some important steps in making their logistics process, somewhat streamlined in accordance with the Industry 4.0. Basically industry 4.0 is an important step towards the automation and data exchange in the industries which includes IOT, Industrial Internet of Things (IIOT), cloud computing, AI etc. What were the issues and challenges JLPL facing in the logistics process? How implementation of Industry 4.0 has increased the efficiency of logistics in JLPL?

Keywords: - Logistics, Supply Chain Management, Business Process Re-engineering, IOT, Automation

INTRODUCTION:-

Industry 4.0 is the latest and fourth generation industrial revolution. Originated in Germany, it is a networking of intelligent machines with the help of high bandwidth information and communication technology working along the principles of interoperability, virtualization, decentralization, real time capability, service orientation and modularity.Implementation of Industry 4.0 and IOT in Logistics and Process.

Industry 4.0 has not yet influenced the people of India, as it is complex to some extent and would take time for some to understand. Industry 4.0 can be understood as the combination of IOT, Robots, Cobots, M.L, and AI.

In the current scenario, the various industrial sectors in India and abroad where Industry 4.0 is being utilizedare:

- Aviation
- Logistics
- Automobile
- Warehouse
- Supply Chain Management

- Manufacturing
- Rentals(Cabs)
- Hospitality
- Retail
- Service

In India, there is only 30% implementation of Industry 4.0 in the sectors like Logistics, Aviation, Warehouse, Rentals, and Manufacturing.

In last 5 years, Logistics has emerged as a booming sector in India. There has been a need to improvise many operations in logistics like

- Demand generation
- Truck bookings
- Standardization of freight
- Vendor-Supplier Integration
- Tracking
- Documentation/Paper work
- Dispatch Automation

1. Dispatch Automation

This process plays a major role in Logistics/Transportation operations as it involves loading/unloading, arrival of trucks, documentation and dispatch.

Implementation of Industry 4.0 in dispatch process has coined this new concept Dispatch Automation. Ease of Operations like involvement of Applications, IOT has displayed real time data monitoring and data analysis. Identifying errors and rectifying the errors instantly over theIOT platform.Dispatch automation is a stepping-stone towards making logistics sector more organized in the future and will contribute immensely towards Safety Norms in the Post Covid.

2. Hospitality

Internet of Things, an arm of Industry 4.0 has now earned a good weight due to Covid. It has already been implemented in hospitality sector in the process of –

- Bookings
- Check in-Check out
- Front office operations
- Room Service
- Restaurants
- KOT/BOT

In hospitality sector we can observe robots taking orders at the restaurant or orders can be generated by using tablets placed on the table which will be integrated with IOT .Order placed on tablet directly reflects in the Kitchen with the table number and ticket number.

For room service, customer can order using voice recognized mechanism placed in each room which also works using IOT platform or can be done by using room tablets .This will also enable the front office to raise the bill instantly in the account of the customer during her/his stay. So during check out time customer need not have to wait for the pending bills from bar or restaurant or the room to be generated.It has already been generated in the customers' account.

It can save customers 15-25 minutes during check out.

3. Automobile and Manufacturing

Industry 4.0 plays a major role in manufacturing and automobile sector.In manufacturing units like Bajaj, Lenskart etc. robots are being used for production of materials,which are integrated with IOT platform.

These robots are termed as Collaborative Robots or Cobots.Such Cobots are integrated with system, which gathers all the instruction like dimensions, color, scale, unitsetc. to alignCobots to process.

4. Warehouse

In modern warehouse operations, Automated Guided Vehicles are used to carry out process of unloading, picking, sorting, racking and loading. These vehicles travel on a magnetic path or designated route, which is denoted by mark or taped surface.

Any obstacles on their path or route the vehicle stops automatically and remain hold until the path is cleared. These automated guided vehicles have improved warehouse efficiency and operational capabilities to the highest. These vehicles are being used in warehouses of Flipkart, Amazon,Walmart, UPS, DHLetc. in India and around the world.

In India many reputed institutions are including Industry 4.0 as a core subject in their curriculum to enable students explore new trends in industry and gain knowledge about the future tech enabled operations and processes in the Industry in India and world.

When it comes to Industry 4.0 and IOT, Machine Learning and Artificial Intelligence also gained its importance in the sectors of Logistics, Manufacturing etc.

For simple example of A.I and M.L, we can say Cobots or Robots are being learnt to perform the task or process with the help of IOT and systems. These includes systematically, standardized operations which are made to learn to the machines or robots to perform the task and they do exactly as per the inputs they receive. This is Machine Learning. This also go for Mobiles.

As we search anything on the web or any applications like looking for a shoe on Flipkart on mobile, we get pop up notification about new offers or sale or new launchings related to shoes category on other applications and on FB or Instagram as well. This is Artificial Intelligence with a mix of Machine Learning.

India's top Tech Enabled Logistics firm RIVIGO has developed its technology platform fully based on A.I, M.L and IOT, which can be operated on mobile application and on Webs. This strategy has enabled logisticians to make their operations smooth and efficient, which save time as well.

In near future Industry 4.0 is going to influence every part of the industry and processes which would demand utilization of technology and IOT to its fullest and partially reduce work force where Industry 4.0 can be a better alternative to save time and cost as far as long term basis planning and strategy is concerned. India is and will also observe Industry 4.0 with a rapid implementation in various sectors and will also encourage in developing skill set and knowledge in specific field.

Jamtrans Logistics Pvt Ltd (JLPL)

It all started 50 years ago with the flagship companies of various family members.A family, which owns many firms and transportation,which was in their blood such as Jamshedpur Transport, Maruti Carriers, Indo Arya, Indian Roadways Corporation, Transport Corporation of India, Gati.

Jamtrans Corporation was established 30 years ago when the family entered into transportation sector after owning and managing Eastern India's second largest Textile mill in Cuttack,Choudwar namely Orissa Textile and Steels Ltd. JAMTRANS, the word used in the company had a historical meaning, which denotes the Postal Code name of Jamshedpur during 70-80s.

The company made the postal code Jamtrans as to let people know that it's the same company which was originated from Jamshedpur with many other firms.Today the company is a part of large business group, which has varied interest in the field of Manufacturing, International Trading, Publication, and Logistics. The family is also associated with a very strong relationship with different family members who own some of the top companies in Logistics field like IRC India, IRC Group, TCI,and GATI.

Eldest brother of the family Shri Mahendra Kumar Agrawal has remained a pioneer in the field of professionalism and Indian Industries. He has been retired as Group President and Director in various firms in Reliance Industries Limited and has been interviewed in many magazines of top executives and directors diary. Jamtrans Logistics an oldest associate of Reliance Industries Limited handled over

millions of tons of material movement from the plant at Dhenkanal,Odisha. Currently handling the movements from RIL plant at all four locations.

The company lead by board of members Mr.Nirmal Agrawal, Mr. Vijay Kumar Agrawal, Mr.Anukul Agrawal, Mr. Ashish Agrawal. The whole family was involved in logistics sector and a time came when the family members decided to get separate and handle their own company with different names. Then late Mr Raj Kishore Agrawal decided to continue the transport business with a new name but giving a touch of Jamshedpur as Jamtrans Corporation. Later Agrawal group got involved in various sectors of business managed by Shri Vijay Kumar Agrawal(Company Director).

It started with one branch and one truck and later expanded to more than 100 trucks during 90s.JLPL as a leading transport company and the family is engaged in movement of industrial cargo since last 50 years to and from leading industrial sectors all around India. The company has a well-established branch network of branches all over India manned by experienced professionals. It is also recommended by The Indian Banks' Association vide their approval code no. DLJ-500.

Some of company's valued cliental to name a few are as below:

1. M/s. Reliance Industries Ltd.
2. M/s. National Aluminium Corporation
3. M/s. Anvil Cables Pvt. Ltd.
4. M/s. Gupta Cables and Infrastructure Ltd.
5. M/s. Everest Aluminium Co. Pvt Ltd.
6. M/s. Hindustan Urban Infratech Ltd.
7. M/s. J K Paper Ltd.
8. M/s. Bennett, Coleman & Co. Ltd.
9. M/s. Hyderabad Industries Ltd.
10. M/s. Emami Paper Mills Ltd.
11. M/s PatanjaliParivahan and may others.

JLPL is a part of a large Business House with interests in Publication, Manufacturing and International trading and having varied experience of almost five decades now. They are one of the most reputed publication player with the name of M/S Vibha Publication Pvt Ltd, booked in Limca Book of Record for printing highest number of papers in Noida unit.

Transport sector was started with one person one truck and one branch .This was a standard for all the major 3/4 transport companies in India.Today there are 90 lakh active fleets on the road owned by various Logistics players in India.In the past years Logistics industry was known as Transport industry where the operations and processes were more of a kind of manual or traditional working system and culture.

Challenges faced by JLPL

In recent years there is a swift change in working culture and management style in Transportation sector in India. Today every industry has changed its course and have been affected by many ancillary industries in terms of scale and operations. We can assume that Indian Transport Industry was considered to be 10 years behind the world transport industry but past 5 years Indian Transport Industry has been developed and managed to improvise volumetrically and economically.

JLPL being in the industry since almost fivedecades have witnessed the change in the industry with drastic J curve on the graph.With more Logistics players adding up in the market, many start ups who entered the industry with new Technology has been the part of $1 Billion Company like Rivigo and Black Buck.JLPL has been changing operational style and process with development of people as they are the most crucial drivers for the company.Earlier the operations were 100% manual and dependent on workforce but now it has been dependant on technology and development of people. Today margins in Logistics industry are low but if the focus will be on volume then it has huge capability to make the company to have 500Cr plus turnover with minimum margin of 10-12% per annum. But in the sector of Part Load Services there is a margin gap of almost 20-25% and is the most successful operational are in Logistics industry apart from warehousing and FTL services.

JLPL had started its services with one client Hindustan Aeronautics Limited and later with Reliance Industries Limited and was one of the top five transport operators in India. With gained momentum in the economy and Industrial revolution the importance of Transporters were on the highest of all the times. Now the demand of transporters and Logisticians are based on their Cost effective freight rates and Value Added Services.

JLPL was undergoing major challenges and was facing many problems. The interest for ongoing truthfulness and responsibility has expanded in the course of recent years as the market for transportation and logistics continues developing with Industry 4.0. Absence of truth and commitment is a genuine obstacle for the monitoring of supply chain effectively. Internationally, logistics players experience serious difficulties in taking a shot at the delayed information and database, which has an impact on their timely response to the situations that may go out of control. Same thing was happening with JLPL. Preceding usage of Industry 4.0, the organization used to get information about the vehicle of their products days or even a long time after their packages were handed over at the designated places. Combining the enormous measure of information, and truth to be told, is an extreme assignment and settling any issues inside the supply chain is almost incomprehensible as it's difficult to pinpoint precisely where and when something turned out badly. False impersonation is something that has been pestering JLPL for quite a while. Erroneously marking an item with that of a different brand, utilizing debased parts to make an item and other comparable strategies are applied by outlaws who threaten the sustainability of logistics industry.

Burglary is another test that tests the persistence of logisticians. It is exceptionally hard to make out of where the robbery may have happened. Mostly accessibility to the information of a segment is available only after the items have been unloaded at the designated destination. Items from the food, drink or for the most part from the FMCG class are shipped inside pre-set natural conditions, for example, inside certain temperature boundaries. It is preposterous to expect to scrutinize the temperature and different aspects progressively.

There is another likelihood that some transportation organizations will in general give erroneous data on how they have shipped certain products.

Implementation of Industry 4.0 in JLPL

Earlier there was a big issue of how to undergo and bring change in the overall process. But this challenge has to some extent withered because change is the only phenomenon which is universal and constant.

The best way to change is to change the mentality. The conventional and traditional nature of the logistics business shielded it from growing fast like other enterprises and change management was one of the significant causes. With IoT, trucks, distribution centers and ships can identify with the utilization of the World Wide Web and report on GPS about the natural conditions, for example, temperature, humidity, and pressure.

JLPL has also begun utilizing IoT's that report those conditions back to makers to hint them that the merchandise are in good care. It has also ensured integrity and quality in the transportation function by using asset-tracking sensors. This implies there is a need of a significant level of trust required from the producers as it is in the logistics supplier's big interest not to allow any issues go out of hand while it is in their responsibility to take good care of the items in their possession.

Today as JLPL is growing with Industry 4.0, Logistics industry is also influenced with 4.0 trends like A.I, M.L and IOT.JLPL is changing its operational style and implementing technology in the process. Technology like AI and IOT is being used in the company operations and has led to efficiency in work and accuracy. By implementing IOT, it enables JLPL to track deliveries from the vendor to the manufacturing facility, monitor sensitive goods to avoid damage or loss. In addition, sometimes you need to know where your vehicles are at all times for safety and compliance reasons. The various truck details like position, tyre pressure, weight, extra weight, speed, fuel, stops etc are being tracked on phone and get recorded for future reference and data analytics. Data Analytics is the biggest asset and with big data, a company can grow to the next level and can adopt the major changes as it displays all the parameters of success/failures and the trends, which are going on in the market.

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Editors and Scientists Perception Related to the Coverage pf Science in Newspapers

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ABSTRACT

Editor's perception plays an important role in selection and publication of science news in newspapers on the other hand this coverage also depends on the scientists and researchers who are working in different fields. In this background this study explores the perception of editors and scientists related to the coverage of science in the newspapers. It is purely exploratory research where interview method has been used for the data collection. Eight editors and 50 scientists were selected by purposive sampling to collect their views.

Keywords: Editors, Scientists, Perception, Newspaper, Science, Coverage

1.0: BACKGROUND

Journalism is taken as inseparable part of any democratic system. The press plays a vital role in democratic society. It is an institution in its own right. The press has earned the recognition of 'Fourth state'. The importance of journalism comes from the people's right to opinion and expression. Since right to opinion and expression would not be a reality without the press. People today depend greatly on the press for being informed.

Science journalism is defined as the important aspect of mass media and journalists are considered as the educators because science is deeply associated in the society. So it should be obvious to the majority of the public; science journalism should follow the rule of sciences, with the pattern of journalism (Xu, 2013).

Editors are the gatekeepers between science news and publication of science news. They try to set an agenda for different type of publications, Nelkin (1987) explained lot of things related to coverage of science and explained that Science journalism is normally used for the making the claims which are not logical, many time all of us including press reporters and media housed fell in to it. Researcher also claimed that Scientists are not very keen in going public, because of journalist's tendency to sensationalize the findings. She advocated for the well trained reporters for this specialized job of science communication. Chatterjee (2013) also stated that the selectivity theory impacts in selectivity works in adopting any technology and media plays an important role in making this selective perception.Sometimes coverage of science seems as that it is given same importance as other areas because the primary drivers of coverage patterns are not the content areas on which stories are focused but, instead, the production infrastructure through which that content must pass (Bucchi, & Trench, 2014). There are lots of researches available of coverage of science but communication with the public and the public's understanding of science, there has been relatively little research focusing on how scientists themselves talk about their own communication with the public.

In this background this study tries to find out the perception of editors and scientists related to the coverage of science in newspapers.

2.0 : OBJECTIVES OF THE STUDY

- To find out the perception of editors related to the coverage of science in Newspapers.
- To find out the perception of scientists related to the coverage of science in Newspapers.

3.0 : RESEARCH METHODOLOGY

3.1 : Research Design & Method: This research is an exploratory study. The interviews of editors and scientists were conducted to collect the data. Quantitative and Qualitative, both methods are used for this study, so it is a mixed method study. It uses both quantitative and qualitative approaches for data analysis.

3.2 : Sampling: Purposive sampling was used to select the four editors of Hindi Newspapers and four editors of English newspapers based in Dehradun and the researcher has selected 50 scientists/ researchers by purposive sampling to take their view on coverage of science in newspapers

3.3 : Data Collection tool: Two self created Schedules containing five-five important questions related to study were used for taking the responses of the editors and scientists.

4: DATA ANALYSIS AND INTERPRETATION

The data has been collected and analysed as follows:

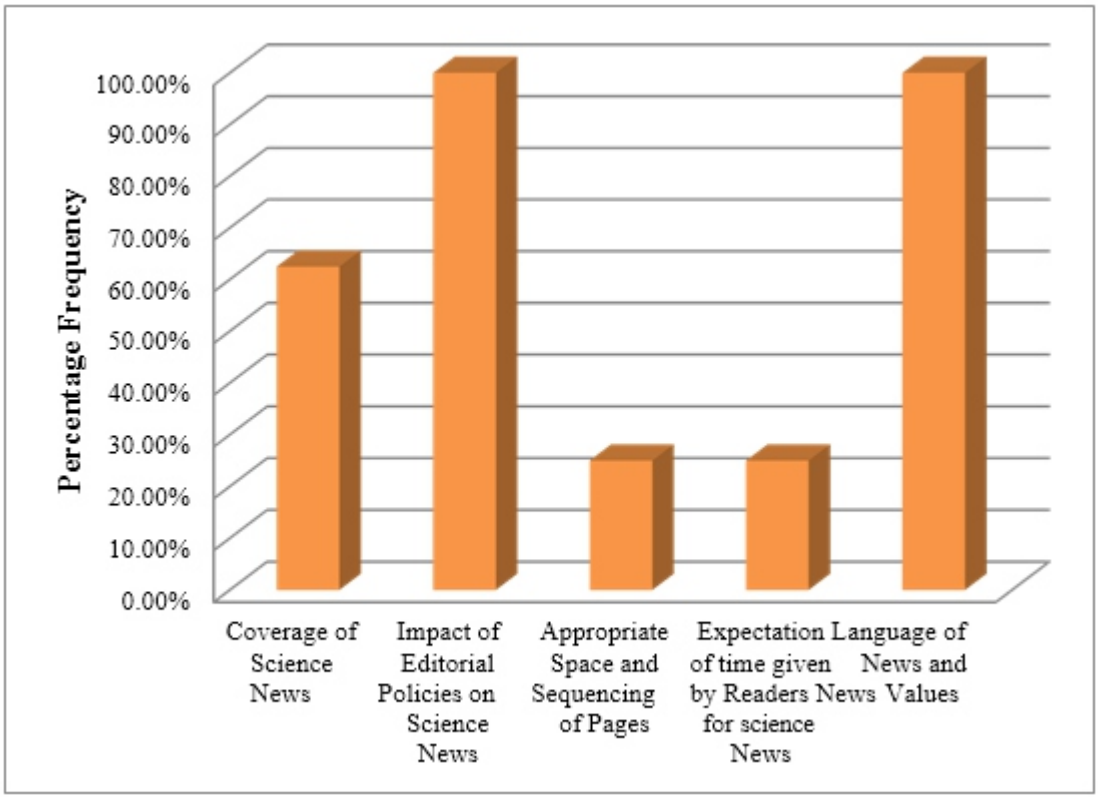
4.1 : Editors perception on the coverage of science in newspapers: For analyzing the descriptive data, explanatory codes were developed which can be helpful fin fulfilling the first objective of this study. So the possible codes are

- Coverage of Science is appropriate
- Impact of Editorial policies on Science Coverage
- Appropriate Space and Sequencing of Pages
- Expectation of Time given by Reader for Science News
- Language of News and News ValuesAfter performing above steps and all data converted in to frequency form (quantitative form); where (1) denotes positive or yes and (0) denotes absent or negative. Below table shows quantification of qualitative data which is the extract of interview between researcher and editors of all eight newspapers which are selected for study. It was primary in the form of text and later for analysis; it is converted into a form of numbers with the help of narrative analysis.

Table 4.1: Analysis of the Qualitative data of Editors Interview

Newspaper of the Editor	Coverage of Science is appropriate	Impact of Editorial Policies on Science Coverage	Appropriate Space and Sequencing of Pages	Expectation of time given by Readers for science News	Language of News and News Values
Amar Ujala	1	1	0	0	1
Dainik Jagran	0	1	0	0	1
Dainik Hindutan	1	1	0	0	1
Rashtriya Sahara	1	1	0	0	1
The Indian Express	1	1	1	1	1
Hindustan Times	0	1	0	0	1
The Hindu	1	1	1	1	1
Times of India	0	1	0	0	1
Total	5	8	2	2	8
%	62.50%	100%	25%	25%	100%

After making the frequency table, percentage of each code was calculated and represented in the form of graph as given below:



Grap h 4.1: Freq uenc y Grap h of Expl anato ry codes of Edito rs View

Graph 4.1 displays the editor's perception about the science coverage in media which shows that Editors think that the coverage of science is appropriate because 62.50% Editors have given positive response to this question. All the editors accepted that there is impact of editorial policies on science coverage. The third code about appropriate space and sequencing of pages, only 25% editors accepted that there is appropriate space and sequencing of pages given to the science coverage. It means editors also feel that there is inappropriate space and sequencing of pages. The fourth code talks about the expected time given by readers for science news reading, again only 25% editors accepted that the readers are giving proper time to read the science news. It indicates that editors think that readers are not devoting much time to read the science news. On the last code, all editors agreed that the language and news value in science coverage is strictly followed so that a common reader can understand the typical science.

4.2 : Scientists perception on the coverage of science in newspapers: Science coverage in different media platforms broadly depends on the scientists and researchers who are working in different fields. They work as bride between science news and reporter to newspapers. They provide them the crispy data and information related to different discoveries and a reporter tries to put them into simple language so that the public can understand the complex issues of science. In this research opinion of scientist and researchers regarding coverage of science in the newspapers has also analysed. For this study, the researcher has asked five prominent questions to scientists and researchers who are working in different fields of science. The comment of 50 scientists and researchers were collected through a schedule. They have given following opinions regarding the coverage of science news in the newspapers:

• **Level of Awareness:** Scientist suggested that the media must try to increase the level of awareness regarding the information related to science because science is not a field which can be covered by creating any hype.

• **Focus on Coverage:** Scientists and researchers think that media should focus more on the coverage of science because it will help to make public aware about issues related to science.

• **Communication Gap:** Scientists and researchers raised the question about the communication gap between science experts and media and suggested this gap must be filled with regular interactions.

• **Regular Supplement:** The researchers and scientists also suggested to introduce a regular weekly supplement newspaper for the coverage of weekly science news, it will fill the gap of lower coverage as they are publishing other supplements and the expert write up must be included on different issues related to science.

• **Appointment of Science Reporter:** The researchers and scientists strongly recommended for the appointment of person who is having knowledge of science and technology. It will help the organization to create and develop good relationship with the science research institutions.

5.0: CONCLUSION

Editors Perception plays an important role in selection and publication of news, so the on the basis of above interpretation it can be concluded that editors think that readers are not devoting much time to read the science news it is the main reason behind the lesser publication of science news but it is appropriate according to them. However they also agreed that editorial policies also have an impact on coverage of science on the other hand scientists/ researchers think that media must try to focus on coverage of science news by removing the communication gaps and by publication of regular supplements. They also suggested that appointment of science reporter can fulfil this gap.

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