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SERVICE QUALITY DIMENSIONS IN RETAIL SETTINGS: AN EMPIRICAL STUDY AT SELECTED APPAREL SPECIALTY STORES OF MUMBAI

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ABSTRACT

Retailing in India is poised for giant leap. Statistics is indicative of the tremendous potential it has in terms of bringing about socioeconomic transformation. Recent policy decision to permit 51% FDI in retail has given further boost to the champions of organized retailing in India. In spite of tremendous potential, the sector is bound to see unprecedented competition. And in the cut throat competitive scenario, only those who offer superior value in terms of quality will survive. The present paper uses SERVQUAL Model of Service Quality for analyzing the Service Quality Dimensions of Apparel Specialty Stores in the City of Mumbai. The findings are expected to be useful for the practitioner in the sector while taking sound marketing decisions.

KEYWORDS

Service Quality, SERVQUAL, Retail, Apparel Specialty Stores.

INTRODUCTION AND RELEVANCE OF THE STUDY

All of modern format first made their appearance in the US in the early 1950s, reaching Europe by the end of the same decade. While in India, retailing industry has made huge strides over the last 10 years. Traditionally, retail is India's largest industry, accounting for more than 10 percent of the country's GDP and around 8 percent of the employment, according to figures of the National Council for Applied Economic Research (NCAER, 2005).

Rated the fifth most attractive emerging retail market, India is being seen as a potential goldmine and has been ranked 2nd in a Global Retail Development Index of 30 developing countries.

Organized retailing is projected to grow at the rate of 25%-30% p.a. and is estimated to reach an astounding Rs. 1000 billion by 2010.

It is estimated that over next five years the investment requirement will be Rs.30 Billion per year. AT Kearney puts the figure at 8,00,000 Crores with annual growth of 20%.

Changing Consumer Behavior patterns is the sign of promising future for the retail sector in India.

To tackle the managerial challenges emerging out of retail revolution there is an acute need of new knowledge base so as to guide the decision making process for superior results.

The present study strives to contribute in this endeavor of knowledge creation in the domain of Indian Retail Management.

Building on the theories and models developed in the western world, the research presents the framework for decision makers in Indian Retail.

The theoretical Concepts and conceptual models on which the research is based are: Service Quality, Service Quality Dimensions, SERVQUAL, Customer Expectations and Perceptions, Patronage Behavior.

CONCEPT OF QUALITY

In its broadest sense, quality is a degree of excellence: the extent to which something is fit for its purpose. In the narrow sense, product or service quality is defined as conformance with requirement, freedom from defects or contamination, or simply a degree of customer satisfaction.

In quality management literature, quality is defined as the totality of characteristics of a product or service that bears on its ability to satisfy stated and implied needs.

Crosby (1979, p. 151) defined quality of goods as "conformance to requirements"; Juran (1980, p. 132) defined it as "fitness for use"; while Garvin (1983) measured quality by counting the incidence of "internal" failures (those observed before a product left the factory) and "external" failures (those incurred in the field after a unit had been installed).

QUALITY AS APPLIED TO SERVICES

Grönroos (1990a) has noted that product quality was traditionally linked to the technical specifications of goods, with most definitions of quality arising from the manufacturing sector where quality control has received extensive attention and research. The product-based definitions of quality may be appropriate to the goods-producing sector; however, according to Parasuraman and others, knowledge about the quality of goods is insufficient to understand service quality (Parasuraman *et al.*, 1985).

Hence while researching and managing service quality unique characteristics of the services are to be kept in mind.

CHARACTERISTICS OF SERVICES

The four unique characteristics of services (differentiating them from tangible products) identified by the authors since 70's are:

1. Intangibility (Bateson, 1977);
2. Heterogeneity (Booms and Bitner, 1981);
3. Inseparability (Carman and Langeard, 1980); and
4. Perishability (Grönroos, 1990b).

The measurement and management of service quality is more challenging as compared to tangible products due to these characteristics.

SERVICE QUALITY AND ITS DIMENSIONS

Nature and extent of Service Quality is dependent upon certain identifiable factors or dimensions which can be optimized with wise managerial judgments.

EXPECTATIONS AND PERCEPTIONS

Grönroos (1984, p. 38) defined service quality as a perceived judgment, resulting from an evaluation process where customers compare their *expectations* with the service they *perceive* to have received. According to him service quality issues could be split into **technical quality** (*what is done*) and **functional quality** (*how it is done*).

Parasuraman *et al.* (1988, p. 17) defined service quality as "the degree of discrepancy between customers' *normative expectations* for the service and their *perceptions* of the service performance". Perceived service quality is then interpreted from the differences in degree and direction between perceptions and expectations, and this approach to service quality is adopted in this study. A good operational example of a standardised framework for understanding service quality is the SERVQUAL instrument developed by Parasuraman *et al.* (1988). These authors sought to determine common dimensions of service delivery beginning with focus group interviews of consumers. The researchers discovered ten general dimensions which they labeled:

1. Tangibles;
2. Reliability;

3. Responsiveness;
4. Competence;
5. Courtesy;
6. Credibility;
7. Security;
8. Access;
9. Communications; and
10. Understanding.

Further refinement resulted in the instrument composed of five higher-order dimensions which subsumed the previous ten. These five dimensions are

1. Tangibles,
2. Reliability,
3. Responsiveness,
4. Assurance, and
5. Empathy.

SERVQUAL MODEL

Evaluation of service quality involves a comparison of customers' expectations of the service before it occurs with their perceptions of the service after the encounter (Parasuraman *et al.*, 1985). Thus, the SERVQUAL scale is comprised two sets of matched items measuring *expectations* and *perceptions*.

Although Cronin and Taylor (1992) argue that measuring customer perceptions is sufficient, in this study we are follow Parasuraman *et al.*'s conceptualization as there is strong theoretical support (Parasuraman *et al.*, 1994).

Several studies subsequently employed SERVQUAL to measure service quality and to assess the validity and reliability of the scale across a wide range of industries and cultural contexts (Carman, 1990; Finn and Lamb, 1991; Gagliano and Hathcote, 1994; Blanchard and Galloway, 1994; Mittal and Lassar, 1996; Zhao, Bai and Hui, 2002; Witkowski and Wolfenbarger, 2002; Wong and Sohal, 2003). Little is known about the service quality perceptions in India (Jain and Gupta, 2004) because the focus of research has primarily been on the developed countries (Herbig and Genestre, 1996).

SERVQUAL SCALE FOR SPECIFIC INDUSTRY

Parasuraman *et al.* (1994) suggest that service quality is a multifaceted construct and no agreement exists as to the number of dimensions or their interrelationships.

Similarly, Bolton and Drew (1994) note that different service dimensions are relevant in different industries, hence the need to develop multiple scale items that adequately capture a particular study context.

Hence in order to accurately assess service quality in different industry settings, modifications of the SERVQUAL scale may be warranted (Carman, 1990; Dean, 1999).

SERVICE CLASSIFICATIONS IN RETAIL INDUSTRY

Gagliano, Hathcote (1994) translated the service quality divisions of technical and functional (Gronross; 1984) into 'Store service' and 'Sales service' for the apparel specialty stores, in order to customize the terms for the retailing sector. Conceptual definitions are:

- *Store service:*
 - In-store credit;
 - Returns/exchanges/adjustments;
 - Variety, quality, and dependability of service;
 - Price of after-sale service.
- *Sales service:*
 - Attitude, courteous, knowledgeable, helpful clerks;
 - Prompt attention, prompt processing of transactions;
 - Individual attention/service.

This classification facilitates compartmentalization of the tasks into two broad divisions. Store operation managers might be more involved with front-line employees in improving store service policies; whereas, personnel managers might work with the sales service aspects. Service strategies on both "store service" and "sales service" can be efficiently dealt with by the retailers.

SERVICE: IT'S INFLUENCE ON PATRONAGE IN RETAIL SETTINGS

While store image is an important factor influencing store patronage (Berry, 1969), the emergence of above average service as a specialty store strategy indicates the importance of service in determining store patronage (Gagliano, Hathcote; 1994). Specialty store shoppers judged store personnel (the major determinant of "Sales Service") as a more important determinant of patronage than the department store or discount store shopper (Lumpkin and McConkey, 1984). For example, men who patronized high fashion men's apparel specialty stores cited knowledgeable, helpful sales associates as the most important factor influencing store patronage (King and Ring, 1980). These findings provide insight about the importance of service as a criterion for patronage. While studies have shown that service is an important criterion for store patronage in specialty stores, there are also other important factors. Five of the most common factors summarized by Berman and Evans (1992) include: merchandise, price, service, location, and advertising.

PURPOSE OF THE STUDY

The primary purpose of this study was to ascertain information on customer expectations and their perceptions of service quality delivered at the apparel specialty stores and its influence on patronage. This knowledge in turn can be of managerial value in the context of decision making.

OBJECTIVES OF THE STUDY

The present study was undertaken with the following objectives

1. To ascertain consumer expectations and perceptions of service quality in apparel specialty stores
2. To understand the importance of Service Quality with respect to Stores Patronage behavior.

METHODOLOGY

SAMPLE

A random sample of 164 adult retail customers were selected from the city of Mumbai because it is among the first cities in India where large format retail stores were introduced and consequently has a greater degree of stability in consumer expectations as compared to other cities. The selection of the respondents from Mumbai city alone, avoids the bias of service perceptions that might vary by geographical location. All the selected respondents were apparel shoppers since large format apparel stores have been in existence for a longer period of time in India as compared to, say, large format grocery stores or hyper stores.

SURVEY INSTRUMENTS AND TOOLS FOR DATA ANALYSIS

The instrument used for the present study were had two important sections. The first section included the questions to measure the service quality of the apparel store and was based on the SERVQUAL instrument developed by Parasuraman *et al.* (1991) and used by Gagliano, Hathcote (1994) for a similar type of

study conducted in Southeastern US. This section of the survey consisted of SERVQUAL "expectation" statements operationally defined as what customers would expect from an ideal specialty apparel store offering excellent quality service. Following the expectation ratings, the respondents had to name a specialty clothing store which they recently shopped. Then, based upon the store they indicated, respondents were required to rate their "perceptions" for the statements. This section included 22 items/statements. For each of the statements, respondents indicated on a scale from one (strongly disagree) to seven (strongly agree) the extent to which they believe the specialty store they shopped in had the features described (see Table I). factor analysis was used to analyze the data collected from this section.

The questions included in the second section of the instrument were pertaining to understand the importance of service quality as compared to the other factors the customers considered for store patronage, the method developed by Berman, Evans (1992) was used. The respondents allocated a total of 100 points among five retail strategies used to increase store patronage (Berman and Evans, 1992; Gagliano, Hathcote, 1994). The retail strategy considered for this purpose was Merchandise, Price, Service, Location and Advertising. The strategy which was considered to be the most important received the highest point as compared to others. This section of the questionnaire determined the importance of service with respect to other factors of store patronage (see Table III).

DATA PRESENTATION, ANALYSES AND DISCUSSIONS

SERVICE QUALITY DIMENSIONS

The items included in the first section of the instrument were analyzed using anticipated five factor principal axis factor analysis, followed by oblique rotation (Parsuraman et al 1991; Gagliano, Hathcote, 1994). However the loadings that emerged from the analysis were not exactly similar to the previous studies except *reliability* and *tangibles* therefore, new categorical names were developed to describe the factor groupings (see table). The five factors that emerged were;

1. Personal Attention
2. Problem Solving
3. Reliability
4. Tangibles
5. Convenience

Six items clustered to form the personal attention dimension;

- o Prompt service
- o Customized service
- o Never too busy to respond
- o Polite and courteous salesperson
- o Individual attention
- o Enthusiasm and interest at heart
- o Sales person behavior instills confidence
- o Service delivered when promised

The items that formed the problem solving dimension were;

- o Interest in solving problems
- o Expected to deal with customer queries
- o Willingness to help customers
- o Knowledgeable salesperson

The items included in the above two dimensions viz., personal attention and problem solving represents a list of items having the characteristics of responsiveness, assurance and empathy. However, during the survey these items reflected the "sales service" component of service quality.

The reliability dimension included four items viz., dependable service, accurate billing, and trustworthy employees and secured feeling in transactions. These items represented how secured or safe a customer felt during his transactions with the store. The tangibles dimension comprised three items; visually appealing store appearance, neatly dressed salespersons and appealing promotional material. the tangible dimension usually acts as the crowd puller or has the first impression of the store on the minds of the customers. These characteristics help to build the image of the store.

The convenience dimension comprised three items: up to date equipments, convenient physical layout and convenient operating hours. The customers expect up to date equipments like scanner, easy payment/ credit card acceptance facility to make their shopping more fast and convenient.

TABLE 1: DIMENSIONS

Sl. No	Items	Personal Attention	Problem Solving	Reliability	Tangibles	Convenience
1	Modern/up to date Equipments (like Mirrors, dressing rooms, etc					0.53
2	Visually appealing store appearance				0.65	
3	Neatly dressed Sales Persons				0.55	
4	Convenient physical layout					0.58
5	Services delivered is Prompt	0.63				
6	Sales Persons should have interest in solving problems		0.66			
7	Dependable Service			0.67		
8	Accurate billing			0.61		
9	Sales persons are expected to deal with customers queries		0.71			
10	Customized service	0.65				
11	Sales person should be wiling to help the customers		0.69			
12	The Sales person should never be too busy to respond	0.82				
13	The Sales person should be trustworthy			0.72		
14	Customers should feel secure in transaction			0.74		
15	Sales person should be polite & Courteous	0.76				
16	Sales person should be Knowledgeable about the recent trends in apparel fashion		0.59			
17	Customers are to provided with individual attention	0.71				
18	Appealing promotional material				0.64	
19	Sales person should have enthusiasm and interest at heart	0.58				
20	They should have convenient operating hours					0.79
21	Salesperson behavior instills confidence	0.81				
22	Services should be performed as per the promised time	0.69				

PERCEIVED IMPORTANCE OF SERVICE QUALITY FOR APPAREL STORE PATRONAGE

To determine the importance of service quality for store patronage as perceived by the customers the allocated points out of 100 points collected in the section two of the instrument were averaged. It was found from the analyses that Merchandise (Mean = 29) was rated as the most important factor for store patronage followed by location (Mean = 25), service quality (Mean = 23), price (Mean = 14) and advertising (Mean = 06) (see table).

TABLE 02: RANKING

Rank	Store Patronage factors	Mean Score
I	Merchandise	29
II	Location	25
III	Service Quality	23
IV	Price	14
V	Advertising	06

CONCLUSIONS AND MANAGERIAL IMPLICATIONS

I) It was found from the study that the two dimensions viz., personal attention and problem solving had high gap scores, indicating disparity between what specialty store consumers expected and their perceived service quality.

Managing the gap between the perceptions and expectations has to be the strategic approach for achieving the objective of enhancing the quality of customer experience. This in turn is bound to have a positive impact on patronage behavior.

Thus the game plan for superior result comprises of rightly understanding the expectations of specialty apparel store shoppers and then managing their perceptions effectively.

Two dimensions warranting the managements' focus are: (i) Personal Attention Dimension (ii) Problem Solving Dimension.

The research has identified the sub-components of these dimensions as:

(i) Personal Attention Dimension:

- o Prompt service
- o Customized service
- o Never too busy to respond
- o Polite and courteous salesperson
- o Individual attention
- o Enthusiasm and interest at heart
- o Sales person behavior instills confidence
- o Service delivered when promised

(ii) Problem Solving Dimension:

- o Interest in solving problems
- o Expected to deal with customer queries
- o Willingness to help customers
- o Knowledgeable salesperson

Based on the analyses of the waitage attributed to these dimensions and the sub components there of, following inferences can be drawn:

1. Shoppers at the Specialty Apparel Stores are more individualistic, have special psychological needs and hence expect customized solutions.
2. They would like to be assisted by the Sales persons in the process of making choice.
3. They expect special treatment offered in a polite manner.

The gap score is indicative of the fact that their experience falling much short of their expectations. This implies that there is an ample scope for enhancing the quality of experience if the management rightly understands the expectations of the concerned customers.

Three priority areas needing management cognizance are:

1. Number of Sales Staff in the shop- (Especially during peak times)- Is it adequate?
2. Skill set and attitude of the Sales Staff in the shop- Is it all right or does it need refinement?
3. Lay out of the shop- does it facilitate superior customer experience?

II) Further, it was found that some amount of disparity existed for the tangible dimension.

Regarding Tangible Dimension influencing Service Quality Perception, it can be sub divided in to Visual appeal of the store and the appearance of the Sales Staff (Which have scores 65 and 55 respectively).

It is obvious that the expectations of specialty store shoppers are guided by their own superior self image and hence they exteriors and ambience to be of superior standing.

Unlike Departmental Stores and Discount Shops, Specialty Stores need to pay extra attention for satisfying this subtle motive by providing exclusive experience.

III) The store patronage ranking indicates the important factors which receive consideration from the customers.

The factors determining patronage are:

Variety and choice appears to be the greatest determinant of Patronage behavior.

This implies that the investments on inventory cannot be compromised so as to ensure wide choice and availability at all the times.

Location and Service Quality though appear in that order; the distance between them is quite narrow. These two too have significant impact on patronage with the score of 23 and 25 respectively.

Due diligence has to be followed while making the locational choice while service quality has to be constantly monitored.

To conclude, based on the research it can be stated that:

1. The two dimensions of Service Quality Viz. Personal Attention and Problem Solving attitude of the Sales Staff are the most critical elements.
2. Merchandise, Location and Service are significant determinants of Patronage Behavior.
3. The management can focus their minds on above stated areas to enhance the quality of customer experienced and there by improving patronage probability.

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REDUCING HEALTH INEQUALITIES: KERALA COMPREHENSIVE HEALTH INSURANCE SCHEME A ROLE MODEL FOR DEVELOPING COUNTRIES

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ABSTRACT

Despite the better outcomes in certain health indicators Kerala is facing the high risk burden of chronic/non-communicable diseases among all Indian states. Recent studies show that the highest prevalence is shifting from the more affluent to the less affluent. However the main financier of health services in India is the individual household and they meet 72% of the total health care costs at the time of illness. The vulnerability of the poor and informal workers increases when they have to pay full for their medical care without any subsidy. Current usage of poverty line as the cut off for eligibility of public subsidies may not be adequate as an episode of hospitalization can bring households above poverty line below it. A large number of people borrow money or sell assets to pay for their treatment. Thus, Health insurance could be a way of overcoming financial handicaps, improving access to quality medical care, reducing inequalities in health and providing financial protection against high medical expenses. Comprehensive Health Insurance is a unique health insurance scheme introduced by Government of Kerala in 2008, expected to increase access to health care and reduce the burden of cost of treatment. The scheme was expected to cover both BPL (Below poverty line) and APL (Above poverty line) families and people who are working in informal sectors. This review paper tries to get some preliminary insights on this unique Health Insurance Scheme successfully practicing in Kerala.

KEYWORDS

Financial protection, Health inequalities, Health insurance, Kerala.

INTRODUCTION

 *Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control."*

Universal Declaration of Human Rights (1948), Article 25 (1)

Although the right to social security and health is well established in international law, most of the governments in developing countries are failed to guarantee this rights to millions of people mainly because of insufficient public health funds. Financing is the most critical of all determinants of a health system. The nature of financing defines the structure, behavior of different stakeholders and quality of outcome. Health financing in India is mainly through different sources: (1) Tax based public sector comprises local, state and central government and autonomous public sector bodies (2) Private sector including the non-for-profit sector organizing and financing directly through insurance (3) Household through out-of pocket payments including user fees paid in public health facilities (4) social or community based insurance and (5) external financing through international grants and loans¹. However the main financier of health services in India is the individual households. They meet about 72% of the total health care costs by paying out of pocket at the time of illness². NSSO 60th Round also indicates that about 60% of hospitalized treatment in rural areas and 42% in urban areas were financed by borrowings and sale of assets. Current usage of poverty line as the cut off for eligibility of public subsidies may not be adequate as an episode of hospitalization. NSSO Report says that a quarter of hospitalized patients in India have been impoverished because of high medical costs. One of the ways of protecting catastrophic burden of disease is through health insurance, as it protects the households from paying at the time of illness.

Kerala, the South Indian State has a free public health system for the poor for many years. Although the state is well known for its achievements in health, poor and vulnerable populations are often excluded from accessing fair quality health care. High economic costs of health care often preventing to seek health care and highly developed for-profit private health sector deters many who can not have the capacity to pay for quality care. The unique Health Insurance scheme introduced by the government of Kerala is supposed not to replace the free health care but to build upon the existing public health system. This insurance scheme is expected to reduce health inequalities in Kerala and improve access to quality health care to all. This paper attempts to give an overview of the Kerala Comprehensive Health Insurance Scheme which is unique among Indian states.

MATERIALS AND METHODS

This is a review paper comprises published articles in India which are related to community health insurance schemes, RSBY and CHIS. The review process was done through a desk review and online search with more focus on publications on RSBY, Kerala of the past 3 years.

LITERATURE REVIEW

Promoting and protecting Health is essential to human welfare and sustained economic and social development. This was recognized many years ago through Alma-Ata Declaration signatories, WHO noted that Health for all would contribute both to a better quality of life and also to global peace. People also rate health as one of their highest priorities. As a result health becomes a political issue as governments try to meet people's expectations. There are many ways to promote and sustain health. But timely access to health services is a critical issue in many developing countries³. This can not be achieved without a well functioning health financing system. It determines whether people can afford to use health services when they are in need. The World Health Assembly resolution 58.33 from 2005 says everyone should be able to access health services and not be subject to financial hardship in doing so.

Recognizing this, member states of the World Health Organization (WHO) committed in 2005 to develop health financing systems so that all people have access to services and do not suffer financial hardship paying for them. This goal was defined as universal coverage, sometimes called universal health coverage⁴. For achieving this goal, government faces the following fundamental questions.

- How a health system to be financed?
- How they can protect people from financial consequences of ill health?
- How health system can encourage optimum use of available resources?

- How they can ensure equitable coverage?⁵

The issue of health financing is an essential dimension of Health Systems reform in developing countries. It also occupies a central place in poverty reduction strategies in the implementation of debt initiatives and the pursuit of Millennium Development Goals. Abolishing user fees in health has come back in the agenda of several Sub-Saharan countries (Mali, Niger, Burkina Faso, Kenya etc) to targeted groups of people or interventions. In the emerging countries especially in Asia and Africa, the development of Health Insurance is considered a priority. Meanwhile, government and their development partners are giving importance to considerations of equity in health financing and access to health care⁶. They are more attentive to the role of financing that can play a major role in making health systems more efficient through various mechanisms. Health financing can not be separated from development policies and macroeconomic sector reforms, especially as the lack of resources often coexists with greater difficulties in terms of absorption capacity. The purpose of health financing is to mobilize resources for the health system, to ensure equitable health coverage to all and to set financial incentives for providers and assuring quality health care to all. Many high income countries like United Kingdom relay heavily on taxation or on mandatory social health insurance (Germany, France) for health financing. Low income countries in Asia and Africa are based on out of pocket payments at the point of service and some countries in Sub Saharan Africa mainly depend on international donor support⁷. But most of the countries built their health system based on two or more combination methods.

The choice of different institutional models is mainly based on the, Economic situations, Institutional capacity, external funding and cultural aspects of the country. In the current debate numbers of arguments are put forward by different international agencies to stress the advantages of Health Insurance mainly community based health insurance schemes to promote financing and access of health care in poor countries. Based on these arguments;

- The insurance can increase the availability of resources for health care
- Freeing up of limited public funds to be directed towards the poor people.
- Insurance is a more predictable way of funding than tax based system and this also can encourage private investment in public health system.
- The funds from the claims can retain in the public facilities and can utilize for the expansion of facilities and incentives for the staff.⁹

WHAT IS HEALTH INSURANCE?

Health insurance is a health care financing method. The ILO defines health insurance as “the reduction or elimination of uncertain risk of loss for individual or household by combining a large number of similarly exposed individuals or households who are included in a common fund that makes good the loss caused to anyone member”. In health insurance scheme people who are in similar risk of a certain event contribute a small amount as premium towards a health insurance fund. This fund is then used to treat people who become ill. The essential components of all health insurance schemes are prepayment and risk pooling¹⁰. When individuals are healthy they are contributing to the fund and when they become ill the fund can be used for their health care needs. A health insurance program usually has two main functions (1) To increase access to health care (2) To protect households from high medical expenses at the time of illness¹¹. The major health insurance schemes practicing in India as well as Kerala are:

1. Social health insurance schemes:
 - a. ESIS (Employees State Insurance Scheme): started in 1948 under ESI Act, which provides cashless services to workers employed in formal sectors. This scheme is financed by a contribution from central and state governments, employers, employees and managed by ESI Corporation. The corporation has its own dispensaries and hospitals.
 - b. CGHS (Central Government Health Scheme). Introduced in 1954 and is for central government employees. Employer also contributing a nominal amount according to their scale of pay.
 - c. UHS (Universal Health Insurance Scheme): In 2003 ministry of finance introduced a new scheme to all sections of the society. It was implemented through four public sector insurance companies and providing coverage to Rs 30000/ per family and the premium is Rs 365/ per person and Rs 545 /family. People below poverty line are subsidized to Rs 165/ per person and Rs 245/ family. This scheme was the initiative for the development of future RSBY¹².
2. Private Health Insurance Schemes (med claim, Bajaj alliance scheme etc)
3. Community Based Health Insurance Schemes. (More than 30 Schemes in India)

Health Insurance Schemes are considered as a distinctly sub-optimal way of providing health-care to the people. Between the Insurance route on the one hand and the route of providing universal free healthcare through a National Health Service on the other, the latter is infinitely superior. Studies shown that United States, which follows the Insurance route, spends a much larger proportion of the government budget on healthcare compared to the European countries, where social democratic governments, under the influence of the example of the former Soviet Union, had put in place systems of free healthcare. Even though these free healthcare systems have got eroded over time under the impact of neo-liberal policies, they nonetheless have managed to survive and the standard of healthcare in the European countries is far better than that in the US. The reason is simple. Insurance companies, are privately-owned in the US, are extremely niggardly when it comes to settling claims. They employ a team of lawyers to fight claims, which contributes both to high insurance premia (since the costs are higher owing the employment of the team of lawyers) and low settlement ratios (since the lawyers' job is to settle low amount). As the government contributes in varying degrees to insurance premia paid by the poor, there is in effect a transfer from the public exchequer to finance the army of lawyers employed in the Insurance business. A given magnitude of expenditure earmarked for providing healthcare therefore actually ends up providing much less healthcare than under a system of free National Health Service¹².

This is main reason that the Kerala government had always been hesitated to follow the Insurance route. Its Approach Paper in the Eleventh plan was strongly against Health Insurance and in favor of a free healthcare system. It had argued that the best results, if one followed the Insurance route, would be obtained if public insurance companies did the insuring and public medical facilities did the treatment; but in such a case, instead of following the roundabout route of Insurance, it would be better to put an equivalent amount of additional funds simply into the public medical facilities, and provide universal free healthcare for the entire BPL population. Realizing this fact on October 2nd 2007 Prime minister of India announced a new health insurance scheme for households living below poverty line (BPL), defined by the planning commission of India. This scheme was later known as Rashtriya Swashtya Bima Yohana. The first RSBY health insurance card issued in Yamunanagar, Haryana on 28th February 2008. The RSBY is targeted to provide cashless hospitalization to maximum of five households and the ceiling amount is Rs30000/per annum. It covers around 750 specific procedures and hospitalization including preexisting conditions. The government of India financed 75% of the premium and 25% by state governments with a nominal registration fee of Rs30/- for getting smart cards. First insurance policy was activated in april1st 2008. Two years later more than 19 million households had been enrolled resulting the coverage around 60million people. The Central government, however, has insisted on the Insurance route, and since the Kerala Scheme takes the Central Scheme as its base, the Kerala government willy-nilly has to go along the Insurance route in order to get its quota of central funds under the RSBY. It has however reserved the right to choose the Insurance Company for its Scheme. The criterion for choice need not be the mere mechanical one of which company offers the lowest tender. Likewise, it has stipulated that the private hospitals and healthcare facilities where the people can go, in addition to the public system, will be only those private facilities empanelled, which accept a set of prescribed rates as the maximum charges for the various treatments. The RSBY itself stipulates this and prescribes such a set of rates, but, given the wide variations in medical charges that exist across the country, each state taking its own specific conditions and rates for each procedure. RSBY was implemented through National Rural Health Mission (NRHM), has its own directorate in each state.

KERALA SCENRIO

Investment in education and health has been a consistent policy of all successive governments in Kerala¹³. Since 1970s Kerala has been internationally accredited because of its outstanding performance in health indicators. Despite, the better health outcomes on certain health indicators like maternal mortality, infant mortality, life expectancy etc, the much-proclaimed Kerala model of health has been showing a number of disturbing trends. The last 30 years has seen a remarkable transition in Kerala. The state is supposed to be in the stage 111 of the epidemiologic transition. Although mortality is low, the numbers those suffering from chronic/non-communicable diseases in urban and rural are high in Kerala compared to other Indian States. Studies shown that this social transition unfortunately led to the highest prevalence of cardiac disease among all Indian states with a rural prevalence of 7.5% and urban prevalence of 12%.

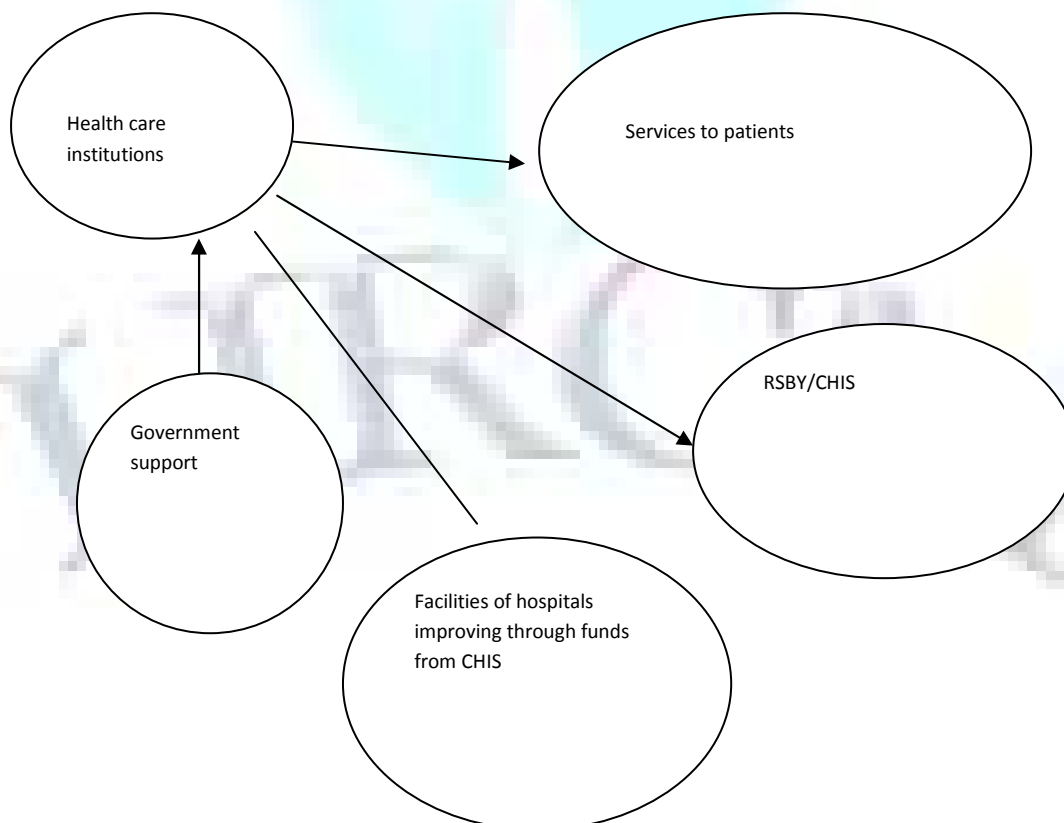
Cardiovascular death is 50% of the total death and by 2020 it is predicted to go up to 2/3 of the total deaths in Kerala¹⁴. Studies shown that the epidemics affect the age group of 25-69, which is very less compared to other developing countries. Cardiological Society Kerala chapter report says in 2008, that 80% of the heart attacks and premature death due to cardiac problems can be prevented by appropriate management and secondary prevention strategies. But the cost of treatment and secondary prevention is so high and majority of people can not afford the high medical expenses. One of the ways to protect this uncertainty and risk of illness is health insurance. Unfortunately only around 11.4% of the population in India is covered under any form of health insurance. Given this scenario Kerala government is thinking of enhancing the protection to households by raising budgetary allocations to health care and also increasing the introduction of new health insurance schemes to the citizens.

Kerala have the best health indicators but have limited number of best public health care institutions. The success of Kerala health indicators is more due to the investment in the social capital especially advancement in educational sector rather than only in the public health care, resulting in a more accountable and integrated primary health care system. Increasingly, the public sector is unable to meet the demands for health care and people have responded to these inadequacies by increasing using the emerging private sector¹⁴. This has led to the impetus growth of the private medical care set up in the State and the dependence on private health care is quite high even among the lower expenditure classes and rural areas. The unregulated private sector raises household health care expenditures, making health a commodity purchased by 'ability to pay.' Many public facilities remain underutilized especially in the institution at the level of community health centres and below. In the changing scenario, the private sector reigns supremacy in the infrastructure and health manpower development than public sector in the State. The public health centres are currently being utilized mostly for maternal and child health care programmes¹⁵. In this context, the government of Kerala has taken up the Rashtriya Swasthya Bima Yojana (RSBY) scheme of Central government announced by Prime Minister, along with Comprehensive Health Insurance Scheme for (CHIS) in October 2008. The objective of RSBY/CHIS is to protect below poverty line (BPL) households from major health shocks that involve hospitalization. Specifically, BPL families are entitled to more than 750 in-patient procedures with a cost of up to 30,000 rupees per annum for a nominal registration fee of 30 rupees. The Scheme is jointly implemented by departments of Labour & Rehabilitation, Health & Family Welfare, Rural Development, and Local Self Govt. The Labour Department is the Nodal dept. for implementation of CHIS. A separate agency "Comprehensive Health Insurance Agency of Kerala" (CHIAK) is created for implementation of the scheme. "United India Insurance Company Limited" is the insurance provider for this scheme that will implement all 14 districts. 140 government hospitals and 165 private hospitals have been empanelled towards implementing the scheme. All five government Medical colleges are also included under this scheme¹⁵.

BUILD UPON EXISTING PUBLIC HEALTH SYSTEM

Kerala at present has a free public health system for the poor. The Insurance Scheme is not supposed to replace free public healthcare provision but to build upon it. This means that those who were earlier accessing the Public System for free healthcare should continue to be eligible for it even after the Insurance Scheme comes into effect, but the Public System should get compensated for an amount up to a maximum of Rs.30, 000 from the Insurance Provider in each such case. In other words, if a patient needs Rs.50, 000 expenses for treatment, then the Public System should provide this treatment. It will be paid back the amount of Rs/30, 000 by the Insurance Provider while the remaining Rs.20000 will have to be met by the public system. This point can be put differently: *the Public System will continue its current practice with regard to charging for its services, which also means that it will not charge any money to the poor; the compensation it will claim from the Insurance Provider will only be against "notional payments", calculated at certain specifically-fixed rates*¹⁶. If the Public System is to continue with its provision of free treatment to the poor, irrespective of whether, and by how much, it is compensated under the Insurance Scheme, and then it will have to be suitably strengthened. Under the Comprehensive Health Insurance Scheme, private healthcare facilities will be empanelled for treating patients provided they accept the fixed rates. To ensure that the poor get a reasonable amount of healthcare within the Rs.30, 000 insurance limits, these rates have to be kept at a moderate level, and certainly below what the private facilities charge for the facilities at present. E.g. for an abdominal hysterectomy the charge is about Rs 6500/ under CHIS instead of charging Rs 20000/ in private sector. So there will be an excess demand for the public healthcare facilities with the launching of the Insurance Scheme. This has to be met through an improvement in the public health system. The patient has an option to choice private empanelled hospitals also, but the rates are same and are fixed under this scheme. This will be a model for public- private partnerships in health system.

FIGURE 1: RSBY/CHIS MODEL



Source NRHM working paper 2010

The "flow back" of Insurance Premium from the insurance provider to the Public System will be used for improving the quality of health system itself. In addition NRHM itself is providing enough funds for improvement of public health system. For achieving this aim: (i) each Public Healthcare Institution *will be allowed to retain the Insurance premium flow back that it obtains*, at least for the first year, (ii) there must be of incentives for the medical and other staff in each public institution, based on the magnitude of flow back of premium. Since the flow back of insurance payments will take time, and public healthcare institutions in the state cannot wait that long to improve their facilities, they will be allowed to borrow within a limit from co-operative banks under an Escrow Account for undertaking expenditure for such improvement. These loans can be repaid as the insurance payments flow in. Such borrowing in anticipation of flow back will also be necessary for equipping the Public Healthcare Institutions to install the requisite facilities for dealing with "smartcards". The scheme started in August 2008 in Alapuzha district and extended to all 14 districts. Health Insurance Schemes in the country, even under RSBY, have till now been confined to a few districts in particular states. The Kerala Scheme in this respect is a trailblazer, since it covers an entire state, and even within that state a population that greatly exceeds what is currently counted as "poor" by the Planning Commission.

IMPLEMENTATION OF RSBY/CHIS IN KERALA

Initially, the government was doubtful of whether it was necessary to adopt the RSBY as it is or introduce a new one as a comprehensive Health Insurance scheme. Whether it would be a success as it had to compete with the private sector where the facilities were better equipped than the government sector or to involve private providers. However, after one and a half year of implementation, the apprehensions have been proved wrong. The total revenue earned by the empanelled government hospitals stands testimony to this. Since the implementation of RSBY/CHIS scheme till April 2010 the revenue generated by empanelled government hospitals is more than that of the empanelled private hospitals. According to the NRHM report after one year Public health institutions contribute more than 60% of the case load as well as 57% of revenue generated for the public health institutions through the scheme. It stands at almost 25 crores out of Rs. 44 crores collection for year 2009-10 and is projected at 30 crores in 2011-12. The facilities and patient friendly health services have been augmented owing to increased revenue generated through RSBY/CHIS and support from Arogyakeralam. It is highly appreciable to note that the government hospitals are becoming more competent to manage the services. Implementation done through strong Hospital Management Committees the empanelled government hospitals are moving towards a stage of self reliance empowered with the revenue generated through RSBY/CHIS. The staffs in the empanelled hospitals are more motivated because of quality improvements in the hospitals and incentives for the staff. The public health care institutions are now in a position to compete with the private hospitals in terms of providing quality and patient friendly health services. This is apparent in terms of revenue generated by empanelled government hospitals as compared to empanelled private hospitals since the implementation of RSBY/CHIS. In Alapuzha district, Cherthala government hospital is a role model for the implementation of this scheme. First year it self the hospital claimed 1 crore by admitting 2971 cases. As per the Planning Commission estimates there are 11.79 lakhs BPL families in the state, all of whom are being covered under the RSBY. The state Government has estimated another 10 lakhs families eligible to be included in the BPL list. The state Government has decided to extend the benefits of RSBY to additional 10 lakhs poor families also, meeting the entire expenditure from State Government funds. In addition the state Government has decided to extend the same scheme to benefit households Above Poverty Line (APL). But the entire premium should to be borne by the beneficiary and it rate is fixed as Rs 565/ and the coverage will be for five members for a family.

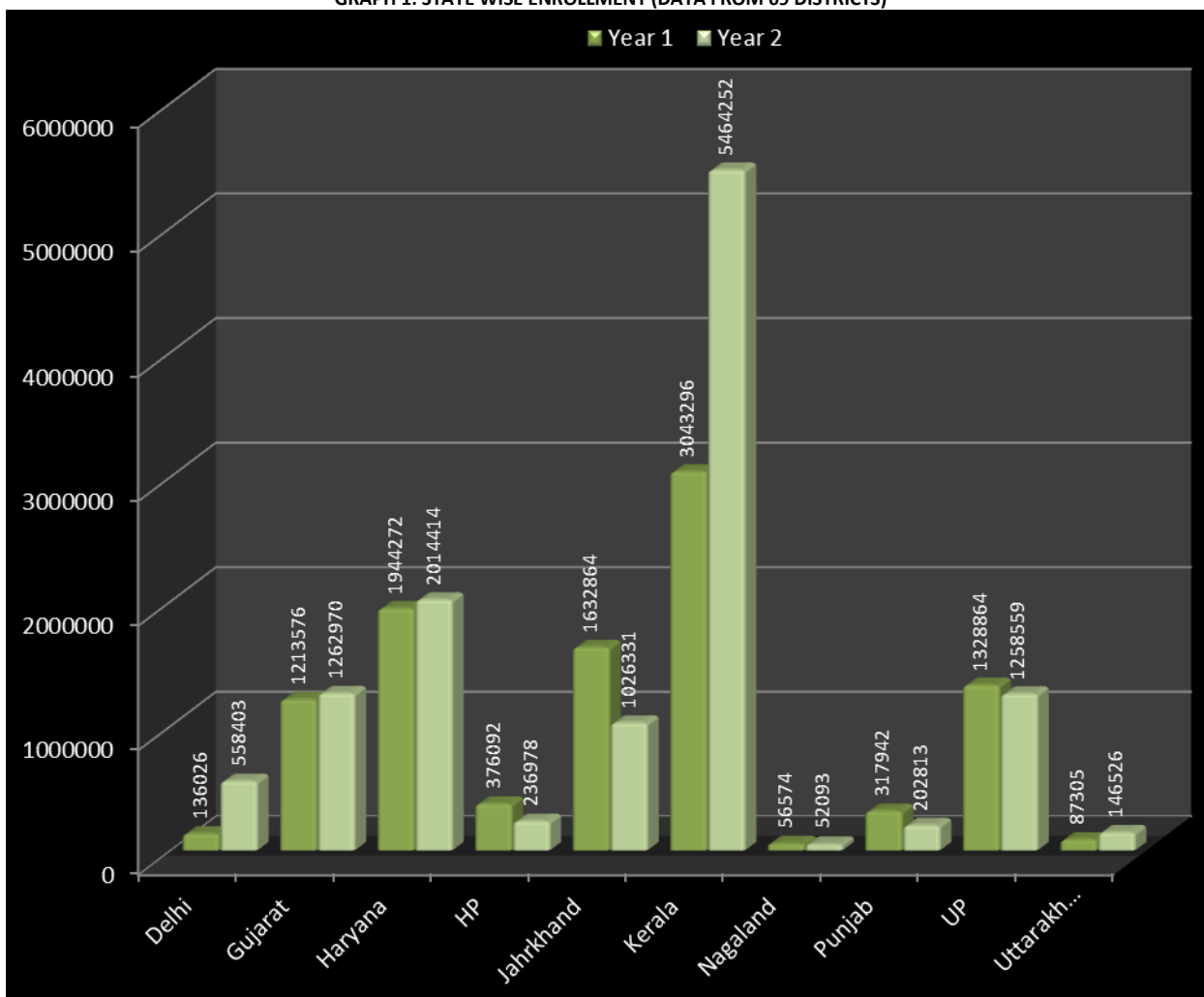
During the 2nd year, the state Government extended the coverage to the following categories also in addition to the BPL families(1) SC/ST Families(2) Fishermen families(3) Ashraya families(4) Agricultural Workers(5) All workers in the Beedi, Handloom, Coir, Khadi, Bamboo, Kattuvalli, Small Plantations, Other unorganized sector(6) Cashew workers and pensioners (7) NREG Workers who had worked at least 15 days(8) Anganvadi Workers/helpers(9) Tailoring workers(10) Asha workers(11) Pensioners of Building and other construction workers welfare board, Head load workers welfare board, Kerala Motor workers welfare board and Kerala Abkari Workers Welfare Board(12) Domestic workers. The state government's target is to bring 35 lakhs of families under the coverage of Health Insurance. The government expects to achieve this target during the year 2011-12. In addition to the coverage of Rs 30,000 available under the Central Scheme, the state government has decided to give additional coverage of Rs 70,000 to the beneficiaries for the treatment of serious disease affecting kidney, heart and for cancer treatment. This Amount in addition to Rs 30000 available under RSBY will be allotted to the respective hospitals directly by CHIAK through non insurance route¹⁸. Government of India has evaluated that 'Kerala has issued highest number of RSBY smart cards in the Country. The State is also ahead of other States in putting in place procedures and practices which are worthy of appreciation in the implementation of the scheme. As recognition of this achievement Kerala government had given award for outstanding commitment in terms of initiative, innovation and institutional building in RSBY in 2009 and 2010.

TABLE 1: HOSPITAL WISE CLAIMS TILL FEBRUARY 2010

DISTRICT	TYPE	PATIENTS ADMITTED	AMOUNT RECEIVED	AMOUNT PENDING	TOTAL
TRIVANDRUM	GOVT	2775	5742748.00	2807531.50	11485609.50
	PVT	4212	8122916.00	488982.50	16558812.50
	TOTAL	6987	13865664.00	3296514.00	28044422.00
KOLLAM	GOVT	1454	2944640.00	2556684.00	5501324.00
	PVT	7799	13072076.00	7671154.00	20743230.00
	TOTAL	9253	16016716.00	10227838.00	26244554.00
PATHANAMTHITTA	GOVT	1501	3041693.00	168000.00	6015077.00
	PVT	81	37687.00	313761.00	351448.00
	TOTAL	1582	3079380.00	481761.00	6366525.00
ALAPUZHA	GOVT	9135	23200280.00	9263612.50	32463892.50
	PVT	4790	13130715.00	0.00	15934220.00
	TOTAL	13925	36330995.00	9263612.50	48398112.50
KOTTAYAM	GOVT	6867	14969485.00	7016643.00	22246128.00
	PVT	1722	3586323.00	0.00	4904785.00
	TOTAL	8589	18555808.00	7016643.00	27150913.00
IDUKKI	GOVT	1033	1911202.00	2382401.00	4293603.00
	PVT	0	0.00	0.00	0.00
	TOTAL	1033	1911202.00	2382401.00	4293603.00
ERNAKULAM	GOVT	2006	3639159.00	102857.50	5686607.50
	PVT	0	24884857.34	0.00	27645182.84
	TOTAL	2006	28524016.34	102857.50	33331790.34
THRISSUR	GOVT	5426	14766486.00	1503035.00	19778488.00
	PVT	5389	16340007.00	9899531.00	26239538.00
	TOTAL	10815	31106493.00	11402566.00	46018026.00
PALAKKAD	GOVT	3951	6390913.00	178125.00	8279226.00
	PVT	1339	3393112.00	946401.00	4339513.00
	TOTAL	5290	9784025.00	1124526.00	12618739.00
MALAPPURAM	GOVT	792	1149625.00	1997825.50	3147450.50
	PVT	60	12500.00	13000.00	25500.00
	TOTAL	852	1162125.00	2010825.50	3172950.50
KOZHIKODE	GOVT	5555	10732426.00	8819706.00	19552132.00
	PVT	2964	5341233.55	805636.05	6146869.60
	TOTAL	8519	16073659.55	9625342.05	25699001.60
WAYANAD	GOVT	1362	3065588.00	1792971.00	4858559.00
	PVT	0	0.00	0.00	0.00
	TOTAL	1362	3065588.00	1792971.00	4858559.00
KANNUR	GOVT	1441	4042984.50	22500.00	5161669.00
	PVT	1974	6460864.00	0.00	7377748.00
	TOTAL	3415	10503848.50	22500.00	12539417.00
KASARGODE	GOVT	3571	4880672.00	9500.00	5093382.00
	PVT	1724	7381145.50	767697.50	8148843.00
	TOTAL	5295	12261817.50	777197.50	13242225.00
STATE	GOVT	46869	100477901.50	38621392.00	139099293.50
	PVT	32054	101763436.39	20906163.05	122669599.44
	TOTAL	78923	202241337.89	59527555.05	261768892.94

Source: NRHM Kerala working paper 2010

GRAPH 1: STATE WISE ENROLLMENT (DATA FROM 69 DISTRICTS)



Source: NRHM paper RSBY is going.

SPECIAL SCHEME FOR CARDIAC, RENAL AND CANCER (CHIS PLUS) CARE

In February 22nd 2011 Kerala government introduced a new scheme of Comprehensive Health Insurance for all BPL card holders of Kerala, known as “CHIS PLUS”. The Home Minister announced in his budget speech for the current year that addition treatment facility up to Rs 70000/ for BPL card holders of RSBY/CHIS for critical care patients of cardiac, cancer and kidney problems. This scheme is implemented through any insurance company like RSBY/CHIS, but fully funded by state government. At the beginning 23 hospitals are empanelled for this scheme where the RSBY/CHIS card holder will get treatment for three fatal diseases of heart, kidney and cancer. Government of Kerala decided to enhance the membership to 35lakhs families and it is assessed that about 0.10% of families will make use of this new scheme. The hospitals will have to provide care for 3500 patients for the year 2010-11 and the expenses will be 24.5 crore. It is expected that CHIS PLUS implementation will prevent premature deaths of people who deserve in poor families¹⁹. In the year 2010, according to the report of NRHM 2500 people were benefited through this scheme.

CONCLUSION

This century has witnessed greater gains in health outcomes than any other times in the history of Kerala. These gains are the results of improvements in income and in health enhancing social policies like housing, clean water, sanitation systems, nutrition and greater gender equality in education. They also result from the awareness of the cause of diseases, its prevention, treatment, financing of health care, introduction of health policies, and expansion of health services, and political commitments all contributes to this success. Improving ways to finance health care and protect populations against the cost of illness has been central to this success story.

There is growing evidence that the level of health care spending in India is currently over 6% of its total GDP and is considerably higher than other developing countries. The evidence also suggests that more than 70% of the total spending on health care is out of pockets expenses. The provision of health care that is adequate in terms of quality and access for the growing demand is always a question in front of all state governments. Particularly, public delivery of health system is poor in quality mainly because of inadequate funding. This highlights the need for alternative financing mechanisms which will reduce the burden of catastrophic payments at the time of illness. Health insurance is one mechanism reducing the burden of financial hardships of citizens when they are sick. In Kerala the prevalence of non-communicable diseases are highest among all Indian states and the cost of treatment and secondary prevention is very high. Unfortunately a very small percentage of people were covered by any form of health insurance in India as well as Kerala and the poor and people who are in informal sectors are more vulnerable. In this scenario the Comprehensive Health Insurance Scheme implemented by the government of Kerala for both BPL and APL families (about 35 lakhs of beneficiary families) is appreciable. But getting “smart” cards prepared for a population of this size, distributing the cards on time, empanelling private institutions which are willing to participate in the scheme by accepting the prescribed rates, getting public health facilities to be ready for the implementation for this scheme, settling claims on time, pose a formidable administrative challenge for the state. Adverse selection and moral hazard are the inherent problems of all health insurance schemes will also affect this scheme. Another important issue is finding poor and most vulnerable groups who are in real need of financial protection at the time of hospitalization. There are many leakages and under coverage for the identification of poor people in planning commission report. So government must take sincere effort to find out the real beneficiaries of this scheme and high political commitment is needed for this effort. Like any other community based insurance schemes the sustainability of this scheme is also questionable.

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FACTOR AFFECTING FOREIGN DIRECT INVESTMENT (FDI) INFLOW IN THE BUILDING AND CONSTRUCTION SECTOR

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ABSTRACT

A study of the factors affecting Foreign Direct Investment inflows in the Building and Construction Sector in Nigerian economy has been conducted. The aim of the study is to analyse the factors affecting inflows of Foreign Direct Investment (FDI) in Building and Construction Sector in the Nigerian economy with the need understanding the significant and constrained to such inflows and perhaps making appropriate recommendations that would enhance FDI inflow into the building and construction sector, hence, the survival and growth in the sector. Data for the study were collected from two major sources, namely, Oral interviews, and Questionnaires. The respondents are staffs of the Central Bank of Nigeria, Nigeria Investment Promotion Commission, and National Bureau of Statistics all in the Federal Capital Territory, Abuja Nigeria. Kendall's Coefficient of Concordance was used in the study to test the agreement between different groups within the survey. In the same way analysis of variance (ANOVA) was used in the study to test the level of significance among the ranking of the three different group surveyed. Among the factors perceived as causing hindrances to the inflow of FDI in the Nigeria economy, corrupt practices is ranked first as perceived by all categories of the respondents, follow by fraud (the image of Nigerians), lack of security, lack of legal and institutional framework to support FDI inward flow, and inconsistent economic policies and free flow of foreign capital was ranked last. Conclusively, government at all levels should implement and enforce economic and political policies including its institutional reforms in fighting corrupt practise at all levels and ensure greater transparency and promote rule of law.

KEYWORDS

Building and Construction Sectors, Foreign direct investment (FDI), and foreign portfolio investment.

INTRODUCTION

Foreign Direct Investment (FDI) is the flow of capital and human resource from one country to another. Is an integral part of the international economic system and a major catalyst for development (OECD, 2002). National policies and the international industrial architecture play a significant role in attracting FDI to most countries. The significance of foreign capital to the provision of infrastructures in the Building and Construction sector's for macro and microeconomic activities of any society cannot be overemphasized. Foreign capital has long been accepted as an inevitable input in the development process, given the fact that no country is an "Island" with self sufficiency on resources, to stimulate the required economic growth and development (Orji, 2004). In Nigeria for instance, a net inflow of US\$5.2 billion of foreign direct investment (FDI) was recorded with most of investment directed toward the energy and Banking sectors (Wikipedia, 2007).

The need for external capital inflow arises when desired investments exceed actual savings. According to World Bank (2001), Africa requires \$18 billion a year in infrastructures financing, while Unctad, (2009) put the requirement at \$38bn per annum. Association of less countries Development (ALDC) study estimates the Africa infrastructural requirement at \$75bn per annum (Fleshman, 2009). Nigeria plans to attract \$600 billion in Foreign Direct Investment by the threshold year of 2020 to deal with the deplorable state of the nation's infrastructure (Makunike, 2008). According to Mustapha (2009) Nigeria Investment Promotion Council (NIPC) recorded 12 billion USD in 2007 and 20 billion USD in 2008; these raised the Nigeria's investment profile. While the developed countries were experiencing difficulties in attracting FDI due to the current global financial crises, Africa countries, particularly Nigeria, is recording increase investment inflows in some critical sectors of the economy, in the area of oil and gas (Unctad, 2009). The aim of the study is to analyse the factors affecting inflows of Foreign Direct Investment (FDI) on Building and Construction Sector on the Nigerian economy.

LITERATURE REVIEW

FOREIGN DIRECT INVESTMENTS (FDI)

The United Nations UNCTAD (2009) defined Foreign Direct Investment (FDI) as investment in enterprise located in one country but “effectively controlled” by residents of another country. It is about the extension of an enterprise from its home country into foreign host country. Most investors view potentials in developing countries due to the vast untapped human, material and natural resources (Central Bank Nigeria, 2004). Since 1970, FDI inflows into Africa have increased only modestly, from an annual average of about US\$1.9 billion in 1983–87 to US\$3.1 billion in 1998–1992 and US\$4.6 billion in 1991–1997. Even so, only a few countries have been successful in attracting significant FDI flows. Indeed, Africa as a whole has not particularly benefited from the FDI boom. It is widely acknowledged that (FDI) is an important aspect of the recent wave of globalization and is an important driver of economic performance, as it is expected to improve industrial productivity growth through infusion of new capital, technologies and managerial know-how, and by improving the average skills and efficiency levels of industries (Zunia, 2009).

FDI is still concentrated in only a few countries for many reasons, ranging from negative image of the region, to poor infrastructure deficit, corruption and foreign exchange shortages, an unfriendly macroeconomic policy environment, among others.

The domestic savings of most developing and less developed nations cannot finance infrastructure development, hence, the need for Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI) which also have the advantage of transferring managerial skills, marketing connection, technical knowledge, training of local work force, remitting foreign currency into the host country Jules and Hennes, (2007).

FACTORS HINDERING THE FREE FLOW OF FDI IN THE BUILDING AND CONSTRUCTION SECTOR IN NIGERIA

Many factors affect the inflow of FDI in the economy. However some of these factors have significant effect on the building and construction sector. These factors include; The image of Nigerians (fraud), Lack of security, unstable political environment, Government policy, Discriminatory barriers to the flow of foreign capital, Lack of infrastructure, Inconsistent government economic policy, Lack of framework to support (FDI), underdeveloped private sector, alternative dispute resolution (industrial court), corrupt practices, double counting, environmental problems (Yesufu,2011)

METHODOLOGY

METHOD OF DATA COLLECTION

The data for the study were obtained using well structured questionnaires and seventy five copies administer to staff of the relevant department in Central Bank of Nigeria (CBN), Nigeria Investment Promotion Commission (NIPC) and National Bureau of Statistic (NBS) randomly selected from (Kompas, 1998) and the new Civil engineer Consultant file (ICE, 1998), twenty five copies for each identified stakeholders as mentioned above fifty seven copies were returned fully completed. The response rate obtained (67%) is considered to be good.

DATA ANALYSIS TECHNIQUES

Data obtained in the study were analysed using the severity index and Kendalls Coefficient of Concordance.

SEVERITY INDEX

The severity index (SI) was adopted in analyzing data collected from the questionnaire survey as described by Idrus and Newman (2002) thus.

$$S.I = \frac{\sum_{i=1}^n W_i f_i}{n} \times 100\% \dots\dots\dots 3.1$$

Where
S.I; is the severity index,

f_i is the frequency of the respondent,
 w_i is the weight for each rating (= rating in scale/number of points in a scale), and
 n is the total numbers of responses.

KENDALLS COEFFICIENT OF CONCORDANCE

Kendalls Coefficient of Concordance was used in the study to test the agreement between different groups within the survey. The Kendalls coefficient of concordance W was computed using the formula Siegel, 1956 in (Hays, 1998); (Idrus, et al.2002); (Wikipedia, 2006).

$$W = \frac{S}{k^2 (N^3 - N)/13} \dots\dots\dots 3.2$$

Where S is the sum of square of deviation of ranking sum from mean
 k is the number of respondent groups (Three in this case), and
 N is the number of factors or entities (thirteen in this case).

Decision rule: 0.2 – 0.39 weak; 0.3 – 0.49 poor; 0.5 - 0.59 average; 0.67 – 0.75 high and 1.0 Perfect.

ANOVA

The analysis of variance (ANOVA) was used in the study to test the level of significance among the ranking of the three different group surveyed. It is calculated using (Fellows, 2003);

$$S^2 = \frac{\sum (x - \bar{x})^2}{n-1} \dots\dots\dots 3.3$$

The population variance is: $\sigma = \frac{\sum \{n_j - 1\}}{nr - k} S_j^2 \dots\dots\dots 3.4$

Where $nr = \sum n_j$
 $(k - 1)$ = degree of freedom numerator
 $(nr - 1)$ = degree of freedom denominator
Using F distribution;

As $F > 1$, the likelihood that H_0 is valid increases; as the value of F increases, the likelihood of H_0 being valid decreases.

Decision rule: If $F_{cal} < F_{tab}$, the null hypothesis should be rejected.

Null hypothesis that there is no relationship between the set of ranking of the different groups has a probability of occurrence of $P < 10\%$. The alternative hypothesis can therefore, be accepted at the 90% confidence level, assuming that the agreement among the groups of respondents was high that it would be by chance.

ANALYSIS OF THE RESPONSES FROM THE QUESTIONNAIRE

Oral interview form the bases of the design of the structured Questionnaire administered to the respondents in these relevant government agencies dealing with FDI relate issues namely; the Nigerian Investment Promotion Commission (NIPC), Central Bank of Nigeria (CBN), and National bureau of Statistics (NBS). The analysis of the returned questionnaires is presented in the Table 4.1 – 4.6.

TABLE 4.1: DISTRIBUTION AND RESPONSE FROM THE QUESTIONNAIRE

Organization	Administered Questionnaires	Returned %	Questionnaires response	Total	response
CBN	25	18	24		32
NIPC	25	20	27		35
NBS	25	19	26		33
Total	75	57	76		100

Source: Field Survey, 2010

Table 4.1 indicate 76% response rate based on the level of homogeneity of the returned questionnaires.

ANALYSIS OF THE FACTORS HINDERING INFLOW OF FDI IN THE BUILDING AND CONSTRUCTION SECTOR OF THE NIGERIAN ECONOMY

Tables 4.2, 4.3, and 4.4 shows the analysis of the identified factors hindering the inflow of FDI into the building and construction sector of the Nigerian economy as ranked by the different groups of respondents namely staffs of NIPC, CBN and NBS respectively.

TABLE 4.2: FACTORS HINDERING INFLOW OF FDI AS RANKED BY NIPC STAFF

Factors/Criteria	Valid percentage for score of				Severity index %	Rank Order
	1	2	3	4		
Fraud	1.75	8.77	8.77	15.79	27.19	2 nd
Lack of security		10.53	7.09	17.54	28.07	1 st
Unstable political environment	--	8.77	17.54	8.77	26.31	5 th
Government policy	3.51	3.51	17.54	10.53	26.32	4 th
Discriminatory barriers to						
Free flow of foreign capital	17.5	48.77	3.51	5.26	16.66	11 th
Lack of infrastructure	3.51	12.28	10.53	8.77	23.69	8 th
Inconsistent economic policies	--	12.28	8.77	14.04	26.76	3 rd
Lack of legal & institutional frame work to						
Support FDI inward flow	7.02	8.77	10.53	8.77	22.81	10 th
Under developed private sector	3.51	8.77	14.04	8.77	24.56	7 th
Alternative dispute resolution	1.75	10.53	14.04	8.77	25.00	6 th
Corrupt practices	1.75	5.26	17.54	10.53	26.75	3 rd
Multiple taxation	7.02	10.53	7.02	10.53	22.82	9 th
Environmental problems	5.26	7.02	10.53	12.28	25.00	6 th

Source: Field Survey, 2010.

Table 4.2 reveals that, the first four most severe factors are:

- Lack of security 1st
- Fraud 2nd
- Inconsistent economic policies 3rd
- Government policy 4th

TABLE 4.3: FACTORS HINDERING INFLOW OF FDI AS RANKED BY CBN STAFF

Factors/Criteria	Valid percentage for score of				Severity index %	Rank Orders
	1	2	3	4		
Fraud		14.04	10.53	7.02	21.94	10 th
Lack of security	3.51	3.51	10.53	14.04	24.57	4 th
Unstable political environment	--	10.53	12.28	8.77	23.25	8 th
Government policy	----	10.53	12.28	8.77	23.25	8 th
Discriminatory barriers to						
Free flow of foreign capital	----	8.77	17.54	5.26	22.80	9 th
Lack of infrastructure	---	5.26	5.77	17.54	24.50	5 th
Inconsistent economic policies	---	3.51	17.54	10.53	25.44	2 nd
Lack of legal & institutional frame work to						
Support FDI inward flow	3.51	5.26	8.77	14.04	24.13	6 th
Under developed private sector	5.26	5.26	7.02	14.04	23.25	7 th
Alternative dispute resolution	1.75	5.26	8.77	15.79	25.44	3 rd
Corrupt practices	---	5.26	12.28	14.04	25.88	1 st
Multiple taxation	3.51	14.04	3.51	10.53	21.06	11 th
Environmental problems	3.51	3.51	17.54	7.02	22.81	9 th

Source: Field Survey, 2010

Table 4.3 reveals that, the first four most severe factors are:

- Corrupt practices 1st
- Inconsistent economic policies 2nd
- Alternative dispute resolution 3rd
- Lack of security 4th

TABLE 4.4: FACTORS HINDERING THE FREE FLOW OF FDI AS RANKED BY NBS STAFF

Factors/Criteria	Valid percentage for score of				Severity index %	Rank Orders
	1	2	3	4		
Fraud	----	5.26	10.53	17.54	28.07	2 nd
Lack of security	1.75	---	17.54	14.04	27.63	3 rd
Unstable political environment	1.75	7.02	14.04	10.53	25.01	6 th
Government policy	5.26	5.26	8.77	14.04	24.56	7 th
Discriminatory barriers to						
Free flow of foreign capital	1.75	12.28	17.5	1.75	21.48	12 th
Lack of infrastructure	5.26	8.77	5.26	14.04	23.66	8 th
Inconsistent economic policies	3.51	1.75	17.54	10.53	25.44	5 th
Lack of legal & institutional frame work to						
Support FDI inward flow	1.75	7.02	15.79	8.77	24.56	4 th
Under developed private sector	1.75	12.28	10.53	8.77	23.25	9 th
Alternative dispute resolution	8.77	14.04	8.77	1.75	17.54	13 th
Corrupt practices	---	1.75	7.02	24.56	30.70	1 st
Multiple taxation	7.02	7.02	10.53	8.77	21.93	10 th
Environmental problems	7.02	7.02	12.28	7.02	21.50	11 th

Source: Field Survey, 2010

Table 4.4 reveals that, the first four most severe factors are:

- Corrupt practices 1st
- Fraud 2nd
- Lack of security 3rd
- Lack of legal & institutional frame work to 4th
- Support FDI inward flow 4th

TABLE 4.5: OVERALL RANKING OF FACTOR'S HINDERING FREE FLOW OF FDI IN NIGERIA

Factors/Criteria	Valid percentage for score of				Severity index %	Rank Order
	1	2	3	4		
Fraud	1.75	28.07	29.83	40.35	77.20	4 th
Lack of security	5.26	14.04	35.09	45.61	80.51	2 nd
Unstable political environment	1.75	26.32	43.86	28.07	74.56	5 th
Government policy	8.77	19.30	38.60	33.33	74.12	6 th
Discriminatory barriers to						
Free flow of foreign capital	19.30	29.82	38.60	12.28	60.97	12 th
Lack of infrastructure	8.77	26.32	24.56	40.35	74.12	6 th
Inconsistent economic policies	3.51	17.54	43.86	35.09	77.63	3 rd
Lack of legal & institutional frame work to						
Support FDI inward flow	12.28	21.0	35.09	31.58	71.49	7 th
Under developed private sector	10.53	26.32	31.58	31.58	71.06	8 th
Alternative dispute resolution	12.28	29.82	31.58	26.32	67.99	10 th
Corrupt practices	1.75	12.28	36.84	49.12	83.33	1 st
Multiple taxation	17.54	31.58	21.05	29.82	65.78	11 th
Environmental problems	15.79	17.54	40.35	26.32	69.30	9 th

Source: Field Survey, 2010

From table 4.5 reveals that corrupt practices has the highest rank, while lack of security was rank second, follow by inconsistent government economic policy. Meanwhile discriminatory barriers to inflows, multiple taxation (double counting) and alternative dispute resolution scheme have been ranked as the least factors in that order.

TABLE 4.6: COMPARISON OF SEVERITY INDEX AND RANKING FOR EACH GROUP

Factors/Criteria	NIPC		CBN		NBS	
	S.I	Rank Order	S.I	Rank Order	S.I	Rank Order
Fraud	27.19	2 nd	21.94	10 th	28.07	2 nd
Lack of security	28.07	1 st	24.57	4 th	27.63	3 rd
Unstable Political environment	26.31	5 th	23.25	8 th	25.00	6 th
Government policy	26.32	4 th	23.25	8 th	24.56	7 th
Discriminatory barriers to						
Free flow of foreign capital	16.66	11 th	22.80	9 th	21.48	12 th
Lack of infrastructure	23.69	8 th	24.50	5 th	23.67	8 th
Inconsistent economic policies	26.76	3 rd	25.40	2 nd	25.44	5 th
Lack of legal & institutional frame work to						
Support FDI inward flow	22.81	10 th	24.13	6 th	24.56	4 th
Under developed private sector	24.56	7 th	23.25	7 th	23.25	9 th
Alternative dispute resolution	25.00	6 th	25.44	3 rd	17.54	13 th
Corrupt practices	26.75	3 rd	25.88	1 st	30.70	1 st
Multiple taxation	22.82	9 th	21.06	11 th	21.93	10 th
Environmental problems	25.00	6 th	22.81	9 th	21.50	11 th

In table 4.6 shows the result of comparative severity index ranking between the different group of respondents namely; NIPC, CBN and NBS.

TABLE 4.7: DERIVATION OF KENDALL'S CONCORDANCE COEFFICIENT (W) BETWEEN NIPC, CBN AND NBS RANKING, AND ANOVA VALUES

Factors/Criteria	NIPC (a)	CBN (b)	NBS (c)	Sum of ranking R	Deviation d of	
				Order between group (a)+(b)+(c)	R from mean, m^a a+b+c-(m)	d^2
Fraud	2.00	10.00	2.00	14.00	-5.15	25.52
Lack of security	1.00	4.00	3.00	8.00	-11.00	121.00
Unstable political						
Political environment	5.00	8.00	6.00	19.00	-0.15	0.02
Government policy	4.00	8.00	7.00	19.00	-0.15	0.02
Discriminatory barriers to						
Free flow of foreign capital	11.00	9.00	12.00	32.00	12.85	165.12
Lack of infrastructure	8.00	5.00	8.00	21.00	1.85	3.42
Inconsistent economic policies	3.00	2.00	5.00	10.00	-9.15	83.72
Lack of legal and institutional frame						
work to Support FDI inward flow	10.00	6.00	4.00	20.00	0.85	0.72
Under developed private sector	7.00	7.00	9.00	3.00	3.85	14.84
Alternative dispute resolution	6.00	3.00	13.00	22.00	2.85	8.12
Corrupt practices	3.00	1.00	1.00	5.00	-14.15	200.22
Multiple taxation	9.00	11.00	10.00	30.00	10.85	117.72
Environmental problems	6.00	9.00	11.00	26.00	6.85	46.92

Kendall's concordance coefficient $W = 135/k^2 (N^3 - N) = 0.52$

Anova value = $(n_j - 1)/(nr - k) S_j^2 / F_{\alpha}(u, v), \alpha 0.05 F_{cal} = 71.59, F_{tab} = 4.10$

M^0 mean of R = $(14 + 8 + 19 + \dots)/13 = 19.15$

S is the sum of squares of deviation of R from mean = $\sum d^2 = 788.37$; k is the number of raking group = 3; N is the number of factors = 13.

CONCLUSIONS

Result of the factors hindering free inflow of FDI into the building and construction sector as perceived by the three group of respondents shows that corrupt practices is ranked as the most severe factor limiting FDI inflow into the sector. This is followed by lack of security which is the second most ranked severe factor, while inconsistent economic policies was ranked third, followed by fraud, while, multiple taxation and discriminatory barriers to free flow of foreign capital lacked least respectively. Corruption is a factor limiting growth in most sectors of the economy. However, it's infant on the building and construction sectors can be said to be very severe in limiting significant growth of the sector.

The result of the Kendall's coefficient of concordance analysis shows a coefficient W of 0.52 which according to the decision rule suggest an average of agreement (Hays, 1998). A further (ANOVA) analysis suggest $F_{cal} (71.59) < F_{tab} (4.10)$ which suggest that the null hypothesis (H_0) which state that there is no significant relationship between the set of ranking by the different group of respondents is rejected. That is significant relationship exist between the rankings of the three groups of respondents.

RECOMMENDATIONS

- 1) It was observed that corrupt practice is the most severe factors affecting FDI inflow into the building and construction sector of the Nigeria economy. Therefore, it is recommended that government should put more effort in tackling corrupt practice affecting FDI inward inflow into the building and construction sector and by extension other sector of the economy.
- 2) Lack of security was another factor observed to severely affect FDI inward inflows into the Nigeria economy. Therefore, government at all levels should empowered and enhance the activities of the nation's security agency from the grass roots to ensure adequate security / security measures including lives and property.
- 3) Fraud was equally observed to be a severe factor affecting FDI inflow into the nation economy. Therefore, the activities of fraud stars, cyber crimes and government officials should be tackled through enforcement of strictly penalty and measures.
- 4) Unfavourable economic policy on foreign investment was also ranked among the most severe factors hindering FDI inward inflows. Therefore, government should formulate favourable FDI inward investment policies to stimulate investment into the building and construction sector and other sectors of the economy.
- 5) FDI department should be created in the following, CBN, NBS and NIPC, for proper policy advocacy, monitoring and implementation. This will provide a comprehensive frame work for the purpose of economic data compilation, analysis, presentation and storage for adequate government decision taking and policy making

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ESTABLISHING CRM IN SMALL ENTERPRISES

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ABSTRACT

CRM business strategy can help small enterprises overcome their competitors and provide additional value to their customers. Unlike big companies, little attention is devoted to addressing the CRM-related problem of small enterprises. CRM is a enterprise strategy that can be applied within the company regardless of the size of the company or the amount of goods or services sold; large and small enterprises assess the quality of customer service, customer loyalty, which are less sensitive to price changes and recognize that attracting new customers is expensive. This paper explores the advantages and disadvantages in managing relationships with customers within the small enterprise unit.

KEYWORDS

Competitive advantage; CRM; CRM strategies; eCRM; small enterprise.

THE ROLE OF CRM STRATEGY IN SMALL ENTERPRISE

Achieving customer satisfaction is closely related to the achievement of the objectives of quality management, in particular the achievement of enterprise excellence. Modern understanding of the concept of quality includes not only its technological base, but the concept of quality of production is transferred to the executive management level, where, speaking in the long terms gets the characteristics of improving the quality of enterprise of the company as a whole, while consumers and achieving of the customer satisfaction have a central place. CRM is a strategy for identifying and meeting customer's needs and behavior, doing so results in a stronger relationship with them. Greenberg defines CRM as (Greenberg, 2004): "the obligation of companies to put customer's experience at the center of its priorities and to provide incentive of the systems, processes and sources of information of power by upgrading relations obtained from experience." CRM (Urbanskiene, Daiva, & Chreptavičiene, 2008) is seen as "chain reaction", which is caused by new strategic initiatives of communication with a customer when high level of information technologies' development and constant customer's need to get better quality of service are achieved. Small companies which compete to gain advantage in the market are constantly looking for ways to out-compete their competitors. As rapid improvements in technology lead to a greater transparency of marketing activities, the greater the challenge to achieve long-term differentiation is. Successful CRM is one of the competitive advantages that companies can use to keep users and prevent their transfer to other competitors. Such marketing area is being developed with emphasis on activities that enhance the transaction aimed at building and maintaining profitable relationships. CRM is actively creating and maintaining long term relationships with customers that is supported with the use of appropriate technology. It is a process designed to gather data about users, their characteristics and to use these qualities for certain marketing activities.

Knowing each user based on possession of relevant information, analytical functions and data mining techniques, small enterprise is enabled to gain insight into the properties and to deliver products and services that help keep users and enhance their loyalty. CRM enables organizations to create greater value for users through better communication, faster delivery and personalized products and services (Chen and Popovich, 2003). Improved relationship with customers can lead to greater customer loyalty and retention and eventually profitability. Furthermore, the rapid development of Internet and its technology has greatly increased opportunities for marketing and transformed the way in which relationships take place between companies and their customers. Five different kinds of relationships that can be built with the consumers that buy products and services of the organization can be distinguished (Kotler & Keller, 2006):

1. The basic relations. Vendors of the organizations sell products and services to customers, but do not follow in any way response and satisfaction of consumers.
2. Reactive relations. Vendors sell products and services and encourage consumers to call them whenever they have any questions or problems.
3. Responsible relationships. Vendors call consumers by phone immediately after the sale to check whether the product meets their expectations. Vendors also are asking customers to give suggestions to improve products or to impart specific objections. Such information can help companies to continuously improve their offer.
4. Proactive relations. Vendors or other organizations marketers occasionally occur to consumers by phone, or in other ways, with suggestions on improving the use of the product, or with information about the benefits of new products.
5. Partnership relations. The company is constantly working with customers and with other partners in discovering ways of creating and delivering better value.

CRM can be divided into three major functional areas supported by information technology and systems. These areas are as follows:

- Marketing
- Sales
- Service and Support

Information technology plays a key role in the development of CRM. Appropriate CRM strategies can be developed using information technology to automate the work of the CRM process. Information technology can help in collecting and maintaining data in order to understand the acquisition, retention and duration of the user. There are three ways of changing the future of consumer behavior and creating the potential value of customer (Pappers & Rogers, 2004):

1. Competitive enterprise - Any enterprise that consumer performs with a competitive organization, represents a potential organization. If an organization for example, wins and takes over the job that the consumer performs with his competitor, there is a possibility of increasing the current value that the consumer brings to the organization.
2. Change of behavior - Sometimes organization may encourage consumer to change his behavior so that it leads to a reduction of operating costs or increase of customer loyalty. For example, an organization can offer its customers the performance of certain enterprise activities and communications by electronic means, thereby reducing the costs of its operations.
3. Strengthening the role of consumers - When a consumer becomes a stronger, more profitable and influential, the organization is more interested in doing enterprise with him.

If the organization treats the best customers like everyone else, they will soon be organized to act in the same way, which is not a good way to run a enterprise. The task of marketers (Domazet, 2005) is to identify their customers and to maintain a continuous and personalized communication with them. The idea of CRM is to increase customer satisfaction along with the creation of new values through (Tumbas, 2004):

- the provision of improved services,
- development of effective call center,
- more effective and efficient sales,
- assisting the sales staff at the conclusion of operations,

- simplification of the processes of marketing and sales,
- identifying new customers

CRM is a continuous enterprise process at all organizational levels, aimed to attract and retain customers. Basically, CRM is a synthesis of enterprise processes, human resources and software. The quality of such synthesis will enable the establishment of strong mechanisms for customer relationship management, whose results will be: customer satisfaction with good cooperation, this satisfaction will result in his loyalty, loyalty will prevent client leaving to join competitors. Customers are the most valuable asset that company has, and the whole wisdom of CRM is contained in two words – long-term and profitable relationships. In contemporary conditions of enterprises, one of the basic parameters of successful enterprise is the quality relationship with customers. Customer satisfaction from good enterprise cooperation, as well as knowledge of customer needs, habits and desires, are indispensable factors to increase their loyalty in the conditions of dynamic competition.

Experience from many CRM implementations projects in organizations show that the potential for improving enterprise performance is to be achieved fully only with decisive initiatives of the organization to include all the above elements in the implementation. Retention (the rate of loss of existing customers), satisfaction (innovative products and services, customization, convenience, community, etc.), acquisition and profitability are key measures of readiness assessment of CRM. Multi channel strategy can focus serious efforts on data collection and data analysis process in the company to reach unified views of customers on the basis of activities that companies can make to personalize their marketing campaigns. The main benefit from this is gaining some competitive advantage.

E-ENTERPRISE AND CRM

The importance of effective implementation of CRM is intensified within the e-enterprise as customer loyalty is much harder to keep/establish in this domain. Therefore, understanding the dynamics of e-CRM and estimate its impact on the results of the organization for e-enterprise are crucial. Since the acquisition, retention, satisfaction and loyalty are the most important criteria in the e-CRM process, there can be given a number of measures in relation to them. Building trust is difficult at a distance. Big competition, which is constantly being renewed, and which allows transparency of the Internet, is another challenge for e-CRM. Building confidence in conditions where other competitor is "one click" away is very difficult. Most Internet users have a basic idea to compare different offers so the exposure of the targeted customer with messages and offers from other enterprises is imminent. The rapid advancement of technology, the emergence of new product performance and integration of different products into new product have created a society of multimedia communications. Decline in costs of unit production influenced the growth in the number of users, and thus the fall in prices of services. Building a CRM with the support of IT takes place in five steps (Turban, McLean, & Wetherbe, 2003):

1. make sure that consumer's enterprise with the company is easy;
2. final consumer of company's products and services should be the focus;
3. redesign enterprise processes with customers from the consumer standpoint;
4. equip company for profit, design a comprehensive architecture for electronic commerce that can be further developed;
5. cultivate the loyalty of consumers in electronic commerce, that is the key to profitability.

To achieve these five steps, it is necessary to take the following actions (although related to the Web, CRM does not have to be on the Web, a trend is to move more CRM activities to Web because that way CRM is generally cheaper and/or more efficient):

- the provision of personalized services (npr.dowjones.com);
- focus on the rights of consumers (eg aa.com, national.com);
- help consumers to do their job or their goals (npr.boeing.com);
- enabling consumers to help themselves (npr.iprint.com);
- encouragement of enterprise processes that have impact on consumers (eg, ups.com, amazon.com);
- knowledge of the overall consumer's experience (eg, amazon.com, hertz.com);
- understanding from all corners of customer relations (npr.wellsfargo.com, bellatlantic.com).

THE BENEFITS OF USING CRM SOLUTIONS WITHIN THE SMALL ENTERPRISE

Before deciding whether a CRM strategy is suitable for small enterprise, it should review all the potential benefits that are realized with its implementation. CRM can reduce costs related to communication with customers, optimize work flow, as a result of integration with other systems in the enterprise, enabling better market segmentation, enabling improved interaction with customers and relationships with them, and creating the opportunity for personalization. The goal of CRM systems is to improve customer service, to retain profitable customers and to create support in the provision of analytical capacity within the small enterprise. The biggest advantages of the successful implementation of CRM include the following examples (Goldenberg, 2008):

- Better sales/marketing information - user names, user history, their needs and competitive positioning are some of the types of data collected as a result of the implementation of CRM systems.
- Improved productivity - Effective identification of the targeted market, reduce the number of old management, the provision of accurate calculations on-site, rapid assessment of the availability of inventory and ordering directly from the field to help shorten the sales cycle.
- Increased concern about the user - There is more time for users due to reduced load of administrative work, the ability to monitor customer service levels and the possibility of emphasizing existing or potential problems on customer service and responsiveness to their needs.

CRM applications, thanks to the great advantages of technological innovation allows small enterprises to collect and analyze customer data, interpretation of customer behavior, develop predictive models, timely and effective communication and delivery of customized products and services to individual customers. Using technology to optimize interactions with customers of the company have a comprehensive view of customers to learn from past interactions to optimize future.

The use of eCRM is manifested in the following way:

- STRATEGY - The life cycle of a buyer as a global goal; keeping customers and reducing costs as much as possible;
- PROCESSES - Transparent communication with customers; high automatization of interaction; real-time processes;
- CHANNELS - web site; E-mail; WAP;
- INTERFACE SYSTEM - Designed for front-end applications which when it comes to interface with back-end applications go through data base and knowledge base (data mart);
- CLIENT'S COMPUTER - Web browser is the customer's portal to e-CRM;
- ADJUSTMENT AND PERSONALIZATION OF INFORMATION - Highly customized "dynamic" views are based on purchases and wishes which are possible. Every kind of customers are provided with individual customizations;
- FOCUS OF THE SYSTEM - The system is designed for customers' needs (for external use). Companies which have big portals are designed in such a way that they are not limited to single departments or business units;
- SYSTEM MAINTENANCE AND MODIFICATION - Decreased time and expenses. Systematic implementation and expansion can be directed from a single location using one server.

According to the website www.smallbizcrm.com without its pretension to be the most authoritative 10 leading CRM software for small enterprises are:

1. InfluxionSoftSale
2. Nexus
3. CapsuleCRM

4. InTouch CRM
5. WORKetc
6. Relenta
7. ProphetCRM
8. CenterBase
9. iCintactPro
10. Oprius

BARRIERS TO ADOPTION OF CRM WITHIN THE SMALL ENTERPRISE

A common problem of small enterprises in adopting e-CRM is dealing with customers. It is important to find the right balance between the virtual and face-to-face contact because they can play different and complementary roles. The issue of trust in the online context is widely studied and many authors have concluded that it is difficult to gain the trust on the internet. Further, the power of Internet technology to proactively manage information is partially limited by the risk of misuse and data loss. Security is crucial in e-CRM in which the perceived risk is a serious obstacle to overcome.

Small enterprises (Halligan, 2006) include limited resources and expertise. CRM initiatives have failed in many cases and some of the reasons for this can be cited:

- Most small enterprises have a dozens or hundreds of users and the main problem is to find new and efficient development of existing users.
- CRM systems are not considering a change related to the existence of the Internet and informing end-users and therefore the behavior of the purchase and evaluation process based on what is happening on the Internet.
- CRM systems are essentially databases with application forms filled in by the user. They are excellent for maintaining and organizing formatted data but are critical when dealing with unformatted data. Therefore, useful knowledge about users is kept in the mail of workers instead in the CRM system. This is actually the knowledge that can really help in solving issues related to buying and individuals.
- CRM is mainly easy to use by the "authorized" individuals or authorized CRM IT person. The main tasks are beyond the reach of people who have a day job outside of IT. This problem is not confined to the "old school" CRM companies but also to those who base their enterprise on the Internet.
- CRM requires end users to take actions that are not part of their job in order to "update" the system. After all, the result of CRM is as good as the input data. Most end users in small enterprises interact with customers via email system (usually Outlook). The procedure of opening the browser, passwords, account creation and filling in forms essentially waste users time.
- Today's CRM is more beneficial for companies involved in the transfer/transactions (call centers) than for small enterprises in which attention is paid to relations with customers. Formatted data set is just what you need for individual-centered call center. This set limits the team collaboration when working on complex sales oriented on relations/solution.
- Small enterprises should take many things into consideration when it comes to implementing e-CRM, because of the barriers that exist.

CONCLUSION

In setting up the CRM there is a need to face the dilemma of how to properly select the structural elements that will show the existence of the system and guarantee its implementation. First of all for a successful CRM project there must be a set of criteria. Choosing a reliable and flexible solution is one of the key success factors. The recommendation is to focus on solutions that are highly acceptable for use. If the system is not accepted and not used there will not going to be the return on investment. Although many small companies do not see CRM as a key criterion for success of future operations, CRM can play an important role in gaining competitive advantage of small enterprises. Very little attention is devoted to the study of these factors and deficiencies of CRM in small companies. The main problem is lack of processes of the adequate integration or approach. Small enterprises that are ready to implement CRM solutions are aware of the existence of different contacts with customers, and they are very competitive and constantly perform differentiation of customers. Seen from this aspect CRM can be explained as an approach to managing multiple relationships with customers.

CRM implementations that do not always coincide with the needs of small enterprises are another obstacle to be overcome. Many CRM solutions for small enterprises are less developed and existing CRM systems mostly do not meet the needs of small enterprises. Together, they add to the complexity of systems that makes it too difficult to work by the small enterprises. When properly performed, CRM implementation is designed as a cycle that continues to improve in order to create long-term competitive advantage. When companies use CRM technology and redefine their enterprise processes related to acquiring new customers and retain existing ones, it strengthens their capabilities in key areas that determine customers' decisions regarding the purchase, including prices, product quality, marketing, sales, service for creating the cycle of digital loyalty.

There is considerable difference of views between the user and the perception of the company. The view of the company is only one side of the picture and must be estimated well from the perspective of the user. A deeper insight of the user can provide a new perspective of the CRM and provide for further considerations of CRM strategy. More studies could be conducted on the topic of success of CRM implementation in small enterprises to obtain a basis that would lead to the identification of new measures and criteria of importance.

CRM for small enterprises is a promising area for further research. Most researches have focused on CRM on the level of the big enterprises and little attention is devoted to the area of small enterprises.

Given the small amount of operations and the needs of small enterprises, I believe that the small enterprise CRM is sufficiently specific area and that should be considered as a whole. The concept of CRM is relatively new for small enterprises and can create many benefits for companies and become a promising topic for future research.

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FINANCIAL DEVELOPMENT AND AGRICULTURAL SECTOR GROWTH IN CAMEROON

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ABSTRACT

This study investigates the relationship that exists between the development of the financial sector and the growth of the agricultural sector in Cameroon. We employ VAR based granger causality testing techniques to analyze data on Cameroon for the period from 1973 to 2009. We find that there exist no long run equilibrium and causality relationship between financial development and economic growth. We therefore recommend that measures to modernize the agricultural sector should be adopted and that agricultural sector financing mechanism should be developed by the financial sector.

KEYWORDS

financial development, agricultural sector growth, causality.

INTRODUCTION

It is now a stylized fact that financial development plays an important role in economic growth. In most developing countries including Cameroon, the agricultural sector accounts for a greater part of economic growth. Before the economic crisis that hit Cameroon in the mid 80s, agriculture accounted on average for about 30% of GDP and 80% of total exports, and after the crisis it contributed for about 27% of GDP and 53% of exports (Gbetkom and Khan, 2002). Under Structural Adjustment Programs (SAPs) supported by the World Bank and the IMF, most developing countries reformed their real and financial sectors. These reforms aimed at removing the interventionist policies that existed in these countries. It was believed that the market would increase efficiency in the allocation and use of resources thereby improving economic growth and development. The agricultural sector of developing countries not only contributes to economic growth, but is also the sector that employs a greater part of the work force. In Cameroon for example, the agricultural sector employs about 75% of the active labor force and 85% of the total population of the country depend on it for livelihood. Therefore, for countries that suffer growth and poverty problems, it is very important to determine strategies which contribute to the development of its agricultural sector. This study aims to establish the effects of financial development on the growth of the agricultural sector in Cameroon. This study is important as Cameroon under the SAPs reformed its financial and agricultural sector in 1987.

Agriculture plays a prominent role in the economy and society in every country in sub Saharan Africa. Most countries in the region have the natural and human resources needed for strong and sustainable agricultural development and African governments generally put agriculture at the top of their development priorities. Yet agriculture is widely seen as underperforming (World Bank, 2007). Despite some improvements in recent years large percentages of people who depend on farming for a living are in poverty. Income gaps between farm and non-farm households are wide and a too-high percentage of both rural and urban populations suffer from malnutrition and food insecurity. It is an open question, however, whether these problems can be blamed on poor agricultural sector performance or whether they, and stagnant agricultural growth itself, are the consequence of other factors (like the under development of the financial sector) that constrain economic growth more generally.

OVERVIEW OF DEVELOPMENTS IN CAMEROON'S FINANCIAL AND AGRICULTURAL SECTOR**EVOLUTION OF THE FINANCIAL SECTOR**

At independence in 1960, the country was in great need of development and so the government put into place instruments to promote economic and social development. It is in this light that five year development plans were drawn up so as to meet and promote social and economic development. The whole economy was thus highly planned with the government intervening in practically all sectors of the economy. Until 1985, the economy performed very well with agriculture supporting the economy from 1961 to 1977 and petroleum from 1978 to 1985. This let the economy to be regarded as well managed (Amin, 2002). During this period (1961-1985) Cameroon enjoyed a stable macroeconomic environment and an average growth rate of about 7% and it seemed not to be affected by the external shocks of the 70s and early 80s (Amin, 2002).

The financial sector during this period (1960 to 1985) developed under the umbrella of monetary and regulatory policies aimed at supporting the state orchestrated development strategies. The financial sector became an instrument of planned industrialisation policies and operated under a framework characterised by controlled interest rates, directed credit programmes, high reserve requirements and other restrictions on financial intermediation as well as restricted entry into the market. This situation has been termed financial repression by the proponents of financial liberalisation. All banks were owned by the state and credits were directed to sectors deemed important.

By 1987, due to the down turn in the world economy, the demand and the prices of the main exports of Cameroon declined. At the same time, the real exchange rate of the franc appreciated sharply, while the US dollar depreciated by 40% against the CFA and the terms of trade deteriorated by 47%. Oil output also started declining (Amin, 2002). All these led to a drastic collapse of the economy after practically two decades of good performance. The decline in GDP was sudden and drastic from 8% to -5 % per year (Amin, 2002). This situation revealed the fragile nature of an economy that was seemingly well managed and robust to external shocks. The Bretton Woods institutions attributed the problem to poor and mismanaged external and domestic economic policies. They then proposed the structural adjustment programmes (SAPS) that Cameroon adopted in 1987. In these programmes, the role of the state was redefined and a set of policies were undertaken to liberalise the economy in all its sectors. As such public enterprises were privatised, and many monopolies dismantled.

The financial sector was not spared by the crisis in the real sector. The collapse of the real sector made companies not to meet their financial obligations. This, together with other factors such as the incompetence of managers, poor management techniques, competition from the informal financial sector, and state intervention led to serious crises in the financial sector (Wamba, 2001). Many banks went bankrupt and others became illiquid not being able to meet the withdrawals of depositors. Under the structural adjustment programmes, the restructuring of the financial sector was undertaken in which some banks were liquidated and others recapitalised. There was also a change in monetary and financial policies with the liberalisation of financial markets in 1990. A new banking regulatory agency (COBAC) was also established. As such, there was the deregulation of interest rates, the removal of directed credit schemes, the privatisation

of banks, the creation of the money market, the liberalisation of the capital account and the creation of the Douala Stock Exchange (DSX) that has remained in the embryo. It was believed that such a system would better support an economy that was henceforth regulated by market forces. These reforms marked the end of a Keynesian inspired planned economy and repressed financial system and the beginning of a classical market based system.

AGRICULTURAL SECTOR POLICY AND REFORMS

Government intervention in agriculture has a long history in Cameroon. Starting from independence, reasons for intervention included raising public revenue, ensuring food supplies, stabilizing farmer incomes and exploiting market power. These policies started with high taxation and government intervention in the first two decades after independence to the reforms in the 1990s.

From 1960 to date, two approaches to agricultural development can be distinguished. The first approach was experienced from independence up to 1987. During this period, government interventions and taxation of the agricultural sector progressively increased, and the sector became the main source of government revenue to finance both public consumption and investment needs. This approach, coupled with external shocks plunged the agricultural sector and the rest of the economy into a deep economic crisis which necessitated important reforms not only in agriculture but in the economy as a whole (Gbetnkom and Khan, 2002).

The second approach started with the adoption of Structural Adjustment Programs (SAPs) in 1988 whose basic objectives were to redefine the role of government and reduce government intervention in the economy. In the agricultural sector, many functions formerly handled by government agencies have been liberalized and the role of these agencies has been limited to research, data gathering, quality control and regulatory functions. In 1994, the cocoa and coffee subsector, formerly controlled in terms of price fixing by the government and marketing of the commodities by the monopsonist parastatal National Produce Marketing Board, was liberalized. The producer prices of these crops were partially linked to the world prices and the Board retreated to the role of buyer of last resort, releasing the bulk of trade to private buyers. As a mechanism of stabilization, the Board continued up to 1996.

LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

ANALYTICAL FRAMEWORK

We draw from the model developed by Gourinchas and Jeanne (2003) to propose the following analytical framework for the analysis of the sectoral effects of financial development.

The main hypothesis of the model is that most of the inequality between nations is due to differences in Total Factor Productivity (TFP) and not factor endowment. This implies that financial development can only reduce differences in output per capita by significantly reducing differences in TFP. This suggests that countries that have a poorly developed financial system tend to have lower rates of TFP and be poorer.

We consider a three time period model with two different types of technology for a given country: an efficient technology and an inefficient one. TFP is higher in the sector with efficient technology ($A_E > A_I$). The two production functions are Cobb Douglass of the form:

$$Y_E = A_E K^\alpha L^{1-\alpha}$$

$$Y_I = A_I K^\alpha L^{1-\alpha} \tag{1}$$

Other assumptions of the model are the following:

- Both technologies have the same factor elasticity.
- Capital income can be taxed in the efficient sector but not in the inefficient sector.
- The country is populated by capitalists and workers and capitalists choose to specialize into one of the sectors at period 0 while workers are endowed with one unit of labor at period 1 and 2.
- Capital income is taxed in periods 1 and 2 and redistributed to workers while capital account can be closed or open. When closed, capital cannot cross the borders (underdeveloped financial systems), if opened, capital can be rented from abroad freely (financial development).

These imply that, in the case of financial underdevelopment, the capital account is closed in periods 0 and 1. Thus the efficiency of output depends on technology at period 0. In periods 1 and 2,

$$L_E = \left[(1-\alpha) \frac{A_E}{\omega} \right]^{\frac{1}{\alpha}} K_E \tag{2}$$

$$L_I = \left[(1-\alpha) \frac{A_I}{\omega} \right]^{\frac{1}{\alpha}} K_I \tag{3}$$

$$L_E + L_I = L \tag{4}$$

$$W = (1-\alpha) L^{-\alpha} \left(A_E^{\frac{1}{\alpha}} K_E + A_I^{\frac{1}{\alpha}} K_I \right) \alpha \tag{5}$$

The sector "S" equals the sum of the efficient and the inefficient sectors and its return per unit of capital is given as the maximization of:

$$A_s k^\alpha l^{1-\alpha} - wl = k A_s^{\frac{1}{\alpha}} w^{\frac{-1}{\alpha}} k \tag{6}$$

Where, $k = \alpha (1-\alpha)^{\frac{1-\alpha}{\alpha}}$ and the gross rental price of capital $R_s = k A_s^{\frac{1}{\alpha}} w^{\frac{-1-\alpha}{\alpha}}$

Given the fact that government imposes a tax t in the efficient formal sector and does not tax the inefficient informal sector, investment goes to the formal sector only and only if;

$$(1-t_1) R_E + (1-t_2) R_I > 2R_I \tag{7}$$

We can simply assume t' as the average rate of tax over the lifetime of K and then get:

$$t < t' = 1 - \left(\frac{A_I}{A_E} \right) \left(\frac{1}{\alpha} \right) \tag{8}$$

The outcome in financial underdevelopment is that beyond a certain threshold, it does not longer matter for capitalists to invest in the formal and efficient sector whatever the level of efficiency and TFP growth. The higher the efficiency in the sector with high Total Factor Productivity in comparison with the inefficient sector, the higher is the tax rate to discourage entrepreneurs to invest in the formal sector.

In the case of financial development, we assume that capital account is opened in period 1, but closed in period 0. Although the tax rate t_2 is still predetermined in the previous period, it is not longer the case for the capital stock because at period 1 there is an arbitrage between domestic and international capital flows. From the basic assumptions of the model this means that:

$$(1-t_2)R_2 = R^* \tag{9}$$

$$R_2 = kA_E^{\frac{1}{\alpha}}w_2^{\frac{-1-\alpha}{\alpha}} \tag{10}$$

If capitalists do not invest in the informal sector, the real wage in the second period is given by:

$$w_2 = (1-\alpha)A_E \left(\frac{K_2}{L}\right)^\alpha \tag{11}$$

Since the government taxes consumption of workers at period 2 to maximize consumption at period 2:

$$C_2^\omega = \left(\frac{A_E K_2^\alpha L^{1-\alpha} - R^* K_2}{L}\right) \tag{12}$$

So with financial development, when the capital account is opened in period 1 and closed in period 0, capital is still taxed in period 1 and capitalists receive a return per unit of capital in the following period. The incentive to invest in the formal sector is now:

$$\left(\frac{(1-t_1)R_E + R^*}{2R_E}\right) = \left(\frac{t' + (R^* - R_E)}{2R_E}\right) \tag{13}$$

When there is scarcity of capital $K(R^* < R_E)$, the tax rate will be lower than under financial underdevelopment; when financial underdevelopment is an

obstacle to the high TFP sector development $\left(t' = \frac{1}{2}\right)$, then financial development in period 1 is Pareto-efficient in the sense that the working class gets higher incomes while the income of the capitalists remains at the underdevelopment level (no one wins at the expense of the other). In other words, under financial development, when property rights are respected and government regulation low (low taxes), the economy faces a switch of resources from the inefficient to the modern sector.

From the above we can conclude that financial development favors the efficient sector in an economy. This therefore implies that if financial development is found not to improve the growth of the agricultural sector in a country, this signifies that the agricultural sector is less efficient and policies should be undertaken so as to modernize the sector.

EMPIRICAL STUDIES ON FINANCIAL DEVELOPMENT AND AGRICULTURE

Studies on the sectoral impact of financial development do not abound in the literature. Most studies on financial development take a holistic approach and analyse the overall effect of financial development on economic growth or development. As regards the effects of the development of the financial sector on agricultural growth, not much has been done.

Perivash and Tarkomani (2008) studied the impact of the development of the financial sector on agriculture in Iran. They used three variate VAR model and found that the financial sector positively and significantly influences the agricultural sector in Iran. They also found that there existed a causality running from financial development to agricultural sector growth. They then proposed that policies to develop the financial sector in this country should be undertaken so as to boost its agriculture.

For the case of Cameroon, no such study exists though the work of Roesch, Wampfler, and Mounkama (2003) indicates that micro-credit was important in determining the performance of cotton producers in northern Cameroon. This study therefore attempts to cover this gap in the literature by studying the relationship between the financial and agricultural sectors in Cameroon.

METHODOLOGY AND DATA

ECONOMETRIC METHODOLOGY

We investigate the relationship between the development of the financial sector and the growth of the agricultural sector using Vector Autoregressive (VAR) causality testing techniques. The standard procedure of testing for causality is the Granger causality test specified as:

$$y_t = \mu_1 + \omega_1(L)x_{t-i} + \psi_1(L)y_{t-i} + \epsilon_{1t}$$

$$x_t = \mu_2 + \omega_2(L)x_{t-i} + \psi_2(L)y_{t-i} + \epsilon_{2t} \tag{14}$$

In this system, x_t causes y_t if $\omega_1(L)$ is statistically not equal to zero. Similarly, y_t causes x_t if $\psi_2(L)$ is statistically not equal to zero. If none of the two scenarios is true then there is no causality between x_t and y_t . However, if both are true there exists feedback or bidirectional causality between x_t and y_t .

The bivariate VAR can be written as:

$$X_t = \mu + \Theta(L)X_{t-i} + \epsilon_t \tag{15}$$

$$X_t = \begin{pmatrix} y_t \\ x_t \end{pmatrix}$$

Where

However, this conventional Granger causality test becomes valid only if the variables are stationary (Granger, 1988). In the event that the variables involved are non-stationary then several options are open to the analyst depending on whether such variables are cointegrated or not. If the non-stationary variables are not cointegrated, they enter (14) in differenced form.

If on the other hand they are cointegrated, then the alternative procedure is the VECM representation of the VAR used in the conventional test. This approach has been used in the finance – growth causality studies, among others, by Kar and Pentecost (2000) and Mohapi and Motelle (2006).

The mathematical representation of the latter is:

$$\Delta y_t = \zeta_1 + \phi_1(L)\Delta x_{t-i} + \phi_1(L)\Delta y_{t-i} + \alpha_1 ECM_{t-1} + \varepsilon_{1t}$$

$$\Delta x_t = \zeta_2 + \phi_2(L)\Delta x_{t-i} + \phi_2(L)\Delta y_{t-i} + \alpha_2 ECM_{t-1} + \varepsilon_{2t} \tag{16}$$

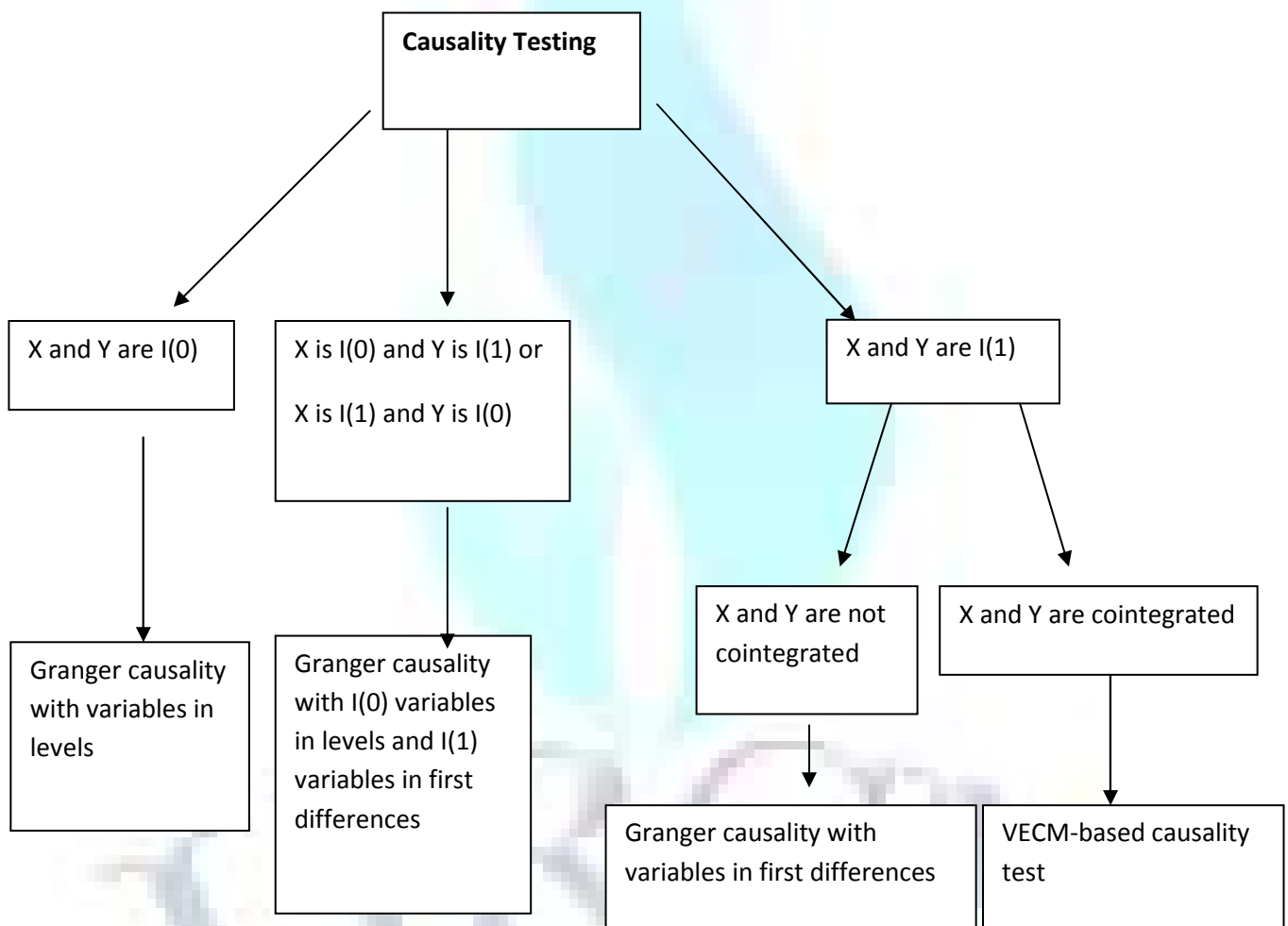
In this specification, ECM is the error correction term $\beta^T X$ in which $\beta^T = (\beta_1, \beta_2)$ is the cointegrating vector. The parameters α_1 and α_2 are elements of the adjustment vector¹. In this specification, there are two sources of causality. System (3) exhibits unidirectional causality from x_t to y_t if $\phi_2(L) \neq 0$ and $\alpha_2 \neq 0$ in the statistical sense. Non causality in either direction is defined by $\phi_1(L) = 0$, $\phi_2(L) = 0$ and $\alpha_1 = \alpha_2 = 0$ (Kouassi et al., 2005). The relevant testing procedure in systems (14) and (16) is the Wall test.

The compact representation of system (3) is:

$$\Delta X_t = \zeta + \Gamma(L)\Delta X_{t-i} + \alpha\beta^T X_{t-1} + \varepsilon_t \tag{17}$$

The critical distinction between the treatment of non-stationary, non-cointegrated variables and non-stationary, cointegrated variables is the inclusion of the ECM term $\Pi X_{t-1} = \alpha\beta^T X_{t-1}$ in the latter to take into account the equilibrium relationship of the variables implied by the presence of cointegration. The following figure characterizes the modeling philosophy used for the analysis in this study.

FIGURE 1: PHILOSOPHY OF CAUSALITY TESTING



Source: Mohapi and Motelle (2006)

VARIABLES AND DATA SOURCES

Financial development is measured by bank credit to the private sector divided by GDP. This measure has also been used by Tabi et al. (2011), Mohapi and Motelle (2006) and king and Levine (1993) to capture the development of the financial sector. This measure is particularly appropriate for this study as in the process of economic liberalization in Cameroon, state owned agricultural farms were privatized and priority credits and rates that were offered the agricultural sector abolished. This sector therefore had to compete for funds together with others. Therefore, it is the development of the credit activity to the private sector that influences most the development of this sector. This variable is denoted by FD.

Growth of the agricultural sector is measured by its share in GDP. This is measured by dividing the value added of the agricultural sector by nominal GDP. This is denoted by GA.

The data for FD is collected from the International Financial Statistics 2010 CD ROM of the International Monetary Fund and the GA collected from the African Development Database 2010 CD ROM of the World Bank. The period of study is from 1973 to 2009.

¹This is the adjustment vector α that combines with the cointegrating vector β^T to form the matrix of long run. parameters $\Pi = \alpha\beta^T$.

RESULTS AND DISCUSSIONS

UNIT ROOT TEST RESULTS

The starting point of the analyses is to test the unit root properties of the variables. A time series is considered to be stationary if its mean and variance are independent of time. If the time series is non-stationary, i.e., having a mean and or variance changing over time, it is said to have a unit root. If a time series is non-stationary, the regression analysis carried out in a conventional way will produce spurious results. A spurious regression occurs when after regressing a time series variables on others, the tests statistics show a significant relationship between these variables even though no such relationship exist. A non-stationary time series can be converted into a stationary time series by differencing. If a time series becomes stationary after differencing one time, then the time series is said to be integrated of order one and denoted by I(1). Similarly, if a time series has to be differenced *d* times to make it stationary, then it is called integrated of order *d* and written as I(*d*). As the stationary time series needs not to be differenced, it is denoted by I(0).

We test for the order of integration using the augmented dickey- fuller test (ADF). The test is based on the following three models;

$$\Delta X_t = \rho X_t - 1 + \sum_{j=2}^p \Phi \Delta X_t - j + \mu_t \tag{18}$$

$$\Delta X_t = \rho X_t - 1 + \sum_{j=2}^p \Phi \Delta X_t - j + bt + \mu_t \tag{19}$$

$$\Delta X_t = \rho X_t - 1 + \sum_{j=2}^p \Phi \Delta X_t - j + bt + c + \mu_t \tag{20}$$

The principle of this test is, if the Ho hypothesis that $\rho=1$ is accepted in any of the three equations, then, the process is not stationary. The value *p* of lags is determined with the aid of the Akaike information criterion. The lag chosen correspond to the one that minimises this criterion. The ADF test results for the variables are shown in table 1 below.

TABLE 1: UNIT ROOT TEST RESULTS USING THE ADF TEST

variables	ADF TEST STATISTICS		
	level	First difference	Decision
FD	-1.306603	-3.443528**	I(1)
GA	-1.755961	-8.105849***	I(1)

NB: (*), (**), (***) indicates significance at 10%, 5%, and 1% respectively

Source: Authors calculations

The results indicate that all the variables are integrated of order 1. This implies that they need to be differenced once before they become stationary. As the variables are non stationary, the next step consists of testing for the existence of a long run equilibrium relationship between the variables.

COINTEGRATION TEST RESULTS

Cointegration signifies the existence of one or many equilibrium long run relationship(s) that can be combined with the short term dynamics of the other variables in an error correction model. This relationship is the following;

$$\Delta Y_t = \Pi Y_{t-1} + \sum_i^k \Gamma_i \Delta Y_{t-i} + \mu_t \tag{21}$$

Y_t : Vector of variables that we need to study their dynamics

Γ_i : a matrix number and

Π : A matrix whose rank determines the number of Cointegration Relationships.

The number of optimal lags is determined using the Akaike and Schwarz criteria.

We test for cointegration using the Johansen trace test. The results are shown in the table2.

TABLE 2: JOHANSEN UNRESTRICTED COINTEGRATION RANK TEST

Hypothesized	Trace	5 Percent	1 Percent
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None	0.131280	6.035635	15.41
At most 1	0.036116	1.250659	3.76

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Source: authors calculations using Eviews 4.1.

Trace test indicates no cointegration at both 5% and 1% levels

GRANGER CAUSALITY WALD TEST RESULTS

The relationship between causality and cointegration is such that if two variables are cointegrated, then one can expect Granger causation in at least one direction (Granger, 1988).

The absence of cointegration between agricultural sector growth and financial development spells the expectation of no causality between them. Table 3 summarizes the causality between the first differences of financial development (FD) and agricultural sector growth (GA).

TABLE 3: PAIRWISE GRANGER CAUSALITY TEST RESULTS

Null Hypothesis:	Obs	F-Statistic	Probability
D(GA) does not Granger Cause D(FD)	34	1.41607	0.25895
D(FD) does not Granger Cause D(GA)		1.43206	0.25521

Source: authors' calculations using Eviews 4.1.

Since the probabilities of the F-Statistics are greater than 5%, we accept both null hypotheses of no causality between D(FD) and D(GA). For the case of Cameroon, the development of the financial sector does not cause the growth of the agricultural sector and vice versa.

CONCLUSION AND POLICY IMPLICATIONS

The objective followed in this study was to determine the relationship between the development of the financial sector and the growth of the agricultural sector in Cameroon. We employed VAR based causality testing techniques on Cameroon data for the period 1973 to 2009. We came out with the results that there exist no long run equilibrium relationship between the development of the financial sector and the growth of the agricultural sector. Also, financial development was not found to granger cause agricultural sector growth and vice versa in Cameroon.

These results indicate that the observed poor performance of the agricultural sector in Cameroon is not caused by the under development of its financial sector. This also implies that the agricultural sector in Cameroon remains rudimentary and has not yet recovered from the past crisis as it cannot efficiently compete for funds with other modern and more developed sectors.

The Cameroonian government in order to boost its agricultural sector should therefore adopt policies that would modernize the sector. Such policies may include the mechanization of production, the promotion of the use of modern techniques, use of improved seeds etc. As the lack of relationship between the two sectors may also indicate that the financial sector has not developed techniques to finance the agricultural sector, this entails that the government should also encourage the opening of agricultural banks so as to guarantee a means of finance for the agricultural sector.

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ECONOMIC COST IMPLICATIONS OF THE USE OF GENERATORS AS ALTERNATIVE SOURCE OF ENERGY IN KANO METROPOLIS - NIGERIA

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ABSTRACT

The paper examines the economic cost implications of the use of generators as alternative source of energy in Kano metropolis – Nigeria. Specifically, it focuses on what happens to income, employment, health and the environment in Kano metropolis as generators are being used as substitutes to energy supplied by government. Exactly sixty-two and a half (62.5%), that is five (5) of the eight local governments in the Kano metropolis were selected purposively. They are Dala, Fagge, Gwale, Nassarawa and Tarauni local government areas. From the 5 sampled local governments, 15 respondents each were chosen, making a total of 75 respondents. Complementing the questionnaire source of data, 5 professionals were interviewed (1 environmental expert, 2 businessmen and 2 health specialists) and observations conducted. The major findings show that use of generators has reduces consumers' effective demand in Kano metropolis, and its excessive use is responsible for the double digit inflation in the country at large. The practice in the study area was found to be detrimental both to the environment and health of people living there. The paper recommends among others that the general public and particularly the users of generators should be sensitized on their implications on health so that preventive efforts would be taken thereby reducing particularly, its adverse consequences. Also, government should put more concerted efforts in generating and distributing electricity which could go a long way in providing opportunities for the less privileged in the country.

KEYWORDS

Cost Implications, Energy, Social Cost, Kano metropolis.

INTRODUCTION

Available statistics shows that about 60 percent of Nigerian population lack access to electricity for their needs (Baker, 2008). Despite abundant amount of both renewable and non-renewable energy sources in Nigeria, excessive substitution of epileptic power supply from National Electric Power Authority, PHCN (now Power Holding Company of Nigeria, PHCN) with highly polluting self generated power become the order of the day in the country. Nowadays, millions of Nigerian households and business enterprises are resorting to the use of generators to meet up their energy requirements.

The shocks from the electricity crises in Nigeria have created some wedges in the national wheel of effective management of industrial and other socio-economic programmes. The 150 million people of Nigeria are depending on less than 3000mw of electricity, with recurrent multiple and unpredictable power outages.

In view of the foregoing energy status in Nigeria, the country has been described as a "diesel generator economy" where small and medium scale enterprises incur extremely high overhead costs in maintaining them (Obadote, 2009). It has become a common knowledge that Nigeria has one of the highest concentrations of generators globally despite its rich energy resource. The negative impacts of these ubiquitous generators are enormous on environmental quality, people's health and on the economy as a whole. Consequently, this has elicited major concerns particularly among environmentalists, economists, health scientists and among other academicians.

Against this background this paper examines the economic cost implications of the use of generators as alternative source of energy in Kano metropolis-Nigeria. The article is to analyze the economic cost implications of using generators as sources of energy in Nigeria. Economic cost implication is a kind of analysis that explores the impact of, for example, the use of generators not only on the direct expenses and sufferings incurred, but rather, on its impacts on individuals, and the economy at large, now and in the future. By that it looks at what happens to income, employment, health and the environment as generators are being used as substitutes to energy supplied by government.

Understanding the economic cost implications of the use of generators as alternative source of energy in Kano metropolis would go a long way in informing the policy makers concerned on the right measures to device in addressing the unforeseen consequences and on how to improve where there are achievements. The outcome this paper would either support or otherwise the existing findings given its case specific nature.

LITERATURE REVIEW

SOURCES OF ENERGY IN NIGERIA

Nigeria is a rich-resource country endowed with an enormous amount of both renewable and non-renewable primary energy resources. According to the British Petroleum Statistical Review of World Energy, Nigerian crude oil and natural gas was estimated at 36billion barrels and 185 trillion cubic feet, respectively (Table 1.1), are more than adequate to fuel much of Sub-Saharan Africa (SSA) energy demand for several decades. In addition to these non-renewable energy sources, there are also large amount of renewable energy sources like hydropower, solar radiation, wind energy and biomass as well as wave and tidal energy, which are abundantly available in the country.

TABLE 1: ENERGY RESOURCES IN NIGERIA

Energy types	Resource Estimates
Crude oil	36 billion barrels
Natural gas	185 trillion metric tons
Coal	2.75billion metric tons
Hydropower	14.750 mw
Solar radiation	35-37.0 KWh/m2day
Wind energy	2.0-4.0 M/S
Biomass	144 Million tons/year
Wave & Tidal energy	150,000 TJ/(16.6 x 106 toe/year)

Source: Ibitoye and Adenikinju (2007).

Nigeria has three major sources of non-renewable energy, namely oil, natural gas and coal. Available statistical data ranked Nigeria as the 6th largest oil producer in the world with a whopping 36 billion barrels of proven oil reserves at the beginning of 2007 (EIA, 2007). In addition to the oil wealth, the country has an estimated 182 trillion cubic feet of proven natural gas reserves, the seventh largest reserves in the world (EIA, 2007). The proven coal reserve so far in Nigeria according to experts is about 650 million metric tons while the inferred reserve sums up to 2.75 billion metric tons. This is exactly confirmed by the administrator of the Nigerian Electricity Regulation Commission (NERC), Talba Imamuddin at a workshop in Abuja. Imamuddin (2011) maintained that "given persistent challenges with the availability of gas in the country, coal could emerge as the next best viable option for Nigeria as our coal reserves are large with 650 million tones proven".

The country is also endowed with plentiful amount of renewable energy resources including large and small hydroelectric power resources, solar energy, biomass, wind, and development of geothermal and ocean energy (ECN, 2005). The hydropower potentials of Nigeria are very high and they currently accounts for about 29% of the total electrical power supply in the country (CBN, 2009). The total technically exploitable hydropower resource in Nigeria is in excess of 11,000 MW (Sambo, 2005). Several studies on solar energy resources in Nigeria (Sambo, 1986, Doyle and Sambo, 1988 and Folayan, 1988) have fully acknowledged its viability for practical use. It has been confirmed that Nigeria receives 5.08×10^{12} kWh of energy per day from solar energy (Adenikiju et al, 2007). This amount of electrical energy is equivalent to 4.66 million barrels of oil per day. Biomass energy refers to those biological energy systems such as wood biomass, forage, grasses and shrubs, residues and animal dung, estimated in the country at 144 million tons/year (Adenikiju, 2007). These are only some of the few energy potentials in Nigeria.

COST IMPLICATIONS OF USING GENERATORS IN NIGERIA

A London based magazine, African Review of Business Technology, in its April, 2006 edition revealed that Nigeria topped the list of generator importing countries for the fourth year in a row, having surpassed other importing countries since 2002. According to the report, Nigeria accounted for 35% or spent \$152 million of the total \$432.2 million spent by African countries on generator imports in 2005. In another similar report which focused on diesel generator of between 2000KVA and 5000KVA capacity, the report showed that Nigeria imported three times as many generators as the closet African importer- Sudan and Egypt that spent \$40.6 million and \$ 32 million, respectively on the product in 2005 (Aster, 2006). In the face of worsening epileptic power situation in the country, almost all urban homes and business centers have become a micro independent power producer. This state of affairs has a lot of serious economic, environmental and health implications on individuals, government, businesses and the economy as a whole.

ECONOMIC IMPLICATIONS

According to the Manufacturing Association of Nigeria (MAN) in 2005, only 10% of industries operated in the country of which only 10% of them could on the average function at 48.8 percent of their respective installed capacities. The survey also revealed that 60% of the companies were in comatose while another 30% had completely closed down. In another survey in 2006 also conducted by MAN, indicated that in the first quarter of 2006, most of the industrial areas around the country suffered on average of 14.5 hours of power outages per day, and the cost of generating power supply using generators accounts for 36% of total costs of production. Also, about 1500 firms (60% of the association's 2500 members) are in dire strict principally because of the additional cost of alternative power generation.

Currently, a number of multinational companies operating in the country, generate their own power through Independent Power Project (Udeajah, 2006). Similarly according to a MAN's statistics, nine companies within its fold spent a total sum of N69.5 billion to generate their power using generators (Odiaka, 2006). However, even with this situation, some of these companies have continued to make exorbitant profits and at the same time meeting their shareholders' needs. Clearly, such surprising performance is a reflection of the fact that more and more production costs are shifted to the final consumers whose disposable incomes continue to become powerless against the spiraling inflation, caused mainly by high cost of production due to excessive use of generators. Obviously, this has the tendency to reduce consumers' effective demand and force some companies to close down or even relocate to a more investment friendly environment in the long run.

In the same vein, excessive use of generators can also lead to reduction in gross domestic product (GDP). This will happen when some firms are forced to close down or to relocate to the neighboring countries because of high cost of operating personal generators to supplement the poor erratic power supply from the PHCN. As a result of poor power supply and other related factors, industrial sector contribution to the GDP in Nigeria, has continued to drop since 1990 from 8.2% to 4.7% in 2003, and further dropped to 4.06% in 2004 and rose slightly in 2005- the least figure since the country got independence in 1960 (Ajanaku, 2007).

ENVIRONMENTAL IMPLICATIONS

Another cost implications of using generators as sources of energy, apart from the economic implications is that of environmental pollutions. At every turn in any urban neighborhood of Nigeria, it is the continue buzzing noise of generators belching dangerous fumes into the air day and night tearing apart the serenity of the natural environment. Using generator sets to generate electricity can cause air, noise and other environmental pollutions. Air pollution is by far the most harmful form of pollution in our environment. Using generators as sources of energy emits sulfur dioxides into the atmosphere making our earth less habitable. As more sulfur dioxides and other greenhouse gasses concentrate and grow, more heat is trapped in the atmosphere and less escapes back into the space and consequently increase the temperature of the earth. This is what is called global warming. Global warming lead to alteration of weather patterns which in turn hasten species extinction, influence the length of seasons and cause coastal flooding, and eventually lead to frequent and severe storms (climate change). Soil, water and noise pollution too can also cause a lot of damages to our environment just like that of air pollution mentioned earlier. Use of generators produces unwanted noise and also releases heavy contaminants into the water and soil which contribute to the environmental degradation.

HEALTH IMPLICATIONS

There are also health implications associated with using generators to generate electricity. Use of generators causes serious health problems on individuals and the society as a whole. For instance air pollution causes some serious health problems depending on the dose or concentration of exposure to the fumes emitted by the generators. Some of these health problems include toxic poisoning, birth defects, eye irritation, cancer and irritation of respiratory systems, increase chronic diseases such as asthma (Botkin and Keller, 2003). Another health implication of using generators is that of noise pollution which is said to have resulted in hearing losses for some many Nigerians. It is scientifically proved that prolonged exposure to intense noise such as one produce by generators can lead to permanent hearing loss, induce stress, cause inefficiency at work, prevent sleeping, cause irritability and generally degrades the quality of life. The sum consequences of these health implications are responsible for general fall in productivity of labor force in the country and in some cases affecting the general standard of education of both the adults and the children at all level of education.

MATERIAL AND METHODS

POPULATION OF THE STUDY

The population of this study covers the entire population of Kano metropolis. However, the target population of the study constitutes of households and businessmen (owners, managers, employers, industrialists and entrepreneurs) in all the Metropolitan local governments of Kano state. The metropolitan area covers 8 local governments which are: Dala, Fagge, Gwale, Kumbotso, Munincipal, Nassarawa, Tarauni and Ungogo.

SAMPLING/SAMPLING TECHNIQUE

Fifteen (15) respondents from 5 metropolitan Local Government Areas (LGAs), making a total of 75 were purposively selected. The 5 sampled LGAs are Dala, Fagge, Gwale, Nassarawa and Tarauni. The use of this sampling technique ensures that only those respondents knowledgeable on issues relating to use of generators and capable of answering the questionnaire were selected.

METHODS OF DATA COLLECTION

This paper adopts a *cross sectional descriptive survey*, where data were collected at a point in time from the sample selected. As a primary – based research, the paper employed a structure questionnaire consisting of both open – ended and closed – ended multiple questions using a five-point likert scale. Also, interview

and personal observations were used to complement the findings of the study. The interviews were conducted with (5) stakeholders and experienced persons on issues related to the environment (1), industry (2) and health (2).

METHOD OF DATA ANALYSIS

Results were analysed in the paper using descriptive statistics. This involves the use of statistical tools such as percentages, mean score and chi-square test in order to draw meaningful conclusions.

DATA PRESENTATION AND ANALYSIS

DATA ANALYSIS AND INTERPRETATION

Out of the seventy-five (75) questionnaires administered, sixty-six (66) questionnaires were fully completed and returned. Therefore, the analysis and interpretation of data were based on the returned questionnaires.

DISTRIBUTION OF RESPONDENTS: Table 2 shows the distribution of the respondents by their occupation where 31 of the respondents were households (47%) and 35 of the respondents were businessmen (53%) of the total respondents.

TABLE 2: DISTRIBUTION OF RESPONDENTS BY OCCUPATION

Occupation	Frequency	Percentage (%)
Households	31	47
Businessmen	35	53
Total	66	100

Source: Field Survey, 2011

The respondents were considered to be the regular users of generators to substitute the electricity supplied by the government or to complement where necessary. It has been observed that in Kano metropolis, one out of every five house has a generator and barely all business outfits have generator(s).

ECONOMIC IMPLICATIONS OF USING GENERATORS AMONG HOUSEHOLDS IN KANO METROPOLIS

The responses in table 3 below show the extent to which households attested to the fact that use of generators has a negative economic implication on their incomes and consumption expenditures. Precisely, 13 of the respondents representing (42%) maintained that use of generators effects their consumption very much, while 7 said much, 6 moderate, 1 low and 4 very low representing 23%, 19%, 3%, and 13% respectively. On the other hand, 14 of the respondents considered the severe impact of the use of generators as alternative source of energy in Kano metropolis on income, 8 respondents considered it much, 3 respondents moderate, 1 respondent low and 5 respondents very low, representing 45%, 26%, 10%, 3% and 16% of the total respondents, respectively.

TABLE 3: ECONOMIC IMPLICATIONS OF USING GENERATORS AMONG HOUSEHOLDS

Responses	Income	Percentage (%)	Consumption	Percentage (%)
Very much	14	45	13	42
Much	8	26	7	23
Moderate	3	10	6	19
Low	1	3	1	3
Very low	5	16	4	13
Total	31	100	31	100

Source: Field Survey, 2011

Therefore, the overall result shows that the use of generators by households has a serious negative economic implication on their consumptions and incomes. The consequences of this outcome is that excessive use of generators has a tendency to reduce consumers' effective demand and thereby leading to fall in aggregate demand in the country with adverse effects on national income and employment. That would go a long way in reducing purchases and by extension production in Kano and the country at large, given the central place of Kano in Nigeria.

ECONOMIC IMPLICATIONS OF USING GENERATORS AMONG BUSINESSMEN IN KANO METROPOLIS

Table 4 shows the economic implication of using generators on cost of production and profit. On the cost of production, 16 respondents conceded to the fact that use of generators as alternative source of energy has a very high economic impact, 9 respondents see the impacts as high, 5 respondents considered the impacts as moderate, 4 respondents viewed it as low and only 1 considered the impact very low, representing 46%, 26%, 14%, 11% and 3% respectively. In view of that, therefore, the result implies that the cost of generating power in Nigeria is very high and it is the main portion of the total production cost. This result is also in line with the World Bank Report in 2004, "manufacturing firms in Nigeria consider inadequate infrastructure particularly power supply as their most severe constraint".

TABLE 4: ECONOMIC IMPLICATION OF USING GENERATORS ON BUSINESSMEN

Responses	Production cost	Percentage (%)	Profit	Percentage (%)
Very high	16	46	9	26
High	9	26	7	20
Moderate	5	14	4	11
Low	4	11	1	3
Very low	1	3	14	40
Total	35	100	35	100

Source: Field Survey, 2011

However, on the profit side, the result is quite the opposite case. From table 4.4, 9 respondents consider the effects of using generators on the profits of businessmen positively as very high, 7 high, 4 moderate, only one (1) chose low while 14 chose very low representing 26%, 20%, 11%, 3% and 40% respectively. This result is the reflection of the fact that more and more costs of production are shifted to the final consumers whose disposable incomes continue to become powerless against the double digit inflation mainly caused by excessive use of generators in the country. In spite the cost of purchase and maintenance of generators; firms do realize fair profits thereby retaining them in business, while the cost is being shifted to the buyers.

ENVIRONMENTAL POLLUTION IMPACT OF THE USE OF GENERATORS IN KANO METROPOLIS

The results of table 5 show the extent to which the respondents agree that the fact that use of generators causes environmental pollutions. From the table, 47 respondents strongly agreed, 12 agreed, 3 strongly disagreed, 2 disagreed and the remaining 2 are undecided representing 71%, 18%, 5%, 3%, and 3% respectively. Therefore, the result implies that use of generators causes environmental pollutions to a great extent, since only few or insignificant number of respondents disagreed that use of generators causes environmental pollution. The outcome of this result also confirms exactly what the outcome of the interview conducted with an environmental expert reveals.

TABLE 5: ENVIRONMENTAL POLLUTIONS CAUSED BY THE USE OF GENERATORS

Responses	Environmental Pollutions	Percentage (%)
Strongly agree	47	71
Agree	12	18
Strongly disagree	3	5
Disagree	2	3
Undecided	2	3
Total	66	100

Sources: Field Survey, 2011

To corroborate this finding, the response of the environmental expert to the question asked concerning environmental implication of using generators was that, "it is obvious that diesel generator sets have a lot of pronounced environmental effects in our society today. One of the most sources of air pollution today in our society is exhaust gasses release through the use of generators. These exhaust gasses have considerable effects on many aspects of our environment. The effects were not limited to our urban areas, but they are now extending to even the rural areas".

HEALTH IMPLICATIONS OF THE USE OF GENERATORS

From table 6 below, 53 respondents representing 80% of the total respondents are of the view that air pollution from the use of generators causes various health problems which include birth defects (9%), eye irritation (28%), repository infections (38%), cancer (8%), and asthma (17%). While 13 respondents representing (20%) of the total 66 respondents did not believe that air pollution causes some health problems. Eight (8) out of the total 13 respondents chose birth defects and the remaining five (5) chose cancer representing (62%) and 38% respectively.

TABLE 6: HEALTH IMPLICATION OF AIR POLLUTION FROM THE USE OF GENERATORS

Health Problems	Yes	Percentage (%)	No	Percentage (%)
Birth defects	5	9	8	62
Eye irritation	15	28	-	-
Repository infections	20	38	-	-
Cancer	4	8	5	38
Asthma	9	17	-	-
Total	53	100	13	100

Source: Field Survey, 2011

This result, therefore, indicates that the perceived believe about the health implication of air pollution from the use of generators causes mainly eye irritation and repository infections while birth defects and cancer are the least expected negative consequences of air pollution. This is also in line with the outcome of the personal interview conducted with some health specialists. One of them declared that, "air pollution from the use of generators is one of the common causes of repository infections among working class, most especially machine operators.

HEALTH IMPLICATION OF NOISE POLLUTION FROM THE USE OF GENERATORS

From table 7 below, 60 respondents representing 91% of the total respondents agreed that noise pollution from the use of generators causes various health problems, while only 6 respondents representing 9% of the total respondents did not agree that noise pollution causes some health problems. Out of the total 60 respondents that agreed, 25 of them chose hearing loss, 3 chose preventing sleeping, while the remaining 2 chose irritability representing 42%, 5%, 8%, 42% and 3% respectively. And out of the 6 respondents that did not agree noise pollution from the use of generators causes mainly hearing loss and prevents sleeping while it has least effect on stress and irritability.

TABLE 7: HEALTH IMPLICATION OF NOISE POLLUTION FROM THE USE OF GENERATORS

Health Problems	Yes	Percentage (%)	No	Percentage (%)
Hearing loss	25	42	-	-
Induces stress	3	5	2	33
Causing inefficiency	5	8	-	-
Preventing sleeping	25	42	-	-
Causing irritability	2	3	4	67
Total	60	100	6	100

Source: Field Survey, 2011

This result also confirms what one of the health specialists said during the interview, "noise pollution in most urban Nigerian cities is responsible for hearing loss (deaf) and insomnia". He further added that, "medical cases like hypertension, ulcer, acid reflux diseases, asthma, and snoring are common cases associated with insomnia".

HYPOTHESES TESTING

FIRST HYPOTHESIS: The researcher adopted the chi-square test of goodness-of-fit to test the hypotheses formulated. The hypotheses were tested in turn. Thus, **H0:** Use of generators does not give rise to social costs.

TABLE 8: OBSERVED AND EXPECTED FREQUENCIES FOR SOCIAL COST

Responses	Observed Frequency (Oi)	Expected Frequency (Ei)
Strongly agree	35	13.2
Agree	10	13.2
Strongly disagree	15	13.2
Disagree	3	13.2
Undecided	8	13.2
Total	66	66

Source: Field Survey, 2011

Notes:

- (i) The observed frequencies (Oi) are from the responses of the respondents regarding social costs of using generator sets.
- (ii) While the expected frequencies (Ei) are obtained using the formula below:

$$E_i = \frac{\text{Total Frequencies}}{\text{Number of observations}}$$

Where $E_i = \frac{66}{5}$, then $E_i = 13.2$

TABLE 9: COMPUTATION FOR CHI-SQUARE STATISTICS

O _i	E _i	O _i - E _i	(O _i - E _i) ²	(O _i - E _i) ² / E _i
35	13.2	21.8	475.24	36.00303
10	13.2	-3.2	10.24	0.775758
15	13.2	1.8	3.24	0.245455
3	13.2	-10.2	104.04	7.881818
8	13.2	-5.2	27.04	2.048485
Total				46.95455

Source: Computed by the researcher using Microsoft Excel 2007

Note: The theoretical chi-square ($\chi^2_{theoretical}$) depends on:

(i) Degree of freedom (d.f) = (R-1) (C-1)

Where, R= 5

C=2

Therefore, d.f= (5-1) (2-1) = 4 x 1= 4

(ii) At 5% level of significance:

$\alpha = 0.05$ (a one tail-test)

Thus, $\chi^2_{0.05} = 9.49$

The value of the chi-square above is obtained from the chi-square distribution table using 5% level of significance and 4 degree of freedom.

INTERPRETATION

The null hypothesis (**H₀**) is rejected, since chi-square calculated (46.95455) is greater than chi-square tabulated (9.49) at 5% level of significance. Therefore, it could be concluded that the use of generators gives rise to social costs ranging from high cost of doing business, pollution of the environment, rising prices, increasing health problems and reduction in purchasing power in Kano metropolis. This position conforms to the postulates of the social cost theory, "the more reliance an economic system places on private incentives and the pursuit of private gain the greater the danger that it will give rise to external 'unpaid' social costs unless appropriate measures are taken to avoid or at least minimize these costs (Kapp, 1963)".

CONCLUSIONS

It can be concluded that use of generators among households and businessmen in Kano metropolis has reduce consumers' effective demand and businessmen in Kano metropolis spent huge amount of money in running generators thereby raising their cost of production and hence prices. It could be inferred that such increase in cost of production in the country generally is responsible for the double digit inflation of about 11.2% in 2010 in Nigeria.

It can also be concluded that use of generators produces unwanted noise, emits dangerous fumes into the air, and also releases heavy contaminants into the water and soil thereby causing environmental degradation. Kano metropolis is considered fore among the victims of such environmental problems. Other consequences include various health problems, external 'unpaid' social costs which shifted to and borne by innocent third parties, or more generally by the society as a whole.

RECOMMENDATIONS

On the basis of the conclusions reached in the paper, the followings recommendations were made:

1. General public and particularly the users of generators should be sensitized on their implications on health so that preventive efforts would be taken thereby reducing particularly, its adverse consequences;
2. That government and the private sector should be encouraged to put heads together in generating solar energy or in the form of Public Private Partnership arrangement;
3. That government should do everything possible to ensure steady and reliable source of energy which would go a long way in reducing the arbitrary usage of generators in Kano in particular and Nigeria in general. That by extension would guard against all the adverse effects of such usage of generators as revealed by numerous studies.

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FACTORS INFLUENCING PATIENT'S DECISION OF SELECTING A HOSPITAL

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ABSTRACT

Patient's decision to select a hospital for treatment depends upon several factors. Hospitals need to understand what factors are considered important by patient while selecting a hospital, and how much is its level of influence. This will help hospital management to cater for those factors and make their hospital as a hospital of choice for patients. This study aims to identify and quantify the level of influence that each factor creates on patient's decision. A survey was conducted amongst potential patients to get their response on importance they place on various factors while selecting a hospital. After analyzing the response of 369 patients it was revealed that several factors are important to patients. Within these 'Availability of facilities', 'Previous experience with the hospital' and 'Reputation of doctors attached with the hospital' are the most important ones.

KEYWORDS

Factors, Hospital, Patient's choice.

INTRODUCTION

In terms of revenue and employment, healthcare is India's one of largest sectors. By 2012, India's healthcare sector is projected to grow to nearly Rs. 3000 billion (PriceWaterHouseCooper). Within healthcare, hospitals are one of the most important components and are recognized as healthcare delivery segment. Where healthcare industry is estimated to grow by 2012 to Rs. 3,163 billion at 13% CAGR, hospital industry within this sector is growing at 14% CAGR (Cygnus). Out of this private sector accounts for nearly 80% of the healthcare market. Improving economic status and awareness of many Indian households is spurring demand for high-quality medical care, transforming the healthcare delivery sector into a profitable industry (Cygnus). It is projected that private healthcare will continue to be the largest component in 2012. It could rise by an additional €6.5 billion if health insurance cover is extended to the rich and middle class (The Indo-Italian Chamber of Commerce & Industry). The emerging private sector is sensing a huge untapped opportunity in delivery of quality healthcare to the Indian masses (The Indo-Italian Chamber of Commerce & Industry).

Various favourable factors are attracting investors from across the world towards Indian hospitals. In recent years hospital business in India has been more competitive and challenging due to insurgence of large number of hospital projects from private players. Corporatisation of healthcare, position of India as a sought after medical tourism destination and mushrooming of new hospitals have made it increasingly difficult for hospitals these days to depend on mere word of mouth promotion to attract patients

A hospital manager needs to make extra efforts to make their hospital more appealing to patients. Hospitals, today are adopting various marketing measures to differentiate themselves and face the competition. Getting accredited, luring reputed doctors, improving the standard to services, developing hospitality, tying up with corporate are only a few examples of various strategies.

One of the crucial information required for promoting a hospital is to understand how does a patient makes their choice in case of healthcare organization. There have been various studies on patient satisfaction. All these studies have given important information regarding patient's preferences, based on which many hospitals are making themselves more patients friendly. The assumption made in these studies is that a satisfied patient becomes a loyal customer and also spreads word of the mouth publicity. However, patient satisfaction surveys can be conducted only on patients who came to the hospital. Equally important is to know the needs and expectation of potential clients. Also, there are several factors other than satisfaction which influence patient's decision to select a hospital. In Indian hospital industry, no formal study had been conducted to identify and rank these factors.

Identifying factors responsible for patients' choice for hospitals will help hospitals focus and address those factors thus making it more likely for patients to chose. Since patient population comprise of all segments of population, it is also important to understand the difference in level of influences created by these factors on different segments.

LITERATURE REVIEW

Study conducted by Bin Saeed KS on Factors affecting patient's choice of hospitals identified that the two most influential factors for patients when selecting a hospital were reputation or expertise of a surgeon or consultant, followed by a clean and comfortable environment with an average weighting of 93%. Patients want good quality care by specialist consultants with thought being given to the environment in which they are treated. The study also revealed five underlying dimensions that influence a patient's choice of a hospital: convenient administrative procedures, quality of services, hospital image, cost of treatment, and health insurance coverage.

In the study conducted on 'Factors that influence general practitioners' choice of hospital' by Ann Mohan, Carl Whitehouse, David Wilkin and Andrew Nocon, it was found that when referring patients for elective surgery most common influences on the choice of hospital were its proximity and convenience, knowledge of the consultant, the general standard of clinical care, the patient's own preferences and the patient's previous attendance at the hospital.

James Hendersen in his book on Health Economics and policy stated that the demand for medical care is determined to a great extent by patient need. Major factors that influence demand for medical care can be categorized as patient factors and physician factors. Patient factors include health status, demographic characteristics and economic standing, while physician factors affect demand through their standing as both providers of medical services and advisers to their patients.

Studies by the Central Bureau of Health Intelligence have shown that a majority of Indians trust private healthcare despite a higher average cost of US\$ 4.3 compared to US\$ 2.7 in government owned healthcare agencies. Only 23.5 percent of urban residents and 30.6 percent of rural residents choose government facilities, reflecting the widespread lack of confidence in the public healthcare system.

Syed Habib Anwar Pasha, in his study on patient satisfaction in tertiary private hospital in Dhaka: a case study on square hospital ltd, indicate that patients satisfaction mostly comes from doctors and nurse services, reasonable cost, physical evidence as well as feedback from the patients.

Similar studies have been conducted in sectors other than hospitals to identify influencing factors on consumer choice.

In retail banking sectors a study by S Venkata Seshiah and Vunyal Narender, identified fifteen different factors with variable level of influence on consumer choice for retail banking. These factors exert great, moderate and relatively low influence on consumer's choice.

A study on 'Influencing factors on consumer choice towards online shopping', by Yasmin Hassan and Nik Fadrizam Akimin Abdullah showed that trust, website quality, internet knowledge and internet advertising are the four factors that exerts, significant influence on consumers choice towards online shopping, and internet knowledge is the factor that contribute most.

All this studies have shown that there are various factors which affect consumer's choice and healthcare and hospitals are no different. However, there have not been any formal studies in Indian population to identify influencing factors for selection of hospitals.

Due to different scenario of healthcare in India and different level of awareness amongst Indians the factors which influence patient's decision could be different. Thus it is important to identify pertinent factors and their level of influence on Indian patients so that necessary focus can be made by service providers in Indian hospital industry.

RESEARCH QUESTIONS

With multiple and increasing choice available to patients in India, for hospital care, how does a patient makes his/her preference? What factors are important to patients when it comes to hospital care? What level of influence is caused by various factors on patient's decision? What is the difference in level of influence of these factors in population with different gender, education level and economic status?

OBJECTIVE

1. Identify factors that influence patient's decision of selecting a hospital
2. Rank these factors according to the level of influence exerted by them
3. Identify the difference in the influencing power of these factors according to gender, educational level and economic status

METHODOLOGY

The study was conducted on patients visiting general practitioners in Ahmedabad, Gujarat, India. With the help of a local hospital, initial interview was conducted with 12 patients and 2 doctors to prepare a list of various factors that a patient considers while selecting a hospital for treatment. On the basis of suggestions received a survey questionnaire was developed to obtain response from patients.

Survey questionnaire was in two parts. The first part captures their personal details like age, gender, level of income, etc. Second part captures their feedback regarding level of influence that various factors cause on their decision of selection of hospital. The response to be given was based upon 5 point likert scale of very important to not important at all.

The first draft of questionnaire was pilot tested on 20 patients to identify areas for improvement. On the basis of pilot testing necessary modifications were done and survey questionnaire finalized.

For survey, patients visiting general practitioner were targeted as they are the patients who are more likely to require the services of a hospital. From internet, database of all general practitioner clinics in Ahmedabad was prepared. From the list, 16 such clinics were selected using computer generated random numbers. The doctors of these clinics were contacted and informed about the survey and its purpose. They were requested to grant permission to conduct survey on the patients visiting their clinic. Out of 16, 3 GP refused while 13 permitted the request. Students of hospital management were used as surveyors. After initial training and orientation of all surveyors they were placed in each clinic to take the survey feedback from patients visiting the clinic. Survey was conducted in morning and evening hours according to the timings of the clinic. The patients who waited for their turn for consultation were approached by surveyor and requested to provide their feedback. After their agreement the survey questionnaire was given to them. They were requested to fill the survey form there itself. Help in understanding the questions was provided by the surveyor. However, surveyors were trained not to influence the patient's answer in any way. As most of the public in Ahmedabad are Gujarati speaking, a Gujarati version of the questionnaire was also developed and used. In case of patient being a child, response was taken from their parent/guardian.

From every clinic 30 patients were surveyed. Thus the total sample size surveyed was 390.

The filled forms were collected and an initial screening of all forms was done. Out of 390 forms filled, 21 were improperly filled, hence removed. 369 forms were taken for analysis.

Profile of sample patients surveyed is given below

PROFILE OF PATIENTS SURVEYED

No. of properly filled forms: 369

Male: 225 (60.98%)

Female: 144 (39.02%)

Graduate and above: 135 (36.59%)

Below graduate: 234 (63.41%)

High economic status: 72 (19.51%)

Middle economic status: 135 (36.59%)

Low economic status: 162 (43.90%)

DATA ANALYSIS

The data from filled survey questionnaire were entered in excel sheet. The responses for individual factor were weighted using a linear scale i.e. boxes ticked as very important were weighted as 4, important weighted as 3, neither important nor unimportant weighted as 2, unimportant as 1 and not at all important as 0. Total of all weighted scores for every question was done to arrive at total weighted score of the factor. Subsequently the total weighted score was normalized by a maximum score (Number of responses X maximum weight) and multiplied by 100 to derive percentage. The calculation done can be summarized by following formula:

"Percentage weighted score for each factor = $(\sum \text{individual weighted scores of the factor} / \text{total possible score}) \times 100$ "

EXAMPLE

From 369 filled survey forms, 3 forms stated that brand name of hospital was very important, 12 rated it as important 21 considered brand name as minimally important and 1 considered it to be unimportant or not at all important. Calculation was done as follows

27 x 4	=	108	(very important)
108 x 3	=	324	(important)
189 x 2	=	378	(Moderately important)
36 x 1	=	36	(Minimally important)
9 x 0	=	0	(not at all important)

$[(108+324+378+36+0) / (369 \times 4)] \times 100\% = 846/1476 \times 100\% = 57.32\% = 57\%$ (round off) -- Level of influence

This score for level of influence was calculated for every factor. The factors were ranked according to the score of their level of influence. Factors having higher score were ranked higher. Using same procedure, score for level of influence of every factor was also calculated according to gender, education level and economic status.

FINDINGS**OVERALL**

Table 1 gives an overview of the findings sorted as per the ranking of various factors.

TABLE 1: LEVEL OF INFLUENCE AND RANK OF FACTORS – OVERALL

Factors	Score	Rank
Availability of comprehensive facilities within the hospital	88%	1
Previous experience with the hospital	80%	2
Reputation of the doctor attached to the hospital	79%	3
Affordability to cost of hospital services	77%	4
General Image of the hospital in society	74%	5
Availability of latest and Hi-tech equipments	73%	6
Ease of access to hospital	70%	7
Recommendation by someone who has already taken treatment in the hospital	69%	8
Hospital building and infrastructure	68%	9
Recommendation by your local doctor	65%	10
Proximity of the hospital	63%	11
Any friend / relative working in the hospital	60%	12
Type of hospital (private/government/trust)	59%	13
Brand name of hospital	57%	14
Accreditation and affiliations of the hospital	57%	14
Years of existence of the hospital	57%	14
Reviews on internet/media	53%	17
Religious / cultural preferences	18%	18

ACCORDING TO GENDER, EDUCATION LEVEL AND ECONOMIC STATUS

The level of influence for every factor was also calculated according to gender, education level and economic status. The findings are presented in tables 2, 3 and 4 below, simultaneously.

TABLE 2: LEVEL OF INFLUENCE AND RANK OF FACTORS - GENDER WISE

Factors	Male		Female	
	Score	Rank	Score	Rank
Availability of comprehensive facilities within the hospital	88%	1	89%	1
Previous experience with the hospital	79%	4	83%	2
Reputation of the doctor attached to the hospital	80%	3	77%	3
Affordability to cost of hospital services	80%	2	73%	5
General Image of the hospital in society	77%	5	70%	6
Availability of latest and Hi-tech equipments	72%	6	75%	4
Ease of access to hospital	69%	9	70%	6
Recommendation by someone who has already taken treatment in the hospital	70%	8	67%	8
Hospital building and infrastructure	72%	6	63%	10
Recommendation by your local doctor	67%	11	61%	11
Proximity of the hospital	63%	12	64%	9
Any friend / relative working in the hospital	68%	10	48%	17
Type of hospital (private/government/trust)	60%	13	56%	12
Brand name of hospital	54%	16	53%	13
Accreditation and affiliations of the hospital	58%	15	55%	16
Years of existence of the hospital	60%	13	52%	14
Reviews on internet/media	53%	17	53%	14
Religious / cultural preferences	21%	18	13%	18

TABLE 3: LEVEL OF INFLUENCE AND RANK OF FACTORS - EDUCATION WISE

Factors	Graduate and above		Below graduate	
	Score	Rank	Score	Rank
Availability of comprehensive facilities within the hospital	89%	1	83%	2
Previous experience with the hospital	79%	3	88%	1
Reputation of the doctor attached to the hospital	79%	2	75%	4
Affordability to cost of hospital services	76%	4	83%	2
General Image of the hospital in society	75%	6	71%	5
Availability of latest and Hi-tech equipments	76%	4	58%	10
Ease of access to hospital	71%	7	58%	10
Recommendation by someone who has already taken treatment in the hospital	69%	9	71%	5
Hospital building and infrastructure	70%	8	58%	10
Recommendation by your local doctor	65%	10	63%	8
Proximity of the hospital	65%	10	54%	14
Any friend / relative working in the hospital	60%	12	63%	8
Type of hospital (private/government/trust)	57%	15	67%	7
Brand name of hospital	59%	13	46%	16
Accreditation and affiliations of the hospital	56%	13	58%	16
Years of existence of the hospital	59%	16	46%	10
Reviews on internet/media	54%	17	50%	15
Religious / cultural preferences	18%	18	17%	18

TABLE 4: LEVEL OF INFLUENCE AND RANK OF FACTORS - ECONOMIC STATUS

Factors	Low economic status (< 1.5 lac per annum)		Middle economic status (1.5 to 8 lacs per annum)		High economic status (>8 lacs per annum)	
	Score	Rank	Score	Rank	Score	Rank
Availability of comprehensive facilities within the hospital	94%	1	82%	2	88%	1
Previous experience with the hospital	76%	3	85%	1	85%	4
Reputation of the doctor attached to the hospital	75%	6	78%	3	88%	1
Affordability to cost of hospital services	81%	2	77%	4	72%	7
General Image of the hospital in society	69%	9	75%	5	84%	5
Availability of latest and Hi-tech equipments	76%	3	62%	8	88%	1
Ease of access to hospital	76%	3	60%	11	72%	7
Recommendation by someone who has already taken treatment in the hospital	67%	10	68%	7	75%	6
Hospital building and infrastructure	74%	7	62%	8	69%	10
Recommendation by your local doctor	57%	13	70%	6	72%	7
Proximity of the hospital	72%	8	53%	17	63%	10
Any friend / relative working in the hospital	57%	13	60%	11	69%	17
Type of hospital (private/government/trust)	58%	11	62%	8	53%	13
Brand name of hospital	56%	16	55%	14	61%	14
Accreditation and affiliations of the hospital	58%	11	55%	14	59%	14
Years of existence of the hospital	57%	13	55%	14	59%	14
Reviews on internet/media	47%	17	57%	13	59%	14
Religious / cultural preferences	15%	18	17%	18	21%	18

DISCUSSION**OVERALL**

The findings presented in table 1 show that although different factors scored differently, the differences are generally not remarkable. Other than 'religious or cultural preferences, which scored 18%, all other factors have got value score between 53% and 88%. Mean and median of value scores of all factors are 64.87% and 66% respectively. This indicates that except 'religious or cultural preferences' almost all factors have substantial effect on patient's choice for hospital. This also indicates that patient's choice of hospital is influenced by multiple factors and no single factor can be considered as dominating.

As per score obtained by factors, 'Availability of comprehensive facility within the hospital' is ranked first with score of 88%, followed by 'previous experience with hospital' (80%) and reputation of doctor affiliated with the hospital (79%). Thus, within closely valued factors patient's choice is affected most by the top ranked ones. Highest ranking to 'availability of facilities within hospital' indicates that patients expect and place high importance to availability of comprehensive services and facilities under one roof. Second highest rank to 'previous experience with hospital' shows the importance of quality of service and patients' satisfaction with the hospital. 'Reputation of affiliated doctors' with third ranking indicates that patients give high importance to affiliated doctors while selecting a hospital.

On the lower side, 'religious and cultural preferences' with last ranking and very low score of 18% indicates that patient keeps this factor as least important when it comes to hospital care.

ACCORDING TO GENDER

Table 2 summarises the findings of survey according to gender. Mean and median of value scores of all factors given by males are 64% and 68% and by females are 59% and 63%. This shows that male patients' decision is relatively more influenced by these factors than female patients. Similar to overall findings, scores of both males and females shows that except for 'religious or cultural preferences' almost all factors have substantial effect on choice of hospital.

Both genders ranked 'availability of facilities within hospital' as first which matches overall findings. While female ranked 'Previous experience with hospital' on second position consistent with overall finding, male ranked 'Affordability to cost' at second position. Both genders have ranked 'Reputation of affiliated doctor' on third position. Amongst other factors no noticeable difference were found between ranking given by males and females other than for 'Hospital building and infrastructure' where Males ranked it 6 (value score 72%), females ranked 10 (value score 63%) while overall ranking was 9 (value score 68%).

ACCORDING TO EDUCATION

Table 3 summarises the findings of survey Mean and median scores of value scores given by graduate and above are 65% and 67% respectively and for below graduate is 61.% and 61% respectively. It implies that graduate and above patients are relatively more influenced by these factors than below graduate patients. Top three factors ranked by graduate and above are 'availability of facilities within hospital', 'reputation of doctor attached to hospital' and 'previous experience with hospital' respectively. For below graduate, top ranked factor was 'previous experience with hospital' while 'availability of facilities within hospital' and 'affordability to cost of hospital services' was ranked at second position with value score of 83% to each. In this category also 'religious or cultural preferences' was least influencing factor with score of 18% and 17%

ACCORDING TO ECONOMIC STATUS

Findings given in table 4 shows that there is a difference in level of influence exerted by various factors on patients with different economic status. For patients with low economic status, mean and median scores of all factors are 65% and 68% respectively. For patients with middle economic status mean and median scores are 63% and 62% and for patients with high economic status it is 69% and 71%. This indicates that within these three economic groups, high economic groups are more conscious about these factors and have placed high importance on most of the factors. This is also reflective from the findings that top three factors ranked by high income group patients have same score of 88%. These are, 'availability of facilities within hospital', 'reputation of doctors attached with the hospital' and 'availability of latest and Hi-tech equipments'. For patients with middle economic status, 'previous experience with the hospital' (85%), 'availability of facilities within hospital' (82%) and 'reputation of doctors attached with the hospital' (78%) are the top ranked ones. For patients with low economic status, top three influencing factors are 'availability of facilities within hospital' (94%), 'affordability to cost of hospital services' (81%) and 'previous experience with the hospital' (76%). The findings reflect that within these three economic groups the influencing factors are different.

SUGGESTIONS

On the basis of the study following suggestions are made to the hospitals

1. Comprehensive facilities should be made available within the hospital as respondents of all categories have placed high importance this factor
2. Achievement of patient satisfaction is important as previous experience with the hospital is an important factor for patient to decide about a hospital
3. Hospitals should ensure that reputed doctors should get affiliated with their hospital. This will help in attracting more number of patients
4. Within other measures, hospital should look after affordability, hi-tech equipments availability and the general image of hospital in society

CONCLUSION

It can be concluded that selection of hospital is based on multiple factors. Most of these factors are close in terms of influence they create on patients' choice. Hence, almost all factors needs to be considered by hospitals if they want to become patients' choice. Within these factors hospitals can prioritize according to the rank given by patients.

Hospitals need to understand these factors better and make efforts to strengthen them and become a choice for patients.

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AVAILABILITY AND AWARENESS OF MICROFINANCE IN JAMMU & KASHMIR STATE

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ABSTRACT

Jammu and Kashmir like other states of country is primarily an agrarian state. Industrially, Jammu and Kashmir is one of the backward states in the country on account of inadequate infrastructural facilities on account transportation, electricity, topography and other constraining factors. Though the state is very rich in natural and human resources, yet these have not yet been fully exploited for establishing an industrial base which could trigger economic spin off for the majority of people. The Jammu and Kashmir State accounts for 1.04 percent of the total population of the country but its contribution to the national income are just about 0.7. In this backdrop micro finance has emerged as one of the tools to in Jammu and Kashmir State for poverty mitigation against economic backwardness and political turmoil being witnessed over two decades now. In this background the study attempted to know the awareness and availability of Micro Finance among the beneficiaries, because the access to financial services is meaningful only when the intended people to be included have the awareness of services available. Stratified random sample of 600 beneficiaries and 33 micro finance providers was conducted. The study concludes that there is availability to and awareness of micro finance among the beneficiaries, but it varies with different micro finance services.

KEYWORDS

Availability, Awareness, Micro Finance, Jammu and Kashmir State.

INTRODUCTION

Jammu and Kashmir like other states of country is primarily an agrarian state. Industrially, Jammu and Kashmir is one of the backward states in the country on account of inadequate infrastructural facilities on account transportation, electricity, topography and other constraining factors. Though the state is very rich in natural and human resources, yet these have not yet been fully exploited for establishing an industrial base which could trigger economic spin off for the majority of people. This has resulted most of the educated and uneducated youth to fiercely demanding government jobs. The state has only a few medium scale industries in the capital cities of Srinagar and Jammu which manufactures cement, wool and silk, furniture, etc which neither does nor filter to the vast areas of rural and hinterlands. The Jammu and Kashmir State accounts for 1.04 percent of the total population of the country but its contribution to the national income is just about 0.7 percent. What is more disturbing and alarming is that the contribution is on decline and has declined from 0.85 percent in 1999-2000 to around 0.7 percent at present. While as the National Income has grown at a robust rate of 8.2 percent during the last five years the State Income has grown at a much lower rate of about 6 percent. Consequently, per capita income (PCI) of Rs.20604 (2007-08) is far below the, national average of Rs. 27442. In terms of PCI, state ranks 22nd in the country which is of course a matter of serious concern. During the year 2008-09, the Gross State Domestic Product (GSDP) at constant prices has been worked out at Rs. 24471 Crore indicating a growth rate of 6.12 percent against the targeted growth rate of 7.5 percent. The slow growth rate can be attributed to the sluggish growth of manufacturing and construction activities within the secondary sector, with the growth in agriculture remaining stagnant at 1.79 percent. The total Below Poverty Line (BPL) estimated population ratio of J&K State has been estimated at 21.63 percent (24.21 lakh persons). Poverty ratio at all India level for the year 2004-05 was found to be 27.50 percent (Economic Survey, 2008-09). At All India Level the Head Count Poverty Ratio has decreased by 49.89 percent (54.88 percent to 27.50 percent) from base year 1973-74 to 2004-05 while the poverty ratio of the J&K State has decreased by 47.02 percent (40.83 percent to 21.63 percent) from the base year 1973-74 to 2007-08 which shows the same trend as observed at all India level (Socio-Economic Profile of Jammu & Kashmir, 2008).

There are few, if any, instances of an economy transiting from an agrarian system to a post-industrial modern society without based financial inclusion (Subbarao, Duvvuri, 2010). In this backdrop micro finance has emerged as one of the tools to in Jammu and Kashmir State for poverty mitigation against economic backwardness and political turmoil being witnessed over two decades now. Micro finance (MF) directly and indirectly intendeds to help the state in improving the access of finance (particularly to women) which can promote the economic development of the state and help improve the living standard. Access to financial services and the subsequent transfer of financial resources to poor women make them to become economic agents of change. Women become economically self-reliant and contribute directly to the well being of their families, play a more active role in decision making and are able to confront systematic gender inequalities (Singh, N. Tejmani, 2009). Studies have found that micro finance clients have better educational and health outcomes. Others have found that micro finance can, under some circumstances, empower women in their households as well as in society more generally (Barr, Michael S. 2005).

DEFINITION

Micro Finance refers to the provision of financial services to poor or low-income clients, including consumers and the self-employed. The term also refers to the practice of sustainably delivering those services. More broadly, it refers to a movement that envisions "a world in which as many poor and near-poor households as possible have permanent access to an appropriate range of high quality financial services, including not just credit but also savings, insurance, and fund transfers" (Mohammad, Sulaiman D. 2010). Those who promote Micro Finance generally believe that such access will help poor people out of poverty. Robinson (2001) defines Micro Finance as "small-scale financial services primarily credit and savings provided to people who farm, fish or herd" and adds that it "refers to all types of financial services provided to low-income households and enterprises." (Sriram, M. S. and Upadhyayula, Rajesh S. 2002)

INNOVATION OF MICRO FINANCE

Lenders seek to manage repayment risk; all borrowers promise to repay, but whether due to choice or to constraint, some break their promise. To control risk, most lenders require collateral, an asset that the borrower forfeits upon default and that thus motivates repayment. Most formal lenders require physical assets such as land or houses. The poor, however, either lack such assets or cannot afford to lose them. The innovation of Grameen and of Micro Finance in general is to collateralize the asset of future access to loans. In this sense, Micro Finance in low-income countries works a lot like credit cards in high-income countries; borrowers repay because they want to preserve future access to loans. Although Grameen did not invent the threat of termination as an incentive to fulfill

contracts it did popularize its combination with a second design element: default by one group member leads to loss of access for all members. This joint liability reduces risk in three ways first; joint liability gives members an incentive to exclude known bad risks. For outsiders, knowledge of individual character is costly, but, for villagers, it is often a sunk cost. Thus, joint liability can cut the cost to screen potential borrowers. Second, joint liability gives members an incentive to make sure that their fellows do not squander their loans. This can cut the cost to monitor borrowers. Third, joint liability gives members an incentive to coax comrades out of arrears or even to repay their debts for them. Members may also mentor each other. This can cut the cost to enforce repayment. On the downside, joint liability may lead to domino effects in which borrowers who would have repaid choose instead to default because they would lose access anyway due to the default of others. Also, joint liability may not cut costs but rather only shift them from lenders to borrowers. Because joint liability lets the poor bank on social capital, it has captured the imagination of the public. Because joint liability involves repeated games between heterogeneous agents with imperfect information, it has drawn attention from theoretical economists. At Grameen, however, joint liability is more subtle than the popular perception and more complex than the theory. First, Grameen staggers disbursements to leverage the threat of termination. Two members get loans first, and then, one month later, two other members get loans. After one more month, the last member gets a loan. Because most loans last exactly one year, staggered disbursement reduces the risk of domino default because some borrowers must finish repayment before they know whether their comrades will default. Furthermore, borrowers who have already paid most of their debt have incentives to make sure that their peers also repay. Second, loan officers often do not enforce joint liability at the group level. They tend to bend the rules both because they know that some arrears are involuntary and because they are reluctant to kick out good borrowers. To enforce repayment without strict joint liability at the group level, loan officers use social pressure at the centre level. For example, they may suspend all disbursements at a centre until all debts are up-to-date. They may also scold women or detain them in the centre longer than normal. In Bangladesh, this shames women and may subject them to the wrath of their husbands when they finally are released. Third, Grameen promises bigger loans through time. New borrowers get very small loans, but loan size usually grows as members prove their creditworthiness. Most borrowers get another loan as soon as they repay their old one. Fourth and finally, Grameen promises more attractive types of loans to the best borrowers. The most common is the 'general' loan, but since 1984, Grameen also makes 'housing' loans with larger disbursements, longer terms, and lower interest rates. Recently, Grameen has made loans for college expenses and cell phones. Grameen even makes individual loans. Borrowers value access to these loans highly, so centers and especially centre chiefs try to maintain a clean record (Schreiner, Mark 2003; Armendáriz de Aghion, Beatriz and Morduch, Jonathan, 2004).

Because of the lack of assets for collateral, when poor people borrow they often rely on relatives or a local moneylender, whose interest rates can be very high. Moneylenders usually charge higher rates to poorer borrowers than to less poor ones. While moneylenders are often demonized and accused of usury, their services are convenient and fast, and they can be very flexible when borrowers run into problems. Hopes of quickly putting them out of business have proven unrealistic, even in places where Micro Finance institutions are very active.

In recent times, microfinance has emerged as a major innovation in the rural financial marketplace. Microfinance largely addresses the issue of access to financial services (Sriram, M. S. 2005). A growing body of research from around the world shows that well developed and inclusive financial systems are associated with faster growth and better income distribution. Finance also helps extend the range of individuals, households and firms that can get a foot-hold in the modern economy, and it reduces damaging concentrations of economic power (Basu, Priya 2005). Providing access of finance to poor or microfinance has been considered as a tool for economic development and poverty reduction but the access of Micro Finance is closely related with the awareness of Micro Finance. In this background the study attempted to know the awareness and availability of Micro Finance among the beneficiaries, because the access to financial services is meaningful only when the intended people to be included have the awareness of services available. The objectives and hypothesis of the study are:

OBJECTIVES OF THE STUDY

- To assess the availability of Micro Finance in Jammu and Kashmir State.
- To assess the awareness of Micro Finance in Jammu and Kashmir State.

HYPOTHESES

H1: The awareness of Micro Finance availability is low among the beneficiaries of the program in J&K state.

H2: Awareness of Micro Finance varies within the districts among the beneficiaries of the program in J&K state.

REVIEW OF LITERATURE

Providing access of finance to poor or micro finance has not been considered as a tool for economic development and poverty reduction (ADB, 2000a; Morduch and Haley, 2002; Khandker, 2003). It is the interest of many policy makers and researchers in recent years. Although there are several different perceptions of micro finance (Rhyne, 1998; Robinson, 2001), it is commonly agreed that the central issue in micro finance has been the question of how to provide financial services to the poor and low-income households on a sustainable basis (Rhyne, 1998; Robinson, 2001; Gonzalez Vega 2003).

Traditionally, poverty has been conceptualized in terms of income, with the poor defined as those living below a given income level. But poverty has been increasingly recognized as a multidimensional phenomenon that encompasses not simply low income, but also lack of assets, skills, resources, opportunities, services and the power to influence decisions that affect an individual's daily life. Poverty also frequently overlaps with and reinforces other types of social exclusion, such as those based on race, gender or ethnicity (Maes, Jan and Foose, Laura 2006).

A growing body of research from around the world shows that well developed and inclusive financial systems are associated with faster growth and better income distribution. Finance also helps extend the range of individuals, households and firms that can get a foot-hold in the modern economy, and it reduces damaging concentrations of economic power (Basu, Priya 2005). Close to three billion people half of the world's population lives on less than two dollars a day. Within these poor communities, one child in five will not live to see his or her fifth birthday (Barr, Michael S. 2005). An important addition to the knowledge base available on banking services for the poor is the ambitious 'Access to Finance' survey carried out across the world by CGAP. It pointed out the institutional and other inadequacies in the developing countries that resulted in limited access to services. The survey found that developing countries have one-third the numbers of deposits per person compared to the developed countries. In terms of loans, the developing countries had one-fourth of the loans that were extended in the developed countries. The outreach of the financial institutions was much narrower in developing countries; in terms of the number of branches it was one-third the numbers and, in terms of number of points of sale, it was about one-twelfth per unit of population compared to what was obtaining in high income countries (Srinivasan, N. 2010). The extent of financial exclusion is staggering in our country. Out of the 600,000 habitations in the country, only about 30,000 have a commercial bank branch. Just about 40 per cent of the populations across the country have bank accounts, and this ratio is much lower in the north-east of the country. The proportion of people having any kind of life insurance cover is as low as 10 per cent and proportion having non-life insurance is an abysmally low at 0.6 per cent. The National Sample Survey data reveals that, in 2003, out of the 89.3 million farmer households in the country, 51 per cent did not seek credit from either institutional or non-institutional sources of any kind (Subbarao, Duvvuri, 2010). Credit is important in the lives of the rural poor in a developing economy. As the distribution of land in the countryside remains skewed, the majority of the rural population is left with an inadequate resource base for production. Faced with a weak social security system to fall back upon, this section of landless or near land less rural population is forced to depend upon credit for its livelihood. It was this understanding that led various developing countries to make credit an integral part of their poverty alleviation programmes (Chavan, Pallavi and Ramakumar, R. 2002). Even at the cost of being clichéd, that banking on the poor can actually be a rich banking proposition. Financial inclusion is a win-win opportunity for the poor, for the banks and for the nation. Because of growing incomes, and improving awareness levels, aspirations of the poor are on the rise. We will not be forgiven if we do not rise up to meet these aspirations, if only because of poverty of imagination. It is for the banks to convert what they see as a dead-weight obligation into an exciting opportunity and move on aggressively on financial inclusion (Subbarao, Duvvuri, 2010).

Micro Finance has emerged globally as a leading and effective strategy for poverty reduction with the potential for far-reaching impact in transforming the lives of poor people (Working Paper, Bank of Ghana 2007). Micro finance through Self Help Groups (SHGs) is propagated as an alternative system of credit delivery for

the poorest of the poor groups. India's achievement of the MDG of halving the population of poor by 2015 as well as achieving a broad based economic growth hinges on a successful poverty alleviation strategy. In this backdrop the impressive gains made by SHG-Bank linkage programme in coverage of rural population with financial services offers a ray of hope (Misra, Alok 2006). Recognizing their importance, both Reserve Bank of India and National Bank for Agriculture and Rural Development (NABARD) have been spreading the promotion and linkage of SHGs to the banking system through refinance support and initiating other proactive policies and systems (Singh, N. Tejmani, 2009).

RESEARCH METHODOLOGY

To fulfill the objectives laid down for the study, the data of different aspects were collected from both primary and secondary sources. The data from secondary sources was gathered from both published and unpublished data. The published data was gathered from journals, magazines, reviews, periodicals, and newspapers. The data collected from secondary sources was mainly accessed through internet. Primary data was collected both from the beneficiaries of Micro Finance program and the Micro Finance Providers (MFI) (Banks; as the state don't have specialised MFIs in our state, which cater only MF products). The data from beneficiaries of Micro Finance program was collected from six districts, namely; **Anantnag, Bandipora, Baramullah, Samba, Udhampur** and **Kuthua** where the former three districts are from Kashmir Division and the later three are from Jammu Division. The data from Micro Finance Providers was collected from **Srinagar, Anantnag, Bandipora, Baramullah, Jammu, Samba, Udhampur, and Kuthua**. Based on the studies of "Puhazhendi, V., Satyasai, K.J.S. (2000) Microfinance for Rural People: An Impact Evaluation;" "Puhazhendi, V., Badatya, K. (2002) Self-Help Group Bank Linkage Programme for Rural Poor in India: An Impact Assessment;" and "MYRADA, (2002) Impact of Self Help Groups (Group Processes) on the Social/Empowerment Status of Women Members in Southern India" the present study has used Multistage stratified random sampling procedure; the study purposively took beneficiaries from different districts and then randomly selected the SHGs' (Hannover, Wolfgang, 2005). Current study had taken a sample of 600 respondents from 49 SHGs' across the six districts. Out of 600 respondents selected for the study 503 returned the questionnaires which were usable (completed the questionnaire from which analysis was possible) i.e. the return rate of questionnaire was 83.83%. The unusable questionnaires were mostly due to missing sections. The SHGs were promoted by the various NGOs' with support from NABARD or DRDA. The respondents for MF providers were chosen purposively. The respondents were purposively chosen so as to accommodate the respondents from head offices of the major banks in state i.e. J & K bank, SBI and Punjab National Bank and also to include the bank officials only from those branches of banks which provided MF and were in the vicinity where NGOs linked the SHGs. The respondents chosen were those officials who were concerned with MF. A total number of 33 questionnaires were administered and data collected.

The sampling frame for the research was the list of NGOs' supporting SHGs to be linked to banks provided by the NABARD, Raid Head Complex, Jammu. NABARD had recognised the NGOs' for bank linkage program and supported them financially for linking SHGs to banks. The total of 21 NGOs was supported by the NABARD. Out of 21 NGOs only 12 NGOs had linked more than 5 SHGs to banks. After contacting the managers of various NGOs who had linked more than 5 NGOs to ensure adequate sample and representation of different districts, following NGOs agreed to facilitate the research work:

1. Gramudyog Hastakala Kendra, Hiranagar, Kathua;
2. Priyadarshini Indira Mahila Block Society, Jammu;
3. Human welfare foundation, K.P. Road, Anantnag;
4. Indo Global Social Service Society (IGSSS);
5. Gramin Pragati Sanghatan, Chari-Swail, Udhampur;
6. Shanker Rural Women development Society, Thanger More, Old Boder Road, Hiranagar, Kathu.

The present study has taken a sample of 49 SHGs out of 267 SHGs. A minimum of 6 SHGs (50 members) were chosen randomly from each district. Profile of the beneficiaries and agencies providing micro finance has therefore been illustrated in the following table 1 and 2.

TABLE 1: PROFILE OF THE MICRO-FINANCE BENEFICIARIES

Variable	Frequency	Percentage
1. Division		
Jammu Division	254	50.5
Kashmir Division	249	49.5
2. District		
Anantnag	103	20.5
Bandipora	89	17.7
Baramullah	57	11.3
Samba	81	16.1
Udhampur	82	16.3
Kathua	91	18.1

Source: Survey data collected by the scholar for the present study

TABLE 2: PROFILE OF THE MICRO FINANCE AGENCIES

Variable	Frequency	Percentage
1. Division		
Jammu Division	18	54.5
Kashmir Division	15	45.5

Source: Survey data collected by the scholar for the present study

AVAILABILITY OF MICRO FINANCE

During the study it was found that 31 (93.9%) MFIs provided Micro loans. While as in terms of savings 31 (93.9%) provided Pass book Savings, 27 (81.8%) provided term deposits, 29 (87.9 %) had required savings linked to loans. In terms of insurance 17 (51.5%) provided health insurance 23 (69.7%) provided life insurance, 16 (48.5%) provided accident insurance, 14 (42.4%) provided non-life insurance and 7 (21.2%) provided other insurance facilities. While 21 (61.6%) provided Financial Literacy, 19 (57.6%) provided business development support and 10 (30.3%) provided other trainings. 22 (66.7 %) provided remittance facilities to beneficiaries. Hence it can be safely concluded that MF services are available but the availability of Financial Literacy, business development support and other trainings is low. That clearly correlates with the poor awareness of micro-insurance among the beneficiaries shown in awareness of micro finance below. The responses of the MFIs are shown in table 3.

TABLE 3: AVAILABILITY OF MF

Variable	Frequency	Percentage
1. Micro Loans		
Yes	31	93.9
No	2	6.1
2. Pass book Savings		
Yes	31	93.9
No	2	6.1
3. Term Deposits		
Yes	27	81.8
No	6	18.2
4. Required Savings Linked to Loans		
Yes	29	87.9
No	4	12.1
5. Health Insurance		
Yes	17	51.5
No	16	48.5
6. Life Insurance		
Yes	23	69.7
No	10	30.3
7. Accident Insurance		
Yes	16	48.5
No	17	51.5
8. Non-Life Insurance		
Yes	14	42.4
No	19	57.6
9. Other Insurance		
Yes	7	21.2
No	26	78.8
10. Financial Literacy		
Yes	21	63.6
No	12	36.4
11. Business Development Support		
Yes	19	57.6
No	14	42.4
12. Other Trainings		
Yes	10	30.3
No	23	69.7
13. Remittances		
Yes	22	66.7
No	11	33.3

Source: Survey data collected by the scholar for the present study

AWARENESS OF MICRO FINANCE

During the study it was found that information about the MF to beneficiaries was mainly provided by NGOs. Table 4 shows how beneficiaries came to know about the MF by the different stakeholders. It was found that 413 (82.1%) respondents reported that they came to know about the MF activities by NGOs.

TABLE 4: INFORMATION ABOUT MF OBTAINED THROUGH

Variable	Frequency	Percentage
Information About MF		
Govt. Staff	14	2.8
NGO's	413	82.1
Friends and Relatives	60	11.9
Advertisement	11	2.2
Others	5	1.0

Source: Survey data collected by the scholar for the present study

The reason for that as all of we can infer is the greater participation of NGOs in spreading the information about the Micro Finance. The different stakeholders that are govt. and banks are not involved at grass root level for informing the intended beneficiaries. The govt. particularly at grass root level needs to get involved with spreading the information; SGSY was introduced in 1999 with the objective of developing micro enterprises in rural areas, thereby building upon the potentials of rural poor belonging to BPL families. Under the Scheme, financial assistance both in the form of loan and subsidy is provided to the beneficiaries, to both individuals as well as Self Help Groups (SHGs) to set up their own enterprises. And also the banks also have to actively start working for spreading the information about Micro Finance so as to cater their needs for financing the priority sector and inclusion of people. The role of NABARD is laudable so far as informing the beneficiaries; they support the NGOs financially for linking the SHGs with banks. This has greatly influenced NGOs as this helps them to cover the operational expenses for linking the SHGs.

Micro Finance refers to the provision of financial services to poor and low income clients. It encompasses whole range of services consisting of credit, saving, insurance, fund transfers and so on and so forth. About the awareness of MF activities the respondents were asked how much aware they are about the different services of MF. The respondents had to respond on a five point scale. The responses of the respondents are shown in table 5. The results in the table indicate that most of the respondents are aware of the Micro Finance services. Overwhelming majority 78.4% beneficiaries reported that they are aware of Micro Finance services. Individually first three items in the table indicate that beneficiaries are aware of the services but the last two items indicate that beneficiaries are mostly un-aware of these services.

TABLE 5: AWARENESS OF MF

Variable	Frequency	Percentage
1. MF is About Lending in Small Amounts		
Not at All	124	24.7
A Little	14	2.8
Some-what	39	7.8
Mostly	171	34.0
Completely	155	30.8
2. MF is About Financing Micro business		
Not at All	122	24.3
A Little	21	4.2
Some-what	50	9.9
Mostly	125	24.9
Completely	185	36.8
3. MF is About Saving		
Not at All	68	13.5
A Little	42	8.3
Some-what	79	15.7
Mostly	160	31.8
Completely	154	30.6
4. MF is About Providing Insurance		
Not at All	247	49.1
A Little	65	12.9
Some-what	89	17.7
Mostly	75	14.9
Completely	27	5.4
5. MF is About Fund Transfers		
Not at All	259	51.5
A Little	43	8.5
Some-what	67	13.3
Mostly	90	17.9
Completely	44	8.7
6. Over-all awareness of Micro Finance is Reasonable		
Not at All	21	4.2
A Little	88	17.5
Some-what	176	35.0
Mostly	195	38.8
Completely	23	4.6

Source: Survey data collected by the scholar for the present study

Though table 5 above gives the variable wise frequency distribution of beneficiaries, it hardly furnishes any clue about the overall awareness of various variables. To make the analysis of data easier, the mean scores were converted into percentages through a simple formula $X \times 20$. In addition to it the variables were assigned ranks, the ranking pattern obtained by the variables in the ranking progression explains their intensity in that order. The ranking pattern obtained by the variables in the ranking progression below in the table 6 explains their intensity in that order. A glance at the table reveals that beneficiaries experience varying degrees of awareness. The average scoring on various variables ranges between a high of 71.52% and a low of 42.9% of the maximum theoretical score. The overall mean score of awareness about MF was 3.22 falling within the high range (%age of mean Score of greater than 60%). MF is about saving with the %age mean score of 71.52% obtains rank one on the ranking continuum. This is the manifestation of how important the beneficiaries regard savings, confirming the fact that poor people need much more than credit. The %age mean score of MF is about Lending in small amounts and MF is about Financing Micro Business are 69.14% and 68.70% and obtained the third and second ranks respectively. While as MF is about providing insurance and fund transfers has received a mean score of 2.16 and 2.24 falling within the poor range (%age of mean Score of less than 50%) with fifth and fourth rank, signifying that beneficiaries have low awareness in these two variable. This can be attributed to the fact that MFIs vary greatly in providing the different services of MF (as can be inferred from the table 4.10 below showing the availability of MF services).

TABLE 6: AWARENESS OF MF AS PERCEIVED BY RESPONDENTS

Variable	Mean Score	Std. Dev.	Std. Error Mean	%age of mean Score	Range	Rank
MF is About Lending in Small Amounts	3.4354	1.54974	.06910	68.70	High	3 rd
MF is About Financing Micro business	3.4573	1.58983	.07089	69.14	High	2 nd
MF is About Saving	3.5765	1.35582	.06045	71.52	High	1 st
MF is About Providing Insurance	2.1451	1.31525	.05864	42.9	Poor	5 th
MF is About Fund Transfers	2.2386	1.44857	.06459	44.76	Poor	4 th
Over-all awareness of Micro Finance Reasonable	3.2207	.93035	.04148	64.4	High	-

Source: Compiled and constructed on the basis of Survey data

Summing up the above discussion, it can be asserted that beneficiaries are aware of MF services. Awareness of MF being high in Savings, financing Micro Business, lending in small amounts, but the awareness of MF being about providing insurance and fund transfers is poor. The responses of the respondents are shown in table 6.

The first hypothesis raised by the study was that **“The awareness of Micro Finance availability is low among the beneficiaries of the program in J&K state”**. To verify the hypothesis One Sample t-test was utilized. The One-Sample T Test procedure tests whether the mean of a single variable differs from a specified constant. The test assumes that the data are normally distributed; however, this test is fairly robust to departures from normality. Hypotheses raised for the study were tested at 0.05 levels for significance. The study assumed awareness of Micro Finance to be low so the null and alternate hypotheses are:

$H_0: \mu \leq 3$

$H_1: \mu > 3$

Where if null hypothesis is accepted we conclude that there is low awareness of Micro Finance and if it is rejected we accept the Alternate hypothesis that the awareness of Micro Finance does exceed 3. Table 7 shows the results of the one-sample t test. The t column displays the observed t statistic for each sample, calculated as the ratio of the mean difference divided by the standard error of the sample mean. The df column displays degrees of freedom. In this case, this

equals the number of cases in each group minus 1. The column labeled Sig. (1-tailed) displays a probability from the t distribution with 502 degrees of freedom. The value listed is the probability of obtaining an absolute value greater than or equal to the observed t statistic, if the difference between the sample mean and the test value is purely random. The 95% Confidence Interval of the Difference provides an estimate of the boundaries between which the true mean difference lies in 95% of all possible random samples. **Since the significance (Sig.) level is less than .05 in all the variables, the Null hypothesis is rejected and accordingly the Alternate Hypothesis stands accepted.** So we can conclude that beneficiaries are aware of MF services. The result of t test is shown in the table 4.9. The table shows that the mean difference and t value for MF is about providing insurance and fund transfers is negative which is due to the fact that the sample means for these are less than the test value (3). But the p value (Sig. Level) suggests that still the null hypothesis is rejected and alternate hypothesis accepted upholding that beneficiaries are aware of the services but awareness is poor in MF is about providing insurance and fund transfers.

TABLE 7: ONE SAMPLE t TEST

Variable	t	Df	Sig. (1-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
MF is About Lending in Small Amounts	6.301	502	.000	.43539	.2996	.5711
MF is About Financing Micro business	6.451	502	.000	.45726	.3180	.5965
MF is About Saving	9.537	502	.000	.57654	.4578	.6953
MF is About Providing Insurance	-14.577	502	.000	-.85487	-.9701	-.7397
MF is About Fund Transfers	-11.789	502	.000	-.76143	-.8883	-.6345
Over-all awareness of Micro Finance Reasonable	5.320	502	.000	.22068	.1392	.3022

Source: Compiled and constructed on the basis of Survey data

The second hypothesis raised by the study was that **“Awareness of Micro Finance varies within the districts among the beneficiaries of the program in J&K state.”** To verify the hypothesis One-Way ANOVA was utilized. The One-Way ANOVA procedure produces a one-way analysis of variance for a quantitative dependent variable by a single factor (independent) variable. Analysis of variance is used to test the hypothesis that several means are equal. Each group is an independent random sample from a normal population. Analysis of variance is robust to departures from normality, although the data should be symmetric. The groups should come from populations with equal variances. So the null and alternate hypotheses are (where $\mu_1, \mu_2, \mu_3, \mu_4, \mu_5,$ and μ_6 represent means of different districts):

$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 = \mu_6$

$H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \neq \mu_5 \neq \mu_6$

Where if null hypothesis is accepted study concludes that there is no variance within the districts among the beneficiaries of the program in J&K state and if it is rejected we accept the Alternate hypothesis there is variance within the districts among the beneficiaries of the program in J&K state. Table 8 shows the results of the One-Way ANOVA. The significance value of the F test in the ANOVA table is 0.00. **Thus, reject the hypothesis that awareness scores are equal across districts and accept the alternate hypothesis that there is variance within the districts among the beneficiaries of the program in J&K state.**

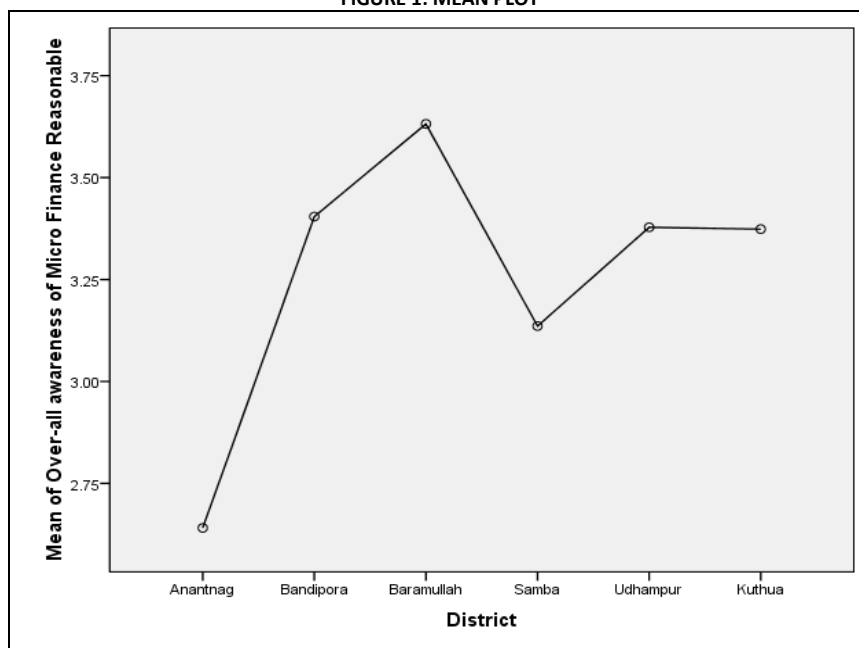
TABLE 8: ONE-WAY ANOVA

Variables		Sum of Squares	df	Mean Square	F	Sig.
MF is About Lending in Small Amounts	Between Groups	515.626	5	103.125	74.277	.000
	Within Groups	690.024	497	1.388		
	Total	1205.650	502			
MF is About Financing Micro business	Between Groups	507.255	5	101.451	66.206	.000
	Within Groups	761.576	497	1.532		
	Total	1268.831	502			
MF is About Saving	Between Groups	143.385	5	28.677	18.286	.000
	Within Groups	779.419	497	1.568		
	Total	922.803	502			
MF is About Providing Insurance	Between Groups	133.987	5	26.797	18.135	.000
	Within Groups	734.418	497	1.478		
	Total	868.406	502			
MF is About Fund Transfers	Between Groups	293.911	5	58.782	38.468	.000
	Within Groups	759.461	497	1.528		
	Total	1053.372	502			
Over-all awareness of Micro Finance Reasonable	Between Groups	52.012	5	10.402	13.516	.000
	Within Groups	382.493	497	.770		
	Total	434.505	502			

Source: Compiled and constructed on the basis of Survey data

Now that groups differ in some way, we need to learn more about the structure of the differences. The means plot helps you to "see" this structure. The mean plot of overall awareness of micro finance has been shown below; mean plots of other variables are similar in nature and therefore skipped. Mean plots show beneficiaries among the different districts have varying level of awareness where district Anantnag has least awareness and Baramullah the highest awareness.

FIGURE 1: MEAN PLOT



Source: Compiled and constructed on the basis of Survey data

CONCLUSION

During the study it was found that 93.9% MFIs provided Micro loans. While as in terms of savings; 93.9% provided Pass book Savings, 81.8% provided term deposits, and 87.9% had required savings linked to loans. In terms of insurance; 51.5% provided health insurance 69.7% provided life insurance, 48.5% provided accident insurance, 42.4% provided non-life insurance and 21.2% provided other insurance facilities. While 61.6% provided Financial Literacy, 57.6% provided business development support and 30.3% provided other trainings. 66.7 % provided remittance facilities to beneficiaries. Hence it can be safely concluded that MF services are available but the availability of Financial Literacy, business development support and other trainings is low. That clearly correlates with the poor awareness of micro-insurance among the beneficiaries.

During the study it was also found that information about the MF to beneficiaries was mainly provided by NGOs. It was found that 82.1% respondents came to know about the MF activities by NGOs but only few NGOs are involved in MF that too in some scattered pockets. NGOs lack exposure including grass root level workers. Awareness about MF being about lending in small amounts, financing Micro Business and Savings is high while as MF is about providing insurance and fund transfers is poor among the beneficiaries. The overall awareness about MF is high among the beneficiaries. The results were confirmed by the one sample t test. It was also found that there is the difference in the level of awareness among the districts where district Anantnag has least awareness and Baramullah the highest awareness.

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RURAL LIVELIHOOD MARKETS AND ECONOMIES

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MANCHAR

ABSTRACT

The rural villages in India epitomize essence of Indian civilization as it is considered a repository of traditional mores and folkways. Rural villages are the integral part of the nation, not just as places of abode, but as the custodians of culture, tradition and the spit of the nation itself. The rural village and market is considered as static and a self sufficient unit of production and consumption but it is no longer so. The rural market in India is not a separate entity in itself and it is highly influenced by the economical, sociological and cultural factors operating in the country. Poverty and low level of literacy characterize rural population in India. Government of India had introduced a number of measures to improve the quality of life of rural masses. After agricultural revolution green and white, the yield per acre land and animal has increased substantially. The rural electrification programme also bought a new hope in rural area as did the irrigation development programme. All these factors, initiate some changes in rural life. As a result; there is a socio-economic revolution taking place in Indian villages since last few decades. Increasing knowledge of agriculture and methods of farming changed rural village economy far better than earlier. Socio-economic changes in villages have led villages to think of material well-being. The process of economic development has opened new avenues of income for rural people and education has broadened their horizons, resulting in a changed life style, and livelihood market.

KEYWORDS

Emerging Economy, Rural Economy, Rural Livelihood Markets, Rural Marketing, Socio cultural Dynamics.

INTRODUCTION

Rural production activities pursued by households and individuals in a rural India are shaped by access to resources, social networks, non market institutions, monetary resources, and the ability to develop non farm/rural-urban linkages. Household livelihood changes through time due to many factors, markets, new technologies, and climate perturbations being major ones. A framework that combines household economics, political economy, and sociology, is developed to identify changes in land use patterns and crop livestock activities resulting from several "exogenous" conditions that include climate perturbations such as drought and uncertain rain; market incentives for dairy perishable urban markets; and increased commercialization of farm production.

A THEORETICAL FRAMEWORK

Rural livelihood patterns are shaped by several factors. In the Ambegaon region climate is important for both production and consumption decisions. Other factors affecting rural household decisions are: access and control of human, natural, productive, cultural and social capital, markets, institutions, and the political environment. Livelihood patterns are diverse, influenced by linkages in and outside agriculture, and life cycle family characteristics such as age, education, and the number of family members. The degree of diversification of the household portfolio is determined by these characteristics, and by the household's and individual's objectives, such as risk management practices, and/or strategies available to cope with shocks. In areas of greater risk household pattern are expected to be more diversified as a mean to minimize possible shocks from negative climate events, especially when loss-management strategies are limited.

Households with portfolios of economic activities that are diversified and have less covariant activities will be better able to cope with climatic risk. As income grows, and families move away from food insecurity, some expect that households will specialize and use insurance markets, instead of diversification, to negotiate risk. Others argue that diversification will grow, also as a strategy to maximize use of resources, and may exist with greater levels of commercialization and wealth.

Diversification is also affected by stage in the life cycle. Households in their initial stages start to accumulate and their ability to expand or diversify their portfolio is limited. Diversification in agriculture and in non agricultural activities may take place as accumulation grows.

When climatic risk realize non market relations may be key to coping. Households may access resources through networks of families and friends. This is an ex-post consumption-smoothing management strategy. Conversely in years of surplus this may be shared or exchanged, building the social capital of households. Besides accessing networks to negotiate perturbations, other strategies may include liquidation of assets and temporal migration.

METHODOLOGY OF STUDY**OBJECTIVE**

- 1) To study the livelihood patterns and review the approaches that inform the framework developed for the study of livelihood of households.
- 2) To study household pattern copes with climatic perturbations in the Ambegaon region;
- 3) To study impact of household pattern on income and diversification; and
- 4) To study the implications for individual empowerment in the management of productive and reproductive activities.

SAMPLE SIZE

Household surveys captured production, consumption, income, and resources of the household as the unit of analysis. Survey was conducted of 135 families in Ambegaon Tahasil region.

METHODOLOGY

Nine variables are selected and cluster analysis is performed with each of the data sets of to identify groups of households with similar pattern and characteristics. The set of variables is built using a household peasant economics framework.

The variables chosen capture stage in the life cycle, social capital, types of technologies used (either intensive or extensive), market integration, accumulation (investment capacity) in technologies less vulnerable to drought and frost, household consumption, and rural urban linkages (income from outside of agriculture).

The operational variables chosen are: a. Household labor available measured in adult equivalents; b. age of the head of the household; c. number of Deshi (Gavathi) sheep; d. number of improved sheep; e. poultry; f. irrigated area; g. assets for investment (cattle numbers that can be liquidated); h. wages received and income transfers; and i. consumption (estimated from in-kind production and cash expenditures). The variables do not include some that are relevant because of correlations among them that need to be avoided for the cluster analysis. Age and access to labor capture life cycle effects on rural livelihood pattern. Irrigated land, captured by forage area, represents resources owned less vulnerable to drought.

TABLE 1: PERIODICITY AND SCALE OF CLIMATIC PERTURBATIONS IN THE AMBEGAON REGION

Disturbance Type	Temporal Scale	Spatial Scale
Drought	45% Frequency	Regional
Flood	2-7 years	Regional
High Winds	July-October	Regional

Source: Ambegao Tahasil Office (2010)

The consumption (in-kind and cash production for consumption) measures the ability of the household to secure food for the household. Net income from cattle measures the ability to capitalize and invest in new opportunities, as well as migrate through pull effects to other areas.

To measure diversity of the household economic portfolio, an index is constructed. The Inverse Simpson's Where: D is diversity index, pi is the income share derived from activity i in

$$D = \frac{1}{\sum_{i=1}^n E_i^2}$$

Where i=1

OBSERVATION AND ANALYSIS

LIVELIHOOD PATTERN ONE

Table 2 presents the values of the cluster variables at the mean. It shows that there are two large groups, each one subdivided in two subgroups. The strongest factors in formation of the groups are age and access to labor. This defines two large groups, the productive and the elderly. Within the productive, access to resources explains why there is a group dedicated to innovating technologies, mostly dairy and improved sheep. Major income sources of the productive innovators are cattle and dairy (Table 5) while the extensive have greater proportion of income from food crops and sheep and livestock sales. Households that do not have access to resources, rely mostly on extensive grazing to feed their cattle and deshi sheep. The elderly, the second major group, also subdivides by the numbers of adult equivalents (labor) available. It is a group that relies mostly on income transfers (other income) and some potato production (Table 4).

TABLE 2: IDENTIFIED GROUPS PATTERN ONE OF HOUSEHOLDS AND THEIR CHARACTERISTICS

	Rural Livelihood Pattern		
	Productive Innovators	Productive Extensive	Elderly
Age(years)	45.7	41.6	65
Labor (adult equ.)	3.4	3.3	1.5
Deshi Sheep (head)	4.2	20.2	3
Deshi Cattle (head)	0.3	2.5	0.7
Improved Sheep (head)	27.2	6.9	1
Consumption (monthly)	5,981	2,743	1,337
Off-farm Income	1,000	299	120
Diversity Index*	3.57	3.24	2.26

Source: Household Survey (2011)

LIVELIHOOD PATTERN TWO

Households during this year faced delayed rains and a major drought. As a consequence a group with linkages outside the community and with large sums of money emerged (Table 5). Another group depended mostly on agriculture to cope with the climatic perturbation. This group coped by selling livestock. Table 5 shows the clear growth in income from outside by those defined as the rural option, due to their linkages to other localities, while the extensive, less wealthy; depend on the sales of sheep and cattle to cope. The elderly seem to be the most vulnerable. The household members in this group do not have the capacity to work as before. Their main source of income are the transfers (other income), which seems to be under-reported. A study of livelihood pattern shows that indeed these elderly people resort to very diverse strategies to maintain a level of income to sustain them.

TABLE 3: IDENTIFIED GROUPS OF HOUSEHOLDS PATTERN TWO AND THEIR CHARACTERISTICS

	Rural Livelihood Pattern			
	Productive Rural	Productive Agricultural Less Resources	Productive Agricultural More Resources	Elderly
Age(years)	41.9	49.0	47.7	67.0
Labor (adult equ.)	2.9	2.8	3.9	1.4
Deshi Sheep (head)	4.7	16.0	19.1	1.2
Deshi Cattle (head)	1.3	4.4	0.4	0.6
Improved Sheep (head)	42.3	12.4	10.1	6.2
Improved Cattle (head)	5.8	5.3	5.2	0.6
Consumption (monthly)	9,703.0	4,253.0	5,837.0	1,944.0
Off-farm Income	4,809.0	333.0	952.0	301.0
Diversity Index*	3.3	2.95	2.97	2.64

Source: Household Survey (2011)

LIVELIHOOD PATTERN THREE

Three clear patterns are identified in this year that; the elderly is a group that follows a similar strategy every year. Strategies in a year without perturbations, though constrained by the outcome in the previous year show two strong and different economic activities being pursued in agriculture. One is dairy which has grown consistently through the groups. The other is commercial potato production, which has grown from production for consumption, to production for both consumption and market. A shift is observed towards these two major activities as the incomes in Table 5 illustrate.

TABLE 4: IDENTIFIED GROUPS OF HOUSEHOLDS PATTERN TWO AND THEIR CHARACTERISTICS

	Rural Livelihood Pattern			
	Productive Young - Livestock	Productive Dairy	Productive Potato Producers	Elderly
Age(years)	43.2	46.7	51.3	72
Labor (adult equ.)	3.09	5	3.3	1.54
Deshi Sheep (head)	0	3.3	8.2	6.2
Deshi Cattle (head)	.25	0	3.5	0.31
Improved Sheep (head)	21.6	53	13	2.2
Improved Cattle (head)	6.8	6.3	2	0.7
Consumption (monthly)	18,000	10,360	13,720	3,000
Non Ag Income (Bs.)	0	0	316	134
Diversity Index*	5.5	4.8	2.68	1.67

Source: Household Survey (2011)

CHANGING PATTERN AND INDIVIDUAL DOMAINS

At the individual level, and looking at income trends from Tables 5, we observe a drop in the income generated from sheep, the income domain of women, as a consequence of the increase in dairy. Sheep income is traditionally used to facilitate purchase of household products, and guarantee daily sustenance. In terms of assets we observe a decrease in the number of sheep, and an increase in the area of alfalfa. Regression of sheep assets on consumption of the household found this to have a positive effect. Another interesting effect of the growth of potato production is the reduction in the production of other food crops. As a result a problem of income domains to improve food security arises, and bargaining may decrease. Also it should be noted that the vulnerability due to increase is not only the reduction of diversity in the diet, but the effect of placing all income in one source, as will be addressed in the next section.

TABLE 5: INCOME SOURCES

Strategy	Income Source		
	Rural	Agricultural	Elderly
Food Crops	1,784	1,475	802
Sheep	2,081	1,477	489
Cattle	2,431	3,886	683
Milk Sales	932	1,179	58
Wages	4,809	681	301
Other Income	104	352	284
Welfare Expense	9,703	5,045	1,944

Source: Household Survey (2011)

DIVERSIFICATION

There are no significant differences within the productive in the degree of diversification of the economic portfolio. We find that there is a direct correlation between wealth and diversity, which mostly explains greater access to resources. There is an inverse correlation between elderly and diversification, explained by the fact that resources and assets are already bequeathed by the parents to their children. It is clear that potato producers have become a strong group. Households concentrating mostly on potato production have a riskier income strategy, and more vulnerable with difficult access to credit when losses occur, while dairy producers have easy access to credit.

Land use patterns have changed favoring forage production. The number of cattle assets has also increased. What has not grown in real terms is sheep income, the domain of women, and a crucial contributor of animal proteins and cash for household food security. Competing economic activities with clear market incentives, activities more resilient to climate perturbations such as forages, prevail at this point in time. The growth of income from a few sources has also decreased diversity, and increased the vulnerability of the elderly and the potato producers.

CONCLUSION

The theoretical frameworks used to identify livelihood pattern shows consistent results, Households less vulnerable had a larger amount of assets, and a better ability to insure or obtain credit with the income from milk production. Although potato production grew as a commercial activity, this activity is vulnerable to frost, floods, and drought. The market incentives in place have contributed to the boom of dairy production. It is important to gauge the consequences on diversity and on empowerment of the individuals that manage the environment.

Though not explored in this article, another useful aspect of this approach is that it allows identifying the networks within households in a community (social capital) and how it may relate to accessing technologies or information. This is important as it helps to measure the impact of non income forms of capital on negotiating perturbations. The non market institutions analyzed here were imbedded in livestock and land, by including not only area or animals owned, but those managed. The results from the cluster analyses were consistent because of the careful definition and measurement of these variables, which highlights the necessity to define these carefully when studying livelihood strategies.

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NREGA UNDER SOCIAL AUDIT: A SWOT ANALYSIS

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ABSTRACT

National Rural Employment Guarantee Act (NREGA) is the most significant act in the history Indian polity in many ways like grass-root level participation of every citizen and beneficiary through democratic process, multi-layered social audit, transparency mechanism by involvement of civil society, comprehensive planning at village level towards sustainable and inclusive growth etc. The need for social Audit arises in view of examining the expenditure of that programme incurred is whether commensurate with the quality and quantity of assets created or any misappropriation of public funds etc. Social audit aims to supplement and not supplant. The study strongly feels that social auditors must be independent from the implementing agency. It should be delinked from the ZP authorities. To be more effective, they must have the right to seek clarifications from the implementing agency about any decision making, activity, scheme, income and expenditure incurred by the agency. The study also stresses that social auditors must be well paid.

KEYWORDS

NREGA, Social analysis.

INTRODUCTION

Social Audit was introduced in 1950s in Europe and the USA and now is being widely applied in India. Social Audit is based the principle that democratic local governance should be carried out as far as possible, with the consent and understanding of all the concerned. It is thus a process and not an event. A social audit is a way of measuring, understanding, reporting and ultimately improving an organization's social and ethical performance. A social audit helps to narrow gaps between vision/goal and reality, between efficiency and effectiveness. It is a technique to understand, measure, verify report on and to improve social organization.

Social audit creates an impact upon governance. It values the voice of stakeholders including marginalized/poor groups whose voices are rarely heard. Social audit is taken up for the purpose of enhancing local governance, particularly for strengthening accountability and transparency in local bodies. A social Audit is therefore a dynamic tool, which gives people access to information and make official accountable in discharging their responsibilities. Bureaucratic intransigence and unequal power relations between officials, beneficiaries and activists pose challenges to people performing social audits. Any hesitation to tackle associated risks, or to calibrate or negotiate away its features, will weaken the integrity and purpose of social audits. It was with this aim of aiding people's struggles that NREGS—a law unlike other schemes, has in built provisions for social audit. Unfortunately, we witness more things to weaken the process and make it one more exercise at the gross root level. who must be authorized to do an audit, how best it can do independently? What role the NGOs have in this process and how social audit machinery is working? Are all those questions to be examined in this junction?

THE PROCESS OF SOCIAL AUDIT: AN OVERVIEW**SOCIAL AUDIT THROUGH PUBLIC HEARINGS**

This method is the outcome of the right to information movement in India led by the Mazdoor Kisan Shakti Sangathan (MKSS), or the Organization for the Power of Workers and Farmers, Interestingly; this movement did not start as a right to information movement. It was born out of an agitation for minimum wages in rural Rajasthan spearheaded by three social activists, who later founded MKSS on May Day in 1990. It was during their campaign for payment of minimum wages, started in 1988, that the group realized that unless government accounts and records were made available to people for scrutiny, government officials would continue to deny payment of minimum wages. Working hand-glove with the contractors, the officials reportedly made fake entries in the books that recorded the tasks performed and wages paid and charged the government much more than was actually paid to workers, thus misappropriating public funds. When caught, by people and official enquiries, these officials tried to suppress evidence and cover up defalcation using all kinds of means. It was to counter such attempts to cover up malfeasance that the innovative idea of holding a jan sunwai or public hearing was born. The term jan sunwai is taken literally and it implies that the power, legitimacy and sanctity of the forum will emanate from the people—not any judge or panel' and that it is a gearing and not a court or agitational body. The decision of the assembled collective to pose a certain set of question would determine the guilty. It puts to shame those government officials who, in connivance with suppliers and contractors, have made money illegally from public works. They are asked to return the missing money back to the people. The social audit is therefore the process of vigilance and monitoring kept by the society to ensure that the public money is being spent in the most prudent way adhering to all the stipulated guidelines. The major principle that guides the social audit is that it should be done by the society itself. The society should be helped by the trained people. The process of the audit itself should act as a process of capacity building to the villagers. Independent people who do not implement the scheme should help the Society in conducting the social audit. There should be mechanisms to address the grievances that come out as a result of the social audit. The findings of the social audit should be taken seriously by the administration. Corrective actions have to be initiated immediately on receipt of the report of the Social Audit.

In recognition of the need for promoting civic participation, accountability and transparency at the Gram panchayth level, Social audits have been legalized (Ministry of Panchayth Raj 2006-07) in first eight states of Assam, Gujarat, Jammu, Kerala, Rajasthan, Sikkim, Diu Daman and **Karnataka**. Provisions have been made to review the progress of NREGS by Gram Sabah. In addition to Gram Sabah, Ward Sabah in Karnataka also is recognized as the foundation stone around which decentralized governance in the rural areas is organized in the country. Principle Accountant General Karnataka D J Bhadra once said that Karnataka was the first state in the country to take up auditing of Gram Panchayth through CAG also.

Sec 17 of the NREG Act makes it mandatory to conduct social audit for all the activities under the scheme. The Operational Guidelines explain this as a continuous process. Though social audit has been conducted in many of the Gram Panchayats during the last three years, it cannot be claimed that all the GPs are aware of the finer details of the social audit. Various decisions of the state government to streamline the implementation of NREGA have ensured that the works are being taken up in all the GPs of the state. This necessitates further clarity at the conceptual level coupled with continuous efforts towards capacity

building at various levels. It is against this background that Government of Karnataka has prescribed institutional mechanism and methodology for conducting the social audit

INSTITUTIONAL SET UP FOR SOCIAL AUDIT AT VILLAGE LEVEL

The social audit has to be conducted at each stage of the implementation of the NREGS. The major agency for Social Audit and Vigilance in the village will be the Vigilance and Monitoring Committees. There will be VMC for each village. If the GP or the Gram Saba thinks fit, there could be more VMCs either for each ward or for each work. The VMC shall be selected by the Gram Sabha. The composition of the VMC will be as follows.

- Member of the GP from the village (Chairperson)
(Senior most member if there are more members)
- Other members of the GP

1 Two representatives of registered labourers who have worked under NREGA.

2 Two representatives from the Self help groups working in the village. All members of the VMC should be the permanent residents of the village, along with VMC, other machinery is also working.

THE SYSTEM OF SOCIAL AUDIT

During 2010-11, at the national level 3,27,655 social audits have been conducted as shown in table 1.1. On which 4327 actions have been initiated. Karnataka performance is also note worthy, where 2666 minutes of meeting recorded by covering 92% of Gram Panchayath against 156325 at the national level. At present, there are 30 District Social Audit coordinators and 204 Taluka level social Audit coordinators are working in the state. Abdul Nazir Sab State institute Rural Development, Mysore has taken the responsibility of training the Social auditors. Totally 189 criminal cases are booked against officials and others in Karnataka on the basis of social audit {The Hindu 27th oct 2011}. As per 2011-2012 calendars of events 4769 Social Audits are targeted to conduct in the state. There is a pressure on Government of Karnataka to set up independent Directorate of Social Audit. Panchayth Raj minister has assured to send delegation to Andhra Pradesh to study its success.

MGNREGA IN KARNATAKA: BIRDS EYE VIEW

The scheme has been implemented in Karnataka since 2006. Now it covers all 30 districts of the state. The objective is to ensure livelihood and food security by providing unskilled work to people through creation of sustainable assets. The first phase of NREGS was launched in February 2006 in Bidar, Gulbarga, Raichur, Davangere and Chitradurga. The second phase commenced in April 2007 in six districts under distress — Belgaum, Chikmagalur, Hassan, Kodagu, Shimoga and Bellary. In the 2010-11 total 1097.84 lakhs person days generated in Karnataka. A total of 22.024 lakh households have been provided employment under this scheme. Out of which women comprise 46.04% and SC/ST a total of 26.42%. Karnataka has witnessed considerable achievements during the implementation of the scheme. These achievements can be linked with ensuring wage payment to NREGA workers through Bank and Post office accounts. Considerable achievements have been made in the financial inclusion of NREGA workers. Action has also been initiated to sign the MOU with Department of Posts. To ensure transparency and to avoid middlemen payments of wages to NREGA workers are being made only through banks and post office accounts since inception of the scheme. However, initially there was a perception that the momentum was slow in districts where farmers were in distress. The scheme improved a lot and made further many changes.

MGNREGA IN BELLARY: GENERAL OBSERVATIONS

Bellary lies in the North Eastern part of Karnataka. Bellary is a drought prone district with a large number of marginal farmers and agricultural labourers. The district is one of the more deprived districts in Karnataka (HPC FRRI 2002). It experiences high distress migration due to failure in agriculture. In such a situation, an act like NREGA has potential to transform the face of the rural economy. NREGS was introduced in 2007-08 and process of Social Audit was started in November 2009. The district, consists of seven taluks, has achieved spectacular progress in its implementation in recent times to the point that Bellary district now stands in, during 2010-11, 5th position in expenditure incurred under the programme and 10th position in terms of generation of person days .

TABLE 1.1: SOCIAL AUDIT REPORT FOR THE YEAR 2010-11

Sl.No.	State/ District name	Total Distrit	No. of District Started Social Audit	Total GP	No. of Panchyat Covered	No. of Social Audit	Issue Raised and action taken	Verification of Documents	Greivence Submitted and action taken
1	Bellary	--	----	189	177	263	151	149	0
2	KARNATAKA	30	30	5630	5153	6442	2624	2913	21
3	All India level	628	544	248457	190015	327655	156956	81068	4327

Source: www.nrega .com [accessed on 26-10-11]

REVIEW OF LITERATURE

The NREGA programme was in operation in India from 2006 onwards. There are few studies on the aspect of Social Audit on NREGA programme in India in general and in Karnataka in particular. Some important earlier studies also reviewed are Employment Guarantee Inaction by Jean Dreze (2006), Krishna Moorhty’s study (2006) Employment Guarantee and Crisis Response, BA Singh (2006) Rural Employment No Guarantee yet, Surekha’s study (2006) on gearing villages up for entitlements, had discussed the importance of the concept of EGS. Kannam KP (2005) thinking Guarantee to Human Development, the study of Menon. A.V.B. (2005) on A note on NREGS, Employment Guarantee shield by Pamela (2005), the study of Gaiha and Rahgav (2005) from work force to poverty Alleviation are mainly focused on how the programme is implemented and they are mainly concentrated on the loopholes of the EGS programme at various stages in all over the country.

Sohini Paul’s report (2008) concentrated strengthening grassroots democracy through the NREGA and the Right to Information Act. Two years of NREGA: The Road Ahead by Pramathesh Ambasta, P.S. Vijay Shankar and Mihir Shah (2008), studies show why NREGA has raised expectation like no other development programme and how it can and must be made to deliver on its massive and unrealized potential. The study identified under staffing, delays and administration, lack of peoples planning poor quality of works, inappropriate wage rates, mockery of social audit etc.

The Report (2008) by Soweaj Pragati Sahayog concentrated on the field issues of NREGA regarding partners of the National Consortium of CSOs. The Social Audit in Andhra Pradesh (2007) by Aakella and Sowmya studiedthe process and the implementation ofsocial audit under NREGA in A.P. This pointed out initial problems of the process. The study of Arora S.C (2008) analysed the Good Governance and Panchayati Raj, focused on the role of Panchayati Raj Institution In the implementation of NREGA. The public accountability and transparency in employment programmes was studied by Godbole in (2008) and also explained how best it can be made accountable through social audit.

The document of Dreze & Khera has studied the loopholes in the implementation of NREGA scheme in India. An Evaluation study of the NREGS in vijjanagaram district is a study by G. Ramachandrudu and others found that the NREGS workers are earning an annual income of Rs. 17.872. The study shows that a considerable reduction happened in migration, 47, per cent of the workers are female, and all the castes are involved in NREGA works. The study also revealed that muster rolls are promptly maintained and 85% of the respondents are satisfied with NREGS. Similarly the study focused on social audit, asset creation and also their loopholes in the NREGA programme.

In this context, the present study after reviewing the earlier studies, uses the most suitable methodology with clarity in analyzing the process and the system of social audit in the Bellary district

RATIONALE OF THE PRESENT STUDY

Six of Karnataka's 30 districts (earlier 5 districts during first phase) were included in the second phase of 130 backward districts where the NREGA was extended across the country. Bellary was one of them. Moreover, Bellary is one of the more deprived districts of North Karnataka as reported by the High Power Committee For Redressal of Regional Imbalance 2002. Besides, rationale for this present paper appears to have emerged out of the non-availability of the **Social Audit** study to reflect the accountability answerability and transparency of NREGA implementation in the process of providing livelihood security to the rural masses in the Bellary district.

OBJECTIVES

The objective of the study is to explain the process and the system of Social Audit in the operationalisation of NREGS at the gross root level in the district of Bellary.

METHODOLOGY

In this study the focus was on the opinions of the NREGS workers primarily and concerned elected members who have a direct role in the social audit process. In order to collect and gather primary data, field observation and structured questionnaire survey methods were employed. In addition, information was also collected through discussions and interviews with gross roots level beneficiaries through focus group discussions. The survey was conducted in two talukas ; Bellary and Siriguppa in July-Aug 2011. This selection of talukas is based on the following overarching parameters

1 Must be conducting Social Audit, this is to allow at least two social audit for an objective analysis.

2 must have enquiry on delay/misappropriation of funds.

3 Must have submitted Anupalana varadi after social audit /action taken report.

From each taluka, two Gram panchayths are selected based on the same criterion. Households [HHs] who are beneficiaries of NREGS and crossing the 10% participated samples at the social audit under Gram sabhe forum are randomly selected. Totally 128 beneficiaries who were both NREGS benefited and participated in social audit Gram Sabhe were selected covering illiterates 59% and 62% in Bellary and Siriguppa Talukas respectively as shown in Table 1.2.

TABLE-1.2: HOUSEHOLDS COVERED IN THE STUDY

Sl no	Talukas	No of HHs covered in Survey (participants of social audit)								
		Male				Female				
		Sc	St	Others	Total	Sc	St	Others	Total	Grand Total
1	Bellary	10	14	11	34	3	6	10	19	54
2	Siriguppa	11	12	15	38	6	15	15	36	74
		21	26	26	72	9	21	25	55	128

Source: field data.

OVERVIEW OF THE STUDY AREA**GEOGRAPHICAL LOCATION OF THE DISTRICTS**

Bellary, the more deprived district of Karnataka. Bellary district is spread from southwest to northeast and is situated on the eastern side of Karnataka state. The district is 15° 30' and 15°50' north latitude and 75° 40' and 77° 11' east longitude. This district is bounded by Raichur district on the north, Koppal district on the west, Chitradurga and Davanagere districts on the south, and Anantapur and Kurnool districts of Andhra Pradesh on the east. It comes under the administrative control of Gulbarga division and development jurisdiction of Hyderabad –Karnataka Development Board, Gulbarga. It covers an area of 8450 sq/Km. which constitutes 4.5 percent area of Karnataka.

PROCESS OF SOCIAL AUDIT IN BELLARY

The actual process of Social Audit was started during 2009-2010 in Bellary district. There are seven talukas in the districts as shown in Table 1.2. Only 4 Taluk Social Audit coordinators are working along with one district Social Audit coordinator in the Bellary district. They are appointed by Abdul Nazir Sab State Institute of Rural Development Mysore. Still Kudligi, Sondur and HB halli do not have any social audit coordinators, presently Nodal officers from ZP are looking after the social audit process in these talukas

PICTURE EMERGING FROM FIELD SURVEY**TABLE 1.3 TARGETS AND ACHIEVEMENTS OF SOCIAL AUDIT**

Sl .No	Name of Taluk	No. of GP's	Total target	Social Audit Conducted	
				2009-10	2010-11
1.	2.	3.	4.	5.	6.
1.	Bellary	40	80	40	51
2.	Hadagali	24	48	24	36
3.	H.B.Halli	22	44	16	33
4.	Hospet	23	46	20	31
5.	Kudligi	33	66	26	25
6.	Sandur	21	42	18	Nil
7.	Siriguppa	26	52	26	01
	Total	189	378	170	177

Sources: ZP NREGS cell BELLARY

It is clear from the table 1.3 that no taluka has been able to reach the target. During 2009-10 only Bellary Hadagali and Siriguppa are able to conduct only one Social Audit during the whole year. During 2010-11, Hadagali with social audit coordinator and H B Halli without social coordinator were able to reach 75% of the target. Sondur specially made no efforts in this regard. It is a mining area and least performing, comparing to other talukas, both in terms of expenditure on NREGS, employment generation for the last four years to be examined carefully.

Table 1.4 reveals the major findings of the social audit teams in the last three years. As evident from the data it is observed that Without work -payment made is a major complaint that nullifies the very objective of asset creation of NREGS. This led to the criminal case booked of course against officials and many agitations are held against officials (Bellary in Aug 2010). For all mishappenings GP secretary/PDOs-- recently the concerned were reported to be made responsible. Are there not any other hands involved? Whether Work Order/ Completion Reports are not examined by the VMC before signed?. What is the role of higher authorities in such a situation has to be examined carefully. After Mandakini (PDO)-suicide case at Gulbarga recently, the tension between the Officials and Gram Panchayth members continued even after the assurance ,to safeguard the interests of PDOs, made by the RD & PR Mnister Government of Karnataka. Therefore there has to be a fundamental change in the way the Gram Panchayth function, if they have to work without being harassed, the concerned elected representatives should be made accountable for the decision and action taken by the GP and the funds spent. Right now PDO only are made responsible for this. Hence it appeared that whenever fund misuse is reported, senior officials usually take action against only PDOs and elected representatives go untouched.

Usually all documents are signed by the concerned PDOs, and they will be produced in court if there is any enquiry into irregularities. Since elected representatives do not sign any financial documents, claiming no responsibilities, they continue to harass PDOs as felt by the PDOs association {29th oct 2011 The Hindu}. As such it appears that it is the small vehical usually gets more damaged in the big accidents.

TABLE-1.4 MAJOR FINDINGS OF SOCIAL AUDIT TEAMS DURING EACH OF THE LAST THREE YEARS TALUK WISE

Sl no	Name of Taluk	Findings	Actions/progress	Total amount of funds misused[Rs]
1	2	4	6	7
1	Bellary	Payment made for incomplete work,	Enquiry in progress	173229
2	Hadagali	Without work payment made Excess job card issued,	Enquiry in progress	533228
3	Hospet	Without work payment made, Work allocation 3 stages photos not submitted.	Enquiry in progress	150000
		Incomplete work but payment made fully,	Enquiry in progress	100000
4	Siriguppa	Work allocation 3 stages photos not submitted, Without work payment made	Criminal case booked	708400
		Without work payment made,	Criminal case booked	1200000

Sources: compiled from ZP and field data

Some of the facts about two selected talukas progress after social audit are presented in the form of the following table 1.5 below

TABLE 1.5

Sl no	Talukas	Amount of fraud detected	Recovery percentage
1	Bellary	173229	Nil
2	Siriguppa	12708400	56

Source: field survey as on 26 JU 2011

After collecting the primary data a SWOT analysis has been conducted, the following is the result of this SWOT analysis.

STRENGTHS OF SOCIAL AUDIT

- 1 Updating the information on NREGS both at the Gram Panchayth and MIS level, for the sake of social Audit by the Gram Panchayths to place before Gram Sabhe.
- 2 Social Auditors coordinators are able to educate to some extent at least in the gram Sabhe, on those issues of entitlement, which are base for the success, involved in Nregs Exmpl; Why delayed in issue of job cards and guaranteed 100 days of employment, unemployment benefit etc. More than 80% of beneficiaries in both the Talukas heard for the first time on different {learnt} provisions of the Act.
- 3 Wage seekers irrespective of their socio-economic conditions united while questioning the authorities on the delayed payments. {at Kappagal Gram panchayth during Gram Sabha}
- 4 This led to the involvement of local organizations in questioning the local authorities in support of wage seekers as found in the Bellary talukas Gram Panchayth.
- 5 Nominal Muster Roll is thoroughly examined by the gathered people in the gram sabha in both the talukas, which is the base for the success of the Nregs payments.
- 6 Implementing machinery slowly disinterested in implementation of MGNREGS and due to fear to be questioned in future Gram Sabhes as felt by beneficiaries.
- 7 Overall involvements of PRIs is satisfactory although no cent percent presence of Gram Panchayth members in both the taluka in the Gram Sabhe

WEAKNESSES

- 1 Awareness is less among Workers on their entitlements and generally low among gathered people on different entitlements under the act.
- 2 Most of the workers discussed the only delay in their wage payments. There are many more things to discuss.
- 2 Beneficiaries have very little knowledge about unemployment allowances, compensation in case of delay in wage disbursement, extra wage for distant works etc.
- 3 The level of awareness in all the aspects discussed above is less in women members than the men.
- 4 The data collected during the survey shows the poor status of vigilance and monitoring of works by the panchayth representative. Few members of GP/VMC/SAC are not attending the Gram Sabhe and high absence comparatively in Siriguppa Taluka Gram sabhes..
- 5 Surrounding villages of the concerning Gram Panchayth have no knowledge of date of Social Audit in both the talukas.
- 6 Workers are not able to cross check their muster rolls and job cards entries.
- 7 In Bellary district all the GPs have internet facility, due to inadequacy of the communication infrastructure GP officials has to shuttle between the Taluk Headquarters and the GP office every day.

OPPORTUNITIES

- 1 Civil society could play important role in awareness generation about Social Audit.
- 2 Greater use of technology/video recording to infuse more transparency, accountability during Gram Sabhe.
- 3 Social Audit machinery should be delinked from the ZP otherwise they control and direct their functions.
- 4 Permanent and independent social audit machinery will be more fruitful.
- 5 Muster Roll and Job cards must be reader-friendly, which helps to disclose everything in the Gram Sabhe
- 6 Training programmes for the competencies required for effective planning, public disclosure, use of RTI act and Social Audit etc. Even improving Communication infrastructure in village also help in this direction.
- 7 There is a need to enhance understanding among the workers {and officials} on the link between work accomplished and the payments. Though issue raised in Gram Sabhas, but many times not clarified, as found in survey. This is important as MGNREGS envisages 'piece rate wage payment, which means wages are paid according to the quantum of work accomplished.

THREATS

- 1 The very sorry status of Social Audit coordinators is that they are pressurized to write Anupalana Varde / Action Taken Report for the faults found by themselves in the Gram Sabhe.
- 2 It has become very mechanical /and routine to conduct such social Audits.
- 3 Village social auditors are not at all appointed, to monitor the audit process.
- 4 It is found that no Gram Sabhe had done social auditing of shelf of projects under NREGS. No serious matters discussed other than delay in wage payments.

SUMMARY AND CONCLUSIONS

National Rural Employment Guarantee Act (NREGA) is the most significant act in the history Indian polity in many ways like grass-root level participation of every citizen and beneficiary through democratic process, multi-layered social audit, transparency mechanism by involvement of civil society, comprehensive planning at village level towards sustainable and inclusive growth etc. The need for social Audit arises in view of examining the expenditure of that programme incurred is whether commensurate with the quality and quantity of assets created or any misappropriation of public funds etc. Social audit aims to supplement and not supplant. This enhances the possibility that development expenditure is directed towards people –determined priorities and that leakage of resources is checked. Overall objective of social audit is to empower through better participation in the decision making as well as monitoring the implementation of the

activities by way of ensuring better quality works. Empowering Gram Panchayths, keeping in view the present pressure in Karnataka, by making elected representatives accountable for their actions will not only ensure economic development but also bring relief on the overburdened officials.

The study strongly feels that social auditors must be independent from the implementing agency. It should be delinked from the ZP authorities. To be more effective, they must have the right to seek clarifications from the implementing agency about any decision making, activity, scheme, income and expenditure incurred by the agency. The study also stresses that social auditors must be well paid.

A hindrance to social audit is the lack of awareness among the community as well as officials on the steps and process to be followed and same needs to be addressed immediately. Anupalana varade /action taken Report should be made available to all in the next Gram Sabhe. Instead of becoming a postmortem exercise it should act as a preventive mechanism to check the wrong doings of the system.

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PERCEPTION AND PRACTICES OF INDIVIDUALS ON PUBLIC HEALTH CENTRES

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ABSTRACT

Health is an important determinant of well-being. Good health is more important than any other aspect of life. Personal health behaviours contribute to over 50 percent of all major causes of death. The primary health care services for a specific target population is to understand how that population reacts to the mix of services provided and the way in which the delivery system is organized. Hospitals are a very important part of any health system. The personnel of a hospital to restore health of sick and injured people. The establishment of PHC ensures the peripheral level to render preventive and curative medical services to the rural community. Health status of a population is shaped by a variety of factors like food, water, sanitation, household income, education and availability and accessibility to health care services. Hence a study of the health status as a population may provide another dimension to their socio-economic well-being.

KEYWORDS

health, health care services, preventive measures, welfare program.

INTRODUCTION

A healthy person is one who is considered to be free of disease or illness. In the early 1900's, the leading causes of death were infectious disease such as bacteria and viruses. With most infectious diseases under control diseases that can be directly linked to life-style are now among the leading causes of death. Today, poor health is highly related to live and many of the diseases can be avoided or treated effectively. Therefore the health focus of today is on wellness a positive, whole – health approach includes physical, intellectual, social and emotional well-being.

Good health is more important than any other aspect of life. All the riches or fame or popularity in the world cannot buy the happiness or satisfaction that being well provided. Treasure the health and keep it safe by selecting and keeping trusted health-care professionals. The people in villages, who mostly economically backward, depend Primary Health Center (PHC) for the health care because of its free treatment or nearby and easily accessible for them. Its establishment ensures the peripheral level to render preventive and curative medical services to the rural community. The primary health care and sub-centre should include certain basic health services including education on prevailing health problems and the method of identifying, preventing and controlling them, adequate supply with regard to proper nutrition, supply of safe water and basic sanitation, maternal and child health care including family planning, immunization against the major infectious diseases, prevention and control of local endemic diseases and injuries, promotion of mental health and provision of essential drugs. These health activities are often categorized as curative, preventive and primitive service. These are the actual programmes of PHCs and sub-centers. The present study is conducted with the objectives relating to know the health conditions of the people in Veppalodai village; to analyze people's awareness on health related aspects; to know the awareness of the respondents towards the preventive measures undertaken for diseases; and to analyze the demographic factors of the respondents in the treating their diseases.

MATERIALS AND METHODS

The research is basically focused on an awareness and utilization of PHC in Veppalodai village, Thoothukudi District, TamilNadu, India. It encompasses both primary and secondary data. The primary data were collected through a well structured interview schedule. The secondary data relating to health care services was obtained from text books, journals and websites. The primary data were collected from about 200 respondents who reside in the study area by applying simple random sampling technique. The collected data have analyzed by using appropriate statistical tools like ratio analysis and chi-square test for arriving conclusions.

HEALTH BEHAVIOUR

Personal health behaviors contribute to over 50 percent of all major causes of death. That is the personal life-style greatly affects the quality of health. Over the years, research has identified a variety of behaviors that promote good health and tend to increase the average length of life. These behaviors include sleeping 7

to 8 hours daily; eating breakfast daily; rarely eating between meals; maintaining a healthy weight; reducing fat and salt in meals; getting regular physical exercise; avoiding the use of tobacco and alcohol; and appropriately using only legal medications.

The National Health Policy (1983) of India reiterates India's commitment to attain health for all. Lots of efforts have been made towards this end, however a number of factors like high population growth, poverty, illiteracy, lack of resources etc. make it difficult to reach anywhere near the above objective. In the Twenty first century, still it witnesses high rates of infant and child mortality, low expectation of life at birth etc.

RESULTS AND DISCUSSIONS

The PHC renders many fold services to the people in a village. It deals with maternity and child health and family planning; improvement of environmental sanitation with priority for providing safe drinking water, disposal of human wastes; collection and reporting of vital statistics; control of surveillance of communicable diseases; providing health education and National health programmes; training for Villagers, and providing services through health guide, health workers and health assistant. In spite of providing these services, the individuals have to bear much amount if they opt private hospitals for treatment. The cost of ill health is increasing not only by the cost of curative care but also indirect costs like productivity loss, loss of man labor days and so on. Also ill health is one among the major determinants of poverty. Gun war Nugroho (1997)

Again the poor economic status of the house holds is the major cause for poor status of child health along with poor literacy, lack of infrastructure in sufficient public health services etc. Hence radical policy changes on allocation of resource and power is an immediate concern for the improvement of child health and to reduce the rural and urban disparities. Among the poverty stricken house holds women and children are serious victims of ill health. This can tackle only by taking effective measures like increasing family income, housing, water supply, sanitation, food and environmental safety Thiruvankitaswamy (1997). Generally the people in villages do not use the hospitals for taking treatment of diseases rather they rely on native treatment. It is framed the null hypothesis that $H_0(1)$ there is no significant difference between the gender of the respondents and taking treatment in PHCs. At 5 percent level of significance, the critical value of X^2 is 7.815. Since the computed value of 23.00 is greater than critical value, the null hypothesis is rejected and concluding that gender does not influence the individuals to take treatment in PHCs.

A well known proverb of "Prevention is better than cure" is applicable for all. In order to check whether the people in sample area is taken preventive measures in treating the diseases. More than 56 percent of male respondents took precautions while more than 65 percent of female respondents least bother about the preventive measures like maintaining cleanliness at home and environment and taking immediate treatment when symptoms are seen; lack of continuous exercise; yearly medical check up; diet control and so on. It is worth mentioning to recall the words of Chopra (1996) that the alarming rise in various deadly diseases like Heart Attack, Cancer, AIDS etc., in recent years, the author stresses the need for taking preventive measures including creating awareness among the masses. Tobacco, according to him, is the most prevalent and the biggest preventable menace to mankind.

TABLE – 1: TREATMENT OF DISEASES

Figures in parentheses indicate percentage

Diseases	PHC	Private	G.H.	Native Treatment	Total
Fever / Headache	164(71.92)	6 (26.31)	4 (1.75)	-	228
Running nose / cold	133 (65.51)	47(23.15)	23(11.33)	-	203
Cough	152(69.40)	55(25.11)	12(5.47)	-	219
Fracture	6(30)	7(35)	4(20)	3(15)	20
Stroke	13(59.09)	6(27.27)	3(13.63)	-	22
Skin Diseases	19(82.60)	2(8.69)	2(8.69)	-	23
Poor Vision	2(7.40)	11(40.74)	14(51.85)	-	27
Stomach Ache	149(65.06)	63(27.51)	17(7.42)	-	229
Body Pain	49(51.04)	18(18.75)	10(10.41)	19(19.79)	96
Joint Pain	4(25)	-	9(56.25)	3(18.75)	16
Ulcer	2(50)	-	2(50)	-	4
Cancer	1(100)	-	-	-	1
T.B.	1(50)	-	1(50)	-	2
Pregnant Women Health Checkup	33(50)	11(16.66)	22(33.33)	-	66
Diabetes	4(66.66)	-	2(33.33)	-	6
Blood Pressure	6(50)	2(16.66)	4(33.33)	-	12
Delivery	61(84.72)	8(11.11)	3(4.16)	-	45
General Health Checkup	13(28.88)	5(11.11)	27(60)	-	72
Family Planning	14(73.68)	2(10.52)	3(15.78)	-	19
Breathing Trouble	5(62.5)	2(25)	1(12.5)	-	8

The total family members of the sample respondents are 1318 who use PHC for all diseases. It is observed from the study that the most affecting diseases are fever and headache, running nose and cold and cough which are treated in the PHCs. Besides stomach pain which affects more people is another disease treated in PHC. The problems like poor vision, joint pain and general health checkup are mostly treated in G.H. Native treatment applied for fracture, body pain and joint pain to some extent. Inference can be drawn from the analysis that almost all the respondents are widely using the PHC for taking treatment. In the absence of PHCs, people rely on private hospitals which provide high – tech facilities with abundant fees. Reisheda Bhagat (1995) in order to provide better service major health care initiative by about 130 private hospitals that have entered into a joint venture with a US based Medical University. This will ensure said objective.

Over all opinion of the respondents on the function of PHC is favorable for it. The respondents who are illiterates do not support that the function of the PHC is worst. Certainly, the function of the PHC is very good as much as 42.85 percent of respondents of school level followed by illiterates accounting for 28.84 percent. It should be noted that very meager number of five respondents are not satisfied with the functions of PHC. Rest of 195 respondents is supporting the PHC's commendable functions. In nutshell more than 95 percent of the respondents are overwhelming the functions of the PHC. Further most of the respondents are widely used the PHC for treatment irrespective of their age group. An attempt is taken to know whether the people in the sample area take treatment for curable diseases. In this area, though it is a village, people do not take native treatment rather depending either PHC or private hospitals.

It is framed the null hypothesis that $H_0(2)$ there is no significant difference between the educational qualifications of the respondents and a place where they take treatment. At 5 percent level of significance, the computed value of 20.62 is greater than critical $X^2=12.59$; the null hypothesis is rejected implying that there exists significant difference between the education levels of the respondents and their treatment taken. People pay due importance for their health. If any one suffers from any particular disease he wants to take treatment from the specialist. The researchers attempted to test the awareness of the respondents on various specialists visited the hospital. Their awareness on the specialists are: Gynecology, Pediatrics, Orthopedics, Surgery and E.N.T.

TABLE 2: TYPE OF SPECIALISTS' VISIT

Type of Specialists	Frequency	Percentage
Gynecology	59	44.02
Pediatrics	14	10.44
Orthopedics	26	19.40
Surgery	2	1.49
E.N.T	33	24.62
Total	134	100

About 44 percent of the respondents aware of gynecology specialist visit to the PHC. Another 24.62 percent of the respondents know E.N.T. specialists. More than 19 percent of the total respondents identified the visit of orthopedics, while only 10.44 percent of the respondents have known the pediatrics specialist's visit. The surgery specialist's visit to PHC is well aware to only 1.49 percent of respondents. Indeed by-and-large it is more accessible and known specialist is gynecologist. Even there seems a more crowd in PHC which does not mean that all are satisfied with the services provided by it. As far as PHC in Veppalodai is concerned, it seems myriad patients visited every day, what they feel about the services of the centre is analyzed in table 3.

TABLE 3: LEVEL OF SATISFACTION

Education	Highly Satisfied	Satisfied	No Opinion	Not Satisfied	Highly Not Satisfied	Total
Illiterate	27	35	0	1	0	63
	(42.85)	(55.55)	(0)	(1.58)	(0)	
School Level	28	54	3	0	0	85
	(32.94)	(63.52)	(3.52)	(0)	(0)	
College Level	13	32	4	2	1	52
	(25)	(61.53)	(7.69)	(3.84)	(1.92)	
Total	68	121	7	3	1	200

Satisfaction of the patients transcends the way in which they treated in the center, providing enough amounts of tablets, etc. The respondents who are under illiterate category are highly satisfied with the services of PHC at 42.85 percent. However in other two categories namely respondents with school level of education and collegiate are opinioned satisfaction at 63.52 percent and 61.53 percent respectively. It is noted that the persons who do not satisfied and highly - not - satisfied are very minimal. No arguable that more than 94.5 percent of the respondents in total are satisfied with the services of PHC. The establishment and functioning of this center is more useful for these people with disseminating some additional message to them.

CONCLUSION

From the study it is clear that health status of the people in Veppalodai village is considerably good in the sample respondents who widely use PHC for treating almost all diseases. However their awareness on the specialists' visit to PHC is somewhat less in number. It should be taken due consideration in spreading information regarding availability of specialists in PHC among the people. Again the basic need indicators such as health and education are closely related with each other. The Government should ensure the increased level of health status, which will definitely bring in to the goal of "Health for all" and it will go a long way in meeting the social needs of people.

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THE EFFECT OF MERGERS AND ACQUISITIONS ON SHAREHOLDERS' WEALTH – AN EMPIRICAL ANALYSIS

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ABSTRACT

Corporate Restructuring has become a major component in the financial and economic environment all over the world. Industrial restructuring has raised important issues for business decisions as well as for public policy formulation. Since 1991, Indian industries have been increasingly exposed to both domestic and international competition and competitiveness. Hence, in recent times, companies have started restructuring their operations around their core business activities through Mergers and Acquisitions (M & As). But M & A is an area of potential good as well as potential harm in corporate strategy. It is necessary that management always pursues policies so as to maximize the shareholders' wealth and ensures that shareholders do not suffer due to wealth decreases as a result of their company merging with other companies. Therefore, an attempt has been made to analyze the security returns and to find out the net wealth increase or decrease to the shareholders. Hence the proposed evaluation study on mergers and acquisitions of manufacturing companies. In India, there are totally 58 manufacturing companies which have undergone mergers and acquisitions during three years pre and post mergers and acquisitions periods. Thirty percentage from the total population was taken as sample size (i.e. 17 companies out of 58). The present study is mainly based on secondary data. In order to analyze the effect of share price reaction resulting from M & A, Cumulative Abnormal Returns, Market Model and Market Adjusted Model have been used as tools of analysis.

KEYWORDS

Corporate Restructuring, Cumulative Abnormal Returns, Market Adjusted Model, Market Model, Mergers and Acquisitions.

INTRODUCTION

The Mergers and Acquisitions (M&As) were, in the beginning, prevalent only in the economically advanced Western Countries but they have become relatively popular in India in recent times, particularly after the economic reforms of 1991. Though the enthusiasm towards M&As of firms in any country can be attributed to economic and cultural characteristics of the people of that country, M&A has become mandatory for many industries in our country. It is important to note that corporate sectors have come to face more intensive competition in domestic market after India has embarked on financial deregulation and liberalization. The M&A has become an alternative strategy for many companies in our country to avoid competitiveness, to gain latest technology and to achieve internal growth. Merging of two firms, involving the same nature of business activity, has nowadays become popular in India. Many researchers worldwide have empirically found that the shareholders' wealth of the acquiring firms decreased while it increased in the case of acquired firms. A company may grow internally, or externally. The objective of the firm in either case is to maximize the wealth of the existing shareholders. Most corporate growth occurs by internal expansion, which takes place when a firm's existing divisions grow through normal capital budgeting activities. The mergers, takeovers, divestitures, spin-offs and so on, referred to collectively as **Corporate Restructuring**, have become a major trend in the financial and economic environment all over the world. The industrial restructuring has raised important issues both for business decisions as well as for public policy formulation. On the more positive side, M&As may be critical to the healthy expansion of business firms as they evolve through successive stages of growth and development. The successful competition in international markets may depend on capabilities obtained in a timely and efficient fashion through M&As. The competitiveness has become imperative for survival. Hence, in recent times, companies have started restructuring their operations around their core business activities through M&As. Indian manufacturing industry is classified into seven categories - Food & Beverages, Textiles, Chemicals, Non-Metallic Mineral Products, Metal and Metallic Products, Machinery, Miscellaneous Manufacturing and Diversified.

STATEMENT OF THE PROBLEM

It is true that dramatic events like mergers, takeovers, restructuring and corporate controls occupy the Indian business newspapers almost daily. Further, they have become central focus of public and corporate policy issues. Some assert that the activities of mergers and acquisitions represent a new force in creativity and productivity. Some others view it as a blight on our economy. Regardless of these views, they do represent a major trend in the contemporary and economic environment. This is an area of potentially good as well as harm in corporate strategy. If management pursues policies of shareholders' wealth maximization, then shareholders should not suffer as a result of their company merging with other companies. Therefore an attempt has been made to analyze the security returns in order to find out whether there was the net wealth increase or decrease to the shareholders. Hence the proposed evaluation study on mergers and acquisitions. This study attempts to assess the success or otherwise of mergers and acquisitions as a strategy.

OBJECTIVES OF THE STUDY

The present study proposes to study the reaction of security prices to the announcement of merger and acquisition decision.

HYPOTHESES OF THE STUDY

The present study tests the following null hypothesis.

There is no significant change in the shareholders' wealth of acquiring firms in the event of mergers and acquisitions.

METHODOLOGY**SELECTION OF THE SAMPLE**

While selecting sample companies, all industries coming under manufacturing sector were taken into consideration to constitute the total population. In the manufacturing sector, there are totally 58 companies which have undergone mergers and acquisitions during three years pre mergers (i.e. is 2000, 2001, and 2002) and post mergers three years (i.e. 2003, 2004 & 2005). The sample companies were identified at random with the help of Lottery Method and accordingly 30 per cent from the total population was taken as sample size (i.e. 17 companies out of 58). The details of sample size are given below.

S. No.	Name of the Sector	Total Merged Companies	Sample Merged Companies (30%)
1.	Food & Beverages	8	2
2.	Textiles	11	3
3.	Chemicals	11	3
4.	Non-Metallic Mineral Products	4	1
5.	Metal & Metallic Products	9	3
6.	Machinery	12	4
7.	Miscellaneous Manufacturing & Diversified	3	1
Total		58	17

Source: Prowess Database Software in CMIE.

SOURCE AND COLLECTION OF DATA

The present study is mainly based on secondary data which were collected from the Prowess Corporate Database Software. Further, the available secondary data were collected from the Annual Reports, Published Research Reports by various industries, and research organization, books, periodicals and websites like www.sebi.gov.in, www.indiaonline.com and www.rbi.org.

TOOLS USED FOR ANALYSIS

The present study has analyzed share price reaction, by using the following tools.

a) Standard Event Study Methodology has been adopted to determine the Abnormal Returns (ARs) and Cumulative Abnormal Returns (CAR) for the sample company involved in acquiring other companies. To estimate the acquiring companies' abnormal returns (AR_{it}), the following two different methods, Market Model and Market Adjusted Returns Model have been used. The above two event study methods are briefly discussed below.

b) The *Market Model* assumes that stock returns are determined by the ordinary least squares equation and abnormal returns are calculated by using parameters estimated from this model. The equation for Market Model Abnormal Returns is given by

$$MMAR_{it} = R_{it} - \alpha_i - \beta R_{mt}$$

where, MMAR_{it} is the Market Model Abnormal Returns on security 'i' over time 't'

R_{it} is the returns on security 'i' at time 't'

R_{mt} is the market returns (BSE 100) at time 't'

α & β are the OLS parameters estimated for security 'i' over the 90 trading days before and 30 days after the merger events.

c) The *Market Adjusted Returns Model* assumes that ex ante and expected returns are the same and equal for all companies in any period and equal to the expected returns of the market index. The Market Adjusted Returns Model could also be considered as a special case of the Market Model with the parameters

$\hat{\alpha}_i = 0$ and $\hat{\beta}_i = 1$. The equation for Market Adjusted Abnormal Returns ("MAAR") is:

$$MAAR_{it} = R_{it} - R_{mt}$$

where, MAAR_{it} is the market adjusted abnormal returns on security 'i' over time 't'

R_{it} is the returns on security 'i' at time 't'

R_{mt} is the market returns (BSE 100) at time 't'

ANALYSIS OF EFFECT OF M&A ON SHAREHOLDERS' WEALTH – AN EMPIRICAL ANALYSIS

As stated earlier, the effect of merger and acquisition of these sample firms on their shareholders' wealth have been empirically analysed with the help of Abnormal Returns (AR) and Cumulative Abnormal Returns (CAR) arrived at through Market Model (MM) and Market Adjusted Model (MAM). The analysis is done as below:

1. Company-wise Mean Returns, Standard Deviation (Unsystematic Risk) and Beta (Systematic Risk) for Normal and Abnormal Days,
2. Distribution of Cumulative Abnormal Returns (CAR) BEFORE Merger and Acquisition Period- Market Model,
3. Distribution of Cumulative Abnormal Returns (CAR) AFTER Merger and Acquisition Period- Market Model,
4. Distribution of Cumulative Abnormal Returns (CAR) BEFORE Merger and Acquisition Period- Market Adjusted Model,
5. Distribution of Cumulative Abnormal Returns (CAR) AFTER Merger and Acquisition Period- Market Adjusted Model,
6. Average Abnormal Returns and Cumulative Average Abnormal Returns Industry-wise,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for FOOD Sector- Market Model and Market Adjusted Model,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for TEXTILES Sector- Market Model and Market Adjusted Model,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for CHEMICAL Sector- Market Model and Market Adjusted Model,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for METAL Sector- Market Model and Market Adjusted Model,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for MACHINERY Sector- Market Model and Market Adjusted Model,
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for NON-METAL & OTHERS Sector- Market Model and Market Adjusted Model, and
 - Daily Average Abnormal Returns and Cumulative Average Abnormal Returns for ALL Sectors- Market Model and Market Adjusted Model
7. Cumulative Abnormal Returns for Various Event Windows
- Company-wise Abnormal Returns for Various Time Period Surrounding the Announcement Day of Merger & Acquisition During the Period, 1999-00 to 2003-04- Market Model and Market Adjusted Model, and
- Sector-wise and all sectors' Abnormal Returns for Various Time Period Surrounding the Announcement Day of Merger & Acquisition During the Period, 1999-00 to 2003-04- Market Model and Market Adjusted Model.

COMPANY-WISE MEAN RETURNS, STANDARD DEVIATION (UNSYSTEMATIC RISK) AND BETA (SYSTEMATIC RISK) FOR NORMAL AND ABNORMAL DAYS

The company-wise average returns, unsystematic risk (standard deviation) and systematic risk (beta) for normal days and abnormal days have been presented in **Table-1**. The perusal of the above **Table** reveals that the mean returns is positive for most of the sample firms during normal days whereas it is negative for abnormal days. That is, for most of the sample acquiring firms, the mean returns is negative during abnormal days. However, the volatility in the price movement is less during abnormal days compared to that during normal days as the standard deviation is comparatively less for many sample firms for event period to non-event period. Further, the stock price movement is more prone to systematic risk during normal days than during abnormal days as the beta coefficient for many of the sample acquiring firms is higher for normal days. The negative beta coefficient on normal days and positive coefficient on abnormal days for Forbes, Modirub, Matrix and Skanska have indicated that their stock prices behaved poorly during normal days and managed to do well after the leakage of information about M & A by these firms.

DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) BEFORE MERGER AND ACQUISITION PERIOD- MARKET MODEL

The cumulative abnormal returns (CAR) for 17 acquiring firms under study for 15 day event period before merger and acquisition (M & A) as well as on the day of the press report (official) of the announcement of M & A based on market model (risk adjusted model) are presented in **Table-2**. It is surprising to see that all acquiring firms except MODIRUB and ALFALVL experienced negative abnormal returns in all 15 days before the announcement event of M & A. That is, just 2 out

of 17 acquiring firms experienced positive CAR over the event period (-15,-1) before announcement of M & A. As the abnormal returns is the residual returns after removing the effect of systematic and unsystematic risk for the acquiring firms, it can be perceived from the above results of negative CARs that the earlier leakage of information about M & A of these firms might have induced the market, which reacted negatively to it.

On the announcement day, only one acquiring firm, MODIRUB experienced positive CAR. For others, the CAR was negative on day 0. There was negative reaction in the market on the day of official announcement of M & A with regard to acquiring firms. The decline in shareholders' wealth was 8.68 per cent for CADBUR, 98.54 per cent for SAPTAR, 58.56 per cent for MYFELLOW, 47.52 per cent for DCLPOLY, 44.66 per cent for FORBES, 8.78 per cent for CASTROL, 8.75 per cent for MATRIX, 8.01 per cent for SANDVIK, 21.74 per cent for WARTSILA, 13.44 per cent for INDALUM, 13.80 for PHILIPS, 1.44 per cent for OTIS, 0.96 per cent for SKANSKA, 19.19 per cent for SRIVISHN and 25.95 per cent for FOSECO during the event period (-15, 0).

On the other hand, the shareholders' wealth of MODIRUB increased by 4.96 per cent on the event day (on the day of formal announcement of M&A) from its wealth level on day -15. However, the shareholders' value declined by 2.11 per cent on day 0 (4.96%) from its level on day -1 (7.07%), indicating that market reacted negatively to the day of formal M&A announcement for MODIRUB also. Similarly, the CAR of ALFALVL was positive for event period from -15 to -6 days of formal announcement and oscillating between positive and negative since then until day 0. However, on day 0 (announcement day), the decline in shareholders' value was very limited (-0.01%) and nearly '0'. The above analysis clearly demonstrates that the market reacted negatively to the leakages of information as well as formal announcement of M & A by 15 out of 17 acquiring firms under study. Only in the case of acquiring firm MODIRUB, the event had positive effect on shareholders' wealth while the market was silent towards M&A announcement of ALFALVL.

DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) AFTER MERGER AND ACQUISITION PERIOD- MARKET MODEL

The post announcement scenario was the same as that of pre-event period for all the 17 acquiring firms in terms of CAR. The quick perusal of the results presented in **Table-3** reveals that the CAR was negative for almost all acquiring firms under study over event periods from 1 to 15 after formal (official) announcement (event day). Even for MODIRUB, which experienced positive CAR over 15 days event period before announcement and also on the event day, it was negative at 2.03 per cent on day +1 and there was an increase in negative CAR which stood at -20.31 per cent on day +15 despite its recovery on day +3 (0.16%) and day +12 (2.59%). ALFALVL, whose CAR was almost zero on day '0', also showed negative CAR on day +1 (-0.33%) and on day +15 (-0.67%). In all, the CAR was negative over (-15, +15) event period for all 17 acquiring firms. Among the 17 acquiring firms, FOSECO experienced the highest negative CAR of 94.96 per cent, followed by SAPTAR with 94.05 per cent, DCLPOLY with 89.62 per cent, MYFELLOW with 86.21 per cent and FORBES with 62.20 per cent, indicating huge decline in shareholders' wealth of these acquiring firms. In the case of CASTROL, PHILIPS, OTIS, SKANSKA, MODIRUB, SANDVIK, WARTSILA, INDALUM, SRIVISHN and MATRIX, the CAR for 31 days event period was negative but moderate and ranging between minimum of 12.83 per cent and maximum of 34.43 per cent for the event period (-15, +15). At the same time, the CAR over the event period (-15,+15) for ALFALVL's was meager (-0.67 per cent), which in turn reveals that shareholders' wealth of this acquiring firm was not affected by the M&A.

DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) BEFORE MERGER AND ACQUISITION PERIOD- MARKET ADJUSTED MODEL

The CARs for sample acquiring firms based on Market Adjusted Model for days -15 to +15 are presented in **Table-4**. The Market Adjusted Model assumes that ex-ante and expected returns are the same for all firms and in any period it is equal to the expected returns of the market index. That is, it assumes that unsystematic risk is nil and systematic risk, that is, market risk is same for all firms during a normal period. From the above Table, it can be observed that 6 out of 17 acquiring firms' CAR was positive on day -15 and number of companies with positive CAR increased to 11 over 13 days of trading period (-15, -3) before M&A announcement. This shows significant positive effect on shareholders' wealth on day 3 before announcement. But, number of positive companies declined to 7 on day -2 and subsequently increased again to 10 on day -1. However, on announcement day, only three firms, namely, MYFELLOW (20.86%), OTIS (2.27%) and SRIVISHN (0.55%) out of 17 acquiring firms experienced positive CAR, which in turn reveals that the official announcement of M&A reduced the wealth of acquiring firms in general.

DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) AFTER MERGER AND ACQUISITION PERIOD- MARKET ADJUSTED MODEL

It can be observed from the results of CAR presented in **Table-5** for post-announcement event period that the number of companies with positive CAR increased to 7 on day +1, the very next day of the formal announcement. There were 5 companies on day +5, 8 on day +10 and again 5 companies on day +15 with positive CAR, indicating the dominance of negative CAR companies in all the event period after announcement. This exposes the fact that the market reacted negatively towards acquirers, which resulted in the downfall in the shareholders' wealth. On the other hand, observation of CAR for event period (-15, +15) based on market model (**Table-3**) and market adjusted model (**Table-5**) indicates that the CARs for acquiring firms based on market adjusted model are higher than that of market model. That is, negative CAR was less and positive CAR was more for the acquiring firms if ex-ante and expected returns are the same for all firms and in any period it is equal to the expected returns of the market index. In other words, it can be interpreted that the acquiring firms' CAR over event period would be less if there was no unsystematic risk for the firms and all the firms' systematic risk was 1. Hence, CAR based on market model clearly reveals that the decline in shareholders' wealth of acquiring firms might be mainly due to the internal risk (unsystematic risk) of these firms. This is because a well-known internal risk of the firms arising out of M&A would create an uncertainty among the investors and push them to presume that there would be dilution of ownership due to merger and acquisition of other firms. The above ambience would upset the market and adversely affect the shareholders' value.

AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS – INDUSTRY WISE

As the size of acquisitions may vary across industries, this study attempts to determine whether the industry-wise M & A makes any difference in the abnormal returns. Hence abnormal returns of the acquiring firms under each industry, namely, Food, Textiles, Chemical, Metal, Machinery and Non-Metal & Others, are averaged for each day of event period. In order to provide additional insight into the pattern of abnormal returns over the event period, average abnormal returns are cumulated and examined. The industry category-wise results of AR and CAR based on market model and market adjusted model along with test statistics have been presented from **Table-6.a** to **Table-6.g**.

An examination of **Table-6.a** throws light on the Abnormal Returns (AR) and CAR for acquiring firms under food sector and shows statistically significant negative risk adjusted (market model) abnormal returns (AR) around the announcement period. The AR of acquiring firms in food sector is positive only on days -14, -3 and +3 during the event period. For the remaining days during the event period, AR is negative. Further, AR on day -2, day 0 and on day 1 is -4.98 per cent, 4.61 per cent, -4.60 per cent and 4.45 per cent respectively with corresponding t-statistics values of -2.11 ($p < 0.05$), -1.95 ($p < 0.10$), -1.95 ($p < 0.10$) and -1.89 ($p < 0.10$), which are significant at required conventional level. Also, negative ARs on days +5 (-4.46% $\rightarrow t = -1.89$; $p < 0.05$), 13 (-6.45% $\rightarrow t = -2.74$; $p < 0.01$), 14 (-4.67% $\rightarrow t = -1.98$; $p < 0.05$) and 15 (-6.10% $\rightarrow t = -2.59$; $p < 0.01$) following announcement date are found to be significant. On the other hand, the results show that Abnormal Returns for days from 3 to 15 preceding the announcement date are found to be almost equal to zero, as they are not statistically significant from zero, indicating that the market did not anticipate the acquisition event in respect of the acquiring firms under food sector even three days before the formal announcement. Only around the announcement period, that is two days before and one day after announcement, the market responded significantly to M&A of the acquiring firms under food sector. Subsequently the market failed to exhibit any significant reaction to the M&A for all days except day 5 up to 12 in the post-event period. However, on days 13, 14 and 15, the market reacted unfavourably to the sample firms involved in M&A under food sector.

The perusal of the CAR results based on Market Adjusted Model (MAM) for sample acquiring firms in food sector, as seen from **Table-6.a**, shows that both AR and CAR are comparatively less than that of based on Market Model (MM) (Risk adjusted model) for most of the event days. Particularly CAR based on MAM is much lower than that of MM on all event days. The positive ARs based on MAM are found for more number of days in event periods than that of based on MM. In pre-period, MAM based AR is significantly negative on day -2 and in the post-period, significantly positive on day +3 and again significantly negative on days +13 and +15. The significant negative AR for just 3 days out of 31 days event period might have been due to over-performance of the market itself and not due to overreaction to the M&A. Similarly, the positive AR for just one day out of 31 days event period might have been due to underperformance of the market itself and not due to its under-reaction to the M&A. Further, accumulation of MAM based CAR is insignificant for the event days from -15 to +7 and is significant only from 8th day of the announcement. On day +15, the MAM based CAR is -45.38 per cent and statistically significant ($t = -3.23$, $p < 0.01$). Hence it is inferred that the market started reacting only a week after the announcement of M & A by sample acquiring firms under food sector and returns yielded by

these firms are comparatively lower by 48.38 per cent to that of market to the investors over 31 days event period due to M & A. In other words, it can be said that the shareholders' wealth of these acquiring firms experienced a downfall of 48.38 per cent to its announcement of M&A compared to the shareholders' wealth of total portfolio in the market.

For acquiring firms in the Textile Sector, the results presented in the **Table-6.b** disclose that abnormal returns under risk adjusted (market model) on days -2, -1 and 0 is positive at 5.35 per cent, 10.30 per cent and 1.09 per cent respectively but do not differ significantly from zero as the obtained 't' values are insignificant. However, it is interesting to note that the abnormal returns which were negative on day -3, increased and became positive on day -2, and kept increasing until next day, i.e., on day -1. But all of a sudden it declined by 4.95 per cent (10.30% - 5.35%) on day 0, the day of official announcement of M&A. However, a sudden decline in the abnormal returns on day 0 from its level on previous day (day -1) might have been due to official recording of M&A announcement on which the market reacted quickly. Further, CARs are significant but negative only for event window between day -15 and -6 (CAR = -50.15% → t = -1.68, p < 0.10), -15 and -4 (CAR = -57.23% → t = -1.75, p < 0.10), -15 and -3 (CAR = -66.99% → t = -1.97, p < 0.05) and between days -15 and -2 (CAR = -61.64% → t = -1.74, p < 0.10). For remaining days in the event period, CARs were negative and did not differ significantly from zero (t values are insignificant), indicating that market had neither under-reacted nor overreacted to either information leakage or official announcement of M&A by the sample acquiring firms under the Textile Sector. The significant negative CAR for day -6 and for days from -4 to -2 might have been due to over-performance of the market.

The results of CAR based on MAM as presented in **Table-6.b** reveal that both AR and CAR were much less than AR and CAR based on MM for the event period. Interestingly, both AR and CAR based on MAM were not statistically significant for all trading days during the event period (-15, +15), signifying that shares of these sample textile firms had performed equally with that of market.

In other words, investors had not reacted extraordinarily and the market also did not react to either information leakage or announcement of M&A by sample acquiring firms under the Textile Sector.

The daily average abnormal returns (AR) and cumulative average abnormal returns (CAR) based on MM for acquiring firms under the Chemical Sector are presented in the **Table-6.c**. It is seen from the table that AR was positive for most of the days in the event period but statistically insignificant. Only three positive ARs on day +2 (AR = 4.92%, t = 2.16, p < 0.05), +3 (AR = 3.88%, t = 1.71, p < 0.10) and on day +11 (AR = 8.81%, t = 3.87, p < 0.01) were significantly different from zero. Similarly, the negative ARs differed significantly from zero only on days +13 (AR = -5.45%, t = -2.39, p < 0.05) and +15 (AR = -5.73%, t = -2.52, p < 0.05). The AR based on MAM was positive and differed significantly from zero only on day +11 (AR = 8.77%, t = 3.48, p < 0.01) in the event period. Similarly, negative AR on day +5 (AR = -4.90%, t = -1.94, p < 0.10), +13 (AR = -4.90, t = -1.94, p < 0.10), +14 (AR = -4.68%, t = -1.86, p < 0.10) and on +15 (AR = -6.51%, t = -2.58, p < 0.01) in the event period was significant. Excepting these, ARs, either negative or positive, were insignificant on all other days of the event period.

On the other hand, none of CARs based on either MM or MAM during the event period differed significantly from zero. This indicates that both investors and market had not reacted and kept silent to both leakage of information about M&A and official announcement of M&A. Either negative or positive, CARs in the event days might have been due to general behaviour of the market. At the same time, the CAR based on MAM was less than that of CAR based on MM for most of the event days.

With regard to the Metal Sector, the results of AR and CAR based on MM model, as presented in **Table-6.d**, show that AR had been positive for 8 out of 31 event days surrounding the official announcement of the M&A. The AR had been positive on day -1, that is a day prior to the event day, but it was negative on the event day, indicating that the market reacted to the official announcement insignificantly. Also, none of the AR in all event days was statistically different from zero, revealing that the actual returns was almost the same as the expected returns on these event days. This further reveals that the M&A announcement by the sample firms under the Metal Sector had not created either optimistic or pessimistic tendency among the investors. That is, the market had been silent over the above event. Similar trends are also discernible in the case of AR based on MAM model. But number of positive ARs are higher. AR had been positive for 11 out of 31 event days for the sample firms under the Metal Sector if firm's systematic risk was constant across firms. It can be understood from the above AR results that the market had been silent to either information leakage or press report of M & A and even after press report, it had not been upbeat.

CARs based on both MM and MAM model for sample firms under the Metal Sector (**Table-6.d**) show that there had been a downward trend in the shareholders' value over 31 days event period surrounding the press report of M&A. In the 31 days (-15, 0, +15) event period, the shareholders' wealth met with significant decline of 26.32 per cent, after taking into consideration both unsystematic and systematic risks (MM model) of the sample firms under the Metal Sector. While the decline in the shareholders' wealth of these firms had been 18.70 per cent, it was insignificant in the case of the market-adjusted returns.

The daily average ARs for the sample firms under the Machinery Sector are presented in **Table-6.e**. The observation of the results from the above Table clearly shows that both MM and MAM based ARs had been positive for most of the event days. However, it is found that only MM based ARs on two days after announcement (+1 and +2) are statistically significant.

For the remaining event days, including the announcement day, the ARs, either positive or negative, are not significantly different from zero. The presence of significant positive abnormal returns on day +1 and +2, that is two days after formal announcement, shows a somewhat delayed market reaction to the M&A announcement of sample firms under the Machinery Sector. At the same time, the above reaction in the market did not last for long. Three days after the event day, the market had not shown any abnormal reaction to the stock value of these firms. None of the abnormal returns based on market adjusted model (MAM) is significantly different from zero. But it is interesting to note that the MAM based AR was positive on day -1 and negative on the announcement day in contrast to MM based AR on these two days. The above contrast between MM and MAM based ARs clearly indicates that the firm - specific systematic risk was less than that of market portfolio on the day of the press report of M&A of these firms.

The quick perusal of CARs for the Machinery Sector based on MM model reveals downward trend while CAR based on MAM model experienced crisscross trend during the 31 days event period. However, MM based CARs in the event windows (-15, +10), (-15, +12), (-15, +13), (-15, +14) and (-15, +15) are significant at required probability level. The above significant CARs in the wider event window reveal that it took 9 days for the market to react significantly but negatively after the press report of M&A decision of sample firms under the Machinery Sector. The wealth of the shareholders of these firms under the Machinery Sector decreased significantly by 13.17 per cent (t = -1.69, p < 0.10), 14.34 per cent (t = -1.77, p < 0.10), 16.36 per cent (t = -1.99, p < 0.05), 16.91 per cent (t = -2.02, p < 0.05) and 17.07 per cent (t = -2.00, p < 0.05) during 26 days, 28 days, 29 days, 30 days and 31 days event windows respectively. But the above scenario was not true in respect of CARs based on MAM model. First, MAM based CARs had shown heterogeneity in their movements over 31 days event window and second, none of the CARs was statistically significant. At the same time, all MAM based CARs were comparatively less than MM based CARs. The above picture clearly exposes the fact that the firm - specific risk was higher than that of market portfolio during the event period, which might have been due to proactive but negative reaction by the market to the M&A announcement of these firms.

For sample acquiring firms under Non-Metal and Other Sectors, the results of AR and CAR are presented in the **Table-6.f** which discloses that both MM and MAM based ARs were negative for most of the event days. However, the days surrounding the announcement day, that is, for two days before and one day after as well as on the announcement day, the AR was significantly negative. This shows that the wealth of shareholders of the sample firms under Non-Metal and Other Sectors declined significantly by 4.98 percent on day -2, 4.61 per cent on day -1, 4.60 per cent on announcement day and 4.45 per cent on the very next day (day +1). Except on day +5, in all event days between 2 and 12 after announcement, the market had been silent to the event. But 12 days after the announcement, the successive 3 days (13, 14 and 15), and experienced significant negative risk adjusted ARs (MM based). The decline in shareholders' returns was as much as 6.45 per cent and 6.10 per cent on day +13 and day +15. The downward movement of MM based CARs is clearly discernible during the event period. But the above decline in CARs had been less and not significant in the pre announcement period except on day -1 (CAR = -0.1712, t = -2.14, p < 0.05) whereas it had been higher and statistically highly significant in the post-event period. Though statistically insignificant, the CAR was -12.53 per cent on day -2. On the day of press report, that is on the day of official announcement of M&A, the wealth of the shareholders of these sample acquiring firms under Non-Metal and Other Sectors declined significantly by 21.72 per cent from its level 15 days before the event. In 31 days event window (-15, +15), there was significant decline in the shareholders' wealth to the tune of 61.58 per cent.

It is to be noted that MAM based ARs were positive for 6 days in the pre-period and 3 days in the post-period of the M&A event. None of the positive AR in pre-period was statistically significant but AR on third day in post-period, which was 5.26 per cent, had been significant at 5 per cent level. However, the ARs over the subsequent days until day 12 in the post-period were insignificant and experienced crisscross movement. The trend in MAM based CARs had also been similar to that of MM based CARs but less in magnitude. Moreover, the MAM based CARs had become significant only after 7 days from announcement. The shareholders' wealth was significantly less by 21.67 per cent, 26.46 per cent and 45.38 per cent of the CARs of the market portfolios during 24 days, (-15, +8), 26 days (-15, +10) and 31 days (-15, +15) event windows. It is well understood on the basis of above interpretation of results that the market reacted negatively to the M&A announcement of the sample acquiring firms under Non-Metal and Other Sector in the post event period, that is, press report of the announcement and information leakage of the above event did not have any impact on the investors.

For all sample acquiring firms under study, the results presented in **Table-6.g** demonstrate that MM based ARs were significant for 2 days before and one day after surrounding the announcement day. On the announcement day, the wealth of the shareholders of the pooled sample firms had gone down significantly by 4.60 per cent. This indicates that the market reacted negatively and significantly to the M&A announcement of all sample acquiring firms under study. The observation of MM based CARs reveals that they were all negative in all the event days. But they were insignificant in the pre announcement period except a day before the event and significantly different from zero in all event days after announcement of M&A. In 31 days event window, the wealth of shareholders of all these acquiring firms significantly declined by 61.58 per cent.

Somewhat similar trends are discernible also in the case of ARs and CARs using MAM. Though MAM based AR was significant on the day of announcement, that is, on day 0, for 2 days before the event, it had been significant at required probability level. This shows that the market was passive to the information leakage and became proactive only 2 days before the press report of the M&A. Further, the observation of the MAM based CARs clearly shows that the decline in the wealth of shareholders was less than that of MM model. The MAM-CARs which were significant for all days in the event period from 8 days before to 15 days after the announcement clearly indicate that there was strong negative reaction of the market to the M&A acquisitions of the sample acquiring firms under Non-Metal and Other Sectors.

CUMULATIVE ABNORMAL RETURNS FOR VARIOUS EVENT WINDOWS

In the preceding part of this chapter, company wise CARs and industry wise ARs and CARs for all days of event period have been empirically tested. An attempt has been made in this research initiative to test company wise and industry wise CARs for various event windows. This is done to ascertain the time taken for the market to react significantly to the M&A before and after the press report of the announcement.

Table-7.a documents the CARs based on both MM and MAM for 17 sample acquiring firms over various event windows. The AR on the day of announcement has also been given in the table for comparison with CARs of different event windows. The observation of the results from the set of tables shows that both MM and MAM based CARs were negative but insignificant for all event windows in respect of CADBURY, MODIRUB, INDALUM, SANDVIK, WARTSILA and SKANSKA. The MM based CAR was positive at 10.10 per cent for three days surrounding the event (-1, +1) and MAM based CAR was positive at 12.90 per cent, 3.64 per cent and 17.13 per cent for three days (-1, +1), five days (-2, +2) and 21 days (-10, +10) surrounding the event respectively, but did not differ significantly from zero in the case of SAPTAR. For the company, MYFELLOW, MM based CARs were positive but insignificant for all event windows except for the event windows surrounding 21 days (-10, +10) and above. On the other hand, MAM based CARs, though insignificant, were positive for all event windows, indicating that the stock price of this firm (MYFELLOW) outperformed the market before and after the announcement but insignificantly. In the case of DCLPOLY, both MM and MAM based CAR was positive for 3 days event window (-1, +1) and for the remaining event windows, they were negative. But all CARs were insignificant, indicating that the market had been proactive in the days close to the press report of the M&A announcement.

It is interesting to note that the MM based CARs were negative and significantly different from zero for all event windows in the case of FORBES. When event windows were widened to include additional trading days, the negative CARs were in the upward trajectory. But in respect of CAR based on MAM, it had been significant only for shorter event window - 3 days (-1, +1) surrounding the announcement day. The above results clearly demonstrate that the investors of FORBES were pessimistic about its M&A activity.

Results of the analysis of CAR under MM and MAM for sector wise as well as for all sectors are presented in **Table-7.b** which reveals that the risk adjusted shareholders' wealth due to M&A activity significantly went down by 26.32 per cent during 31 days (-15, +15) event period ($CAR = -0.2632, t = -1.84, p < 0.10$) in respect of Metal Sector and in the case of Machinery Sector, the significant decline in risk adjusted shareholders' wealth was 7.34 per cent, 8.96 per cent, 11.88 per cent and 17.04 per cent during 5 days (-2, +2), 11 days (-5, +5), 21 days (-10, +10) and 31 days (-15, +15) event periods respectively. However, MAM based CARs, despite being negative for all event windows in respect of the above two firms, were not statistically significant. The above pictures show that the M & A activities of the sample acquiring firms under these two sectors were not only prone to market risk but also to firms - specific risk.

The perusal of both risk adjusted (MM) and market adjusted (MAM) CARs for all acquiring firms (all sectors) over various event periods (**Table-7.b**) demonstrate the significant continuous decline in shareholders' wealth. After the press report of M & A announcement day, the average ARs, both MM and MAM based for all sample acquiring firms, were statistically significant ($CAR_{MM} = -0.0460, t = -2.22, p < 0.05$ and $CAR_{MAM} = -0.1004, t = -2.77, p < 0.01$), which in turn shows that the market had significantly reacted to the event. Further, significant CARs for various event windows clearly indicate that the market became proactive to the leakage of information and reacted negatively even 15 days after the event, demonstrating the prevalence of pessimism among the investors about M&A activity.

FINDINGS OF THE STUDY

- The CAR based on Market Model clearly reveals that the decline in shareholders' wealth of acquiring firms might have been mainly due to the internal risk (unsystematic risk) of these firms.
- The market failed to react significantly to the M&A for all days except from day 5 to 12 day in the post- event period for firms under Food Sector. On the other hand, on days +13, +14 and +15, the market reacted unfavourably.
- It is found that the market reacted negatively to the M&A announcement of sample acquiring firms under Non-Metal and Other Sector in the post event period, that is, even after press report of the above event, the M&A did not have any impact on investors.
- The company wise Abnormal Returns and CARs demonstrate that both risk adjusted and market adjusted shareholders' wealth for all companies, except Matrix Laboratories Ltd, declined moderately during event periods.
- It is found that for most of the acquiring firms, shareholders' wealth declined during 15 days period surrounding the announcement of M&A. The decline in the shareholders' wealth could be due to the fact that earlier leakage of information about M&A of these firms might have induced the market to react negatively.
- It is deduced that the firm - specific risk was higher than that of market portfolio during the event period for acquiring firms under Machinery Sector, which might have been due to proactive but negative reaction by the market to the M&A announcement of these firms.

CONCLUSION

The effect of merger and acquisition activities of the 17 sample acquiring firms on their shareholders' wealth have been analysed with the help of Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) calculated by using Market Model and Market Adjusted Model for company wise and sector wise. The results of company wise ARs and CARs have demonstrated that both risk adjusted and market adjusted shareholders' wealth for all companies except MATRIX declined moderately during event periods. Similarly industry wise analysis of ARs and CARs reveals that wealth of the shareholders of the firms under Metal, Machinery and Non-Metal & Other Sectors went down significantly during the event periods. For firms under Food, Textile and Chemical, the effect of M&A on the shareholders' wealth was negative but not significant. As a whole, the results indicate that M&A activities of the acquiring firms failed to increase the wealth of their shareholders. The above results confirm the validity of the Hypothesis that "there is no significant change in shareholders' wealth of acquiring firms in the event of mergers and acquisitions".

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TABLES

TABLE -1: COMPANY-WISE MEAN RETURNS, STANDARD DEVIATION (UNSYSTEMATIC RISK) AND BETA (SYSTEMATIC RISK) FOR NORMAL AND ABNORMAL DAYS

Company Code	Normal Days			Abnormal Days		
	Mean Return	SD	Beta	Mean Return	SD	Beta
SAPTAR	0.0162	0.1494	0.2122	-0.0119	0.1570	-0.5953
CADBURY	0.0025	0.0146	0.1240	-0.0013	0.0064	-0.0306
MYFELLOW	0.0278	0.2514	0.6520	-0.0099	0.1823	-0.9668
DCLPOLY	0.0083	0.0945	0.6786	-0.0215	0.0455	0.5841
FORBES	0.0073	0.0499	-0.1947	-0.0128	0.0443	1.0245
MODIRUB	-0.0024	0.0490	-0.1257	-0.0096	0.0570	0.2307
CASTROL	-0.0011	0.0249	0.1691	-0.0043	0.0246	0.3000
MATRIX	0.0016	0.0457	-0.5855	0.0143	0.0623	1.1454
SRIVISHN	0.0080	0.0235	0.1208	-0.0014	0.0364	-0.1474
INDALUM	-0.0009	0.0435	0.4008	-0.0078	0.0216	0.2431
SANDVIK	0.0027	0.0337	-0.5592	-0.0053	0.0149	-0.4149
WARTSILA	0.0065	0.0362	0.1464	-0.0026	0.0190	0.0604
PHILIPS	0.0056	0.0308	0.2398	-0.0051	0.0155	0.3031
OTIS	0.0021	0.0257	0.0935	-0.0023	0.0216	0.0444
SKANSKA	0.0027	0.0347	-0.5528	-0.0030	0.0261	0.1302
ALFALVL	0.0009	0.0265	-0.0377	0.0010	0.0153	-0.1480
FOSECO	0.0056	0.0387	0.0141	-0.0250	0.0421	0.1300

Source: Computed from ProWess.

TABLE-2: DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) BEFORE MERGER AND ACQUISITION PERIOD – MARKET MODEL

COMPANY	Day Relative to Announcement															
	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
SAPTAR	-0.1600	-0.2044	-0.4512	-0.2647	-0.3049	-0.3899	-0.4081	-0.5270	-0.7774	-0.6348	-0.6787	-0.9272	-0.8345	-0.9497	-0.7519	-0.9854
CADBURY	-0.0022	-0.0040	-0.0071	-0.0134	-0.0193	-0.0217	-0.0283	-0.0308	-0.0336	-0.0502	-0.0576	-0.0813	-0.0802	-0.0698	-0.0782	-0.0868
MYFELLOW	-0.0131	-0.0787	-0.3730	-0.5234	-0.6819	-0.4593	-0.4424	-0.6626	-0.6966	-0.9576	-0.7245	-1.0361	-1.2903	-1.0802	-0.7735	-0.5856
DCLPOLY	-0.0842	-0.1239	-0.1568	-0.2015	-0.3080	-0.3152	-0.3391	-0.3443	-0.3747	-0.3957	-0.4878	-0.4522	-0.4161	-0.4726	-0.4584	-0.4752
FORBES	-0.0272	-0.0307	-0.0678	-0.0604	-0.0646	-0.0799	-0.1157	-0.0916	-0.1205	-0.1513	-0.1797	-0.2286	-0.3034	-0.2964	-0.3083	-0.4466
MODIRUB	0.0100	-0.0048	-0.0511	-0.1078	-0.0253	0.0584	0.0662	0.1466	0.1292	0.0911	0.1306	0.0940	0.0639	0.0162	0.0707	0.0496
CASTROL	0.0092	0.0107	0.0204	0.0207	0.0284	0.0293	-0.0007	0.0003	-0.0001	-0.0071	-0.0194	-0.0670	-0.0712	-0.0640	-0.0537	-0.0878
MATRIX	-0.0132	-0.0403	-0.0149	-0.0042	-0.0319	-0.0141	-0.0275	-0.0132	-0.0262	-0.0303	-0.0105	-0.0319	-0.0364	-0.0400	-0.0548	-0.0875
SRIVISHN	-0.0165	-0.0183	-0.0308	-0.0394	-0.0390	-0.0533	-0.0651	-0.0671	-0.0695	-0.0785	-0.1150	-0.0665	0.0183	-0.0915	-0.1858	-0.1919
INDALUM	-0.0081	0.0007	0.0039	-0.0364	-0.0270	-0.0530	-0.0423	-0.0937	-0.0642	-0.0497	-0.1080	-0.0978	-0.0910	-0.1079	-0.0956	-0.1344
SANDVIK	-0.0001	0.0025	-0.0080	-0.0152	-0.0248	-0.0218	-0.0176	-0.0185	-0.0264	-0.0270	-0.0247	-0.0199	-0.0252	-0.0239	-0.0245	-0.0301
WARTSILA	-0.0073	-0.0153	-0.0227	-0.0250	-0.0321	-0.0382	-0.0452	-0.0550	-0.0654	-0.0785	-0.1149	-0.1509	-0.1320	-0.1913	-0.1816	-0.2174
PHILIPS	-0.0127	-0.0320	-0.0542	-0.0540	-0.0592	-0.0671	-0.0811	-0.0685	-0.0237	-0.0488	-0.0711	-0.0886	-0.0835	-0.0945	-0.1282	-0.1380
OTIS	0.0076	0.0011	-0.0029	-0.0028	-0.0114	-0.0072	-0.0126	-0.0144	-0.0177	-0.0230	-0.0055	-0.0060	0.0035	-0.0159	-0.0211	-0.0144
SKANSKA	0.0048	0.0051	0.0023	-0.0007	0.0014	0.0057	0.0075	-0.0014	-0.0118	-0.0140	-0.0365	-0.0253	-0.0448	-0.0324	-0.0371	-0.0096
ALFALVL	0.0446	0.0241	0.0165	0.0234	0.0176	0.0299	0.0368	0.0352	0.0286	0.0246	-0.0046	0.0058	0.0206	-0.0034	0.0118	-0.0001
FOSECO	-0.0364	-0.0200	-0.0168	-0.0180	-0.0204	-0.0172	-0.0259	-0.0561	-0.0600	-0.0662	-0.0656	-0.1509	-0.1863	-0.1761	-0.1737	-0.2595

TABLE-3: DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) AFTER MERGER AND ACQUISITION PERIOD – MARKET MODEL

COMPANY	Day Relative to Announcement														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SAPTAR	-0.8487	-0.8690	-1.0211	-1.0882	-1.1863	-0.9907	-0.7942	-0.6884	-0.7306	-0.5032	-0.2976	-0.4090	-0.6423	-0.8908	-0.9405
CADBURY	-0.0934	-0.0997	-0.0988	-0.1046	-0.1073	-0.1044	-0.1073	-0.1100	-0.1169	-0.1019	-0.1080	-0.1080	-0.1101	-0.1159	-0.1256
MYFELLOW	-0.7036	-0.7369	-0.6779	-0.4706	-0.6836	-0.7139	-0.7490	-0.6428	-0.8710	-0.7143	-0.4201	-0.4469	-0.7205	-0.9833	-0.8621
DCLPOLY	-0.4592	-0.5066	-0.5907	-0.5987	-0.6429	-0.5775	-0.6019	-0.6611	-0.6610	-0.7500	-0.7866	-0.8048	-0.8766	-0.8166	-0.8962
FORBES	-0.5591	-0.5343	-0.5843	-0.4972	-0.5080	-0.5750	-0.6425	-0.6072	-0.6130	-0.6040	-0.6116	-0.6656	-0.6728	-0.6452	-0.6220
MODIRUB	-0.0203	-0.0593	0.0016	-0.0745	-0.1458	-0.1900	-0.1083	-0.1021	-0.0357	-0.0894	-0.0105	0.0259	-0.0502	-0.1263	-0.2031
CASTROL	-0.0254	0.0280	-0.0134	0.0110	-0.0037	-0.0109	-0.0344	-0.0351	-0.0567	-0.0474	-0.0604	-0.0557	-0.0557	-0.0967	-0.1283
MATRIX	-0.0603	0.0728	0.1698	0.2900	0.2728	0.2697	0.2606	0.2726	0.2765	0.3895	0.5879	0.4765	0.3892	0.3892	0.3258
SRIVISHN	-0.1953	-0.1778	-0.1845	-0.2221	-0.2255	-0.2080	-0.2360	-0.2358	-0.2600	-0.2572	-0.2686	-0.2125	-0.2554	-0.2629	-0.2990
INDALUM	-0.1686	-0.1981	-0.2213	-0.2505	-0.2477	-0.2333	-0.2352	-0.2359	-0.2466	-0.2560	-0.2485	-0.2669	-0.2733	-0.2941	-0.2929
SANDVIK	-0.0471	-0.0460	-0.0487	-0.0542	-0.1079	-0.1510	-0.1601	-0.1377	-0.1287	-0.1472	-0.1683	-0.1876	-0.2089	-0.2208	-0.2231
WARTSILA	-0.2215	-0.1986	-0.2184	-0.2301	-0.2249	-0.1861	-0.2124	-0.2306	-0.2357	-0.2398	-0.2315	-0.2602	-0.2580	-0.2608	-0.2737
PHILIPS	-0.1521	-0.1617	-0.1793	-0.2163	-0.2299	-0.2318	-0.2300	-0.2430	-0.2623	-0.2717	-0.2893	-0.3082	-0.3349	-0.3403	-0.3443
OTIS	-0.0236	-0.0899	-0.1378	-0.1331	-0.1187	-0.1187	-0.1469	-0.1300	-0.1325	-0.1205	-0.0818	-0.0842	-0.1430	-0.1313	-0.1431
SKANSKA	-0.0924	-0.1496	-0.0867	-0.0544	-0.0618	-0.0738	-0.1280	-0.0980	-0.1003	-0.1155	-0.1102	-0.1576	-0.1621	-0.1834	-0.1876
ALFALVL	-0.0033	0.0035	-0.0032	-0.0100	-0.0092	-0.0235	-0.0049	-0.0004	0.0067	-0.0189	-0.0129	-0.0236	-0.0144	-0.0212	-0.0067
FOSECO	-0.3451	-0.4168	-0.3430	-0.3115	-0.3972	-0.4204	-0.4367	-0.4741	-0.5237	-0.5846	-0.6148	-0.6917	-0.7778	-0.8637	-0.9496

TABLE – 4: DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) BEFORE MERGER AND ACQUISITION PERIOD – MARKET ADJUSTED MODEL

COMPANY	Day Relative to Announcement															
	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
SAPTAR	-0.1720	0.0209	-0.3332	0.1310	-0.0263	-0.0812	0.0015	-0.0608	-0.2573	0.1605	-0.0165	-0.2349	0.1116	-0.0841	0.1946	-0.2259
CADBURY	-0.0053	0.0056	0.0012	-0.0340	-0.0054	-0.0139	-0.0091	0.0049	-0.0054	-0.0230	-0.0155	-0.0286	0.0128	0.0229	-0.0085	-0.0139
MYFELLOW	0.0202	-0.0300	-0.2818	-0.1193	-0.1207	0.2505	0.0545	-0.2021	0.0020	-0.2314	0.2721	-0.3105	-0.2429	0.2373	0.3823	0.2086
DCLPOLY	-0.0708	-0.0310	-0.0273	-0.0378	-0.0938	-0.0039	-0.0168	0.0030	-0.0188	-0.0124	-0.0817	0.0410	0.0513	-0.0451	0.0313	-0.0061
FORBES	-0.0169	0.0008	-0.0399	0.0133	0.0182	-0.0246	-0.0239	0.0390	-0.0153	-0.0285	-0.0268	-0.0456	-0.0502	0.0313	-0.0068	-0.1302
MODIRUB	0.0154	-0.0162	-0.0265	-0.0744	0.0691	0.0624	0.0049	0.0891	-0.0379	-0.0393	0.0437	-0.0583	-0.0383	-0.0242	0.0289	-0.0229
CASTROL	0.0208	-0.0091	0.0022	0.0140	-0.0013	-0.0298	-0.0439	-0.0038	-0.0055	-0.0118	-0.0269	-0.0308	-0.0144	0.0110	-0.0066	-0.0285
MATRIX	-0.0092	-0.0120	-0.0045	0.0285	-0.0014	0.0512	-0.0252	0.0127	-0.0259	0.0012	0.0464	-0.0274	0.0189	0.0088	0.0111	-0.0261
SRIVISHN	-0.0203	0.0061	-0.0046	-0.0031	-0.0011	-0.0025	0.0032	-0.0001	0.0026	-0.0065	-0.0272	0.0563	0.0833	-0.1129	-0.0944	0.0055
INDALUM	-0.0172	0.0023	0.0029	-0.0551	0.0106	-0.0132	0.0152	-0.0513	0.0272	0.0016	-0.0660	0.0083	0.0245	-0.0235	0.0227	-0.0308
SANDVIK	0.0061	-0.0091	0.0116	0.0059	0.0112	-0.0121	0.0054	-0.0111	0.0082	-0.0050	-0.0071	-0.0147	0.0017	-0.0100	-0.0066	-0.0011
WARTSILA	-0.0068	-0.0044	-0.0024	0.0179	-0.0032	0.0188	-0.0095	-0.0116	-0.0054	-0.0070	-0.0394	-0.0318	0.0192	-0.0447	0.0139	-0.0232
PHILIPS	-0.0061	-0.0010	-0.0141	0.0033	-0.0187	-0.0122	-0.0025	0.0185	0.0446	-0.0197	-0.0228	-0.0181	0.0082	-0.0106	-0.0406	-0.0021
OTIS	0.0038	-0.0148	-0.0047	-0.0052	0.0016	0.0079	-0.0117	-0.0079	-0.0062	-0.0012	0.0247	-0.0125	0.0218	-0.0229	-0.0057	0.0227
SKANSKA	-0.0169	-0.0051	0.0091	-0.0087	-0.0102	-0.0113	-0.0079	0.0107	0.0106	-0.0034	-0.0330	0.0112	-0.0581	0.0195	0.0594	-0.0192
ALFALVL	0.0589	-0.0134	-0.0119	0.0049	-0.0033	0.0097	0.0101	0.0038	-0.0007	0.0108	-0.0220	0.0104	0.0172	-0.0142	0.0180	-0.0056
FOSECO	-0.0283	0.0012	0.0197	0.0030	0.0058	0.0130	-0.0160	-0.0505	-0.0041	-0.0014	0.0049	-0.0723	-0.0272	0.0232	0.0187	-0.0744

TABLE - 5: DISTRIBUTION OF CUMULATIVE ABNORMAL RETURNS (CAR) AFTER MERGER AND ACQUISITION PERIOD – MARKET ADJUSTED MODEL

COMPANY	Day Relative to Announcement														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SAPTAR	0.1603	-0.0085	-0.1345	-0.0860	-0.0779	0.2019	0.2177	0.1489	-0.0141	0.2560	0.2492	-0.1062	-0.2114	-0.2484	-0.0272
CADBURY	-0.0060	-0.0275	0.0055	0.0310	-0.0284	0.0145	0.0004	0.0066	-0.0223	0.0259	0.0095	0.0195	-0.0076	-0.0056	-0.0158
MYFELLOW	-0.0963	-0.0109	0.0822	0.2336	-0.1855	-0.0063	-0.0135	0.1675	-0.1805	0.1486	0.3592	-0.0044	-0.2494	-0.2329	0.1526
DCLPOLY	0.0339	-0.0347	-0.0664	0.0217	-0.0457	0.0861	-0.0214	-0.0490	0.0098	-0.0772	-0.0233	-0.0067	-0.0631	0.0610	-0.0697
FORBES	-0.0849	0.0234	-0.0469	0.0922	0.0153	-0.0634	-0.0347	0.0298	-0.0103	0.0140	-0.0011	-0.0600	-0.0033	0.0261	0.0417
MODIRUB	-0.0616	-0.0293	0.0496	-0.0926	-0.0787	-0.0423	0.0715	-0.0095	0.0602	-0.0656	0.0861	0.0356	-0.0893	-0.0891	-0.0858
CASTROL	0.0671	0.0567	-0.0273	0.0151	-0.0318	-0.0083	-0.0196	-0.0097	-0.0070	-0.0037	-0.0187	0.0005	0.0043	-0.0509	-0.0498
MATRIX	0.0260	0.1224	0.0979	0.1429	-0.0365	0.0057	0.0036	0.0230	-0.0002	0.1081	0.1958	-0.0088	-0.0620	-0.0004	-0.0596
SRIVISHN	0.0016	0.0257	0.0143	-0.0380	-0.0041	0.0240	-0.0276	0.0156	-0.0239	0.0284	-0.0112	0.0531	-0.0341	0.0077	-0.0203
INDALUM	-0.0350	-0.0361	-0.0274	-0.0223	-0.0080	0.0105	-0.0036	0.0039	-0.0119	-0.0034	0.0051	-0.0252	0.0051	-0.0165	0.0161
SANDVIK	-0.0242	0.0106	-0.0010	-0.0097	-0.0545	-0.0410	0.0118	0.0263	0.0013	-0.0209	-0.0166	-0.0466	-0.0363	-0.0060	-0.0232
WARTSILA	0.0091	0.0399	-0.0072	0.0083	0.0373	0.0488	-0.0028	-0.0500	0.0051	0.0284	0.0117	-0.0151	0.0119	-0.0054	-0.0142
PHILIPS	-0.0197	-0.0008	0.0123	-0.0367	-0.0043	0.0166	0.0178	0.0175	0.0023	-0.0133	-0.0222	-0.0203	-0.0172	-0.0114	-0.0055
OTIS	-0.0003	-0.0571	-0.0451	0.0073	0.0285	-0.0126	-0.0151	0.0251	-0.0059	0.0109	0.0331	0.0036	-0.0684	0.0134	-0.0123
SKANSKA	-0.0635	-0.0525	0.0783	0.0038	0.0108	0.0144	-0.0208	0.0192	-0.0031	-0.0271	0.0112	-0.0206	-0.0096	0.0023	0.0087
ALFALVL	0.0091	0.0470	0.0103	0.0494	0.0570	-0.0521	0.0120	0.0217	0.0693	-0.0448	0.0209	-0.0290	-0.0081	-0.0420	0.0220
FOSECO	-0.0578	-0.0683	0.0908	0.0385	-0.0622	-0.0033	-0.0268	-0.0554	-0.0386	-0.0617	-0.0357	-0.0909	-0.0875	-0.0902	-0.0692

TABLE - 6.a: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR FOOD SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	't' Value	Cumulative Abnormal Returns	't' Value	Abnormal Returns	't' Value	Cumulative Abnormal Returns	't' Value
	-15	-0.0811	-1.09	-0.0811	-1.09	-0.0887	-1.17	-0.0887
-14	-0.0231	-0.31	-0.1042	-0.99	0.0133	0.17	-0.0754	-0.70
-13	-0.1250*	-1.68	-0.2292*	-1.78	-0.1660**	-2.19	-0.2414*	-1.84
-12	0.0901	1.21	-0.1391	-0.93	0.0485	0.64	-0.1929	-1.27
-11	-0.0231	-0.31	-0.1621	-0.97	-0.0159	-0.21	-0.2088	-1.23
-10	-0.0437	-0.59	-0.2058	-1.13	-0.0476	-0.63	-0.2563	-1.38
-9	-0.0124	-0.17	-0.2182	-1.11	-0.0038	-0.05	-0.2601	-1.30
-8	-0.0607	-0.82	-0.2789	-1.32	-0.0280	-0.37	-0.2881	-1.34
-7	-0.1266*	-1.70	-0.4055*	-1.82	-0.1314*	-1.73	-0.4194*	-1.84
-6	0.0630	0.85	-0.3425	-1.45	0.0688	0.91	-0.3507	-1.46
-5	-0.0257	-0.34	-0.3682	-1.49	-0.0160	-0.21	-0.3667	-1.46
-4	-0.1361*	-1.83	-0.5043*	-1.95	-0.1318*	-1.74	-0.4984*	-1.90
-3	0.0469	0.63	-0.4574*	-1.70	0.0622	0.82	-0.4362	-1.59
-2	-0.0524	-0.70	-0.5098*	-1.83	-0.0306	-0.40	-0.4668	-1.64
-1	0.0947	1.27	-0.4151	-1.44	0.0931	1.23	-0.3738	-1.27
0	-0.1211	-1.63	-0.5361*	-1.80	-0.1199	-1.58	-0.4937	-1.63
1	0.0651	0.87	-0.4711	-1.53	0.0772	1.02	-0.4165	-1.33
2	-0.0133	-0.18	-0.4844	-1.53	-0.0180	-0.24	-0.4345	-1.35
3	-0.0756	-1.02	-0.5600*	-1.73	-0.0645	-0.85	-0.4990	-1.51
4	-0.0365	-0.49	-0.5964*	-1.79	-0.0275	-0.36	-0.5265	-1.55
5	-0.0504	-0.68	-0.6468*	-1.90	-0.0532	-0.70	-0.5797*	-1.67
6	0.0993	1.33	-0.5476	-1.57	0.1082	1.43	-0.4715	-1.33
7	0.0968	1.30	-0.4508	-1.26	0.1091	1.44	-0.3624	-1.00
8	0.0516	0.69	-0.3992	-1.09	0.0778	1.02	-0.2847	-0.77
9	-0.0246	-0.33	-0.4238	-1.14	-0.0182	-0.24	-0.3029	-0.80
10	0.1212	1.63	-0.3026	-0.80	0.1410*	1.86	-0.1619	-0.42
11	0.0998	1.34	-0.2028	-0.52	0.1294*	1.71	-0.0326	-0.08
12	-0.0557	-0.75	-0.2585	-0.66	-0.0434	-0.57	-0.0759	-0.19
13	-0.1177	-1.58	-0.3762	-0.94	-0.1095	-1.44	-0.1854	-0.45
14	-0.1272*	-1.71	-0.5034	-1.23	-0.1270*	-1.67	-0.3124	-0.75
15	-0.0297	-0.40	-0.5331	-1.29	-0.0215	-0.28	-0.3339	-0.79

**Significant at 5% level; *Significant at 10% level

TABLE-6.b: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR TEXTILES SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
	-15	-0.0415	-0.44	-0.0415	-0.44	-0.0225	-0.24	-0.0225
-14	-0.0363	-0.38	-0.0778	-0.58	-0.0201	-0.21	-0.0426	-0.32
-13	-0.1214	-1.28	-0.1992	-1.22	-0.1163	-1.24	-0.1589	-0.98
-12	-0.0626	-0.66	-0.2618	-1.38	-0.0479	-0.51	-0.2068	-1.10
-11	-0.0897	-0.95	-0.3515	-1.66	-0.0654	-0.70	-0.2723	-1.30
-10	0.0667	0.71	-0.2848	-1.23	0.0740	0.79	-0.1983	-0.86
-9	-0.0143	-0.15	-0.2991	-1.20	0.0046	0.05	-0.1937	-0.78
-8	-0.0671	-0.71	-0.3662	-1.37	-0.0534	-0.57	-0.2470	-0.93
-7	-0.0311	-0.33	-0.3973	-1.40	-0.0107	-0.11	-0.2577	-0.92
-6	-0.1043	-1.10	-0.5015*	-1.68	-0.0908	-0.97	-0.3485	-1.18
-5	0.0375	0.40	-0.4640	-1.48	0.0545	0.58	-0.2940	-0.95
-4	-0.1083	-1.15	-0.5723*	-1.75	-0.1050	-1.12	-0.3990	-1.23
-3	-0.0976	-1.03	-0.6699**	-1.97	-0.0806	-0.86	-0.4796	-1.42
-2	0.0535	0.57	-0.6164*	-1.74	0.0745	0.80	-0.4051	-1.16
-1	0.1030	1.09	-0.5134	-1.40	0.1356	1.45	-0.2695	-0.74
0	0.0109	0.12	-0.5025	-1.33	0.0241	0.26	-0.2454	-0.66
1	-0.0715	-0.76	-0.5740	-1.47	-0.0491	-0.52	-0.2945	-0.76
2	-0.0186	-0.20	-0.5926	-1.48	-0.0074	-0.08	-0.3019	-0.76
3	-0.0250	-0.26	-0.6176	-1.50	-0.0104	-0.11	-0.3123	-0.76
4	0.0955	1.01	-0.5222	-1.24	0.1158	1.24	-0.1964	-0.47
5	-0.0893	-0.95	-0.6115	-1.41	-0.0720	-0.77	-0.2684	-0.63
6	-0.0106	-0.11	-0.6221	-1.40	0.0055	0.06	-0.2629	-0.60
7	-0.0423	-0.45	-0.6645	-1.47	-0.0232	-0.25	-0.2861	-0.64
8	0.0274	0.29	-0.6370	-1.38	0.0494	0.53	-0.2367	-0.52
9	-0.0780	-0.82	-0.7150	-1.51	-0.0603	-0.64	-0.2970	-0.63
10	0.0256	0.27	-0.6894	-1.43	0.0285	0.30	-0.2686	-0.56
11	0.0833	0.88	-0.6061	-1.23	0.1116	1.19	-0.1570	-0.32
12	-0.0330	-0.35	-0.6391	-1.28	-0.0237	-0.25	-0.1807	-0.36
13	-0.1175	-1.24	-0.7566	-1.49	-0.1053	-1.12	-0.2859	-0.57
14	-0.0584	-0.62	-0.8150	-1.57	-0.0486	-0.52	-0.3345	-0.65
15	0.0216	0.23	-0.7934	-1.51	0.0415	0.44	-0.2930	-0.56

**Significant at 5% level; *Significant at 10% level.

TABLE-6.c: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR CHEMICAL SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
	-15	0.0020	0.09	0.0020	0.09	0.0090	0.36	0.0090
-14	-0.0135	-0.59	-0.0115	-0.36	-0.0124	-0.49	-0.0034	-0.10
-13	-0.0037	-0.16	-0.0152	-0.39	-0.0096	-0.38	-0.0130	-0.30
-12	-0.0152	-0.67	-0.0304	-0.67	-0.0106	-0.42	-0.0237	-0.47
-11	0.0208	0.92	-0.0096	-0.19	0.0221	0.88	-0.0015	-0.03
-10	0.0341	1.50	0.0245	0.44	0.0279	1.11	0.0264	0.43
-9	-0.0119	-0.52	0.0127	0.21	-0.0214	-0.85	0.0050	0.07
-8	0.0319	1.40	0.0446	0.69	0.0327	1.30	0.0377	0.53
-7	-0.0103	-0.45	0.0343	0.50	-0.0231	-0.92	0.0146	0.19
-6	-0.0164	-0.72	0.0179	0.25	-0.0166	-0.66	-0.0021	-0.03
-5	0.0157	0.69	0.0336	0.44	0.0211	0.84	0.0190	0.23
-4	-0.0352	-1.55	-0.0016	-0.02	-0.0388	-1.54	-0.0198	-0.23
-3	-0.0129	-0.57	-0.0146	-0.18	-0.0113	-0.45	-0.0311	-0.34
-2	-0.0147	-0.65	-0.0293	-0.34	-0.0015	-0.06	-0.0326	-0.35
-1	0.0167	0.73	-0.0126	-0.14	0.0111	0.44	-0.0214	-0.22
0	-0.0293	-1.29	-0.0419	-0.46	-0.0258	-1.03	-0.0473	-0.47
1	0.0066	0.29	-0.0353	-0.38	0.0105	0.42	-0.0368	-0.35
2	0.0492**	2.16	0.0138	0.14	0.0499	1.98	0.0132	0.12
3	0.0388*	1.71	0.0527	0.53	0.0401	1.59	0.0532	0.48
4	0.0228	1.00	0.0755	0.74	0.0218	0.87	0.0750	0.67
5	-0.0344	-1.51	0.0411	0.39	-0.0490*	-1.94	0.0260	0.23
6	-0.0182	-0.80	0.0229	0.21	-0.0150	-0.59	0.0111	0.09
7	0.0164	0.72	0.0393	0.36	0.0185	0.73	0.0296	0.24
8	0.0058	0.26	0.0451	0.41	0.0013	0.05	0.0308	0.25
9	0.0162	0.71	0.0614	0.54	0.0177	0.70	0.0485	0.38
10	0.0229	1.01	0.0842	0.73	0.0129	0.51	0.0614	0.48
11	0.0881***	3.87	0.1723	1.46	0.0877***	3.48	0.1492	1.14
12	-0.0234	-1.03	0.1489	1.24	-0.0166	-0.66	0.1326	0.99
13	-0.0545**	-2.39	0.0944	0.77	-0.0490*	-1.94	0.0836	0.62
14	-0.0390*	-1.72	0.0554	0.44	-0.0468*	-1.86	0.0368	0.27
15	-0.0573**	-2.52	-0.0019	-0.01	-0.0651***	-2.58	-0.0283	-0.20

***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

TABLE-6.d: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR METAL SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
	-15	-0.0052	-0.20	-0.0052	-0.20	-0.0060	-0.22	-0.0060
-14	0.0011	0.04	-0.0040	-0.11	-0.0037	-0.14	-0.0097	-0.25
-13	-0.0049	-0.19	-0.0089	-0.20	0.0040	0.15	-0.0057	-0.12
-12	-0.0166	-0.65	-0.0255	-0.50	-0.0104	-0.38	-0.0161	-0.30
-11	-0.0024	-0.09	-0.0280	-0.49	0.0062	0.23	-0.0099	-0.16
-10	-0.0097	-0.38	-0.0377	-0.60	-0.0022	-0.08	-0.0121	-0.18
-9	0.0026	0.10	-0.0350	-0.52	0.0037	0.14	-0.0084	-0.12
-8	-0.0207	-0.81	-0.0557	-0.77	-0.0247	-0.91	-0.0330	-0.43
-7	0.0037	0.15	-0.0520	-0.67	0.0100	0.37	-0.0230	-0.28
-6	0.0003	0.01	-0.0517	-0.64	-0.0035	-0.13	-0.0265	-0.31
-5	-0.0308	-1.20	-0.0825	-0.97	-0.0375	-1.38	-0.0640	-0.71
-4	-0.0070	-0.27	-0.0895	-1.01	-0.0127	-0.47	-0.0767	-0.81
-3	0.0068	0.26	-0.0827	-0.89	0.0151	0.56	-0.0616	-0.63
-2	-0.0250	-0.97	-0.1077	-1.12	-0.0261	-0.96	-0.0877	-0.86
-1	0.0071	0.28	-0.1006	-1.01	0.0100	0.37	-0.0777	-0.74
0	-0.0267	-1.04	-0.1273	-1.24	-0.0184	-0.67	-0.0960	-0.88
1	-0.0184	-0.72	-0.1457	-1.38	-0.0167	-0.61	-0.1127	-1.00
2	-0.0018	-0.07	-0.1476	-1.35	0.0048	0.18	-0.1079	-0.93
3	-0.0152	-0.59	-0.1628	-1.45	-0.0119	-0.44	-0.1198	-1.01
4	-0.0155	-0.60	-0.1783	-1.55	-0.0079	-0.29	-0.1277	-1.05
5	-0.0152	-0.59	-0.1935	-1.64	-0.0084	-0.31	-0.1361	-1.09
6	0.0034	0.13	-0.1901	-1.58	0.0061	0.22	-0.1300	-1.02
7	-0.0124	-0.48	-0.2026	-1.64	0.0018	0.07	-0.1282	-0.98
8	0.0012	0.05	-0.2014	-1.60	-0.0066	-0.24	-0.1348	-1.01
9	-0.0023	-0.09	-0.2037	-1.59	-0.0018	-0.07	-0.1366	-1.00
10	-0.0107	-0.42	-0.2143	-1.64	0.0014	0.05	-0.1353	-0.97
11	-0.0018	-0.07	-0.2161	-1.62	0.0001	0.00	-0.1352	-0.95
12	-0.0221	-0.86	-0.2382*	-1.75	-0.0290	-1.06	-0.1642	-1.14
13	-0.0085	-0.33	-0.2467*	-1.78	-0.0064	-0.24	-0.1706	-1.16
14	-0.0118	-0.46	-0.2586*	-1.84	-0.0093	-0.34	-0.1799	-1.21
15	-0.0047	-0.18	-0.2632*	-1.84	-0.0071	-0.26	-0.1870	-1.23

*Significant at 10% level

TABLE-6.e: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR MACHINERY SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
	-15	0.0111	0.72	0.0111	0.72	0.0099	0.54	0.0099
-14	-0.0115	-0.75	-0.0004	-0.02	-0.0086	-0.46	0.0014	0.05
-13	-0.0092	-0.60	-0.0096	-0.36	-0.0054	-0.29	-0.0041	-0.13
-12	0.0011	0.07	-0.0085	-0.28	-0.0014	-0.08	-0.0055	-0.15
-11	-0.0044	-0.29	-0.0129	-0.38	-0.0077	-0.41	-0.0131	-0.32
-10	0.0032	0.21	-0.0097	-0.26	-0.0015	-0.08	-0.0146*	-0.32
-9	-0.0027	-0.17	-0.0124	-0.31	-0.0030	-0.16	-0.0176	-0.36
-8	0.0001	0.00	-0.0123	-0.28	0.0063	0.34	-0.0113	-0.22
-7	0.0061	0.40	-0.0062	-0.13	0.0121	0.65	0.0007	0.01
-6	-0.0092	-0.60	-0.0153	-0.32	-0.0034	-0.18	-0.0026	-0.04
-5	-0.0141	-0.92	-0.0294	-0.58	-0.0133	-0.72	-0.0159	-0.26
-4	0.0009	0.06	-0.0285	-0.54	-0.0023	-0.12	-0.0182	-0.28
-3	0.0025	0.16	-0.0261	-0.47	-0.0027	-0.15	-0.0209	-0.31
-2	-0.0105	-0.69	-0.0366	-0.64	-0.0071	-0.38	-0.0279	-0.40
-1	-0.0071	-0.46	-0.0437	-0.74	0.0078	0.42	-0.0202	-0.28
0	0.0031	0.20	-0.0405	-0.66	-0.0011	-0.06	-0.0212	-0.29
1	-0.0273*	-1.79	-0.0679	-1.08	-0.0186	-1.01	-0.0398	-0.52
2	-0.0316**	-2.06	-0.0994	-1.53	-0.0159	-0.86	-0.0557	-0.71
3	-0.0023	-0.15	-0.1018	-1.53	0.0140	0.75	-0.0417	-0.52
4	-0.0017	-0.11	-0.1035	-1.51	0.0060	0.32	-0.0358	-0.43
5	-0.0015	-0.09	-0.1049	-1.50	0.0230	1.24	-0.0128	-0.15
6	-0.0071	-0.46	-0.1120	-1.56	-0.0084	-0.46	-0.0212	-0.24
7	-0.0155	-1.01	-0.1275	-1.74	-0.0015	-0.08	-0.0227	-0.26
8	0.0096	0.63	-0.1179	-1.57	0.0209	1.13	-0.0018	-0.02
9	-0.0043	-0.28	-0.1221	-1.60	0.0157	0.85	0.0138	0.15
10	-0.0096	-0.62	-0.1317*	-1.69	-0.0186	-1.00	-0.0048	-0.05
11	0.0081	0.53	-0.1236	-1.55	0.0108	0.58	0.0060	0.06
12	-0.0199	-1.30	-0.1434*	-1.77	-0.0166	-0.90	-0.0106	-0.11
13	-0.0202	-1.32	-0.1636**	-1.99	-0.0258	-1.40	-0.0364	-0.37
14	-0.0055	-0.36	-0.1691**	-2.02	-0.0094	-0.51	-0.0458	-0.45
15	-0.0014	-0.09	-0.1704**	-2.00	0.0032	0.17	-0.0426	-0.41

**Significant at 5% level; *Significant at 10% level

TABLE-6.f: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR NON-METAL & OTHERS SECTOR- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
-15	-0.0265	-1.12	-0.0265	-1.12	-0.0243	-0.96	-0.0243	-0.96
-14	0.0073	0.31	-0.0192	-0.57	0.0037	0.14	-0.0207	-0.58
-13	-0.0047	-0.20	-0.0238	-0.58	0.0076	0.30	-0.0131	-0.30
-12	-0.0049	-0.21	-0.0287	-0.61	0.0000	0.00	-0.0132	-0.26
-11	-0.0010	-0.04	-0.0297	-0.56	0.0024	0.09	-0.0108	-0.19
-10	-0.0056	-0.24	-0.0353	-0.61	0.0053	0.21	-0.0056	-0.09
-9	-0.0103	-0.43	-0.0455	-0.73	-0.0064	-0.25	-0.0120	-0.18
-8	-0.0161	-0.68	-0.0616	-0.92	-0.0253	-1.00	-0.0373	-0.52
-7	-0.0032	-0.13	-0.0648	-0.92	-0.0008	-0.03	-0.0380	-0.50
-6	-0.0076	-0.32	-0.0724	-0.97	-0.0040	-0.16	-0.0420	-0.53
-5	-0.0180	-0.76	-0.0903	-1.15	-0.0112	-0.44	-0.0531	-0.63
-4	-0.0184	-0.78	-0.1087	-1.33	-0.0080	-0.32	-0.0611	-0.70
-3	0.0247	1.05	-0.0840	-0.99	0.0281	1.11	-0.0331	-0.36
-2	-0.0498**	-2.11	-0.1338	-1.52	-0.0449*	-1.78	-0.0779	-0.83
-1	-0.0461*	-1.95	-0.1798*	-1.97	-0.0379	-1.50	-0.1158	-1.18
0	-0.0460*	-1.95	-0.2257**	-2.39	-0.0345	-1.37	-0.1502	-1.49
1	-0.0445*	-1.89	-0.2702***	-2.78	-0.0281	-1.11	-0.1783	-1.71
2	-0.0271	-1.15	-0.2973***	-2.97	-0.0213	-0.84	-0.1996	-1.86
3	0.0336	1.42	-0.2638**	-2.57	0.0526**	2.08	-0.1471	-1.34
4	-0.0031	-0.13	-0.2668**	-2.53	0.0003	0.01	-0.1468	-1.30
5	-0.0446*	-1.89	-0.3114***	-2.88	-0.0332	-1.31	-0.1800	-1.56
6	-0.0029	-0.12	-0.3142***	-2.84	0.0104	0.41	-0.1696	-1.43
7	-0.0222	-0.94	-0.3364***	-2.98	-0.0272	-1.08	-0.1968	-1.63
8	-0.0186	-0.79	-0.3550***	-3.07	-0.0199	-0.79	-0.2167*	-1.75
9	-0.0369	-1.57	-0.3919***	-3.32	-0.0313	-1.24	-0.2480**	-1.97
10	-0.0291	-1.23	-0.4209***	-3.50	-0.0167	-0.66	-0.2646**	-2.06
11	-0.0208	-0.88	-0.4417***	-3.61	-0.0235	-0.93	-0.2881**	-2.20
12	-0.0104	-0.44	-0.4521***	-3.62	-0.0189	-0.75	-0.3070**	-2.30
13	-0.0645***	-2.74	-0.5166***	-4.07	-0.0608**	-2.41	-0.3678***	-2.71
14	-0.0467**	-1.98	-0.5633***	-4.36	-0.0413	-1.63	-0.4090***	-2.96
15	-0.0610***	-2.59	-0.6243***	-4.76	-0.0448*	-1.77	-0.4538***	-3.23

***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

TABLE-6.g: DAILY AVERAGE ABNORMAL RETURNS AND CUMULATIVE AVERAGE ABNORMAL RETURNS FOR ALL SECTORS- MARKET MODEL AND MARKET ADJUSTED MODEL

Day Relative to Announcement	Market Model				Market Adjusted Model			
	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value	Abnormal Returns	t' Value	Cumulative Abnormal Returns	t' Value
-15	-0.0179	-0.87	-0.0179	-0.87	-0.0144	-0.69	-0.0144	-0.69
-14	0.0073	0.35	-0.0106	-0.36	0.0037	0.17	-0.0107	-1.19
-13	-0.0047	-0.23	-0.0153	-0.43	0.0076	0.36	-0.0032	-1.33
-12	-0.0049	-0.24	-0.0202	-0.49	0.0000	0.00	-0.0032	-1.47
-11	-0.0010	-0.05	-0.0212	-0.46	0.0024	0.11	-0.0009	-1.54
-10	-0.0056	-0.27	-0.0267	-0.53	0.0053	0.25	0.0044	-1.52
-9	-0.0103	-0.50	-0.0370	-0.68	-0.0064	-0.31	-0.0020	-1.62
-8	-0.0161	-0.78	-0.0531	-0.91	-0.0253	-1.21	-0.0273**	-2.15
-7	-0.0032	-0.15	-0.0562	-0.91	-0.0008	-0.04	-0.0281***	-2.63
-6	-0.0076	-0.37	-0.0638	-0.98	-0.0040	-0.19	-0.0320***	-3.13
-5	-0.0180	-0.87	-0.0818	-1.19	-0.0112	-0.53	-0.0432***	-3.75
-4	-0.0184	-0.89	-0.1002	-1.40	-0.0080	-0.38	-0.0512***	-4.43
-3	0.0247	1.20	-0.0755	-1.01	0.0281	1.34	-0.0231***	-4.70
-2	-0.0498**	-2.41	-0.1253	-1.62	-0.0449**	-2.15	-0.0680***	-5.52
-1	-0.0460**	-2.22	-0.1712**	-2.14	-0.0379*	-1.81	-0.1058***	-6.77
0	-0.0460**	-2.22	-0.2172***	-2.63	-0.0345	-1.65	-0.1403***	-8.35
1	-0.0445**	-2.15	-0.2617***	-3.07	-0.0281	-1.34	-0.1684***	-10.17
2	-0.0271	-1.31	-0.2888***	-3.29	-0.0213	-1.02	-0.1897***	-12.13
3	0.0336	1.62	-0.2552***	-2.83	0.0526**	2.51	-0.1371***	-13.42
4	-0.0031	-0.15	-0.2583***	-2.79	0.0003	0.01	-0.1369***	-14.65
5	-0.0446**	-2.16	-0.3028***	-3.20	-0.0332	-1.59	-0.1700***	-16.18
6	-0.0029	-0.14	-0.3057***	-3.15	0.0104	0.50	-0.1597***	-17.54
7	-0.0222	-1.07	-0.3278***	-3.31	-0.0272	-1.30	-0.1869***	-19.12
8	-0.0186	-0.90	-0.3464***	-3.42	-0.0199	-0.95	-0.2068***	-20.83
9	-0.0369*	-1.79	-0.3833***	-3.71	-0.0313	-1.50	-0.2380***	-22.78
10	-0.0291	-1.41	-0.4124***	-3.91	-0.0167	-0.80	-0.2547***	-24.82
11	-0.0208	-1.01	-0.4332***	-4.03	-0.0235	-1.12	-0.2781***	-27.01
12	-0.0104	-0.50	-0.4436***	-4.06	-0.0189	-0.90	-0.2970***	-29.30
13	-0.0645***	-3.12	-0.5081***	-4.57	-0.0608***	-2.91	-0.3578***	-32.06
14	-0.0467**	-2.26	-0.5548***	-4.90	-0.0413**	-1.97	-0.3991***	-35.09
15	-0.0610***	-2.95	-0.6158***	-5.35	-0.0448**	-2.14	-0.4438***	-38.42

***Significant at 1% level; **Significant at 5% level; *Significant at 10% level.

TABLE-7.a: COMPANY-WISE ABNORMAL RETURNS FOR VARIOUS TIME PERIOD SURROUNDING THE ANNOUNCEMENT DAY OF MERGER AND ACQUISITION THE PERIOD, DURING 1999-00 TO 2003-04 MARKET MODEL AND MARKET ADJUSTED MODEL

COMPANY	Market Model						Market Adjusted Model					
	0	-1, 1	-2,2	-5,5	-10,10	-15,15	0	-1, 1	-2,2	-5,5	-10,10	-15,15
SAPTAR	-0.2335 (-1.56)	0.1010 (0.39)	-0.0345 (-0.10)	-0.5515 (-1.11)	-0.1983 (-0.29)	-0.9405 (-1.13)	-0.2259 (-1.49)	0.1290 (0.49)	0.0364 (0.11)	-0.4018 (-0.80)	0.1713 (0.25)	-0.5523 (-0.66)
CADBURY	-0.0086 (-0.59)	-0.0236 (-0.94)	-0.0195 (-0.60)	-0.0571 (-1.18)	-0.0826 (-1.24)	-0.1256 (-1.55)	-0.0139 (-0.79)	-0.0284 (-0.93)	-0.0330 (-0.84)	-0.0562 (-0.96)	-0.0776 (-0.96)	-0.1155 (-1.18)
MYFELLOW	0.1879 (0.75)	0.3766 (0.87)	0.5534 (0.99)	0.2740 (0.33)	-0.0324 (-0.03)	-0.8621 (-0.62)	0.2086 (0.84)	0.4946 (1.15)	0.7210 (1.30)	0.5700 (0.69)	0.5593 (0.49)	0.0528 (0.04)
DCLPOLY	-0.0168 (-0.18)	0.0134 (0.08)	-0.0905 (-0.43)	-0.2472 (-0.79)	-0.4420 (-1.02)	-0.8962 (-1.70)	-0.0061 (-0.07)	0.0591 (0.37)	-0.0207 (-0.10)	-0.1005 (-0.32)	-0.2011 (-0.47)	-0.5636 (-1.09)
FORBES	-0.1383*** (-2.77)	-0.2627*** (-3.04)	-0.2309** (-2.07)	-0.3567** (-2.15)	-0.5394** (-2.36)	-0.6220** (-2.24)	-0.1302** (-2.48)	-0.2219** (-2.44)	-0.1672 (-1.43)	-0.2292 (-1.32)	-0.3471 (-1.44)	-0.3682 (-1.26)

TABLE-7. a CONTINUED

COMPANY	Market Model						Market Adjusted Model					
	0	-1, 1	-2,2	-5,5	-10,10	-15,15	0	-1, 1	-2,2	-5,5	-10,10	-15,15
MODIRUB	-0.0211 (-0.43)	-0.0365 (-0.43)	-0.1232 (-1.12)	-0.2369 (-1.46)	-0.0641 (-0.29)	-0.2031 (-0.74)	-0.0229 (-0.42)	-0.0556 (-0.59)	-0.1091 (-0.89)	-0.2837 (-1.57)	-0.1902 (-0.76)	-0.3653 (-1.20)
CASTROL	-0.0341 (-1.37)	0.0386 (0.89)	0.0992* (1.78)	0.0034 (0.04)	-0.0758 (-0.66)	-0.1283 (-0.92)	-0.0285 (-1.01)	0.0320 (0.65)	0.0997 (1.58)	-0.0164 (-0.17)	-0.1595 (-1.23)	-0.2475 (-1.57)
MATRIX	-0.0327 (-0.71)	-0.0203 (-0.26)	0.1092 (1.07)	0.3031** (2.00)	0.4214** (2.01)	0.3258 (1.28)	-0.0261 (-0.53)	0.0110 (0.13)	0.1422 (1.29)	0.3844** (2.34)	0.5386** (2.38)	0.5280* (1.92)
SRIVISHN	-0.0061 (-0.26)	-0.1038** (-2.55)	-0.1961*** (-3.73)	-0.1470* (-1.89)	-0.2182** (-2.03)	-0.2990** (-2.29)	0.0055 (0.22)	-0.0873** (-2.02)	-0.1745** (-3.12)	-0.0899 (-1.08)	-0.0767 (-0.67)	-0.1045 (-0.75)
INDALUM	-0.0388 (-0.90)	-0.0607 (-0.81)	-0.1071 (-1.11)	-0.1980 (-1.38)	-0.2290 (-1.15)	-0.2929 (-1.21)	-0.0308 (-0.68)	-0.0431 (-0.55)	-0.1027 (-1.02)	-0.1936 (-1.29)	-0.2186 (-1.06)	-0.2905 (-1.15)
SANDVIK	-0.0056 (-0.17)	-0.0232 (-0.40)	-0.0208 (-0.28)	-0.0809 (-0.72)	-0.1224 (-0.79)	-0.2231 (-1.19)	-0.0011 (-0.03)	-0.0319 (-0.51)	-0.0313 (-0.39)	-0.1166 (-0.98)	-0.1537 (-0.93)	-0.2567 (-1.28)

TABLE-7. a CONTINUED

COMPANY	Market Model						Market Adjusted Model					
	0	-1, 1	-2,2	-5,5	-10,10	-15,15	0	-1, 1	-2,2	-5,5	-10,10	-15,15
WARTSILA	-0.0358 (-0.99)	-0.0302 (-0.48)	-0.0666 (-0.82)	-0.1464 (-1.22)	-0.2077 (-1.25)	-0.2737 (-1.36)	-0.0232 (-0.62)	-0.0002 (0.00)	-0.0050 (-0.06)	-0.0186 (-0.15)	-0.0038 (-0.02)	-0.0138 (-0.07)
PHILIPS	-0.0098 (-0.32)	-0.0576 (-1.08)	-0.0782 (-1.13)	-0.1811* (-1.77)	-0.2125 (-1.50)	-0.3443** (-2.01)	-0.0021 (-0.06)	-0.0624 (-1.09)	-0.0738 (-1.00)	-0.1352 (-1.23)	-0.0656 (-0.43)	-0.1788 (-0.97)
OTIS	0.0067 (0.26)	-0.0077 (-0.17)	-0.0934 (-1.63)	-0.0957 (-1.13)	-0.1091 (-0.93)	-0.1431 (-1.00)	0.0227 (0.71)	0.0167 (0.30)	-0.0633 (-0.89)	-0.0386 (-0.36)	-0.0553 (-0.38)	-0.1052 (-0.59)
SKANSKA	0.0275 (0.79)	-0.0600 (-1.00)	-0.1048 (-1.35)	-0.0478 (-0.41)	-0.1169 (-0.73)	-0.1876 (-0.97)	-0.0192 (-0.50)	-0.0233 (-0.35)	-0.0563 (-0.65)	-0.0433 (-0.34)	-0.0620 (-0.35)	-0.1018 (-0.47)
ALFALVL	-0.0119 (-0.45)	0.0001 (0.00)	-0.0171 (-0.29)	-0.0338 (-0.39)	-0.0365 (-0.30)	-0.0067 (-0.05)	-0.0056 (-0.19)	0.0215 (0.43)	0.0543 (0.83)	0.1766* (1.82)	0.2164 (1.62)	0.2154 (1.33)
FOSECO	-0.0858** (-2.21)	-0.1690** (-2.52)	-0.2305*** (-2.66)	-0.3310*** (-2.58)	-0.5642*** (-3.18)	-0.9496*** (-4.40)	-0.0744* (-1.77)	-0.1135 (-1.56)	-0.1586* (-1.69)	-0.1861 (-1.34)	-0.4309** (-2.24)	-0.8030*** (-3.43)

*p < 0.10; ** p < 0.05; ***p < 0.01. Figures in parenthesis are 't' values.

TABLE-7.b: SECTOR-WISE AND ALL SECTORS' ABNORMAL RETURNS FOR VARIOUS TIME PERIOD SURROUNDING THE ANNOUNCEMENT DAY OF MERGER AND ACQUISITION THE PERIOD, DURING 1999-00 TO 2003-04 MARKET MODEL AND MARKET ADJUSTED MODEL

COMPANY	Market Model						Market Adjusted Model					
	0	-1, 1	-2,2	-5,5	-10,10	-15,15	0	-1, 1	-2,2	-5,5	-10,10	-15,15
Food	-0.1211 (-1.63)	0.0387 (0.30)	-0.0270 (-0.16)	-0.3043 (-1.23)	-0.1405 (-0.41)	-0.5331 (-1.29)	-0.1199 (-1.58)	0.0503 (0.38)	0.0017 (0.01)	-0.2290 (-0.91)	0.0469 (0.13)	-0.3339 (-0.79)
Textile	0.0109 (0.12)	0.0424 (0.26)	0.0773 (0.37)	-0.1100 (-0.35)	-0.3379 (-0.78)	-0.7934 (-1.51)	0.0241 (0.26)	0.1106 (0.68)	0.1777 (0.85)	0.0801 (0.26)	0.0037 (0.01)	-0.2930 (-0.56)
Chemical	-0.0293 (-1.29)	-0.0061 (-0.15)	0.0284 (0.56)	0.0232 (0.31)	0.0938 (0.90)	-0.0019 (-0.01)	-0.0258 (-1.03)	-0.0042 (-0.10)	0.0443 (0.79)	0.0281 (0.34)	0.0630 (0.55)	-0.0283 (-0.20)
Metal	-0.0267 (-1.04)	-0.0380 (-0.85)	-0.0648 (-1.13)	-0.1418 (-1.66)	-0.1864 (-1.58)	-0.2632* (-1.84)	-0.0184 (-0.67)	-0.0251 (-0.53)	-0.0463 (-0.76)	-0.1096 (-1.21)	-0.1254 (-1.00)	-0.1870 (-1.23)
Machinery	0.0031 (0.20)	-0.0313 (-1.18)	-0.0734** (-2.14)	-0.0896* (-1.77)	-0.1188* (-1.69)	-0.1704** (-2.00)	-0.0011 (-0.06)	-0.0119 (-0.37)	-0.0348 (-0.84)	-0.0101 (-0.17)	0.0084 (0.10)	-0.0426 (-0.41)

TABLE- 7.b CONTINUED..

COMPANY	MARKET MODEL						MARKET ADJUSTED MODEL					
	0	-1, 1	-2,2	-5,5	-10,10	-15,15	0	-1, 1	-2,2	-5,5	-10,10	-15,15
NON-METAL & OTHERS	-0.0460* (-1.95)	0.1364*** (3.34)	0.2133*** (4.05)	0.2390*** (3.06)	0.3912*** (3.62)	0.6243*** (4.76)	0.0345 (1.37)	-0.1004** (-2.30)	0.1666*** (2.95)	-0.1380 (-1.65)	-0.2538** (-2.19)	0.4538*** (3.23)
ALL SECTORS	0.0460** (2.22)	0.1364*** (3.81)	0.2133*** (4.62)	0.2390*** (3.49)	0.3912*** (4.13)	0.6158*** (5.35)	0.0345 (1.65)	0.1004*** (2.77)	0.1666*** (3.56)	0.1380** (-1.99)	0.2538*** (2.65)	0.4438*** (3.81)

*p < 0.10; ** p < 0.05; ***p < 0.01. Figures in parenthesis are 't' values.

A STUDY ON ROADSIDE FOOD STALLS IN TIRUCHIRAPPALLI CORPORATION WITH SPECIAL REFERENCE TO FOOD INDUSTRY AND HOTEL INDUSTRY

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ABSTRACT

Food Industry and Hotel Industry is undergoing metamorphosis in terms of adoption on product differentiation and customer service. New entrants roadside food stall which came in to existence in the last ten years have gained a substantial market share and the hotel industry loosing the market share by the 7p's of service. It is very important for the roadside stall understand the voice of the customer to offer services required both to attracts new Clients and protect existing Client-base from migrating to others. A survey was conducted and results obtained from 537 respondents were analyzed to understand the factors that influence the roadside food stall selection decisions. The top 10 importance parameters are found out from the study.

KEYWORDS

Food Stalls, Tiruchirappalli Corporation.

INTRODUCTION

For the past two decades both Global and Indian Hotel industry have been undergoing rapid changes and similar changes in the roadside food stall operators and it will reflecting a number of underlying developments in meeting the customer demands, service and cost. The most significant changes has been advances in communication and services which have accelerated and broadened the dissemination of services availability and offer to the customer by lowering the operational cost. A lot of structural changes were introduced in the food industry and in phases to improve customer service productivity relationship with customer and enhance management control and came into existence as a result of competitiveness in the economy and maintain a good market share for the doing business in Tiruchirappalli corporation.

The domination of hotel industry was declaimed over the years with the entry and aggressive expansion of the roadside food stall to competitive by product differentiation and types of service. It will be needed there to study in the roadside food stall content behavioral habits and preferences of customer's consumptions. A survey was conducted, the response received from five hundred and thirty seven respondents were analyzed to understand the perception on roadside food stall based services and preferences offer to them. The study listed factors of importance in choosing the roadside food stall by customers and also measured the performances in a five point scale three point scale and two point scale.

OBJECTIVES OF THE STUDY

- Voice of the customer it's very important for the development of business.
- Concentrate on services and good relationship with customers.
- Promotional tool creates more impact to get home orders.
- Focus on primary activities like drinking water, parking facilities varieties of dishes and price.

LITERATURE SURVEY

The Business literature is flooded with vast array of information on customer preferences of customers in various countries. While such data is limited in the Indian road side food stall context of different types like. Panipuri Stall, Chapathi food stalls and so on. Even though customer preferences vary from country to country based on the culture, demography, availability, affordability, service, variability, perish ability and penetrations etc. Road side food stall outlets scenario in the other countries may throw some light to as on subject of roadside food stall.

DIMENSIONAL VIEW – HOTEL INDUSTRY

The profitability of roadside food stall and growth claim base are inter linked with intensifying competition in the market, it is very important for the Hotel industries to understand "How customers choose the roadside footstall? Then only road side food stall can take the proper marketing effects to increase claim base and improper identification of true determinates of consumers exportation from the stall. Selection decisions may result failure due to not identify the quality gap regularly.

It was found that roadside food stall customer tend to be loyal provided they are satisfy with its service and stick on the types of dishes on the stalls offered and it can change over only when they move to new home in an area outside their network.

According to Arvind Rajagopal in his study point out the increasing trends point to businesses and political parties targeting persons rather than masses, forms of patriarchal authority are softened and diffused, leading to a revision of the older distinctions that prevailed between public and private. At the same time, as relations between individuals are mediated more through markets and media, they also generate new kinds of rights and new capacities for imagination along with new ideas of belonging or inclusion that in turn, lead to novel ways of exercising citizenship rights and conceiving politics. This experience of inclusion in new circuits of communication and of sharing intellectual property across classes, such as seen with television, can help to politics those sections previously marginalized. The food stall owners are forced to compromise on the quality of the ingredients like buying the cheapest variety of flour and re-using oil for three to four days because of the low price they charge for the item. In these days of fast foods, though not exactly called by the same name, these roadside eateries make a fast buck, of course, at the cost of public health.

Soma Basu - Terra Vivain his study nearly two decades development of vendors in India has been everywhere invisible rendering a silent service on the dusty corner of a street in a residential area of this major town in southern Tamil Nadu state. And the customer's points of view she keeps to this schedule unfliningly, allowing housewives and working women in her community the opportunity to make quick, small and emergency purchases from the stall. Each city ends up creating certain 'natural markets'. Even when suppressed by police and municipal authorities, these markets take on a life of their own. Similarly, every city has its own location arrangements. Within these arrangements the consumers prefer to buy their products in different ways. In cities with a longitudinal layout and where travel time consumes a large part of the day (as in Mumbai), the consumers prefer to access goods along the travel routes. In cities where there is a separation of commercial and residential areas, consumers prefer to buy certain goods such as fruits and vegetables nearer the home and other goods in commercial areas.

Life is definitely not easy for the 10 million-odd street vendors or hawkers and food stall operators in India, many of them in big cities like Mumbai, Kolkata, Delhi and Bangalore and Tamilnadu state.

"They are covered by a multitude of laws, from municipal, traffic and criminal to railway and other acts covering parks and public spaces. They are not recognized as workers and hence have no protection of their rights," well-known activist Renana Jhabwala of the Self Employed Women's Association (SEWA) says in her essay 'Roles and Perceptions of Street Vendors'.

"Citizens' groups fighting for protection of public space argue that street vendors cause congestion and create unhygienic conditions. They are treated as irritants to urban planning and organization, whereas urban development plan should take street vending as part of its planning process and properly regulate hawking," points out Sharit Bhowmik of the University of Mumbai, a key person in the National Task Force on Street Vending and the man behind the formation of the National Alliance of Street Vending in India.

He believes street vending can be an asset to the urban system if hawkers are given a fair opportunity to contribute to development. "But being marginalized urban poor, they are seen as troublemakers. They experience frequent harassment -- their goods are confiscated, carts demolished, and they are victims of extortion and bribery," rues Bhowmik. Bhowmik strongly recommends legalization to regularize street vending. "If we are able to induce quality control for the service and include it in urban governance, then these traders can add to the comfort and convenience of all," he emphasizes.

K. Thilagam, a member of a voluntary group, trying to regularize street vending, asserts: "The government has failed to provide them jobs. So at least allow them to create a natural market on their own." Even though they have been denied rights, there is at least an attempt to integrate livelihood dependent street food vending in town planning," is very important from his study observes.

While the Indian government is drafting a national policy that aims to protect vendors' basic rights, each state has different laws. While the West Bengal government amended a section of the Kolkata Municipal Act to make street vending illegal and punishable, Tamil Nadu -- considered one of India's more progressive states - recognizes street business vendors as labourers.

The majority of the consumers are however from the middle and lower income groups. It is these people who benefit most from roadside food stall as they are able to get their daily necessities at cheap prices and at convenient locations. The main beneficiaries of the food hawkers in Mumbai and Calcutta are the middle and lower income office goers and low paid workers in the informal sector. It is estimated that around 30% of Mumbai's work force has at least one meal a day from hawkers. The food they get is cheap and filling. These people would have had to spend more if they ate in restaurants.

RESEARCH METHODOLOGY

Indian roadside food stalls vary diverse and the preferences of service changes across demographic factors like education, age, sex, salary, etc. Hence, in an attempt to get a true representative sample, we sought the help of the leading niche service consultant advises clients on various hotel industries and other service industries, consulting experiences based giving guide lines on the main instruments used for descriptive research study was the structure questionnaire survey designed by the researcher based on the factors which were selected from various empirical research work covered in the literature survey and were finalized after several rounds of Discussions with select panel of experts like hotel industry association presidents, service industry consultants and Academicians of Business teachers, customers to be used randomly in the pilot study for to create validity, reliability and with the research tool. Due to non availability of Secondary data .But the study focuses on the Primary needs of the people.

Six twenty five questionnaires were filled by the customers who came to road side food stall for the food consumption. After the interview schedule 537 Quality Questionnaires were analyzed with the response rate of 89.50 percent.

INFERENCE

When the answers were analyzed (Table1.1) it was found that 42.0% of the respondents belong to the age category between 30 years to 40 years, 23.28% of the respondents belong to the age category between 20 years to 30 years which mean that the Targeted customers for the road side food stall.

In educational qualification above, 30.73% of the respondents were graduates, 13.967% of respondents were school students, 21.97% of the respondents where Diploma holders (Table1.2).

Above 37.24% of respondents belongs to the income level less than Rupees 5000 per month, 18.25% of the respondents Where belongs to the income level between Rupees10000 - 15000 per month (Table1.3). About 89.19% of respondents are male customers of roadside food stall in Tirucirappalli Corporation. This may be because of the fact, the male members of the family prefer to take food in road side food stall (Table1.4) In target customer viz. majority of the respondents like Industrial employees (28.49%), Daily wage earners (38.92%) (Table1.5)

In price of the dish varieties above, 50.09% of respondents felt bad price for the dish (Tables1.6) and in Quality viz. of the dish variety above 90.13% of respondents satisfies from the food stall (Table1.7). In service via 70.57% of the respondents satisfied with service provided by the food stall.

In the dish variety about 7.20% offer to the customer in greater than four varieties of dish types (Table1.12). In vehicle parking facilities, about 83.42% of respondents were easy to park their vehicles very nearer to the food stall (Table1.13).

In environment of roadside food stall about 22.90% of respondents felt well. (Table1.14). and from the (Table1.16 to1.19) the roadside food stall maintained good inventory management and value added services to the targeted customer.

In ordering facilities (Table 1.20), industry association (Table 1.21) has followed bad approaches in the business practices.

It is found that dish taste about 86.59% of responders are feels good (Table1.22) and in terms of hygienic factor about 52.88% of respondents satisfied from the food stall (Table1 .23) In addition the roadside food stalls not follows this government rules and regulations (Table1. 24)

FINDINGS OF THE STUDY

- From the (F-Test, 5% level of significance) consuming habit of the food differed from the age group of respondents, and consuming habit with respect to irrespective respondents occupation.
- Graduates and trade persons consumption in roadside food stalls
- 37.24% of the respondents belong to income level < 5000 rupees per month only
- 32.21% of the respondents belong to income level > 5000 - <10000 Rupees per month
- Gender wise relationship 89.19% male respondents and 10.80% Female respondents.
- Industrial Employees and daily wage earners – be preferred more roadside food stalls for their convenience to go for the work.
- 59.09% of respondents feels Bad price of the dish
- 29.42% of respondents were dissatisfied with the services. Offered from the roadside food stall.
- 9.87% f respondents were dissatisfied with the dish varieties on a quantities offered drinking water facilities
- Home consumption packaging relationships building and parking and drinking water facilities arrangement to the customer.
- 24.02% of respondents feels bad inventory management in its operations and takes more time.
- 41.71% of respondents dissatisfied with the credit facilities offered to loyal customers.
- From the Chi-square Test (Test 2.2) at 5% level of significance the respondent's opinion about the taste and qty of the food are independent.
- Focus on value added services to compete with the competitions.
- 87.15% of respondents feel provisions are not available for Home function orders.
- 77.65% of respondents feels not followed his association rules and regulations.
- 47.11% of respondent's feels roadside food stall dishes are not good for the health.
- From the chi-square (Test 2.3) at 5% level of the significance the price of the dish and service facility provided by the stall independent.

RECOMMENDATIONS OF THE STUDY

- Market gap is presents to compete with the types of Hotel industry and food industry.
- Lower cost for preparation of dished
- Existing customers promotions based easy to get additional offers like home functions orders, Evening bachelors parties and for funeral.
- Majority of the customer's male respondents due to its convenience Income level and expectancy rises.
- Customer behaviours helped for under giving of us to do business modifications.

From the chi-square (Test 2.4) at 5% level, the customer opinion on price is dependent with respect to their occupation.

CONCLUSION

The top ten factors of importance influencing the response to choose the roadside food stall are age group income level, price, and quantity, value added services, dish varieties, dish taste, inventory management, hygienic factor and gender. It is understandable that roadside food stall having a market to the society. The main factor reputation of the roadside food stall is economic and ready to eat different types of dishes. In order to identify the needs and wants of the customers for continues improvement and maximization of profit. It is found that the market forces and services relationship with customers to retain and to get new customers with the help of existing customer. Similarly other attributes are very important to be considered for to perform to the satisfaction of customers. The area factors influencing the customer's for the convenience to reach the roadside good stall for the food consumption.

There is the need for the further research works to be done and to concentrate by the Government to yield revenues from the services business and create wealthy society.

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APPENDIX

DATA ANALYSIS AND INTERPRETATION

TABLE NO 1- DISTRIBUTION OF RESPONDENTS BASED ON THE ATTRIBUTES

s. No	Attributes	Percentage of respondents
1.	Age group	
	< 20 years	14.89
	>20-<30 years	23.28
	>30 - < 40 years	42.09
	> 40 years	19.73
2	Educational Qualification	
	I.T.I	13.59
	Diploma	21.97
	U.G.	30.72
	P.G	19.71
	Professional School Education	5.02 13.96
3	Income level	
	< 5000	37.24
	>5000 - < 10000	32.21
	>10000- < 15000	18.25
	>15000 - <20000	6.70
	>20000-<25000 >25000	3.72 1.86
4	Gender	
	Male Female	89.19 10.80
5	Target Audience	
	Industrial employees	28.49
	Student	6.51
	Daily wage earners	38.92
	Masons	1.49
	Executives	1.30
	Mechanic	5.02
	Retail Sales man	2.97
	Tourist cabs Drivers	2.42
	Travelers	2.79
	Teachers Others	1.30 8.75
6	Price of the dish	
	Good Bad	49.90 50.09
7.	Quantity provided by the stall	
	Satisfied Dissatisfied	90.13 9.87
8	Roadside food stall service	
	Satisfied Dissatisfied	70.57 29.42
9	Customer Relationships	
	Good Bad	90.31 9.68
10	Convenience	
	Yes No	87.15 12.84
11.	Drinking water facilities	
	Good Bad	59.21 40.78
12.	Dish varieties	
	<2 varieties	16.57
	< 2 - > 4 varieties <4 - < 6 varieties	13.22 70.20
13	Parking facilities	
	Good Easy Bad difficult	83.42 16.57
14.	Environment	
	Good Bad	22.90 77.09
15.	Inventory management	
	Good Bad	75.97 24.02
16.	Consumption packaging	
	Good Bad	61.08 38.92
17.	Credit facilities	
	Satisfied Dissatisfied	58.28 41.71
18.	Value added service	
	Good Bad	71.32 28.67
19.	Food dishes ready to eat	
	Yes No	92.73 7.26
20.	Home functions ordering facilities	
	Good Bad	12.84 87.15
21.	Industry Association norms followed	
	Yes No	22.34 77.65
22.	Dish Taste	
	Good Bad	86.59 13.40
24.	Hygiene food	
	Yes No	52.88 47.11
25.	Met government norms	
	Yes No	10.42 89.57

2.1 - TESTING OF HYPOTHESIS

Source of variation	Sum of squares	d.f	Mean square	Return
Sum square b/n Age group	1892.92	3	630.97	F=630.97/132.18 =4.77
Sum square b/n Targeted Audience	6827.55	5	1365.57	F = <u>1365.37</u> = 10.33
Residual error	1982.75	15	132.18	132.18
Sum square Total	10703.22	23		

At 5% significant level, the consuming habit of food is differing with respect to Age group. And also the consuming habit of food is differing with respect to the audience professions.

2.2 - TESTING OF HYPOTHESIS

Taste \ Qty	Good	Bad
Satisfied	421	63
Dissatisfied	44	9

Ho : The opinion of the audience about Taste and Qty is independent.
 H1 : Are not independent

TEST STATISTICS

Under Ho, the test statistics is $\chi^2 = 0.6437$. At 5% level of significant level the audience opinion about the Taste of the food and quantity of the food are independent.

2.3 - TESTING OF HYPOTHESIS

Service \ Price	Satisfied	Dissatisfied
Good	188	191
Bad	80	78

Ho : The opinion of the audience about price and service are Independent
 H1 : Are not independent

TEST STATISTICS

Under Ho, the test statistics $\chi^2 = 0.0481$. At 5% level of significant, the price and Service facility are independent. That is, the consuming habitation was not increase due the price and service.

2.4 - TESTING OF HYPOTHESIS

Targeted audience \ Price	Satisfied	Dissatisfied
Labour	65	88
Daily wages	120	89
Travelers cabdrivers	13	15
Students	11	24
Mechanic	10	17
Others	49	36

Ho : The targeted Audience opinion about the price is in dependent Irrespective of their profession.
 H1 : Not independent irrespective of their profession.

TEST STATISTICS

Under Ho, the test statistics is $\chi^2 = 16.9064$. At 5% level of significant, the null hypothesis is accepted and the audience opinion about the taste of the food and Quantity of the food are independent.

BIOFUELS CONSUMPTION IN EASTERN HIMALAYAS HOUSEHOLDS - AN EMPIRICAL ANALYSIS

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ABSTRACT

Arunachal Pradesh, the Eastern Himalayas state, is endowed with rich natural resources like forests; water resources, wild life, and these resources play an important role in the socio-economic life of the tribal peoples. The study reveals that in the rural area all the households use bio-mass fuels and in urban area around 67 per cent of the households use biofuels, either exclusively or in combination with other fuels. On the whole the study shows that biofuels consumption is influenced by collection time, family labour availability, level of education and income and the average distance between the house and forest. . It was also observed that the peoples collect bio-mass resources from common property resources to meet own consumption as well as to meet other needs by selling it in the markets. Moreover, the factors like food habit, livelihood strategy, easy access to the forest resources, poor communication, non- availability of other fuels make the demand for bio-mass fuels indispensable in Arunachal Pradesh. Therefore, excessive pressure on forest may be expected, owing to these factors along with extreme dependency of the people for survival, which may bring about significant changes to the stock of forest resource leading to depletion and degradation of these resources. Energy substitution, though on the rise, is still insignificant in rural eastern Himalayas households. Decentralised renewable energy options (like micro-hydels) can use resources more efficiently, empower local communities, develop indigenous technologies and deliver strong social and environmental benefits. As such, harnessing the non-conventional sources of energy with small-scattered loads and good availability is urgently demanded.

KEYWORDS

Biofuels, Common Property, Degradation, Energy Substitution Household Energy.

INTRODUCTION

Around half of the world population use biofuels² for cooking, which provide about thirty five per cent of energy supplies in the developing countries (World Bank Report, 1992). Though the fulfillment of energy gap and modernization of energy sector has been considered as one of the indispensable ingredients of rural development agenda in India, yet the realization was very poor. As per the data provided by UNSD³, bio-mass provided 77 per cent of the total household energy consumption in India.

Arunachal Pradesh, the Eastern Himalayas state, is endowed with rich natural resources like forests; water resources, wild life, and these resources play an important role in the socio-economic life of the tribal peoples. As per Census Report of India (2001), around 87 per cent of the rural households and 33 per cent of the urban households use bio-mass fuels for cooking. It was also observed that the peoples collect bio-mass resources from common property resources to meet own consumption as well as to meet other needs by selling it in the markets. Moreover, the factors like food habit, livelihood strategy, easy access to the forest resources, poor communication, non- availability of other fuels make the demand for bio-mass fuels indispensable in Arunachal Pradesh. Therefore, excessive pressure on forest may be expected, owing to these factors along with extreme dependency of the people for survival, which may bring about significant changes to the stock of forest resource leading to depletion and degradation of these resources. Energy substitution, though on the rise, is still insignificant in rural Arunachal Pradesh. However till date, no systematic study has been conducted in Arunachal Pradesh on the nature of household energy consumption based on any economic framework. The present study is an attempt in to fill the gap in knowledge.

DATA BASE AND METHODOLOGY OF THE STUDY

The study is basically empirical in nature and designed to test the theoretical model based on primary data⁴ in the context of Arunachal Pradesh. The households are the ultimate unit of observation. A multi-stage sampling technique was used for selection of households of the selected villages. The different stages under the technique are as follows:

- Stage I : Selection of districts
- Stage II : Selection of circles
- Stage III : Selection of villages
- Stage IV : Selection of households

In the first stage, two districts namely Papum Pape and West Kameng were selected purposively from the Eastern Himalayas State Arunachal Pradesh. The districts were selected to represent two different altitude⁵ areas of the State. The Papum Pare district was selected from relatively low altitude areas of the State whereas West Kameng district was selected from high altitude areas of the State. At stage II, two circles namely Doimukh, and Sagalee were selected from Papum Pare district and another two circles namely Bomdila and Dirang were selected from West Kameng District purposively. In the third stage, eight and four villages were selected from Papum Pare and West Kameng district respectively. In the next stage, altogether 238 sample households were selected by a stratified random sampling technique of which 144 numbers of households were selected from Papum Pare district and rest 94 households were selected from West Kameng district. The selection of sample from the selected districts was done on the basis of relative population size. Once villages were selected, the primary data was collected from the household using a structured schedule. Simple and well designed detailed questionnaires, keeping in view of the objectives of the study, were prepared to elicit information from selected households so as to study the nature and consequences of household energy consumption in rural households of Eastern Himalayas.

² Biofuels include the fuelwood and charcoal, and agricultural waste, such as crop residues and dung.

³ United Nations Statistics Division, quoted from Dzioubinski et.al. 1999.

⁴ The primary data were collected during field survey in connection to the Ph. D. programme of the author.

⁵ The altitude of the surveyed areas of Papum Pare district ranges from 180 meters to 290 meters. On the other the altitude of West Kameng district ranges from 1497 meters to 2700 meters.

THEORETICAL FRAME WORK AND EMPIRICAL SPECIFICATION OF THE MODEL

In rural Arunachal Pradesh, the market of domestic fuels is either absent or ill functioning. The households mainly collect biofuels from common forests. It makes reasonable to assume household energy supply and demand as non-separable in rural Arunachal Pradesh. The allocation of household time in biofuels collection along with other economic activities would go to a great extent determines the nature of demand (supply) for (of) fuel wood.

The theoretical frame work begins with a utility maximizing household. It deals with the household labour allocation to biofuels collection, agriculture and off farm activities. It is assumed that households' biofuels consumption is responsive to fuels prices (in a limited extent), labour cost, fuel substitution from different sources and farm and non farm income.

The household utility U is a function of consumer good, leisure, taste and preference.

$$\therefore U = U(C, C_L, \theta) \text{----- (1)}$$

Here C = Consumer goods.

C_L = Leisure.

θ = Taste and preference.

The household consumer goods again can be decomposed into two parts i.e.

1. consumption goods that required energy input (C_E) and

2. other consumption goods (C_X)

$$\therefore U = U(C_X, C_E, C_L, \theta) \text{----- (2)}$$

Now C_E is produced with fuel input from common forest (biofuels) C_{BF}, private sources of energy (wood from own farm or residues or from the clearance of jungle for shifting cultivation) C_P and commercial sources of energy (LPG, Bio gas, improved stove etc.) C_T, so that

$$C_E = f(C_F, C_P, C_T, \beta) \text{----- (3)}$$

Where, β is a vector technology that affects the co-efficiency of fuels consumption.

The household collects biofuels from forest (Q_{BF}) and sometimes sells a part (BF_S) or some times purchase (BF_P) for domestic use. So the total household consumption of biofuels is

$$C_{BF} = Q_{BF} + BF_P - BF_S \text{----- (4)}$$

The collection of biofuels can be described as a function of household labour allocation in bio- fuels collection (L^H_{BF}), various local and demographic characteristic (Ω) that are important to household preference and a fixed factor of production (T).

$$\therefore Q_{BF} = f(L_{BF}, T; \Omega) \text{----- (5)}$$

The supply of private sources of energy is a function of total agricultural production. Agricultural production (Y_P) is assumed to be a function of household labour in agriculture (L_A), farm input(R) and a vector of household endowments pertaining to farming (Z) i.e., land, livestock etc.

$$\therefore Y_P = Y_P(L_A, R, Z) \text{----- (6)}$$

It is assumed that the supply of private energy is a fixed portion of (α) agricultural out put. Again there is a trade off between residue use as energy and use for other purpose like fodder, manure, etc. Supply of residue as energy or private sources of energy is that portion of total available residue which is not used as farm input (R) and fodder (F).

$$\therefore Q_P = \alpha \cdot Y_P - R - F \text{----- (7)}$$

Where Q_P = Supply of private energy.

R = Residue used as farm input.

F = Residue used as fodder.

The supply of commercial sources of energy can not be made available by the household itself. The supply is dependent upon external agencies. So it may be considered as a class of other consumption good. But the consumption is dependent upon the market price. A shadow price is added to the market price due to make it available in the consumption places from the production or supply place.

The budget constrain is as follows:

$$P_F \cdot F_S + P_A \cdot Y_P + W \cdot L_W^H = P_X \cdot C_X + P_{BF} \cdot BF_P + P_T \cdot C_T \text{----- (8)}$$

Where, P_{BF}, P_A and P_X refer to the market prices of biofuels, agricultural output and consumer goods respectively. P_T refers to the price of modern or commercial sources of energy input. W is the exogenous wage rate and L_W is labour time in off farm activities.

It is assumed that the collection and consumption of biofuels may not be equal so that the purchase and sell of biofuels is an observed phenomenon. It implies that the net marketed amount of biofuels is non-negative for those who do not purchase biofuels and it may be negative for them who do purchase.

$$Q_{BF} - C_{BF} \geq 0 \text{ for those who do not purchase----- (9.1)}$$

$$Q_{BF} - C_{BF} \leq 0 \text{ for those who purchases ----- (9.1)}$$

The commercial sources of energy are not traded, that is supply is equal to consumption. In addition the non-negativity constraints are:-

$$Q_i \geq 0; C_j \geq 0; L_k \geq 0$$

Here i = BF, A, P;

j = BF, X, P, T;

k = F, A, W.

The equations (1) to (9) represent a problem of constraint maximization. So maximizing equation (1) subject to the budget constrains a set of reduced form equations can be derived showing the household consumption of biofuels and other energy as a function of all exogenous variables. i.e.

$$\left. \begin{matrix} C_{BF} \\ C_P \\ C_T \end{matrix} \right\} = f(\theta, \beta, \Omega, Z, T_M, T_W, P_A, P_X, W, P_F, P_T) \text{----- (10)}$$

EMPIRICAL SPECIFICATION OF THE MODEL

Equation (10) gives the basis for the empirical works. The equation (10) does not impose any restrictions on functional form and parameters. The equations are independent and as such it is not necessary to estimate the full system of all endogenous variables (Sadoulet and Janvry, 1995, Heltberg, 2001). Though the theoretical model distinguishes fuelwood collection from CPRs and from own farm, it could not be done due to ill-defined⁶. The estimation is, therefore, confined to two reduced form of equations i.e. (i) biofuels consumption (C_{BF}) and (ii) non-conventional i.e. energy consumption (C_T). So the relationship can be represented in the form of following equation.

$$\left. \begin{matrix} \sum_1^N C_{ij} \\ \\ \sum_1^N C'_{ij} \end{matrix} \right\} = f(\text{FUELTIME}_i, \text{FSIZE}_i, \text{LIVSTOK}_i, \text{WONLAND}_i, \text{PMDENG}_i, \text{EDUCATION}_i, \text{BIOGAS}_i, \text{INCOME}_i, \text{DISTANCE}_i) \text{----- (11)}$$

⁶ Emergence of property right over land and forests is a recent phenomenon in Arunachal Pradesh and in many cases it appears in an ill-defined form.

$R^2 = 0.53$	(-0.283)	Adj $R^2 = 0.51$	(-5.075)	(-2.601)	F= 28.51	N= 238
$\ln \hat{C}_T =$	6.175	+0.148*	$\ln -0.220^*$	$\ln FSIZE$	+0.008 \ln WONLAND	+0.046 \ln LIVSTOCK
		FUELTIME	(-4.384)	(0.148)		PMDENG
		(2.683)			(0.777)	(-3.554)
	+ 0.265* \ln	- 0.046 \ln BIOGAS	+0.464*	\ln + 0.0.090	\ln -----	(13.2)
	EDUCATION	(1.030)	INCOME	DISTANCE		
	(4.835)		(8.439)	(1.765)		
$R^2 = 0.58$		Adj $R^2 = 0.56$		F= 34.31		N= 238

The estimated models, (13.1) and (13.2) show that most of the explanatory variables have the expected signs which are statistically significant at different levels. The variables FUELTIME, FSIZE, EDUCATION, INCOME and DISTANCE were found to be significant in determining household energy consumption (C_{BF} and C_T) in rural areas. However, the level of significance varies. The variable DISTANCE is not significant for C_T but it has positive relationship. On the whole the study shows that in the rural areas the household energy consumption is influenced by collection time, family labour availability, level of education and income and the average distance between the house and forest. Scarcity of fuelwood induces substitution of biomass fuels by commercial fuels. The more the members in a household the greater is the demand for biomass fuels. As the level of education and income increases the households start substitution of biomass fuels by modern non-conventional fuels. An increasing distance between forest and households also induce fuel substitution in rural areas. It is to be mentioned here that the variable PMDENG no longer appeared as significant variable in the models fitted for the rural households. The Biogas which was taken as a proxy for renewable energy consumption does not yield any good result for any of the models. This may be due to the fact that the biogas installation programmes are still on experimental phase. Hence it may not be possible to make suggestion regarding fuel substitution in relation to bio-gas in the study area.

PER CAPITA BIOMASS FUELS CONSUMPTION

The per capita biomass fuel consumption is calculated to observe regional variation (due to difference in altitude) as well as seasonal variation in the consumption of biofuels among rural households which is given as follows:

BFC/P
 Where BFC= biofuels consumption in kg per day and P= adult equivalent members. The per capita per day biofuels consumption, maximum and minimum values, average values, standard deviations and coefficient of variation were computed for a year as well as season wise. The per capita daily consumption of biofuels in two surveyed districts is shown in the Table-1

TABLE-1: PER CAPITA DAILY BIOFUELS CONSUMPTION IN THE SURVEYED DISTRICTS (Based on Demographic Criteria)

Surveyed Districts	Per Capita Fuelwood Consumption				
	Maximum	Minimum	Average	Standard Deviation	Coefficient of Variation
Papum Pare (Low Altitude Area)	8.26	1.52	3.83	1.27	301.57
West Kameng (High Altitude Area)	14.79	4.10	7.13	2.26	315.49
Total	14.79	1.52	5.22	1.66	306.24

Source: Field Survey, 2008.

Data presented in the Table-1 shows that, on an average per capita biofuels consumption in West Kameng (high altitude area) was much higher than that of Papum Pare (low altitude area) district.

The study also attempted to analyse the per capita biofuels consumption based on different economic classes i. e. relatively poor and relatively non-poor. The study revealed that in both the surveyed areas the poor households consumed more biofuels in comparison to that of non-poor households. This may be due to high installation cost involved in commercial sources energy like LPG. As a result the poor households continued to depend upon traditional sources of fuels like fuelwood, crop-residues, etc. The details are shown in Table 2.

TABLE-2: PER CAPITA DAILY BIOFUELS CONSUMPTION IN THE SURVEYED DISTRICTS (Based on Economic Criteria)

Surveyed Districts	Economic Classes	Per capita Biofuels Consumption				
		Maximum	Minimum	Average	Standard Deviation	Coefficient of Variation
Papum Pare (Low Altitude Area)	Poor	8.26	0.52	4.06	1.46	278.08
	Non-poor	6.41	0	2.62	1.36	192.65
	Total	8.26	0	3.20	1.57	208.28
West Kameng (High Altitude Area)	Poor	13.81	3.70	7.37	2.48	297.18
	Non-poor	14.79	2.88	6.40	1.95	328.20
	Total	14.79	2.88	6.38	2.22	305.40

Source: Field Survey, 2008.

So far we have discussed regarding the per capita consumption of biofuels based on climatic, demographic and economic criterions. However, it was observed that the demand for fuels, particularly biofuels increases significantly in the winter seasons. So an attempt was made to estimate the season-wise variations in the consumption of biofuels in the two different altitude areas. It was observed that there were wide variations in the consumption of biofuels between two seasons, i. e. summer and winter and between two surveyed districts i.e. Papum Pare and West Kameng. The details are shown in Table-3

TABLE -3: SEASON WISE BIOFUELS CONSUMPTION

Surveyed Districts	Seasons	Per capita Biofuels Consumption		
		Maximum	Minimum	Average
Papum Pare (Relatively Low Altitude Area)	Summer	7.50	0	2.85
	Winter	12.50	0	4.71
West Kameng (Relatively High Altitude Area)	Summer	9.00	0	3.50
	Winter	22.50	5.00	9.72
Total	Summer	9.0	0	3.11
	Winter	22.50	0	6.68

Source: Field survey, 2008.

Table-3 shows that there were wide variations in per capita daily consumption of biofuels between summer and winter seasons in both the surveyed districts. However, the variation was wider in West Kameng district (3.50 kg per capita in summer season and 9.72 kg per capita in winter season) than that of Papum Pare district (2.85 kg per capita in summer and 4.71 kg per capita in winter). In Papum Pare district not only the seasonal variations in bio-fuel consumption was smaller but also the average consumption of bio-fuel was smaller irrespective of their socio-economic conditions. On an average bio-fuel consumption in West

Kameng district was around two times higher than that of Papum Pare district. It establishes the fact that in winter season bio-fuel is used for heating the room and therefore the per capita consumption in winter season is found to be relatively higher. Again, due to high altitude, the per capita bio-fuel consumption in West Kameng district (high altitude area) was higher than that of Papum Pare (low altitude area) i. e. low temperature prevailing over a considerable part of the year necessitates greater use of energy for heating purpose.

CONCLUSIONS AND POLICY IMPLICATIONS

The finding summarized above lead to the following conclusion and policy suggestions of the study.

* The theoretical model which was tested using primary survey data supported the theoretical proposition that the bio-fuel consumption and modern sources of fuels consumption were influenced by household labours, fuelwood collection time, price of commercial energy, education and income etc. However, fuelwood collection time was not found to be significant to determine commercial energy consumption. Hence, an increasing collection time or forest scarcity cannot be expected to stop fuelwood collection and substitution of non forest fuels to avoid deforestation. Under such situation it is urgently required to create awareness about the environmental cost and health hazard of fuelwood consumption in order to motivate the people towards the modern fuels. A study conducted by Laxmi, Parikh, Karmarkar and Dabrase observed the health impact due to indoor air pollution in rural Rajasthan. The study showed serious health impact of bio-mass fuels used in the form of, respiratory diseases, eye diseases, bronchitis, pulmonary tuberculosis, chest infection etc. The present study also attempted to collect information regarding certain diseases which are closely related to bio-mass fuels consumption. These were eye irritation, skin diseases, bronchitis and headache. The questions were put to the person who usually cooked food. It was found that out of the 306 respondent around 30.09 per cent suffered from eye irritation, 23.86 per cent from skin diseases, 11.43 per cent from bronchitis and 8.50 per cent from headache. It is to be noted here that one cannot say that all these respiratory diseases are exclusively due to fuelwood consumption, but these can certainly be triggered by it. If the real cost (including health hazards) of bio-mass fuels consumption is taken into account fuelwood may not be a cheaper product and the actual cost may be higher.

* Another important finding of the study is that in the rural areas people are reluctant to pay for commercial fuels as the fuelwood can be gathered free at cost. As a result, the Government policies of subsidizing commercial fuels sufficiently so as to make people attractive will hardly yield good result. Instead forest policies might seek to induce substitution away from forest fuelwood. Such policy could aim at promoting agroforestry and tree growing in private land. Policy intervention to this end include the provision of subsidized seedling, selection of fuelwood generated tree species, monetary incentive for planting and maintaining trees, sharing knowledge and information with the villagers, creating awareness etc.

* The dependency of rural households on fuelwood consumption can not be reduced immediately but its consumption can be reduced by popularizing scientific *Chullhas*. Improved wood stoves not only raise energy efficiency, typically by 30-50 per cent but also reduce indoor pollution by a factor of 20 to 100, to levels well within WHO guidelines (Anderson, 1996). In the rural areas of Arunachal Pradesh, the improved end-use technologies, which reduce the energy requirement for any given level of energy output, have the potential to reduce pressure on CPFs. However, this type of techniques should be adopted with special care. For example, the households often find difficulties with this type of stove because certain foods cannot be cooked on it. Thus, it implies that the technology dissemination programmes need to pay careful attention to local food and cooking habits. Hence, it is suggested that steps may be taken to renovate the scientific *Chullhas* to meet the local needs and popularize it among the rural households in order to save energy.

* It was observed that fuelwood is substantially used for heating purpose in the high altitude area. This is also true that in some parts of the State during winter season the temperature is so cold that it is not possible to survive without any artificial heating. So the Government should explore an alternative to fuelwood for heating purpose in order to reduce substantial deforestation. As the State is having immense potentials for hydro-electric power generation, attempts should be made to harnessing full potential for hydro-generation of electricity.

* Given the precipitous topography and the sparse spatial distribution of population, the conventional long range generation transmission network may not suit Arunachal Pradesh. Therefore, the provision of stand-alone isolated small generation facilities (50 KW to 4 MW) allowing for limited distribution in the habitation areas, would perhaps be more useful for capacity addition, economy and to contain huge transmission and distribution losses. Thus, microhydel power stations are ideally suited to areas where power demand is relatively low and population is scattered. Thus, the State Government is required to develop a suitable management for the villages and block at the Panchayat level to maintain the plant after setting up the project. Once the villagers particularly in high altitude areas get used to electricity it will go a long way in preventing indiscriminate felling of tree.

Hence in order to preserve forest, the alternative option as suggested above may be implemented seriously by the State Government. The Ministry of Non-conventional Energy sources (MNES) has initiated a number of programmes in association with Arunachal Pradesh Energy Development Agency (APEDA) in the State for harnessing the non-conventional sources of energy in the State. However, the progress is not found to be satisfactory and it is only an experimental stage. It should be noted that with small-scattered loads and good availability of renewable energy sources like hydro, solar, biofuels etc. the State is ideally suitable

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IMPACT OF WOMAN EMPOWERMENT THROUGH MICRO FINANCE INSTITUTES: SOCIO-ECONOMIC AND BEHAVIORAL PERSPECTIVES AFFECTING TO RULER SEGMENT WOMAN OF GANDHINAGAR IN GUJARAT

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ABSTRACT

To develop any economy finance is the key element. In any developing economy contribution of villages or the ruler segment is essential. Indian economy is based on agriculture and gives the maximum output in to the GDP. To improve efficiency at this level in developing economy maximum weight age given to financial institution and now a days through Self Help Group such targeted population provided financial help for economic upliftment and also for betterment of the poor people. To have faster development of any segment contribution of the woman is essential. In India 48% population of woman and literacy ratio of woman is 54.16%, but still relating to their contribution in to the economy is very negligible. Micro finance institutes play the most significant role to provide woman empowerment in to the Indian economy. Such foundation not only gives them empowerment with finance only but also revolutionizes their social, cultural and behavioral pattern which is helpful for development of the economy. This paper focus on development of the woman sector with such SHG and other financial institutions.

KEYWORD

woman empowerment, Self Help Group, revolutionizes.

INTRODUCTION

Indian economy expands its own horizon of development with all the segment of economy. In India still 35 % lives below poverty line and among them 57% lives in ruler area. India is based on agriculture and so that the contribution of ruler segment is most important. In economy to improve GDP it is essential that all the gender gives their contribution. Among total population 48% woman population while 52% of male population, but contribution of female sector to the GDP is negligible. Traditional concept of remain at house and perform of house hold duty remains. While in developing nation contribution of female gender is really appreciated. In India now this idea has been changes a lot and woman tried to be more self reliant and self sustainial. For this concept basically they need finance which is provided by different financial organization. If such finance derived by female gender at the ruler region then drastic changes would be expected in Indian economy. Micro finance institutions would gives new oxygen to the economy to make all the sector development.

NEED OF MICRO FINANCE IN INDIA

Finance is spine code for development of any country and as India depending on agriculture base production dependence on ruler segment of economy is the most. Banking sector provide its services to the larger segment of India but still to reach to the lower segment for their upliftment is still missing and so need such system which is essentially for development of poor class. Micro finance services are basically served to the lower income group with the intension to make them self reliant and self sustainial. "To help poor people out of poverty" aim of the MFS.¹

To get financial services from bank need to provide some income proof, documentation or related paper as assurance. Along with that any how the person has to pay loan with the rate of interest which shows banking institution base to serve the people with maintaining their profit margin. The poor class mainly falling in the category of defaulting due to many reasons. Basically ruler segment is interested in reasonable credit available to them and so they selected "LOCAL LANDLORD" who gives them credit with out any documentation and easy when needed. Initially they feel it's so easy to have cash without any hurdles but when the landlords makes collection it is really so difficult for them to repay. An analysis of 28 studies of informal money lending rates in 14 countries in Asia, Latin America and Africa concluded that 76% of moneylender rates exceed 10% per month, including 22% that exceeded 100% per month. Moneylenders usually charge higher rates to poorer borrowers than to less poor ones.¹⁰ Cruciality of the problem gives the diversion that need some strong base which gives life to the ruler segment and let them gratis form the ensnare of landlords. Micro finance credit movement was started in 1970s and designed different services provided to the poor people. Such services available to the poor people at door step for development. But to make it more viable at the world glance sincere efforts has been fond by Grameen bank of Bangladesh who serves more then 7 million women with in the short time span. The small country with the limited population draws new edge of development with the MFS.

In consultative Group to assist the poor (CGAP) in June 10, 2004 laid focus on some basic principles as¹¹:

1. Poor people need not just loans but also savings, insurance and money transfer services.
2. Microfinance must be useful to poor households: helping them raise income, build up assets and/or cushion themselves against external shocks.
3. "Microfinance can pay for itself."¹⁸ Subsidies from donors and government are scarce and uncertain, and so to reach large numbers of poor people, microfinance must pay for itself.
4. Microfinance means building permanent local institutions.
5. Microfinance also means integrating the financial needs of poor people into a country's mainstream financial system.
6. "The job of government is to enable financial services, not to provide them."
7. "Donor funds should complement private capital, not compete with it."
8. "The key bottleneck is the shortage of strong institutions and managers." Donors should focus on capacity building.
9. Interest rate ceilings hurt poor people by preventing microfinance institutions from covering their costs, which chokes off the supply of credit.
10. Microfinance institutions should measure and disclose their performance – both financially and socially.

Above all principle provide focus on the prime need of the poor people that to satisfy the lifecycle needs, for personal emergencies, relating to disaster or for investment purpose.¹²

¹⁰ Marguerite Robinson. *The Microfinance Revolution: Sustainable Finance for the Poor* World Bank, Washington, 2001, pp. 199-215.

¹¹ ^a ^b Helms, Brigit (2006). *Access for All: Building Inclusive Financial Systems*. Washington, D.C.: The World Bank. ISBN 0821363603.

¹² ^a Stuart Rutherford. *The Poor and Their Money*. Oxford University Press, New Delhi, 2000, p. 4. isbn =019565790

LITERATURE REVIEW

Tiyas biswas (2010) in his research article focuse on the different methods of finance discuss which would be helpful to the lower section economy for development. Earlier micro finance not providing attention but now a days Viability of micro finance needs to be understood from a dimension that is far broader. Very little attention has been given to empowerment questions or ways in which both empowerment and sustainability aims may be accommodated. Failure to take into account impact on income also has potentially adverse implications for both repayment and outreach, and hence also for financial sustainability. An effort is made here to present some of these aspects to complete the picture. With MFS it is possible to solving the problems of inadequate housing and urban services as an integral part of poverty alleviation programmers.

Thanuja Mummidi (2009) discuss in her paper titled "Women and Income Generating Activities: Understanding Motivations by Prioritizing Skill, Knowledge and Capabilities" that women should entitled the work with the utilization of resources through MFI. Along with this in this case study how efficiently their resources utilization has been discusses. The paper suggests that a better understanding of the diversity of women's livelihood and a better understanding of the range of constraints, motivations, skills and capabilities of women through the livelihood framework might help to understand the impact of microfinance. The limitation, however, lies in the broad scope of this framework making it difficult to operationalise. This paper is a narrow demonstration of this difficult possibility.

Dichter (2007), in a book entitled, *What's Wrong with Microcredit*, says that it is unrealistic to "expect microfinance to noticeably affect growth or successful business development". Most people, he writes, "poor or otherwise, are not entrepreneurs, so there is little reason to think that mass credit would in general lead to viable business start-ups" (Dichter, 2007: 1). Commenting on Dichter, Fernandez (2008) attributes this problematic as one arising from "definitional confusions" where "enterprises are distinguished by these experts from livelihood activities" (2008: 236).

Fernandez (2008) argues that this 'minimalist approach' of mere financial intervention for enterprise development is not particular to microcredit provided by NGOs and Microfinance Institutions (MFIs) but also to large banks, where the former often follows this approach under pressure of achieving financial sustainability. Further, the failure of this approach in promoting enterprise is attributed to some MFIs retaining control of the size and purpose of the loans disbursed by them, a control regulated by a misconception of what is 'productive' investment and not. In an in-depth and detailed analysis of SHG in Tamil Nadu, Kalpana (2008) shows the diversity of bypass strategies implemented by women (arrangements with the staff and with bankers, use of intermediaries, etc.) to do "as if" they were using microcredit for "productive use". The motivation here was to access credit rather than to redefine the uses to which it was put as 'productive'. But definitely this is a reflection of women's capacity to negotiate access to resources and use them for their livelihood promotion.

MFIS² IN INDIA

After 9/11 tragic event world gravity forces need the strong economy for sustaincial development and in this India and China got attention. In comparing both the country china leads with technical development while India derived its attention due to the democracy and numerous natural resources. Both countries serve the purpose at the global scenario for development to the world at large. To improve GDP is become essential for Indian economy for survival purpose and in this case the best answer would be the MFIs which serve the purpose with the best intention. "SEWA" in Gujarat, SHARE and BASIX in Southern India have convinced to the public at mass that with such institution real services reaches to the Indian economy for upliftment and for betterment. NABARD's SHG- Bank linkage program also provides the "largest microfinance network in the world". Many politicians also gives emphasis that with such MFIs to eradicate poverty is becomes possible. Andhra Pradesh Cm shri Chndrababu Naidu also favors it's and adopt it in its political agenda. The Indian microfinance NGOs – SHARE, BASIX, SEWA, MYRADA and PRADAN proves and grab attention in to the Indian scenario for its own development and also economic growth also. Micro finance system would change scenario of the economic development. In this development the prime focus would be on the women segment which would be support with the following data. In the investment bases MFIs reaches to the 52 million borrowers including MFIs solidarity lending methodology -99.3% women client and among over all scenario 51% users are female.¹³ In India through banking sector MFIs reaches to the ruler segment and did the milestone work for ruler sector. As per 2001 RBI report in India 14000 braches in 375 district of India. On an average about three villages have one bank branch; this is the best coverage system over all world. RRBs³ provides nationalized commercial banks and credit co operatives. Together, the RRBs, the nationalized commercial banks and the credit cooperatives — comprising of PACS⁴ and P/SLDS⁵ Primary Agricultural Credit Societies (PACS) and Primary/State Land Development Banks (P/SLDS) — have one branch for every 4,000 rural residents (Bhatt and Thorat, 2001).

THE ROLE OF NGOS IN MICROFINANCE

Self Help Groups are almost always formed with outside assistance. Developmental NGOs, often with considerable history of working in a particular area for projects like literacy, sanitation etc., take to organizing SHGs, bringing together people, explaining the concept to them, attending and helping coordinate a few of the initial group meetings, helping them maintain accounts and linking them with the banks. Figure 2 gives the country-level breakdown of SHGs according to their promoting institution. While Figure 2 shows that over half of the SHGs are formed by government agencies, it should be remembered that about 60% of government-formed SHGs come from a single state, Andhra Pradesh, where the state government has played a very pro-active role in SHG financing.

Over the last quarter century, a few organizations, outside the purview of the public sector, have succeeded in effective poverty alleviation through micro-credit. Self Employed Women's Association (SEWA) in the Western Indian state of Gujarat and Working Women's Forum in the Southern state of Tamilnadu were among the pioneers in this effort. The sector received a major boost in the 1990s with the entry of several non-government organizations (NGOs). Many of these NGOs have been previously functioning in different developmental roles among the poor, and now added microcredit to the list of services they provided. A few others, impressed by the success of microfinance elsewhere, started off as MFIs. Self-Help Groups (SHGs) among the poor, mostly women, have rapidly become a common rural phenomenon in many Indian states. NGOs provide the leadership and management necessary in forming and running such groups in most cases. They also act as the crucial link between these groups and the formal banking system. Presently well over 500 NGO-MFIs are actively engaged in microfinance intermediation across the country.

There are several major legal, regulatory and financial challenges for NGOs involved in microfinance activities. Legally, they are usually registered as societies and trusts with no equity capital and consequently can never be "capital adequate" in leveraging debt.

LINKING SHGS TO THE FORMAL RURAL BANKING SECTOR

The main advantage of Self-Help Groups lies in their joint liability and consequent "peer monitoring" of member borrowers. In association with sponsoring NGOs, they serve to reduce the transaction and monitoring costs of small lending for the banks as well as reach credit to the absolute poor. It is therefore hardly a surprise that they have attracted considerable attention in the rural banking sector as well as from the government in recent years. Here the NGO assists the bank in loan monitoring and recovery. Figure 3 gives the approximate nationwide distribution of SHGs among the different bank financing models.

GOVERNMENT SUPPORT FOR SHG-BASED FINANCING

While most of the SHG formation/nursing process has initially been in non-government hands, the developmental potential of the SHG-based microfinance process has not gone unnoticed by the government. In recent years, government developmental programs have also sought to target the poor through the SHGs. Starting with the Rashtriya Mahila Kosh and the Indira Mahila Yojana, the government has used the SHG approach in many of its anti-poverty projects. The most important of the government programs using the SHG approach is the *Swarnajayanti Gram Swarajgar Yojana* (SGSY) launched in 1999. With increasing

¹³ ^ Microfinance Information Exchange, Inc. (2007-08-01). "MicroBanking Bulletin Issue #15, Autumn, 2007, pp. 46,49". Microfinance Information Exchange, Inc.. Retrieved 2010-01-15.

acceptance of the SHG based developmental approach there is pressure set on village and block level administrators to achieve targets of forming a certain number of SHGs by a specified date. Thus Panchayats are also promoting SHGs in many areas.

Non-banking Financial Corporations (NBFCs) and other non-government organizations (NGOs) typically connect these SHGs to local banks or to the funds provided by wholesale credit suppliers like NABARD or SIDBI (Small Industries Development Bank of India). The SHGs develop a habit of saving among its members for a period of time and then begin making loans to applying members from the collective savings of the group. After a few rounds of successfully repaid loans, an SHG begins borrowing from an outside source (i.e. a bank). Banks usually consider SHGs "bankable" after six months of their existence.

Government involvement in microfinance has, however, not been an unmixed blessing. Politicizing of the subsidy allotment among SHGs has become a big problem. Qualification for government subsidy is easily influenced by Panchayat members. Thus, Panchayat are now competing with NGOs and rural banks in forming SHGs. While the Panchayat-formed SHGs have the lure of government grants they are often open to political pressure and misuse of funds by the recommending Panchayat and/or political parties. Besides, the NGO-formed SHGs have the benefit of honest and expert counseling from the nursing NGOs. Thus the quality of NGO-formed groups is usually superior to those formed by the local government (Panchayat) and villagers are often keen to join the former. These age-old problems of government initiatives in poverty reduction, unless stemmed quickly, can actually harm the movement by eroding the fundamental precepts of self-help and empowerment of the poor.

BANKING SECTOR AND MICROFINANCE

The formal banking sector has played an important role in microfinance in India. Much of the microfinance initiative in India has involved Self-Help Groups (SHGs), predominantly of poor women. NABARD's Bank Linkage Program, pilot-tested in 1991-92 and launched in full vigor in 1996, has been a major effort to connect thousands of such SHGs across the country with the formal banking system. By late 2002, it connected about *half a million* SHGs to the banking system with total loan disbursement of about Rs. 1026 crores. Efforts of other organizations supplement that of NABARD. By March 2001, SIDBI, for instance, had disbursed over Rs 30 crore to SHGs through 142

As of March 2002 the program covered 461,478 SHGs with total cumulative lending of Rs 1,026 cores (US \$ 218.27 million). The accumulated savings in SHGs exceeds Rs 875 crores (US \$ 186.31 million) by unofficial estimates. 90% of SHGs financed were exclusive women groups. 444 Banks (121 RRBs, 209 cooperatives banks, all 27 public sector banks and 17 private banks) with a total of 17,085 branches participated in the program providing credit to about 7.8 million poor households in 488 districts. Average loan sizes are Rs 22,240 (US \$ 463) per SHG and 1,300 (US \$27) per member. Today, the program is estimated to cover well over 500,000 SHGs with cumulative loans exceeding Rs. 1200 crore reaching over 8 million households. (Kropp and Suran (2002) and Seibel and Dave (2002).

The state-wise distribution of SHGs linked with banks shows considerable variation in the share of total SHGs (see Figure 3). Andhra Pradesh has a disproportionately large share of over 42% of all linked SHGs. Tamil Nadu and Uttar Pradesh (including Uttaranchal) follow with about 12% and 11% share respectively. Karnataka come next with about 9%. The rest of country thus accounts for about a quarter of the total SHGs combined. From an all-India perspective therefore, the SHG-bank linkage experience has been very strongly biased towards the South and has not provided a balanced access to credit for the poor in India.

ROLE OF NABARD IN TO THE SHGS DEVELOPMENT

NABARD provides refinance support to banks to the extent of 100% of the bank loans disbursed to SHGs. The total refinance disbursed to banks against banks' loans to SHGs during the year 2008-09 was Rs. 2620.03 crore as against Rs. 1615.50 crore during the year 2007-08 registering a growth rate of 62.2 %. Further, the cumulative refinance disbursed under SHGs bank linkage programme by NABARD to Banks upto 31 March 2009 stood at Rs.9688.09 crore. Along with that different programme on Micro Finance Development and Equity Fund (MFDEF) and Training and Capacity building also consider by NABARD.

CONCEPTUAL FRAMEWORK OF THE STUDY

In this researchers tries to find out the women actual condition and improvement in that after SHGs involvement. Along with that, behavior pattern of women after self sustaincial development and social impact of it. Here availability of services to the ruler segment of India is also checked out.

REASON TO SELECT GUJARAT STATE

Gujarat economic growth rate is about 12% in the year 2009-10. In Gujarat, People mainly follow Hinduism and about 89.1% of the population is formed by the Hindus. Besides Hindus, Gujarat is also home to a considerable number of Muslims and Jains. Here sex ratio is 918:1000 for female to male.¹⁴

To develop the economy if women sector developes then drastic changes would be noted. In my study I analised the ruler area near Gandhinagar named: vavol, kudasan, randesan, dholakuwa, dholeswar mahadev, sughad, koba, giyod, medra, palaj, rupal, bhat, amiyapur, plampur, julund, chiloda, jakhora, basan, bhat.

OBJECTIVES OF THE STUDY

THE RESEARCH COVERED THE FOLLOWING TWO BROAD OBJECTIVES

- To examine the awareness level among women about SHGs residing in ruler area of Gujarat.
- To examine development of women after adopting SHGs help in their social , societal and behavioral pattern

RESEARCH METHODOLOGY

UNIVERSE

The universe for sample survey is Gandhinagar capital of Gujarat state.

RESEARCH DESIGN

The study was an exploratory type .This design's main purpose is to know awareness level of the respondent relating to Shariah's and how to deal with it in routine life while taking financial decision.

RESEARCH INSTRUMENT

Survey was done via structured questionnaire consisting of both open ended and close ended questions .A five point rating scale has been used at many places so as to get the ratings of satisfaction / dissatisfaction about a particular question.

SAMPLING UNIT

A respondent residing in Gandhinagar capital of Gujarat state irrespective of age, economic status, Educational background etc.

SAMPLE SIZE

Non probability convenient sampling method was used. Here a sample size of 100 respondents was interviewed.

SECONDARY SOURCES

Researchers collected secondary information from the internet, magazines, articles etc.

¹⁴ <http://www.indiaonlinepages.com/population/sex-ratio-of-india.html>

DATA PREPARATION AND ANALYSIS

Data preparation includes editing, coding, transcription and verification. This had been done and data were feed with the help of SPSS software. Data analysis parts include deriving information related to the component of the marketing research problem and thus provide input to the financial managers in decision problem.

PROFILE OF THE RESPONDENTS

I BASIC DATA

This data helpful in providing information relating to respondent about their age, education qualification and group members.

A) AGE

AGE	Percentage
20-30 years	5.0
31-40 years	10.0
41-50 years	34.0
51-60 years	42.0
more than 60	9.0
Total	100.0

B) EDUCATIONAL QUALIFICAIONS

As the education level is lies between H.S.C and gradation, Muslims are inclined more towards business rather than occupying themselves in services. Along with that higher education is also missing among members of this community.

Educational Qualifications	Percentage
Upto SSC	48.0
HSC	36.0
Graduate	26.0
Total	100.0

C) GROUP MEMBERS

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 7-10	8	8.0	8.0	8.0
11-15	52	52.0	52.0	60.0
16-20	40	40.0	40.0	100.0
Total	100	100.0	100.0	

II CRITERIA FOR GRANTING LOAN FROM SHG

What criteria do you consider while approving the loan to members? (Rank them from following on scale of 1 to 6, where 1st being most important and 6th being least important)

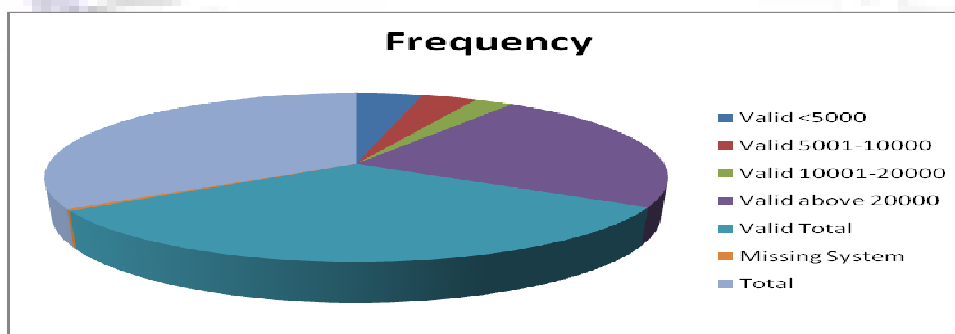
Rank	1	2	3	4	5	6	Weighted Average	Result
Purpose of loan	20	10	26	13	19	12	3.37	3 rd
Attendance in meeting	13	11	9	30	26	11	3.78	4 th
Participation in discussion	9	10	11	13	16	41	4.40	6 th
Past performance	34	36	7	10	7	6	2.38	1 st
Whether savings are paid regularly	22	26	13	15	14	10	3.03	2 nd
Reputation of a member in market	2	7	33	21	18	19	4.03	5 th

The above data helpful to find out in analysis in preferences of the women while talking decision for investment. Along with that their saving habits and their level saving and independence will be analysis.

DISTRIBUTION FROM THE SAVING

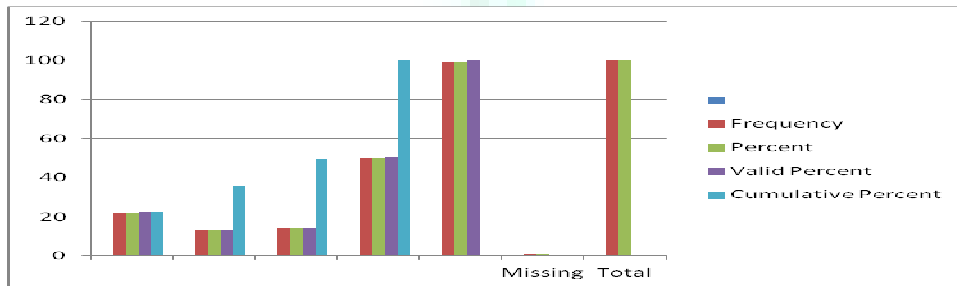
HOW MUCH LOAN IS DISBURSED TO THE MEMBERS FROM SAVINGS?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <5000	12	12.0	12.1	12.1
5001-10000	10	10.0	10.1	22.2
10001-20000	7	7.0	7.1	29.3
above 20000	70	70.0	70.7	100.0
Total	99	99.0	100.0	
Missing System	1	1.0		
Total	100	100.0		



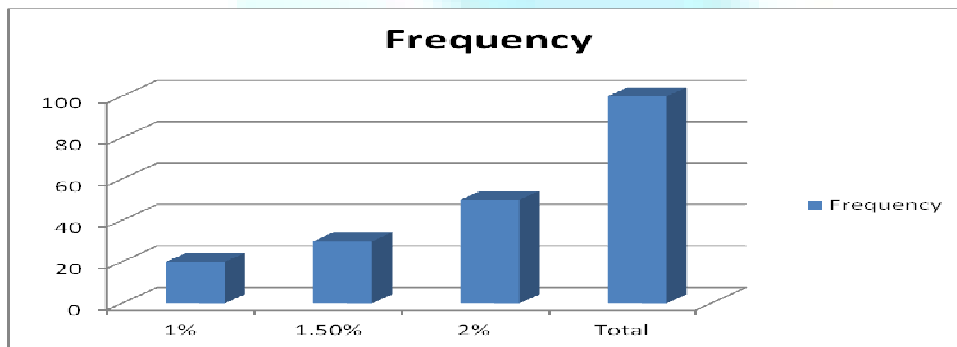
HOW MANY MEMBERS LINKED WITH THE LOAN?

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
<50%	22	22.0	22.2	22.2
50-60%	13	13.0	13.1	35.4
60-80%	14	14.0	14.1	49.5
>80%	50	50.0	50.5	100.0
Total	99	99.0	100.0	
Missing System	1	1.0		
Total	100	100.0		



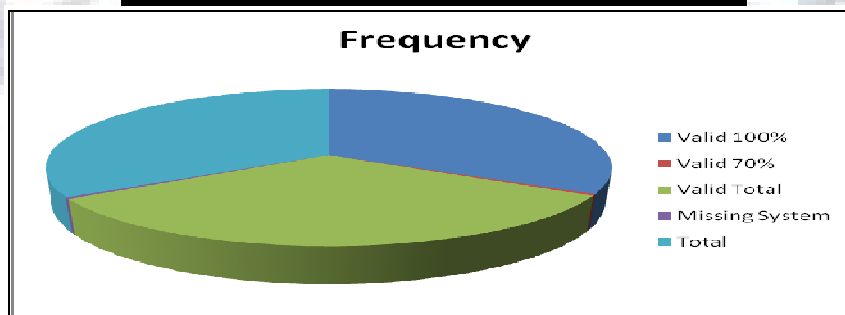
WHAT IS THE RATE OF INTEREST YOU CHARGE? (PER MONTH)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1%	20	20.0	20.0	20.0
1.5%	30	30.0	30.0	50.0
2%	50	50.0	50.0	100.0
Total	100	100.0	100.0	



WHAT IS THE PERCENTAGE OF RECOVERY?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 100%	98	98.0	99.0	99.0
70%	1	1.0	1.0	100.0
Total	99	99.0	100.0	
Missing System	1	1.0		
Total	100	100.0		



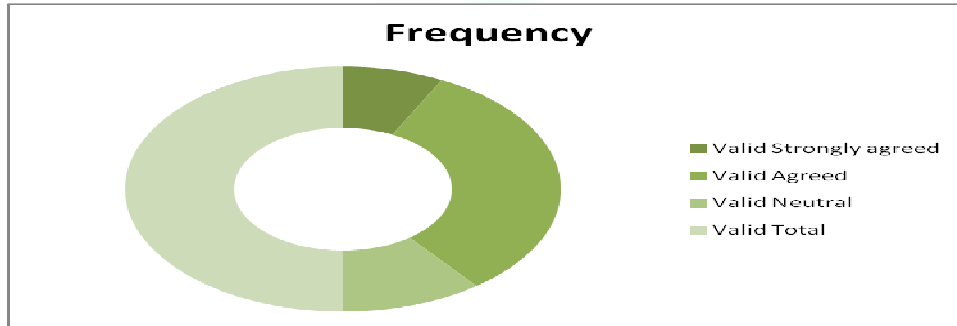
From the above discussion it would come to know with the SHG women position is redefine along with that they are able to take their individual decision.

III SOCIAL IMPACT

The following data will helpful in understanding self reliant level of respondent and how they come out of the landlords traps. With SHG the level of their life, their behavior pattern and their cost saving ratio will also be improve.

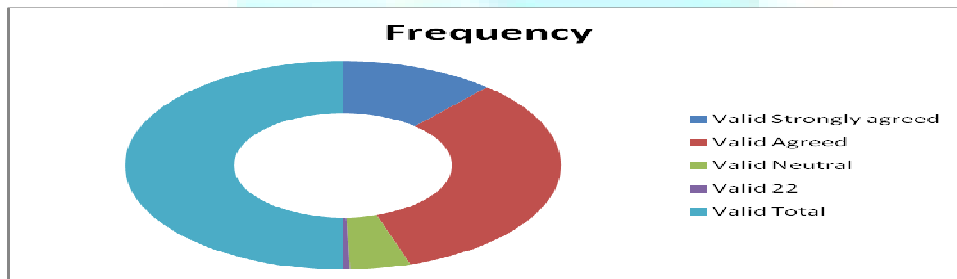
MEMBERS HAVE BECOME SELF EMPLOYED

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agreed	15	15.0	15.0	15.0
Agreed	64	64.0	64.0	79.0
Neutral	21	21.0	21.0	100.0
Total	100	100.0	100.0	



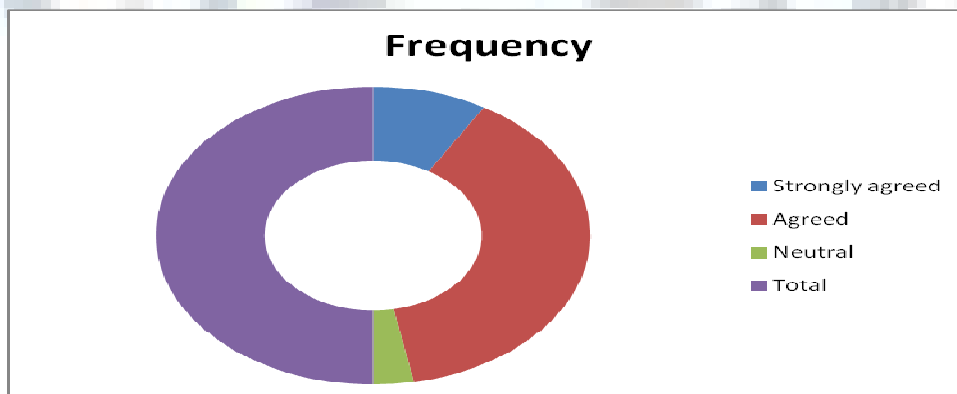
MEMBERS ARE ABLE TO EXPRESS THEMSELVES FREELY

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agreed	23	23.0	23.0	23.0
Agreed	67	67.0	67.0	90.0
Neutral	9	9.0	9.0	99.0
22	1	1.0	1.0	100.0
Total	100	100.0	100.0	



QUALITY OF LIFE HAS IMPROVED

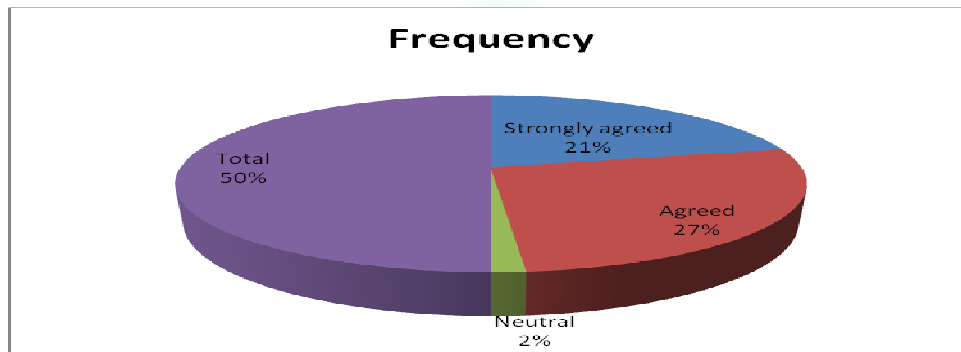
	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agreed	17	17.0	17.0	17.0
Agreed	77	77.0	77.0	94.0
Neutral	6	6.0	6.0	100.0
Total	100	100.0	100.0	



During research it would find out SHG totally change their life style and their style of thinking regards to life, dependency, decision making and they are able to give qualitative life to the family and tried to adopt some steps for welfare of the society. The data helpful to improve in qualitative aspect of life along with that it will gives them idea of self sustainalness.

MEMBERS ARE ABLE TO MEET THEIR SOCIAL OBLIGATION WITHOUT RAISING FUND

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly agreed	43	43.0	43.0	43.0
Agreed	54	54.0	54.0	97.0
Neutral	3	3.0	3.0	100.0
Total	100	100.0	100.0	



SHG improve women condition in the society and with it they are express them self freely. Quality life has been improved and the level of education among family, their self expressiveness and their willingness toward life and living has been changed.

INTERPRETATIONS AND FINDINGS

- This survey supports the purpose of NABARD to promote women empowerment in rural area out of 100 groups surveyed 99 groups were of female and only one was of male. We can also say that the SHGs formed by women are more successful as compared to male as we observed that female groups were having much more bonding between their members as compared to male SHGs and at the max group member of 10.
- We found that the duration at which they arrange the group meetings was monthly in all the groups. Mostly all of the women are engaged in farming as well as cattle raring more over to this they are having the responsibility of their family and social responsibilities they are not able to spare time for the meetings very often like twice or thrice in a month.
- 67 groups which is 2/3rd of the total sample are having the fund saved with them above 20,000 Rs. with their monthly contribution of 30, 50 or 100 Rs. 18 groups are having funds between 10000-20000 and only 15 groups are having funds below 10000. The groups having less funds are started in the recent past i.e. within last one and half years.
- The most vital part is to decide criteria for providing loans to the members and decide most and least important criteria among them. We have taken 6 criteria's to rank from them. We found that past performance of the member is given maximum importance followed by the regularity of the member in paying the savings every month, There after the need of the member i.e. the purpose of the loan is considered as the 3rd criteria and 4th is the attendance of the member in meetings. Participation of the member i.e. the views and suggestions given by them is given least importance which is preceded by the reputation of the member in the market. By this we can say that importance is given more to the need and punctuality of the members than other things like reputation and their participation.

CONCLUSION

However Self-Help Groups (SHGs), usually at the behest of certain developmental non-government organizations (NGOs), have quietly mushroomed in most districts of India over the last few years

- In MFIs operating margins becomes tighter and this is the main reason for smaller loans delivered and due to this risk of lending to men to be too high. But in that one negative side shown by the World Bank report that while investing in to the business of male averaged return would be 11% while in women oriented business it would be very negligible or no returns.¹⁵ The SHGs have helped the members to strengthen their financial positions
- It has also helped them to get some exposure to the outside world there has been significant change in the behavior of the members
- The social position is also improved and members are able to meet the expenses on their own for some small social obligations
- So the overall quality of life of the members is improved to a great extent.
- We would conclude that the SHG-Bank linkage programme is a boon to the rural people living below the poverty line.

ACRONYMS

- 1 MFS : Micro Finance Services
- 2 MFI : Micro finance Institutes
- 3 RRBs : Regional ruler banks
- 4 PACS : Primary Agricultural Credit Societies
- 5 P/SLDS : Primary/State Land Development Banks

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A STUDY OF BANK TRANSACTION COST OF PCARDBS IN MYSORE DISTRICT

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ABSTRACT

The present study tries to investigate the transaction cost incurred by Primary Co-operative Agriculture and Rural Development Banks (PCARDBs). Transaction Cost that a lending institution incur when it provides a loan: a) The cost of the money that it lends, b) The cost of transaction which includes the cost of identifying and screening the client, processing the loan application, completing the documentation, disbursing the loan, collecting repayments and follow-up on non-payment. The study covers 7 (seven) PCARDBs and the data relating to transaction cost from 2003-04 to 2009-10 have been analyzed. The study finds that the transaction cost incurred by PCARDBs in the district, taking all the seven PCARDBs in the aggregate, the total transaction cost during the seven years period 2003-04 to 2009-10 fluctuated between Rs. 155.83 lakh to Rs. 123.53 lakh. Except Krishnaraja Nagar PCARDB in the district, other PCARDBs showed negative annual compound growth rate. Unless, there is an awakening on the part of the PCARDBs and the borrowers, the problem and difficulties of both would not be overcome. The absence of mutual confidence between lender and borrowers, ignorance of information regarding obtain of loan, poor recovery performance, delay in loan approval have led to the increase in the transaction cost of the bank. Proper training of bank personnel's and concern regarding the borrowers as well as bank than only reduce the bank transaction cost.

KEYWORDS

Banking, transaction costs, PCARBD.

INTRODUCTION

India is predominantly an agricultural country. More than 70 per cent of the population of India lives in rural areas and about 70 per cent of the workers consist of cultivators and agricultural laborers. Indian agriculture though varied and having a great potentiality. Like any other industry, it is also requires credit for its sustained growth and development. Credit is a vital factor of the production function more so in Indian agriculture. Credit is vital factor in Indian agriculture since the majority of the rural farmers are poor. Technological transformation and rural development necessitate the provision of cheap finance especially for long periods. Thus, investment credit is of considerable importance in a capital-scarce country like India. The advent of Green Revolution and the new farm technology comprising of high yielding varieties of seeds, fertilisers and the recent policy decision to undertake wasteland development and afforestation have opened new vistas in agricultural banking.

IMPORTANCE OF TERM CREDIT

Long term finance is of supreme importance for capital investment in agriculture. In India, where there is not much scope for increasing agricultural production by bringing more land under cultivation, efforts are to be directed towards increasing the yield from the land already cultivation. This necessitates the adoption of scientific methods of cultivation so that production potential can be pushed up. Moreover, the majority of Indian farmers has little or no savings and hence is not in a position to go in for capital intensive investments without external finance. The new innovations in agricultural technology have opened up vast potentialities for agricultural development and long term credit has been viewed as dynamic credit in the sense that it helps the farmers to create assets on land, progressively increasing their output and add to the agricultural income of the country. Moreover, recently, according to F.A.O. estimates, about 50 per cent of total geographical area in India is under various degradation hazards and about 2.1 million hectares of land is being degraded or deforested annually. This calls for a need to develop this waste and deforested land, which again requires heavy capital investment of a long-term nature.

TERM CREDIT

With the introduction of co-operative movement in the country, there arose a need for a specialised institution, catering exclusively to the long-term credit needs of farmers. The difficulties associated with the long term credit like locking up of funds for long periods, risks involved in lending money for long period etc. forced the planners to have a separate institution. Moreover, the repayment of long-term loans is spread over a number of years and mortgage requirement has been considered as an essential requisite for such long-term loans. These factors led to the creation of specialised institutions – Land Mortgage Banks (LMB) – catering to the complicated term loans of farmers in India.

Co-operative Agriculture and Rural Development (CARD) Banks with their wide network of primaries and their branches at the grass root level and vast experience in the field of rural credit can help in transferring modern technology to the small farmers and rural artisans at minimum cost, thereby bringing about rural development. No doubt, the Central Banking Enquiry Committee, the Royal Commission of Agriculture, the Rural Banking Enquiry Committee, have identified CARD Bank

CONCEPT OF TRANSACTION COST

The lending institutions sanction the loan to the borrowers only after obtaining certain documents and records. The borrowers incur expenditure to collect and deposit the same to the lending institutions. Such costs are to be distinguished from production costs. Kenneth Arrows' defines on transaction costs as the "costs of running the economic system". Ladman argues that transaction costs associated with steps that the farmers undertakes to complete these requirements results in borrower's costs.

Transaction costs are incurred by the both lending institutions and borrowers in negotiating loans. The lending institutions incur expenditures, non-staff expenditures and provision for non-staff expenditures. Farmers incur expenses while obtaining loans, as they not only agree upon conditions of loan (mainly interest rate) but also go through the procedural formalities that are required by the lenders. He costs related in fulfilling the procedural formalities are considered as transaction costs of the borrowers.

TYPES OF TRANSACTION COST

There are three kinds of costs that a lending institution incurs when it provides a loan:

- The cost of the money that it lends;
- The cost of prudent financial practices such as provisioning for loan defaults; and
- The cost of transaction, which includes the costs of identifying and screening the client, processing the loan application, completing the documentation, disbursing the loan, collecting repayments and following up on non payment.

Unlike the cost of funds and the costs of defaults, transaction cost is not proportional to the amount lent.

NEED FOR THE STUDY

In a multi-agency set up of agricultural credit system co-operative agriculture and rural development banks are supposed to play a vital role in meeting the investment credit needs of farmers, rural artisans, labourers etc., and they could perform this task assigned to them in a fairly satisfactory manner.

Many studies were conducted to analyze the working performance of Primary Co-operative Agriculture and Rural Development Banks (PCARDBs) in Karnataka. No study was conducted to analyze the transaction cost of PCARDBs in Karnataka and in the district. Hence, this study is an attempt in this direction.

OBJECTIVES OF THE STUDY

- To assess the need for term credit and concept of Transaction Cost
- To identify and analyze the loans granted by PCARDBs in the district;
- To analyze the transaction cost of PCARDBs in Mysore district; and
- To suggest suitable measures to reduce the transaction cost and to strengthen the working of PCARDBs in Mysore district.

METHODOLOGY

The present study is empirical one. It is based on secondary data. The sources of secondary data of the study are Economic Survey, Ministry of Finance, GOI, Annual Report of Karnataka State Cooperative Agriculture and Rural Development Bank Ltd (KSCARDB) Bangalore, Progress Report of Primary Cooperative Agriculture and Rural Development Banks (PCARDBs) in Mysore district, Audit Reports of PCARDBs in Mysore district and the necessary details are also collected from the files and ledgers of the PCARDBs and by holding discussions with the officials of respective PCARDBs in the district. In addition of these books, articles, published in journals, unpublished dissertations, thesis are referred. Apart from these Internet has also been extensively made use of for the purpose of the study.

A recourse has been made to diagrammatic and graphical representation of the data wherever necessary. Further statistical tool such as Compound Annual Growth Rate is used to analyze the data.

AREA OF THE STUDY

The geographical coverage of the study is the district of Mysore. Mysore district has 7 revenue taluks. The study is based on time series which covers from 2003-04 to 2009-10.

Seven PCARDBs have been selected for the purpose of study. Each taluk having one PCARDB namely, H.D. Kote PCARDB Ltd, Hunsur PCARDB Ltd, Mysore PCARDB Ltd, K.R. Nagara PCARDB Ltd, Nanjangud PCARDB Ltd, Piriapatna PCARDB Ltd, T.N. Pura PCARDB Ltd.

LITERATURE REVIEW

In this study an attempt is made to analyze the transaction cost incurred by Financial Institutions, Commercial Banks, Co-operative Banks and the Borrowers of Banks.

Ladman (1985) explains the in-built nature of transaction cost in credit delivery system. To obtain loans, a farmer must not only assume the agreed upon conditions of the loan but also must go through the procedures that are required by the lender. The costs associated with the observance of many procedures make up the real costs to the farmers. If there are delays in loan approval or disbursement, the farmers may incur additional transaction costs associated with obtaining a temporary loan from another lender.

George (1985) conducted a study in Chengalpet district in Tamil Nadu State. The objective was to examine the farmers borrowing cost on rural credit. It reveals that the borrowing cost per Rs. 100 of loan was higher for marginal and small farmers, as compared to that of medium and big farmers. The cost of borrowing decreases as the size of loan increases, irrespective of borrowing groups. Further, it is found that the cost of borrowing costs from formal institutional loans seem to be higher on term loan than that of crop loan. They suggested minimizing borrowing cost of farmers, the procedure for the sanction of loan must be simplified by maintaining details of the borrowers.

Padmanabhan (1988) looks on the basis for non-interest cost, and argues that confidence and transaction costs have an inverse relationship. The absence of mutual confidence between borrowers and lender increases transaction costs. This is due to lack of information between lender and borrower. His effective information between lenders and borrowers increases the confidence and reduces the transaction costs.

Veerashakarappa (1997) conducted a study in two taluks in Hassan district in Karnataka State with the object of examining the transaction costs of institutional finance for Rural Development. He found that the transaction costs are higher for term loan than crop loan and it has inverse relation with the amount of loan and land-holding. It was also found that the main reason for diversion of loan was the urgency to clear old loans. He concluded that the overdues were related not only to land-holding but also to willful defaults.

Puha Zhendi (1995) In their Study of the Micro Credit Programme of the Nationalized Commercial Banks in India. Both non-governmental organizations and self help groups in the credit delivery system reduce the transaction cost of both banks and borrowers.

Srivasan and Satish (2000) pointed out that micro credit programme of the commercial banks and Regional Rural Banks in India Micro Credit concluded that the intermediation of NGOs and SHGs in the credit delivery system reduce the transaction costs of both banks and borrowers.

Transaction Costs of SHGs in NABARDs SHG Banking Programme: A Study in Karnataka State (2004) the study has shown that transaction costs of a non-representative sample of 78 SHGs and their 1160 members are low and decrease rapidly with increasing loan volumes. The study provides a methodology that can be used in more representative national and local samples. While there is no urgency to intervene in the interest of overall efficiency the TC of the SHGs can, and should be further reduced by simplifying and standardizing the repeat loan process for groups with a good track record; and by speeding up the process of loan examination and disbursement.

From the above discussions it is observed that several studies have been at micro and macro levels relating to different aspect of transaction costs.

ANALYSIS AND INTERPRETATION

In this paper an attempt is made to analysis of Transaction Cost of PCARDBs in the district over seven years period from 2003-04 to 2009-10 with particular reference to Staff expenditure, Non-staff expenditure and provisions for Non-staff expenditures of the PCARDBs.

PCARDBs TRANSACTION COST

In this study, only bank transaction costs are analyzed. The expenses incurred by the banks are as follows:

A) STAFF EXPENDITURE

- a) Salaries and allowances paid to staff (including the payment made to the temporary/daily wages).
- b) Other expenses relating to staff (i.e., TA and DA on official tours bonus/medical or any other payment made to staff).
- c) Provisions for salaries and allowances, bonus etc.

B) NON-STAFF EXPENDITURE

- a) Rent, Electricity, Insurance, Stationery, Postage, Telephone Meeting Expenses, Repairs, Recovery Charges, Audit Fee, Bank Charges, Directors Charges, General Body Meeting and Other Expenses etc.

C) PROVISIONS FOR NON-STAFF EXPENDITURE

- b) Deprecation on Assets (i.e., building, furniture and fixtures, vehicles etc)
- c) Audit fee if any
- d) Incremental bad debts
- e) Others expenses.

ANALYSIS OF TRANSACTION COST

Taking all the seven PCARDBs in the aggregate, the total Transaction cost which stood at Rs. 155.83 lakh during 2003-04 decreased to Rs. 123.53 lakh during 2009-10.

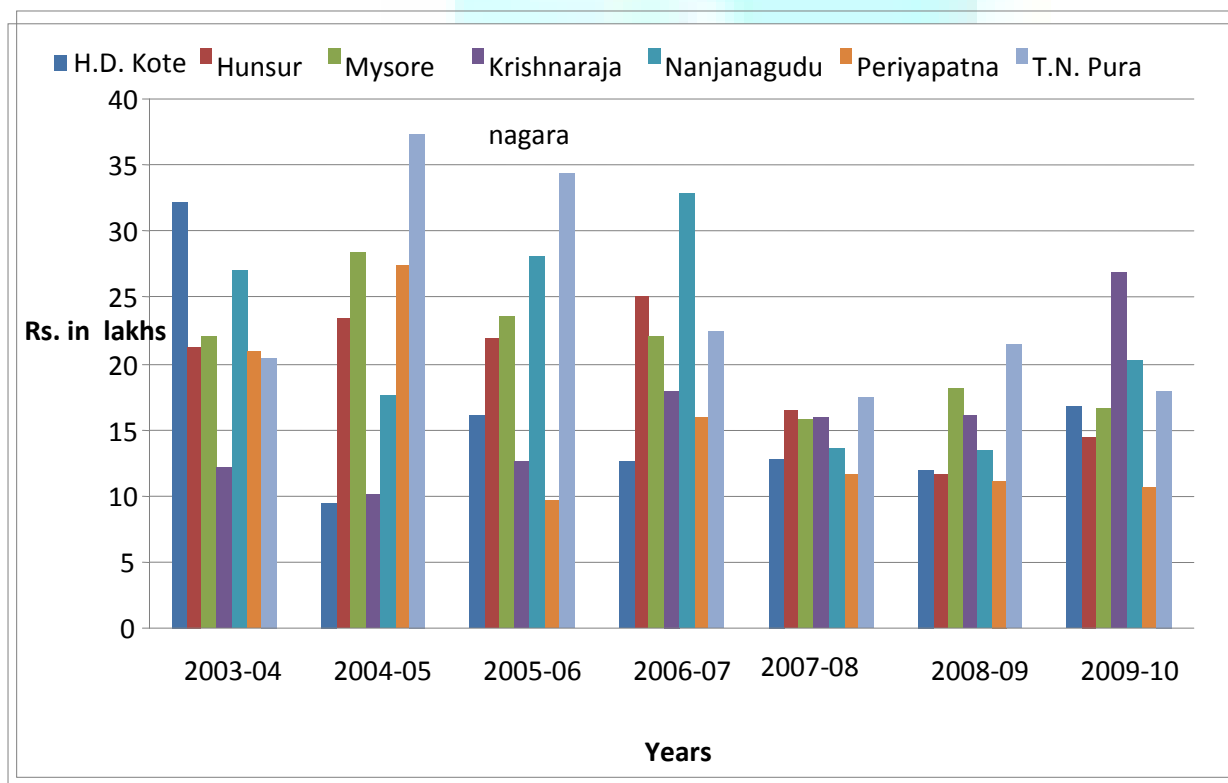
Table presents an overview of total Transaction cost in the district as whole along with the Transaction cost of different taluks. Except K.R. Nagara PCARDB other PCARDBs in the district have negative growth rate. The transaction cost of Piriyaapatna had a compound growth rate (CGR) -10.74 per cent and this was followed by the taluks of H.D. Kote, Hunsur, Mysore, Nanjanagudu and T.N. Pura with the compound growth rates of -10.31 per cent, -6.26 per cent, -4.63 per cent, -4.62 per cent, and 2.11 per cent. The overall transaction cost had a compound growth and the amount of transaction cost decreased from Rs.155.83 lakh to Rs. 123.53 lakh for the period of study. It is observed that K.R. Nagara taluk showed a positive growth rate. It is also observed that there was remarkable position in the transaction cost by all the taluks put together in spite of wide fluctuations over the years.

TABLE 1: CONSOLIDATED TRANSACTION COST OF PCARDBS 2003-04 TO 2009-10 (₹ in Lakhs)

Sl. No.	Banks/Talukuks	2003 -04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	CAGR
1	H.D. Kote	32.13	9.53	16.08	12.56	12.81	12.01	16.72	-10.31
2	Hunsur	21.30	23.47	21.86	24.98	16.41	11.66	14.45	-6.26
3	Mysore	22.02	28.32	23.51	22.04	15.69	18.12	16.57	-4.63
4	K.R. Nagara	12.05	10.10	12.68	18.00	15.97	16.14	26.94	14.35
5	Nanjanagudu	26.99	17.60	28.02	32.94	13.68	13.47	20.32	-4.62
6	Piriyaapatna	20.96	27.41	9.69	15.88	11.57	11.15	10.60	-10.74
7	T.N. Pura	20.38	37.31	34.40	22.42	17.46	21.37	17.93	-2.11
Total		155.83	153.74	146.24	148.82	103.59	103.92	123.53	-3.80

Source: Audit Report of the respective PCARDBs.

GRAPH 1: CONSOLIDATED TRANSACTION COST OF PCARDBs



SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

The analysis of transaction cost of seven PCARDBs in the district reveals that the different heads of expenditure incurred by PCARDBs were analyzed Staff expenditure, non-staff expenditure and provisions for non-staff expenditure were examined.

FINDINGS

Taking all the seven PCARDBs in the aggregate, the total loan issued during the seven years period 2003-04 to 2009-10 fluctuated between Rs. 155.83 lakh to Rs. 123.53 lakh. The overall total loan issued had a negative compound annual growth rate of -13.32 per cent. Comparing to all the PCARDBs in the district total loan issued by Piriapatna taluk showed a highest compound annual growth rate of 25.52 per cent followed by K.R. Nagara, H.D. Kote, Hunsur and their respective compound annual growth rates are 18.66 per cent, 17.81 per cent and 11.66 per cent. The Nanjanagudu, T. Narasipura and Mysore showed a negative compound annual growth rate.

The highest transaction cost was incurred by K.R. Nagara taluk constituting Rs. 26.94 lakh compare to other PCARDBs in the district.

In H.D. Kote PCARDB taluk, transaction cost relating to salary increased from Rs. 3.49 lakh to Rs. 4.47 lakh during the period of the study. The overall Transaction Cost of H.D. Kote showed a negative growth rate of -10.31 per cent.

In Hunsur taluk PCARDB, the total amount of transaction cost decreased from Rs. 21.30 lakh to Rs. 14.45 lakh during the period of the study. The overall transaction of Hunsur showed a negative compound annual growth rate of -6.26 per cent.

In Mysore taluk PCARDB, the total amount of transaction cost decreased from Rs. 22.02 lakh to Rs. 16.57 lakh from 2003-04 to 2009-10.

The depreciation on assets in Mysore taluk PCARDB went up from Rs. 0.17 lakh to Rs. 1.20 lakh during the period of the study. This was followed by audit fee and incremental bad debts.

The overall transaction cost of K.R. Nagara PCARDB showed a compound annual growth rate of 14.35 per cent. The highest compound annual growth rate was found to be incremental bad debts and the lowest compound annual growth rate was non-staff expenditure and their respective percentages stood at 36.79 and 1.81.

In Nanjanagudu taluk PCARDB the total transaction cost was found to be on the declining trend.

In Piriapatna taluk PCARDB, the transaction cost under depreciation on asset had a compound annual growth rate of 46.14 per cent followed by provisions for salary, bonus, allowances which showed a compound annual growth rate of 5.22 per cent.

The amount of transaction cost in Piriapatna taluk decreased from Rs. 20.96 lakh to Rs. 10.60 lakh for the period of the study.

SUGGESTIONS FOR IMPROVEMENT

Based on the above findings, the following major suggestions have been made.

1. The form of loan application should undergo a change and be simple as much as possible containing very essential information instead of a lengthy form. The disposal of applications should be made time-bound. The reasons for the rejection of the application for the loan and for the delay beyond the stipulated date must be stated. It leads to reduction in institutional transaction cost.
2. The procedure of loan records building may be made easier by not emphasizing for presentation of unimportant documents, eg: preparation of Land Mortgage Deed is a lengthy procedure. It leads to reduce the work/transaction of the banks.
3. In case of agriculture, "Credit Delayed in Credit Denied" The time taken between the date of application and actual disbursement of loan should not be too much. This is happening at present due to the transmission of application from the primary Bank to the District Bank and vice-versa. Therefore, in order to minimize the delay, the primary Bank may be suitably empowered to sanction and disbursement of loans. It leads to minimize the work and reduce the transaction cost of the PCARDBs.
4. Bank transaction cost can be lowered substantially by lending to self-help groups as financial intermediaries.
5. Transaction cost depends on quantum of transaction in the organization/institution and it shows the efficiency of the institution.
6. Minimize the borrowing cost of the farmers, the procedure for the sanction of loan must be simplified by maintaining details of the borrowers. It leads to reduction of transaction cost of PCARDBs.
7. Greater awareness should be created among borrowers regarding procedural formalities for obtaining the loan from banks which leads to reduction in transaction cost.
8. There should be intermediation of NGOs and SHGs in the institutional credit delivery system which reduces the transaction costs of both banks and borrowers.

CONCLUSION

In the study area PCARDBs are the only specialized long-term agricultural financing agency. It is the responsibility of the bank personnel to see that the funds disbursed are channeled towards specified developmental activity. Unless, there is an awakening on the part of the PCARDBs and the borrowers, the problem and difficulties of both would not be overcome. The absence of mutual confidence between borrowers and lender, ignorance of information regarding obtaining of loan, poor recovery performance, delays in loan approvals have led to the increase in the transaction cost of the bank. Proper training of bank personnel/employees of the PCARDBs and concern regarding the borrowers as well as organization then only reduce the transaction cost of PCARDBs in the district.

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WOMEN ENTREPRENEURSHIP THROUGH SELF-HELP GROUPS: A CASE STUDY OF TIRUNELVELI DISTRICT, TAMIL NADU

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ABSTRACT

Entrepreneurship development among women can be considered a possible approach to economic empowerment of women. The participation of women in income generating activities for the family has been increasing over time. Female work participations not only increase their family income but also bring economic independence among women in the households. SHGs play a pivotal role in women entrepreneurs. There are greater opportunities for rural women to establish and run a micro enterprise; Money is available under different schemes. Non-farm activities like handicrafts, rope making, embroidery, catering service etc, give immense scope for women to uplift their economic standard. Banks in association with NGOs give training to SHG members in all these activities. The government of Tamil Nadu encourages the SHG activities and marketing of their product. Now a day, women have realized the importance of self employment. The entrepreneurship thereby helps them to stand on their own leg. The main objectives of this paper are to study the Socio economic condition of SHG women Entrepreneurs and to identify the factors influencing the women entrepreneurship in SHG. In Tirunelveli district, there are 19 blocks. Among the block, two blocks were selected in which their savings amount is higher than the other blocks, namely Palayamkottai and Valliyoor. There are 4288 SHGs in the chosen blocks in which 10 SHGs consisting of 20 members those who are involved in self employment schemes where selected for the study. The chi-square test and average method is used statistical tools for analyze the data the testing of the hypothesis. The conclusion of this paper is Self -Help Group plays an important role in developing the rural women in self employment

KEYWORDS

Self- Help Groups, Women Entrepreneurship, Women Empowerment.

INTRODUCTION

Entrepreneurship development among women can be considered a possible approach to economic empowerment of women. The participation of women in income generating activities for the family has been increasing over time. Female work participations not only increase their family income but also bring economic independence among women in the households. SHGs play a pivotal role in women entrepreneurs. There are greater opportunities for rural women to establish and run a micro enterprise; Money is available under different schemes. Non-farm activities like handicrafts, rope making, embroidery, catering service etc, give immense scope for women to earn their livelihood. Banks in association with Non Government Organizations (NGOs) give training to SHG members in all these activities. The government of Tamil Nadu encourages the SHG activities and marketing of their product. Now a day, women have realized the importance of self employment. The entrepreneurship thereby helps them to stand on their own leg. A women as entrepreneur is economically more powerful than as a more worker because ownership not only confers control over assets (and liabilities) but also gives her the freedom to take decisions through entrepreneurship development a woman will not only generate income for other women in the locality. This will have a multiplier effect in the generation of income and poverty alleviation.

WOMEN ENTREPRENEURSHIP

A women entrepreneur may be defined as a women or group of women who initiate, Organize and run a business entrepreneur (Kavitha et al., 2007). According to a government of India definition women entrepreneurs based on women participation inequity and employment of a business enterprise. In India (Ramasamy, 2009) women entrepreneurship can be considered as "necessity entrepreneurship" rather than "opportunity entrepreneurship" women usually have smaller networks and less geographical mobility than men, more so in the case of young, married women who need to take care of their families. These women can use their skills and available local resources to start their own enterprise. However, the location of the enterprise and the strength of relationship with contact are very important as it determines the entrepreneur's ability to acquire and employ the resources available in her community.

ROLE OF SHG IN WOMEN ENTREPRENEURS

The Origin of Self-Help Group can be traced is from Grameen bank of Bangladesh, which was founded by Mohamed Yunus. SHGs were started and formed in 1975 (Gunasekaran, 2010). In India, NABRAD initiated in 1986-87. In Tamilnadu, Chinnappillai an illiterate women live in Parparanpatti, Madurai District, initiated the feed bank of SHGs in the stats, she was honored by the former Prime Ministers of India, honorable Atal Bihari Vajpayee, for forming a group and nurtured saving habits, among the illiterate women in the village.

A self- Help group is a small voluntary association of poor people preferably from the same socio-economic background. They come together for the purpose of saving their common problems through self – Help. The number of members in one SHG does not exceed 20 (Surender and Manoj Kumar, 2010). The groups have been recommended to be informal to keep them away from bureaucracy, corruption, unnecessary administrative expenditure and profit motive. The size is limited to 20 because any group larger that this would need to be registered under the India legal system.

The SHGs of rural women consists at members who are the poor, having low saving capacity, and who depend on money lenders for meeting their consumption needs and social obligations formation of women into self help groups paved a way to develop their economic standards, thereby building self confidence. Women in SHG have been encouraged by the government as well as NGOs to undertake self employment ventures with locally available resources Availability by micro- credit helped SHG women a lot and many women came forward and established micro enterprises. At present a number of NGOs and financial institutions have been offering micro finance especially to rural women micro entrepreneurs. They also motivate training programmes to develop their entrepreneurial skills and capabilities. Specific trainings in manufacturing or service sector are available for the prospective rural women micro entrepreneurs. These Institutions have been encouraging women to start micro enterprises. As a result micro entrepreneurship is gradually importance among the rural women.

SHGS- BANK LINKAGE IN TIRUNELVELI DISTRICT

Nation Bank for Agriculture and Development (NABARD) has been making continuous efforts though its microfinance programmes for improving the access of rural poor to formal institutional credit. The SHG Bank linkage programmes was introduced in 1992 as a mechanism to provide the poor in rural areas, at their doorstep easy and self managed access to formal financial services. In all 547 banks (47 Commercial Banks) are now actively involved in the operation of these programmes in India. As on 31st March 2010, Nation Bank for Agriculture and Development (NABARD) bank loans of ₹ 24243.30 Lakhs more availed of by 20293 SHGs from Nation Bank for Agriculture and Development (NABARD) banking system in Tirunelveli District.

TABLE 1: NABARD'S LOAN DISBURSED TO SHGS IN TIRUNELVELI DISTRICT (₹ in Lakhs)

Year	No.of.SHG	Loan Disbursed
2000-01	309	53.03
2001-02	824	176.10
2002-03	829	348.65
2003-04	2132	1528.98
2004-05	671	1584.82
2005-06	4182	3807.00
2006-07	1201	1245.30
2007-08	1884	1306.29
2008-09	4349	7713.94
2009-10	3847	6471.90
Total	20293	24243.30

Source: Tamil Nadu Corporation for Development of Women Ltd., Tirunelveli District, Tamil Nadu.

Self help groups have get financial support from various financial institutions such as Nationalized Banks, Commercial Banks, Private Banks, and so on. NABARD is one of the nationalized banks, which has given special importance to promoting self-help groups activities. The above table clearly shows, in Tirunelveli NABARD's loan distributed among the Self-help groups have increased over the period of time. In the year 2000-2001 only 309 Self-help groups got the financial support from the NABARD. It increased 2132 Self-help groups in 2003-2004 and 4349 groups in 2008-2009. It also illustrates that, the amount of loan distributed among the self-help groups also increased over the period of time. In the year 2000-2001 the amount of loan was ` 53.03 lakhs. It increased `1584.82 lakhs in 2004-2005 and ` 7713.94 lakhs in 2008-2009. The number of benefited self-help groups and the volume of loan distribution among the groups has subjected to fluctuation over the period of time.

Micro credits are enough for innovative and hard working micro entrepreneurs to start small business such as making handicraft items. From the income of this small business the borrowers of micro credit can enjoy better life, food shelter, health care and education for their families and above all these small earnings will provide a hope for better future. SHGs are also viable organized set up to disburse micro credit to the needy entrepreneur women and encouraging their promotion of poverty alleviation activities and programmes.

OBJECTIVES OF THE STUDY

- To study the Socio economic condition of SHG women Entrepreneurs.
- To identify the factors influencing the women entrepreneurship in SHG.

HYPOTHESIS

Ho: There is no association between the age of the women entrepreneurs and the impetus factors.

METHODOLOGY OF THE STUDY

For the present study, primary and secondary data were used. Primary data were collected through a questionnaire. Secondary data were collected from Tamil Nadu Corporation for Development of Women (TNCDW). A pilot study was conducted with the help of secondary data. There are 18985 SHGs in Tirunelveli district consisting of 19 blocks, among the block, two blocks were selected in which their savings amount is higher than the other blocks, namely Palayamkottai and vallyoor. There are 4288 SHGs in the chosen blocks in which 10 SHGs consisting of 20 members those who are involved in self employment schemes where selected for the study. The chi-square test and average method is used as statistical tools for analyzing the data and testing the hypothesis.

AREA PROFILE

Tirunelveli District is one of the southern district of Tamil Nadu states. It is bounded on North by Virudhunager, East by Thoothukudi, South by Kanyakumari District and West by Kerala state. In Tirunelveli District includes 19 blocks. The number of self help groups formed in this district is 18985 till 2010. This group consists of 300174 members and their savings is `9852.25 lakhs

REVIEW OF LITERATURE

Anjuly Sharma and Dr. (Mrs.) Vandana Kaushik (2008) said that the promotion of women entrepreneurship will leads to economic stability of women and family. G.Sandhiya Rani (2006) noted that the rural economy in recent year has been showing clear positive signs for the micro enterprise opportunities especially for women. K. Sathiabama (2010) pointed out that the "economic empowerment of women led to development of family and community", this statement is proved by a collective micro entrepreneurship in Tamil Nadu. G.Subbulakshmi (2010) noted that the self interest is the important motivating factor for their business. S.Santhosh Kumar and R. Vasanthagopal (2010) views that the micro credit helped micro entrepreneurs generate both full time and part time self employment even up to 20 days in a month at a very low investment.

ANALYSIS OF THE STUDY

The present study is an attempt to analyze the factors influencing the women entrepreneurship in SHG Tirunelveli District.

TABLE 2: AGE WISE CLASSIFICATION

Age	No. of respondents	Percentage
21-30	33	33
31-40	37	37
41-50	20	20
51-60	10	10
Total	100	100

Source: Primary Data

Age is an important factor which determines the efficiency of an individual. The analysis of the age wise classification of the respondents reveals that Most of the entrepreneurs of the SHG belong to the age group of 31-40 years (37%). The age group of 21-30 years (33%) constituted the second maximum number of women entrepreneurs. In the age group of 51-60 were very low, i.e., only 10%.

TABLE 3: EDUCATIONAL STATUSES

Educational level	No. of respondents	Percentage
Illiterate	09	09
Primary	27	27
Secondary	34	34
Higher Secondary	22	22
Graduate	08	08
Total	100	100

Source: Primary Data

Education leads to knowledge and self-confidence. Entrepreneurship is also determined by the education. Education plays a vital role in decision making. The above table reveals that 34% of entrepreneurs have undergone Secondary education. It is noted that 9% entrepreneurs who are illiterate.

TABLE 4: EMPLOYMENT PATTERNS OF SELF HELP GROUP MEMBERS

Occupation	No. Of respondents	Percentage
Tailoring	23	23
Coir making	34	34
Dairy farm	22	22
Food making	13	13
others	08	08
Total	100	100

Source: Primary Data

SHG generates employment opportunities in the rural India by providing many self employment programmes and reduces the level of disguised unemployment which is found in India agricultural sector. The above table shows the employment pattern of self help group members shows that 34% members are involved in coir making. 23% are tailors. 22% of the members are working in dairy farm. 13% of the members are involved in food making. 8% of members are engaged in other business.

Income is the yard stick to measure the economic condition of the society. The main objective of the SHG is to improve the income source of the rural women. To give economic freedom to the rural women it is must to provide them enough income sources. The following table explains the income level of the respondents.

TABLE 5: INCOME LEVELS OF THE RESPONDENTS

Income (₹) per month	No. of respondents before joining SHG	Percentage	No. of respondents after joining SHG	Percentage
Less than 1000	18	18	08	08
1000 – 1500	19	19	24	24
1500 – 2500	43	43	48	48
Above 2500	20	20	20	20
Total	100	100	100	100

Source: Primary Data

The above table shows that self help groups in the study area increase the income level of the respondents 19 % respondents were in the income group of `1000 – `1500 before joining the scheme. But that percentage is increased to 24 % after joining the group. The percentage of respondents of the income group `1500-`2500 was 43 before joining the scheme. It was increased to 48 after joining the group.

TABLE 6: IMPETUS FACTORS FOR WOMEN ENTREPRENEURS

Impetus factors	No. of respondents	Percentage
Traditional skill	31	31
Self interest	16	16
Employment Training	24	24
To be independent	11	11
To earn money	18	18
Total	100	100

Source: Primary Data

In the present study, the motivational factors considered as impetus factors for entrepreneurs are traditional skill, Self interest, Employment Training, to be independent, to earn money. They are presented in above table. Most of the entrepreneurs are involved in their traditional work. Government and NGOs give some entrepreneurial training to SHG members this training (24%) as the motivating factors for entrepreneurs. The self interest is another important motivating factor for their business.

TESTING OF HYPOTHESIS

Ho: There is no association between the age of the women entrepreneurs and the impetus factors.

TABLE 7: ASSOCIATION BETWEEN THE AGE OF THE WOMEN ENTREPRENEURS AND THE IMPETUS FACTORS

Impetus factors	Age				Total
	21-30	31-40	41-50	51-60	
Family tradition	12	08	07	04	31
Self interest	07	04	03	02	16
Employment Training	09	08	04	03	24
To be independent	03	09	05	01	11
To earn money	02	08	01	0	18
Total	33	37	20	10	100

Source: Primary Data

Calculated Value : 13.4
Table Value : 21.03

INFERENCE

The calculated value of χ^2 is less than the table value of Chi-square. So the hypothesis is accepted. i.e., there is no association between the age of the women entrepreneurs and the impetus factors.

FINDINGS

The following are the major findings of the study.

- Most of the entrepreneurs of the SHGs in the study area were belonged to the age group of 31-40 years.
- The present study revealed that the low educated women were come forwarded as entrepreneurs. Most of the Entrepreneurs of the SHG in the study area have only primary and secondary level of education.
- Most of the SHGs women entrepreneurs are involved in coir making of this study area.
- Income of the SHG members is increased after joining the Self Help Group.
- Traditional skill played a vital role in impetus factors for the women entrepreneurs in the study area.

CONCLUSION

Self Help Group plays an important role in developing the rural women in self employment. Micro finance through the Self Help Groups developed the entrepreneurial skills among rural women community and to get Self-Employment. Pandit Jawaharlal Nehru said, "To awaken the people, it is women who must be awakened; once she is on the move, the family moves, the village moves and nation moves." Now the women are awakened by the self help groups.

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HANDLOOM AS AN ACTIVITY TO ENSURE FOOD SECURITY SPECIAL REFERENCE TO WEST BENGAL

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ABSTRACT

Food security is built on three pillars, namely food availability, food access and food use. Handloom industry is one of those economic activities that help formation of resources or build up purchasing power not only of the weavers' families but also of middlemen, mahajans and traders and other families who are indirectly involved in this activity. Thus it contributes to food security by enhancing purchasing power of the artisan households and thus to access to food. Against this perspective the present study examines the demand (income or access) aspect of food security with reference to handloom industry of four sample districts of West Bengal. It examines the contribution of handloom industry in the form of employment and income generation and thus access to food security, assesses the share of the artisan households who are food secure and also analyses the problems that are encountered by the artisan households to ensure food security. The work is based on primary data. Multi-stage stratified random sampling has been used to collect primary data from sample 480 households. It is observed that food security is higher for artisan households who are independent and that is higher for districts which are relatively developed. Thus food security is related to production organization and the degree of development of the region.

KEYWORDS

Food Security, Handloom industry.

INTRODUCTION

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. Household food security is the application of this concept to the family level, with individuals within households as the focus of concern. **Food insecurity**, on the other hand, exists when people do not have adequate physical, social or economic access to food as defined above.

Food security is built on three pillars:

- Food availability: sufficient quantities of food available on a consistent basis.
- Food access: having sufficient resources to obtain appropriate foods for a nutritious diet.
- Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Any economic activity builds up resources or increase purchasing power of an individuals/households or community. Handloom activity is one of those economic activities that help formation of resources or build up purchasing power not only of the weavers' families but also of middlemen, mahajans and traders families and other families who are indirectly involved in this activity. Thus handloom industry contributes to food security by enhancing purchasing power of the artisan household and thus to access to food.

Against this brief perspective, in the present study we examine the demand (income or access) aspect of food security with reference to handloom industry of four sample districts of West Bengal. The paper tries to examine two important things: i) food security in relation to level of development and ii) food security in relation to production organization.

OBJECTIVES OF THE STUDY

1. To examine the contribution of handloom industry in the form of employment and income generation and thus access to food security.
2. To examine the extent of food security of the artisan households and
3. To analyse the problems that are encountered by the artisan households to ensure food security.

METHODOLOGY

To serve our purpose, we resort to primary data. Multi-stage stratified random sampling has been used to collect primary data on characteristics of the artisans' households, production organization of handloom industries, economics of the industries, and consumption pattern of the handloom artisans' households. Stages here comprise District, Block, Village and Artisan Households while strata include relatively developed and relatively backward districts. Two districts each from among the relatively developed and the relatively backward districts have been randomly selected. Two blocks from each sample district and two villages from each sample block and thirty (30) artisan households from each sample village have been randomly selected. Thus our sample comprises 4(four) districts, 8(eight) blocks, 16(sixteen) villages and 480 households for our in-depth study on Handloom Industry in relation to food security. Simple statistical tools like percentage, mean have been used to analyze the data.

CONTRIBUTION OF HANDLOOM INDUSTRY IN THE FORM OF EMPLOYMENT AND INCOME GENERATION AND THUS ACCESS TO FOOD SECURITY

Total number of workers employed in 480 sample handloom units is 1531. Largest number of workers is employed in sample handloom units in Bankura district (461) followed by Hooghly (363), Nadia (362) and Purba Medinipur district (345). Independent units employ largest number of workers (622) followed by cooperative (462) and tied units (447). In all the sample districts independent units employ larger number of workers than cooperative and tied units. So, independent units are larger in size in respect of number of labourers employed than other two organizations (Table 1).

TABLE 1 DISTRIBUTION OF SAMPLE HANDLOOM BY NUMBER OF TOTAL WORKERS*

Districts	Total number of workers working under different production organizations			
	Independent	Cooperative	Tied	Total
Bankura	200(43.38)	128(27.77)	133(28.85)	461(100)
Hooghly	146(40.22)	108(29.75)	109(30.03)	363(100)
Nadia	141(38.95)	116(32.04)	105(29.01)	362(100)
Purba Medinipur	135(39.13)	110(31.88)	100(28.99)	345(100)
Grand total	622(40.63)	462(30.18)	447(29.20)	1531(100)

Source: Field survey 2009-10

Notes: *Total workers = Artisans +Assistant Artisans. Figures in parentheses represent the percentage share.

WORKING DAYS

Average number of person days worked per worker in the year may be considered a good indicator of employment. The average number of working days worked per worker (pd) is highest in cooperative organization in the district of Bankura (329 days) and there is no significant variation of average number of working days worked per worker between the organizations in the same district. However, among the districts there are some variations in average number of working days worked per worker. The coefficient of variation among units in each organization in Purba Medinipur districts is higher than that in Bankura district (Table 2).

TABLE 2: DISTRIBUTION OF HANDLOOM UNITS BY NUMBER OF PERSON-DAYS WORKED PER WORKER AND PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	Average working days in the year		
	Independent	Cooperative	Tied
Bankura	325.2{3.57}	329.4{2.50}	325.8{4.01}
Hooghly	303.77{3.93}	309.79{4.33}	309.59{3.93}
Nadia	293.7{2.90}	297.67{3.32}	300.75{4.32}
Purba Medinipur	276.38{6.44}	281.87{8.21}	275.91{6.29}

Source: Field Survey, 2009-10.

Note: Figures in {} represent coefficient of variation.

EARNINGS FROM LABOUR

Actual earnings from labour per manday (Rs.) significantly vary across production organizations (Table 3). Earnings from labour per man-day in independent units are higher than those of cooperative and tied units in all sample districts at 1 percent level of significance. Earning from labour of tied units is lower than that of cooperative units also. Earning from labour per man-day is highest (Rs. 124.47) in independent units of Bankura district and it is lowest (79.25) in tied units in the district of Purba Medinipur. The labour earnings differential across production organizations is explained by the economic conditions of the labourers' households and also by the imperfect labour market.

TABLE 3: ACTUAL EARNINGS FROM LABOUR PER MAN-DAY FROM HANDLOOM BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	Earnings from labour per manday (Rs.)			F- statistic
	Independent	Cooperative	Tied	
Bankura	124.47 (12.59)	109.70(10.24)	107.51(9.80)	10.58 {0.000}
Hooghly	116.04(9.20)	96.41(7.43)	89.38(6.81)	56.59 {0.000}
Nadia	129.27(4.51)	110.42(6.50)	99.57(5.48)	118.51 {0.000}
Purba Medinipur	109.60(3.98)	91.57(7.68)	79.25(7.23)	137.91{0.000}

Source: Field Survey, 2009-10.

Notes: Figures in parenthesis () represent coefficient of variation and figures in {} represent level of significance.

INCOME OF HANDLOOM HOUSEHOLDS

Income from handloom activities includes the gross profit earned from the handloom production. Percentage share of different sources of income to total income across production organizations reveals that 60 percent to 89 percent income is generated from the handloom activities. Even cooperative and tied weavers depend on the income from the handloom activities. Only 11 percent to 40 percent household incomes come from other than handloom activities (Table 4).

TABLE 4: PERCENTAGE SHARE OF DIFFERENT SOURCES OF ANNUAL INCOME (RS.) BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	OrganiSation	Handloom industry income	Agricultural and allied income	Trade & Business	Service	Total
Bankura	Ind.	121751(89.12)	10416(7.62)	1600(1.17)	2850(2.09)	136617(100)
	Coopt.	46424(78.24)	10088(17.00)	1750(2.95)	1075(1.81)	59336(100)
	Tied	42513(81.92)	7280(14.03)	2100(4.05)	0(0.00)	51893(100)
Hooghly	Ind.	115206(89.13)	10072(7.79)	3280(2.54)	700(0.54)	129258(100)
	Coopt.	58803(83.27)	9023(12.78)	2115(3.00)	675(0.96)	70615(100)
	Tied	55603(85.45)	8015(12.32)	16000(24.59)	650(1.00)	65068(100)
Nadia	Ind.	129174(89.85)	9411(6.55)	1980(1.38)	3200(2.23)	143765(100)
	Coopt.	62800(82.44)	8591(11.28)	2665(3.50)	2125(2.79)	76182(100)
	Tied	50903(84.92)	7591(12.66)	16000(26.69)	650(1.08)	59944(100)
Purba Medinipur	Ind.	88949(72.45)	27950(22.77)	1375(1.12)	4500(3.67)	122774(100)
	Coopt.	56589(75.32)	13442(17.89)	1444(1.92)	3800(5.06)	75131(100)
	Tied	40486(60.34)	12532(18.68)	12500(18.63)	1575(2.35)	67093(100)

Source: Field Survey.

Notes: Figures in parentheses represent the percentage share of total income and Ind. Coopt. indicate weavers working under independent organization and cooperative organization respectively.

The principal source of livelihood of sample households is thus the weaving of handloom clothes. Per capita monthly income from handloom of independent weavers' households is higher than that of cooperative and tied weavers in the sample districts (Table 5). Similarly, per capita total income of independent proprietor households is higher than per capita income of cooperative and tied ones. Per capita income of cooperative units is not so high. Cooperative and tied weavers maintain their income from handloom activities at least at their subsistence level of living. Agriculture & allied activities, trade & business and service are other sources of income in order of importance. Per capita income of independent weavers from non-industrial sources is not necessarily higher than that of cooperative and tied weavers. It seems that two interacting forces can be worked in this circumstance. Generally, households deriving income from handloom industry might have a tendency to concentrate on handloom activities shifting away from other than handloom activities. They also maintain avenues of income from non-industrial sources (especially, agriculture) so that they can combat any recessionary situation in the handloom industry.

Per capita monthly income is highest (Rs. 2033) in independent organization of Bankura district followed by Nadia (Rs1964), Hooghly (Rs1766) and Purba Medinipur district (Rs1764). Similarly per capita monthly income from handloom is highest (Rs. 1812) in independent organization of Bankura district followed by Nadia (Rs1765), Hooghly (Rs1574) and Purba Medinipur district (Rs1278). Where as per capita total income and also per capita income from handloom activity are lowest in cooperative units and tied units of Bankura district. Percentage share of different sources of per capita income to per capita total income across production organizations reveals that 60 percent to 89 percent per capita income is generated from the handloom activities.

TABLE 5: PER CAPITA INCOME (₹) (MONTHLY) FROM DIFFERENT SOURCES OF HOUSEHOLDS BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	Organization	Handloom industry income	Agricultural and allied income	Trade & Business	Service	Total
Bankura	Ind.	1812(89.12)	155(7.62)	24(1.17)	42(2.09)	2033(100)
	Coopt.	679(78.24)	147(17.00)	26(2.95)	16(1.81)	867(100)
	Tied	622(81.92)	106(14.03)	31(4.05)	0(0.00)	759(100)
Hooghly	Ind.	1574(89.13)	138(7.79)	45(2.54)	10(0.54)	1766(100)
	Coopt.	803(83.27)	123(12.78)	29(3.00)	9(0.96)	965(100)
	Tied	713(85.45)	103(12.32)	205(24.59)	8(1.00)	834(100)
Nadia	Ind.	1765(89.85)	129(6.55)	27(1.38)	44(2.23)	1964(100)
	Coopt.	969(82.43)	133(11.28)	41(3.50)	33(2.79)	1176(100)
	Tied	816(84.92)	122(12.66)	256(26.69)	10(1.08)	961(100)
Purba Medinipur	Ind.	1278(72.45)	402(22.77)	20(1.12)	65(3.67)	1764(100)
	Coopt.	873(75.32)	207(17.89)	22(1.92)	59(5.06)	1159(100)
	Tied	553(60.34)	171(18.68)	171(18.63)	22(2.35)	917(100)

Source: Field Survey, 2009-10.

Note: Figures in parentheses represent the percentage share of total income.

EXTENT OF FOOD SECURITY OF THE ARTISAN HOUSEHOLDS

Consumption pattern is important aspect to measure the general standard of living of sample handloom industrial households. Consumption comprises food consumption and non-food consumption. Food consumption includes the consumption of cereals, pulses, milk and milk products, edible oil, vegetables, non-vegetables (meat, fish and egg), sugar, beverages, pan, tobacco etc. Non-food consumption is classified into three groups, namely expenditure on clothing and payment to washer man; expenditure on medical expenditure; expenditure on electricity, phone and other social, ritual and luxurious expenditures.

Consumption pattern across artisans' households having different production organizations has been depicted in Table 6. It reveals that the sample households have high percentage of their consumption expenditures on food items (about 70 percent in cooperative and tied units irrespective of sample district). Percentage share of food consumption of independent households is lower than that of the cooperative and tied artisans' households, while that of non-food consumption, e.g., clothing expenditure, medical expenditure and expenditure on other items of artisans' households is higher. This is because cooperative and tied weavers are relatively poor so that they cannot spend more on non-food purposes, which are not so important for their survival. To meet social and ritual expenses on account of the prevailing dowry system, marriage ceremony etc. even lower income households are sometimes forced to go beyond their means and are even bound to curtail food consumption and medical budget.

TABLE 6: ANNUAL CONSUMPTION EXPENDITURES OF HANDLOOM HOUSEHOLDS BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS (Rs. 000)

District	Organisation	Food-items	Clothing	Medicine	Electricity, Phone & other social, ritual, luxurious items	Total Consumption
Bankura	Ind.	46520(55.83)	14750(17.70)	6150(7.38)	15900(19.08)	83320(100)
	Coopt.	37290(69.73)	6010(11.24)	4870(9.11)	5310(9.93)	53480(100)
	Tied	34470(71.16)	5140(10.61)	4300(8.88)	4530(9.35)	48440(100)
Hooghly	Ind.	49830(58.05)	13520(15.75)	5980(6.97)	16510(19.23)	85840(100)
	Coopt.	42830(68.52)	8240(13.18)	5440(8.70)	6000(9.60)	62510(100)
	Tied	43410(72.39)	5500(9.17)	5810(9.69)	5250(8.75)	59970(100)
Nadia	Ind.	53200(58.01)	14260(15.55)	6710(7.32)	17540(19.13)	91710(100)
	Coopt.	38800(70.24)	6740(12.20)	4430(8.02)	5270(9.54)	55240(100)
	Tied	34210(70.41)	5830(12.00)	4180(8.60)	4370(8.99)	48590(100)
Purba Medinipur	Ind.	49530(60.43)	12810(15.63)	5880(7.17)	13740(16.76)	81960(100)
	Coopt.	39820(72.41)	6160(11.20)	3960(7.20)	5050(9.18)	54990(100)
	Tied	39450(71.60)	5870(10.65)	4460(8.09)	5320(9.66)	55100(100)

Source: Field Survey.

Note: Figures in parentheses represent the percentage share of total consumption.

Per capita monthly consumption expenditures of sample weavers' households on different items by organizations are shown in Table 7. Per capita monthly consumption expenditure of weavers under cooperative is more or less similar to those under tied units. Per capita monthly consumption expenditures on food varies from Rs 681 to Rs 727 in independent units where as in cooperative units it varies from Rs 545 to Rs 615 and in tied units it varies from Rs 504 to Rs 557. It reveals that the sample households have high percentage of their consumption expenditures on food items (about 70 percent in cooperative and tied units irrespective of sample district).

TABLE 7: PER CAPITA (MONTHLY) CONSUMPTION EXPENDITURES OF HANDLOOM HOUSEHOLDS BY PRODUCT AND PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS (Rs.)

District	Org.	Food-items	Clothing	Medicine	Electricity, Phone & other social, ritual, luxurius items	Total Consumption
Bankura	Ind.	692(55.81)	219(17.66)	92(7.42)	237(19.11)	1240(100)
	Coopt.	545(69.69)	88(11.25)	71(9.08)	78(9.97)	782(100)
	Tied	504(71.19)	75(10.59)	63(8.90)	66(9.32)	708(100)
Hooghly	Ind.	681(58.06)	185(15.77)	82(6.99)	226(19.27)	1173(100)
	Coopt.	585(68.50)	113(13.23)	74(8.67)	82(9.60)	854(100)
	Tied	557(72.43)	71(9.23)	74(9.62)	67(8.71)	769(100)
Nadia	Ind.	727(58.02)	195(15.56)	92(7.34)	240(19.15)	1253(100)
	Coopt.	599(70.31)	104(12.21)	68(7.98)	81(9.51)	852(100)
	Tied	548(70.35)	93(11.94)	67(8.60)	70(8.99)	779(100)
Purba Medinipur	Ind.	712(60.44)	184(15.62)	84(7.13)	197(16.72)	1178(100)
	Coopt.	615(72.44)	95(11.19)	61(7.18)	78(9.19)	849(100)
	Tied	539(71.58)	80(10.62)	61(8.10)	73(9.69)	753(100)

Source: Field Survey, 2009-10.

Note: Figures in () represent Percentage share.

Table 8 reveals that per capita average calories intake were highest (2928 kcal/day) in independent organizations of Nadia district and lowest (2536 kcal/day) in tied organizations of Bankura district and all the estimated per capita average calories intake (kcal/day) are more than standard norm (2400 kcal/day in rural areas) suggested by GOI. Only 7 (1.46 percent) artisans household of the total 480 are food insecure in calories consumption < 2400 kcal/day. The reason behind this is most of these 7 artisan household have to taken loan from mahajan or others and that's why they bound to curtail their consumption expenditure for repayment of loan. Out of 7 food insecure families 5 families are in cooperative and tied units of relatively backward district Bankura.

TABLE 8: PER CAPITA CALORIE CONSUMPTION OF HANDLOOM HOUSEHOLDS BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	Org.	Per capita average calories intake (kcal/day)	No. of families food secure according standard calories consumption ≥ 2400 kcal/day	No. of families food in-secure in calories consumption < 2400 kcal/day	Total No. of families
1	2	3	4	5	6
Bankura	Ind.	2789	40	0(0.00)	40
	Coopt.	2641	38	2(5.00)	40
	Tied	2536	37	3(7.50)	40
Hooghly	Ind.	2831	40	0(0.00)	40
	Coopt.	2733	40	0(0.00)	40
	Tied	2696	39	1(2.50)	40
Nadia	Ind.	2928	40	0(0.00)	40
	Coopt.	2771	40	0(0.00)	40
	Tied	2681	39	1(2.50)	40
Purba Medinipur	Ind.	2867	40	0(0.00)	40
	Coopt.	2744	40	0(0.00)	40
	Tied	2695	40	0(0.00)	40
Total			473	7(1.46)	480

Source: Field Survey, 2009-10.

Note: Figures in () represent Percentage share.

NB: The Planning Commission constituted a 'Task Force on Projection of Minimum Needs and Effective Consumption Demand' which, on the basis of a systematic study of nutritional requirements, recommended (GOI 1979) a national norm of 2,400 and 2,100 kilo calories/day for rural and urban areas (the difference being attributed to the lower rates of physical activity in the urban areas) respectively. The average calorie norm of 2,110 kcal per capita per day prescribed by the FAO for South Asia (Bajpai et al. 2005) in the eighties is much lower than the 2,400 kcal norm that has been typically used by government in India. The latest calorie norm used by FAO for India is 1820 kcal (IFPRI 2008).

The income derives from handloom activity of artisan households of sample districts are greater than that of total consumption expenditure except the sample artisan households working under cooperative and tied organizations in the districts of Bankura and Hooghly. These artisan households depend on other income only 6 percent to 15 percent of total consumption expenditure. From this, it is high lighted that the handloom activity ensures food security to the artisan households.

About 38% to 55% of incomes derive from handloom activity used to meet the food expenditure in independent organization of sample districts where as in cooperative organization it varies from 61 percent to 80 percent and in tied organization it varies from 67 percent to 97 percent of handloom income. Handloom income of independent units is much higher than their required food expenditure whereas. So degree of dependence on handloom income for food access is higher in tied units of relatively backward district (Table 9).

PROBLEMS THAT ARE ENCOUNTERED BY THE ARTISAN HOUSEHOLDS TO ENSURE FOOD SECURITY

1. The mere consumption of an adequate number of calories may not ensure sufficient intake of other nutrients, such as proteins, fats and micro-nutrients, which are just as essential for human health. It can further be argued that there is a distinction between gross calorie intake and net calorie absorption, and that the relationship between the two may change over time depending upon the incidence and severity of gastrointestinal disorders.
2. Food security fluctuates due to change of handloom product price and also the price inflation of food items.
3. Intra house hold distribution of food determines the nutritional status of the individual member of the household. Consumption data on individual household members is hard to find. For example women could be getting less than men or girl child getting less than the boys.
4. At the household level food insecurity is mainly due to lack of economic access to adequate food. The poor are the worst affected by food insecurity, which is primarily of two types, *transient* and *chronic*. The longer-term problem related to malnutrition and poverty is referred to as chronic food insecurity, which is largely due to, continued lack of access to productive assets and employment.

TABLE 9: PERCENTAGE OF PER CAPITA CALORIE CONSUMPTION DERIVES FROM HANDLOOM ACTIVITY BY PRODUCTION ORGANIZATION IN SAMPLE DISTRICTS

District	Organization	Food expenses as a percentage of income from handloom	Total consumption expenditure as a percentage of income from Handloom
1	2	3	4
Bankura	Ind.	38.19	68.43
	Coopt	80.27	115.20
	Tied	81.03	113.94
Hooghly	Ind.	43.27	74.51
	Coopt	72.85	106.30
	Tied	78.12	107.85
Nadia	Ind.	41.19	71.00
	Coopt	61.82	87.96
	Tied	67.16	95.46
Purba Medinipur	Ind.	55.71	92.14
	Coopt	70.45	97.17
	Tied	97.47	136.10

Source: Field Survey, 2009-10.

Note: Ind. Coopt. indicate weavers working under independent organization and cooperative organization respectively.

CONCLUSION

Handloom activity ensures food security to artisan households by capacity building of food accessibility. Handloom activity ensures food security to artisan households by capacity building of food accessibility. Food security is higher for artisan households who are independent and that is higher for districts which are relatively developed. Thus food security is related to production organization and the degree of development of the region.

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AGRICULTURAL INFRASTRUCTURE DEVELOPMENT IN THE GENERATION OF INCOME AMONG THE SMALL AND MARGINAL FARMERS

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ABSTRACT

The study examines ways and means of small and marginal farmers in the generation of capital and its contribution in agricultural practices. To strengthen the agriculture development, use of technologies, reduction in the cost of cultivation, there is a need of huge investment in agriculture which would enable through macro level policy. The fast expansion of livestock development, farm equipments etc would attract the farmers to involve in the farming activities more effectively. In order to expand the cultivation of agricultural crops to boost the growth of 70% small and marginal farmers in the creation additional job opportunities, income, market orientated policy integration are necessary, which is possible only by strengthening agricultural infrastructure of small and marginal farmers.

KEYWORDS

Agriculture Infrastructure, Farming.

INTRODUCTION

Capital is the most important of all factors of production. A farmer usually depends on capital only after assessing the land and labour availability. The lack of capital is an important determinant in the transformation of traditional and subsistence type of agriculture transforming into commercial agriculture. The intensive use of capital per unit of land is an important pre-requisite for raising productivity and income of small and marginal farmers. Besides an improved agricultural technology, such as the use of important seeds, fertilizers, chemicals, machinery and equipments calls for cash requirements on agriculture. The capital becomes assets such as land, livestock, machinery, building, equipments of small and marginal farmers. As the capital becomes one of the most scarce resources, it must be managed wisely and hence the agricultural finance contributes more in the creation of assets of small and marginal farmers. The efficient management and controlling of asset assumes great importance in generation of income of small and marginal farmers. Further, the cultivation practiced by them influences more in their income generation. As the cost of production, yield from crop influence the income of the small and marginal farmers to a certain extent, a study of this nature is required.

OBJECTIVES OF THE STUDY

1. To know the assets and liability position of small and marginal farmers
2. To understand the main components of farmer's assets and its usage
3. To understand the crop pattern, agricultural operation and income derived.

METHODOLOGY

I) AREA OF STUDY

Area of the study refers to Gangavalli Taluk of Salem District of Tamilnadu, one of the Southern States of India. Gangavalli Taluk consists of 42 revenue villages; the occupation for 95% of the people is agriculture and allied activities. This Taluk has 10% big farmers and 90% small farmers and marginal farmers. As the big farmer forms a small percentage of total farmers, small and marginal farmers alone were considered for the study. Banks in Gangavalli Taluk consists of Primary Agricultural Co-operative Banks, Nationalized commercial banks and other scheduled banks.

II) SOURCES OF DATA

The data were collected from the farmers and banks using two separate interview schedules, one for farmers and another for banks. In order to make the data collection effective, interview schedules have been prepared in such a way that the respondents were able to express their opinions freely and frankly. Further, for farmers, the interview schedule has been translated into Tamil so as to enable the farmers to understand and answer the questions clearly without any ambiguity.

III) SAMPLING DESIGN

For the purpose of the study, 500 farmers consisting of small farmers and marginal farmers were selected using random sampling method. Regarding banks, there are thirteen cooperative banks and five nationalized and scheduled banks that are found in Gangavalli Taluk were selected for the study.

IV) TOOLS FOR ANALYSIS

For purpose of analysis, the following tools were used in this study.

- Percentage analysis
- Chi-square analysis
- Summary statistics

RESULTS AND DISCUSSION

The assets of the farmers consist of land, farm equipments, live stock and other assets. The land is classified as dry and wet land, the farm equipments are tractors and accessories, lorry / van, motor pump, electricity and diesel, sprayer, bullock cart, hand cart etc. Cows, poultries, buffaloes, bullocks, sheep / goat, pig, rabbit etc are considered as live stock. The other assets such as wells, bore wells, farm house, cattle shed, trees etc are also adding the value of the assets. These assets are base in generating income through agricultural operations for small and marginal farmers.

To analyze the asset position of the small and marginal farmers, a summary statistical method was used. As a result, the farmers holding between 5 and 10 acres of dry land or 2.5 and 5.0 acres of wet land and the farmers holding below 5 acres of dry land (or) 2.5 acres of wet land are classified as small and marginal farmers. In this study, the average wet land held by the farmer is only 2.04 acre and dry land holding 1.64 acres with the average value per acre Rs. 244950 and Rs. 92730 respectively. The average size of land holding has declined considerably over the years. This would increase the cost of production and reduce the viability of small and marginal farmers in generating income and wealth.

Out of 500 small and marginal farmers were taken for the study, 1.4 (7) farmers owned poultry equipments, 1.2 (6) farmers owned tractors and accessories, 0.4% (2) farmers owned lorry / van, 46.4% (232) farmers owned motor pumps sets, 31.4 (157) farmers owned sprayers and other equipments owned by them 1.6% (8) and 17.6% (88) farmers are not having any of these farm equipments for their agricultural operations. To carryout the agricultural operation effectively, the farm equipments are necessary. 17.6% small and marginal farmers not having any farm equipments, it clearly indicates that they have to hire the same from

outside at a higher cost which results in increase of cost of production. Further, the farmers may not perform any agricultural operations in a particular season because of high cost and more demand for the agriculture equipment which leads to loss of income in that particular season.

In addition to the above, the total income of the farmers about 40.82% was agricultural income and remaining 59.18% income was non- agriculture income which includes 10.86% farm livestock, diary etc. Though livestock's / dairying is the part of agriculture, in addition to the agriculture operation the farmers can grows more live stocks which may generate, more income than the agricultural operations.

Out of 500 small and marginal farmers, 70.8% (354) small and marginal farmers owned cows and remaining 29.2% (146) small and marginal farmers owned sheeps / goats / bullocks / poultries.

While discussing agriculture practices, majority (92.35%) of the farmers are cultivating 3 months period mono type food crops more than the 6 months period cash crops. This is because, the cultivation of cash crops are more expensive. Hence the government should take appropriate steps to increase cash crops cultivation along with food crops. Further majority of the farmers revealed that there was limit to access credit on long term basis to develop water facilities and other infrastructure but the banks offer only short-term crop loan which was not useful because of the lack of basic facilities such as water, Equipments, etc., There is also no proper linkage between production and marketing which would force the farmer to sell their produce through private agent at unfair prices. This unorganized sector should become an organized sector, then only these small and marginal farmers can become economically viable and sustainable.

RECOMMENDATIONS

CROP INSURANCE

It is found that the coverage of crop insurance in the selected area for the study is too low (0.02%). This is due to unawareness of farmers about crop insurance schemes which have been introduced to protect their crops from disease and natural disasters. In this context, it is also suggested that the government and banks to extend their support by creating awareness and funding for the same.

CO OPERATIVE FARMING

It is found from the study that due to the increase in the cost of production, the income of the farmers has continuously decreased. In this situation, all the farmers are discontinuing or shifting the agricultural activities (Rank 1). In this context, 73.4% of farmers opined that the cost reduction is possible only through cooperative farming. Hence, it is recommended that the government has to design appropriate policies and take appropriate steps to implement cooperative farming.

MODERNIZATION OF AGRICULTURAL PRACTICES

It is found from the study that majority (72.2%) of the farmers are adopting traditional methods of agriculture such as use of mono type of crops , traditional type of farm equipments etc. This method does not suit to the present situation which is consume time, increase cost of production. Hence, it is suggested to the farmers to use modern cultivation practices such as high yield varieties (HYV), water saving sprinkler or drip irrigation and demand oriented crops, crop rotation etc to get better yield and thereby better income.

INFRASTRUCTURE PROMOTION

In many businesses, professions, and organization infrastructure facilities are playing vital role. But in the agriculture sector is also the requirement of an inevitable to do agriculture operation more effectively. The infrastructure includes, water facility, good land, power, farm equipments transportation, marketing facilities, storage facilities etc., the big farmers would developed these facilities easily. But the small and marginal farmers are faced lot of problem to access these facilities to do their agriculture operations because they have no finance to develop these facilities. If be take up the industrial sector, the Government has arranged all facilities like DIC, SIPCOT, or other type of industrial estate. Now-a-days the government continuously developing various park as like software park, Textile park, film city's , entertainment parks etc except the agriculture park. All the parks required but the survival of these parks in the hands of agriculture park hence the government may develop a user friendly agriculture centre by providing more infrastructure which would enable the small and marginal farmers can get all resources to perform agriculture operation more profitable ways.

CONCLUSION

Like other industries, low spending on agricultural infrastructure in the major impediment for the growth of India. Since the agriculture sector is an unorganized one, the private, public is afraid do invest the money in this sector. Though, every year the Government is allocating fund for the development of agricultural infrastructure, it is not solving problem of the small and marginal farmers permanently. The constraints like inadequate water, finance, technology, labour, unfavorable climate etc are never ending problems of the small and marginal farmers. The Government should provide adequate support services like development of livestock, farm equipment facilities, fertilizer, Transportation which would attract and retain the farmers in same industry and stop prevent these no shift from Agriculture to other industry. Though the various uncoverable factors like climate conditions, price, etc, by developing basic infrastructure to perform effectively and protect them from these constrain would lead stabilization of price, make ensure to protect both farmers and consumers.

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FACTORS INFLUENCING THE EFFECTIVE FUNCTIONING OF THE SELF-HELP GROUPS - AN ANALYTICAL STUDY

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ABSTRACT

The Self-Help Groups were playing a major role in transforming the rural economy into a better place for living. Micro finance schemes helped the rural poor to improve their standards of living and in meeting their credit requirements to a very great extent. Hence, the concept of Self-Help Groups had become an innovation in the field of rural development. It has found that the Self-Help Groups organised themselves to manage their economic activities effectively and in a better way and for empowering women in all the directions which were suited to their needs and interests. They gained confidence due to an increase in their relative financial independence which had provided a greater level of security for them. The Self-Help Groups had developed certain leadership qualities among women such as in organising meetings and in functioning as a link between the NGOs and the Government officials, and in co-ordinating, and in motivating the members. The Self-Help Groups had brought about a silent revolution in the economic empowerment of the poor rural women. The strengthening and the spreading of the functioning self-help groups was the only solution to accelerate the socio-economic development of the rural poor in the villages of India.

KEYWORDS

SHG, rural economy.

INTRODUCTION

Women in rural areas involved raised the children, took care of the cattle and the household cooking and the processing of the food and worked nearly as hard as the man in the fields. Attempts to introduce an appropriate technology for women though it was necessary to alleviate the burden of work for women have met with unequal success as the planners was inadequately understood the economic roles of women. It was only gradually being realized that it was necessary for the policy makers and the planner to be gender sensitive to the impact of the new technology on women.

ROLE OF WOMEN IN ECONOMIC DEVELOPMENT

In the traditional society, woman's role is naturally limited to the family. She is the bearer of children; she is fully occupied with her duties as a mother and homemaker. Many factors like urbanization, technical progress woman's education etc., have profoundly changed the traditional conditions, even in a developing country like India, slowly starting with the metropolitan areas and doing back, the woman's role at home has become lighter due to technical progress. The participation of women in the economic development process can be mainly categorized into four segments namely employment in unorganized sector, employment in organized sector, self employment and entrepreneurs.

OBJECTIVES OF THE STUDY

The present study had the following as its specific objectives:

1. To identify the factors that had influenced the effective functioning of the self-help groups in sivaganga District and
2. To offer valuable suggestions and conclusion based on the findings of the study.

NEED FOR THE STUDY

The focus of this study is to study the factors influenced the effective functioning of self help groups in sivaganga district. Women's social mobility in the rural areas depends on their involvement in outside activities. Women's participation in-group activity is an indication that they are moving towards development. So this study tries to find out their participation and involvement in the group and thereby their individual development. Their economic independence through micro enterprises, savings and other key activities of SHGs that is, finding the local income generating activity of that particular area which will yield them a good income is also considered in this study.

METHODOLOGY

This section presents an outline of the research design of the present study, which includes the sampling techniques and the techniques used in analyzing the collected data, and the sample design. The present research was based on the survey method including both the primary data and the secondary data. The researcher herself had framed the required necessary interview schedules used in this study. The variables used in this study had been identified through the discussions held with the Assistant Project Officer of the Mahalir Thittam and the NGO's and a preliminary interview held with a few selected Self Help groups.

SOURCES OF DATA

Based on the variables identified for the study the interview schedule for the members, of the SHG's were framed. The interview schedule for the members of the SHGs were pretested and based on the responses the schedules were further modified and finalised. The secondary data were collected from the related Books, Journals, periodicals and from the NABARD's Annual Reports of the Project Implementation Unit of the Mahalir Thittam in the Sivaganga district.

SAMPLING TECHNIQUE

In the Sivaganga District there are 12 Blocks, covering the various Town Panchayats and Municipalities. Among the 2 blocks the researcher had selected four Blocks namely the Sivaganga, Devakottai, Thiruppathur and the Singampunari. The proportionate random sampling technique was adopted to select the sample SHGs. In the study area 20 NGOs were operating under the Mahalir Thittam. Among these 20 NGO's, four NGO's were selected on the basis of those NGOs which had helped women themselves into a larger number of SHGs in the study area. The NGO's which had enabled the formation of relatively larger number of SHG's were found to be PACHE TRUST, MMSSS, SHEPHERD and the PARD respectively.

These four NGOs had been operating in about 750 SHGs which had more than three years of experience in the study area. By using the proportionate random sampling technique 300 SHGs were selected (which formed about 40 percent of the total number of the SHGs in the study area) and proper weightage was also given for each of these NGOs.

TABLE 1: SAMPLING DESIGN

Sl. No	District	Blocks	Name of the NGOs	Total No.of Persons in SHGs'	Percentage (%)	No.of sample SHG members selected
1.	Sivagangai	Sivagangai	PACHE TRUST	235	40	94
		Devakottai	MMSSS	165	40	66
		Thiruppathur	SHEPHERD	170	40	68
		Singampunari	PARD	180	40	72
Total				750		300

FRAMEWORK OF ANALYSIS

FACTOR ANALYSIS

In the present study, to identify the significant set of factors responsible for the effective function for the SHGs. The Principal Factor analysis method with an Orthogonal Varimax rotation had been used. The Communality of a factor was its Common factor Variance. A factor loading of 0.50 or a value which was greater than that was considered as a significant factor.

Mathematically, factor analysis is somewhat similar to the multiple regression analysis. Each variable is expressed as a linear combination of the underlying factors. The amount of variance a variable shares with all the other variables included in the analysis is referred to as communality. The co-variation among the variables is described in terms of a small number of common factors together with a unique factor for each variable. These factors are not over observed. If the variables are standardized, the factor model may be represented as:

$$X_i = A_{i1} F_1 + A_{i2} F_2 + A_{i3} F_3 + \dots + A_{im} F_m + V_i U_i$$

where,

- X_i = i^{th} standardized variable,
- A_{ij} = Standardized multiple regression coefficient of variable 'i' on common factor 'j'
- F = Common factor,
- V_i = Standardized regression coefficient of variable 'i' on unique factor 'i'
- U_i = The unique factor for variable 'i'
- m = Number of common factors

The unique factors are uncorrelated with each other and with the common factors. The common factors themselves could be expressed as linear combinations of the observed variables.

$$F_i = W_{i1} X_1 + W_{i2} X_2 + W_{i3} X_3 + \dots + W_{ik} X_k$$

where,

- F_i = Estimate of i^{th} factor
- W_i = Weight or factor score coefficient
- K = Number of variables.

RESULTS AND DISCUSSION

Table 11 exhibits the rotated factor loadings for the 25 statements (factors) of the SHG members' problems. All the 25 statements were extracted into nine factors, namely, $F_1, F_2, F_3, F_4, F_5, F_6, F_7, F_8$ and F_9 . The factors with identified new names which influence the effective functioning of the SHGs were presented in the Table 2.

TABLE 2: FACTOR 1 - GUIDANCE OF NGO's

Sl.No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	NGO's guiding the activities of SHG's	0.7741	2.2872	9.1
2.	All sorts of guiding information for members	0.7268		
3.	Training by Mahalir Thittam is very effective	0.4476		

Source: Computed Value

Among the SHG members' problems, the factors regarding 'NGO's guiding the activities of SHG', 'All sorts of guiding information for members' and 'Training by Mahalir Thittam is very effective' were the factors with higher positive loadings on Factor I. The above said three factors with high loadings on Factor I are characterized as "Guidance of NGO's". The eigen value for the above Factor I was 2.2872 and the percentage variance was 9.1. It could be concluded that the problems of members of SHG's had been solved by the proper guidance of the NGO's in the study area and it ranks as the first important factor.

TABLE 3: FACTOR 2 - EFFECTIVE FUNCTIONING OF SHG

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	Accounts are properly maintained and audited	0.6231	1.8902	7.6
2.	Animator is high in SHG activities	0.6142		
3.	Time consumption in obtaining loans	0.5851		
4.	System of collecting money is good	0.4258		

Source: Computed Value

The factors such as 'Accounts are properly maintained and audited', 'Animator is high in SHG activities', 'Time consumption in obtaining loans' and 'System of collecting money is good' were the factors with higher positive loadings on Factor II. The above said four factors with high loadings on Factor II are characterized as "Effective Functioning of SHG". The eigen value for the above Factor II was found to be 1.8902 and the percentage variance was 7.6. It could be concluded that the problems of the members in the SHG's is solved by the effective function of the SHG's in the study area and it had become as the second important factor.

TABLE 4: FACTOR 3 - CREATION OF WOMEN EMPOWERMENT

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	SHGs promote a sense of oneness	0.7290	1.6350	6.5
2.	Women empowerment is possible through SHG's	0.6392		
3.	Create a sense of confidence	0.3890		

Source: Computed Value

From the Table 4, the factors regarding 'SHGs promote a sense of oneness', 'Women empowerment is possible through SHG's' and 'Create a sense of confidence' were the factors with higher positive loadings on Factor III. The above said three factors with high loadings on Factor III could be characterized as "Creation of Women Empowerment". The given value for the above Factor III was 1.6350 and the percentage variance was 6.5. It could be concluded that the women empowerment has been created with the help of SHG's in the study area and it had become as the third important factor.

TABLE 5: FACTOR 4 - STATUS OF SHG'S

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	SHG is functioning in a democratic manner	0.6504	1.6047	6.4
2.	Transparency in SHG functioning	0.6178		
3.	SHG functions could be improved	0.5625		

Source: Computed Value

The factors regarding 'SHG is functioning in a democratic manner', 'Transparency in SHG functioning' and 'SHG functions could be improved' were the factors with higher positive loadings on Factor IV. The above said three factors with high loadings on Factor IV could be characterized as "**Status of SHG's**". The eigen value for the above Factor IV was found to be 1.6047 and the percentage variance was 6.4. It could be concluded that the status of SHG was in a high level in the study area and it had become the fourth important factor.

TABLE 6: FACTOR 5 - STATUS OF BANK

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	Adequate facilities for saving	0.7954	1.2578	5.0
2.	Rate of interest is reasonable	0.6205		
3.	No difficulties in repayment	0.4579		

Source: Computed Value

Among the factor rotation, the factors regarding 'Adequate facilities for saving', 'Rate of interest is reasonable' and 'No difficulties in repayment' were the factors with higher positive loadings on Factor V. The above said three factors with high loadings on Factor V could be characterized as "**Status of Bank**". The eigen value for the above Factor V was 1.2578 and the percentage variance was 5.0. It could be concluded that the status of bank was in a high level in the study area and it had become as the fifth important factor.

TABLE 7: FACTOR 6 - PROBLEMS OF SHG'S

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	SHG members' family problem affect their SHG activities	0.6435	1.1982	4.8
2.	Social problems affect SHG activities	0.5485		
3.	Political influence in SHG activities	0.5135		

Source: Computed Value

The factors regarding 'SHG members' family problem affect their SHG activities', 'Social problems affect SHG activities' and 'Political influence in SHG activities' were the factors with higher positive loadings on Factor VI. The above said three factors with high loadings on Factor VI could be characterized as "**Problems of SHG**". The eigen value for the above Factor VI was 1.1982 and the percentage variance was 4.8. It could be concluded that the SHG's activities were affected by so many problems in the study area and it had become as the sixth important factor.

TABLE 8: FACTOR 7 - STATUS OF SHG'S MEMBERS

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	The social status had improved	0.5824	1.1459	4.6
2.	The economic status had improved	0.5094		

Source: Computed Value

Among the rotated factors, the factors regarding 'The social status had improved' and 'The economic status had improved' were the factors with higher positive loadings on Factor VII. The above said two factors with high loadings on Factor VII had been characterized as "**Status of SHG Members**". The eigen value for the above Factor VII was found to be 1.1459 and the percentage variance was 4.6. It could be concluded that the status of the SHG members had been improved in the study area and it had become the seventh important factor.

TABLE 9: FACTOR 8 - BANK PROCEDURE

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	Bank procedures are easy	0.6941	1.0876	4.4
2.	Adequate funds are available from Bank	0.5671		

Source: Computed Value

The factors regarding 'Bank procedures are easy' and 'Adequate funds are available from Bank' were the factors with higher positive loadings on Factor VIII. The above said two factors with high loadings on Factor VIII could be characterized as "**Bank Procedure**". The eigen value for the above Factor VIII was 1.0876 and the percentage variance was 4.4. It could be concluded that the bank procedures had been followed easily in the study area and it had become as the eighth important factor.

TABLE 10: FACTOR 9 - GOVERNMENT ATTENTION

Sl. No.	Variables	Factor Loadings	Eigen Value	Percentage Variance
1.	SHG is recognizing the skill	0.6628	1.0614	4.2
2.	Government programmes had received proper attention in SHG's	0.5182		

Source: Computed Value

From Table 10 it could be observed that the factors regarding 'SHG is recognizing the skill' and 'Government programmes had received proper attention in SHG's' were the factors with higher positive loadings on Factor IX. The above said two factors with high loadings on Factor IX had been characterized as "**Government Attention**". The eigen value for the above Factor IX was 1.0614 and the percentage variance was 4.2. It could be concluded that the Government attention had been properly made on SHG activities in the study area and it had become the ninth important factor.

TABLE 11: VARIABLES WITH THE HIGHEST FACTOR LOADINGS FOR THE SHG MEMBERS PROBLEM

Factor	Name of newly Extracted Factor	Selected Statement (Variable)	Factor Loadings
F ₁	Guidance of NGO	NGO guiding the activities of SHG	0.7741
F ₂	Effective functioning of SHG	Accounts are properly maintained and audited	0.6231
F ₃	Creation of Women Empowerment	SHGs promote a sense of oneness	0.7290
F ₄	Status of SHG	SHG is functioning in a democratic manner	0.6504
F ₅	Status of Bank	Adequate facilities for saving	0.7954
F ₆	Problems of SHG	SHG members' family problems affect their SHG activities	0.6435
F ₇	Status of SHG members	The social status had improved	0.5824
F ₈	Bank Procedure	Bank procedures are easy	0.6941
F ₉	Government Attention	SHG is recognizing the skill	0.6628

It is clear from Table 11 that 'NGO guiding the activities of SHG' with a factor loading of 0.7741; 'Accounts are properly maintained and audited' with a factor loading of 0.6231; 'SHGs promote a sense of oneness' with a factor loading of 0.7290, 'SHG is functioning in a democratic manner' with a factor loading of

0.6504; 'Adequate facilities for saving' with a factor loading of 0.7954, 'SHG members' family problems' affect their SHG activities' with a factor loading of 0.6435, 'The social status had improved' with a factor loading of 0.5824; 'Bank procedures are easy' with a factor loading of 0.6941; and 'SHG is recognizing the skill' with a factor loading of 0.6628 were found to be the variables with the highest factor loadings under factors F₁, F₂, F₃, F₄, F₅, F₆, F₇, F₈ and F₉. Therefore, these are the identified nine variables which had influenced the SHG members' problems for the present study.

CONCLUSION

The Self-Help Groups were playing a major role in transforming the rural economy into a better place for living. Micro finance schemes helped the rural poor to improve their standards of living and in meeting their credit requirements to a very great extent. Hence, the concept of Self-Help Groups had become an innovation in the field of rural development. It has found that the Self-Help Groups organised themselves to manage their economic activities effectively and in a better way and for empowering women in all the directions which were suited to their needs and interests. They gained confidence due to an increase in their relative financial independence which had provided a greater level of security for them. The Self-Help Groups had developed certain leadership qualities among women such as in organising meetings and in functioning as a link between the NGOs and the Government officials, and in co-ordinating, and in motivating the members. The Self-Help Groups had brought about a silent revolution in the economic empowerment of the poor rural women. The strengthening and the spreading of the functioning self-help groups was the only solution to accelerate the socio-economic development of the rural poor in the villages of India.

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PUBLIC DISTRIBUTION SYSTEM IN TAMIL NADU NEEDS DEFINITE OVERHAULING**DR. S. MAYILVAGANAN****ASST. PROFESSOR****P. G. & RESEARCH DEPARTMENT OF COMMERCE****A.V.C.COLLEGE (AUTONOMOUS)****MANNAMPANDAL****B. VARADARAJAN****RESEARCH SCHOLAR****P. G. & RESEARCH DEPARTMENT OF COMMERCE****A.V.C.COLLEGE (AUTONOMOUS)****MANNAMPANDAL****ABSTRACT**

The Government of TamilNadu is implementing PDS since the year 1964. The scheme village shop programme was introduced by the State with the intention to have one shop for one village in order to feed essential articles to rural public. Subsequently the scheme was converted in to PDS with the intention of providing essential commodities to the public both in rural and urban areas at concession rate. However, very often PDS is criticized for its ineffectiveness and inefficiency in achieving its objectives. By keeping this in mind, the present article deals with the evolution of PDS in India, Goals of PDS, Fair price shops in Tamil Nadu, Attack on PDS etc. The present study highlights the various pitfalls of PDS like Poor quality of goods supplied, underweight, leakage of PDS articles to open market, non availability of commodity easily etc. The paper also offers suggestions to overhaul the present system of PDS.

KEYWORDS

PDS, rural public, essential articles.

INTRODUCTION

The Public Distribution System (PDS) evolved as a system of management of scarcity and for distribution of food grains at affordable prices. Over the years, PDS has become an important part of Government's Policy for management of food economy in the country. PDS is operated under the joint responsibility of the central and the State Governments. The central government, through FCI, has assumed the responsibility for procurement, Storage, transportation and bulk allocation of food grains to be state Government. The operational responsibility including allocation within State, identification of families below the poverty line, issue of Ration Cards and supervision of the function of FPS, rest with the State Governments. Under the PDS, presently the commodities namely wheat, rice, sugar and kerosene, are being allocated to the States/UTs for distribution. Some State/UTs also distribute additional items of mass consumption through the PDS outlets such as cloth, exercise books, pulses, salt and tea, etc.,

OBJECTIVES OF THE STUDY

The main aims of the present study are to identify the various pitfalls of the existing network system of PDS in Tamil Nadu and to offer suitable recommendations to overcome the drawbacks of PDS

METHODOLOGY

The study is fully based on desk-task research. The required secondary data were collected from the records of the office of registrar of co-operatives, Chennai and from various journals and magazines relating with the present study.

EVOLUTION OF PDS IN INDIA

The origin of PDS in India could be traced back to the Second World War. The dawn of independence lead to a great emphasis on the need for an uninterrupted supply of essential goods everywhere so that none would die of hunger. Undoubtedly, deficiency in food grains supply did exist in the country even before this period, which was met out from imports, as deficit then was only marginal. However, the import of the food grains became difficult and ticklish during and even after the times of war. This resulted in rising process of food grains. These two significant developments compelled the government to resort to control of food grains in the country.

GOALS OF PDS

The goal of PDS does not restrict itself with the distribution of rationed articles. Making available adequate quantities of essential articles at all time, in places accessible at prices affordable to all and protection of the weaker section of the population from the vicious spiral of rising prices is the broad spectrum of PDS. More specifically, the goals of PDS are;

- Make goods available to consumers, especially the disadvantaged/vulnerable sections of society at fair prices;
- Rectify the existing imbalances between the supply and demand for consumer Goods. Check and prevent hoarding and black marketing in essential commodities.
- Ensure social justice in distribution of basic necessities of life.
- Even out fluctuations in prices and availability of mass Consumption goods.

PDS IN TAMIL NADU

The Government of TamilNadu is implementing PDS since the year 1964. The scheme village shop programme was introduced by the State with the intention to have one shop for one village in order to feed essential articles to rural public. Subsequently the scheme was converted in to PDS with the intention of providing essential commodities to the public both in rural and urban areas at concession rate. Since the introduction of TPDS from 1.6.1997 the universal PDS is in operation in Tamil Nadu with the Antyodaya Anna Yojana and the expanded Antyodaya Anna Yojan schemes under the universal PDS there is no discrimination of families on APL and BPL lines based on income. Tamil Nadu sets a model in implementing the PDS as universal system for the cause of eradicating poverty and improving standard of living of the people living below the poverty line.

CARD CIRCULATION

The details of family cards circulation in Tamil Nadu are as follows:

Sl. No.	Categories	Re-issue Cards	Left out families	Total
1	Green Cards (Rice Cards)	1,41,57,737	36,62,385	1,78,20,122
2	White Cards (Sugar Cards)	7,83,439	2,43,727	10,27,166
3	Kakhi Cards (Police Kerosene only)	29,280	10,343	39,623
4	Non-cards (Drawing no articles)	52,253	--	52,253
5	Total	1,50,22,709	39,16,455	1,89,39,164

FAIR PRICE SHOPS

In Tamil Nadu all the fair price shops are run by the co-operatives and the Tamil Nadu Civil Supplies Corporation Ltd. The details of the fair price shops are given as follows.

Sl. No.	Agency	Full Time	Part Time	Total
1	Tamil Nadu Civil Supply Corporation Ltd.	1,091	63	1,154
2	Co-operatives (Under R.C.S.)	21,660	4,763	26,429
3	Other Co-operatives (Fisheries etc.)	152	13	165
4	Women fair price shops (SHGs)	418	173	591
5	Mobile fair price shops (Co-operatives)	36	-	36

The aim of the government is to have at least one fair price shop in each Revenue Village. The district Collectors have been empowered to open the fair price shops including part-time shops as per the guidelines prescribed by the Government. The objective is to ensure that no cardholder travels more than 2 km to get his supplies. The maximum number of cards attached to a shop should not exceed 1000 in the case of urban areas and 800 in the case of rural areas. In order to ensure better reach in far flung and remote areas, part-time shops are opened even with 200 cards, if the distance exceeds 2 kilo metres.

ATTACK ON PDS

- The PDS has been affected by inefficiency and corruption; these problems are likely to be exacerbated by narrow targeting based in income and exclusion of persons vulnerable to food insecurity. It was found that problems like leakages poor quality, under weightment, non-availability of controlled as well as non-controlled articles during certain times, non-availability of ration cards, bogus cards, etc., affect the efficiency of the system.

RECOMMENDATIONS

- Infrastructure at Fair Price Shops across the State to be upgraded and should have uniformity in almost all respects.
- Restrict selling of commodities that are essential for sustaining livelihood. Of course, the Government can add Sugar for taste.
- Take the example of post offices which are centrally located all across India. Similarly, chalk out a definite plan for fair price shop location for easier wherever to be situated.
- In this modern technological era, it is pathetic to see public lining up in long queues wasting their precious time. Bring mobile automatic vending kerosene machines (some what like petrol pump machine) distribute and pack off to another location after refilling kerosene.
- Any subsidized/free scheme should be announced and implemented only as a contingency measure and temporary in nature. Otherwise, we are disrespecting the agriculturists, farmers and agricultural laborers.
- Neither there is commitment from the public to fight against burning issues nor any political will to check the deficiency that has crept into the PDS in Tamil Nadu.
- Husk is sold at over Rs.4/Kg whereas; Rice is sold through PDS at Rs1/Kg.
- Differential treatment adopted for providing facilities at fair price shops.
- There is no correlation between address/location of fair price shop and its respective officers for Civil Supplies and Consumer Protection. If the card holder shifts his/her residence, he/she could feel the pinch.
- The Tamil Nadu Government is ensure timely supply of commodities with good quality to fair price shops and see that it reaches only to the indeed section of the public through the public distribution system.

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PERCEPTION OF ORGANIZATIONAL CLIMATE: A STUDY OF SMALL ENTERPRISES IN AMRITSAR

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ABSTRACT

Organisational climate as a concept, its importance and impact on various organisational outcomes have been studied for over 70 years. Organisational climate is defined as a set of characteristics that describes an organisation, distinguishes it from other organisations, is relatively enduring over time and can influence the behaviour of people in it. The present paper attempts to examine the perception of organizational climate of employees of small enterprises. Data were collected from a sample of 102 respondents employed at seven small scale manufacturing enterprises of Amritsar region. Organizational climate was assessed by a Likert type questionnaire covering dimensions such as work conditions, communication, decision-making, handling of complaints, job clarity, workgroup cooperation and professional esprit. The findings of the paper showed how the individual of small scale manufacturing enterprises of Amritsar region perceive organization climate based on various dimensions.

KEYWORDS

Organization climate, Perception, Small scale enterprise.

INTRODUCTION

In the recent years the concept of organizational climate has gained momentum in the area of industrial research. As every individual has a personality that makes him unique, in the same way each organization has an organizational climate which clearly distinguishes its personality from the other organizations (Gupta, 2008). The atmosphere perceived by the employees is created in organizations by practices, procedures and rewards. Employees observe their surroundings and then draw some conclusions about their organization's priorities and set their own goals and priorities accordingly. Organizational climate has much to offer in terms of its ability to explain the behaviour of people in the workplace.

Organizational climate is a term that was probably first coined by Cornell in 1955. He used the term to denote a "delicate blending of interpretations or perceptions by persons in the organization of their jobs or roles in relationship to others and their interpretation of the roles of others in the organization". Schneider (1975) defined climate as a "shared and enduring molar perception of the psychologically important aspects of the work environment." In a similar manner, organizational climate has also been defined as 'the shared perceptions of organizational policies, practices, and procedures, both formal and informal' (Reichers & Schneider, 1990).

Further, there are many types of work climates, such as a climate for service, climate for safety compliance, climate for innovation, etc. (Peterson, 2002). Burton et al (2004) specified four types of climatic profiles: the group climate, the developmental climate, the rational goal climate and the internal process climate which were described based upon their degree of trust, conflict, morale, equity of rewards, resistance to change, leader credibility and scape-goating. Table 1 displays how the four profiles score on the above said seven characteristics.

TABLE 1: PROFILES OF THE FOUR TYPES OF ORGANIZATIONAL CLIMATE

	Group Climate	Developmental Climate	Rational Goal Climate	Internal Process Climate
Trust	High	Medium/High	Low	Low
Morale	Medium/High	Medium/High	Medium	Low
Rewards equitability	High	Medium/High	Low	Low
Leader credibility	High	High	Low/Medium	Low
Conflict	Low	Low	High	High
Scape-goating	Low	Low/Medium	High	High
Resistance to change	Medium/High	Low	Medium/High	Medium/High

Source: Fritsch, 2009.

Organizational climate has a major impact on the individual performance as it affect individual motivation and job satisfaction. It carries certain kinds of expectancies about what consequences will follow from the different actions. According to Litwin and Stringer (1968) various climates have dramatic effect on motivation. A positive, innovative and creative organization climate raises an employee's motivation. Organization climate also have a direct bearing on the job satisfaction of employees. The satisfaction of employees with organizational climate enhances positive organizational outcomes: efficiency, productivity, organizational commitment and cohesiveness of co-workers (Ahmad et al, 2010). Employees' show commitment in supportive, cooperative, innovative and an energetic climate which results in employees own satisfaction (Iqbal, 2007). All these result in lower employee turnover, higher employee productivity and greater organization effectiveness.

One of the more persistent problems with the concept of climate is the specification of appropriate dimensions of organizational and/or psychological climate as it could help in making possible to do comparative studies in different organizational settings (Glick, 1985, Denison, 1996). The dimensions of organization climate have been derived from various researches. Unfortunately, these distinctions still fail to define variables that are unique to the domain of climate for example, managerial function (Schneider et al., 1980), managerial trust and consideration (Gavin & Howe, 1975), communication characteristics (Payne & Mansfield, 1973, Drexler, 1977) and warmth (Downey, Hellriegel, & Slocum, 1975). The major contribution to the dimensions of climate was given by Jones & James (1979) as (1) Job challenge, importance and variety (2) Leader facilitation and support (3) Workgroup cooperation, friendliness, and warmth (4) Professional and organizational esprit (5) Job standards (6) Reward and Recognition (7) Clarity and Commitment and (8) Conflict and ambiguity.

Considering the importance of organizational climate, the present paper attempts to examine the perception of organizational climate of employees in small enterprises. The organization of the paper is as follows: Section II will describe the concept of small enterprises. The research methodology is explained in section III. Section IV provides the results and related discussion and the concluding remarks.

CONCEPT OF SMALL ENTERPRISES

According to the provision of Micro, Small & Medium Enterprises Development (MSMED) Act, 2006 Small Enterprises are classified in two Classes¹:

(a) Manufacturing Enterprises: These enterprises deals with manufacturing or production of goods pertaining to any industry specified in the first schedule to the industries (Development and Regulation) Act, 1951). The Manufacturing Enterprises are defined in terms of investment in Plant & Machinery.

(b) Service Enterprises: These enterprises deals in providing or rendering of services and are defined in terms of investment in equipment.

The limit for investment in plant and machinery / equipment for manufacturing / service enterprises, as notified, vide S.O. 1642(E) dtd.29-09-2006 are as under Table 2:

TABLE 2: SMALL ENTERPRISES IN TERMS OF SECTOR WISE INVESTMENT LIMITS

S. No.	Sector	Investment Limits
1	Manufacturing Sector	More than twenty five lakh rupees but does not exceed five crore rupees
2	Service Sector	More than ten lakh rupees but does not exceed two crore rupees

Source: adapted from http://www.dcmsme.gov.in/ssiindia/defination_msme.htm

Often termed as 'engine of growth' Small enterprises plays a very vital role in the overall growth of Indian economy. These enterprises are generally characterized by their unique feature of labour intensiveness. In India, the total number of employees in this industry has been calculated approximately 695.38 lakh (MSME-annual report, 2010-2011) and moreover it has an immense employment generating potential. The countries which are characterized by acute unemployment problem especially put a great emphasis on the model of small enterprises. The rate of growth of small enterprises is 10.40% and they are specialized in the production of consumer commodities. As these industries lack capital, so they utilize the labour power for the production of goods. The main advantage of such processes is the absorption of the surplus amount of labour in the economy that was not being absorbed by other large and capital intensive industries and thus helps in distributing national income efficiently and equitably.ⁱⁱ Further, they also play a key role in the development of economies with their effective, efficient, flexible and innovative entrepreneurial spirit. (MSME-annual report, 2010-2011).

Since independence our country had adopted a progressive policy for small enterprises due to their huge significance for the generation of employment and income. In 2009-2010 the total number of MSME's were 298.08 lakh spread in almost all major sectors in Indian industry such as food processing, pharmaceuticals, leather industry, home science, paint, soap, financial, computer software, textile & garments etc. Out of the total working enterprises small enterprises were 4.89%. This comprises of 67.10% manufacturing enterprises and 32.90% services enterprises.

Small enterprises are serving a useful ancillary to large industrial units. A very low capital investment is required per unit of output and per unit of input for small enterprises which is of particular importance to labour abundant and capital scarce economy like India. These products obtained by small enterprises are often available at affordable prices and has successfully catered vast domestic market. Small enterprises contribute nearly 44.86% of the gross industrial value added in the Indian economy. These enterprises also play a major role in India's present export performance. About 45% of Indian exports are contributed by this sector (Singh, 2006).

In spite of constituting more than 80 % of the total industrial enterprises and supporting industrial development, small enterprises in India suffer from the problems of suboptimal scale of operation, lack of appropriate manpower/skill sets, poor working environment, technological obsolescence, supply chain inefficiencies, fund shortages for raw material and power, lack of space for expansion, under utilization of capacity, apathy of management towards timely modernization and renovation programs and product and market diversification (Bihari (2011) . The absence of state of the art technology which alone can ensure high quality, high productivity and competitiveness is one of the major handicaps. To overcome this, the industry needs to create an innovative culture in the organization which is conducive for technological innovations. Despite an elaborate and dynamic policy framework, the progress of Indian Small enterprises continues to be hindered by some of the basic constraints as poor credit availability, low levels of technology (hence, low product quality and limited exportability) and inadequate or no basic infrastructure, both physical and economic.

RESEARCH METHODOLOGY

In Amritsar the small enterprises are mostly engaged in the production of various goods namely panel pins, paper-cutting, engineering goods, textile machinery, wood and machine screws, printing and machinery, electric fans, chemicals and the textiles including woollen, silken, cotton, etc. Throughout India, Amritsar holds a place of prominence in the country in the production of woollen fabrics, like worsted, tweeds, blankets, shawls, etc. The city of Amritsar is famous for the manufacturing of fine pashmina shawls, thick serge, silk goods and carpets. Carpet weaving is another industry, which is very popular in Amritsar. This was an offshoot of pashmina industry, since the carpets were produced from inferior varieties of raw wool. Industrialization is occurring at a fast pace in the city. After 1950s, despite being on the international border, the city saw a huge expansion in the industrial sector with many new industries coming up and the old ones expanding at a fast rate.

In spite of widespread interests in the phenomena of organizational climate and success stories of small enterprises, not many comprehensive studies have been conducted in India. The present study attempts to fill up some of the gaps in the existing research. The study attempts to examine the perception of organizational climate of employees of small enterprises.

SAMPLE

The data has been collected from 7 small scale manufacturing enterprises of Amritsar region. An empirical study was conducted, 102 workers and lower level managers were contacted from each enterprise. The number of respondents contacted depends proportionally on the total labour force of the enterprise. Table 3 shows the 7 small enterprises and the number of respondents contacted from each enterprise. The average age lied between 25-35 years with 79% male respondents. Regarding educational qualification 45% of the respondents were below matric, 27.5% were 10+2 and 27.5% were graduate. The (45%) respondents have experience between 2-5 years only 5% have experience 10 years or above. 51% of the respondents' were earning below Rs.10000 and only 5% were earning above Rs. 20000.

TABLE 3: NUMBER OF RESPONDENTS

	Name of the Company	No. of respondents
1	R K Overseas	22
2	Swastika Textiles	10
3	Freedom Industries	16
4	Laxmi Plastic Industries	11
5	Kalyan Soap Factory	10
6	GN Textile Industries	22
7	Marshal Industries	11
	Total	102

INSTRUMENT

A structured Organization Climate Questionnaire was designed to study the perception of employees of small enterprises towards their organizational climate. The questionnaire consisted of two parts. Part A was designed to elicit the demographic profile of the respondents and part B considered their views about the climate characteristics of their organizations covering various dimensions such as work conditions, communication, decision-making, handling of complaints, job clarity, workgroup cooperation and professional spirit. The respondents were given a set of 21 statements concerning their perception and observations about the organization in which they were working. The statements were quantified on a five point scale using Likert type technique. The respondents were asked to tick mark the appropriate score on a five point continuum (1 = strongly agree, and 5 = strongly disagree). Two statements were negatively worded; so the scores of these items were reversed during the analysis.

RESULTS AND DISCUSSIONS

The set of statements with their appropriate scores were subjected to varimax rotated factor analysis. Table 4 indicates the values of KMO test and Bartlett's Test of Sphericity. The values of KMO are .724 which is greater than 0.5 so satisfactory factor analyses can be preceded. Bartlett's test of sphericity indicates strength of the relationship among variables. The observed significance level is .000. It is concluded that the strength of the relationship among variables is strong. Thus, it is good to proceed for factor analysis for the data.

TABLE 4: KMO AND BARTLETT'S TEST

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.724
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	1331.171
	210
	.000

Factor loadings obtained presented in Table 5 and Rotated component matrix is shown in Table 6. The climate measure constrained to 5 factors accounting for a total of 69.157 percent of the variance.

TABLE 5: TOTAL VARIANCE EXPLAINED

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.180	34.192	34.192	7.180	34.192	34.192	4.989	23.759	23.759
2	2.645	12.596	46.789	2.645	12.596	46.789	2.719	12.948	36.707
3	1.824	8.686	55.475	1.824	8.686	55.475	2.620	12.477	49.184
4	1.624	7.731	63.206	1.624	7.731	63.206	2.480	11.810	60.994
5	1.250	5.952	69.157	1.250	5.952	69.157	1.714	8.164	69.157
6	.971	4.626	73.783						
7	.831	3.957	77.740						
8	.727	3.461	81.201						
9	.601	2.861	84.062						
10	.544	2.592	86.655						
11	.495	2.357	89.012						
12	.435	2.073	91.085						
13	.377	1.793	92.878						
14	.330	1.572	94.450						
15	.261	1.245	95.694						
16	.238	1.134	96.828						
17	.208	.990	97.818						
18	.167	.795	98.613						
19	.131	.623	99.235						
20	.099	.470	99.705						
21	.062	.295	100.000						

Extraction Method: Principal Component Analysis

TABLE 6: ROTATED COMPONENT MATRIX (a)

	Component				
	1	2	3	4	5
Decisions are made at the top level and communicated downwards	.175	-.084	.696	.156	-.006
encourage employee involvement	.785	.252	.226	.004	-.024
group spirit and team work	.724	.000	.232	.243	-.012
Management care about the interests of its employees	.772	.134	.256	.256	.271
Job is challenging and interesting	.594	.387	.337	.189	-.269
well organized work and progress systematically	.279	.222	.663	-.271	.299
clear responsibilities	.451	.267	.191	.258	.434
The problems and grievances handled properly	.675	.564	.156	.071	.161
Company tries to be fair in its action towards employees	.215	.737	.371	.146	.147
Only a few influential people are trusted here	-.086	-.096	.131	-.048	.272
Employees have to follow well set rules and procedures	.017	.579	-.509	.054	-.114
increased work load	.001	.095	-.835	-.014	.015
Knowledge and expertise are recognized and rewarded here	.190	.683	-.172	-.005	-.023
My senior respect me as an employee and support me whenever needed	.642	.460	-.061	.113	.183
Open communication	.817	.254	-.001	.076	.119
New ideas are readily accepted here	.760	-.099	-.211	.323	.010
Quality is taken very seriously here	.184	.562	-.133	.412	-.338
adequate first aid and safety equipments	.390	.045	-.234	.155	.781
work area is clean and comfortable	.363	.029	-.232	.714	.061
adequate welfare facilities	.133	.041	.190	.822	-.118
I am satisfied with the climate of my organization	.226	.270	.028	.789	.316

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 7 iterations.

The five major factors extracted from the rotated component matrix are as follows:

Factor 1 consisted of items showing involvement of employee's participation, group spirit, teamwork, open communication and creativity. So it was named *Employee Participation*.

Factor 2 included items depicting handling of problems and grievances, fair action towards employees, well set procedure and recognition of knowledge and expertise. This factor was named as *Grievance Handling and Recognition*.

Factor 3 deals with heavy work load as people were always busy in doing their work. Further the work is well organized and all the decisions are made at the top level. Therefore this factor was named as *Workload and Decision Making*.

Factor 4 indicates that companies provide clean and conformable place to work with adequate welfare facilities. This also includes the overall an average satisfaction from the organization climate. So it was named as *Welfare Facilities*.

Factor 5 showed companies have adequate first aid and safety equipments. This factor was named as *Workplace Safety*.

The descriptive statistics showed 41% respondents agree with the statement that the company encourages group work and team spirit. There it has been concluded the company follow group climate. Moreover, 48% employees showed that the management did not encourage open communication. Another statement showing the encouragement of acceptability of new ideas, creativity and innovation 48% of the respondents strongly disagree with the statement which showed management follow a reserved type of climate. Regarding the overall satisfaction of employees with the organization climate 56% responded neither satisfied nor dissatisfied, 28% dissatisfied and only 15% satisfied. These result showed very few employees were satisfied from the organization climate.

CONCLUSION

In present study an attempt has been made to see how the employees of the small scale manufacturing enterprises perceive the organization climate. It is evident from the results that on a whole Employee Participation, Grievance Handling and Recognition, Workload and Decision Making, Welfare Facilities and Workplace Safety were found the major dimensions influencing the organizational climate. Moreover, welfare facilities and handling of problems and grievances were found to be the most influencing variable and Job as challenging and interesting is least influencing. The descriptive statistics showed the company follow group climate and management did not encouraged open communication, creativity and innovation and follow a reserved type of climate. Regarding the overall satisfaction of employees with the organization very few employees were satisfied from the organization climate.

SUGGESTIONS

The small enterprises provides a very particular type of climate due to the nature of work, the rules, regulations, compensation, communication patterns, working conditions, etc. The employees who work in the small enterprises have different values and need patterns. To fulfill such need patterns the management can do a great job by creating a positive and conducive work climate. The present research suggests that the small scale enterprises must encourage employee participation in the decision making and encourage open communication in the organisation. This will, in turn, increase creativity and innovation in decision making and employee engagement. In addition, they should also develop a suitable grievance procedure for the timely handling of employee complaints. This will result in reducing the deviant workplace behaviours. Further the employer should provide adequate workload in order to have a satisfied and committed workforce. It also helps in retaining the employees. Furthermore the enterprises should strengthen the safety of their employees and provide them with better health and welfare facilities. Management often has a tendency to think that such boosting up of the organizational climate needs extra costs. However, this need not be true as the dimensions such as open communication, involvement of the workers in decision making, respect and support from seniors etc., need only the behavioural inputs from the management rather than any financial inputs.

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ROLE OF EXCESS OF MALES IN MARRIAGE SQUEEZE OF INDIA AND ITS EAG STATES

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ABSTRACT

In the last few decades India has developed both economic and social sector. Preliminary results of the Indian census 2011 shows that child sex ratio is 914 females per 1,000 males, which has been declined from year 2001 (927 females per 1,000 males) indicating that female birth rate has been declined and implying prevailing gender discrimination is one of the major problem in Indian society. Also it is seen that strong son preference is culturally imbedded in Indian society, resulting in imbalanced sex ratio at birth and hence in marriage market in future. Therefore in this context broad objective of the paper is to study the impact of imbalanced sex ratio on marriage squeeze in future years in India and EAG states for period 2001-2051. The study uses data from NFHS-3, and Report of the Technical group on Population Projections. Preliminary findings of the study show that there is strong son preference in India and among all EAG states. Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh will face high imbalanced sex ratio till 2051 and it is favorable to male; hence resulting into male marriage squeeze. However Orissa, Uttaranchal and Jharkhand will achieve balanced sex ratio almost by year 2051.

KEYWORDS

Marriage squeeze, Gender discrimination in India.

INTRODUCTION

Over the past two decades, demographers have noted worrying trends in the sex ratio at birth (SRB) in some of the countries of Asia like India, China and the Republic of Korea. A statement by Amartya Sen in the year 1990 supports about the female deficit in Asia and Africa. He concludes that about 11 percent of women are missing in both continents. In the last few decades India has developed both economic and social sector, but the evidences show that the prevailing gender discrimination is one of the major problem in the Indian society. A distinctive dimension of India's recent population dynamics has been its unexpected masculinisation means increasing number of males in total population. According to preliminary results of the census 2011 child sex ratio is 914 females per 1,000 males, which has been declined from year 2001 (927 females per 1,000 males) indicating that female birth rate has been decline as compared to census 2001 and showing that prevailing gender discrimination is one of the major problem in the India.

In demographic literature, any imbalance in the sex ratio of prime marriageable males and females is defined as marriage squeeze. In other words, when the number of males (females) in the prime marriageable age group surpasses the number of females (males) in the preferred age group at a certain point of time in a particular geographical area, then this phenomenon is called *male (female) marriage squeeze*. The term marriage squeeze was introduced by Glick *et al.* (1963) quoted by Glick (1988). It has also been termed as *marriage deprivation* and *marriage exclusion* (Zhigang *et al.*, 1967). As many demographic, biological, social and economic factors influence the nuptial behaviour, they can sometimes cause a squeeze on the marriage market and on the possible choices of people involved. In the absence of large scale international migration there are two main demographic such as *mortality transition* and *fertility transition* causes of imbalance of marriage market. Due to *mortality transition* the successive birth cohorts become larger and under the assumption that males seek younger females to get married it can be concluded that mortality decline will result in more female chasing lesser number of males for marriage resulting in female marriage squeeze. The phenomenon can ease when the *fertility transition* starts and results in smaller birth cohorts, that is, less females chasing more males resulting in male marriage squeeze.

Besides these two the other factor influencing in marriage squeeze is skewed sex ratio at birth (SRB, the ratio of boys per 100 girls at birth). Generally in most of the population sex ratio at birth ranges between 104-106 due to some biological reasons (Guilmoto, 2007), but in some population due to strong son preference and consequent sex selective abortion SRB is getting distorted and becoming much favorable to males. The large number of male children compared to female children results in to future male marriage squeeze. Marriage squeeze can also be due to the some societal norms like spousal age gap, remarriages etc.

Asia has the highest proportion of males in the world with the fact that overall sex ratio (number of males per 1000 females) is almost stable from 1950 to 2005 as 105 (Guilmoto, 2007). In India estimated overall sex ratio according to census 2011 is recorded as 940 females per 1,000 males whereas among all Empowered Action Group (EAG) states Uttar Pradesh have lowest overall sex ratio (908 females per 1,000 males). This imbalance in India is mainly due to strong son preference in terms of economic and social utility of son. Son preference is culturally imbedded in our society but its strength varies from one region to another. So the rapid fertility decline in the some of the region and increasing SRB favorable to male is expected to results in to strong imbalance between the number of men and women and marriage market. Therefore here an attempt is made to study the impact of imbalanced sex ratio on marriage market of India as well as in eight EAG states (Uttar Pradesh, Bihar, Madhya Pradesh, Chhattisgarh, Uttaranchal, Jharkhand, Orissa and Rajasthan).

REVIEW OF LITERATURE

Firstly Akers (1967) made an attempt to measure the marriage squeeze of USA considering the situation of 1960s. He concludes that due to changes in marriage pattern there will be some impact on birth rate and the family formation. It was also concluded that single men will go for first marriage at faster rate as compared to earlier in 1960s. Muhsam (1974) did a study considering the situation of marriage squeeze in Australia. In his study it was concluded that female deficit in the population shows negative effect in terms of women succeed to avoid the marriage with relatively old or young men and also men face a force to marry with relatively old or very younger women. Lena Edlund (1999) made an attempt to establish the link among son preference, sex ratios and marriage pattern in China. In his study he concludes that preference for sons could be a factor behind men's marrying younger women than themselves.

The study of Verma (2000) was based on the phenomenon marriage squeeze in India. In her study she gave a conclusion that India is passing through the male marriage squeeze. Also the marriage squeeze has great impact on permanent celibacy. Shuzhuo Li (2005) did a study to lay down the focus on the implications of son preference on marriage squeeze in China. This study concludes that there will be large male marriage squeeze due to strong son preference from 2000 onwards in China. Jean Louis Rallu (2006) did a study to understand the situation of female deficit and marriage market in Korea. Study shows that for small populations like Korea, migration could be a solution to imbalances on the marriage market through emigration of males or immigration of foreign females from neighbouring Asian countries but in large populated countries like India and China migration cannot be a solution. Ranjana (2010) made an attempt to study the association between skewed sex ratio at birth and marriage squeeze in selected south Asian countries including India. The study reflects that countries like India, Korea and China will face high male marriage squeeze in future years and it is due to strong preference for male child.

NEED FOR THE STUDY

There are various studies on marriage squeeze but no one study shows the implication of distorted sex ratio on marriage squeeze in the context of comparative study among EAG states in future years. Also it is seen that strong son preference is culturally imbedded in India which is resulting in imbalanced sex ratio at birth and hence in marriage market. Thus in this context this study is trying to answer some queries; what is the situation of marriage market of India as well as EAG states at present time? In the context of strong son preference in selected states what will be the intensity of imbalanced in the marriage market in future?

OBJECTIVES

The broad objective of the paper is to study the situation of marriage squeeze in present and future years in India and EAG states. The specific objectives are

1. To study the son preference and its association with sex ratio at birth.
2. To study the sex differential in mortality in EAG states of India.
3. To study the marriage squeeze in EAG states for the period 2001-2051.

ASSUMPTIONS

In this study we are assuming that age gap between spouses on an average is five years that is almost all males are getting married with five years younger females than themselves.

METHODS AND MATERIALS

The data utilized in this study came from National Family Health Survey and Report of the Technical group on Population Projections. The National Family Health Survey (NFHS) programme was started in 1990s under the supervision of Ministry of Health and Family Welfare (MOHFW), Government of India and co-ordinated by International Institute for Population Sciences, Mumbai. In the present study we have used the third series of NFHS (NFHS-3, 2005-06). It covered 29 states of India. The NFHS is national representative Survey. The sample selection was based on systematic, multistage and stratified design. The major topic cover in the survey include fertility, marriage patterns, knowledge and practice of family planning method, use of antenatal care services, child health and nutrition, vaccination, HIV/AIDS etc. Technical group or Expert Committee was constituted by National Commission on Population (NCP) in 2001 under the Chairmanship of the Registrar General of India to prepare population projection for the period 2001-2051.

There are various indicators which can be used to investigate the son preference. Here we are using a few indicators which are as follows: *Desire for more children, Use of contraceptive method and Ideal Family Size*. The indicators used for sex differential in mortality are *Infant mortality rate (IMR), Childhood mortality rate (CMR), under five mortality rate (U5MR) and Life Expectancy at Birth (LEB)*.

To study the marriage squeeze in future years we have used Software **Spectrum** to project the future year population by age and sex taking base year (2001) from Population Projections for India and states 2001-2026, Report of the Technical group on Population projection constituted by National Commission on Population, May 2006.

The simplest approach for measuring the marriage squeeze is based on the calculation of overall sex ratio. It means the ratio of total males and females. Let I_1 be the Mate Availability Index, M and F be the total male and female population respectively. Then Availability Index can be measured as

$$I_1 = (M/F) * 100$$

The drawback of this Index (I_1) is that it assumes all the population of a region has the same risk of getting married including children and elderly which is not possible in any society. Therefore in the next Availability Index we will consider the only population which is at the risk of getting married. Let us consider that all marriages takes place within age range (x, x + n) then Index of marriage squeeze can be measured as

$$I_2 = \left(\frac{{}_nM_x / {}_nF_x}{\text{Total}} \right) * 100$$

In this study we have made an attempt to measure the Index of marriage squeeze by considering that all marriages are taking place between ages 15-49 and 15-54. But in most of the society it is seen that marriages are concentrated only over the few ages which is assumed as peak marriageable ages and known as prime marriageable ages (Akers, 1967). Prime marriageable age varies from one region to another. Let us consider that for females prime marriageable age is x to x + m and for males it is y to y + n. Then Index of marriage squeeze can be represented as

$$I_3 = \left(\frac{{}_nM_y / {}_mF_x}{\text{Total}} \right) * 100$$

In the present paper on the basis of above index we have calculated two indices by assuming two different prime marriageable ages in which one is considering that prime marriageable ages for female is 15-29 years and for male it is 20-34 and another is considering that 20-34 for female and 25-39 for males.

Age gap between spouses also affects the availability of mates or partners. In most of the society it is expected that grooms should be older than their brides. Due to this norm bride always belongs to younger cohort than groom. Thus for the purpose of Index of marriage squeeze it will more adoptable to calculate the sex ratio by assuming age gap between spouses is five years. Thus on this basis we can represent the Index of marriage squeeze/ Mate Availability Index for male as

$$AI = \left(\frac{{}_5M_{x+5} / {}_5F_x}{\text{Total}} \right) * 100$$

FINDINGS AND DISCUSSION

The analysis is divided in three different parts according to three objectives.

RESULTS FOR SON PREFERENCE

The first part of the discussion is about the indicators of son preference.

In **Table 1** we are taking into account the actual and behavioral attitude of the women regarding the sex composition of family size. Table presents the percentage of currently married women who have desire for more children according to the sex composition of family size (total number of living children). Table shows that in all states as well as in India among currently married women, whose family size is one and who have only one boy have less desire for another child as compared to the women who have only one girl. Among all selected states in Uttaranchal women with only one daughter have highest desire for more children as compared to women with only sons. Table also indicates that married women who have two or three sons have less desire for more children compared to those who have two or three daughters respectively indicating they are satisfied with the sex composition of family. Table also describes the reflection of son preference on contraceptive use. At national level 14 percent women with one child as a son using family planning method; whereas only four percent women having one child as a girl using contraception, it means they want to go for more children. From table we see that the contraceptive use is high where there is at least one son in the family and less where the number of girls is high. It is also observable that in Bihar and Rajasthan where family size is 3 and all of them are boys, the contraceptive use is respectively 36 and 12 times high compared to women having three girls indicating higher preference for male child.

Table 2 indicates the gender difference in median duration of exclusive breastfeeding and vaccination of living children, which reveals differential treatment given to girls and boys. At national level median duration for exclusive breastfeeding for male and female is 2.1 and 1.9 months respectively. Difference in median duration of exclusive breastfeeding is favorable to male in states like Bihar, Rajasthan, Jharkhand and Chhattisgarh. However Uttar Pradesh, Madhya Pradesh and Orissa shows not much difference in care giving to children in terms of exclusive breastfeeding. Only in state Jharkhand median duration of exclusive breastfeeding is much favorable to female child (1.5 months) than the male child (0.6 months). Table also discusses that percentage of children of both sexes not received vaccination. In India 6.0 percent girl children did not received any vaccination; however this percentage is declined up to 4.3 for male children indicating girl child receive less attention in health care. Uttar Pradesh treats girl and boy children equally. In states Bihar, Rajasthan, Chhattisgarh, Madhya Pradesh and Uttarakhand girl children are less vaccinated compared to male children; whereas in Jharkhand and Orissa percentage of children not vaccinated is higher for males than females.

Table 3 describes about the sex ratio at birth (SRB) for EAG states for the time period 2001-2051 which are projected by Registrar General of India (2006). In this projection constant SRB is considered over the period. From table it is clear that in states like Uttar Pradesh, Bihar and Rajasthan SRB is higher than the national average. Uttar Pradesh (UP) has highest sex ratio (115 male live births per 100 female live births) favorable to male among all EAG states. Rajasthan is second highest (114 male live births per 100 female live births) followed by Bihar (112 male live births per 100 female live births). Madhya Pradesh (MP) and Uttaranchal are having same SRB as 110 male live births per 100 female live births. Generally in most of the population sex ratio at birth ranges 104-106 due to some

biological reasons (Guilmoto, 2007). Therefore analysis points out that Jharkhand and Chhattisgarh have almost balanced SRB; whereas Orissa shows slightly higher SRB than the balanced.

Therefore from above it can be summarized that state UP, MP, Bihar and Rajasthan have strong preference for male child.

RESULTS FOR SEX DIFFERENTIAL IN MORTALITY

The second part of the analysis deals with mortality differential between males and females.

Table 4 contains information about the infant mortality rate (IMR), childhood mortality rate (CMR) and under five mortality rates (U5MR) by sex. As we know that there is huge difference in treatment and care giving to the two sexes, so this results in difference in mortality pattern between the two sexes. Table shows that IMR is highest for both male and female as 81 and 85 per 1000 live births respectively in Uttar Pradesh among the selected EAG states. However at national level IMR is 56 for males and 58 for females. Also IMR is lowest for both male and female (55 per 1000) in Uttaranchal. From table it can be also observed that the difference in IMR of male and female children is highest in Orissa and IMR for male is higher than female. The table shows that except Orissa, Jharkhand and Chhattisgarh in all remaining EAG states female infant mortality is higher than male infant mortality. Sex differential in child mortality shows that except in Orissa girl children suffer substantially higher mortality than male. Table also reflects that except in Orissa and Chhattisgarh girls suffers higher mortality from birth to five years of age compared to boys.

Table 5 describes the life expectancy at birth (LEB) during time period 2001-2051 in EAG states as well as India sex wise. It is observed that LEB for female is higher than males almost in all selected states. At national level during 2001, the difference in LEB of male and female was observed about 2 years and favorable to female and this difference will increase up to 3.5 years in 2051. Results reveal that till 2051, the difference in male and female LEB will be 4.5 years showing improvement in health condition of women. However results slightly reflect for UP, Bihar and Madhya Pradesh in year 2001 and 2011; means during this period male LEB surpasses the female LEB.

RESULTS FOR MARRIAGE SQUEEZE

Now this section deals with analysis of marriage squeeze.

Table 6 presents the various sex ratio indices for measuring the marriage squeeze in selected states. In this table there are five sex ratio based indicators. The first one is simple sex ratio (Males per 100 Females) based on total population of male and female. From table we found that in 2001 sex ratio were 107 males per 100 females in India. Among all EAG states UP consist of highest sex ratio (111 males per 100 females) in 2000, means it had faced high male squeeze during 2000. However Uttaranchal, Jharkhand, Orissa and Chhattisgarh were on balanced situation. Analysis reveals that UP will be no improvement in situation till 2051 implying UP will face high excess of males till 2051. There are several other states like Bihar, Rajasthan and MP which will join UP till 2051. However remaining other states will achieve almost balanced SRB till 2051.

The second indicator which is a sex ratio based on only marriageable (15-49 age group) population of male and female. From table it is clear that in 2001 there was highest male marriage squeeze in UP. Also table indicates that till 2051 almost all selected states will face the male marriage squeeze except Jharkhand and Chhattisgarh. UP, Bihar and MP will face highest male marriage squeeze with sex ratio 115, 114 and 112 respectively. The next indicator considers that all marriages will take place between 15-54 age groups. On the basis of this indicator table shows that the states like UP, Bihar, MP and Rajasthan were facing male marriage squeeze while in remaining states there were no crises in 2001. The situation will be almost same till 2051 in UP, Bihar, MP and Rajasthan.

It is seen that marriages are concentrated only over the few ages which is assumed as peak marriageable ages or prime age for marriage. Prime marriage age vary from region to region. Thus because of this reason here we have considered two indicators for marriage squeeze by considering the different prime age at marriage.

The fourth indicator of marriage squeeze assumes that prime marriageable age for female is 15-29 years and for male it is 20-34. Result shows that in India there was 5 percent shortage of male during 2001 in prime marriageable age group. Also from table it is clear that in 2001 all states were passing through male marriage squeeze. In 2001 among all selected states UP takes place as a state which was suffering through highest (128 males per 100 females) male marriage squeeze and Rajasthan takes place as a second highest having (116 males per 100 females) male marriage squeeze. Also in 2051, we found that there will be strong male marriage squeeze in EAG states except UP, MP, Bihar and Rajasthan. Uttaranchal, Chhattisgarh, Jharkhand and Orissa will attained almost balanced situation till 2051 in marriage market.

The last index of marriage squeeze based on sex ratio, in which prime marriageable age for female is 20-34 and for male it is 25-39. Taking into the consideration of the last index, we notice that all considered states were passing through male marriage squeeze in 2001. Analyzing the table we can see that in 2051 there will be high male marriage squeeze with highest value (119 males per 100 females) in UP. Bihar, Rajasthan and MP will also face high male marriage squeeze with index value approximately as 117, 115 and 116 respectively.

Considering the last indicator we can conclude that in 2001 UP, Bihar, Rajasthan and MP have faced the very intense male marriage squeeze. The remaining all states also experience the male marriage squeeze but not very intense.

Table 7 represents the mate availability index (males per 100 females) for males in selected states for the time period 2001-2051, assuming that all marriages takes place within age groups 15-54 and age gap between spouses is five years. Since several available literatures point out that most of the marriages in India are taking place during ages 20-34, so our main focus here will be to see the availability of mates for males in this age range. Study reveals that there were high female marriage squeeze in India as well as in all EAG states in year 2011. Considering the age group 20-24, we found that during 2001 Uttaranchal was facing highest female marriage squeeze (86 males per 100 females). However at national level there was around only 4 percent shortage of males for females. But when we move over year 2021, we noticed that there will be high male marriage squeeze in age group 20-34 in all states; after this age range there will be again crises of males for females. It may be because female have life expectancy high than the male, means their survival chances are high so they can stay for a long time in marriage market. Also we assess that during 2051, India as well as all considered states will face high level of marriage squeeze in age range 20-34.

SUMMARY AND CONCLUSIONS

It is already mentioned that rapid decline in fertility and mortality results in to imbalance in the male and female population of marriageable ages. In Indian society added factor is son preference resulting in to sex ratio at birth much favorable to male children. As most of the EAG states have strong preference for male child and hence experiencing skewed sex ratio at birth so there are chances of marriage squeeze. The analysis reveals that though there is son preference in all states but its intensity is high in Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh. The son preference has resulted in to skewed sex ratio only in above four states. The first indicator of marriage squeeze reveals that during 2001-2011 except Orissa, Uttaranchal and Chhattisgarh all other states were facing the male marriage squeeze implying more males in marriageable ages than females. There will be no problem in states like Uttaranchal, Jharkhand, Orissa and Chhattisgarh in marriageable ages. The serious problem will be in Uttar Pradesh, Bihar, Rajasthan and Madhya Pradesh.

The cohorts which will be in marriageable ages are already born so it is not possible to change that situation. In order to avoid the problem of male marriage squeeze beyond 2051 these states need to take strict measures to stop sex determination test and subsequent female feticides.

LIMITATIONS

The broad objective of the paper is to study the situation of marriage squeeze in present and future. For this study we are taking the total population of different age group. The phenomena of marriage squeeze can be better studied by considering the age-sex distribution by marital status also by including first and remarriage rate. Here the analysis is restricted to only total population.

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TABLE (1): PERCENTAGE OF CURRENTLY MARRIED WOMEN WHO HAVE DESIRE FOR MORE CHILDREN AND USING ANY CONTRACEPTIVE METHOD ACCORDING TO THE SEX COMPOSITION OF FAMILY SIZE

States	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
Number of living children		Percentage of Women with desire for more children							
One Child									
No son	74.4	66.6	66.1	67.0	79.3	72.4	79.6	68.1	81.6
One son	32.1	30.2	29.0	29.1	27.9	26.9	32.4	26.7	33.7
Two Children									
No son	68.2	58.7	57.5	56.7	68.8	72.8	71.0	58.0	75.9
Two son	4.6	7.8	4.9	5.9	2.8	4.9	5.0	5.3	3.9
Three Children									
No son	64.2	52.6	55.7	64.7	82.5	78.8	73.3	68.4	57.6
Three son	0.8	1.3	1.6	0.8	0.8	0.5	0.6	1.0	0.7
Number of living children		Percentage of women using contraception							
One Child									
No son	4.4	3.9	1.5	1.8	2.5	3.2	4.2	2.8	3.5
One son	14.2	13.8	7.6	8.8	9.3	10.9	16.7	9.7	11.2
Two Children									
No son	10.8	4.5	2.1	2.4	2.8	5.1	9.4	4.2	6.2
Two son	49.6	37.0	41.7	41.2	45.7	40.2	47.9	41.1	57.7
Three Children									
No son	10.5	3.2	0.9	2.3	4.3	5.3	13.4	4.3	5.2
Three son	25.3	25.1	32.5	27.6	28.6	30.2	28.3	32.7	21.3

Data sources: National Family Health Surveys-3.

TABLE (2): SEX DISCRIMINATION IN TREATMENT IN INDIA AND EAG STATES

States	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
Median duration of Exclusive breastfeeding (in months)									
Male(M)	2.1	2.3	0.9	1.6	0.5	3.4	2.1	6.1	0.6
Female(F)	1.9	2.4	0.6	1.0	0.6	2.4	2.6	5.3	1.5
Ratio(M/F)	1.1	1.0	1.5	1.6	0.8	1.4	0.8	1.2	0.4
No vaccination (%)									
Male(M)	4.3	2.7	4.2	3.2	3.8	5.8	12.9	0.8	5.6
Female(F)	6.0	2.7	10.3	7.7	6.3	3.2	10.1	4.2	12.4
Ratio(M/F)	0.7	1.0	0.4	0.4	0.6	1.8	1.3	0.2	0.5

Data sources: National Family Health Surveys-3.

TABLE (3): SEX RATIO AT BIRTH (MALES PER 100 FEMALES) PRESENT AND PROJECTED FUTURE LEVELS

Years	2001	2006	2011	2016	2021	2031	2036	2041	2051
India	111	111	111	111	111	111	111	111	111
Uttar Pradesh	115	115	115	115	115	115	115	115	115
Bihar	112	112	112	112	112	112	112	112	112
Rajasthan	114	114	114	114	114	114	114	114	114
Madhya Pradesh	110	110	110	110	110	110	110	110	110
Uttaranchal	110	110	110	110	110	110	110	110	110
Jharkhand	104	104	104	104	104	104	104	104	104
Orissa	108	108	108	108	108	108	108	108	108
Chhattisgarh	103	103	103	103	103	103	103	103	103

Data sources: Expert Committee Report, 2006

TABLE (4): SEX DIFFERENTIAL IN MORTALITY RATES IN SELECTED EAG STATES

Regions	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Jharkhand	Orissa	Chhattisgarh	Uttarakhand
Infant mortality rate (per 1000)									
Male(M)	56.3	80.9	59.7	70.5	80.9	77.2	75	86.6	54.5
Female(F)	57.7	85.2	70.8	75.2	82.8	76.1	59.4	74.7	55.1
Ratio(M/F)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Child mortality (per 1000)									
Male(M)	14.2	21.7	24.5	18.5	24.7	36.7	31.1	23.1	13.8
Female(F)	22.9	43.2	40.4	26.2	32.6	40.7	26.5	31.0	18.8
Ratio(M/F)	0.62	0.50	0.61	0.71	0.76	0.90	1.17	0.75	0.73
Under-five mortality (per 1000)									
Male(M)	69.7	100.9	82.7	87.7	103.6	111.1	103.7	107.7	67.6
Female(F)	79.2	124.7	108.3	99.4	112.7	113.7	84.4	103.3	72.9
Ratio(M/F)	0.88	0.81	0.76	0.88	0.92	0.98	1.23	1.04	0.93

Data sources: National Family Health Surveys-3

TABLE (5): SEX DIFFERENTIALS IN LIFE EXPECTANCY AT BIRTH IN PRESENT AND PROJECTED FUTURE LEVEL FOR THE PERIOD 2001-2051

States/Year	2001	2011	2021	2031	2041	2051
India						
Male	61.8	65.8	68.8	70.8	72.4	73.3
Female	63.5	67.5	70.5	72.9	74.9	76.7
Uttar Pradesh						
Male	59.6	64.1	67.6	70.0	72.0	73.8
Female	58.7	63.7	68.5	72.0	74.7	76.9
Bihar						
Male	61.6	65.6	68.6	70.6	72.2	73.5
Female	59.7	63.7	67.7	70.7	73.1	75.1
Rajasthan						
Male	60.7	64.7	68.2	70.2	71.8	73.1
Female	61.8	65.8	69.3	72.0	74.2	76.0
Madhya Pradesh						
Male	57.2	62.2	66.2	68.9	71.1	73.1
Female	56.9	60.9	64.9	68.9	71.6	73.8
Uttaranchal						
Male	62.0	66.0	68.5	70.5	72.1	73.4
Female	66.0	69.5	72.2	74.4	76.2	77.8
Jharkhand						
Male	62.2	66.2	68.7	70.7	72.3	73.6
Female	62.7	66.7	70.2	72.6	74.6	76.4
Orissa						
Male	58.6	62.6	66.6	69.1	70.9	72.5
Female	58.7	63.7	68.5	72.0	74.7	76.9
Chhattisgarh						
Male	62.0	66.0	68.5	70.5	72.1	73.4
Female	65.2	69.2	71.9	74.1	75.9	77.2

Data sources: Expert Committee Report, 2006

TABLE (6): SEX RATIOS (MALES PER 100 FEMALES) OF TOTAL POPULATION IN MARRIAGEABLE AGES IN SOME SELECTED STATES

Sex Ratio Indices	States								
	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Uttaranchal	Jharkhand	Orissa	Chhattisgarh
2001									
Total M/F	107.2	111.4	108.8	108.6	108.8	103.9	106.3	102.8	101.1
Total M(15-49)/F(15-49)	107.3	110.4	106.4	109.1	110.6	101.1	106.4	102.7	102.2
Total M(15-54)/F(15-54)	107.6	110.7	106.9	109.2	110.7	101.4	107.0	103.1	102.2
Total M(20-34)/F(15-29)	95.0	127.9	118.4	124.0	122.4	118.6	117.4	107.9	110.9
Total M (25-39)/F(20-34)	93.7	117.8	108.8	118.2	117.4	111.6	110.8	108.3	107.4
2011									
Total M/F	107.4	112.4	110.0	109.8	109.5	103.8	105.8	103.5	100.7
Total M(15-49)/F(15-49)	107.3	112.0	108.9	109.8	110.5	103.0	106.1	101.6	101.9
Total M(15-54)/F(15-54)	107.4	111.9	108.8	109.8	110.6	102.7	106.3	102.2	102.0
Total M(20-34)/F(15-29)	100.2	138.9	140.4	131.8	131.0	117.7	128.7	110.9	118.5
Total M (25-39)/F(20-34)	96.0	141.8	137.3	132.9	132.8	122.4	129.4	111.7	118.7
2021									
Total M/F	107.5	113.1	110.9	110.5	109.9	103.9	105.3	103.7	100.4
Total M(15-49)/F(15-49)	108.3	113.7	111.1	107.9	110.8	105.3	106.2	103.0	101.8
Total M(15-54)/F(15-54)	107.5	112.7	110.0	110.3	110.2	104.3	105.5	102.5	101.3
Total M(20-34)/F(15-29)	108.7	118.2	114.4	113.7	113.0	109.5	103.5	100.5	101.6
Total M (25-39)/F(20-34)	104.6	126.9	129.4	123.5	122.6	110.1	118.6	106.3	112.2
2031									
Total M/F	107.3	113.4	111.3	110.8	110.0	104.0	104.6	103.4	99.9
Total M(15-49)/F(15-49)	109.7	115.3	113.7	107.6	111.6	107.2	106.4	105.4	102.0
Total M(15-54)/F(15-54)	109.2	115.1	113.1	112.2	111.5	106.4	106.2	104.5	101.7
Total M(20-34)/F(15-29)	106.3	126.2	120.0	119.7	117.7	117.2	107.9	109.3	104.0
Total M (25-39)/F(20-34)	108.4	120.1	114.2	114.9	114.1	113.4	103.3	103.8	101.7
2041									
Total M/F	107.1	113.4	111.5	110.8	110.0	104.1	104.0	102.9	99.5
Total M(15-49)/F(15-49)	109.4	114.8	112.9	107.0	110.7	107.4	104.9	106.8	101.2
Total M(15-54)/F(15-54)	109.3	114.8	113.2	112.5	111.0	107.1	105.2	106.0	101.2
Total M(20-34)/F(15-29)	108.4	123.6	122.7	119.6	117.2	109.3	110.8	108.2	105.6
Total M (25-39)/F(20-34)	104.8	127.6	126.7	123.9	120.6	113.4	115.6	113.0	108.8
2051									
Total M/F	107.0	113.1	111.4	110.6	110.0	104.2	103.3	102.4	99.0
Total M(15-49)/F(15-49)	110.2	115.8	114.0	106.8	111.6	107.5	104.9	107.3	101.2
Total M(15-54)/F(15-54)	109.5	114.9	113.1	112.8	111.0	107.2	104.5	106.8	100.9
Total M(20-34)/F(15-29)	113.8	115.4	112.1	111.8	110.4	107.1	101.8	102.6	99.6
Total M (25-39)/F(20-34)	111.7	118.8	116.8	114.8	113.4	106.9	105.1	104.0	101.7

Data sources: Expert Committee Report, 2006

TABLE (7): MATE AVAILABILITY INDEX (MALES PER 100 FEMALES) IN DIFFERENT MARRIAGEABLE AGE GROUP IN SELECTED STATES

Availability Index for males	States								
	India	Uttar Pradesh	Bihar	Rajasthan	Madhya Pradesh	Uttaranchal	Jharkhand	Orissa	Chhattisgarh
2001									
20-24	96.4	93.9	91.3	94.2	97.5	85.9	90.0	89.8	87.8
25-29	95.3	95.0	93.8	94.7	98.2	82.5	94.2	92.0	93.6
30-34	92.9	92.9	90.8	93.2	95.4	84.6	93.5	91.6	93.3
35-39	92.8	92.0	90.1	92.5	93.7	88.2	92.7	92.3	89.9
40-44	91.6	91.9	89.9	90.9	91.1	87.5	91.7	91.3	86.6
45-49	91.5	92.7	90.7	90.5	90.5	87.7	92.4	90.7	86.2
50-54	89.2	92.3	90.5	88.7	89.6	86.3	90.9	88.2	84.9
2011									
20-24	106.8	105.1	100.3	102.9	103.5	108.9	99.5	103.1	98.2
25-29	96.9	93.3	88.6	93.5	95.2	94.6	87.9	90.2	87.3
30-34	96.1	93.8	91.3	93.9	97.3	85.4	89.9	89.6	87.4
35-39	94.7	94.7	93.6	94.1	97.9	81.8	93.9	91.5	92.8
40-44	91.7	92.0	90.2	92.1	94.5	83.3	92.7	90.6	92.0
45-49	90.7	90.6	88.7	90.4	91.8	85.9	91.0	90.2	87.7
50-54	88.0	88.6	87.0	87.3	87.5	83.7	88.6	87.5	82.9
2021									
20-24	112.9	107.0	117.6	116.0	109.0	97.8	120.7	118.0	111.2
25-29	110.8	110.7	106.2	108.8	105.5	113.9	105.2	112.8	100.0
30-34	106.4	104.7	100.2	102.6	103.2	108.3	99.3	102.7	97.7
35-39	96.3	92.9	88.4	93.0	94.8	93.8	87.5	89.7	86.6
40-44	95.0	93.0	90.7	92.9	96.4	84.3	89.1	88.6	86.2
45-49	92.8	93.1	92.2	92.2	96.0	79.9	92.2	89.5	90.7
50-54	88.4	89.0	87.5	88.7	91.2	80.0	89.7	87.1	88.4
2031									
20-24	104.2	105.4	102.3	103.7	102.9	101.7	94.5	102.6	93.6
25-29	102.8	105.8	104.8	103.1	102.9	97.4	95.1	101.0	93.3
30-34	112.5	106.6	117.4	115.6	108.6	97.4	120.4	117.5	110.7
35-39	110.2	110.0	105.9	108.2	105.1	113.1	104.7	112.0	99.3
40-44	105.4	103.8	99.5	101.5	102.4	107.0	98.5	101.6	96.6
45-49	94.6	91.3	87.1	91.2	93.3	91.9	86.1	87.8	84.9
50-54	91.9	90.0	88.1	89.8	93.5	81.2	86.4	85.4	83.2
2041									
20-24	113.5	114.1	112.1	113.9	110.8	110.5	106.6	113.3	102.6
25-29	108.0	108.5	105.1	107.6	105.6	107.3	98.7	107.2	96.8
30-34	103.8	104.9	102.1	103.4	102.6	101.2	94.3	102.2	93.2
35-39	102.3	105.1	104.4	102.6	102.5	96.8	94.7	100.3	92.7
40-44	111.5	105.5	116.6	114.5	107.8	96.3	119.4	116.2	109.6
45-49	108.4	108.1	104.4	106.4	103.6	111.0	103.1	109.9	97.6
50-54	102.3	100.8	96.9	98.5	99.7	103.6	95.8	98.2	93.6
2051									
20-24	113.4	117.2	117.0	116.5	113.7	108.0	108.1	109.9	104.2
25-29	114.8	116.7	116.7	117.0	113.7	109.0	110.2	113.5	105.2
30-34	113.1	113.6	111.8	113.6	110.5	110.1	106.3	112.9	102.3
35-39	107.5	108.0	104.8	107.1	105.3	106.7	98.3	106.6	96.3
40-44	103.0	103.9	101.5	102.6	102.0	100.3	93.6	101.3	92.4
45-49	100.9	103.5	103.1	101.1	101.3	95.3	93.4	98.7	91.3
50-54	108.6	102.8	113.8	111.4	105.5	93.6	116.3	112.7	106.6

Data sources: Expert Committee Report, 2006

PERFORMANCE EVALUATION OF MUTUAL FUNDS IN INDIA: AN APPLICATION OF RISK-ADJUSTED THEORETICAL PARAMETERS

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ABSTRACT

Mutual fund provides a readymade option to households for portfolio diversification as well as relative risk aversion through collecting and investing their savings in different risk-return profile instruments. Its performance depends on the performance of underlying portfolio. If one or more schemes perform badly in the portfolio, that can effect or hurt the investment decisions of investors and may get them out from the scenario of wealth creation process. For saving investors' money from such a hazard, it becomes necessary to evaluate the performance of mutual fund portfolio so that investors can take/judge their investment decisions rationally. This evaluation would help in checking the prime idea of "putting all eggs in different baskets" behind mutual funds and guessing that how far this idea is doing well for investors. Therefore, our study has attempted to evaluate the comparative performance of public and private sector mutual fund schemes in terms of risk-return measures (Average returns, Standard Deviation and Beta) and Risk-Adjusted theoretical parameters suggested by Sharpe (1966) and Treynor (1965). Sample of our study consists of 57 mutual fund schemes for the period, 2005 to 2010. Results reveal that the performance of private sector mutual funds has been superior to public sector funds in almost of the frames. Private sector mutual fund is found to be the more efficient allocator of resources for investors than public sector mutual funds. Though, they together are failed on the prime idea of "putting all eggs in different baskets" because of inadequate diversification results. Mutual funds are found to do well only on the part of optimizing portfolio returns and not on the part of portfolio risk diversification process.

KEYWORDS

mutual fund Performance, investment, risk-return Treynor Ratio, sharpe Ratio.

INTRODUCTION

A person with more money in hands can satisfy his consumption requirements as well as save for the needed time is meant to be the potential investor who can put his money in securities, bank deposits/ real estate/ gold or in any other assets of his interest. So, the person or entities who have extra cash keep on investing it into different types of assets in order to amplifying their wealth. This cycle of wealth creation continues which termed to be the investment in broader sense. Investment is made with an aim of increasing present wealth or earning income and involves two important elements namely the time and risk. Current consumption is sacrificed in hope to earn some returns in future. The sacrifice that has to be borne is definite but return in future is not definite. This indicates the risk element of any investment made. All investments involve certain element of risk and their risk profiles vary according to the changing degree of returns.

The economic and financial meanings of investment have slightly different approaches. Former considers investment as a net addition to the nation's capital stock while later, the allocation of money to assets class that can yield some returns over the periods of time. Both approaches are absolutely linked to each other because savings of the people are invested into capital or money market instruments as financial investment first and then, it is to be utilized as the economic investment further. Financial investment made in securities is rather underside approach of investment and varies according to the financial goals of the individuals. The retired people would like to save for their future needs; private individual would like to increase their present wealth; private corporate would prefer to expand the existing business and government would prefer to finance its projects. Hence, finance is the key to investment and thus to economic growth in a nation. Finance is one of the main functions of financial system which involves the sum total of functions performed by all financial intermediaries. Financial intermediaries carry out the function of mediating money between saver and borrower and assist in spreading the risk of financial investments in a diversified form. They also provide the liquidity facility to investors with some necessary information and guidance about the investment process. In simple terms, "financial intermediaries are the firms that provide services and products that customers may not be able to get more efficiently by themselves in the financial market."² They include credit unions, banks, saving & loans, mutual funds, leasing companies and insurance organizations. Mutual fund is one of the finest examples of financial intermediary which offers the opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

Mutual fund works on the maxims of twin properties namely, the optimization of portfolio returns and diversification of portfolio risk. The suitability of investment in mutual funds can be judged by evaluating its portfolio performance in terms of the aforesaid twin properties. If one or more schemes perform badly in the portfolio that can effect or hurt the investment decisions of investors and may get them out from the scenario of wealth creation process. For saving investors' money from such vulnerability, it is important to evaluate the performance of mutual fund portfolio so that investors can judge their investment decisions rationally for present as well as for the future time. This evaluation would help in checking the prime idea of putting all eggs in different baskets behind mutual fund and guessing that how far this idea is doing well for investors. Therefore, our study is aimed to gauge the comparative performance of mutual fund portfolio in terms of risk and return offered and risk adjusted returns provided to investors.

THEORETICAL BACKGROUND OF PORTFOLIO PERFORMANCE DYNAMICS

The foundation for studying the risk-return quantification was first laid by Markowitz (1952) and Tobin (1958). In 1950's, Markowitz, who called as "the father of modern portfolio theory", proposed the basic portfolio model based on the mean-variance characteristics of underlying investment, that later became the base of developing asset pricing models in financial literature. Before the development of these two parameter mean-variance portfolio theory, investors generally measured the performance of portfolio in terms of comparing the returns generated with some broad yardstick.³ That time, source of measuring the performance of fund managers were not available or considered like now. Therefore, with the development of modern portfolio theory (MPT), Markowitz transformed the philosophy on portfolio performance issues by answering, what a rational investor should do. Since his attempt in the area, the drive of thinking on portfolio performance issues was started and gave some direction to William S. Sharpe (1964), Linter (1965) and Black (1972) to develop the kind of model that could answer that how risk and returns are related for any portfolio, thus developed the Capital Asset Pricing Model (CAPM). This model was an extension of MPT and proposed that how risky assets are priced in the market or returns on securities are determined through systematic part of risk. The model specification can be written as follows,

$$E(R_i) = R_f + \beta_i [E(R_m) - R_f] + e_i$$

This equation form of relationship is also called the *ex post* Security Market Line (SML). It is the equation line simply goes through the points (0, R_f) and (1, R_m).⁴ In SML, there is a linear relationship between expected return on security and covariance between market return and security return. But when the returns on security and market are perfectly correlated, this is termed as the *ex post* Capital Market Line (for efficient portfolios) which is the special case of *ex post* Security Market Line (SML). Thus with CAPM, two fundamental relationship came in view, the capital market line and security market line.

With the passage of time, several measures of portfolio performance in CAPM framework were developed keeping risk and return characteristics in the mind. The prominent contributors whose performance measures have had been accepted widely by researchers and academicians in the world are William S. Sharpe (1966), Jack L. Treynor (1966), Michael C. Jensen (1968) and Eugene F. Fama (1970). They produced the refinements of work over one other and reduced the shortcomings of each others' measures. Like, Sharpe refined his research work on the ranking of fund portfolio against market portfolio after Treynor's work on predictive ability. Thus, our study of mutual funds performance follows these two models (Sharpe's and Treynor's) in measuring the portfolio performance.

REVIEW OF LITERATURE

The review of studies done on mutual fund performance would help us to identify the dearth of literature on it. Subject of mutual funds has extensively been studied in U.S. and other developed countries. So, our survey of literature focuses more on studies pertaining to U.S. as compared to other countries. It is pertinent to mention here that the concept of mutual fund is quite new in developing countries. As a result, studies pertaining to mutual funds in developing countries are limited in terms of number and coverage. Therefore, we have reviewed only selected important and extensive studies in order to capture the area or direction of research which is still not or addressed very minimally.

FOREIGN LITERATURE

The credit to popularize the performance of mutual funds goes to **Sharpe (1966)** who developed the composite measure for performance evaluation (widely known as Sharpe's reward to variability ratio) considering average risk and return. He evaluated the performance of 34 U.S. open-ended mutual funds by the measure so developed during 1944-63 and found the performance of 11 funds superior to that of Dow Jones Industrial Average (DJIA) index. Reward to variability ratio for most of the funds was found significantly lower as compared to the same measured for DJIA benchmark index. On the basis of these results, Sharpe concluded that performance of mutual fund portfolio was distinctly inferior to that of the portfolio performance by DJIA index. **Robert S. Carlson (1970)** applied the single measure of investment performance to evaluate the aggregate performance of mutual funds for twenty years. He observed the positive relation between fund outperformance and the high cash inflows where the fund size and expense ratio did not matter much in rating fund performance. Thus, past values were found minor predictor for future values of funds and no-load funds were generally used to earn the elevated performance. **John G. MacDonald (1974)** evaluated the performance of 123 American mutual funds relative to their stated objectives during the period 1960-69. He used risk-adjusted return measures of performance and found that higher risky funds outperformed the lower risky funds though insignificantly. For the whole sample of funds, no significant 'superior' or 'inferior' performance was reported. **Manak C. Gupta (1974)** examined the performance of mutual fund by classifying it in several subgroups according to their objectives and investment goals. The general conclusion of the study was that all risk-adjusted models were likely to show the identical performance. For the subgroups of mutual fund class, growth funds performed much better than the income and balanced class of funds. **Tye Kim (1978)** applied the weighted index benchmark portfolio approach for evaluating quarterly investment performance of mutual funds during 1969-1975. He also tested its conformation to the theory of Efficient Market Hypothesis (EMH) by analyzing 138 mutual funds against the benchmark standards. His study found that most of the sample funds had registered underperformance and supported the fact of efficient market hypothesis i.e. "mutual funds, on an average, failed to outperform the market overtime" which stood in line to the conclusion of previous studies. **Tom W. Miller and Nicholas Gressis (1980)** addressed the issue of nonstationarity in risk-return relationship of mutual funds. Study concluded for the strong presence of nonstationarity in risk-return relationships which indicated that risk level changes in relation to the change in mutual fund portfolio composition. **Mark Grinblatt and Sheridan Titman (1994)** tested the different measures of mutual fund performance evaluation in rendering the inferences for a variety of benchmark portfolios. Findings of the study suggest that the different measures of mutual fund performance evaluation generally yielded similar inferences for the same benchmark but varied in yielding inferences for the different benchmarks. **James L. Davis (2001)** examined the issue, whether there exists any relationship between mutual fund performance and managers style. His study found no evidence for positive abnormal returns directed by the investment style, against some evidence for short term persistence among the best performing growth funds and worst performing small-cap funds. Thus, negligible evidence was reported in relationship. **Timotej Jagric, Boris Podobnik, Sebastjan Strasek and Vita Jagric (2007)** tried to investigate the risk-adjusted performance of Slovenian mutual funds. They adopted the method of ranking in funds performance results. Their study stated the well diversification for funds obtaining the same ranking according to Sharpe and Treynor ratios and exposed the underperformance of market by funds on the risk-adjusted basis. **Talat Afza and Ali Rauf (2009)** evaluated the mutual funds performance in relation to their management effectiveness. The study concludes for the poor performance by close-ended funds, significant impact of fund attributes on mutual fund performance and a positive relationship between risk adjusted mutual fund returns and expenses.

INDIAN LITERATURE

One of the earliest studies on performance of Indian mutual funds was done by **Barua and Varma (1991)**. He analysed the three years daily return data (1987-1990) of one close-ended fund i.e. Mastershares in CAPM framework. In another study (1994), they examined the relationship between market price and the NAV of close-ended mutual fund schemes. **Sarkar and Majumdar (1995)** evaluated the performance of five growth oriented close-ended funds of four different categories in pre and post-scandam period and referred varied performance of funds in these two periods. Their study suggests one important fact that beta of the portfolio schemes was not remained stationary. **M. Jayadev (1996)** examined the monthly performance of two growth-oriented mutual funds (Mastergain and Magnum Express) comparing to the ETOSHPI (The Economic Times Ordinary Share Price Index) Market Index in the study. The results indicate that according to Jensen and Treynor measure, Mastergain had registered better performance but according to Sharpe ratio, it was found to underperform the market index. **M.S. Narasimhan and S. Vijayalakshmi (2001)** analysed the performance of 76 mutual fund schemes from January 1998 to March 1999. According to them, no mutual fund schemes revealed superior performance. **Muthappan and Damodaran (2006)** used the risk and return parameters for evaluating the performance of mutual fund schemes from 1995 to 2000. They found the divergence of risk and returns from the stated objectives of selected schemes and the schemes were not diversified adequately. The returns attributed from the diversification of schemes were found to be minimal. The study concluded that Indian mutual funds suffer from improper diversification level. **N. S. Malik and Suresh Kumar Mittal (2007)** analysed the performance of 74 equity funds from 1986 to 2006. They tried to examine the actual rate of returns of mutual fund schemes and their comparative performance in terms of public and private sector sponsorship. Using the S&P CNX Nifty as market benchmark and two risk-adjusted performance measures (Sharpe and Treynor's Index), study found that time horizon and performance of a fund had positive relationship. The actively managed funds performed superiorly to the market benchmark mostly over a longer period of time (generally five years). In private sector funds (26), 21.92 percent funds had outperformed and in public sector funds (48), only 15.38 percent funds had performed superiorly. **Madhumita Chakraborty, P.K. Jain and Vinay Kallianpur (2009)** studied the performance evaluation of some select growth funds in terms of their returns and risk-adjusted approaches. Taking treasury bills as risk free asset and using BSE-100 as benchmark index, study reported the satisfactory performance of funds and indefinable performing capabilities of fund managers. **Ira Bapna, Yogesh Mehta and Vishal Sood (2010)** compared the performance of public and private sponsored nineteen ELSS mutual funds by using the Sharpe ratio and using S&P CNX Nifty as a market benchmark for six years (2003-2008). Their results referred the superior performance for private sponsored index funds with Sharpe ratio of -0.29 against -0.51 for public sponsored index funds. In the category of ELSS funds, the Sharpe ratio of 1.21 for private sponsored funds revealed better performance compared to public sponsored (with 0.67 Sharpe ratio). Thus, study favors that the managerial expertise of private sponsored funds is more able to beat the public sponsored funds.

To sum the review of literature, it can be said clearly that most of the studies have evaluated mutual fund performance on the risk adjusted basis but very few have seen its comparative performance. So, there is a need to focus on this minimally addressed aspect of mutual fund performance in Indian perspective.

DATA BASE AND RESEARCH METHODOLOGY

The entire research study is based on the secondary data. For the performance evaluation of sample schemes, month end Net Asset Value (NAV) data of 57 open-ended mutual fund schemes from both public and private sector are taken from the 'Alpha Database' of Centre for Monitoring of Indian Economy (CMIE). Out of these 57 schemes, 29 are from public and other 28 are from private sector. In all the sample schemes, 20 comprises growth schemes, 9 balance schemes, 7 tax plan schemes, 10 income schemes, 6 gilt schemes and 5 liquid schemes. The period of performance ranges for six years from January 1, 2005 to December 30, 2010. Study came across some missing values of NAVs for month ends which we filled by taking up the averages of two nearest cases NAVs. In order to

evaluate the performance of managed portfolio, benchmark comparison is an imperative measure for indicating that to what level fund manager or investor is successful in rating the managed portfolio in comparison to a selected market surrogate or index portfolio. From this point of view, present study finds BSE 100 National Index as a suitable market surrogate for making comparison in between BSE 100 and fund scheme. For analysis, we have used month end values of BSE 100 National Index. As a surrogate of risk-free asset, month end yields on 91 days Treasury Bills (T-Bills) is used. Its average monthly risk free rate is determined by taking out the average of 72 month end values of T-Bills return. It comes out to be 5.85 percent per annum. Dividing it by 12 months gives us the mean monthly risk free return of 0.49 percent per month for the sample schemes chosen. Thus, average monthly returns are calculated for month end values of mutual fund NAVs and closing prices of BSE 100 National Index data. Commensurate to the above discussed methodological key-ins, our study has the following objective:

- To evaluate the comparative performance of public and private sector open-ended mutual funds for finding the most efficient allocator for investors' resources

Based on this objective, we intend to test the following hypothesis:

H0₁: Private sector mutual funds provide more returns to investors against benchmark as compared to public sector funds

H1₁: Private sector mutual funds do not provide more returns to investors against benchmark as compared to public sector funds

H0₂: Private sector mutual funds are more volatile than public sector

H2₂: Private sector mutual funds are not more volatile than public sector

H0₃: Indian mutual fund managers are distinct diversifiers of schemes and private sector managers show better diversification ability

H3₃: Indian mutual fund managers are not distinct diversifiers of schemes and private sector managers are poor diversifiers

H0₄: Public sector mutual funds compensates better than the private sector in terms of risk taken

H4₄: Public sector mutual funds compensates better than the private sector in terms of risk taken

A) RISK-RETURN MEASURES

Risk and return express the performance of any investment. Investor can easily rank the portfolio by superior or inferior outcomes generated from both the measures and can decide to choose the risky, less risky or risk free schemes as per their investment objectives.

I) RETURN MEASURE

Return can be defined as the reward received for sacrificing the amount of wealth over a certain period of time. For the same, in order to find the reward for mutual fund investors, return on mutual fund has been computed using the month end NAV of schemes as follows:

$$R_{pt} = (\text{NAV}_t - \text{NAV}_{t-1}) / \text{NAV}_{t-1} \quad (1)$$

Where R_{pt} = return on fund in month 't', NAV_t = net asset value in month 't' and NAV_{t-1} = net asset value in previous month. The return on market is also calculated on the similar lines for Bombay Stock Exchange 100 National Index (BSE 100) as market benchmark. Monthly return on market benchmark (portfolio) is calculated as:

$$R_{mt} = (R_t - R_{t-1}) / R_{t-1} \quad (2)$$

Where R_{mt} is the return on market, R_t and R_{t-1} = return on market in month 't' and return on market in previous month $t-1$.

Risk free asset is already in the return form. Its average monthly rate of risk free return is come out to be 0.49 percent per month. Average monthly returns are calculated from month end values of mutual fund NAVs and closing prices of BSE 100 National Index. Therefore, only the month end values are selected to compute the results.

II) RISK MEASURE

Risk may be defined as the variation of returns from an average expected level of return. Degree of risk varies according to the preference of assets by investors. There are two broader types of risks associated with any portfolio: 1) Total risk (σ) and 2) Systematic risk (also called market risk) or non-diversifiable risk (β). Total risk is measured by the standard deviation denoted by ' σ ' and systematic risk is measured by the beta coefficient denoted by ' β '. Formula for measuring standard deviation is:

$$\text{Standard Deviation } (\sigma_p) = \sqrt{\sum [(R_p - \text{AR}_p)^2 / t-1]} \quad (3)$$

The square root of variance is also called the standard deviation $\sigma = \sqrt{\text{Var}(R)}$. Standard deviation and variance are equivalent measures of asset's total risk and acceptable widely. Standard deviation is calculated for scheme and market portfolio. Beta coefficient indicates the variability of fund returns against the market returns. When $\beta > 1$, mutual fund is more volatile and favourable for investors during the bull market phase whereas in $\beta < 1$, mutual fund is less volatile and favourable for investors during the bear market phase. To calculate the beta (market risk) of mutual fund, CAPM version of the market model is used,

$$R_p = \alpha + \beta R_m + e_p \quad (4)$$

Where R_p is the return on mutual fund, R_m = return on market, α = intercept, β_1 = slope or beta coefficient and e_p = error term. The value of constants α and β is computed by regressing mutual fund return on market return with the above market model. Regression results of above market model also provides the value of R^2 (coefficient of determination) – A Measure of Diversification, which shows the extent of co-relationship that exists between market and mutual fund returns and measures the diversification level. A high R^2 indicates the high diversification of funds. A high diversified fund is able to reduce the market risk (β).

B) RISK-ADJUSTED THEORETICAL PARAMETERS

Risk-adjusted measures follow the simple approach of combining two different dimensions of performance into one by adjusting the risk differences. Two main risk-adjusted measures are discussed here as under:

I) TREYNOR RATIO

Jack Treynor devised the measure of portfolio performance in 1965, with an objective to evaluate the excess return or risk premium per unit of systematic risk (β). His model is called the reward to volatility ratio (RVOLp), in which he presumes that by holding diversified portfolio, one can eliminate the unsystematic risk. Treynor ratio can be computed by dividing the average excess return by its market risk.

$$\text{Treynor ratio (TRp)} = \text{Average Excess Return} / \text{Market Risk} = R_p - R_f / \beta_p \quad (5)$$

Where TRp corresponds to the Treynor ratio, R_p = average return on portfolio, R_f = average return on risk free asset, β_p = beta coefficient for portfolio. The TRp for benchmark portfolio is, $TRp = R_m - R_f / \beta_m$, where $(R_m - R_f)$ is average excess market return and β_m is beta coefficient for market returns. If mutual fund portfolio provides the highest return per unit of systematic risk that implies the superior performer or vice-versa.

II) SHARPE RATIO

William F. Sharpe developed a composite index of portfolio performance in 1966, which is majorly known as the reward to variability ratio (RVARp). This index measures returns relative to the total risk of portfolio, where total risk is the standard deviation of the portfolio returns. Sharpe presumes that small investors put their wealth completely in mutual funds with the prior expectation of holding premium for total risk. Sharpe measure of portfolio performance can be computed by dividing portfolio's average excess return (Risk Premium) by its total risk (Standard Deviation):

$$\text{Sharpe ratio (SRp)} = \text{Average Excess Return} / \text{Total Risk} = R_p - R_f / \sigma_p \quad (6)$$

Where SRp corresponds to the Sharpe's Ratio, R_p = average return on portfolio, R_f = average return on risk free asset, σ_p = standard deviation of portfolio returns. In the same way, Sharpe ratio (SRp) for benchmark portfolio can be computed by dividing average excess return for market portfolio by standard deviation of market returns as $SRp = R_m - R_f / \sigma_m$. Therefore, if the SRp for mutual fund portfolio is found to be greater than market portfolio, this implies the superior performance earned by mutual fund portfolio or vice-versa. The basic difference between Sharpe and Treynor ratio is the use of total risk and market risk.

The performance of selected sample mutual fund schemes is carried out by using Risk-Return Measures (Average returns, Standard Deviation and Beta) and Risk-Adjusted theoretical parameters as Sharpe ratio and Treynor ratio. The overall analysis is done from the view point of investors. The details of sample mutual fund schemes for study are given in table (1) as below:

TABLE: (1) SAMPLE MUTUAL FUND SCHEMES

Scheme Name	Mutual Fund	Classification	Option	Aim	Observations (4104)
Baroda Pioneer Balance Fund	BOB	Open	Growth	Balance	72
Baroda Pioneer E L S S 96 Fund	BOB	Open	Dividend	Tax Plan	72
Baroda Pioneer Growth Fund	BOB	Open	Growth	Growth	72
Baroda Pioneer Liquid Fund	BOB	Open	Growth	Liquid	72
Birla Sun Life Advantage Fund	Birla Sun Life	Open	Dividend	Growth	72
Birla Sun Life Cash Manager	Birla Sun Life	Open	Growth	Liquid	72
Birla Sun Life Equity Fund	Birla Sun Life	Open	Dividend	Growth	72
Birla Sun Life Freedom Fund	Birla Sun Life	Open	Dividend	Balance	72
Birla Sun Life Income Fund	Birla Sun Life	Open	Growth	Income	72
Birla Sun Life'95 Fund	Birla Sun Life	Open	Growth	Balance	72
Canara Robeco Equity Diversified.	Canara Robeco	Open	Growth	Growth	72
Canara Robeco Equity Tax Saver	Canara Robeco	Open	Growth	Tax Plan	72
Canara Robeco Gilt (Pgs)	Canara Robeco	Open	Growth Plan Growth	Gilt	72
Canara Robeco Income	Canara Robeco	Open	Growth	Income	72
H D F C Balanced Fund	HDFC	Open	Growth	Balance	72
H D F C Capital Builder Fund	HDFC	Open	Growth	Growth	72
H D F C Equity Fund	HDFC	Open	Growth	Growth	72
H D F C Growth Fund	HDFC	Open	Growth	Growth	72
H D F C Income Fund	HDFC	Open	Growth	Income	72
H D F C Long Term Advantage Fund	HDFC	Open	Growth	Tax Plan	72
H D F C Prudence Fund	HDFC	Open	Dividend	Balance	72
H D F C Short Term Plan	HDFC	Open	Growth	Income	72
H D F C Tax Saver	HDFC	Open	Growth	Tax Plan	72
H D F C Top 200 Fund	HDFC	Open	Growth	Growth	72
H S B C Equity Fund	HSBC	Open	Growth	Growth	72
H S B C Gilt Fund	HSBC	Open	Dividend	Gilt	72
Kotak 30	Kotak Mahindra	Open	Growth	Growth	72
Kotak Bond	Kotak Mahindra	Open	Regular Plan Growth	Income	72
Kotak Gilt	Kotak Mahindra	Open	Investment Plan Regular Plan Growth	Gilt	72
Kotak Income Plus	Kotak Mahindra	Open	Growth	Income	72
L I C M F Balanced Fund	LIC	Open	Dividend	Balance	72
L I C M F Bond Fund	LIC	Open	Dividend	Income	72
L I C M F Equity Fund	LIC	Open	Dividend	Growth	72
L I C M F G-Sec Fund	LIC	Open	Growth	Gilt	72
L I C M F Growth Fund	LIC	Open	Growth	Growth	72
L I C M F Liquid Fund	LIC	Open	Growth	Liquid	72
L I C M F Savings Plus Fund	LIC	Open	Growth	Income	72
L I C M F Unit Linked Insurance Scheme	LIC	Open	Growth	Balance	72
Reliance Liquid Fund	Reliance	Open	Treasury & Retail Plan Growth	Liquid	72
Reliance Vision Fund	Reliance	Open	Dividend	Growth	72
S B I Magnum Balanced Fund	SBI	Open	Growth	Balance	72
S B I Magnum Contra Fund	SBI	Open	Growth	Growth	72
S B I Magnum Equity Fund	SBI	Open	Dividend	Growth	72
S B I Magnum Global Fund	SBI	Open	Growth	Growth	72
S B I Magnum Insta Cash Fund	SBI	Open	Growth	Liquid	72
S B I Magnum Multiplier Plus Fund	SBI	Open	Growth	Growth	72
S B I Magnum Tax Gain	SBI	Open	Growth	Tax Plan	72
Sahara Gilt Fund	Sahara	Open	Growth	Gilt	72
Sahara Growth Fund	Sahara	Open	Dividend	Growth	72
Sahara Income Fund	Sahara	Open	Growth	Income	72
Sahara Tax Gain Fund	Sahara	Open	Dividend	Tax Plan	72
U T I Balanced Fund	UTI	Open	Growth	Balance	72
U T I Bond Fund	UTI	Open	Growth	Income	72
U T I Equity Fund	UTI	Open	Growth	Growth	72
U T I Equity Tax Savings Plan	UTI	Open	Dividend	Tax Plan	72
U T I Gilt Advantage Fund	UTI	Open	LTP Growth	Gilt	72
U T I Masterplus	UTI	Open	Growth	Growth	72

APPLICATION AND RESULTS

1. RISK-RETURN PERFORMANCE

A) RISK-RETURN ANALYSIS AND DIVERSIFICATION OF SCHEMES

The summary statistics for risk-return analysis of 57 mutual fund schemes (public and private sector) is presented in Table (2) and (3). Interestingly, among all the 57 schemes, only two schemes, LICMF Unit Linked Insurance Scheme and Sahara Tax Gain Fund are showing negative returns and other 55 (96.49 percent) are showing the positive returns. In which, first scheme falls in the category of public sector mutual fund and second in the private sector mutual fund. As a whole, SBI Magnum Contra Fund earns the maximum monthly return of 2.48 percent, whereas the HSBC Gilt Fund earns the minimum monthly return of 0.10 percent per month. Both funds are also being the highest and lowest return gainer in public and private funds category. The public sector funds exposing to the maximum monthly risk is Canara Robeco Equity Tax Saver (10.65 percent) and minimum monthly risk (0.11 percent) is Baroda Pioneer Liquid Fund. In private sector mutual funds, Sahara Tax Gain Fund reveals the maximum monthly risk (14.44 percent) and Reliance Liquid Fund the minimum monthly risk (0.13 percent). However, the systematic risk or beta (β) of Sahara Income Fund is indicated to be the lowest (0.08 percent) and of HDFC Equity Fund (93.04 percent) is to be the highest among sample private sector funds. In public sector funds, SBI Magnum Global Fund assumes the highest systematic risk (104.14 percent) and LICMF G-Sec Fund the lowest systematic risk (2.14 percent). The average beta of public sector funds (55.96 percent) remains to be higher than private sector funds (49.37 percent) which refers that public sector funds are more volatile than private sector funds.

TABLE: (2) RISK-RETURN OF PUBLIC SECTOR MUTUAL FUND (MF) SCHEMES

Scheme Name	Fund Return (Rp)	Fund Risk (op)	Fund Beta (βp)	Beta (t)	R2 (Diversification)
Baroda Pioneer Balance Fund	0.0145	0.0931	0.5843	5.2606*	0.2833
Baroda Pioneer ELSS 96 Fund	0.0069	0.1005	0.9831	12.4172*	0.6877
Baroda Pioneer Growth Fund	0.0218	0.0796	0.8966	27.2771*	0.9140
Baroda Pioneer Liquid Fund	0.0049	0.0011	-0.0030	-1.9180***	0.0490
Canara Robeco Equity Diversified.	0.0206	0.0855	0.9485	23.1811*	0.8847
Canara Robeco Equity Tax Saver	0.0134	0.1065	0.9758	10.3419*	0.6044
Canara Robeco Gilt (Pgs)	0.0060	0.0171	-0.0231	-0.9616	0.0130
Canara Robeco Income	0.0081	0.0134	-0.0155	-0.8236	0.0096
L I C M F Balanced Fund	0.0031	0.0687	0.6755	12.6427*	0.6954
L I C M F Bond Fund	0.0007	0.0149	0.0235	1.1324	0.0180
L I C M F Equity Fund	0.0048	0.1013	1.0347	14.5362*	0.7512
L I C M F G-Sec Fund	0.0038	0.0208	0.0214	0.7356	0.0077
L I C M F Growth Fund	0.0151	0.0898	0.9556	17.5578*	0.8150
L I C M F Liquid Fund	0.0056	0.0014	-0.0044	-2.2802**	0.0691
L I C M F Savings Plus Fund	0.0049	0.0029	-0.0018	-0.4344	0.0027
L I C M F Unit Linked Insurance Scheme	-0.0011	0.0672	0.6328	11.1257*	0.6388
S B I Magnum Balanced Fund	0.0189	0.0856	0.7294	8.7532*	0.5226
S B I Magnum Contra Fund	0.0248	0.0976	0.9331	11.5996*	0.6578
S B I Magnum Equity Fund	0.0154	0.0896	0.9747	20.0590*	0.8518
S B I Magnum Global Fund	0.0230	0.0979	1.0414	17.5285*	0.8144
S B I Magnum Insta Cash Fund	0.0052	0.0014	-0.0039	-2.0313**	0.0557
S B I Magnum Multiplier Plus Fund	0.0235	0.0808	0.8821	20.5052*	0.8573
S B I Magnum Tax Gain	0.0134	0.0890	0.8136	10.2788*	0.6015
U T I Balanced Fund	0.0133	0.0578	0.6649	37.5285*	0.9527
U T I Bond Fund	0.0055	0.0177	0.0293	1.1852	0.0197
U T I Equity Fund	0.0170	0.0704	0.7794	22.7733*	0.8811
U T I Equity Tax Savings Plan	0.0038	0.0847	0.8117	11.6798*	0.6609
U T I Gilt Advantage Fund	0.0055	0.0235	-0.0082	-0.2470	0.0009
U T I Masterplus	0.0170	0.0778	0.8974	39.8644*	0.9578
Average	0.0110	0.0599	0.5596	----	0.49.23

*Significant at 1 % level

** Significant at 5 % level

*** Significant at 10 % level

TABLE: (2.1) RISK AND RETURN OF PRIVATE SECTOR MF SCHEMES

Scheme Name	Fund Return (Rp)	Fund Risk (op)	Fund Beta (βp)	Beta (t)	R2 (Diversification)
Birla Sun Life Cash Manager	0.0052	0.0014	-0.0037	-1.9451***	0.0513
Birla Sun Life Advantage Fund	0.011	0.0849	0.8915	16.3940*	0.7930
Birla Sun Life Equity Fund	0.0135	0.0869	0.8897	14.6811*	0.7500
Birla Sun Life Freedom Fund	0.0029	0.0569	0.4496	7.5675*	0.4500
Birla Sun Life Income Fund	0.0062	0.0221	0.0083	0.2652	0.0010
Birla Sun Life'95 Fund	0.0176	0.0587	0.5507	10.9837*	0.6328
H D F C Balanced Fund	0.0163	0.0568	0.6407	27.5367*	0.9155
H D F C Capital Builder Fund	0.0202	0.0786	0.8678	22.4805*	0.8783
H D F C Equity Fund	0.0245	0.0812	0.9304	34.3508*	0.9440
H D F C Growth Fund	0.0218	0.0755	0.8560	29.4735*	0.9254
H D F C Income Fund	0.0052	0.0186	0.0455	1.7761***	0.0431
H D F C Long Term Advantage Fund	0.0186	0.074	0.8232	23.9034*	0.8909
H D F C Prudence Fund	0.0077	0.0779	0.7097	10.1989*	0.5977
H D F C Short Term Plan	0.0064	0.0069	0.0118	1.2204	0.0208
H D F C Tax Saver	0.0226	0.0796	0.8903	25.0013*	0.8993
H D F C Top 200 Fund	0.0236	0.0764	0.8894	51.2987*	0.9741
H S B C Equity Fund	0.018	0.0715	0.8113	29.4972*	0.9255
H S B C Gilt Fund	0.0010	0.0121	0.0156	0.9174	0.0119
Kotak 30	0.0202	0.076	0.8682	32.6503*	0.9384
Kotak Bond	0.0064	0.0206	0.0332	1.1514	0.0186
Kotak Gilt	0.0057	0.0243	0.0095	0.2774	0.0011
Kotak Income Plus	0.0053	0.0154	0.1639	17.2912*	0.8103
Reliance Liquid Fund	0.0051	0.0013	-0.0042	-2.2985	0.0702
Reliance Vision Fund	0.0075	0.0867	0.8934	15.0940*	0.7650
Sahara Gilt Fund	0.0131	0.1385	0.0396	0.2029	0.0006
Sahara Growth Fund	0.0137	0.164	0.7134	3.3224*	0.1362
Sahara Income Fund	0.0064	0.0114	0.0008	0.0498	0.00004
Sahara Tax Gain Fund	-0.0012	0.1444	0.8287	4.6633*	0.2370
Average	0.0116	0.0608	0.4937	----	0.4886

TABLE (3): RISK-RETURN OF PUBLIC SECTOR MF SCHEMES AGAINST BENCHMARK PORTFOLIO

Scheme Name	Fund Return (Rp)	Fund Risk (σ_p)	Risk Free Return	Market Return (Rm)	Market Risk (σ_m)
Baroda Pioneer Balance Fund	0.0145	0.0931	0.0049	0.0189	0.0848
Baroda Pioneer E L S S 96 Fund	0.0069	0.1005	0.0049	0.0189	0.0848
Baroda Pioneer Growth Fund	0.0218	0.0796	0.0049	0.0189	0.0848
Baroda Pioneer Liquid Fund	0.0049	0.0011	0.0049	0.0189	0.0848
Canara Robeco Equity Diversified.	0.0206	0.0855	0.0049	0.0189	0.0848
Canara Robeco Equity Tax Saver	0.0134	0.1065	0.0049	0.0189	0.0848
Canara Robeco Gilt (Pgs)	0.0060	0.0171	0.0049	0.0189	0.0848
Canara Robeco Income	0.0081	0.0134	0.0049	0.0189	0.0848
L I C M F Balanced Fund	0.0031	0.0687	0.0049	0.0189	0.0848
L I C M F Bond Fund	0.0007	0.0149	0.0049	0.0189	0.0848
L I C M F Equity Fund	0.0048	0.1013	0.0049	0.0189	0.0848
L I C M F G-Sec Fund	0.0038	0.0208	0.0049	0.0189	0.0848
L I C M F Growth Fund	0.0151	0.0898	0.0049	0.0189	0.0848
L I C M F Liquid Fund	0.0056	0.0014	0.0049	0.0189	0.0848
L I C M F Savings Plus Fund	0.0049	0.0029	0.0049	0.0189	0.0848
L I C M F Unit Linked Insurance Scheme	-0.0011	0.0672	0.0049	0.0189	0.0848
S B I Magnum Balanced Fund	0.0189	0.0856	0.0049	0.0189	0.0848
S B I Magnum Contra Fund	0.0248	0.0976	0.0049	0.0189	0.0848
S B I Magnum Equity Fund	0.0154	0.0896	0.0049	0.0189	0.0848
S B I Magnum Global Fund	0.0230	0.0979	0.0049	0.0189	0.0848
S B I Magnum Insta Cash Fund	0.0052	0.0014	0.0049	0.0189	0.0848
S B I Magnum Multiplier Plus Fund	0.0235	0.0808	0.0049	0.0189	0.0848
S B I Magnum Tax Gain	0.0134	0.089	0.0049	0.0189	0.0848
U T I Balanced Fund	0.0133	0.0578	0.0049	0.0189	0.0848
U T I Bond Fund	0.0055	0.0177	0.0049	0.0189	0.0848
U T I Equity Fund	0.0170	0.0704	0.0049	0.0189	0.0848
U T I Equity Tax Savings Plan	0.0038	0.0847	0.0049	0.0189	0.0848
U T I Gilt Advantage Fund	0.0055	0.0235	0.0049	0.0189	0.0848
U T I Masterplus	0.0170	0.0778	0.0049	0.0189	0.0848
Average	0.0110	0.0599	0.0049	0.0189	0.0848

TABLE (3.1): RISK-RETURN OF PRIVATE SECTOR MF SCHEMES AGAINST BENCHMARK PORTFOLIO

Scheme Name	Fund Return (Rp)	Fund Risk (σ_p)	Risk Free Return	Market Return (Rm)	Market Risk (σ_m)
Birla Sun Life Advantage Fund	0.0110	0.0849	0.0049	0.0189	0.0848
Birla Sun Life Cash Manager	0.0052	0.0014	0.0049	0.0189	0.0848
Birla Sun Life Equity Fund	0.0135	0.0869	0.0049	0.0189	0.0848
Birla Sun Life Freedom Fund	0.0029	0.0569	0.0049	0.0189	0.0848
Birla Sun Life Income Fund	0.0062	0.0221	0.0049	0.0189	0.0848
Birla Sun Life'95 Fund	0.0176	0.0587	0.0049	0.0189	0.0848
H D F C Balanced Fund	0.0163	0.0568	0.0049	0.0189	0.0848
H D F C Capital Builder Fund	0.0202	0.0786	0.0049	0.0189	0.0848
H D F C Equity Fund	0.0245	0.0812	0.0049	0.0189	0.0848
H D F C Growth Fund	0.0218	0.0755	0.0049	0.0189	0.0848
H D F C Income Fund	0.0052	0.0186	0.0049	0.0189	0.0848
H D F C Long Term Advantage Fund	0.0186	0.074	0.0049	0.0189	0.0848
H D F C Prudence Fund	0.0077	0.0779	0.0049	0.0189	0.0848
H D F C Short Term Plan	0.0064	0.0069	0.0049	0.0189	0.0848
H D F C Tax Saver	0.0226	0.0796	0.0049	0.0189	0.0848
H D F C Top 200 Fund	0.0236	0.0764	0.0049	0.0189	0.0848
H S B C Equity Fund	0.0180	0.0715	0.0049	0.0189	0.0848
H S B C Gilt Fund	0.0010	0.0121	0.0049	0.0189	0.0848
Kotak 30	0.0202	0.076	0.0049	0.0189	0.0848
Kotak Bond	0.0064	0.0206	0.0049	0.0189	0.0848
Kotak Gilt	0.0057	0.0243	0.0049	0.0189	0.0848
Kotak Income Plus	0.0053	0.0154	0.0049	0.0189	0.0848
Reliance Liquid Fund	0.0051	0.0013	0.0049	0.0189	0.0848
Reliance Vision Fund	0.0075	0.0867	0.0049	0.0189	0.0848
Sahara Gilt Fund	0.0131	0.1385	0.0049	0.0189	0.0848
Sahara Growth Fund	0.0137	0.164	0.0049	0.0189	0.0848
Sahara Income Fund	0.0064	0.0114	0.0049	0.0189	0.0848
Sahara Tax Gain Fund	-0.0012	0.1444	0.0049	0.0189	0.0848
Average	0.0116	0.0608	0.0049	0.0189	0.0848

Table (4) shows the mean characteristics of monthly risk-return of public and private sector mutual fund schemes. The average return earned by public sector mutual fund schemes is 1.10 percent per month against the average return of 1.16 percent by private sector. It shows clearly that private sector mutual fund has generated more returns per month vis-a-vis the public sector funds. But on an average, both the sectors have performed meagerly against mean market return (1.89 percent per month) and performed superiorly before risk free asset return (0.49 percent per month). Against mean market return, only 4 public (13.79 percent) and 6 private sector schemes (21.42 percent) become able to outperform the market.

TABLE: (4) MONTHLY MEAN RISK-RETURNS OF SAMPLE MUTUAL FUND SCHEMES

Public Sector		Private Sector	
Mean Characteristics	Value (%)	Mean Characteristics	Value (%)
Fund Mean Return	1.10	Fund Mean Return	1.16
Risk Free Mean Return	0.49	Risk Free Mean Return	0.49
Mean Market Return	1.89	Mean Market Return	1.89
Mean Fund Risk (S.D)	5.99	Mean Fund Risk (S.D)	6.08
Mean Beta of Funds	55.96	Mean Beta of Funds	49.37

b) Risk- Return Grid of Sample Schemes

In Table (5) and figure (1), total 57 sample mutual fund schemes are classified into four categories according to their risk-return profile. These four categories are following: (1) Low Return - Low Risk Funds (2) Low Return - High Risk Funds (3) High Return – Low Risk Funds (4) High Return – High Risk Funds. All the four categories are shown through four quadrants.

TABLE: (5) CATEGORISATION OF SCHEMES ACCORDING TO RISK AND RETURN PROFILE

(Quadrant I)

Low Return and Low Risk Profile Schemes ($R_p < R_m; \sigma_p < \sigma_m$)*

Scheme Name	Market Return (Rm)	Fund Return (Rp)	Low Return	Market Risk (σ_m)	Fund Risk (σ_p)	Low Risk
Baroda Pioneer Liquid Fund	0.0189	0.0049	0.0140	0.0848	0.0011	0.0837
Birla Sun Life Cash Manager	0.0189	0.0052	0.0137	0.0848	0.0014	0.0834
Birla Sun Life Freedom Fund	0.0189	0.0029	0.016	0.0848	0.0569	0.0279
Birla Sun Life Income Fund	0.0189	0.0062	0.0127	0.0848	0.0221	0.0627
Birla Sun Life'95 Fund	0.0189	0.0176	0.0013	0.0848	0.0587	0.0261
Canara Robeco Gilt (Pgs)	0.0189	0.006	0.0129	0.0848	0.0171	0.0677
Canara Robeco Income	0.0189	0.0081	0.0108	0.0848	0.0134	0.0714
H D F C Balanced Fund	0.0189	0.0163	0.0026	0.0848	0.0568	0.028
H D F C Income Fund	0.0189	0.0052	0.0137	0.0848	0.0186	0.0662
H D F C Long Term Advantage Fund	0.0189	0.0186	0.0003	0.0848	0.074	0.0108
H D F C Prudence Fund	0.0189	0.0077	0.0112	0.0848	0.0779	0.0069
H D F C Short Term Plan	0.0189	0.0064	0.0125	0.0848	0.0069	0.0779
H S B C Equity Fund	0.0189	0.018	0.0009	0.0848	0.0715	0.0133
H S B C Gilt Fund	0.0189	0.001	0.0179	0.0848	0.0121	0.0727
Kotak Bond	0.0189	0.0064	0.0125	0.0848	0.0206	0.0642
Kotak Gilt	0.0189	0.0057	0.0132	0.0848	0.0243	0.0605
Kotak Income Plus	0.0189	0.0053	0.0136	0.0848	0.0154	0.0694
L I C M F Balanced Fund	0.0189	0.0031	0.0158	0.0848	0.0687	0.0161
L I C M F Bond Fund	0.0189	0.0007	0.0182	0.0848	0.0149	0.0699
L I C M F G-Sec Fund	0.0189	0.0038	0.0151	0.0848	0.0208	0.064
L I C M F Liquid Fund	0.0189	0.0056	0.0133	0.0848	0.0014	0.0834
L I C M F Savings Plus Fund	0.0189	0.0049	0.014	0.0848	0.0029	0.0819
L I C M F Unit Linked Insurance Scheme	0.0189	-0.0011	0.02	0.0848	0.0672	0.0176
Reliance Liquid Fund	0.0189	0.0051	0.0138	0.0848	0.0013	0.0835
S B I Magnum Insta Cash Fund	0.0189	0.0052	0.0137	0.0848	0.0014	0.0834
Sahara Income Fund	0.0189	0.0064	0.0125	0.0848	0.0114	0.0734
U T I Balanced Fund	0.0189	0.0133	0.0056	0.0848	0.0578	0.027
U T I Bond Fund	0.0189	0.0055	0.0134	0.0848	0.0177	0.0671
U T I Equity Fund	0.0189	0.017	0.0019	0.0848	0.0704	0.0144
U T I Equity Tax Savings Plan	0.0189	0.0038	0.0151	0.0848	0.0847	0.0001
U T I Gilt Advantage Fund	0.0189	0.0055	0.0134	0.0848	0.0235	0.0613
U T I Masterplus	0.0189	0.017	0.0019	0.0848	0.0778	0.007

(Quadrant II)

Low Return and High Risk Profile Schemes ($R_p < R_m; \sigma_p > \sigma_m$)

Scheme Name	Market Return (Rm)	Fund Return (Rp)	Low Return	Market Risk (σ_m)	Fund Risk (σ_p)	High Risk
Baroda Pioneer Balance Fund	0.0189	0.0145	0.0044	0.0848	0.0931	-0.0083
Baroda Pioneer E L S S 96 Fund	0.0189	0.0069	0.012	0.0848	0.1005	-0.0157
Birla Sun Life Advantage Fund	0.0189	0.011	0.0079	0.0848	0.0849	-0.0001
Birla Sun Life Equity Fund	0.0189	0.0135	0.0054	0.0848	0.0869	-0.0021
Canara Robeco Equity Tax Saver	0.0189	0.0134	0.0055	0.0848	0.1065	-0.0217
L I C M F Equity Fund	0.0189	0.0048	0.0141	0.0848	0.1013	-0.0165
L I C M F Growth Fund	0.0189	0.0151	0.0038	0.0848	0.0898	-0.005
Reliance Vision Fund	0.0189	0.0075	0.0114	0.0848	0.0867	-0.0019
S B I Magnum Equity Fund	0.0189	0.0154	0.0035	0.0848	0.0896	-0.0048
S B I Magnum Tax Gain	0.0189	0.0134	0.0055	0.0848	0.089	-0.0042
Sahara Gilt Fund	0.0189	0.0131	0.0058	0.0848	0.1385	-0.0537
Sahara Growth Fund	0.0189	0.0137	0.0052	0.0848	0.164	-0.0792
Sahara Tax Gain Fund	0.0189	-0.0012	0.0201	0.0848	0.1444	-0.0596

(Quadrant III)

High Return and High Risk Profile Schemes ($R_p > R_m; \sigma_p > \sigma_m$)

Scheme Name	Market Return (Rm)	Fund Return (Rp)	High Return	Market Risk (σ_m)	Fund Risk (σ_p)	High Risk
Canara Robeco Equity Diversified.	0.0189	0.0206	0.0017	0.0848	0.0855	0.0007
S B I Magnum Contra Fund	0.0189	0.0248	0.0059	0.0848	0.0976	.0128
S B I Magnum Global Fund	0.0189	0.023	0.0041	0.0848	0.0979	0.0131
S B I Magnum Balanced Fund	0.01892	0.01889	0.00003	0.0848	0.0856	0.0008

(Quadrant IV)

High Return and Low Risk Profile Schemes ($R_p > R_m ; \sigma_p < \sigma_m$)

Scheme Name	Market Return (Rm)	Fund Return (Rp)	High Return	Market Risk (σm)	Fund Risk (σp)	Low Risk
Baroda Pioneer Growth Fund	0.0189	0.0218	0.0029	0.0848	0.0796	0.0052
H D F C Capital Builder Fund	0.0189	0.0202	0.0013	0.0848	0.0786	0.0062
H D F C Equity Fund	0.0189	0.0245	0.0056	0.0848	0.0812	0.0036
H D F C Growth Fund	0.0189	0.0218	0.0029	0.0848	0.0755	0.0093
H D F C Tax Saver	0.0189	0.0226	0.0037	0.0848	0.0796	0.0052
H D F C Top 200 Fund	0.0189	0.0236	0.0047	0.0848	0.0764	0.0084
Kotak 30	0.0189	0.0202	0.0013	0.0848	0.0760	0.0088
S B I Magnum Multiplier Plus Fund	0.0189	0.0235	0.0046	0.0848	0.0808	0.0040

FIGURE (1) RISK-RETURN GRID OF SAMPLE MUTUAL FUND SCHEMES

High Return and Low Risk Schemes ($R_p > R_m ; \sigma_p < \sigma_m$) Private Schemes = 6 Public Schemes = 2	High Return and High Risk Schemes ($R_p > R_m ; \sigma_p > \sigma_m$) Private Schemes = 0 Public Schemes = 4
Baroda Pioneer Growth Fund H D F C Capital Builder Fund H D F C Equity Fund H D F C Growth Fund (Quadrant II) H D F C Tax Saver H D F C Top 200 Fund Kotak 30 S B I Magnum Multiplier Plus Fund	Canara Robeco Equity Diversified. S B I Magnum Contra Fund S B I Magnum Global Fund SBI Magnum Balanced Fund (Quadrant III)
Baroda Pioneer Liquid Fund Birla Sun Life Cash Manager Birla Sun Life Freedom Fund Birla Sun Life Income Fund Birla Sun Life'95 Fund Canara Robeco Gilt (Pgs) Canara Robeco Income H D F C Balanced Fund H D F C Income Fund H D F C Long Term Advantage Fund H D F C Prudence Fund H D F C Short Term Plan H S B C Equity Fund (Quadrant I) H S B C Gilt Fund Kotak Bond Kotak Gilt Kotak Income Plus L I C M F Balanced Fund L I C M F Bond Fund L I C M F G-Sec Fund L I C M F Liquid Fund L I C M F Savings Plus Fund L I C M F Unit Linked Insurance Scheme Reliance Liquid Fund S B I Magnum Insta Cash Fund Sahara Income Fund U T I Balanced Fund U T I Bond Fund U T I Equity Fund U T I Equity Tax Savings Plan U T I Gilt Advantage Fund U T I Masterplus	Baroda Pioneer Balance Fund Baroda Pioneer E L S S 96 Fund Birla Sun Life Advantage Fund Birla Sun Life Equity Fund Canara Robeco Equity Tax Saver L I C M F Equity Fund L I C M F Growth Fund Reliance Vision Fund S B I Magnum Equity Fund S B I Magnum Tax Gain Sahara Gilt Fund Sahara Growth Fund Sahara Tax Gain Fund (Quadrant IV)
Low Return and Low Risk Schemes ($R_p < R_m ; \sigma_p < \sigma_m$) Private Schemes = 16 Public Schemes = 16	Low Return and High Risk Schemes ($R_p < R_m ; \sigma_p > \sigma_m$) Private Schemes = 6 Public Schemes = 7

- In Quadrant I (Low Return and Low Risk): This quadrant contains the schemes whose average returns are lower than the average market or benchmark returns. Their risks also remain lower than that of the risk of market portfolio. Such type of category includes 16 private and 16 public sector schemes. HDFC Long Term Advantage Fund and UTI Equity Fund are the toppers among such funds.

- In Quadrant II (High Return and Low Risk): In this quadrant, those schemes are included whose average returns are more than the average market returns but their risks remain lower than the risk of market portfolio. There are 6 private and 2 public sector schemes fall in this category. HDFC Equity Fund and SBI Magnum Multiplier Plus topped in this category of funds. Interestingly, all schemes in this quadrant are growth schemes which should come under the high return and high risk category. However, these schemes are the best schemes for common investors.

- In Quadrant III (High Return and High Risk): This quadrant includes those schemes whose returns as well as risk (standard deviations) are higher than that of the market portfolio. Only 4 public sector schemes are fitted into this category. SBI Magnum Contra Fund and SBI Magnum Global Fund, SBI Magnum Balanced Fund and Canara Robeco Equity Diversified Fund are the outperformers of this category. These schemes appear to follow their investment objectives very well.

- In Quadrant IV (Low Return and High Risk): This category consists of all those schemes whose returns are less than market return but risk is higher than market portfolio. The results show that out of 29 public and 28 private sector schemes, only 6 private and 7 public schemes are falling in this quadrant. These 13 schemes have been the poorest performers among all schemes.

c) Risk and Scheme Investment Objectives

Table (6) shows the aim wise categorization of mutual fund schemes in private and public sector. An examination of the affirmation, "mutual fund follows risk and return in commensuration to their investment objectives" is made in order to know the truth of schemes. The entire 57 sample schemes have been

classified into six major categories according to their investment objectives: (1) balanced schemes (2) tax plans (3) growth schemes (4) liquid schemes (5) income schemes (6) gilt schemes. Balanced schemes have investment objective of modest returns with modest risk. Tax plans are connected more to the equities so as expected to have big share of equities (70-80 percent) in portfolio. Same is the case of growth funds which also invest around 80-90 percent in equities. On the other hand, income schemes are having low return and low risk profile against very low or negligible risk profile of gilt schemes. Liquid schemes generally invest 100 percent of their corpus in debts and money market securities therefore acquire very low risk profile. Investment objectives of all schemes are studied pertaining to their assumed total risk, systematic risk and unique or unsystematic risk point of view.

- For Total Risk and Investment Objectives

Table (6) presents average risk and return of mutual fund schemes. The average return and risk earned by private sector balanced schemes are 1.11 percent and 6.26 percent while in case of public sector; it is 0.97 percent and 7.45 percent. This reflects that none of the private or public sector balanced schemes has followed risk and return in commensuration to its investment objectives as balanced schemes are supposed to follow moderate risk and return profile. Tax plan schemes in private sector, give average return of 2.06 percent per month with 7.68 percent of average risk, whereas the public sector tax plans give 0.73 percent per month average return with 10.50 percent average risk. The private sector tax plans performed better than public sector tax plans in following the investment objective. The private sector growth schemes have earned monthly average return and risk of 1.74 percent and 8.81 percent vis-a-vis 1.83 percent and 8.70 percent per month earned by public sector growth schemes. Growth schemes of both sectors perform approximately the same though public sector a bit good. The performance of private sector tax plans has been much better than that of other schemes.

The average returns of private and public sector liquid funds are 0.52 percent and 0.53 percent per month. Their average risk stands at 0.14 percent and 0.13 percent. It is remarkable to notice that the public and private sector liquid funds are found to follow their stated objectives. In income schemes, both sectors have followed their objectives but public sector has done well. The category of gilt schemes is expected to have low return and negligible risk. Results indicate that both public and private gilt schemes are not found to perform in accordance to their stated objectives. Though, the presentation of private sector schemes has been inferior which has created average low return of 0.66 percent and taken high level of risk i.e. 5.83 percent per month against the average return and risk of 0.51 percent and 2.05 percent per month by public sector gilt schemes. Thus, liquid and income funds of public as well as private sector and tax plans of only private sector are found to generate risk and returns in line to their stated investment objectives. As a whole, public sector schemes have performed better than the private sector schemes. Thus, it may be concluded that risk and return of mutual fund schemes are not always in commensuration to their stated objectives and investor should be cautious while investing in mutual funds.

TABLE: (6) AIM WISE CATEGORIZATION AND COMPARISON OF MUTUAL FUND SCHEMES

Scheme Name	Fund Return (Rp)	Fund Risk (σ p)	Fund Beta (β p)	Beta (t)	Aim
Birla Sun Life Freedom Fund	0.0029	0.0569	0.4496	7.5675	Balance
Birla Sun Life'95 Fund	0.0176	0.0587	0.5507	10.9837	Balance
H D F C Balanced Fund	0.0163	0.0568	0.6407	27.5367	Balance
H D F C Prudence Fund	0.0077	0.0779	0.7097	10.1989	Balance
Average (Private Sector - Balance)	0.0111	0.0626	0.5877		
L I C M F Balanced Fund	0.0031	0.0687	0.6755	12.6427	Balance
L I C M F Unit Linked Insurance Scheme	-0.0011	0.0672	0.6328	11.1257	Balance
S B I Magnum Balanced Fund	0.0189	0.0856	0.7294	8.7532	Balance
U T I Balanced Fund	0.0133	0.0578	0.6649	37.5285	Balance
Baroda Pioneer Balance Fund	0.0145	0.0931	0.5843	5.2606	Balance
Average (Public Sector - Balance)	0.0097	0.0745	0.6574		
H D F C Long Term Advantage Fund	0.0186	0.074	0.8232	23.9034	Tax Plan
H D F C Tax Saver	0.0226	0.0796	0.8903	25.0013	Tax Plan
Average (Private Sector – Tax Plan)	0.0206	0.0768	0.8567		
Baroda Pioneer E L S S 96 Fund	0.0069	0.1005	0.9831	12.4172	Tax Plan
Canara Robeco Equity Tax Saver	0.0134	0.1065	0.9758	10.3419	Tax Plan
S B I Magnum Tax Gain	0.0134	0.089	0.8136	10.2788	Tax Plan
Sahara Tax Gain Fund	-0.0012	0.1444	0.8287	4.6633	Tax Plan
U T I Equity Tax Savings Plan	0.0038	0.0847	0.8117	11.6798	Tax Plan
Average (Public Sector – Tax Plan)	0.0073	0.1050	0.8826		
Birla Sun Life Advantage Fund	0.011	0.0849	0.8915	16.3940	Growth
Birla Sun Life Equity Fund	0.0135	0.0869	0.8897	14.6811	Growth
Reliance Vision Fund	0.0075	0.0867	0.8934	15.0940	Growth
H D F C Capital Builder Fund	0.0202	0.0786	0.8678	22.4805	Growth
H D F C Equity Fund	0.0245	0.0812	0.9304	34.3508	Growth
H D F C Growth Fund	0.0218	0.0755	0.8560	29.4735	Growth
H D F C Top 200 Fund	0.0236	0.0764	0.8894	51.2987	Growth
H S B C Equity Fund	0.018	0.0715	0.8113	29.4972	Growth
Kotak 30	0.0202	0.076	0.8682	32.6503	Growth
Sahara Growth Fund	0.0137	0.164	0.7134	3.3224	Growth
Average (Private Sector - Growth)	0.0174	0.0882	0.8611		
Baroda Pioneer Growth Fund	0.0218	0.0796	0.8966	27.2771	Growth
Canara Robeco Equity Diversified.	0.0206	0.0855	0.9485	23.1811	Growth
L I C M F Equity Fund	0.0048	0.1013	1.0347	14.5362	Growth
L I C M F Growth Fund	0.0151	0.0898	0.9556	17.5578	Growth
S B I Magnum Contra Fund	0.0248	0.0976	0.9331	11.5996	Growth
S B I Magnum Equity Fund	0.0154	0.0896	0.9747	20.0590	Growth
S B I Magnum Global Fund	0.023	0.0979	1.0414	17.5285	Growth
S B I Magnum Multiplier Plus Fund	0.0235	0.0808	0.8821	20.5052	Growth
U T I Equity Fund	0.017	0.0704	0.7794	22.7733	Growth
U T I Masterplus	0.017	0.0778	0.8974	39.8644	Growth
Average (Public Sector - Growth)	0.0183	0.0870	0.9343		
Birla Sun Life Cash Manager	0.0052	0.0014	-0.0037	-1.9451	Liquid
Reliance Liquid Fund	0.0051	0.0013	-0.0042	-2.2985	Liquid
S B I Magnum Insta Cash Fund	0.0052	0.0014	-0.0039	-2.0313	Liquid
Average (Private Sector - Liquid)	0.0052	0.0014	-0.0039		
Baroda Pioneer Liquid Fund	0.0049	0.0011	-0.0030	-1.9180	Liquid
L I C M F Liquid Fund	0.0056	0.0014	-0.0044	-2.2802	Liquid
Average (Public Sector - Liquid)	0.0053	0.0013	-0.0037		
Sahara Income Fund	0.0064	0.0114	0.0008	0.0498	Income
Birla Sun Life Income Fund	0.0062	0.0221	0.0083	0.2652	Income
H D F C Income Fund	0.0052	0.0186	0.0455	1.7761	Income
H D F C Short Term Plan	0.0064	0.0069	0.0118	1.2204	Income
Kotak Bond	0.0064	0.0206	0.0332	1.1514	Income
Kotak Income Plus	0.0053	0.0154	0.1639	17.2912	Income
Average (Private Sector -Income)	0.0060	0.0158	0.0439		
L I C M F Bond Fund	0.0007	0.0149	0.0235	1.1324	Income
L I C M F Savings Plus Fund	0.0049	0.0029	-0.0018	-0.4344	Income
Canara Robeco Income	0.0081	0.0134	-0.0155	-0.8236	Income
U T I Bond Fund	0.0055	0.0177	0.0293	1.1852	Income
Average (Public Sector - Income)	0.0048	0.0122	0.0089		
H S B C Gilt Fund	0.001	0.0121	0.0156	0.9174	Gilt
Sahara Gilt Fund	0.0131	0.1385	0.0396	0.2029	Gilt
Kotak Gilt	0.0057	0.0243	0.0095	0.2774	Gilt
Average (Private Sector - Gilt)	0.0066	0.0583	0.0215		
L I C M F G-Sec Fund	0.0038	0.0208	0.0214	0.7356	Gilt
U T I Gilt Advantage Fund	0.0055	0.0235	-0.0082	-0.2470	Gilt
Canara Robeco Gilt (Pgs)	0.006	0.0171	-0.0231	-0.9616	Gilt
Average (Public Sector - Gilt)	0.0051	0.0205	-0.0033		

FOR SYSTEMATIC RISK AND INVESTMENT OBJECTIVES

Beta is the measure of systematic risk (market risk) in a portfolio. Schemes those are having aggressive investment objectives (growth and tax plan schemes) should have a high amount of systematic risk in spite of the schemes having moderate (balanced schemes) and conservative investment objectives (income, gilt and liquid schemes) having moderate to very low amount of systematic risk (beta). Table (6) presents the beta of mutual fund schemes. Among the public-private balanced schemes, HDFC Prudence Fund (70.97 percent) and SBI Magnum Balanced Fund (72.94 percent) are the highest beta funds which have the maximum beta, greater than their mean beta of 58.77 percent and 65.74 percent. Birla Sun Life Freedom and Baroda Pioneer Balance Fund have the lowest beta of 44.96 and 58.43 percent. The beta of public sector tax schemes varies from a minimum of 81.17 to maximum of 98.31 percent and of private sector from 82.32 to 89.03 percent with an average of 88.27 and 85.67 percent. For public sector growth funds, beta ranges from 77.94 to 104.14 percent and for private sector funds, it ranges between 81.13 and 93.04 percent. Both these categories of aggressive funds (tax plan and growth) seem to have market risk ($60 < \beta < 90\%$) in line to their investment objectives. Excluding the Birla Sun Life Freedom fund, the category of moderate investment objective funds (balanced schemes) is not found in accordance to its market risk ($20 < \beta < 50\%$) as this category of funds is medially exposed to the market.

Liquid, income and gilt schemes are not much to do with the market. They are expected to have very low or negligible market risk ($0 < \beta < 20\%$). It can be seen that public and private sector liquid funds are showing negative beta values. Liquid schemes are being managed as per their investment objectives. Average beta for public and private sector liquid funds come out to be -0.37 and -0.39 percent. In case of income schemes, majority of the public-private schemes show low beta values which ranges from 0.08 to 16.39 percent for private sector and 2.35 to -1.55 percent for public sector with an average beta of 4.39 and 0.89 percent. All gilt schemes have also exposed very low beta values ranging from a minimum of 0.96 to a maximum of 3.96 percent for private sector and -2.31 to 2.13 percent for public sector. The average beta for public and private sector gilt schemes are -0.33 and 2.15 percent. Thus, the analysis of systematic risk commensuration with its stated objective reveals that on an average basis, only public and private sector balanced schemes seep out slightly from its investment objectives. In income schemes category, private sector mutual funds outperform the public sector funds while in liquid schemes, case is in favour of public sector. Thus, the big part of the Indian schemes assumes the beta in line to its investment objectives. In case of gilt, income, liquid and growth schemes, public sector mutual funds emerge to be the superior beta assumer and for balance and tax plans, it comes out to be the private sector.

TABLE: (7) AVERAGE RISK - RETURN OF MUTUAL FUND SCHEMES: AIM WISE

Aim	Mean Returns (%)		Mean Risk (%)		Mean Systematic Risk (%)		Outperformer Mutual Fund
	Public	Private	Public	Private	Public	Private	
Balance	0.97	1.11	7.45	6.26	65.74	58.77	Private sector
Tax Plan	0.73	2.06	10.5	7.68	88.26	85.67	Private sector
Growth	1.83	1.74	8.70	8.82	93.43	86.11	Public sector
Liquid	0.53	0.52	0.13	0.14	-0.37	-0.39	Public sector
Income	0.48	0.60	1.22	1.58	0.89	4.39	Public sector
Gilt	0.51	0.66	2.05	5.83	-0.33	2.15	Public sector

D) UNIQUE RISK AND DIVERSIFICATION

The main attribute of investing in mutual funds is diversification, by which a fund manager reduces the level of risk in a portfolio and generates return above than average return on any security for investors. It is interesting to find that in which fund, investors should park their money so they can have maximum benefit of diversification in mutual funds. Unique risk is diversifiable in nature which can be reduced by following the diversification process in portfolio. How far the fund managers have been successful in providing the benefit of diversification to mutual fund investors is analysed under this section. Table (8) and (8.1) confer the information of unsystematic or unique risk and diversification level followed by sample mutual fund schemes.

TABLE: (8) UNIQUE RISK AND DIVERSIFICATION OF PUBLIC SECTOR MUTUAL FUND SCHEMES

Scheme Name	Unique Risk	R2 (Diversification)
Baroda Pioneer Balance Fund	0.0062	0.2833
Baroda Pioneer E L S S 96 Fund	0.0031	0.6877
Baroda Pioneer Growth Fund	0.0005	0.9140
Baroda Pioneer Liquid Fund	0.0000	0.0490
Canara Robeco Equity Diversified.	0.0008	0.8847
Canara Robeco Equity Tax Saver	0.0045	0.6044
Canara Robeco Gilt (Pgs)	0.0003	0.0130
Canara Robeco Income	0.0002	0.0096
L I C M F Balanced Fund	0.0014	0.6954
L I C M F Bond Fund	0.0002	0.0180
L I C M F Equity Fund	0.0026	0.7512
L I C M F G-Sec Fund	0.0004	0.0077
L I C M F Growth Fund	0.0015	0.8150
L I C M F Liquid Fund	0.0000	0.0691
L I C M F Savings Plus Fund	0.0000	0.0027
L I C M F Unit Linked Insurance Scheme	0.0016	0.6388
S B I Magnum Balanced Fund	0.0035	0.5226
S B I Magnum Contra Fund	0.0033	0.6578
S B I Magnum Equity Fund	0.0012	0.8518
S B I Magnum Global Fund	0.0018	0.8144
S B I Magnum Insta Cash Fund	0.0000	0.0557
S B I Magnum Multiplier Plus Fund	0.0009	0.8573
S B I Magnum Tax Gain	0.0032	0.6015
U T I Balanced Fund	0.0002	0.9527
U T I Bond Fund	0.0003	0.0197
U T I Equity Fund	0.0006	0.8811
U T I Equity Tax Savings Plan	0.0024	0.6609
U T I Gilt Advantage Fund	0.0006	0.0009
U T I Masterplus	0.0003	0.9578
Average	0.0014	0.4759

TABLE: (8.1) UNIQUE RISK AND DIVERSIFICATION OF PRIVATE SECTOR MUTUAL FUND SCHEMES

Scheme Name	Unique Risk	R2 (Diversification Level)
Birla Sun Life Advantage Fund	0.0015	0.7930
Birla Sun Life Cash Manager	0.0000	0.0513
Birla Sun Life Equity Fund	0.0019	0.7500
Birla Sun Life Freedom Fund	0.0018	0.4500
Birla Sun Life Income Fund	0.0005	0.0010
Birla Sun Life'95 Fund	0.0013	0.6328
H D F C Balanced Fund	0.0003	0.9155
H D F C Capital Builder Fund	0.0008	0.8783
H D F C Equity Fund	0.0004	0.9440
H D F C Growth Fund	0.0004	0.9254
H D F C Income Fund	0.0003	0.0431
H D F C Long Term Advantage Fund	0.0006	0.8909
H D F C Prudence Fund	0.0024	0.5977
H D F C Short Term Plan	0.0000	0.0208
H D F C Tax Saver	0.0006	0.8993
H D F C Top 200 Fund	0.0001	0.9741
H S B C Equity Fund	0.0004	0.9255
H S B C Gilt Fund	0.0001	0.0119
Kotak 30	0.0003	0.9384
Kotak Bond	0.0004	0.0186
Kotak Gilt	0.0006	0.0011
Kotak Income Plus	0.0000	0.8103
Reliance Liquid Fund	0.0000	0.0702
Reliance Vision Fund	0.0018	0.7650
Sahara Gilt Fund	0.0192	0.0006
Sahara Growth Fund	0.0232	0.1362
Sahara Income Fund	0.0001	0.00004
Sahara Tax Gain Fund	0.0159	0.2370
Average	0.0027	0.4886

It can be seen that average unique risk and diversification of public sector schemes are 0.14 percent and 47.59 per month whereas in private sector schemes these are 0.27 and 48.86 percent per month. It indicates that both public and private sector mutual fund managers do not seem adequate diversifiers of schemes and schemes are not diversified properly. In public sector schemes, 18 schemes (62.06 percent) possess unique risk lower than its average unique risk and interestingly, 11 schemes possess more than its average unique risk. Of 18 < average unique risk, 17 schemes (58.92 percent) have diversification higher than their average diversification level and of the rest 11 schemes > average unique risk, 9 schemes have diversification higher than their average diversification level. Hence, 9 public sector schemes show above than average diversification level and 11 schemes above than average unique risk indicates the improper diversification in mutual fund schemes. Only 9 public sector schemes are properly diversified. In private sector schemes, 25 schemes (89.28 percent) lie below to its average unique risk and 13 schemes (46.43 percent) below to its average diversification. Remarkably, the remaining three private sector schemes (10.71 percent) having higher than average unique risk show lower diversification than its average level. Thus, diversification is quite improper and low particularly in private sector schemes.

(2) RISK-ADJUSTED PERFORMANCE ANALYSIS

After analyzing the risk-return performance, there occurs the need of predicting risk-adjusted performance of selected mutual funds schemes which is useful to assess the differential return that arises after adjusting the return for risk. Results of risk-adjusted mutual fund performance are presented below using the two measures: Sharpe Ratio and Treynor Ratio.

A) RESULTS OF SHARPE RATIO

Sharpe ratio measures the excess returns earned per unit total risk (standard deviation). Table (9) and (9.1) shows the results of Sharpe ratio for mutual funds and benchmark portfolio. Out of 29 public sector schemes, 8 schemes (27.58 percent) reveal the positive Sharpe ratio against the benchmark portfolio. Rest of the 21 schemes (72.41 percent) show negative Sharpe ratio compare to respective benchmark which refers that these schemes are failed to provide minimum risk-adjusted returns to investors. These are meant to be the worst performers. In terms of Sharpe ratio, first top five rankers are LICMF Liquid Fund (49.84 percent) and Canara Robeco Income (24.31 percent), SBI magnum Multiplier Plus Fund (6.45 percent), SBI Magnum Insta Cash Fund (5.26 percent) and Baroda Pioneer Growth Fund (4.73 percent) which have outperformed superiorly than others and LICMF Liquid has topped the list. In private sector, 12 mutual fund schemes (42.86 percent) have better Sharpe ratio against respective benchmark portfolio. The maximum positive ranking is shown by HDFC Top 200 Fund (24.52 percent), HDFC Equity Fund (24.14 percent) and HDFC Growth Fund (22.44 percent) with minimum by Reliance Liquid Fund (17.11 percent), HSBC Equity Fund (18.40 percent) and HDFC Long term Advantage Fund (18.44 percent). Thus, Sharpe ratios of both mutual fund sectors are not found much satisfactory for investors hence large number of schemes are failed to offer risk-adjusted returns. In 57 sample schemes, only 20 schemes have taken positive Sharpe ratio pertaining to the benchmark. On an average, the Sharpe ratio of the private sector schemes (10.02 percent) has been higher than public sector schemes (8.00 percent). Large number of private sector schemes has outperformed the public sector schemes based on Sharpe ratio.

TABLE: (9) SHARPE AND TREYNOR RATIO FOR PUBLIC SECTOR MUTUAL FUND SCHEMES AND BENCHMARK PORTFOLIO

Scheme Name	Sharpe Ratio		Treyner Ratio	
	Fund	Benchmark	Fund	Benchmark
Baroda Pioneer Balance Fund	0.1033	0.1653	0.0165	0.0140
Baroda Pioneer E L S S 96 Fund	0.0196	0.1653	0.0020	0.0140
Baroda Pioneer Growth Fund	0.2126	0.1653	0.0189	0.0140
Baroda Pioneer Liquid Fund	0.0038	0.1653	-0.0014	0.0140
Canara Robeco Equity Diversified.	-0.2982	0.1653	-0.0269	0.0140
Canara Robeco Equity Tax Saver	0.0801	0.1653	0.0144	0.0140
Canara Robeco Gilt (Pgs)	0.0663	0.1653	-0.0493	0.0140
Canara Robeco Income	0.2431	0.1653	-0.2102	0.0140
L I C M F Balanced Fund	-0.0261	0.1653	-0.0027	0.0140
L I C M F Bond Fund	-0.2823	0.1653	-0.1790	0.0140
L I C M F Equity Fund	-0.0010	0.1653	-0.0001	0.0140
L I C M F G-Sec Fund	-0.0532	0.1653	-0.0517	0.0140
L I C M F Growth Fund	0.1140	0.1653	0.0107	0.0140
L I C M F Liquid Fund	0.4984	0.1653	-0.1586	0.0140
L I C M F Savings Plus Fund	-0.0095	0.1653	0.0153	0.0140
L I C M F Unit Linked Insurance Scheme	-0.0884	0.1653	-0.0094	0.0140
S B I Magnum Balanced Fund	0.1641	0.1653	0.0193	0.0140
S B I Magnum Contra Fund	0.2037	0.1653	0.0213	0.0140
S B I Magnum Equity Fund	0.1170	0.1653	0.0108	0.0140
S B I Magnum Global Fund	0.1856	0.1653	0.0174	0.0140
S B I Magnum Insta Cash Fund	0.2179	0.1653	-0.0782	0.0140
S B I Magnum Multiplier Plus Fund	0.2298	0.1653	0.0211	0.0140
S B I Magnum Tax Gain	0.0959	0.1653	0.0105	0.0140
U T I Balanced Fund	0.1460	0.1653	0.0127	0.0140
U T I Bond Fund	0.0356	0.1653	0.0215	0.0140
U T I Equity Fund	0.1720	0.1653	0.0155	0.0140
U T I Equity Tax Savings Plan	-0.0131	0.1653	-0.0014	0.0140
U T I Gilt Advantage Fund	0.0277	0.1653	-0.0793	0.0140
U T I Masterplus	0.1556	0.1653	0.0135	0.0140
Average	0.0800	0.1653	-0.0209	0.0140

TABLE: (9.1) SHARPE AND TREYNOR RATIO FOR PRIVATE SECTOR MUTUAL FUND SCHEMES AND BENCHMARK PORTFOLIO

Scheme Name	Sharpe Ratio		Treyner Ratio	
	Fund	Benchmark	Fund	Benchmark
Birla Sun Life Advantage Fund	0.0725	0.1653	0.0069	0.0140
Birla Sun Life Cash Manager	-0.0029	0.1653	-0.0766	0.0140
Birla Sun Life Equity Fund	0.0987	0.1653	0.0158	0.0140
Birla Sun Life Freedom Fund	-0.0348	0.1653	-0.0044	0.0140
Birla Sun Life Income Fund	0.0602	0.1653	0.1602	0.0140
Birla Sun Life'95 Fund	0.2166	0.1653	0.0254	0.0140
H D F C Balanced Fund	0.2005	0.1653	0.0178	0.0140
H D F C Capital Builder Fund	0.1947	0.1653	0.0176	0.0140
H D F C Equity Fund	0.2414	0.1653	0.0211	0.0140
H D F C Growth Fund	0.2244	0.1653	0.0198	0.0140
H D F C Income Fund	0.0178	0.1653	0.0073	0.0140
H D F C Long Term Advantage Fund	0.1855	0.1653	0.0167	0.0140
H D F C Prudence Fund	0.0367	0.1653	0.0040	0.0140
H D F C Short Term Plan	0.2160	0.1653	0.1263	0.0140
H D F C Tax Saver	0.2223	0.1653	0.0199	0.0140
H D F C Top 200 Fund	0.2452	0.1653	0.0211	0.0140
H S B C Equity Fund	0.1840	0.1653	0.0162	0.0140
H S B C Gilt Fund	-0.3196	0.1653	-0.2495	0.0140
Kotak 30	0.2016	0.1653	0.0176	0.0140
Kotak Bond	0.0728	0.1653	0.0452	0.0140
Kotak Gilt	0.0331	0.1653	0.0846	0.0140
Kotak Income Plus	0.0292	0.1653	0.0027	0.0140
Reliance Liquid Fund	0.1711	0.1653	-0.0529	0.0140
Reliance Vision Fund	0.0306	0.1653	0.0030	0.0140
Sahara Gilt Fund	0.0597	0.1653	0.2087	0.0140
Sahara Growth Fund	0.0538	0.1653	0.0124	0.0140
Sahara Income Fund	0.1358	0.1653	1.9352	0.0140
Sahara Tax Gain Fund	-0.0425	0.1653	-0.0074	0.0140
Average	0.1002	0.1653	0.0862	0.0140

B) RESULTS OF TREYNOR RATIO

Table (9) and (9.1) presents the results of Treynor ratio for sample schemes and benchmark portfolios. Treynor ratio measures the excess return adjusted per unit of systematic risk (beta). In all 57 schemes, Treynor ratio for 25 schemes turns to be positive. In 29 public sector schemes, the Treynor ratio of 10 schemes (34.48 percent) is positive for the selected benchmark. The top five performers in terms of Treynor ratio include, UTI Bond Fund, SBI Magnum Contra Fund, SBI Magnum Multiplier Plus Fund, SBI Magnum Balanced Fund and Baroda Pioneer Growth Fund. One thing is important to notice here that LICMF Savings Plus Fund, SBI Magnum Balanced Fund, Baroda Pioneer Balanced Fund and Canara Robeco Equity Tax Saver show underperformance in terms of Sharpe ratio and outperformance in terms of Treynor ratio. This is because that fund managers are able to provide the sufficient risk-adjusted returns to investors only the basis of market risk (beta) but not on the basis of total risk (standard deviation). Therefore, a scheme which performs less or underperforms in terms of Sharpe ratio

may perform high or outperform in terms of Treynor ratio. In other words, this difference arises because Sharpe ratio adjusts return per unit of total risk while Treynor ratio adjusts return per unit of systematic risk. Because of this difference, ranking of funds as per both ratios generally differs. Moreover, in case of Sharpe ratio, portfolio may take more amount of unique risk and caused fund to give less risk-adjusted return. Thus, unique risk is important for only Sharpe ratio not for the Treynor ratio. Other condition may also happen that many schemes outperform and underperform according to both the ratios i.e. Sharpe ratio and Treynor ratio.

In private sector mutual fund schemes, 15 schemes (53.57 percent) are having positive Treynor ratio. These schemes have outperformed their relevant benchmark successfully and compensated highly to investors for per unit of systematic risk taken. Sahara Income Fund (193.52 percent), Sahara Gilt Fund (20.87 percent), Birla Sun Life Income Fund (16.02 percent), HDFC Short Term Plan (12.63 percent) and Kotak Gilt (8.46 percent) are the top five rankers and HDFC Long Term Advantage Fund (1.67 percent), HDFC balanced Fund (1.78 percent), HDFC Capital Builder Fund (1.76 percent), HSBC Equity Fund (1.62 percent), Birla Sun Life Equity Fund (0.18 percent) are the five bottom performers. Remaining 13 are underperformed in terms of volatility compensation. Surprisingly, all top performers are gilt, income and balanced category funds and equity funds are of the bottom performers. This suggests that in spite of growth funds which are much exposed to the market and expected to compensate highly in terms of volatility, low risk-return profile funds are being managed as growth funds and growth funds are as others. Thus, 53.57 percent of private sector schemes have positive Sharpe ratio against 34.48 percent of public sector schemes. It reflects clearly that private sector schemes have outperformed public sector schemes in terms of Treynor ratio.

CONCLUSION

The study has compared the public and private sector mutual funds in six major categories of funds. Summary of results is presented in table (10). In India, innumerable public and private sector mutual fund schemes are available to common investors which generally perplex them to pick the best out of them. This study provides some insights on mutual fund performance so as to assist the common investors in taking the rational investment decisions for allocating their resources in correct mutual fund scheme. Results reveal that the performance of private sector mutual funds has been superior to public sector funds in almost the frames. Private sector mutual fund is found to be the more efficient allocator of investors' resources than public sector mutual funds. Though, they together are failed on the prime idea of "putting all eggs in different baskets" because of inadequate diversification results. Mutual funds are found to do well only on the part of optimizing portfolio returns and least on the part of portfolio risk diversification process. These two letdowns show the concern for mutual fund industry and suggest that fund managers should do hard for improving the fund performance so that, the faith of investors in mutual funds can be increased at far. Nevertheless, on the basis of performance results, it cannot be ignored that Indian mutual fund industry has enough potential to go a long way in future.

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TABLE

TABLE (10): SUMMARY OF RESULTS

Methodology	Public Sector (%)	Private Sector (%)	Outperformer	Interpretation	Hypothesis
Risk-Return Performance					
On Return Basis	48.27 > mean return	42.85 > mean return	Public sector	- Public sector mutual funds outperform private sector in terms of generating absolute returns.	
On Risk Basis	62.07 > mean risk	17.86 > mean risk	Private sector	- Public sector mutual funds are more volatile than private sector funds.	H0₂: Reject
Return Against Market (Rm)	13.79 > mean Rm	21.43 > mean Rm	Private sector	- Private sector mutual funds outperform public sector in terms of generating returns against market.	H0₁: Accept
Risk Against Market	5.99 < market portfolio risk	6.08 < market portfolio risk	None	- Mutual funds are less volatile than market portfolio.	
Unique Risk	37.93 > mean unique risk	10.71 > mean unique risk	None		
Diversification	58.62 > mean diversification	53.57 > mean diversification	None	-Both public and private sector mutual funds are inadequate diversifiers however, the public did well in comparison.	H0₃: Reject
Risk-Adjusted Performance					
Sharpe Ratio	8.00	10.02	Private sector	- Private sector mutual funds provide higher returns per unit of risk against its counterpart.	H0₄: Reject
Treynor Ratio	34.48	53.57	Private sector	- Private sector mutual funds pay more rewards per unit of volatility than public sector.	

SMALL FAMILY NORMS IN INDIA AND ITS QUALITATIVE IMPLICATIONS ON CHILD CARE: A MULTIVARIATE ANALYSIS

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ABSTRACT

The present paper seeks to investigate the association between changing family norms and levels of child care with its necessary socio-economic correlates across regions with reference to National Family Health Survey I, II and III unit level data. Appropriate bivariate and multivariate analysis such as binary logistic regression models have been worked to show the net effect of the selected demographic and socio-economic predictor variables impacting the probability of the betterment of children's post natal care. Analyses show a remarkable decrease in family size and the growth of nucleated household structure over the periods. A distinct rural/urban differential could also be observed in access to child health care facilities where the urban households have fared much better even though the gap is narrowing over the periods with rural-urban convergence. This is a typical situation of the southern states which have mostly achieved the replacement level fertility. On the contrary, some of the Northern states like Bihar, Chattisgarh, Orissa, Madhya Pradesh their family size mostly ranges from medium to high with bulk of the population being rural and inefficient grass root family planning implementations at the village level. In some of the economically developed pockets of the North, like Punjab and Haryana, the small family norm actually translated to the intensification effect of strong son preference with increasing performance of sex selective abortions along with a skewed sex ratio at birth.

KEYWORDS

small family norm, child post-natal care, rural-urban convergence, multivariate model.

INTRODUCTION

The size of the family is of great importance not only for the country as a whole but also for the welfare and health of the individual. India adopted the goal of universalizing the 'two child family norm' lately by the end of this century which has consequences both at the micro (individual) as well as the macro (community) level. A norm in relation to family size, according to sociologists, implies a pattern which sets limits for any community's fertility behaviour. The size of the family affects greatly the quality of life of human beings. Recently, the decline in family size in most parts of India is controlled not only by the family planning initiatives such as contraceptive use and sterilization of young foetus, the disintegration of the joint family system assumes another important mechanism in explaining the decline in family size. Generally the size of the family has direct and indirect implications on the quality of child care. In this paper an attempt has been made to employ a causative association between the decline in family size and its impact on child health care at a disaggregated level with an idea to search clues if the linear relationship actually holds.

STATEMENT OF PROBLEM

Inequity in child care is a composite outcome of a number of social, economic, cultural and environmental factors. In most cases it is controlled by all these factors wherein the change in family size acts as a catalyst to differentiation in child care. The main research enquiry in the present study is therefore to examine how much and to what extent the change in family size have *intensified* the inequity in child care across India.

The principle aims of the study conform to:

1. To highlight the transition of family size and the twin process of family planning and disintegration of families conjointly operating to cause the decline in family size.
2. To trace out the implications of small families on child care both in terms of curative and non-curative child care across the socio-economic dimensions.

ANALYTICAL FRAMEWORK

In India, the recent National Family Health Survey (NFHS) depicts that 12 out of 29 states have achieved the replacement level or below replacement level of fertility. The decline in fertility is often associated with the 'desire for small families'. The decline in fertility calls for the underlying mechanisms operating for which contraceptive usage has been used to check the desired result. One cannot merely overlook the modernisation factors possibly the increasing prevalence of nuclear families which often acts as a positive impetus on the overall development of the child. Excluding endogenous genetic factors at the individual level, it is assumed that the chances of infant survival depend upon the degree of care in which the infant is brought up. Broadly visualized, care, starting from conception to the first birthday, i.e. during 21 months of life, is important for an understanding of the determinants of child's health status. The two dimensions of individual level factors which have a direct bearing on child care are:

- a. Timing
- b. Type of care

Timing may be divided into three categories namely,

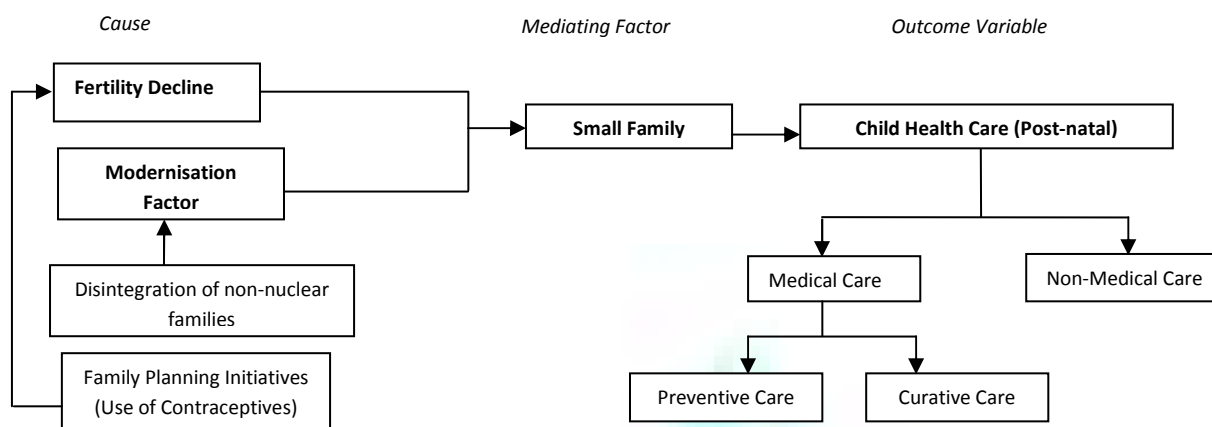
- a. Pre-natal
- b. Peri-natal
- c. Post-natal

Type of care accrues to

- a. Medical
- b. Non-medical care.

Medical care includes immunization, treatment of illness and medical attention at birth. Non-medical care includes feeding practices, protection from environmental insults and general cleanliness. However, in the present analysis, only the post-natal care of the child has been considered since the aim is to enquire how family size affect child care after the child is born. Thus, the two main dimensions of care yield the following two main individual-level factors:

- a. Post-natal non-medical child care- infant feeding practices, for example breastfeeding for at least six months.
- b. Post-natal preventive medical child care- immunization.



RESEARCH METHODOLOGY

The database for the present study has been taken from National Family Health Survey (NFHS III, unit level) published in 2005-'06. Data source for different socio-economic developmental indicators have been taken from Census of India for the years 1991, 2001 and 2011.

SELECTION OF INDICATORS

TABLE 1: SELECTED INDICATORS FOR ANALYZING FAMILY SIZE AND CHILD HEALTH CARE

FAMILY SIZE		SOURCE	YEAR	LEVEL OF CONSULTATION
MODERNISATION	Percentage of households by structure (nuclear/non-nuclear)	NFHS III	2005-06	Unit Level (T-R-U)
FAMILY PLANNING	Percentage of Families having two or less than two living children	NFHS I, II, III	1998-99, 2002-03, 2005-06	Unit Level (T-R-U)
	Share of currently married women who want no more children by number of living children			
	Percentage of currently married women (age 15-49) who are currently using any kind/method of contraceptives			
CHILD CARE				
MEDICAL CARE	Post Natal Preventive Child Care	NFHS III	2005-06	Unit Level (T-R-U)
	% children 12-23 months universally immunized			
NON-MEDICAL CARE	Post-Natal Non Medical Care	NFHS III	2005-06	Unit Level (T-R-U)
	% children 0-12 months currently breastfeeding			

Appropriate Bi-Variate analyses are worked out to see the gross effect of different level factors over child care. However, the net or independent effects of all the factors have been captured by the binary logistic regression models. Two separate models have been used according to each of the dimensions of child care as described above, i.e. Medical care and Non-medical care.

RESULTS AND DISCUSSION

FAMILY SIZE TRANSITION IN INDIA: EMERGING TREND OF SMALL FAMILIES

FAMILY PLANNING INITIATIVES

Indian families are shrinking and the prevalence of small family norms with an ideal number of two children incepted in the wake of rapid population increase is becoming stronger and stronger. A close look will verify (Figures 1-9) an existence of a north-south divide in terms of number of children born, the southern states reporting greater possibilities of two or less than two living children and has been strengthened over the years with a clear jump from 1998-99 to 2005-06 in terms of percentage of families having two or less than two living children. The northern counterparts except Himachal Pradesh and some of the economically developed pockets like Punjab and Haryana show a persistence of large families with the fertility preferences towards a son coupled with the widespread unmet needs to fulfil the target. However, this discrepancy is somewhat diluted in the urban context with a gentle gradient from the south to the north where most of the families having achieved the replacement level fertility with greater levels of awareness and attitudes of maximizing wellbeing of children welfare and minimizing costs of additional childbearing.

Figure 1

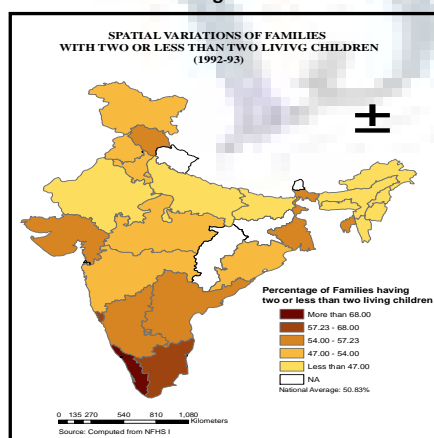


Figure 2

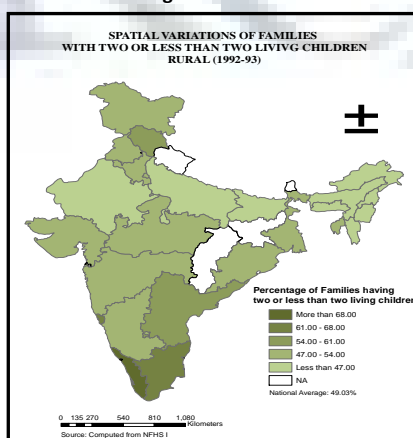


Figure 3

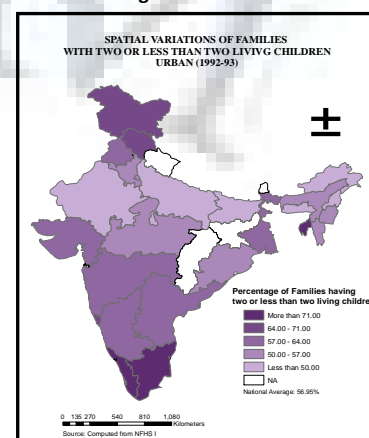


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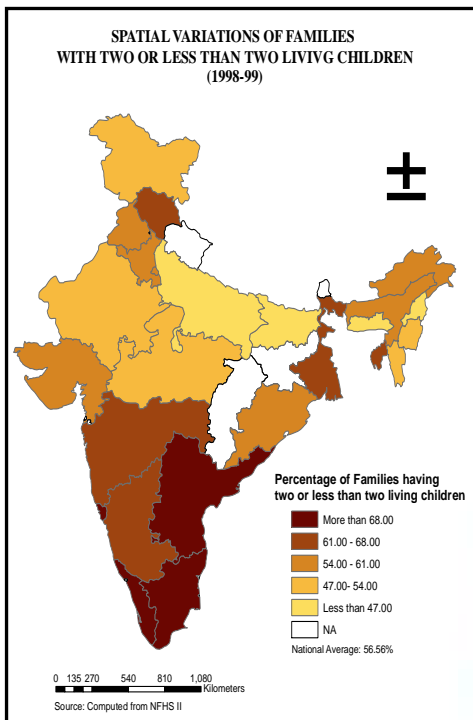


Figure 6

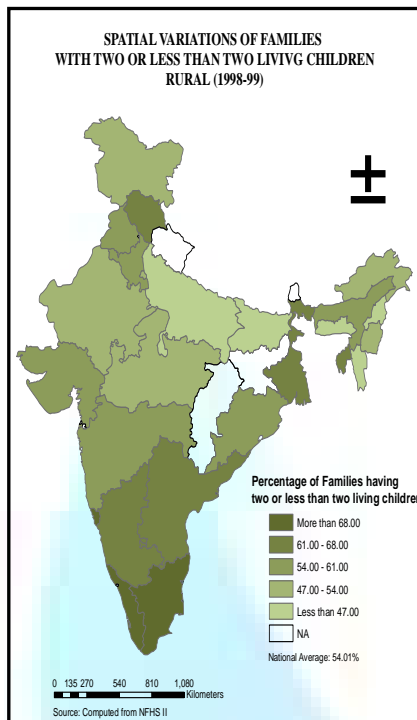


Figure 5

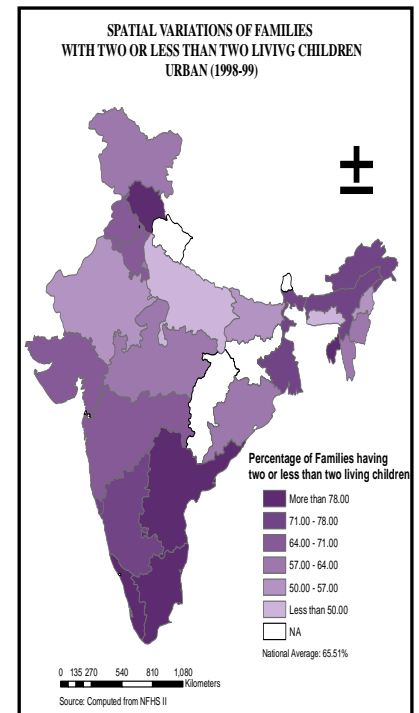


Figure 7

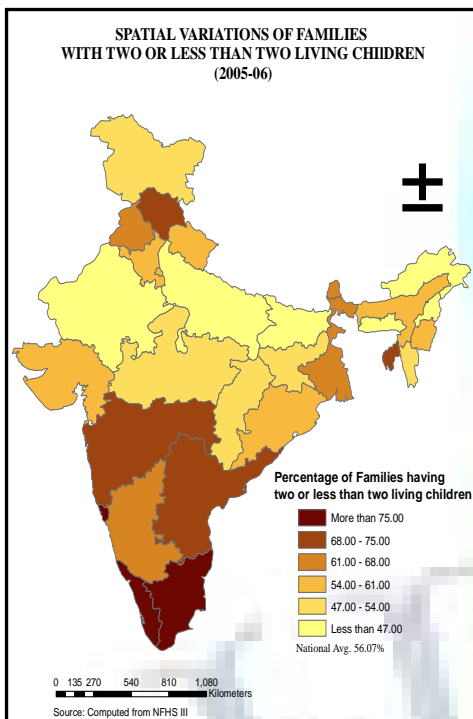


Figure 8

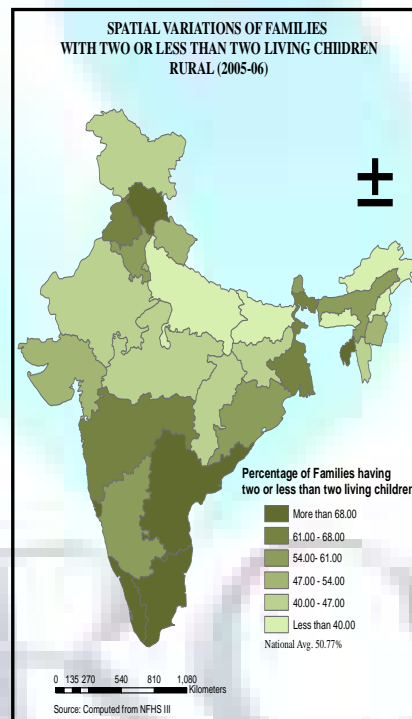
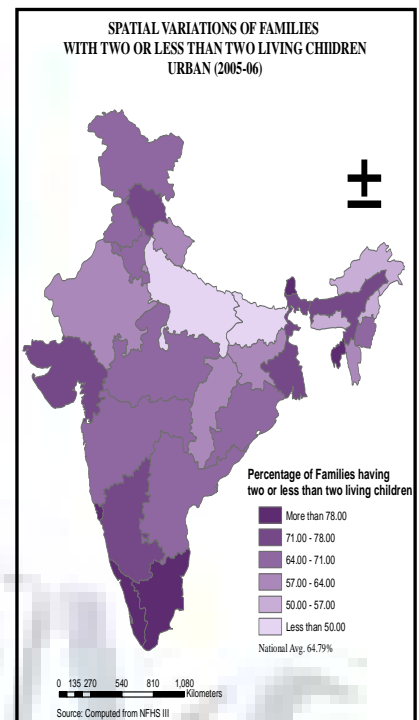


Figure 9



FAMILY PLANNING METHODS: CONTRACEPTIVE USE

Clearly, contraceptive use is now a happening issue in India; the rural areas have shown a remarkable improvement in 2005-06¹ (40.61%) jumping to almost its double as it was in 1998-99 (Table 2). A more steady progress could be found in urban areas covering to almost 56% of the currently married women in their reproductive age group who avail any kind of contraceptives. The National Rural Health Mission adopted to cater the unmet needs of the rural areas have worked significantly in this case, even though some states like Uttar Pradesh, Bihar, Rajasthan, Orissa, Madhya Pradesh etc still record values lower than the national average. Kerala long having achieved the replacement level fertility sweeping itself into the second stage of demographic transition share common issues as many as socially developed states of the world. West Bengal's case is more of spending quality time and cost of a few children rather than a whole lot to fulfil their middle class needs. Punjab is a more gendered motivation to stop childbearing after securing the advantages of a boy child.

TABLE 2: PERCENTAGE OF CURRENTLY MARRIED WOMEN (AGE 15-49) WHO ARE CURRENTLY USING ANY KIND/METHOD OF CONTRACEPTIVES (NFHS I, II AND III)

States	Percentage of currently married women (age 15-49) who are currently using any kind/method of contraceptives								
	Total			Rural			Urban		
	NFHS I	NFHS II	NFHS III	NFHS I	NFHS II	NFHS III	NFHS I	NFHS II	NFHS III
Jammu and Kashmir	35.58	29.66	43.11	32.02	25.00	37.18	58.62	54.35	67.27
Himachal Pradesh	43.21	39.49	58.70	41.73	37.93	57.90	63.64	58.33	66.67
Punjab	43.58	50.00	56.65	41.24	45.80	56.57	51.02	64.08	56.89
Uttaranchal			48.07			43.58			62.42
Haryana	32.95	38.33	49.66	29.34	35.43	45.89	45.75	47.59	61.45
Delhi	52.46	53.66	59.85	52.00	45.95	50.51	52.60	54.52	56.47
Rajasthan	16.29	20.46	35.84	13.93	17.93	30.62	28.88	30.39	56.09
Uttar Pradesh	10.37	15.46	37.51	8.38	12.37	34.17	20.09	31.51	53.31
Bihar	12.58	9.84	25.02	10.58	8.98	23.09	25.76	18.77	39.66
Sikkim		37.50	48.00		35.71	45.03		50.00	56.63
Arunachal Pradesh	15.38	15.63	33.33	14.04	14.29	30.83	33.33	25.00	38.67
Nagaland	7.14	14.93	19.35	6.67	14.29	15.51	10.00	20.00	34.48
Manipur	22.73	25.33	50.00	18.99	25.45	45.90	31.25	28.57	60.64
Mizoram	40.00	37.04	50.00	35.71	28.57	43.87	43.75	46.15	55.26
Tripura	45.52	39.51	64.74	41.60	37.14	63.08	70.00	63.64	74.22
Meghalaya	10.00	14.74	17.54	7.87	9.76	14.03	22.73	46.15	36.51
Assam	28.38	28.37	49.75	26.35	27.57	47.39	49.26	41.46	67.94
West Bengal	46.77	50.98	64.35	43.37	47.40	61.32	58.34	66.91	77.58
Jharkhand			24.62			19.16			48.16
Orissa	21.40	23.94	36.60	20.26	22.74	34.29	28.13	34.23	51.28
Chhattisgarh			38.30			35.67			51.52
Madhya Pradesh	20.37	21.24	40.70	17.56	18.40	39.29	31.65	31.58	54.08
Gujarat	28.70	36.18	55.22	25.19	31.19	52.78	36.51	44.81	59.36
Maharashtra	36.40	36.63	51.61	36.52	37.04	48.86	36.20	35.90	57.15
Andhra Pradesh	36.26	43.57	60.18	32.94	42.28	59.25	46.37	47.41	57.07
Karnataka	34.40	37.19	53.61	31.91	34.47	52.99	40.56	43.22	54.64
Goa	40.00	39.29	48.15	37.50	38.89	42.27	40.56	45.45	51.31
Kerala	51.21	52.61	64.98	49.58	51.29	62.59	55.78	58.22	70.03
Tamil Nadu	44.89	37.89	56.36	41.88	31.06	53.85	50.33	50.83	66.44
All India	26.18	28.41	44.25	22.72	24.78	40.61	38.00	41.13	55.95

Source: Computed from NFHS I, II and III.

ROLE OF MODERNISATION FACTORS: NUCLEARISATION OF FAMILIES

The nuclear families (a proxy for small families) are not only an urban phenomenon; they too reflect strong assistance with the southern and north eastern states, Delhi and West Bengal being two exceptions of the Northern and Eastern regions respectively (Table 3). All the northern, western and central states have reported lower than national average values showing strong traits of their traditional cultures of extended families more prominently in the rural areas. Incidentally, some of these states have already achieved replacement level fertility (Punjab, Haryana, Himachal Pradesh etc) and show an alarming use of contraception, so the issue of modernisation impacted small families is a big question, trends merely succumb to a need based approach towards fulfilling the target goal of two child families.

TABLE 3: PROPORTION OF HOUSEHOLDS BY TYPE (NFHS III)

States	Percentage of households by Structure					
	Total		Rural		Urban	
	Nuclear	Non-Nuclear	Nuclear	Non-Nuclear	Nuclear	Non-Nuclear
Jammu and Kashmir	37.19	54.73	37.09	55.32	37.55	52.71
Himachal Pradesh	32.06	64.02	28.30	67.79	43.08	52.96
Punjab	30.91	62.51	28.84	63.77	34.80	60.13
Uttaranchal	39.98	55.54	39.54	55.64	41.27	55.24
Haryana	35.91	53.58	34.68	54.54	40.53	50.00
Delhi	50.76	44.52	53.00	42.00	50.56	44.74
Rajasthan	42.71	47.70	42.88	47.30	42.21	48.92
Uttar Pradesh	43.41	48.22	42.31	48.16	45.57	48.34
Bihar	40.00	46.90	40.16	48.13	39.64	44.12
Sikkim	48.70	47.47	49.12	46.49	47.72	49.75
Arunachal Pradesh	49.66	48.28	52.61	46.08	42.64	53.49
Nagaland	64.33	34.49	65.11	33.44	63.21	35.99
Manipur	50.58	47.59	53.96	44.34	45.18	52.78
Mizoram	51.65	47.64	60.00	39.79	41.27	57.41
Tripura	52.90	40.53	54.15	40.32	48.12	41.35
Meghalaya	64.50	35.32	66.02	33.85	60.87	38.82
Assam	57.18	39.56	55.47	42.06	63.72	29.97
West Bengal	46.75	45.65	52.05	40.74	38.51	53.29
Jharkhand	41.64	52.75	43.69	51.94	36.46	54.80
Orissa	45.54	45.59	46.39	44.98	42.89	47.48
Chhattisgarh	40.95	52.95	40.66	53.28	41.83	51.98
Madhya Pradesh	48.14	44.06	49.89	42.15	45.71	46.74
Gujarat	41.76	51.88	42.34	50.65	40.73	54.02
Maharashtra	38.91	55.60	33.55	58.48	41.81	54.03
Andhra Pradesh	48.91	43.28	43.65	43.88	52.01	42.93
Karnataka	35.19	53.56	31.15	55.96	42.90	49.00
Goa	41.19	49.80	37.35	51.22	44.98	48.39
Kerala	23.40	64.31	24.24	62.12	21.65	68.90
Tamil Nadu	60.40	34.12	59.64	33.41	61.11	34.78
All India	44.95	48.21	44.47	48.15	45.73	48.32

Source: Computed from NFHS III.

IMPLICATIONS OF SMALL FAMILIES ON CHILD HEALTH CARE**CHILD MEDICAL (PROTECTIVE) CARE**

Universal Immunisation captured through the measures of six vaccine preventable diseases during 12 to 23 months of a child show a marked difference according to household type. The protective efforts of the child is no doubt better among the non-nuclear or joint families excepting some southern states like Andhra Pradesh and Tamil Nadu wherein the nuclear families show a better performance than the non-nuclear counterparts (Table 4). This points the benefits of extended families where the child is under the surveillance of a number of vigilants apart from their parents. By and large child immunisation is on the decline when the number of living children is more than two. The protective care is highest with two living children barring a few cases like Assam, West Bengal, and Goa etc. More than the regional variations, the structural variations in terms of household type and family size assume a greater weightage.

TABLE 4: PERCENT OF CHILDREN (12-23 MONTHS) WHO ARE UNIVERSALLY IMMUNISED ACCORDING TO HOUSEHOLD TYPE AND NO. OF LIVING CHILDREN (NFHS III)

States	% children 12-23 months universally immunized						
	HH Structure		No. of Living Children				
	Nuclear	Non-Nuclear	1	2	3	4	5+
North							
Jammu & Kashmir	35.92	64.08	27.27	35.71	23.05	7.79	6.17
Himachal Pradesh	27.34	72.66	34.00	48.00	11.33	4.67	2.00
Punjab	24.91	75.09	30.36	44.29	20.00	3.93	1.43
Uttarakhand	33.33	66.67	25.45	42.29	20.07	7.89	4.30
Haryana	29.59	70.41	25.08	46.78	16.95	7.46	3.73
Delhi	47.72	52.28	28.76	38.13	20.07	7.02	6.02
Rajasthan	41.62	58.38	26.57	38.65	17.87	9.18	7.73
Central							
Chhattisgarh	35.96	64.04	32.98	29.08	20.92	8.16	8.87
MP	42.91	57.09	29.75	38.35	17.03	7.53	7.35
UP	31.01	68.99	25.38	35.25	18.38	11.93	9.05
East							
Bihar	27.47	72.53	23.36	32.89	23.68	10.86	9.21
West Bengal	44.28	55.72	39.10	36.68	13.32	7.09	3.81
Jharkhand	36.89	63.11	29.11	35.68	18.31	8.92	7.98
Orissa	42.51	57.49	40.53	34.32	14.50	8.28	2.37
North-East							
Arunachal Pradesh	50.00	50.00	35.62	36.99	12.33	6.85	8.22
Assam	71.00	94.00	44.12	37.65	8.24	5.88	4.12
Manipur	40.87	59.13	35.13	39.74	15.64	6.41	3.08
Mizoram	44.37	55.63	23.84	38.41	23.84	7.28	6.62
Nagaland	69.85	30.15	18.91	35.82	15.92	12.94	16.42
Tripura	51.82	48.18	47.52	37.59	9.93	3.55	1.42
Meghalaya	64.71	35.29	18.95	25.49	18.30	10.46	26.80
Sikkim	50.27	49.73	40.00	31.79	13.85	8.21	6.15
West							
Goa	44.74	55.26	43.79	39.13	11.80	3.42	1.86
Gujarat	36.92	63.08	73.00	112.00	45.00	23.00	16.00
Maharashtra	40.28	59.72	35.78	41.26	16.15	3.47	3.34
South							
Andhra Pradesh	53.33	46.67	31.44	47.99	13.00	4.96	2.60
Karnataka	35.09	64.91	32.33	42.03	17.09	5.77	2.77
Kerala	27.21	72.79	40.00	43.94	10.00	4.24	1.82
Tamilnadu	65.30	34.70	35.60	45.44	13.95	3.22	1.79
All India	41.44	58.56	32.21	39.31	16.31	6.91	5.27

Source: Computed from NFHS III

CHILD NON-MEDICAL CARE

Breastfeeding constitutes an important part of the intensive care of the child. Unlike universal immunisation, nuclear families show a better response in breastfeeding barring a few states like Tamil Nadu, West Bengal, Tripura, Assam, etc (Table 5). The northern and western regions show the widest difference between nuclear and non-nuclear households, southern states apart from Kerala as well as north-eastern and eastern region the values remain back to back. The entire central region, a few hilly pockets in the north like Jammu and Kashmir and Uttarakhand and high fertility states of Bihar and Jharkhand in the east have their children breastfed lower than the national average figures for the first child. Like immunisation, the intensive care is higher for first and the second child, keeps on decreasing as birth order increases.

TABLE 5: PERCENT OF CHILDREN LESS THAN 1 YEAR CURRENTLY BREASTFED ACCORDING TO HOUSEHOLD TYPE AND NO. OF LIVING CHILDREN (NFHS III)

States	% children 0-12 months currently breastfeeding						
	HH Structure		No. of Living Children				
	Nuclear	Non-Nuclear	1	2	3	4	5+
North							
Jammu & Kashmir	65.65	34.35	29.45	29.45	22.60	9.59	8.90
Himachal Pradesh	76.92	23.08	35.37	42.68	13.41	4.88	3.66
Punjab	73.40	26.60	37.57	34.91	18.34	5.03	4.14
Uttarakhand	68.15	31.85	29.66	31.72	21.38	8.97	8.28
Haryana	67.62	32.38	33.33	34.56	14.37	7.95	9.79
Delhi	54.23	45.77	32.89	33.55	19.08	9.21	5.26
Rajasthan	63.37	36.63	30.99	26.98	15.12	12.95	13.95
Central							
Chhattisgarh	58.09	41.91	31.13	26.89	20.52	11.08	10.38
MP	61.06	38.94	28.48	26.20	20.14	12.59	12.59
UP	52.41	47.59	23.24	24.97	20.09	13.64	18.07
East							
Bihar	58.20	41.80	28.73	22.55	16.10	14.04	18.57
West Bengal	49.40	50.60	37.29	35.53	15.03	6.60	5.55
Jharkhand	57.55	42.45	26.77	27.87	16.06	13.23	16.06
Orissa	54.01	45.99	38.74	30.56	14.78	10.04	5.88
North-East							
Arunachal Pradesh	52.17	47.83	31.82	22.73	13.64	13.64	18.18
Assam	48.80	51.20	38.42	27.61	16.22	8.11	9.65
Manipur	53.66	46.34	31.71	29.27	19.51	9.76	9.76
Mizoram	56.25	43.75	29.41	29.41	17.65	11.76	11.76
Nagaland	40.00	60.00	16.67	23.33	20.00	13.33	26.67
Tripura	48.15	51.85	50.88	29.82	8.77	5.26	5.26
Meghalaya	38.71	61.29	22.58	24.19	16.13	14.52	22.58
Sikkim	55.56	44.44	36.36	27.27	18.18	9.09	9.09
West							
Goa	61.54	38.46	43.75	37.50	12.50	6.25	0.00
Gujarat	57.94	42.06	30.92	32.64	19.63	9.33	7.48
Maharashtra	68.03	31.97	38.82	36.52	15.18	4.80	4.68
South							
Andhra Pradesh	52.37	47.63	37.45	41.31	15.02	3.43	2.79
Karnataka	65.83	34.17	34.88	36.77	17.79	6.76	3.80
Kerala	79.55	20.45	47.24	35.64	12.43	2.76	1.93
Tamilnadu	39.72	60.28	42.50	39.78	13.20	2.71	1.81
All India	58.25	41.75	31.81	30.04	17.14	9.95	11.06

Source: Computed from NFHS III

THE MULTIVARIATE MODEL

In order to trace out the differentials in child care in terms of the desired family size and a number of socio-demographic factors, binary logistic regression analysis has been attempted. Two separate models (Table 6) have been worked out to show differentials in child care in terms of medical and non-medical terms. The dependent variable in the case of medical care is the percentage of children 12-23 months who have received universal immunization, whereas in the other case, it is the percentage of children below 1 year who are currently breastfed. The main objective of this exercise to show the differences in probable outcomes in terms of child care according to different family sizes and household structure as well as to identify the other proximate determinants that in turn affect the quality of child care other than family size. The models depict different results with considerable variations among the rural and urban counterparts for which separate models have been worked out individually for immunisation and breastfeeding.

TABLE 6: SUMMARY OF BINARY LOGISTIC REGRESSION

Independent Variable	% children 12-23 years universally immunized			% children below 1 yrs. Who are currently breastfed		
	Odds Ratio			Odds Ratio		
	Total	Rural	Urban	Total	Rural	Urban
HH Structure (Ref Nuclear)						
Non-Nuclear	-0.021	0.038	0.067***	0.198*	0.167***	0.201***
No. of Living Children (Ref. Less than or equal to 2)						
3	0.0654*	0.564*	0.801*	0.110	0.179	0.219
4	0.405*	0.320**	0.619*	0.204	0.192	0.117
5+	0.170***	0.150	0.268***	0.075	0.075	0.405
Sex of Child (Ref. Male)						
Female	0.50***	0.023*	0.096***	0.129***	0.129***	0.123***
Caste of the HH Head (Ref. General)						
OBC	0.098**	0.012	0.021	0.235**	0.213	0.295***
ST	-0.109**	0.215*	0.125***	0.058	0.069	0.059
SC	-0.259*	0.283*	0.239***	0.093	0.047	0.365
Birth Order (ref. 1)						
2	0.302**	0.339**	0.199	0.757*	0.565***	1.370**
3	0.101	0.125	0.011	0.221	0.045	0.810*
4	0.092	0.134	0.095	0.30	0.012	0.305
5+	0.196**	0.265**	0.021	0.074	0.156	0.361
Desire for more children (ref. doesn't want)						
Want	0.020***	0.092	0.187***	0.866*	0.105*	0.560***
Undecided	-0.184	0.234	0.033	1.698*	1.831*	1.394*
Wealth Index (ref. Poorest)						
Poorer	1.196*	1.411*	1.971*	1.118*	0.751*	1.092*
Middle	0.906*	1.085*	1.788*	0.887*	0.510*	1.221*
Richer	0.518*	0.628*	1.511*	0.781*	0.453*	0.924*
Richest	0.453*	0.547*	1.409*	0.528*	0.210*	0.639*
Mother's Educational attainment (ref. No Education)						
Primary	1.731*	1.351*	1.211*	0.175	0.034	0.213
Secondary	1.223*	0.860*	0.848*	0.294**	0.174	0.286
Higher	0.741*	0.482*	0.577*	0.325*	0.197	0.306***
Mother's Working Status (ref. Doesn't Work)						
Worked Last Year	0.238	0.775***	1.008*	0.822	1.764	0.420
Currently Working	0.123***	0.248**	1.205*	0.553*	0.442**	0.128**
Partner's Educational Attainment (ref. No Education)						
Below or up to Primary	1.481*	1.001	1.430*	0.009	0.055	0.223
Below or up to Secondary	1.197***	1.263***	1.255**	0.053	0.048	0.290
Higher	0.073	1.144***	0.022	0.124	0.161	0.114
Mother's Nature of Employment (ref. Not Working)						
Skilled Work other than Agriculture	1.097***	0.814**	1.043	0.710	0.587	1.095
Agricultural	0.085	0.022***	0.030	1.459*	1.402*	0.166
Unpaid Household Worker	0.950***	0.801***	0.046			0.921***
Region (ref. North)						
Central	-0.034	0.295*	0.048	0.406*	0.377*	0.439*
East	1.622*	1.744*	1.294*	1.483*	1.558*	1.418*
North-East	0.105***	0.004	0.035	1.833*	0.909*	0.690*
West	1.709*	1.882*	1.540*	1.331*	1.328*	1.393*
South	1.093*	1.331*	0.071	0.526*	0.533*	0.548*
Constant	1.201*	1.423*	0.876**	0.474**	0.721**	0.202
-2 log likelihood	19853.163	11878.981	7902.935	10740.136	6793.296	3899.976

Significance Levels: *1%, **5%, ***10%

ref. is Reference Category

The nuclear households taken as the proxy for small families have performed better in terms of both immunisation and breastfeeding compared to non-nuclear counterparts and is stronger for breastfeeding where the results are statistically significant at 1 and 10% levels (Table 6). Considerable levels of discrimination occurs in large families where the chances of immunizing a child is less with three or more living children as compared to families which have two or less than two living children with significant observations. The levels of this discrimination between two or less than two living children (sought as the reference category) and the third child becomes all the very stronger in urban areas which is statistically significant at 1% level of significance. Even in case of breastfeeding the same tendency of benefits of small families are noticed even though the results are not statistically significant. A substantial discrimination in care occurs across the sex of the child and the female child is at a very disadvantageous position across all levels, be it rural or urban. However, the magnitudes of discrimination in urban areas are higher for immunisation and reverse the case for rural areas. That the first child is a blessed child is evident from the relative survival opportunities it gets as compared to the next children. From the birth order wise analysis it is clearly noticeable that the second and subsequent birth orders are so much at a grave situation in comparison to the first, the values of some being statistically significant barring the second birth order of likelihood of immunisation. Parent's desire for small families indirectly indicates appropriating existing resources in a sustainable manner and meeting quality care of the child. The chances of both immunization and breastfeeding are higher for those children whose parents do not want any more children irrespective of the place of residence though the phenomenon is stronger in urban areas.

In terms of structural variations across the socio-cultural dimensions too are the evidences quite interesting. In all types of care, it is the general castes which are on the brighter side in comparison to the marginalised and vulnerable social segments of the population (Table 6). The result is statistically significant and perhaps ascribed to the lower socio-economic status and social opportunities granted to these marginalized groups in comparison to general households. From the perspective of wealth standards of the population, the poorer have greater probabilities of immunising and breastfeeding the child in comparison to the poorest which on the other hand have higher chances of child care as compared to medium, rich and richest stratum of the population. This indeed points out the fact that child care is no longer confined to the richer and wealthy people of the country; it has been rapidly diffused to the lower segments in the modern period. More than that child care which here has been captured through universal immunisation (excluding breastfeeding) is longer costly and with the diligent efforts made by the Government to make it universal across space and people, little variations do little remain with child care and economic constraints of the

families. Moreover, the richer and wealthier occupants have other business in their life apart from actively taking part in child care all day long, hence might lose some of the important timings of vaccinations which the poor and home working mothers keep a close eye at.

The education of mother is an important controlling variable of child care so as revealed in the binary logistic regression model where uneducated mothers show lesser chance of immunising the child as compared to those who have attained primary or secondary schooling. The results are not statistically significant for breastfeeding where the argument is irrelevant from the perspective of mother's educational attainment (Table 6). Mothers who do not work have higher chances of breastfeeding and immunising the child than those who are working which is quite natural of the greater opportunity costs of time of employed mothers where child care often has to be sacrificed in the name of an outside burdened work. Herein calls an elaborate understanding of the nature of work. If the work is more efficient, less labour intensive and less time consuming like in case of skilled work, it is more advantageous or rather has a greater chance of immunisation unlike agriculture employed mothers statistically significant at 10% level.

The spatial dimensions of child care needs a broader elaboration given the regional diversity of the country inhabited by an ever demanding heterogeneous population. The Northern region has greater likelihood of both immunisation and breastfeeding of the child compared to the central region which is still at a backward stage of socio-cultural dispositions. Except the eastern region, all the other regions comprising of the South, East and the West have higher chances of immunising the child than the North (Table 6). So in case of breastfeeding where all the regions excepting central and south display greater chances of breastfeeding in comparison to the traditional value holders of the north.

FINDINGS

- The family size transition in India evokes out of the desire for small families operating jointly through the mechanism of fertility decline and increasing trend of nuclearisation of families which could be taken as a proxy for small families. This process of nuclearisation is more an urban phenomenon.
- A distinct rural/urban differential could also be observed in access to child health care facilities where the urban households have fared much better even though the gap is narrowing over the periods with rural-urban convergence. This is a typical situation of the southern states which have mostly achieved the replacement level fertility by prioritizing reproductive and child health at every level of the family planning programme.
- On the contrary, some of the Northern states like Bihar, Chattisgarh, Orissa, Madhya Pradesh their family size mostly ranges from medium to high with bulk of the population being rural and inefficient grass root family planning implementations at the village level for which the National Rural Health Mission was launched as a landmark event.
- The factors of modernization have different effects in terms of levels and quality of child care. Small or nuclear households are reported to have performed better in terms of both medical and non-medical care as compared to the non-nuclear households.
- In terms of structural variations, socially vulnerable and marginalised communities are at a higher risk of poor health condition of the child. The economic situation of the family is little valid to explain the observed differentials on child health care. Poorer consider an upper hand than the richer.
- The other proximate determinants of child care like mothers' occupational structure or their educational attainment are also seen to have considerable effects where mothers' having atleast some level of education or those who are employed in skilled occupations are reported to perform better in terms of medical protective care like complete immunisation.

CONCLUSION

Thus the small family norms incepted as an exception to the usual discourse of socio-economic development is seen to have diverging results in terms of the specificities of quality child care. The western, eastern and the southern regions have shown better performances in the protective efforts of the child while breastfeeding which demands an intensive care of the child show differences particularly pertaining to the working status of the mother. Education of both the parents and the modern demographic ideologies are essentially crucial for meeting the desired outcomes of medical care which has little to do with the income profile of the household. In some of the economically developed pockets of the North, like Punjab and Haryana, the small family norm actually translated to the "intensification effect" of strong son preference with increasing performance of sex selective abortions with a skewed sex ratio at birth.

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NOTES

¹ Years of NFHS I, II and III are 1998-99, 2002-03 and 2005-06.

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