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OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

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PERFORMANCE EFFICIENCY OF AGRICULTURAL MARKET COMMITTEES (AMCS) IN INDIA – DATA ENVELOPMENT ANALYSIS (DEA) APPROACH

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ABSTRACT

Efficient performance of Agricultural Market Committees (AMCs) is considered to be the sine quo non for the economic development of an agrarian country like India. Though the number of AMCs has been sturdily increasing in India, still the farmers are being exploited by one form or another in transacting the agricultural commodities. In view of this, several apprehensions and concerns were raised fearing about the performance of AMCs in discharging the regulatory provisions for efficient transaction of agricultural commodities. Various enactments have been formulated by Government from time to time to revamp the agricultural marketing system in the country and presently, Model act 2005 (The State Agricultural Produce Marketing (Development and Regulation) Act, 2005) has been under implementation. In this context of exploring the agricultural marketing system with a farmer's ended approach, the present study aims at analyzing the performance efficiency ao AMCs in Rayalaseema region of AP in India through Data Envelopment Analysis (DEA) approach. The analytical findings revealed that 40% of selected DMUs are being operated at Scale Efficiency <1. The remaining 60% DMUs are being operated at CRS and this guides the Government to continue the existing support even in the future.

JEL CODES
Q13, C44, C67.

KEYWORDS
Agricultural Market Committees, Data Envelopment Analysis, Efficiency.

INTRODUCTION

Efficient performance of agricultural markets is considered as the *sine qua non* of economic development of any country. This is not an exception with reference to India. It is a known fact that, regulated agricultural markets have been established in India with the prime objective of transacting agricultural produce efficiently and thereby, to safeguard the interests of the farming community. Since 1966 and upto the current year, there have been a study progress in the establishment of regulated agricultural markets in the country. In India, the organized marketing of agricultural commodities has been promoted through a network of regulated markets. Most State Governments and Union Territory(UT) administrations have enacted legislations (Agricultural Produce Marketing (Regulation) Act (APMC Act)) to provide for the regulation of agricultural produce markets. While by the end of 1950, there were 286 regulated markets in the country, their number as on 31st, March 2011 stood at 7566 consists of 2433 principal markets and 5133 sub-yards. Some wholesale markets are outside the purview of the regulation under APMC Acts. Similar trends were noticed in the state of Andhra Pradesh in general and Rayalaseema region of Andhra Pradesh in particular. In Andhra Pradesh, with 23 districts, there are 905 regulated markets which consists of 329 principal markets and 576 sub-yards and in Rayalaseema region comprising of 4 districts, these figures are 56 and 156 reported as on 31st, March 2011.

So far, so forth, these regulated markets in Rayalaseema region of Andhra Pradesh are serving the farming community in view of the laid out promises at the time of their establishment. The contributions of these regulated markets are clearly manifested through various outcomes in the forms of viz, regulating the marketing practices, systematizing the marketing costs, settlement of disputes between farmers and traders, prompt payment of sales proceeds, checking the malpractices of marketing middlemen etc., with a view to safeguard the interests of the farmers in transacting their produce and thereby, to realize significant producer's share in consumer's rupee. To keep up these promises, the Government from time to time revised the marketing regulations and presently Model Act, 2005 (The State Agricultural Produce Marketing (Development and Regulation) Act, 2005) has been enacted to make the farmers dynamic and more competitive in the context of liberalized trade regime. However, coming to the practicality, there exists a wide gap between the promises made and actual performance shown by these regulated markets. The earlier mentioned regulatory provisions offered by these regulated markets are being exploited in one form or other against the interests of the farming community. Thus, it became evident that, these regulated markets in the Rayalaseema region of Andhra Pradesh in India are not efficient enough in discharging the regulatory provisions and hence, the farmers could not enjoy the true benefits of market regulation. It is in this context, the researchers made an attempt to analyse the technical efficiency in the functioning of regulated markets in Rayalaseema region of Andhra Pradesh in India. No studies have been conducted earlier in India in general and in Rayalaseema region of Andhra Pradesh in particular with reference to analyzing the efficiency of the functioning of regulated markets by using Data envelopment Analysis(DEA) and in this context, this research study is certainly a contributing one. This study is conducted with the following specific objectives:

1) To study whether the regulatory provisions contribute to the technical efficiency of the functioning of regulated markets, and if they contribute, how they influence the efficiency.
2) To analyse the trends in the efficiency in the functioning of regulated markets.

METHODOLOGY

For analyzing the efficiency of regulated markets in India, Rayalaseema region of Andhra Pradesh state has been purposively selected, as the investigators hail from this region. (DEA) model was used to assess the technical efficiency of regulated markets in Rayalaseema region of Andhra Pradesh in India. DEA is one of the most popular approaches used in the literature to appraise the performance of Decision Making Units (DMUs). It permits the selection of efficient markets with in the region. DEA was used in prior studies on the efficiency of financial institutions to examine the impact of some specific changes such as financial reforms, the impact of financial practices and the impact of different ownership groups. DEA assesses the efficiency frontier on the basis of all input and output information from the region. (Rogers, 1998). Thus, the relative efficiency of markets operating in the same region can be estimated (Fried et al. 2002). Hence, identification of performance indicators in regulated markets is useful for identifying a benchmark for the whole region. Moreover, the DEA methodology has the capacity to analyse multi-inputs and multi-outputs to assess the efficiency of institutions (Coelli, Rao & Battese 1998).

DEA MODEL

Several DEA models have been presented in the literature. The basic DEA model evaluates efficiency based on the productivity ratio which is the ratio of outputs to inputs. This study applied Charnes, Cooper and Rhode's (CCR) (1978) model and Banker, Charnes and Cooper (BCC) (1984) model. The production frontier has constant returns to scale in CCR model. The basic CCR model formulation (dual problem/ envelopment form) is given by :

THE BASIC CCR MODEL FORMULATION (DUAL PROBLEM/ ENVELOPMENT FORM)

$$\text{Min}\theta - \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right)$$

Subject to :

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta x_{i0} \qquad (i=1, \ldots\ldots\ldots\ldots, m)$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = y_{r0} \qquad (r=1, \ldots\ldots\ldots\ldots, s)$$

$$\lambda_j \geq 0 \qquad (j=1, \ldots\ldots\ldots\ldots, n)$$

Source :Zhu (2003, p.13)

where, **θ** denotes the efficiency of DMU*j* , while y_{rj} is the amount of r^{th} output produced by DMU*j* using x_{ij} amount of i^{th} input. Both y_{rj} and x_{ij} are exogenous variables and λ_j represents the benchmarks for a specific DMU under evaluation (Zhu 2003). Slack variables are represented by s_i and s_r. According to Cooper, Seiford and Tone (2004) the constraints of this model are :

i. the combination of the input of firm *j* is less than or equal to the linear combination of inputs for the firm on the frontier;
ii. the output of firm *j* is less than or equal to the linear combination of inputs for the firm on the frontier; and
iii. the main decision variable $\boldsymbol{\theta}_j$ lies between one and zer0.

Further, the model assumes that all firms are operating at an optimal scale. However, imperfect competition and constraints to finance may cause some firms to operate at some level different to the optimal scale (Coelli, Rao & Battese 1998). Hence, the Banker, Charnes and Cooper (1984) BCC model is developed with a production frontier that has variable returns to scale. The BCC model forms a convex combination of DMUs (Coelli, Rao & Battese 1998). Then the constant returns to scale linear programming problem can be modified to one with variable returns to scale by adding the convexity constraint $\boldsymbol{\Sigma\lambda_j = 1.}$ The model given below illustrates the basic BCC formulation (dual problem/envelopment form) :

THE BASIC BCC MODEL FORMULATION (DUAL PROBLEM/ENVELOPMENT FORM)

$$\text{Min}\theta - \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right)$$

Subject to :

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta x_{i0} \qquad (i=1, \ldots\ldots\ldots\ldots, m)$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = y_{r0} \qquad (r=1, \ldots\ldots\ldots\ldots, s)$$

$$\lambda_j \geq 0 \qquad (j=1, \ldots\ldots\ldots\ldots, n)$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

Source :Zhu (2003, p.13)

This approach forms a convex hull of intersecting planes (Coelli, Rao & Battese 1998). These planes envelop the data points more tightly than the constant returns to scale (CRS) conical hull. As a result, the variable returns to scale (VRS) approach provides technical efficiency (TE) scores that are greater than or equal to scores obtained from the CRS approach (Coelli, Rao & Battese 1998). Moreover, VRS specifications will permit the calculation of TE decomposed into two components: scale efficiency (SE) and pure technical efficiency (PTE). Hence, this study first uses the CCR model to assess TE then applies the BCC model to identify PTE and SE in each DMU. The relationship of these concepts is given below :

RELATIONSHIP BETWEEN TE, PTE AND SE

$TE_{CRS} = PTE_{VRS} * SE$

where TE_{CRS} = Technical efficiency of constant return to scale

PTE_{VRS} = Technical efficiency of variable return to scale

SE = Scale efficiency

Source : Coelli, et al., (1998).

The above relationship, which is unique, depicts the sources of inefficiency, i.e., whether it is caused by inefficient operation (PTE) or by disadvantageous conditions displayed by the scale efficiency (SE) or by both. If the scale efficiency is less than 1, the DMU will be operating either at decreasing return to scale

(DRS) if a proportional increase of all input levels produces a less-than-proportional increase in output levels or increasing return to scale (IRS) at the converse case. This implies that resources may be transferred from DMUs operating at DRS to those operating at IRS to increase average productivity at both sets of DMUs (Boussofiane et al.,1992).

DATA AND VARIABLES FOR THE STUDY

Efficiency of a AMC depends on the facilities available with the AMC such as drying platforms, storage units, market functionaries etc., which leads to good amount of arrivals and in turn AMC earns countable market fees creating employment. DEA assumes that, the inputs and outputs have been correctly identified . Usually as the number of inputs and outputs increase, more DMUs tend to get an efficiency rating of 1 as they become too specialized to be evaluated with respect to other units. On the other hand, if there are too few inputs and outputs, more DMUs tend to be comparable. In any study, it is important to focus on correctly specifying inputs and outputs. DEA is commonly used to evaluate the efficiency of a number of AMCs and it is a multi-factor productivity analysis model for measuring the relative efficiency of a homogeneous set of regulated markets (DMUs). For every inefficient AMC, DEA identifies a set of corresponding efficient AMC that can be utilized as benchmarks for improvement of performance and productivity. DEA is developed based on two scale of assumptions viz., Constant Return to Scale (CRS) model and Variable Return to Scale (VRS) model. CRS means that the producers are able to linearly scale the inputs and outputs without increasing or decreasing efficiency. This is a significant assumption. The assumption of CRS may be valid over limited ranges but its use must be justified. As an aside, CRS tends to lower the efficiency scores while VRS tends to raise efficiency scores.

For enabling the study of evaluation of AMC's we have observed the resources or inputs and productivity indicators or outputs as follows:

Inputs : X_1 - Arrivals(in Qtls), X_2 - Amenities & facilities(in MTs.)

X_3 - Market functionaries(in Nos.), (X_4) - Notified market area(in Kms)

Outputs : Y_1 - Valuation(Rs. in Lakhs), Y_2 - Market fees(Rs. in Lakhs)

Y_3 - Staff position(in Nos.)

The study involves the application DEA to assess the efficiency of 56 AMCs in Rayalaseema region of Andhra Pradesh State in India during the years 2005-06, 2006-07, 2007-08 and 2008-09. The data used for assessment was obtained from the Annual Reports published by Directorate of Marketing and Inspection<www.agmarknet.nic.in> and From the Annul Administrative Reports of the selected AMCs. DEA model is executed separately for each year using input-orientation with radial distances to the efficient frontier. By running these programmes with the same data under CRS and VRS assumptions, measures of overall technical efficiency (TE) and 'pure' technical efficiency(PTE) are obtained.

RESULTS AND DISCUSSION

The main theme of the present study is to assess the performance of AMCs in four districts viz., Anantapur, Chittor. Kadapa and Kurnool which are located in Rayalaseema region of Andhra Pradesh state in India. The study intends to assess the efficiency of better facilities and thereby improving infrastructure of AMCs to provide suitable marketing avenues for farming community.

Performance of DMUs at Regional level: The findings of DEA portrayed through Table 1 revealed that, nearly 20 percent of the selected DMUs have shown a shift in the return to scale pattern i.e from IRS to CRS implying that, there is increased resource use efficiency ie., with reference to the exploitation of resources usage. Hence, these DMUs have shown an increased pace of RTS in the recent year 2008-09 compared to the earlier periods. Some DMUs (18%) are being operated at CRS throughout the reference period implying stabilized significant performance. About 34 percent of the total selected DMUs are exhibiting IRS throughout the selected reference period that is 2005-06 to 2008-09. This implies that, these DMUs further require many resources to achieve CRS. However it is disheartening to say that, the selected DMUs like Badvel, Dharmavaram, Kadiri, Madanapalli and Nandikotkur are showing dismal performance regarding the operational efficiency of the resources, as the RTS had shown a shift from IRS to DRS.

Performance of DMUs at District level: District-wise and year-wise Mean Technical Efficiencies have been worked out (Tables 2 and 3). Among selected districts, Kurnool had exhibited highest scale efficiency for the selected reference period followed by Kadapa, Chittoor and Anantapur Districts. This implies that, the selected AMCs in Kurnool District are being operated with a higher resource use efficiency compared to other districts. A close perusal of Table 3 reveals the same picture i.e., Kurnool district dominates other districts regarding operational efficiencies of selected AMCs. That is, in all the selected reference periods, Kurnool district occupy the predominant position with reference to the resource use efficiency of the selected AMCs compared to AMCs of other districts.

The above discussion was briefed through Table 4. The findings revealed that, in Rayalaseema region of Andhra Pradesh, the number of inefficient AMCs is higher compared to efficient AMCs considering the scale efficiency of resources. However, it is heartening to say that, the number of efficient AMCs have been increasing since 2005-06 to 2008-09. The informal discussions held with AMC Officials revealed the following interesting points for this heartening performance:

- Farmers are showing positive attitude for transacting their produce in the AMCs compared to local markets on account of the competitive price being realized in the AMCs.
- Strengthening of infrastructure in the market yards like grading, processing, marketing information network, storage facilities etc.
- More encouragement by the Government in the form of implementing pledge loan scheme, Rythu Bandhu Padhakam etc.
- Regulation of marketing practices and marketing costs.

CONCLUSIONS

The analytical findings revealed that, nearly 40 percent of the selected DMUs are being operated with scale efficiency less than one. To be more precise, 34 percent of DMUs are exhibiting IRS and remaining six percent DMUs are exhibiting DRS. From this, it can be concluded that, the resources that are being utilized at DMUs exhibiting DRS must be diverted towards DMUs exhibiting IRS. This transfer of resources makes the inefficient DMUs to achieve scale efficiency equal to one i.e. to realize CRS. The remaining 60 percent of DMUs are being operated at CRS and this guides the Government to continue the existing support even in the future.

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TABLES

TABLE 1: CRS, VRS, SCALE EFFICIENCY AND RTS OF SELECTED DMUs

Name of the AMC	2005-06				2006-07				2007-08				2008-09			
	CRS	VRS	SCALE	RTS	CRS	VRS	SCALE	RTS	CRS	VRS	SCALE	RTS	CRS	VRS	SCALE	RTS
ADONI	0.8919	0.8958	0.9956	irs	0.7703	0.8174	0.9424	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
ALLAGADDA	0.6702	0.8372	0.8005	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
ALUR	0.7494	0.9394	0.7977	irs	0.4812	0.8795	0.5471	irs	0.7911	0.891	0.8879	irs	0.7854	0.891	0.8815	irs
ANANTAPUR	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
ATMAKUR	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
BADVEL	0.7854	0.7965	0.9861	irs	0.6232	0.6423	0.9703	irs	0.7013	0.7327	0.9571	**DRS**	0.7853	1.0000	0.7853	**DRS**
BANAGANAPALLI	1.0000	1.0000	1.0000	**crs**	0.944	1.0000	0.9440	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
BANGARUPALEM	0.6389	0.9689	0.6594	irs	0.6228	0.9878	0.6305	irs	0.587	0.9351	0.6277	irs	0.7807	0.9985	0.7819	irs
CHITTOOR	0.3950	0.6181	0.6391	irs	0.4064	0.618	0.6576	irs	0.5423	0.6178	0.8778	irs	0.7263	0.7481	0.9709	irs
DHARMAVARAM	0.3916	0.5339	0.7335	irs	0.377	0.6089	0.6191	irs	0.5238	0.574	0.9125	irs	0.6505	0.6561	0.9915	**DRS**
DHONE	0.9621	0.9765	0.9853	irs	0.9234	0.9715	0.9505	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
GOOTY	0.6045	1.0000	0.6045	irs	0.418	1.0000	0.4180	irs	0.8103	1.0000	0.8103	irs	0.8438	1.0000	0.8438	irs
GUNTAKAL	0.3011	0.7724	0.3898	irs	0.5286	0.7641	0.6918	irs	0.4344	0.7623	0.5699	irs	0.422	0.7326	0.5760	irs
HINDUPUR	0.3743	0.6625	0.5650	irs	0.5137	0.7117	0.7218	irs	0.3929	0.6543	0.6005	irs	0.6829	0.7869	0.8678	irs
JAMMALAMADUGU	0.4502	0.7981	0.5641	irs	0.5599	0.8675	0.6454	irs	0.7324	0.8541	0.8575	irs	1.0000	1.0000	1.0000	**crs**
KADAPA	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	0.7848	0.8139	0.9642	irs	1.0000	1.0000	1.0000	**crs**
KADIRI	0.6303	0.6363	0.9906	irs	0.2278	0.3946	0.5773	irs	0.4783	0.4877	0.9807	irs	0.577	0.585	0.9863	**DRS**
KALYANADURGAM	1.0000	1.0000	1.0000	irs	0.5808	0.9377	0.6194	irs	1.0000	1.0000	1.0000	**crs**	0.9342	0.9952	0.9387	irs
KAMALAPURAM	0.5962	1.0000	0.5962	irs	0.7347	1.0000	0.7347	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
KODURU	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
KOILAKUNTLA	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
KUPPAM	0.1554	0.7108	0.2186	irs	0.2117	0.7411	0.2857	irs	0.3168	0.7003	0.4524	irs	0.419	0.7451	0.5623	irs
KURNOOL	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
LAKKIREDDIPALLI	1.0000	1.0000	1.0000	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	0.8064	1.0000	0.8064	irs
MADAKASIRA	0.3458	1.0000	0.3458	irs	0.3029	1.0000	0.3029	irs	0.6713	1.0000	0.6713	irs	0.9361	1.0000	0.9361	irs
MADANAPALLI	0.3037	0.3276	0.9270	irs	0.512	0.5215	0.9818	irs	0.7367	1.0000	0.7367	**DRS**	0.4859	0.4868	0.9982	**DRS**
MULAKALACHERUVU	0.3486	0.7586	0.4595	irs	0.3614	0.7905	0.4572	irs	0.4177	0.7586	0.5506	irs	0.438	0.7586	0.5774	irs
MYDUKURU	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
NAGIRI	1.0000	1.0000	1.0000	**crs**	0.6848	1.0000	0.6848	irs	1.0000	1.0000	1.0000	**crs**	0.9343	1.0000	0.9343	irs
NANDIKOTKUR	0.5541	0.6965	0.7955	irs	0.8768	0.9409	0.9319	irs	1.0000	1.0000	1.0000	**crs**	0.9984	1.0000	0.9984	**DRS**
NANDYAL	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
PAKALA	0.7701	0.9427	0.8169	irs	0.7707	0.9628	0.8005	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
PALAMANERU	0.3857	0.8868	0.4349	irs	0.3844	0.8933	0.4303	irs	0.4463	0.8736	0.5109	irs	0.4096	0.8657	0.4731	irs
PATTIKONDA	0.8925	1.0000	0.8925	irs	0.9239	1.0000	0.9239	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
PENUKONDA	0.2567	0.5934	0.4326	irs	0.3864	0.6063	0.6373	irs	0.6936	0.7405	0.9367	irs	0.6129	0.6765	0.9060	irs
PILERU	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	0.881	1.0000	0.8810	irs	1.0000	1.0000	1.0000	**crs**
PRODDUTUR	0.4894	0.5662	0.8644	irs	0.5399	0.6024	0.8962	irs	0.523	0.5428	0.9635	irs	0.7269	0.731	0.9944	irs
PULIVENDULA	0.5304	0.6300	0.8419	irs	0.6253	0.7556	0.8276	irs	0.5777	0.6465	0.8936	irs	1.0000	1.0000	1.0000	**crs**
PUNGANURU	0.7953	1.0000	0.7953	irs	0.9678	1.0000	0.9678	irs	1.0000	1.0000	1.0000	**crs**	0.7337	0.7621	0.9627	irs
PUTTUR	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
RAJAMPET	0.6714	0.7382	0.9095	irs	0.5301	0.7228	0.7334	irs	0.4881	0.7064	0.6910	irs	0.8144	0.9101	0.8948	irs
RAYACHOTY	0.6892	0.8107	0.8501	irs	0.7575	0.8272	0.9157	irs	0.9173	0.9282	0.9883	**DRS**	1.0000	1.0000	1.0000	**crs**
RAYADURGAM	0.5379	0.6361	0.8456	irs	0.3513	0.6007	0.5848	irs	0.5402	0.6697	0.8066	irs	0.7674	0.7868	0.9753	irs
ROMPICHERLA	0.4790	1.0000	0.4790	irs	0.4559	0.9767	0.4668	irs	0.7957	1.0000	0.7957	irs	0.8045	1.0000	0.8045	irs
SATYAVEDU	0.9388	0.9419	0.9967	**DRS**	0.9014	0.9086	0.9921	**DRS**	0.9487	1.0000	0.9487	**DRS**	1.0000	1.0000	1.0000	**crs**
SIDDAVATAM	0.5756	1.0000	0.5756	irs	0.6565	1.0000	0.6565	irs	0.9127	1.0000	0.9127	irs	1.0000	1.0000	1.0000	**crs**
SOMALA	0.6423	0.9774	0.6572	irs	0.6105	0.9656	0.6322	irs	0.9324	1.0000	0.9324	irs	0.9929	1.0000	0.9929	irs
SRIKALAHASTI	0.8570	0.9163	0.9353	irs	1.0000	1.0000	1.0000	**crs**	0.8821	0.9427	0.9357	irs	1.0000	1.0000	1.0000	**crs**
TADIPATRI	0.8280	0.9661	0.8571	irs	0.7211	0.9568	0.7537	irs	0.9507	1.0000	0.9507	irs	0.9021	0.9681	0.9318	irs
TANAKALLU	0.4801	0.9383	0.5117	irs	0.543	0.9222	0.5888	irs	0.7028	1.0000	0.7028	irs	0.961	1.0000	0.9610	irs
TIRUPATHI	1.0000	1.0000	1.0000	**crs**	0.7045	0.9139	0.7709	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
TOTTAMBED	0.9245	0.9657	0.9573	irs	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
URAVAKONDA	0.5463	0.8646	0.6319	irs	0.5103	0.8495	0.6007	irs	0.6203	0.8449	0.7342	irs	0.5778	0.8043	0.7184	irs
VALMIKEPURAM	0.2101	0.3676	0.5715	irs	0.2276	0.3896	0.5842	irs	0.2438	0.3735	0.6527	irs	0.3151	0.3604	0.8743	irs
VEPANGERI	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**	1.0000	1.0000	1.0000	**crs**
YEMMIGANURU	0.7193	0.8295	0.8671	irs	0.8488	0.8827	0.9616	irs	0.9267	0.9544	0.9710	irs	1.0000	1.0000	1.0000	**crs**
Mean Efficiency	0.7030	0.8661	0.7996		0.6978	0.8738	0.7864		0.8019	0.8929	0.8869		0.8540	0.9152	0.9273	
Standard Deviation	0.2628	0.1745	0.2172		0.2565	0.1673	0.2103		0.2265	0.1627	0.1530		0.1990	0.1489	0.1274	

TABLE 2: DISTRICT-WISE AND YEAR-WISE MEAN TECHNICAL EFFICIENCIES

YEAR	Anantapur District			Chittoor District			Kurnool District			Kadapa District		
	CRS	VRS	SCALE	CRS	VRS	SCALE	CRS	VRS	SCALE	CRS	VRS	SCALE
2005-06	0.5613	0.8157	0.6852	0.6760	0.8622	0.7657	0.8700	0.9312	0.9279	0.7323	0.8616	0.8490
2006-07	0.4970	0.7963	0.6243	0.6748	0.8773	0.7549	0.8974	0.9577	0.9334	0.7523	0.8682	0.8650
2007-08	0.6784	0.8256	0.8212	0.7753	0.9053	0.8370	0.9765	0.9871	0.9882	0.8031	0.8521	0.9357
2008-09	0.7591	0.8455	0.8948	0.7916	0.8803	0.8912	0.9820	0.9909	0.9900	0.9278	0.9701	0.9567

TABLE 3: YEAR-WISE MEAN TECHNICAL EFFICIENCIES OF SELECTED DMUS IN SELECTED DISTRICTS

Year	Mean Technical Efficiency(CRS)				Mean Technical Efficiency(VRS)				Mean Technical Efficiency(Scale)			
	ATP	CHTR	KNL	KDP	ATP	CHTR	KNL	KDP	ATP	CHTR	KNL	KDP
2005-06	0.5613	0.6760	0.8700	0.7323	0.8157	0.8622	0.9312	0.8616	0.6852	0.7657	0.9279	0.8490
2006-07	0.4970	0.6748	0.8974	0.7523	0.7963	0.8773	0.9577	0.8682	0.6243	0.7549	0.9334	0.8650
2007-08	0.6784	0.7753	0.9765	0.8031	0.8256	0.9053	0.9871	0.8521	0.8212	0.8370	0.9882	0.9357
2008-09	0.7591	0.7916	0.9820	0.9278	0.8455	0.8803	0.9909	0.9701	0.8948	0.8912	0.9900	0.9567

Note: ATP – Anantapur; CHTR – Chittoor; KNL – Kurnool; KDP – Kadapa.

TABLE 4: DESCRIPTIVE STATISTICS OF SELECTED DMUs

Description	2005-06			2006-07			2007-08			2008-09		
	CRS	VRS	SCALE	CRS	VRS	SCALE	CRS	VRS	SCALE	CRS	VRS	SCALE
No. of AMCs evaluated	56	56	56	56	56	56	56	56	56	56	56	56
No. of efficient AMCs	16	23	16	15	23	15	23	33	23	27	36	27
No. of Inefficient AMCs	40	33	40	41	33	41	33	23	33	29	20	29
Mean Score	0.7030	0.8661	0.7996	0.6978	0.8738	0.7864	0.8019	0.8929	0.8869	0.8540	0.9152	0.9273
Standard Deviation	0.2628	0.1745	0.2172	0.2565	0.1673	0.2103	0.2265	0.1627	0.1530	0.1990	0.1489	0.1274
Maximum Score	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Minimum Score	0.1554	0.3276	0.2186	0.2117	0.3896	0.2857	0.2438	0.3735	0.4524	0.3151	0.3604	0.4731

A STUDY ON COMPETITIVE INDIAN BANKING INDUSTRY WITH REFERENCE TO PRE E-BANKING AND POST E-BANKING

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ABSTRACT

Public Sector Banks and Private Sector Banks have had the distinction of being recognized as banking institutions, which provides satisfying services to its customers or account holders. The present article studies the performance of Public Sector banks (Vs) Private Sector Banks in terms of labour productivity and during Pre E-banking period and Post E-banking period, and profitability in recent years. Under the financial sector reforms the banking sector reforms, IT Act of 1999 gave new innovations and practices which lead to better speedy banking practices in India. Information Technology has created and helped the Indian banking Industry in terms of speedy banking services, low-cost and greater business and many more business process, work culture and human resource development. It has affected the productivity, profitability and efficiency of the banks to a large extent. This article is a modest effort to compare public and private sector banks on the basis of major parameters like Pre E-Banking and Post E-Banking. The article finally suggests that performance of all Public Sector banks and Private Sector banks under study is much better in recent years and further foreign banks are performing well to a greater extent, whereas the performance of the public sector banks is comparatively very poor and many top Public Sector banks have lost their market share in the recent years. The article recommends few measures to upgrade the business of Public Sector banks with reference to E-banking practices and convert the emerging challenges into opportunities.

KEYWORDS

E-Banking Challenges, Information Technology, Opportunities.

1. INTRODUCTION

In the beginning of 90's, there were so many deficiencies were prevailing in the Indian economy, particularly in the Indian banking sector. The major deficiencies prevailing at the time of early 90's were productivity and efficiency of the Indian banking system which has suffered, its profitability has been reduced, several public sector banks and financial institutions I.e. development banks have become weak financially, some public sector banks have been incurring losses year after year, their customer service was poor, their work technology was outdated and they were unable to meet the challenges of a competitive environment due to effects of LPG on Indian Banking Sector after the Indian government introduced banking reforms. Keeping in mind all the above said distortions in the economic, financial and banking sectors, the government of India and the RBI thought it was necessary to introduce reforms in the financial and banking sector also, so as to promote rapid economic growth and development with stability through the process of globalization, liberalization and privatization in the financial system so that the financial system becomes more competitive and gets integrated with the world economy through internationalizations of financial markets in the world.

Financial and Banking sector reforms were initiated in India in 1991against the backdrop of challenges faced by the Indian banks from within and outside the banking system in the country as well as forces of globalization operating worldwide. The accent of the reform process was to improve productivity and efficiency of the financial system and to provide a highly competitive environment.

In the present competitive scenario of banking industry, competition among the banks is very severe. The banks have been trying to find new avenues not only to retain the present customer strength but also attracting new customers by offering hassle-free services. In the process, strategies of certain banks, especially Public Sector Banks, are aiming to divide customers into different segments on the basis of the type of service they would like to render and also trying to segregate their servicing counters in their respective branches to enable customer

On the other side, Foreign Banks and old and new Private Sector Banks in India, have progressed well in the areas of technology up-gradation in operations, extending the business hours, introduction of new products and services like "Any Where Banking", "Any Time Money", "Electronic Fund Transfer", "Electronic Clearing", "Tele-Banking" These new tools enabled them to improve the quality of service and introduce Value Added Products (Saraf, W.S., 1997).

The Indian economy under Liberalization, Privatization and Globalization (LPG) throws mind-boggling process for existence and growth of the sector. WTO was established in1995 and signing of WTO Agreement by Indian Government meant greater competition from foreign and domestic bankers in terms of speed, sophistication and professionalism. The banks are now expected to maintain transparency in their operational and financial statements. However, in the deregulated virtual market, small banks with high Return On Equity (ROE) will have an edge over the large banks. In fact, modern commercial banks have to be much more agile in order to stay in the competitive market. Adoption of Information Technology is vital for survival and growth of the sector and will fix the future of commercial banks in the LPG economy (S. K. Bose, 2001).

2. RESEARCH DESIGN

STATEMENT OF THE PROBLEM

Public Sector Banks and Private Sector Banks play an important role in economic development of the country. These are banking financial institutions and they are also social organizations rendering savings, investments in the form of deposits and security and providing their needful helps to the society members to borrow loans at affordable interest rates. Public Sector Banks and Private Sector Banks have had the distinction of being recognized as banking institutions, which provides satisfying services to its customers or account holders. As a result of this the account holders expects the best of services from the banking institution. This paper focuses on how far Public Sector Bank Vs Private Sector Bank is doing their business in a banking industry after liberalization and banking reforms. And what is the impact of functioning of their banking operations due to the competition in banking industry.

OBJECTIVES OF THE STUDY

1. To study the banks all key parameters this drives towards the success or failure of banking services.
2. To evaluate whether the banks are following banking regulations regulated by RBI time to time.
3. To offer suggestions to improve the banking business of Public Sector banks to compete with Private Sector banks in coming years.

METHODOLOGY

Only secondary data is applicable to the study. The secondary data is collected through annual reports, websites and the companies brochures, comprehensive reference were made from the reference books, journals and magazines and so on.

LIMITATIONS OF THE STUDY

- Since the paper work is carried out for a very short period exhaustive findings could not be made.
- Most of the data is taken from the published sources.

3. ANALYSIS AND INTERPRETATIONS

NARASIMHAM COMMITTEE RECOMMENDATIONS FOR BANKING SECTOR REFORMS

The Government of India, under the chairmanship of Shri M. Narasimham, an Ex-Governor of RBI, appointed the Narasimham Committee-I (NC-I) in April 1991. The committee examined all the aspects relating to the structural organization, functions and procedures of financial system and submitted its report on November 16, 1991. The NC-I had proposed wide ranging reforms for improving the financial viability of the banks, increasing their autonomy from government directions, restructuring unviable banks, allowing a greater entry of the private sector in banking, liberalizing the capital market, further improving the operational flexibility and competition among the financial institutions and setting up of proper supervisory system.

FIRST PHASE OF BANKING SECTOR REFORMS (1991)

A number of reform initiations have been taken to improve or minimize the distortions impinging upon the efficient and profitable functioning of banks, especially reduction in SLR and CRR, transparent guidelines or norms for entry and exit of private sector banks, public sector banks allowed to direct access to capital markets, deregulation of interest rates, branch licensing policy has been liberalized, setting up of Debt Recovery Tribunals, asset classification and provisioning, income recognition and Asset Reconstruction Fund (ARF). These and other measures that have been taken would help the highly regulated and directed banking system to transform itself into one characterized by openness, competition, prudential and supervisory discipline.

SECOND PHASE OF BANKING SECTOR REFORMS (1998):

The recommendations of the NC-I in 1991 provided the blueprint for the first generation reforms of the financial sector. The period 1992-97 witnessed the laying of foundations for reforms in the banking system. Cataclysmic changes were taking place in the world economy, coinciding with the movement towards global integration of financial services. Against such backdrop, the committee NC-II, appointed for the said purpose generated its report in 1998, provided the roadmap for the second-generation reform process. The NC-II with Shri M. Narasimham as the chairman was constituted on December 26, 1997 to review the banking sector reforms since 1991 and to suggest measures of further strengthening the banking sector of India. The NC-II examined the second-generation of reforms in terms of three broad interrelated issues:

i. Action that should be taken to strengthen the foundation of the banking system.
ii. Strengthening procedures, upgrading technology and HRD.
iii. Structural changes in the system.

These cover the aspects of banking policy, institutional, supervisory and legislative documents. The major recommendations of the committee were strengthening banking system, systems and methods of banking, structural issues, integration of financial markets, rural and small scale industrial credit and regulation and supervision.

INFORMATION TECHNOLOGY AND BANK TRANSFORMATION

The second banking sector reforms gave much importance to the modernization and technology up gradation. The IT Act, 1999 started the process of e-banking.

E-BANKING

Delivery of bank's services to a customer at his office or home by using electronic technology can be termed as e-banking. The quality, range and price of these e-services decide a bank's competitive position in the industry.

The virtual financial services can be largely categorized as follows:

AUTOMATED TELLER MACHINES

1. Cash withdrawals.
2. Details of most recent balance of account.
3. Mini statement.
4. Statement ordering facility.
5. Deposit facility. and
6. Payments to third parties.

REMOTE BANKING SERVICES

1. Balance enquiry.
2. Statement ordering.

3. Funds transfer.
4. Funds transfer between customer's different accounts. and
5. Order traveller's cheques and other financial instruments.

SERVICES NOT AVAILABLE THROUGH REMOTE BANKING

- Cash withdrawal.
- Cash/ cherub deposit.
- Sale of the more complex types of financial services such as life insurance mortgages and (pensions).

SMART CARDS

1. Stored value cards,
2. As a replacement for all types of magnetic stripes cards like ATM Cards, Debit/Credit Cards, Charge Cards etc.

- One smart card to carry out all these functions.
- One smart card can contain the functionality of several different types of cards issued by different banks while running different types of networks.
- Smart card a truly powerful financial token, giving user access.
- STM.
- Debit facility.
- Charge facilities.
- Credit facilities.
- Electronic purse facilities at national and international level.

Internet Banking: The latest wave in IT is Internet banking. It is becoming more obvious that the internet has unleashed a revolution that is affecting every sphere of life. Internet is an interconnection of computer communication networks spanning the entire globe, crossing all geographical boundaries.

BANK TRANSFORMATION

1. The term transformation in Indian Banking Industry relates to intermediately stage when the industry is passing from the earlier social banking era to the newly conceived technology based customer - centric and competitive banking. The activities of banks have grown in multi-directional as well as in multi-dimensional manners.
2. During transformation, all known parameters of the earlier regime continuously change.
3. The current transformation process in the Indian Banking has many aspects. They pertain to:

a. Capital Restructuring.
b. Financial Re-engineering.
c. Information Technology. and
d. Human Resource Development.

LABOUR PRODUCTIVITY

A. **Public Sector Banks:** Labour productivity brings in light of employee's capacity to produce.

Table 1 show that the productivity in terms of business per employee of all the three public sector banks is increasing in all the years.

TABLE 1: LABOUR PRODUCTIVITY OF PUBLIC SECTOR BANKS (Rs. In Lakhs)

PRE-E-BANKING PERIOD

Years		SBI			BOB			CB	
Ratios	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
1998-99	0.71	0.35	1.06	0.97	0.46	1.43	0.76	0.55	1.11
1999-2000	7.80	0.42	1.26	0.97	0.52	1.49	0.87	0.43	1.30
2000-01	1.13	0.53	1.66	1.09	0.59	1.68	1.22	0.58	1.80
Average	0.89	0.43	1.32	1.01	0.52	1.53	0.95	0.45	1.40
S.D.	0.22	0.02	0.31	0.02	0.02	0.13	0.24	0.12	0.36
C.V. (%)	24.72	4.65	23.48	1.98	3.85	8.50	25.26	26.67	25.71

POST-E-BANKING PERIOD

Years		SBI			BOB			CB	
Ratios	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
2001-02	10.37	7.74	18.11	3.38	4.22	7.60	3.68	2.34	6.02
2002-03	10.99	7.82	18.81	4.90	3.55	8.45	3.83	2.46	6.29
2003-04	8.61	6.42	15.03	4.47	3.62	8.09	5.20	3.08	8.28
Average	9.99	7.33	17.32	4.25	3.80	8.05	4.24	2.62	6.86
S.D.	1.23	0.79	2.01	0.78	0.37	0.43	0.84	0.40	1.23
C.V. (%)	12.31	10.78	11.61	18.35	9.74	5.34	19.81	15.27	17.93

Source: Performance Highlights, Various Issues, 1998-2004, IBA,

It shows that productivity is increased almost double time in all the three banks during partially e-banking period i.e. 2001-04 as compared to that in pre-e-banking period i.e. 1998-2001, whereas variations in terms of co-efficient of variations are maximum in pre-e-banking period. From all the three public sector banks, Bank of Baroda shows the highest productivity in both the durations i.e. Rs.1.53 lakhs during 1998-2001 and Rs.2.57 lakhs during 2001-04 as compared to that of other two banks.

B. New Private Sector Banks: From Table 2, we conclude that all the three new private sector banks show increase in their productivity in e-banking period from pre-e-banking period except UTI Bank, which shows decrease in its productivity. Variations are maximum in pre-e-banking period in all the selected banks. Although, productivity of UTI Bank is decreased, even it shows the highest labour productivity in both the durations i.e. Rs.11.41 lakhs during 1998-2001 and Rs.9.79 lakhs during 2001-04 whereas ICICI Bank is following UTI Bank with labour productivity of Rs.7.83 lakhs and Rs.9.53 lakhs respectively during both the durations.

TABLE 2: LABOUR PRODUCTIVITY OF PRIVATE SECTOR BANKS (Rs. In Lakhs)

PRE-E-BANKING PERIOD

Years		HDFC Bank			ICICI Bank			UTI Bank	
Ratios	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
1998-99	2.96	1.42	4.38	6.83	2.37	9.20	5.84	4.17	10.01
1999-2000	4.21	1.73	5.94	7.34	2.72	9.06	7.74	4.75	12.49
2000-01	4.24	1.69	5.93	3.65	1.57	5.22	7.67	4.07	11.74
Average	3.80	1.61	5.42	5.94	2.22	7.83	7.08	4.33	11.41
S.D.	0.73	0.17	0.90	2.00	0.59	2.26	1.08	0.37	1.27
C.V. (%)	19.21	10.56	16.61	33.67	26.58	28.86	15.25	8.55	11.13

POST-E-BANKING PERIOD

Years		HDFC Bank			ICICI Bank			UTI Bank	
Ratios	**D/E**	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**
2001-02	4.72	1.82	6.54	4.15	6.09	10.24	7.14	3.11	10.25
2002-03	4.67	2.45	7.12	4.17	4.61	8.78	7.26	3.07	10.33
2003-04	5.36	3.13	8.49	5.00	4.56	9.56	6.08	2.72	8.80
Average	4.92	2.47	7.38	4.44	5.09	9.53	6.83	2.97	9.79
S.D.	0.38	0.66	1.00	0.49	0.87	0.73	0.65	0.21	0.86
C.V. (%)	7.72	26.72	13.55	11.04	17.09	7.66	9.52	7.07	8.78

Source: Performance Highlights, Various Issues, 1998-2004, IBA, Mumbai

4. CONCLUSION

The article finally concludes that transformation is taking place almost in all categories of the banks. This transformation will helpful to cope with major economic and financial policies of the banks. IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector banks i.e. E-banking solutions. The private sector banks captured the major share from public sector banks. The immense opportunities are also available for the public sector banks if they upgrade and adopt new ways in banking services with facing challenges. It can be concluded that only Information Technology alone will not be sufficient to bring necessary performance improvement and to get the competitive edge for public sector banks. Human resource is required to use such intelligent tools.

With new opportunities unfolding Banking Sector, India is emerging as a global power in banking services in the next two decade. And in upcoming years it will emerge has a hub for capital formation and investment through the fruits of innovation in banking products and services.

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ONLINE SERVICE QUALITY AND CUSTOMER SATISFACTION – A STUDY IN INTERNET BANKING

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ABSTRACT

This study is carried out to find out the online service quality and customer satisfaction on Internet banking. The objective of the study is to identify the internet banking activities of the respondents, the reasons for preferring internet banking and the type of internet banking service mostly utilized by the respondents, the level of satisfaction on the service quality dimensions of internet banking, and the relationship between personal factors and internet usage. The study is based on primary data collected from 125 respondents by means of a questionnaire. Random Sampling Technique was an applied and Statistical tool like percentage analysis, five point scaling technique, rank analysis and chi-square analysis were applied. The findings and the results are based on the analysis applied in the study.

KEYWORDS
online service quality, customer satisfaction, internet banking.

INTRODUCTION

In every industry, E-commerce is revolutionizing the way business is conducted. New business models are replacing outdated ones and organizations are rethinking business process designs and customer relationship management strategies. Banks are no exception to this transformation. Even in the well-established business of banking, a revolution of sorts has taken the industry on a new dynamic path in the last few years. This path has been forged partially due to the growing acceptance of Internet banking.

Internet banking involves consumers using the Internet to access their bank account and to undertake banking transactions. At the basic level, Internet banking can mean the setting up of a Web page by a bank to give information about its product and services. At an advance level, it involves provision of facilities such as accessing accounts, funds transfer, and buying financial products or services online. Internet banking allows customers to conduct certain transactions (e.g., checking balances, funds transfers, bill payment, etc.) online at anytime and thus it reduces the number of physical visits to a bank. This added convenience to the customer lowers transaction costs to the bank—a win-win proposition for the bank and its customers.

The most significant benefit of Internet banking is the ready accessibility of bank accounts at all times. The inconvenience of visiting and waiting at the banks is also eliminated. This result in, enhanced customer satisfaction, reduced customer attrition and increased customer base. Internet banking considerably reduces transaction costs for the banks.

In India, the cost of one banking transaction through the Internet amounted to 10 paise to the bank, as compared to Re.1 through a branch, 45 paise through an ATM, 35 paise through phone banking and 20 paise through debit cards. The low transaction costs and the promising picture painted by analysts induced many banks in India to introduce Internet banking services during the late 1990s. However, only few of them succeeded in moving beyond the launch of the website. ICICI's Internet banking service 'Infinity' became the most recognized and popular service in the country, providing a wide range of products and services.

One of the key challenges of the Internet banking as a service delivery channel is how they manage service quality, which holds a significant importance to customer satisfaction. The purpose of this research is to gain a better understanding of the service quality dimensions that affect customer satisfaction in the Internet banking sector from a customer perspective. The study was conducted in Coimbatore city with a sample size of 125 respondents selected by random sampling technique. Tools like percentage analysis, five point scaling technique, rank analysis and chi-square analysis were applied.

OBJECTIVES

- To identify the internet banking activities of the respondents
- To find out the reasons for preferring internet banking and the type of internet banking service mostly utilized by the respondents
- To find the level of satisfaction on the service quality dimensions of internet banking
- To find out the relationship between personal factors and internet usage

THE FINDINGS OF THE STUDY ARE PRESENTED IN THE FOLLOWING PARAGRAPHS:

GENERAL PROFILE

75.2% of the respondents are in the age group of below 30 years, 61.6% of the respondents are Male, 53.6% of the respondents are postgraduates and 93.6% of the respondents are employed. Majority (56%) of the respondents are married, 30.4% of the respondents earn a monthly income above Rs.30000, 58.4% have nuclear type of family and 65.6% have 2 to 4 members in their family and 58.4% belong to nuclear family.

INTERNET USAGE

The percentage analysis results shows that 71.2% of the respondents are using internet for more than 1 year, 59.2% are using internet banking for more than 1 year, 81.6% interact with bank through browser,74.4% do personal banking and 65.6% choose their bank for its excellent service.

REASONS FOR USING INTERNET BANKING

It is found from Table 2 that out of the 125 respondents, 71 respondents have ranked time saving as Rank 1, 45 of them have ranked no time bar as Rank 3 and 40 respondents have ranked easy for business purposes as Rank 4 & and simple procedure as Rank 5. Further the table shows that 56 respondents have ranked reliability as Rank 6. It is concluded that majority of the respondents have given the topmost reason for choosing Internet banking as “Time saving”.

TYPE OF SERVICES UTILIZED IN INTERNET BANKING

The respondents were asked to rank their priorities for using the Internet services. It is found from Table 3 that out of the 125 respondents, 65 respondents have ranked checking balance online as Rank 1, Rank 2 is given to online bill payments by 30 respondents, 30 of them have ranked inter – account transfer as Rank 3 and 40 respondents have ranked seeking product information as Rank 4. Further the table shows that 24 respondents have given 5th Rank to calculate loan

payment, 25 respondents have ranked download loan application as Rank 6, 24 respondents have ranked to apply for consumer loans as Rank 8. It is concluded that majority of the respondents have given the topmost type of services utilized in Internet banking as" Check Balances Online".

REASONS FOR CHOOSING THE BANK

It is found from Table 4 that out of the 125 respondents, 51 respondents have ranked quick service as Rank 1, Rank 2 is given to bank location by 24 respondents, 24 of them have ranked better rate and lower service charge as Rank 3, 18 respondents have ranked bank familiarity as Rank 4. Further the table shows that 20 respondents have given 6th Rank for goodwill of the bank, 16 respondents have ranked convenience as Rank 7, 22 respondents have ranked variety of features as Rank 8, 28 respondents have ranked integrated value as Rank 9.It is concluded that majority of the respondents have given the topmost reasons for choosing the bank as" Quick Service".

OPINION ON RELIABILITY

Table 5 presents the opinions of the respondents on reliability in internet banking on a five point scale of strongly agree, agree, neutral, disagree, strongly disagree. From the table it is clear that 52% of respondents agree that information that is provided is accurate, 41.6% of respondents agree that the web pages are functioning properly, 49.6% of respondents agree that information content and texts are easy to understand, 45.6% of respondents agree that links are problem-free, accurate and the pages download quickly.

OPINION ABOUT ACCESSIBILITY

Table 6 presents the opinions of the respondents on accessibility in internet banking. It is clear that 44% of respondents agree that the bank's site has unrestricted access to all financial information, 55.2% of respondents agree that the bank provides the updated technology regularly for i-banking, 40.8% of respondents agree that the bank provides the updated technology regularly for i-banking.

OPINION ABOUT USER FRIENDLINESS

From the table 7 it is clear that 47.2% of respondents agree that the website is available in the language you can understand, 55.2% of respondents agree that the bank's site provide information about the transactions and products, 50.4% of respondents agree that personalization of bank's site for customers' personal requirement, 50.4% of respondents agree that the bank authority care to listen to your queries and meet personal needs.

OPINION ABOUT PRIVACY / SECURITY

Table 8 presents the opinions of the respondents on privacy / security in internet banking. It is clear that 50.4% of respondents agree that you can rely on bank for not misusing your information, 63.2% of respondents agree that you can rely on the personal information remaining in the register, 51.2% of respondents agree that the bank provides financial security and confidentially, 48.8% of respondents agree that the bank's site is secured for your credit card information.

OPINION ON EFFICIENCY

From the table 9 it is clear that 52.8% of respondents agree that the bank's site is easy to navigate and simple to use, 50.4% of respondents agree that the speed of login of your account is fast, 48.8% of respondents agree that the speed of logout of your account is fast, 48.8% of respondents agree that it is easy to find policy and notice statement on the bank's site.

OPINION ABOUT RESPONSIVENESS

Table 10 presents the opinions of the respondents on responsiveness in internet banking. From the table it is clear that 42.4% of respondents agree that the bank takes care of problems properly and compensate for the problems they create, 51.2% of respondents agree that knowledge and skill of the contact personnel, 52% of respondents agree that you are able to talk to a customer service representative in the bank over telephone, 50.4% of respondents agree that the bank is willing to help customers, provide appropriate information and prompt service.

OPINION ABOUT FULLFILLMENT

From the table 11 it is clear that 60% of respondents agree that the bank's site performs the service right at the first time, 62.4% of respondents agree that the bank's site provides a confirmation of the service ordered quickly.

CHI SQUARE ANALYSIS

PERSONAL FACTORS AND YEARS OF USING INTERNET

Hypothesis: The personal factors of the respondents have no significant influence on years of using Internet.

It is evident from the Table 12 that the hypothesis is accepted (Not significant) in six cases and in two cases the hypothesis is rejected (significant). It is concluded that educational qualification and family monthly income have significant influence on years of using the Internet.

PERSONAL FACTORS AND YEARS OF USING INTERNET BANKING

Hypothesis: The personal factors of the respondents have no significant influence on years of using Internet banking.

It is evident from the Table 13 that the hypothesis is accepted (Not significant) in five cases and in three cases the hypothesis is rejected (significant). It is concluded that age, educational qualification and family monthly income have significant influence on years of using Internet banking.

PERSONAL FACTORS AND OPINION ON CONVENIENCE OF INTERNET BANKING

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on convenience of Internet banking.

It is evident from the Table 14 that the hypothesis is accepted (Not significant) in seven cases and in one case the hypothesis is rejected (significant).It is concluded that educational qualification have significant influence on convenience of internet banking.

CONCLUSION

The paper explores the service quality of i-banking operative in India from customer's perspective. It is observed that customers are satisfied with the reliability of the services provided by the banks but are not very much satisfied with the dimension 'User friendliness'. This study includes percentage analysis, rank analysis, chi- square five point scaling, in which the rank analysis is giving a very clear picture about their ideas on the various factors of internet banking. The i-banking is going to be very crucial for India, having increasing percentage of younger generation population with computer literacy. Since research on service quality in i-banking is still in its infancy and the relevant literature is scarce, therefore the insight gained in this study may offer a foundation for future research on self-service technology and provide useful recommendations to the bankers for improving the i-banking services. Hence, in future, the research can be conduced by taking a large sample to facilitate a robust examination of the service quality of the i banking.

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TABLES

TABLE 1- INTERNET USAGE

PARTICULARS	CLASSIFICATION	No.	Percentage
Years of using WWW	< 1 month	7	5.6
	1 - 6 months	19	15.2
	7 - 12 months	10	8.0
	> 1 year	89	71.2
Years of using Internet Banking	< 1 month	14	11.2
	1 - 6 months	24	19.2
	7 - 12 months	13	10.4
	> 1 year	74	59.2
Interact with bank through browser	Yes	102	81.6
	No	23	18.4
Type of banking activity through internet	Personal banking	93	74.4
	Business transaction	3	2.4
	Both	29	23.2
Reason for choosing the bank	Traditional bank A/c	19	15.2
	Brand name of the bank	16	12.8
	Excellent service	82	65.6
	Less service charge	8	6.4

TABLE 2 -REASONS FOR USING INTERNET BANKING
(No. of respondents)

Reasons	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6
Time saving	71	42	7	1	3	1
Easy accessibility	35	27	23	21	10	9
No time bar	9	29	45	19	19	4
Simple procedures	5	18	22	24	33	23
Easy for business purposes	2	4	12	40	35	32
Reliability	3	5	16	18	23	56

TABLE 3 - TYPE OF SERVICES UTILIZED IN INTERNET BANKING
(No. of respondents)

Type of services	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8
Seeking product information	2	6	13	40	17	19	5	23
Calculate loan payment	4	3	9	13	24	22	37	13
Download loan application	3	10	13	11	22	25	25	16
Download personal bank transaction	15	12	13	14	19	17	19	16
Check balance online	65	20	10	3	8	6	4	9
Apply for consumer loans	4	23	13	17	10	16	18	24
Inter-account transfer	26	21	30	12	8	6	8	14
Online bill payments	6	30	24	15	17	15	10	8

TABLE 4 - REASONS FOR CHOOSING THE BANK
(No. of respondents)

Reasons	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9
Better rate and lower service charge	12	11	24	16	22	12	9	8	11
Bank familiarity	13	21	14	18	12	15	7	18	7
Quick service	51	20	13	10	10	5	13	1	2
Bank location	9	24	11	15	11	14	12	9	20
Goodwill of the bank	14	16	21	14	12	20	16	6	6
Security of transaction	7	15	14	11	9	15	16	20	18
Convenience	15	6	12	13	11	11	16	22	19
Variety of features	3	8	11	16	18	13	20	22	14
Integrated value	1	5	5	11	20	22	16	17	28

TABLE 5- OPINION ON RELIABILITY

Reliability		SA	A	N	D	SD
Information that is provided is accurate	No.	52	65	8	--	--
	%	41.6	52.0	6.4	--	--
The web pages are functioning properly.	No.	35	52	31	7	--
	%	28.0	41.6	24.8	5.6	--
Information content and texts are easy to understand.	No.	35	62	23	5	--
	%	28.0	49.6	18.4	4.0	--
Links are problem-free, accurate and the pages download quickly.	No.	26	57	39	3	--
	%	20.8	45.6	31.2	2.4	--

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 6- OPINION ABOUT ACCESSIBILITY

Accessibility		SA	A	N	D	SD
The bank's site has unrestricted access to all financial information	No.	39	55	26	5	--
	%	31.2	44.0	20.8	4.0	--
The bank provides the updated technology regularly for i-banking	No.	36	69	18	2	--
	%	28.8	55.2	14.4	1.6	--
The bank provides the updated technology regularly for i-banking.	No.	30	51	39	4	1
	%	24.0	40.8	31.2	3.2	.8
The bank is easy to approach and contact.	No.	36	55	27	7	--
	%	28.8	44.0	21.6	5.6	--

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 7- OPINION ABOUT USER FRIENDLINESS

User friendliness		SA	A	N	D	SD
The website is available in the language you can understand.	No.	55	59	10	1	--
	%	44.0	47.2	8.0	.8	--
The bank's site provide information about the transactions and products.	No.	41	69	15	--	--
	%	32.8	55.2	12.0	--	--
Personalization of bank's site for customers' personal requirement.	No.	30	63	27	5	--
	%	24.0	50.4	21.6	4.0	--
The bank authority care to listen to your queries and meet your personal needs.	No.	23	63	30	9	--
	%	18.4	50.4	24.0	7.2	--

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 8- OPINION ABOUT PRIVACY / SECURITY

Privacy / security		SA	A	N	D	SD
You can rely on bank for not misusing your information	No.	40	63	40	--	--
	%	32.0	50.4	17.6	--	--
You can rely on the personal information remaining in the register	No.	22	79	24	--	--
	%	17.6	63.2	19.2	--	--
The bank provides financial security and confidentially	No.	33	64	26	2	--
	%	26.4	51.2	20.8	1.6	--
The bank's site is secured for your credit card information	No.	34	61	23	7	--
	%	27.2	48.8	18.4	5.6	--

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 9 - OPINION ON EFFICIENCY

Efficiency		SA	A	N	D	SD
The bank's site is easy to navigate and simple to use.	No.	36	66	18	3	2
	%	28.8	52.8	14.4	2.4	1.6
The speed of login of your account is fast.	No.	32	63	28	2	--
	%	25.6	50.4	22.4	1.6	--
The speed of logout of your account is fast.	No.	35	61	26	3	--
	%	28.0	48.8	20.8	2.4	--
It is easy to find policy and notice statement on the bank's site.	No.	27	61	35	1	1
	%	21.6	48.8	28.0	.8	.8

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 10- OPINION ABOUT RESPONSIVENESS

Responsiveness		SA	A	N	D	SD
The bank takes care of problems properly and compensate for the problems they create.	No.	30	53	40	2	--
	%	24.0	42.4	32.0	1.6	--
Knowledge and skill of the contact personnel.	No.	19	64	39	3	--
	%	15.2	51.2	31.2	2.4	--
You are able to talk to a customer service representative in the bank over telephone	No.	22	65	33	3	2
	%	17.6	52.0	26.4	2.4	1.6
The bank is willing to help customers, provide appropriate information and prompt service.	No.	30	63	25	3	4
	%	24.0	50.4	20.0	2.4	3.2

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 11- OPINION ABOUT FULLFILLMENT

Fulfillment		SA	A	N	D	SD
The bank's site performs the service right at the first time.	No.	28	75	20	2	--
	%	22.4	60.0	16.0	1.6	--
The bank's site provides a confirmation of the service ordered quickly.	No.	16	78	30	1	--
	%	12.8	62.4	24.0	.8	--

SA- Strongly Agree, **A**- Agree, **N**- Neutral, **D**- Disagree, **SD**- Strongly Disagree

TABLE 12 - PERSONAL FACTORS AND YEARS OF USING INTERNET

Personal factor	Chi-square value	df	Asymp. Sig.	Significant/Not Significant
Age	3.647	3	.302	Not Significant
Sex	.091	3	.993	Not Significant
Educational Qualification	22.058	9	.009	Significant
Martial status	5.917	6	.433	Not Significant
Occupation	9.077	9	.430	Not Significant
Family monthly Income	39.651	9	.000	Significant
Family Size	9.800	6	.133	Not Significant
Family type	2.877	3	.411	Not Significant

TABLE 13 - PERSONAL FACTORS AND YEARS OF USING INTERNET BANKING

Personal factor	Chi-square Value	df	Asymp. Sig.	Significant/ Not Significant
Age	9.532	3	.023	Significant
Sex	7.354	3	.061	Not Significant
Educational Qualification	20.022	9	.018	Significant
Martial status	9.914	6	.128	Not Significant
Occupation	7.077	9	.629	Not Significant
Family monthly Income	57.174	9	.000	Significant
Family Size	6.072	6	.415	Not Significant
Family type	5.224	3	.156	Not Significant

TABLE 14 - PERSONAL FACTORS AND OPINION ON CONVENIENCE OF INTERNET BANKING

Personal factor	Chi-square Value	df	Asymp. Sig.	Significant/Not Significant
Age	.430	2	.806	Not Significant
Sex	.164	2	.921	Not Significant
Educational Qualification	12.579	6	.050	Significant
Martial status	6.729	4	.151	Not Significant
Occupation	11.189	6	.083	Not Significant
Family monthly Income	4.871	6	.560	Not Significant
Family Size	.871	4	.929	Not Significant
Family type	1.902	2	.386	Not Significant

AN EMPIRICAL STUDY ON THE EFFECTS OF COMPUTER OPERATING HOURS ON STUDENT STRESS LEVEL USING TOPSIS METHOD

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ABSTRACT

The efficient performance of engineering graduates in corporate sectors and the undergraduate scholars in their respective institutions greatly depends upon their stress levels. Most of the works in the engineering profession require the use of computers. Many professionals have a doubt whether the use of computers, continuously over a long period of time may affect their day to day activities or routine life, particularly computer engineers and those who work in the field of information technology. Our paper tries to find the effect of computer operating hours on stress levels of undergraduate scholars of computer science and civil engineering. Multi Criteria Decision Making (MCDM) tool called Technique of Order Preference by Similarity to Ideal Solution (TOPSIS) has been used to identify the stressed professionals.

KEYWORDS
Decision making, Stress, TOPSIS and undergraduate students.

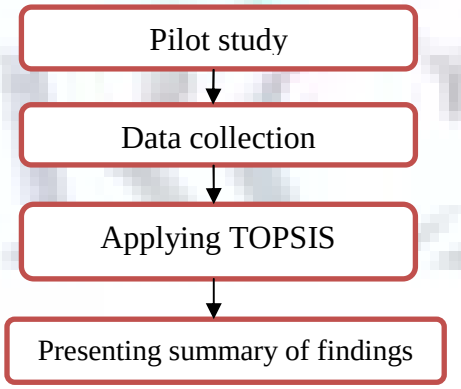
1.0 INTRODUCTION

Multiple criterion decision making (MCDM) [1] refers to making decisions in the presence of multiple, usually conflicting criteria and constraints. The decision making is more challenging today. Necessary conditions for achieving efficient decision making consist in understanding the current and upcoming events and factors influencing the whole problem environment, in exploring the nature of decision-making processes and the reach of different typologies of methods and techniques, and finally in structuring appropriately the decision-making approach based on a wide range of issues related to problem environment.

2.0 METHODOLOGY

The methodology of the paper is presented below,

FIGURE 1: METHODOLOGY OF THE PAPER

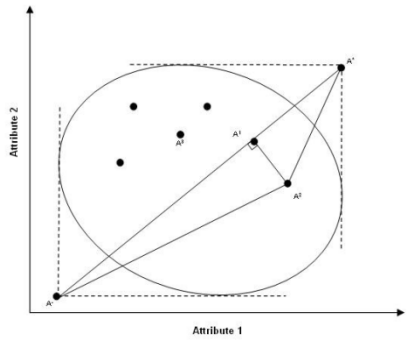


The methodology of the paper involves the pilot study, identifying the factors which causes stress, designing questionnaire, distribution of questionnaire, data collection, applying TOPSIS, presenting summary of findings and finally suggestions to reduce the stress.

3.0. TECHNIQUE OF ORDER PREFERENCE BY SIMILARITY TO IDEAL SOLUTION (TOPSIS) METHOD

Technique for Order Performance by Similarity to Ideal Solution (TOPSIS), one of known classical MCDM method, was first developed by Hwang and Yoon [4] for solving a MCDM problem. TOPSIS, known as one of the most classical MCDM methods, is based on the idea, that the chosen alternative should have the shortest distance from the positive ideal solution (PIS) and on the other side the farthest distance of the negative ideal solution (NIS) in a geometrical (Euclidean) sense. The TOPSIS-method will be applied to a case study, which is described in detail. The TOPSIS has two main advantages: its mathematical simplicity and very large flexibility in the definition of the choice set.

FIGURE 2: EUCLIDEAN DISTANCE TO PIS AND NIS IN TWO-DIMENSIONAL SPACE



4.0 PILOT STUDY

"The Week", June 29, 2008 [5]. A survey conducted in 2008 says that 16000 students in India committed suicide between 2004 and 2008.Stress gradually collapses the personality of an individual. The person affected with stress feels like mentally weak. Stress thus affects the day today activities and one day the individual attains the state that he or she could not concentrate on the routine duty. The individual finally enters the state of unbearable anxiety where he feels or behaves completely detached from the society, family and friends.

Academic stress has been studied extensively as an important factor in college student adjustment. In general, college-related stress has been found to be inversely related to academic performance among traditional undergraduates. Stress has also been identified as a factor negatively affecting performance for college students.

College students have many obstacles to overcome in order to achieve their optimal academic performance. It takes a lot more than just studying to achieve a successful college career. Different stressors such as time management, financial problems, sleep deprivation, social activities, and for some students even having children, can all pose their own threat to a student's academic performance.

4.1 QUESSTIONNAIRE DESIGN

The questionnaire is designed based on the following factors,

4.1.1 INSTITUTIONAL FACTORS

Institution is one of the main sources of stress among students. Such stress comes from plenty of assignments, unsatisfactory academic performance, preparation for tests, lack of interest in a particular subject, and teacher's punishment, language problem during discussion with staff members, noisy classrooms and friend's disturbances.

4.1.2 PERSONAL FACTORS

Personal factors play a main role in causing stress. Some of the personal factors are family economic problem, headache, lack of facilities, personal feelings, intolerance for failures, feelings of privacy lost, too much work in holidays, not sound in English fluency and poor time management

4.1.3 ENVIRONMENTAL FACTORS

Environmental factors are also one of the reasons for stress. Some of the factors are travelling between college and residence, waiting for bus, conflict with conductors, traffic jam, railway crossing, breakdown and crowd in bus.

5.0 CRONBACH'S ALPHA ANALYSIS

Cronbach's alpha is a coefficient (a number between 0 and 1) that is used to rate the internal consistency (homogeneity) or the correlation of the items in a test. A good test is one that assesses different aspects of the trait being studied. If a test has a strong internal consistency most measurement experts agree that it should show only moderate correlation among items (.70 to 0.90).

If correlations between items are too low, it is likely that they are measuring different traits (e.g. both depression and quality of life items are mixed together) and therefore should not all be included in a test that is supposed to measure one trait. If item correlations are too high, it is likely that some items are redundant and should be removed from the test.

Cronbach's α is defined as

$$\alpha = \frac{K}{K-1}\left(1 - \frac{\sum_{i=1}^{K}\sigma_{Y_i}^2}{\sigma_X^2}\right)$$

where K is the number of components (K-items or testlets), σ_X^2 the variance of the observed total test scores, and $\sigma_{Y_i}^2$ the variance of component i for the current sample of persons.

The higher the score, the more reliable the generated scale is. Nunnaly (1978) has indicated 0.7 to be an acceptable reliability coefficient.

5.1 CRONBACH'S ALPHA RESULT FOR ORGANIZATIONAL STRESS ASSESSMENT QUESSTIONNAIRE

The questionnaire contains 12 items, out of which 4 are physical symptoms, 4 are behavioural symptoms and 4 are mental symptoms. stress symptoms were rated according to the frequency in 5 scales (from 1 to 5). 5- Very often 4- Often 3- Some times 2- Seldom 1-Never.

Cronbach's alpha result Organizational stress assessment questionnaire

Scale: ALL VARIABLES

TABLE 1: CASE PROCESSING SUMMARY

		N	%
Cases	Valid	100	100.0
	Excluded[a]	0	.0
	Total	100	100.0
List wise deletion based on all variables in the procedure.			

ABLE 2: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.793	12

Here, cronbach's alpha value is greater than 0.7. Hence it is proved that the selected questionnaire for organizational stress is reliable.

5.2 SAMPLE SIZE DETERMINATION

In case of finite population stated formula for determining sample size is

$$n = Z^2 N\sigma^2/(N-1)e^2+z^2\sigma^2_p \quad (1)$$

From our pilot study we have to find out standard deviation of 100 sample is σ_p= 3.3582

Z=1.96(from normal distribution table)

$$e=z\sigma_p/\sqrt{n} \quad (2)$$

So, we have to choose our sample size 'n' according to the results obtained from equation 1.

6.0 DATA COLLECTION

It was decided to identify the factors that are causing stress to the students of engineering discipline and to collect the data from the students who are pursuing their under graduation.

The following table shows the factor scores for the students from civil engineering,

TABLE 3 - FACTOR SCORES FOR CIVIL DEPARTMENT STUDENTS (HOSTELLERS)

Student	Institutional	Personal	Environmental
1	15	28	20
2	29	31	30
3	31	21	24
4	16	29	30
5	15	30	16
6	13	19	16
7	14	18	17
8	16	21	19
9	18	21	30
10	17	29	14
11	19	24	16
12	16	21	17
13	14	27	20
14	16	21	18
15	15	21	13
16	16	39	21
17	27	39	24
18	16	16	16
19	15	23	15
20	13	23	13
21	14	19	14
22	16	22	16
23	18	26	18
24	17	24	17
25	19	24	19
26	16	22	16
27	14	21	14
28	16	24	16
29	15	21	15
30	16	16	20
31	22	28	15
32	26	32	13
33	24	21	14
34	18	22	16
35	23	33	16
36	21	30	17
37	23	34	19
38	19	29	16
39	16	21	14
40	16	16	16
41	15	21	17
42	15	19	28

From the above table, the data for various factors are collected from civil engineering students are displayed.

The following table shows the factor scores for the students from civil engineering,

TABLE 4 - FACTOR SCORES FOR CIVIL DEPARTMENT STUDENTS (DAY SCHOLARS)

Student	Institutional Factor score	Personal Factor score	Environmental Factor score
1	27	38	27
2	17	20	10
3	23	40	28
4	16	39	26
5	13	29	20
6	22	32	23
7	15	24	21
8	13	29	14
9	26	23	20
10	23	19	13
11	20	30	11
12	12	23	18
13	17	20	12
14	23	33	11
15	18	30	23
16	16	24	20
17	14	20	17
18	20	24	10
19	17	31	14
20	23	25	20
21	16	18	16
22	14	19	13
23	22	30	12
24	15	24	18
25	13	21	17
26	26	28	13
27	23	30	21
28	20	27	21
29	12	18	20
30	17	24	23
31	23	30	21
32	19	20	15
33	18	23	22
34	25	20	21
35	22	35	22
36	15	33	23
37	13	19	14
38	28	33	22
39	15	33	23
40	12	28	20
41	17	33	21
42	33	32	30

As per the above table, the data for various factors are collected from civil engineering students are displayed.
The following table shows the factor scores for the students from computer science engineering,

TABLE 5 - FACTOR SCORES FOR COMPUTER SCIENCE DEPARTMENT STUDENTS (HOSTELLERS)

Student	Institutional	Personal	Environmental
1	18	38	23
2	25	20	23
3	22	40	24
4	15	39	26
5	13	29	19
6	15	32	16
7	13	31	25
8	26	30	21
9	23	32	23
10	20	31	21
11	22	34	14
12	15	33	25
13	13	32	22
14	15	31	23
15	13	33	21
16	26	21	16
17	23	33	25
18	20	30	21
19	17	31	23
20	23	31	21
21	16	24	14
22	25	35	25
23	22	34	22
24	15	33	23
25	13	32	21
26	26	23	13
27	23	31	21
28	20	30	21
29	12	28	20
30	17	32	23
31	23	34	21
32	26	33	25
33	18	34	22
34	25	31	21
35	22	36	22
36	15	33	23
37	13	18	14
38	28	35	22
39	15	35	23
40	12	29	20
41	17	32	21
42	33	38	30

From the above table, it is inferred that the data for various factors are collected from the students of computer science engineering is displayed. The following table shows the factor scores for the students from computer science engineering,

TABLE 6 - FACTOR SCORES FOR COMPUTER SCIENCE DEPARTMENT STUDENTS (DAY SCHOLARS)

Student	Institutional	Personal	Environmental
1	28	20	11
2	24	24	29
3	25	21	24
4	23	29	28
5	14	26	17
6	17	36	29
7	18	35	32
8	25	29	27
9	14	28	18
10	16	35	18
11	18	21	25
12	19	36	27
13	27	31	26
14	16	16	16
15	21	29	29
16	28	31	28
17	26	21	25
18	28	34	25
19	18	30	29
20	25	34	34
21	20	29	27
22	14	33	23
23	17	34	20
24	18	35	20
25	25	31	24
26	16	16	20
27	22	28	20
28	26	32	29
29	24	21	22
30	18	29	27
31	23	33	25
32	21	30	26
33	23	34	29
34	19	29	26
35	17	33	19
36	16	34	20
37	17	21	27
38	19	35	27
39	19	20	17
40	12	16	22
41	28	36	31
42	29	33	29

From the above table, it is inferred that the data for various factors are collected from the students of computer science engineering is displayed.
By comparing the computer operating hours of CSE students and Civil engineering students, the observations are as follows,

TABLE 7: DATA FOR CSE STUDENTS

S.NO	PLACE	COMPUTER OPERATING HOURS / DAY	COMPUTER OPERATING HOURS / WEEK
1	Institution	3 (Laboratory- 5 days/week)	15
		1 (Library- 5 days/week)	5
2	Home	2 (Monday to Friday)	10
		5 (Saturday and Sunday)	10
TOTAL working hours / week			40

TABLE 8: DATA FOR CIVIL STUDENTS

S.NO	PLACE	COMPUTER OPERATING HOURS / DAY	COMPUTER OPERATING HOURS / WEEK
1	Institution	3 (Laboratory- only on 1 day/week)	3
		1 (Library- 5 days/week)	5
2	Home	2	14
TOTAL working hours / week			22

From the above tables, it is identified that the computer operating hours are comparatively high for the computer science engineering students with civil engineering students.

7.0 ANALYSIS USING TOPSIS

The procedure of Technique of Order Preference by Similarity to Ideal Solution is as follows,

Step 1: The weightages for the factors are calculated. To find the relative normalized weight of each criterion, the geometric mean of ith row in the pair-wise comparison matrix is calculated by

$$GMi=\sqrt[n]{\prod_{j=1}^{n} X_{ij}} \quad i=1,2, \qquad .m \tag{3}$$

Then, geometric means of the rows in the comparison matrix are normalized as:

$$Wi=GMi \Big/ \sum_{i=1}^{m} GMi \quad i=1,2, \quad .m \tag{4}$$

Step 2: The normalized decision matrix is constructed. This step converts the various attribute dimensions into non dimensional attributes. An element rij of the normalized decision matrix R is calculated as follows:

$$Rij=\frac{x_{ij}}{\sum_{i=1}^{m} x_{ij}^2} \quad , i=1,2,\ldots.m; j=1,2,\ldots.n$$

$$\text{Where } N=\left[R_{ij}\right]_{m\times n} \tag{5}$$

Step 3: The weighted normalized decision matrix is calculated. The weighted normalized value vij is calculated as:

$$Vij=wjrij \ , i=1,2,\ldots.m;j=1,2,\ldots.n$$

$$\text{Where } V=\left[v_{ij}\right]_{m\times n} \tag{6}$$

Step 4: The positive ideal solution and negative ideal solution is identified.

$$\hat{A}=\{\hat{V}_1,\hat{V}_2,\ldots,\hat{V}_n\}=\{(\max_j v_{ij} \mid i\in I'),(\min_j v_{ij} \mid i\in I'')\} \tag{7}$$

$$\bar{A}=\{\bar{V}_1,\bar{V}_2,\ldots,\bar{V}_n\}=\{(\min_j v_{ij} \mid i\in I'),(\max_j v_{ij} \mid i\in I'')\} \tag{8}$$

Step 5: The separation measure is finally calculated. In this step the concept of the n-dimensional Euclidean distance is used to measure the separation distances of each alternative to the ideal solution and negative-ideal solution. The corresponding formulas are
The separation from the positive ideal alternative is:

$$S_i^* = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^*)^2}, \qquad i=1,2,\ldots.m. \tag{9}$$

Similarly, the separation from the negative ideal alternative is:

$$S_i^- = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^-)^2}, \qquad i=1,2,\ldots.m \tag{10}$$

Step 6: Calculate the relative closeness to the ideal solution. The relative closeness of the alternative Ai with respect to A* is defines as:

$$C_i^* = \frac{S_i^-}{S_i^* + S_i^-} \ , \qquad i=1,2,\ldots.m$$

$$\text{Where } 0 \le C_i^* \le 1 \text{ that is, an alternative i is closer to A* as } C_i^* \text{ approaches to 1.} \tag{11}$$

Step 7: The preference order is ranked. Choose an alternative with maximum C_i^* or rank alternatives according to C_i^* in descending order.

8.0 RESULTS

The TOPSIS results are shown below for both the civil engineering and computer science engineering students,
The following table shows the TOPSIS scores for the civil engineering students (Day scholars)

TABLE 9 - FACTOR SCORES FOR CIVIL ENGINEERING STUDENTS (DAY SCHOLARS)

Rank	Student no	Ci* value
1	1	0.809
2	42	0.809
3	3	0.744
4	38	0.680
5	35	0.609
6	4	0.597
7	6	0.583
8	27	0.539
9	31	0.539
10	15	0.490
11	36	0.489
12	39	0.489
13	41	0.489
14	9	0.470
15	20	0.449
16	28	0.445
17	14	0.443
18	26	0.441
19	34	0.434
20	23	0.396
21	30	0.396
22	33	0.379
23	5	0.370
24	19	0.363
25	11	0.357
26	40	0.348
27	7	0.337
28	16	0.330
29	10	0.290
30	8	0.287
31	24	0.280
32	18	0.257
33	29	0.244
34	12	0.243
35	32	0.240
36	25	0.204
37	17	0.203
38	21	0.193
39	13	0.157
40	2	0.143
41	37	0.116
42	22	0.104

From the above table, it is inferred that the TOPSIS scores for the civil engineering students (Day scholars) are displayed.
The following table shows the TOPSIS scores for the civil engineering students (Hostellers)

TABLE 10 - FACTOR SCORES FOR CIVIL ENGINEERING STUDENTS (HOSTELLERS)

Rank	Student no	Ci* value
1	17	0.800
2	2	0.773
3	37	0.595
4	16	0.579
5	4	0.543
6	3	0.538
7	35	0.535
8	32	0.519
9	36	0.469
10	9	0.455
11	31	0.422
12	38	0.409
13	1	0.388
14	5	0.381
15	42	0.376
16	10	0.364
17	13	0.359
18	23	0.357
19	25	0.345
20	33	0.328
21	11	0.305
22	24	0.286
23	28	0.261
24	34	0.246
25	8	0.244
26	14	0.226
27	19	0.216
28	22	0.215
29	26	0.215
30	12	0.208
31	30	0.208
32	41	0.196
33	20	0.190
34	39	0.172
35	29	0.167
36	15	0.153
37	27	0.148
38	7	0.133
39	6	0.122
40	18	0.122
41	40	0.122
42	21	0.097

From the above table, it is inferred that the ranked TOPSIS scores for the civil engineering students (Hostellers) are displayed.
The following table shows the TOPSIS scores for the computer science engineering students (Day scholars)

TABLE 11 - FACTOR SCORES FOR COMPUTER SCIENCE DEPARTMENT STUDENTS (DAY SCHOLARS)

Rank	Student no	Ci* value
1	42	0.943
2	38	0.699
3	22	0.699
4	3	0.684
5	32	0.682
6	17	0.630
7	35	0.616
8	31	0.589
9	1	0.588
10	23	0.587
11	9	0.585
12	4	0.583
13	34	0.570
14	8	0.567
15	20	0.538
16	27	0.538
17	33	0.523
18	39	0.507
19	12	0.501
20	10	0.489
21	30	0.488
22	11	0.481
23	24	0.478
24	36	0.478
25	19	0.471
26	18	0.471
27	28	0.471
28	41	0.462
29	7	0.448
30	14	0.445
31	15	0.432
32	13	0.427
33	2	0.418
34	25	0.415
35	6	0.381
36	16	0.365
37	26	0.365
38	40	0.342
39	5	0.337
40	29	0.323
41	21	0.205
42	37	0.040

As per the above table, it is inferred that the TOPSIS scores for the computer science engineering students (Day scholars) are displayed.
The following table shows the TOPSIS scores for the computer science engineering students (Hostellers)

TABLE 12 - FACTOR SCORES FOR COMPUTER SCIENCE DEPARTMENT STUDENTS (HOSTELLERS)

Rank	Student no	Ci* value
1	41	0.911
2	20	0.878
3	42	0.837
4	28	0.797
5	16	0.779
6	33	0.775
7	18	0.750
8	13	0.729
9	7	0.722
10	8	0.695
11	31	0.687
12	4	0.686
13	12	0.686
14	6	0.679
15	38	0.679
16	15	0.671
17	25	0.666
18	19	0.637
19	32	0.637
20	21	0.624
21	2	0.623
22	30	0.593
23	34	0.591
24	24	0.552
25	17	0.534
26	23	0.529
27	22	0.527
28	36	0.518
29	3	0.507
30	27	0.506
31	10	0.501
32	35	0.501
33	37	0.461
34	29	0.461
35	11	0.437
36	9	0.376
37	1	0.369
38	5	0.324
39	39	0.283
40	40	0.276
41	26	0.262
42	14	0.176

From the above table, it is inferred that the TOPSIS scores for the computer science engineering students (Hostellers) are displayed.
The detailed analysis shows the results as below,

TABLE 13: MAXIMUM STRESSED STUDENTS (DAY SCHOLARS)

Number of stressed students in civil day scholars	9
Number of stressed students in computer science day scholars	19

TABLE 14: MAXIMUM STRESSED STUDENTS (HOSTELLERS)

Number of stressed students in civil day hostellers	8
Number of stressed students in computer science hostellers	16

According to the above table, it is identified that stressed students in civil engineering are low when compared with computer science engineering students. Both the hostellers and days scholars are highly stressed due to institutional factor, personal factor and environmental factor.

10.0 SUMMARY OF FINDINGS

From the above analysis the following findings are made,

- The students of CSE department are subjected to more stress
- The students are subjected to stress as they spare more time with computers
- The maximum stressed students don't have any involvement in physical activities like sports, dance, yoga, NCC, NSS etc…
- The students are suggested and advised to indulge in some stress relieving techniques like listening to music, songs, participate in sports, cultural, dance, etc.
- The students must also start practicing yoga, asanas and meditation.

11.0 CONCLUSION

A study was conducted at an engineering college, situated near Madurai. The parameters chosen for the analysis are personal, institutional and environmental factors. The Multi Criteria Decision Making tool called Technique of Order Preference by Similarity to Ideal Solution (TOPSIS) has been applied to identify the maximum stressed students from the departments of civil engineering and computer science engineering from both day scholars and hostellers. The comparative table reveals that computer science engineering students are highly stressed compared to civil engineering students. It is advised to practice stress relieving techniques and participating in extra-curricular activities to reduce the stress.

12.0 FUTURE WORK

The analysis will also be done for other undergraduate disciplines too. The same analysis might be conducted at various institutions like arts, medical and so on. Validation might also be done by using other Multi Criteria Decision Making (MCDM) tools like Fuzzy logic Decision Making Approach, DEA, ANN and so on.

13.0 ACKNOWLEDGEMENT

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IMPLICATION OF INNOVATION AND AESTHETICS FOR BUSINESS GROWTH AMONG SMALL AND MEDIUM SCALE ENTERPRISES (SMEs): THE CASE STUDY OF BONWIRE KENTE WEAVING INDUSTRY

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ABSTRACT

Research has shown that application of innovation on products to enhance aesthetic qualities and marketing as strategy is important to the development and survival of a business. However, only few businesses are adopting this concept as a major strategy due to their negligence to its imminent contribution to the firm's goal. Many of the early adopters of this concept are also not achieving the most from it due to their lack of proper understanding of its benefits. In the past, the Asante Kente weavers were mostly producing for their Kings, Chiefs and most important personalities with emphasis on their cultural values. Today, the art has been commercialized. This study analysed pragmatically the implication of product innovation and aesthetics for business success through maximized sales and market share, profit, customer satisfaction and retention, using the Bonwire Kente Weaving Industry (BKWI) as a case study. Identified research questions concerning the relationship between product innovation with aesthetic concept and the industry's corporate goal were answered with the use of interviews, questionnaires and observation to stimulate responses from staff of the firm and the consumer of its products. Data were also collected from available relevant or related literature based on the topic. The stratified random sampling, focused group discussion, snowballing and purposive sampling were used to sample master weavers, junior weavers and apprentices. In all, 80 respondents were selected from a population of 300 weavers, that constitute more than 30% of the population. These weavers were selected from four Kente weaving centers within the Ashanti region. Moreover, in the case of the customers or users of the Kente cloth, questionnaires were administered to express their views on the innovation and aesthetic concept of the cloth. The researchers however, thematically analysed the data by utilizing the SPSS Data Analysis Programme. Analysing the responses obtained from the field study showed that lack of product innovation and aesthetics as well as strategic marketing strategies put in place could affect the organisation's profit and consumer satisfaction because of theirs great impact on consumers' buying decision. Monitoring and responding accordingly to changes in consumers' taste will ensure success in product innovation. Evidently, adoption of product innovation can lead to increase in sales and profit of a firm's product. Findings also revealed that, by improving upon existing products, customers' satisfaction could be achieved, hence profit. The findings of this research work will be essential to the industry used as a case study in regards to better development of its innovation funnel with feedback from market trends and consumer dynamic needs. Although, this research work used a single industry for analysis, however the result of the findings can be adequately applied to other firms especially firms within the same industry. The researchers unearthed from the findings that the Bonwire Kente weavers are mostly dwelling on innovation and aesthetics as well as effective strategies such as innovative marketing strategies consisting of internationalization, relationship marketing, sales promotion and exhibitions to enhance value of the trade and profit. By introducing and improving upon existing products, customer's satisfaction could be achieved, hence profit.

KEYWORDS
Aesthetic qualities, Business Growth, Innovation, SMEs, Sales and Profit.

INTRODUCTION

The issue of business growth has become a major concern to many entities, both governmental and non-governmental bodies due to the fact that, if business thrives, revenue increases and profit opportunities usually grow with it, hence, increasing shareholders' value, enhancing corporate image thereby creating opportunities for company's future in the face of competition. In pursuit of development, companies are exploring simpler, better, faster, cheaper, creative or innovative and technological ways of producing and marketing company's goods and services. For example, in comparison with developed companies like MTN, Guinness Ghana Limited, Barclays Bank Ghana Limited, and so on, one would say that they seriously embarked on innovation in their business operations and systems. Conversely, many businesses have ran downhill due to failure to improve their operations through exploring innovation to enhance aesthetic qualities, as well as a total neglect of the force of information technology thereby resulting in technological deficiency and sweeping most companies off the business world (Kotler and Keller 2006).

It is arguable that, there are a few companies that are still in existence without active innovation to enhance aesthetics on their business operations and systems. Even in such situations the rate of company development and growth is retarded. Nonetheless, there are few Small and Medium Scale Enterprises (SMEs) such as the Kente producing industries that are still vibrant in business by operating solely on indigenous technology since their items or products of trade are culturally driven, it is again arguable that to face modern trends, their business would strongly be augmented by blending such technologies with innovations. This fact can strongly be supported by what Rose(1996), discussed on Culture Change initiatives based on the findings from global studies on innovation that Traditional business models no longer hold for industrial success.

Although, Bonwire Kente Weaving Industry (BKWI) is pursuing Kente production and sales, a traditional craft, the business appears to be in growth and thriving in a market flooded with cheaper textiles in Kente products and other similar goods. This paper focus on the implication of innovation to enhance aesthetic qualities of products, as well as exploring whether in the current vibrant innovative and technological business trend, the Kente Weaving Industries are sill embarking on the indigenous ways of producing and marketing the textile or have to introduce some innovative ways to remain in business, maximize profit, fight competitors, maximize market share and satisfy their customers using the Bonwire Kente Weaving Industry as a case study.

Again, the researchers view that companies or industries of today cannot do without innovation to improving aesthetic look. This paper, therefore, seeks to identify, analyze, assess and discuss the role of innovation and aesthetics in business operations such as production and marketing strategies of the Kente Weaving Industries that enabled them endure the test of time by achieving industrial goals through growth among small and medium scale enterprises (SMEs) such as sales and profit maximization, product survival, customer taste and satisfaction etc., in the mist of today's vibrant competition such as the influx of other similar products on the market; and moreover, to use those concepts or knowledge as a tool to enhance the teaching and learning of business or marketing strategies in Ghanaian intuitions of learning and other industries in similar endeavours. It also aims at discovering the causes of innovation, that is causes of development of product innovation, new strategies and effect of competition on innovation. The paper also seeks to address the following questions:

- Can lack of innovation by the firm affect the organisation's profit and consumer satisfaction?
- Do the activities of competitors bring about product innovation?
- Is product obsolescence responsible for product innovation?
- How does product innovation done by the firm have impact on consumer's buying decision?
- What are the likely impacts of consumers' taste in bringing about product innovation?
- What are the innovative strategies put in place to market their products and what impact do they have on sales and profit?

According to Basadur (1995), Firm's innovation is defined as a deliberate change-making process of problem finding, problem solving and solution implementation. The corporate goal of a company could be multifarious but the most common one that cut across many firms in a competitive market is survival, which is achieved partly through profits. To achieve this goal, the blend of product innovation and marketing concept philosophy must be harmonized with the company's global strategy. What was a profitable product yesterday may not be profitable tomorrow. Furthermore, successful new products command substantially higher profit margin than mature or declining products. However, it should be noted that product innovation is not only carried out at the declining stage of a product, it can also be done to a totally novel product at the introductory stage. Marketing of new product goes through a period of growth, reach a peak, and eventually decline.

According to Avins and Quick (1998), and Midwest Global Group (2007), Several hundred years ago, Bonwire Kente Weaving Industry (BKWI) was established with mission statement and goals to manufacture to preserve tradition, design products mainly for their rulers and important dignities of society, a trade handed down from generation to generation. But today, the trend has changed, the products were no longer meant for only the affluent but the one who understands the philosophy of the products and could afford. This perception was also confirmed by the staff of BKWI during the research exercise. When this perception changed, production maximized, eventually gaining popularity in several towns and villages, other than Bonwire or the Ashanti Region. Many ethnic groups and other African Nations also adopted the profession; thus, producers decided to adopt it as entrepreneurship, a business to satisfy economic needs.

In their view, however, Avins and Quick (1998), elaborated that Kente cloth is a status cloth. It has great significance for the Asante peoples and their leaders. It is an indicator of position, gender and authority as well as taste. According to a report submitted by Midwest Global Group, (2007), in its cultural context of use, Kente is more than just a cloth. Like most of Africa's visual art forms, Kente is a visual representation of history, philosophy, ethics, oral literature, religious belief, social values and political thought. Originally, its use was reserved for their royalty and limited to special social and sacred functions. There are over 300 different types of cloth designs, each with its name. Each cloth design comes with numerous variations - in colour and distribution of motifs. Symbolisms are given interpretations on the basis of the general Akan culture and aesthetic values. Colour symbolism within the Akan culture affects the aesthetics of Kente. Colours are chosen for both their visual effect and their symbolic meanings.

For years, the mission of the BKWI was to deliver high quality products and services that meet the needs of its customers and consumers and at the same time, maintain pride of the Asante Kingdom and Ghana as a whole as well as ensure good return on investment.

1.2 CONCEPTS OF INNOVATION

Many businesses and organizations have ran downhill due to failure to improve their operations through exploring innovation, as well as a total neglect of the force of information technology thereby resulting in technological deficiency and sweeping most businesses off business world (Kotler & Keller 2006). Rose (1996) discussed on Culture Change initiatives based on the findings from global studies on innovation that traditional business models no longer hold for industrial success. Simmons (1980), said, unless countries have access to innovations that have been used successfully, they risk repeating unnecessary years of trial and error. If they could understand how innovations are successfully propagated, developing countries could reduce their dependence on foreign consultants. That is the reason why Shepherd (1990), cried that, innovation is glamorous, because it can generate large cumulative gains in productivity.

According to Lamberton and Minor-Evans (2002), creativity is your ability to come up with new and useful ideas. Simply put, it is thinking up new and useful ideas. They further stated that business factors such as the number and quality of products created are affected strongly by the creativity or innovation of the people in an organization. This idea was supported by Certo (2006), Belch and Belch (1998), Guerrillas (2007), Runco (2004), Feldman, (1999), and McLaren, (1999).

Kotler & Keller (2006) indicated that, instead of "product-centered" business has shifted to a "customer-centered" philosophy. This means that, the satisfaction of the consumers has now become one of the means through which an organization could survive. Again, they said that product life cycle (PLC) is a model or concept that helps marketers interpret a product and market dynamics. It can be used for planning and control as well as useful as forecasting tool. This idea was supported by Gordon in Akindipe (2007). The author added that innovation covers all that goes on from the beginning of an idea, to an invention, through to the marketing of a new product and the use of a new process. The author stressed that, It has become a common belief that a business enterprise has only two basic functions: Marketing and Innovating. Companies develop new products to meet shifting consumer demands, to capitalize on new technologies and to keep ahead of competition. Being innovative is seen as a necessary strategy for the modern day businesses.

To maintain an effective product mix, a firm just has to modify its existing products or introduce new ones. This is known as innovation. Stanton (1988), expressed a similar view. The researchers deduce that product innovation could make an old product become new. An obsolete product could be modified to satisfy the needs of it users more than ever before.

1.3 MEANING AND CONCEPT OF AESTHETICS

Warren (1990), has pointed out the understanding of the creative process as well as the process of evaluation of art objects lures and challenges scholars today just as it has for centuries. During the past several decades the study of these processes in Africa has provided stimulation for future thought, research, and contention, and has resulted in fruitful interactions and collaborations between social scientists, art historians and aestheticians. According to Nyarkoh (2011), Willett (1971), asserted that: ''The greatest contribution Africa has made so far to the cultural heritage of mankind is its richly varied sculpture'', (Personal conversation 2011). It is an indisputable fact that, one of the greatest contributions Ghana has made so far to the cultural heritage of mankind is its richly varied Kente cloth. Kente weaving is one of the well known indigenous arts of Ghana. The Kente weavers of Asante have for centuries produced rich Kente cloths.

The World Book Encyclopaedia (2001), and the New Encyclopaedia (2003), claim that Aesthetics is a branch of philosophy, species of value theory or axiology, which is the study of sensory or sensory-emotional values, sometimes called judgments of sentiment and taste. Aesthetics is closely associated with the philosophy of art. Today the word "aesthetics" may mean (1) the study of the aesthetic (all the aesthetic phenomena), (2) the study of perception (of such phenomena), (3), the study of art (as a specific expression of what is perceived as aesthetic). This Idea was supported by Ross(1982), Haggar (1962), Wilson

(1971), Hospers (1969), Amenuke et al (1993), and Adu-Agyem (1990). In brief, Amenuke et al (1993), added that, aesthetics deals with individual's senses of perception which inspires creativity and innovation, reaction to beautiful objects, events, ideas and so on.

Jessup and Rader (1976) classify the scope of aesthetic experience into the enjoyment of nature or natural phenomena, the making and appreciation of whatever is beyond practical and intellectual needs of the things and affairs of daily living, and the production and appreciation of fine arts. This concept was supported by Gardner (1982).

Therefore, in summary, the term 'aesthetics' concerns our senses and our responses to an object. If something is aesthetically pleasing, it is 'pleasurable' and one likes it. If it is aesthetically displeasing, it is 'displeasurable' and one does not like it. But Coetzee and Roux (1998), expressed divergent view, that, *"African aesthetic standards are different from the "accepted" standards of uniqueness and individuality; that African works of art, be they visual, musical, kinetic, or poetic are created as an answer to a problem and serve some practical end.* This idea was supported by Okeke *(1982*). Okeke added that "*The artist is responsible to society. Hence, Africa artists are held in high esteem by the society because they supply those design needs as are vital to their spiritual and physical well-being",* (Okeke , P. 62). Vansina (1974) and Gyekye (1996) expressed similar view.

This philosophy is relevant to this publication. The indigenous Asante Weavers also play very significant roles in the Ghanaian societies and their works are fully integrated into ways of life revealing deeds of Ghanaian societies.

1.4 RELATIONSHIP BETWEEN AESTHETICS AND INNOVATION

It is very necessary that researchers link innovation to aesthetics from the concepts discussed above. It is deduced by the researchers that, innovation and aesthetics are inter-related. This is because in order for businesses or enterprises to delight customers to buy their works they have to develop innovative approach from production to sales coupled with the firms' business or market mix (product, price, place, promotion) and other strategies to gain competitive advantage in an industry full of competition. Mostly, organisations that are able to achieve this become market leaders in the sense that they are efficient and effective in utilizing resources, thereby releasing innovative, aesthetically beautiful and quality but reduced prices; hence maximizing sales and profit. This concept is directly related to the study. The indigenous Asante Kente weavers are likely to maximize sales if this concept is employed.

1.5 CONSUMERS' REACTION TO PRODUCT INNOVATION

Kotler (1984), discussed that, consumer reacts to production innovation in various ways depending on the type of product innovation that is carried out on the product and the marketing methodology. In addition, the performance of the old product and the market reputation of the product manufacturer may determine the subsequent reactions of the customers.

The success or otherwise of product innovation depends largely on the reaction of the consumers which of course could be influenced by some of the activities of the manufacturers of the product. It is obvious that not all "new" products quickly become a success. Consumers react positively or otherwise to a product with the price of the product acting as a determining factor. In addition, the quality of the product also determines the success or failure of the product. These experiences are common to the Kente weaving industries where some customers were resorting to printed textile of Kente products due to the high price. Meanwhile, consumers of higher economic and social status were patronizing the woven fabrics from these industries.

1.6 MATERIALS AND METHODS

This paper utilized the qualitative approach (descriptive survey and case study) as well as quantitative approach to quantify data in tables, graphs and percentages. The paper again examined and analysed some studies that have been done on innovation and aesthetics. The researchers also sought essential information from the sampled population, individuals and experts who have unearthed the concepts on the study.

In order to ascertain accurate information on the objectives, the researchers employed questionnaires, interviews and observations. Data were also collected from available relevant or related literature based on the topic, in the form of textbooks, magazines, news papers, internet and related sources. The stratified and simple random sampling, focused group discussion, snowballing and purposive sampling were used to sample master weavers, junior weavers and apprentices. In all, 80 respondents were selected from a population of 300 weavers, that constitute more than 30% of the population as shown in Table 1. These weavers were selected from four Kente weaving centers within the Ashanti region such as Bonwire, about 20 kilometres from Kumasi, Adanwomase, Ntonso and Centre for National Culture, Kumasi. Apart from Bonwire being the most popular for its unique Kente products, these centres are also noted for their beautiful, elaborate and authentic weaves. Moreover, in the case of the customers or users of the Kente cloth, questionnaires were administered to express their views on the innovation and aesthetic concept of the cloth. The researchers however, thematically analysed the data by utilizing the SPSS Data Analysis Programme.

TABLE 1: POSITION / STATUS OF WEAVERS

	Position	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Master weaver	62	77.5	77.5	77.5
	Junior weaver	14	17.5	17.5	95.0
	Apprentice	4	5.0	5.0	100.0
	Total	80	100.0	100.0	

Source: Authors' Field Study, 2012

The results of the interviews and questionnaires coupled with observations and review of various related literature on the subject, led to quality discussion of the subject matter.The researchers personally sent sets of questionnaire to these experts (weavers). They were interviewed using one-on-one and focus group methods. Others were observed in their workshops and sometimes participant observation was done.

RESULTS AND DISCUSSION

In this section, the researchers discovered, analysed and discussed the concepts of innovation and aesthetics based on the findings and the Kente weavers' philosophy using samples of Kente cloths selected from the various weaving centres namely Bonwire, Adanwomase, Ntonso and Centre for National Culture, all in Ashanti Region of Ghana.

TABLE 2: PRODUCTS PRODUCED AND SOLD BY WEAVERS

		Frequency	Percent	Valid Percent	Cumulat. Percent
Valid	Kente cloth	14	17.5	17.5	17.5
	Dress and accessory	4	5.0	5.0	22.5
	cloth, dresses and accessory	32	40.0	40.0	62.5
	all of the above	30	37.5	37.5	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

FIGURES 1A – 1D SHOWING SAMPLE OF INNOVATED PRODUCTS FROM BKWI

FIG.1A

FIG. 1B

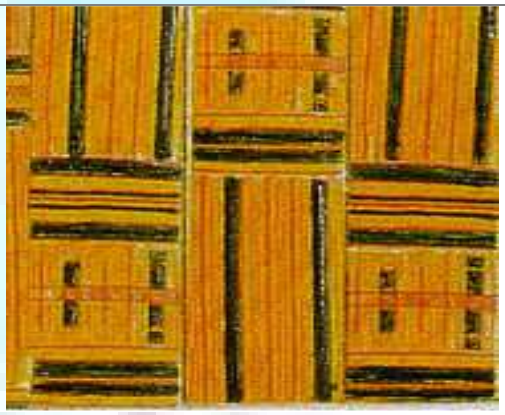
FIG. 1C

FIG. 1D

FIGURES 2A AND 2B SHOWING SAMPLES OF ANCIENT PRODUCTS FROM BKWI

FIG. 2A

FIG. 2B



FIGURES 3A & 3B SHOWING SAMPLES OF VARIOUS PRODUCTS FROM BKWI

FIG. 3A

FIG. 3B

FIGURES 4A & 4B SHOWING SAMPLES OF MATERIALS FROM BKWI

FIG. 4A **FIG. 4B**

The researchers researched into the kind of art works produced by the weavers apart from Kente cloth. It has been ascertained from 14(17.5%) out of 80(100%) respondents that the weavers produce Kente Cloth, 4(5%) indicated that they manufacture dress and accessories, 32(40%) said cloth, dresses and accessories, 30(37.5%) said all the items mentioned in the table. It is clear evidence judging from the above table that almost all the weavers from across the centres produce all the items since the largest percentage of the respondents confirmed to that. Fig. 1 to 4, however, illustrate innovated products (cloths), 5 and 6 show ancient (obsolete) products, 7 and 8 illustrate samples of other products while 9 and 10 show sample of raw materials, e.g. rayon and cotton yarns.

TABLE 3: INNOVATIONS OF CLOTH TO ENHANCE AESTHETIC CONCEPT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	72	90.0	90.0	90.0
	Agree	8	10.0	10.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field study, 2012

From table 3, data collected on innovation of cloth to enhance aesthetic concepts revealed that, the indigenous Asante Kente weavers engage in a very vibrant innovation. A total of 80 (100%) responded to the questionnaire, out of the total number, 72 (90%) strongly agreed to the fact that the indigenous Asante Kente weavers innovate their products, 8(10%) agreed on this fact. None of the respondents was uncertain or refused to the question whether the indigenous Asante Kente weavers engage on innovation. This means that, innovation serves as one of the factors that enhance the concepts of innovation and aesthetics among the indigenous Asante Kente weavers as well as sustaining their profession, improve their economic lives and promote national culture and tourism.

Upon interview, researchers unveiled that change in customer taste plays a very significant role to the improvement of Kente designs. Customers mostly bring a wide variety of choices of designs and colours to be executed for them. It is therefore, deduced that these designs reflect politics, social, education, aesthetic pleasures, culture and other important activities. Kotler & Keller (2006) indicated that, instead of "product-centered" business has shifted to a "customer-centered" philosophy. The quest to preserve the Asante culture and for that matter Ghanaian culture as well as the heritage of this profession, made these weavers go extra mile to discovering ways of constantly improving upon existing designs while maintaining cultural values. The master weavers expressed emphatically that it was very imperative to improve upon the designs. The philosophical and the cultural significance or implications are not taken for granted since these concepts are the most important factors that make the cloth very authentic.

It is therefore, deduced by the researchers that irrespective of the design, Kente would always be called as such once it is executed on a traditional loom by an indigenous Asante Kente weaver. The Kente weavers are so skillful that issues with their profession are not compromised.

TABLE 4: WAY OF INNOVATION TO ENHANCING AESTHETIC QUALITIES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Material Usage	4	5.0	5.0	5.0
	Design Innovation	18	22.5	22.5	27.5
	Creative Ideas	8	10.0	10.0	37.5
	All of the above	50	62.5	62.5	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

With reference to table 4, a total of 80 (100%) responded to the questionnaire, of the total number, 4(5%) said that the indigenous Asante Kente weavers innovate on material usage, 18(22.5%) confirmed that the indigenous Asante Kente weavers innovate or enhance aesthetics on design and improving the quality of the cloth, 8(10%) indicated that the indigenous Asante Kente weavers engage on innovation based on creative ideas while the largest number of respondents, 50(62.5%) said that the indigenous Asante Kente weavers innovate in all aspects of the ways indicated in the table above. No respondent said that the indigenous Asante Kente weavers engaged on technique innovation alone.

It is therefore, deduced that, depending upon the prevailing circumstances, there is a way to improve upon the general features and performance of the cloth to enhance innovation and aesthetic qualities by implementing all the ways stated in the table above. It is however recalled upon interview and observation by researchers from field that, right from the olden days the earliest weavers understood the essence to improve upon the general appearance of the cloth by changing the materials, techniques and designs of the cloth. It is therefore, revealed here that Kente designs are not static. This was supported by Ross(1982), Haggar (1962), Wilson (1971), Hospers (1969), Jessup and Rader (1976), Amenuke et al (1993), and Adu-Agyem (1990). In brief, authors lament that, aesthetics deals with individual's senses of perception which inspires creativity and innovation, reaction to beautiful objects, events, ideas and so on.

The researchers again deduce that culture is not static, a clear evidence that like their ancestors, the weavers saw the need that by improving upon the appearance and the quality of the cloth it can go far even beyond the boundaries of Ghana to sustain and project cultural values and this they were able to achieve by exporting the cloth and promoting tourism. For example, upon interview with the master weavers researchers discovered Kente designs like " Ohene afro hyen", literally the king has boarded the plane, "Toku kra toma", literally Toku's soul cloth etc. were wide variety of clothing that projects the cultural, political, social and aesthetic value of their products as well as cloths used by kings and higher personalities, especially when travelling outside the country thereby transcending boarders. Researchers therefore, alarm strongly that there is no aesthetics among the indigenous Asante Kente weavers without innovations or improvement, promoting the nation through economic, culture and tourism. Avins and Quick (1998), stated that Kente cloth is a status cloth.

Philosophically, researchers again deduce that, as a way of life, by maintaining those good values and conducts acceptable to societies and changing that which is frown upon, there will be a great significance of life as well as living a great legacy for generation to generation to inherit like the Asantes, a great inheritance of Kente designs. According to findings from field, the Asante Monarchy is nothing without Kente and this is a fact - the Asantehene as well as great personalities such as heads of states cannot celebrate Ghanaian or Asante functions respectively without Kente cloth. It is the voice of the Ghanaian culture. This fact could be supported by the 10th Anniversary of Otumfuo Osei Tutu II, the incumbent Asantehene of Kumasi, Ghana. The aesthetic aspect could not be exempted. The Asante chief always changes Kente design for a function and it is because of the innovative power lying in the hands of these weavers.

TABLE 5: KIND OR WAYS OF KENTE INNOVATION TO ENHANCE AESTHETIC LOOK

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	New Designs different from existing ones	4	5.0	5.0	5.0
	Blending	20	25.0	25.0	30.0
	All of the above	56	70.0	70.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

In order to discover the ways of innovation the weavers undertake to improve upon aesthetic look, of the total of 80 (100%) respondents, table 5 reveals that, 4(5%) said that the indigenous Asante Kente weavers produce entirely new designs different from existing ones, 20(25.5%) said they innovate by blending existing (indigenous) creation with new ones, 56(70%) said innovation is in line with all kinds, that is, improvement (modernization) on existing or indigenous design, introduction of new, genuine creation. It is however deduced that, kinds of innovation on designs (Adwini) will depend on the trends and prevailing circumstances.

TABLE 6: DESCRIPTION OF INNOVATION AND AESTHETICS OF KENTE CLOTHS/ EFFECTS OF INNOVATION AND AESTHETICS ON PRODUCTIVITY, SALE AND BUSINESS SUCCESS

		Frequency	Percent	Valid Percent	Cumulat. Percent
Valid	increases production, sale prices / profit	16	20.0	21.1	21.1
	Product quality improvement	4	5.0	5.3	26.3
	improvement in techniques and production process	22	27.5	28.9	55.3
	product versatility maximizes	4	5.0	5.3	60.5
	growth and competitive edge	22	27.5	28.9	89.5
	all of the above	16	10.0	10.5	100.0
	Total	76	95.0	100.0	
Missing	System	4	5.0		
Total		80	100.0		

Source: Author's Field Study, 2008

According to table 6, 76 (100%) responded to the questionnaire, out of the total number, 16(21.1%) responded that the innovation increased production, sales and profit, 4(5.3%) said that innovation has helped in product quality improvement, 22(28.9%) said it assisted in improvement in techniques and production process, 4(5.3%) indicated that it maximized cloth versatility such as usage, while 22(28.9) said it caused growth and gave the weavers competitive edge, the remaining 8(10.5%) said that they benefited in all the above ways. the remaining 4(5%) did not respond to this question. This revealed to the researchers that, weaving success largely depends on the above factors. Shepherd (1990), cried that, innovation is glamorous, because it can generate large cumulative gains in productivity. This is revealed in fig. 5.

FIG. 5: RESPONDENTS' VIEWS ON EFFECTS OF INNOVATION TO ENHANCE AESTHETICS

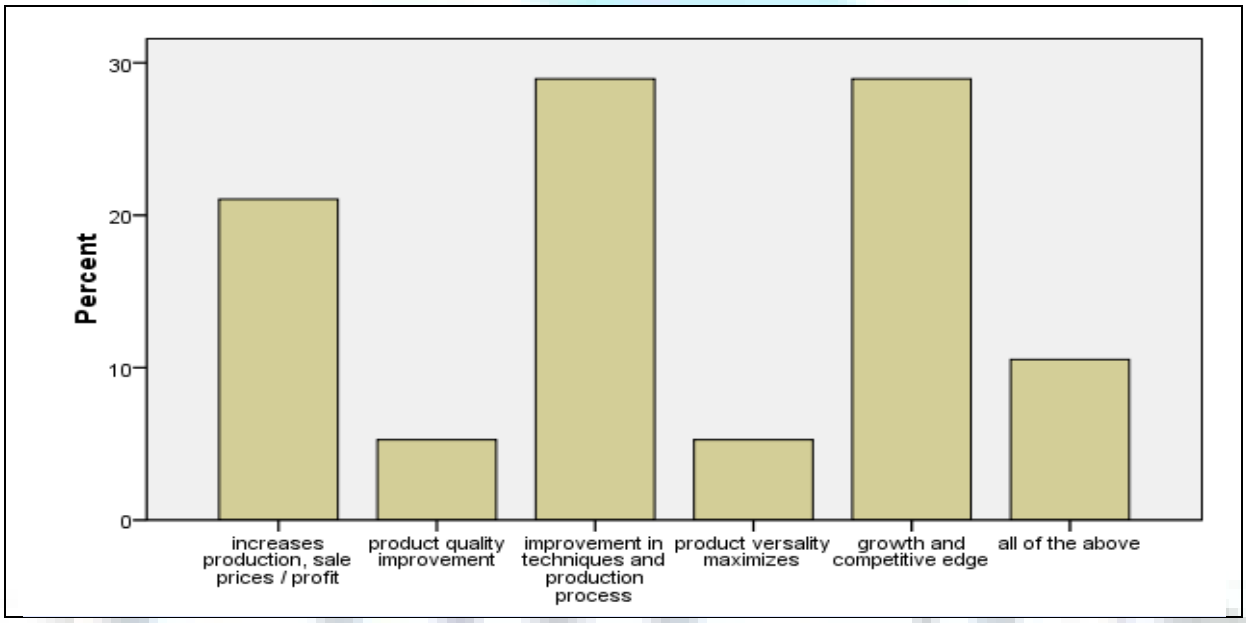


TABLE 7 FEATURES DIFFERED ON YOUR INNOVATED CLOTHS AGAINST PREVIOUS ONES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	improvement on beauty and quality, texture	48	60.0	60.0	60.0
	change of material	10	12.5	12.5	72.5
	reduced in weight of products / improved flexibility / improved texture	22	27.5	27.5	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

Figures from table 8 illustrate the fact that, out of the 80(100%) who responded to the questionnaire, the largest percentage of the respondents, constituting 48(60%) described that features of innovated items or art works against existing items were in line with the improvement on beauty, quality and texture of product., 10(12.5%) said they innovated by changing the type or quality of raw material, 22(27.5%) said that they bring changes by reducing the weight of products, improve its flexibility and texture. It is therefore, empirical that matters concerning innovation to enhance aesthetic qualities among these weavers for cultural impact could not be taken for granted. Weavers embark on vibrant innovative strategies to gain competitive edge over others elsewhere. Lamberton and Minor-Evans (2002), supported this fact, that business factors such as the number and quality of products created are affected strongly by the creativity or innovation of the people in an organization. This idea was supported by Certo (2006), Belch and Belch (1998), Guerrillas (2007), Runco (2004), Feldman, (1999), and McLaren, (1999),

TABLE 8: SET OF VALUES / SIGNIFICANCE /FEATURES/CHARACTERISTICS OF CLOTH SERVING AS MOST IMPORTANT VALUES IN CONCEPTS OF AESTHETICS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	cultural significance, beauty and design quality	32	40.0	40.0	40.0
	sophisticated, prestigious, elegance, quality, famous durability	14	17.5	17.5	57.5
	same likeness of either side, unique, difficult to imitate	6	7.5	7.5	65.0
	uniqueness in style weight, finishing, smooth, flexibility, attraction / bright colours / quality	16	20.0	20.0	85.0
	all of the above	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

Table 8 above revealed set of values, significance, features, characteristics of Kente works that serve as most important values in concepts of aesthetics and at the same time serving as competitive edge over rivals. 80 (100%) responded to the questionnaire where 40.0% said cultural significance, beauty and design qualities, 17.5% said products are sophisticated, prestigious, elegant, supreme quality, famous and durable, 7.5% indicated that Asante Kente weaves have features of same likeness of either sides, uniqueness and difficult to imitate, 2% attributed features or characteristics to be uniqueness in style weight, finishing, smoothness, flexibility, attraction or bright colours and supreme quality whilst 15% said products have all the above mentioned characteristics. This means the weavers are dynamic by having several ways to manipulate the designs to be competitive.

TABLE 9: REASONS FOR INNOVATION/ WHY WEAVERS ENGAGE IN INNOVATION

		Frequency	Percent	Valid Percent	Cumula. Percent
Valid	Impr't of product performance	26	32.5	32.5	32.5
	Attract customers	6	7.5	7.5	40.0
	All of the above	48	60.0	60.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2008

The researchers discovered from the above table, 9, that, 80 responded to the questionnaire to discover reasons to improve or innovate their art works out of which 26(32.5%) said that they did so to improve upon the performance of artifacts, 6(7.5%) said weavers did so to attract customers, 48(60%) constituted the largest who confirmed that, weavers innovate to improve products performance, attract customers, fight competitors and increase their profit. None (0%) said that they innovate to fight competition and enlarge profit margin alone. It can therefore, be deduced that weavers are very sensitive to activities that will improve their art works and business.

TABLE 10: SUCCESS WITHOUT PRODUCT INNOVATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	18	22.5	22.5	22.5
	No	50	62.5	62.5	85.0
	Uncertain	12	15.0	15.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

From table 10, again, the researchers deduced from the total of 80(100%) respondents, the essence was to discover development in the absence of innovation, of the total number, 18(22.5%) were in agreement, 50(62.5%), the greatest proportion was in opposition, whilst 12(15%) were not certain.

It is always important to improve upon the talents or what you have since it always brings positive impact. Nevertheless, this fact contradicts with what some of the respondents (of the customers' questionnaire) said, that, they would go in for ancient designs because, tourists preferred the beauty and philosophy associated with those products, therefore, that sell more due to that segment of the market. The researchers, however, deduced that, although it is necessary to innovate it is equally essential to identify and maintain that which can make positive impact. See fig. 6.

FIG. 6: SUCCESS WITHOUT KENTE INNOVATION

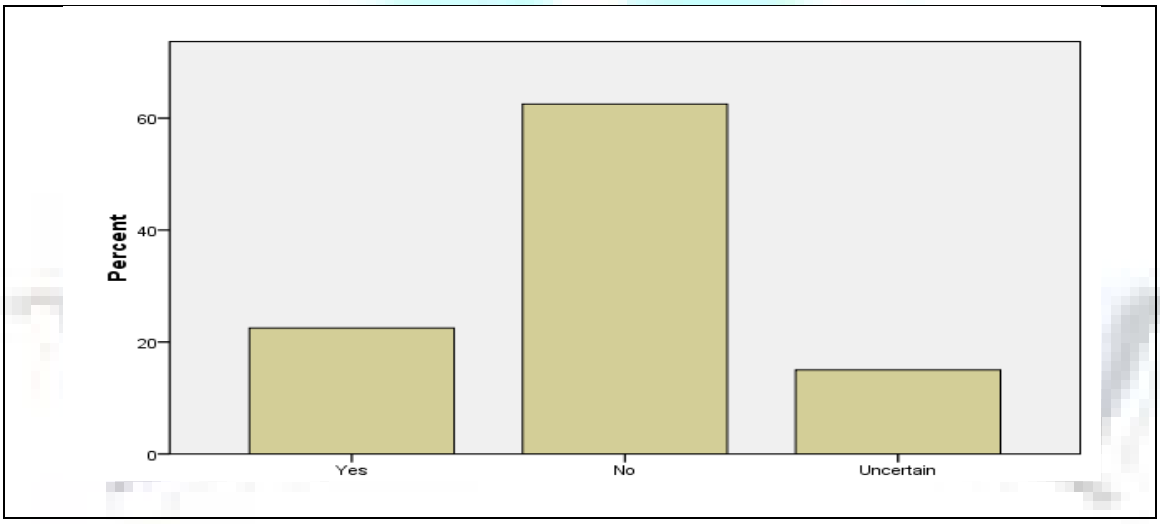


TABLE 11: REASONS FOR INTERNATIONALIZATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	market and profit maximization	44	55.0	55.0	55.0
	product and national recognition / identity	16	20.0	20.0	75.0
	international market is most profitable	6	7.5	7.5	82.5
	competition and choked local markets	12	5.0	5.0	87.5
	all of the above	10	12.5	12.5	100.0
	Total	80	100.0	100.0	

Source: Author's Field Study, 2012

The researchers discovered from the field that the weavers are really exporting their works, therefore, want to diagnose the real reasons for this action. Table 11, explores reasons for internationalization as innovative marketing strategies. A total of 80 (100%) responded to the questionnaire, where 44 (55%), the largest portion said they did so to maximize market share and profit, 16 (20%) attributed the reason for product and national recognition or identity, 6 (7.5%) said international market was most profitable, while 4(%) said competition and choked local markets led to the discovery of new strategies and 10(12.5%) attributed the reason to all the above listed reasons.

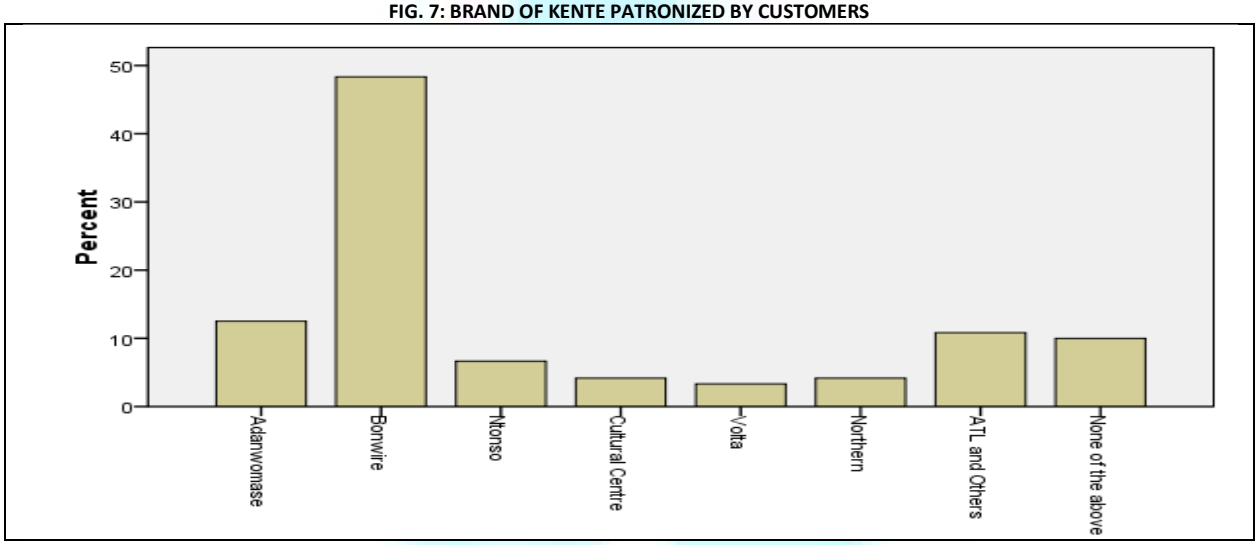
The researchers therefore, conclude that, as much as the weavers are exploring ways to improve upon the aesthetic qualities to enhance their works and cultural values, they are enforcing strategies to improve their economic lives through exports of products. This does not only benefit them but also promotes tourism while creating awareness of the rich culture and identity of Ghana abroad.

TABLE 12: BRAND OF KENTE PRODUCT PATRONIZED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adanwomase	15	12.5	12.5	12.5
	Bonwire	58	48.3	48.3	60.8
	Ntonso	8	6.7	6.7	67.5
	Cultural Centre	5	4.2	4.2	71.7
	Volta	4	3.3	3.3	75.0
	Northern	5	4.2	4.2	79.2
	ATL and Others	13	10.8	10.8	90.0
	None of the above	12	10.0	10.0	100.0
	Total	120	100.0	100.0	

Source: Author's Field Study, 2012

FIG. 7: BRAND OF KENTE PATRONIZED BY CUSTOMERS



The researchers ascertained from table 12, that, of the various brands of Kente products patronized by consumers, Bonwire Kente products were highly patronized among the rest with a percentage of 48.3%. This is a clear indication that Bonwire Kente products are highly preferred. Moreover, looking at the distribution of the various brands, choices of artifacts by clients really centred on Ashanti Region. See table 12.

TABLE 13: REASONS FOR PREFERENCE ON BRANDS FROM BKWI

		Frequency	Percent	Valid Percent	Cum. Percent
Valid	Reasonable Price	2	1.7	2.6	2.6
	Comfort	2	1.7	2.6	5.2
	High Quality	35	29.2	45.5	50.6
	Attracted by marketing style	2	1.7	2.6	53.2
	Designs	5	4.2	6.5	59.7
	Colors	2	1.7	2.6	62.3
	Significance of cloth	3	2.5	3.9	66.2
	All of the above	19	15.8	24.7	90.9
	None of the above	3	2.5	3.9	94.8
	Only Asante kente is known	3	2.5	3.9	98.7
	Other reasons, specify	1	.8	1.3	100.0
	Total	77	64.2	100.0	
Missing	System	43	35.8		
Total		120	100.0		

Source: Author's Field Study, 2012

To determine the reasons for respondents choice of designs from the Asante Kente weavers, the researcher discovered that, from table 13, of the 77(100%) who responded to this question, 35(45.5%) attributed reasons to quality, 19(24.7%) attributed the reason to all the above listed factors illustrated in the table, specifically, Reasonable Price, Comfort, High Quality, Designs, Colors, Significance of cloth, Only Asante is known, Attracted by marketing style and other reasons. Moreover, 2.6%, 2.6%, 2.6%, 6.5%, 2.6%, 3.9%, 3.9%, and 1.3% attributed the reasons to Reasonable Price, Comfort, High Quality, Attracted by marketing style, Designs, Colors, Significance of cloth, Only Asante is known, and other reasons respectively. This shows that consumers really express taste for a particular brand based on major benefits they derive but not just buy for buying sake. These could be some of the important factors for the success of the Indigenous Asante Kente weaves.

TABLE 14: TYPES OF MARKETING COMMUNICATION TOOLS ADOPTED AS INNOVATED MARKETING STRATEGIES

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Influencers/word of mouth exhibition/ publicity.	26	32.5	32.5	32.5
	Direct selling/marketing	4	5.0	5.0	37.5
	All of the above	50	62.5	62.5	100.0
	Total	80	100.0	100.0	

Source: Author's Field data, 2012

The researchers researched into types of Marketing Communication Tools adopted. From table 14, 80 (100%) responded to the questionnaire.26 (32.5 %) said that the industry used influencers or word of mouth and exhibition or publicity. 4 (5%) said direct selling or marketing while 50 (62.5%) said all the above were utilized. This reveals that integrated marketing communication is one of the innovations the industry is using as a strategy to gain competitive edge.

TABLE 15: KINDS OF INFLUENCERS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Heads of state	14	17.5	17.5	17.5
	Kings	14	17.5	17.5	35.0
	Celebrities	4	5.0	5.0	40.0
	All of the above	48	60.0	60.0	100.0
	Total	80	100.0	100.0	

Source: Author's Field data, 2012

As to the kinds of influencers used, of the 80 (100%) respondents, 14 (17.5%) said heads of states, 14 (17.5%) said kings, 4 (5%) said celebrities, 48 (60%) said all the above were used.

Now, 150 questionnaires were administered to customers of Kente Products where 120 were received or useable, assembled and analysed with tables and charts.

FIG. 8: VIEWS OF CUSTOMER PREFERENCE ON INNOVATED AND EXISTING PRODUCTS

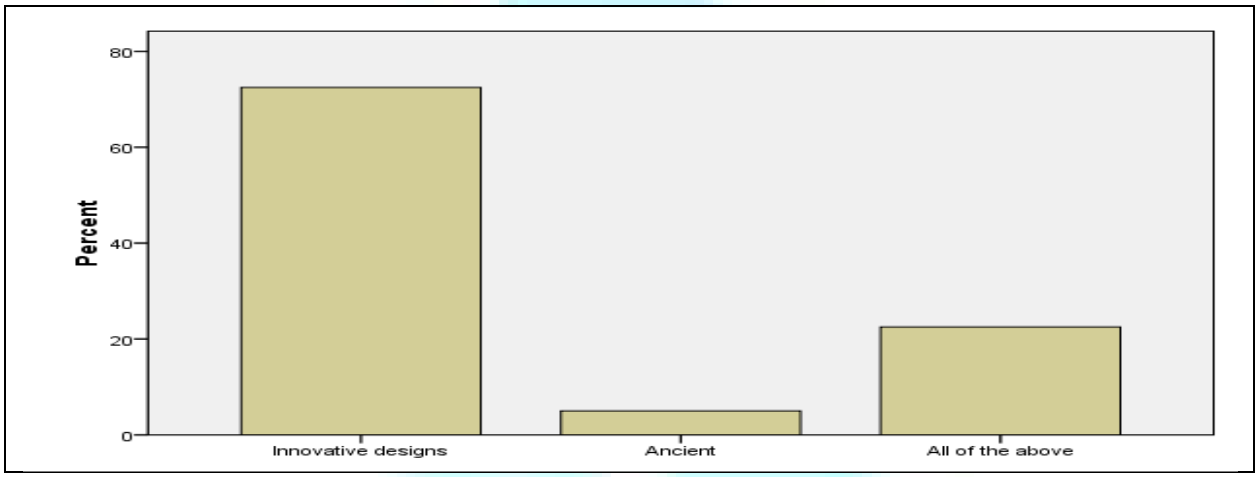


TABLE 16: REASONS FOR PREFERENCE ON BRANDS FROM BKWI

		Frequency	Percent	Valid Percent	Cum. Percent
Valid	Reasonable Price	2	1.7	2.6	2.6
	Comfort	2	1.7	2.6	5.2
	High Quality	35	29.2	45.5	50.6
	Attracted by marketing style	2	1.7	2.6	53.2
	Designs	5	4.2	6.5	59.7
	Colors	2	1.7	2.6	62.3
	Significance of cloth	3	2.5	3.9	66.2
	All of the above	19	15.8	24.7	90.9
	None of the above	3	2.5	3.9	94.8
	Only Asante Kente is known	3	2.5	3.9	98.7
	Other reasons, specify	1	.8	1.3	100.0
	Total	77	64.2	100.0	
Missing	System	43	35.8		
Total		120	100.0		

Source: Author's Field Study, 2012

To determine the reasons for respondents choice of designs from the Asante Kente weavers, from table 16, the researchers discovered that, of the 77(100%) who responded to this question, 35(45.5%) attributed reasons to quality, 19(24.7%) attributed the reason to all the above listed factors illustrated in the table, specifically, Reasonable Price, Comfort, High Quality, Designs, Colors, Significance of cloth, Only Asante is known, Attracted by marketing style and other reasons. Moreover, 2.6%, 2.6%, 2.6%, 6.5%, 2.6%, 3.9%, 3.9%, and 1.3% attributed the reasons to Reasonable Price, Comfort, High Quality, Attracted by marketing style, Designs, Colors, Significance of cloth, Only Asante is known, and other reasons respectively. This shows that consumers really express taste for a particular brand based on major benefits they derive but not just buy for buying sake. These could be some of the important factors for the success of the Indigenous Asante Kente weaves. Coetzee and Roux (1998), as expressed earlier in this research: *"African aesthetic standards are different from the "accepted" standards of uniqueness and individuality; that African works of art, be they visual, musical, kinetic, or poetic are created as an answer to a problem and serve some practical end.* This idea was supported by *(Okeke, 1982*) and Vansina (1974). Okeke added that "*The artist is responsible to society. Hence, Africa artists are held in high esteem by the society because they supply those design needs as are vital to their spiritual and physical well-being".* (P. 62)

TABLE 17: CHOICE OF DESIGN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Current/Innovative Designs	24	20.0	20.0	20.0
	Ancient Designs	45	37.5	37.5	57.5
	All of above	49	40.8	40.8	98.3
	None of the above	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

Source: Author's Field Study, 2012

Moreover, from table 17, to discover the choice between ancient and innovated weaves, the researchers diagnosed through which of the designs customers really patronized. 120 (100%) responded to the questionnaire. Of the 100%, 20% preferred strictly the Current or Innovative Designs, 37.5% strictly preferred the Ancient type of design, whilst 40.8% would not do without innovative or the ancient design, a combination of both, or any of them could be suitable. From the researchers' point of view, it is convincing enough from the above analysis that, the indigenous Asante Kente weavers, although may be successful by discarding the Ancient weaves due to modern trends, advancement may be rapid or stupendous by utilizing both technologies or incorporating both ideas in their designs, an evidence that most of the respondents (40.8%), expressed taste for both inventions, thus a jeopardy to them, on their economic lives without incorporating those good components of the ancients weaves, due to the fact that Ghanaians really love tradition, this may be one of the competitive advantage to their profession.

TABLE 18: REASONS FOR CHOICE OF DESIGN (NEW / ANCIENT)

		Frequency	Percent	Valid Percent	Cumulat. Percent
Valid	new is current, beautiful and fashionable	16	13.3	16.7	16.7
	Old preserves cultural significances/durable/ authentic	36	30.0	37.5	54.2
	both are admirable, cultural significance and prestige	20	16.7	20.8	75.0
	both due to variety since new cannot be separated from old	11	9.2	11.5	86.5
	both came from one source	6	5.0	6.2	92.7
	new is youthful and fashionable	2	1.7	2.1	94.8
	both to make choice for a particular occasion	2	1.7	2.1	96.9
	new / innovative design, culture is not static	3	2.5	3.1	100.0
	Total	96	80.0	100.0	
Missing	System	24	20.0		
Total		120	100.0		

Source: Author's Field Study, 2012

The above, table 18, is a true picture of respondents view for a particular choice of design. A total of 96(100%) responded to this question, out of which 16.7% percent said the innovative designs were very elegant, fashionable and most modern, 37.5% expressed that the ancient way of invention makes the designs preserve cultural significances, durable and authentic. Meanwhile, 20.8% indicated that both designs were admirable, cultural significance and prestigious whereas 11.5% observed both designs to be a variety, expressing further that, new cannot be separated from old. This means, according to them, culture is a blend. A group (6.2) viewed that since both invention came from one source, both were accepted, but 2.1% would strictly patronize the innovated weaves because that was very youthful and very fashionable. 2.1% also indicated that both designs were chosen so as to make a right choice for a particular occasion but 3.1% said that culture was not static, therefore, the need to update, hence old designs were meant for the past, rather preferred the innovated, current designs. This reveals that, the indigenous Asante Kente Weavers have wide characteristics of customers to satisfy. Also, by observing, researching and tailoring artifacts to satisfy these customers, they can expand their business.

TABLE 19: KENTE SATISFACTION BY CLIENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very satisfied	44	36.7	38.3	38.3
	Satisfied	48	40.0	41.7	80.0
	Neutral	20	16.7	17.4	97.4
	Dissatisfied	1	.8	.9	98.3
	Very dissatisfied	2	1.7	1.7	100.0
	Total	115	95.8	100.0	
Missing	System	5	4.2		
Total		120	100.0		

Source: Author's Field Study, 2012

To determine the degree of satisfaction of clients, researchers discovered that out of table 19, 115(100%) answered this question.44 (38.3%) were very satisfy with Asante Kente, 41.7% was satisfied, 17.4% was neither satisfied nor dissatisfied, 0.9% was dissatisfied, whilst 1.7% was very dissatisfied.

Comparing the degree of satisfaction to dissatisfaction, 80% of the clients who patronized or expressed desire for the Asante Kente products might have minimal complaints about weaves; while the rest 20% may constitute clients and non-clients who might have serious problems with brand dissatisfaction or might not even endorse the products. Since the rate of satisfaction far outweighs dissatisfaction, it appears products from Asante Weavers meet expectations of clients and it is a plus for them because the probability for re-purchase, market share expansion and revenue or profit maximization is high. Thus, dissatisfied customers might also constitute those who discovered certain loop-holes with the products and should the weavers have customer data-base, relationship marketing and post purchase communication in place, could follow up to dig out all potential complaints.

TABLE 20: PRODUCT RECOMMENDATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	98	81.7	86.0	86.0
	No	3	2.5	2.6	88.6
	Not sure	13	10.8	11.4	100.0
	Total	114	95.0	100.0	
Missing	System	6	5.0		
Total		120	100.0		

Source: Author's Field Study, 2012

114(100%) responded to the above, table 20, 86% constituted those highly satisfied customers who would definitely recommend products to others, only 2.6% said no while 11.4% involved those who were not certain. This means that there is a bright future for their products and business.

TABLE 21: REPURCHASE OF PRODUCT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Definitely	59	49.2	52.7	52.7
	Probably	31	25.8	27.7	80.4
	Might or might not	15	12.5	13.4	93.8
	Probably not	4	3.3	3.6	97.3
	Definitely not	3	2.5	2.7	100.0
	Total	112	93.3	100.0	
Missing	System	8	6.7		
Total		120	100.0		

Source: Author's Field Study, 2012

From table 21, 52.7% out of 100% would surely do repurchase, this may be due to brand satisfaction and other reasons unknown to the researchers; 27.7% involved those who were most likely to do repurchase, 13.4% were yet to take decision, 3.6% may probably not while 2.7% would definitely not do repurchase based on experiences or reasons known to them.

TABLE 22: IS ASANTE KENTE MOST PREFERRED?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	41	34.2	35.3	35.3
	Agree	23	19.2	19.8	55.2
	Uncertain	27	22.5	23.3	78.4
	Disagree	19	15.8	16.4	94.8
	Strongly Disagree	6	5.0	5.2	100.0
	Total	116	96.7	100.0	
Missing	System	4	3.3		
Total		120	100.0		

Source: Author's Field Study, 2012

The aim of table 22 was to test whether consumers really prefer Asante Kente products or brand to any other, the table reveals convincingly or satisfactorily that of the 116(100%) , consumers' preference to Asante Kente is high, due to the recorded highest figure of 55.2% of respondents in approval as against 21.6.% in refusal and 23.3% who expressed feelings of uncertainty. Comparing these three tables, it is transparent that the majority prefers Asante Kente cloth.

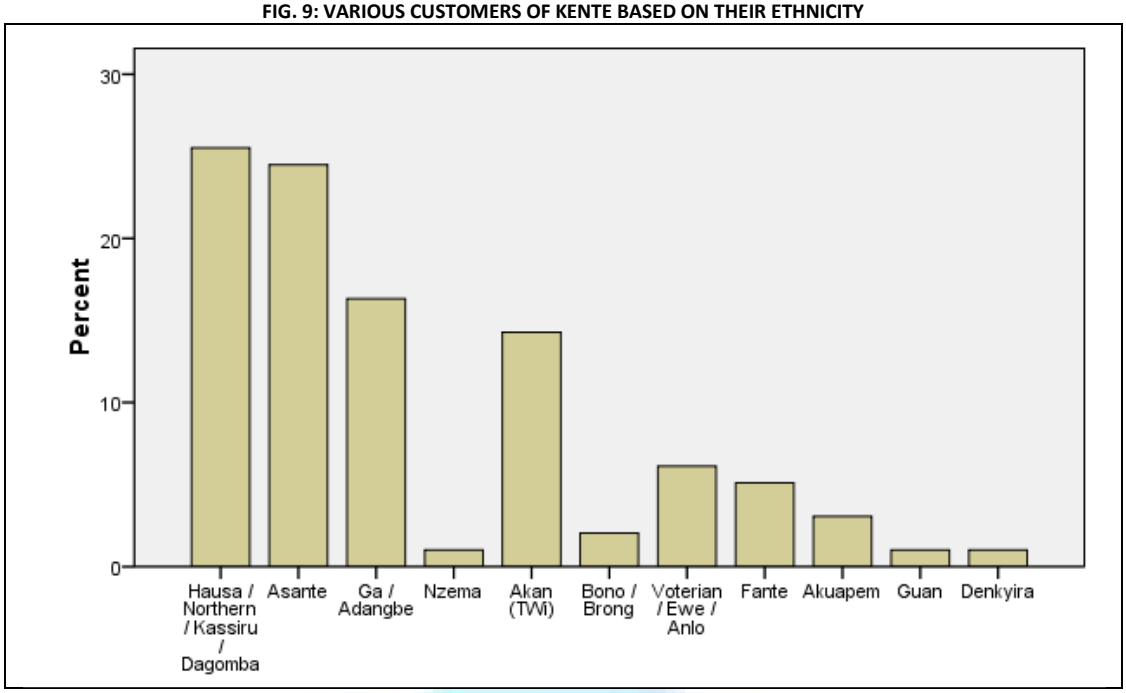
TABLE 23: STATE YOUR TRIBE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hausa / Northern / Dagomba	25	20.8	25.5	25.5
	Asante	24	20.0	24.5	50.0
	Ga / Adangbe	16	13.3	16.3	66.3
	Nzema	1	.8	1.0	67.3
	Akan	14	11.7	14.3	81.6
	Bono / Brong	2	1.7	2.0	83.7
	Voterian / Ewe / Anlo	6	5.0	6.1	89.8
	Fante	5	4.2	5.1	94.9
	Akuapem	3	2.5	3.1	98.0
	Guan	1	.8	1.0	99.0
	Denkyira	1	.8	1.0	100.0
	Total	98	81.7	100.0	
Missing	System	22	18.3		
Total		120	100.0		

Source: Author's Field Study, 2008

From table 23, in order to eliminate or minimize prejudice in the findings, researchers find it prudent to examine whether a fair distribution of questionnaires have covered various tribes or ethnic groups in Ghana. It was discovered upon critical examination of the questionnaires that, taste of respondents towards a particular brand were not influenced by the ethnic group or tribe one belonged. To prove this fact, from the table, of the total of 98(100%) who responded to this question, the highest percentage constituted 25.5% from the Northern Region(Hausa or Dagomba), followed by Asante with 24.5%, Ga Adangbe(16.3%), Akan(14.3%), Anlo(6.1%), Fante(5.1%)Akuapem(3.1%), Bono(2%) while Nzema, Denkyira and Guan form 1% each. This reveals that, most tribes from across the country express interest in Kente products and this could be one of the factors for development of their products. Findings from this survey also revealed that most of these ethnic group expressed desire for Asante products or brands. See fig. 9.

FIG. 9: VARIOUS CUSTOMERS OF KENTE BASED ON THEIR ETHNICITY



1.7 CONCLUSION

Findings from this research revealed strongly that, carrying innovations on existing products can enhance aesthetic qualities, thus making products very captivating to increase sales, hence, profits. Innovation is one of the key factors that make businesses thrive. If combined with business strategies such as integrated marketing communications (IMS), e.g., sales promotions, will espouse greater returns on investment. Practically, the needs and wants of the consumers are satisfied through the company's product(s). Innovation according to works cited by various authors in this research also move with creativity, where new products can boost the taste and preferences of consumers. For a product to meet these objectives of satisfactions, it must undergo product innovation to always enhance aesthetic look at regular intervals because of the dynamic nature of consumer's needs and wants that change over time. The idea behind product innovation does not end in the satisfaction of changing taste of the consumers, it also helps in reducing the cost of producing the goods, and thus, selling it to the consumer at reduced prices. This aspect of product innovation and aesthetics help company to have an edge over competing products in terms of cost. It is true that most product properly produced will enjoy consumers' patronage.

One point must be noted and that is a good product may fail if the producer fails to create awareness for the product. It is therefore imperative for producers to emphasize on appropriate marketing strategy, e.g., to make adequate promotion for new products.

Finally, it is worthy to note that product innovation and aesthetics is not limited to once in a product's lifetime. A product can be innovated as many times as possible to enhance aesthetic values or beauty.

Businesses should engage in extensive research, to find out the actual needs of the consumers before going into production. This model illustrates Kotler & Kellers's concepts on customized marketing in the 21st century. This will go a long way in preventing the production of products which are not actually needed because of its failure to satisfy the needs and wants of the consumers;

In addition, firms or enterprises should carry our research on the changing taste of the consumers periodically so as to adjust the already existing product, to meet the dynamic taste of consumers because failure to do so will make the product obsolete;

Since product innovation helps in reducing cost, businesses should engage in it at regular interval so as to cut down through value analysis strategy which is a segment of product innovation to enhance aesthetics.

Firms could monitor the activities of competing products. By so doing, the company will know the innovations made on competing products thereby adjusting its own product so as to possess such new attributes or supersede competing brands. It is finally recommended by researchers that, this research will go a long way to enhance the teaching and learning of schools and colleges in Ghana; as well as enhance the activities of businesses, especially firms within the same industries if the concepts unraveled in this research are taken seriously.

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A COMPARATIVE STUDY OF ONLINE OFF-CAMPUS COUNSELING FOR ADMISSION TO ENGINEERING INSTITUTIONS IN INDIA

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ABSTRACT

Today, admission of various engineering institutions like Indian Institute of Technology's, National Institute of Technology's and state level engineering institutions successfully are being done by online off-campus counseling process. This process saves time, money and efforts to the students, parents and also government. Initiative of online counseling for admission purpose is a part of good governance in India. This paper presents a comparative study of online off-campus counseling process to the admission of undergraduate engineering and technology courses in the various state of India.

KEYWORDS
Engineering Institutions, Governance, Online Counseling.

INTRODUCTION

Engineering education in India started during the British era and focused mainly on civil engineering. A brief history of engineering education in India is available in the Rao Committee report [1] and the Ministry of Human Resource Development website [2]. The Engineering College at Roorkee (1847), Poona Civil Engineering College at Pune (1854), Bengal Engineering College at Shibpur (1856), Banaras Hindu University (1916), Harcourt Butler Technological Institute, Kanpur (1920) were some of the earliest engineering colleges established that continue till the present day. In 1945 the Sarkar Committee [3] was appointed to suggest options for advanced technical education in India. The Sarkar committee recommended the establishment of higher technical institutes based on the Massachusetts Institute of Technology in the four regions of India. This resulted in the setting up of the five Indian Institutes of Technology at Kharagpur (1950), Bombay (1958), Kanpur (1959), Madras (1960) and Delhi (1961) (Delhi was added on to the original four). The All India Council for Technical Education was set up in 1945, to oversee all technical education (diploma, degree and post-graduate) in the country.

The Indian Institutes of Technology (IITs), National Institute of Technology (NITs) are institutions of national importance. These institutes, along with Indian School of Mines (ISM), Dhanbad, and Institute of Technology, Banaras Hindu University (IT-BHU), Varanasi, Indian Institutes of Information Technology (IIITs, IIITM & IIITDM) play a leading role in technological manpower development. The admissions to the Undergraduate Programmes for all Indian and Foreign nationals at these institutions are made through the online off-campus counseling. All these institutions are known for providing quality education in science and technology and for research in frontier areas. There are some states, where admission to engineering institutions are being done by online counseling like Haryana, Uttar Pradesh, Madhya Pradesh, Orissa, West Bengal, Kerala, Rajasthan, Gujarat etc.

OBJECTIVES AND NEED OF ONLINE COUNSELING

Online off Campus Counseling is to serve candidates in terms of providing them with the facilities of counseling at their place of convenience. This process eliminates need for coming to the Central place and avoids unnecessary hassles. The main purpose of online counseling are-

- To bring in 100% transparency in conduct of counseling and allotment of seats.
- To minimize travel burden on candidates & their parents by making the system online.
- Minimizing human interference in processing of results and preparation of inter se-merit

If supply and demand for engineering graduates is to be balanced, it is expected that the number of engineering graduates required would depend on the growth of the economy and the population. [4].

From the below table and figures shows that the number of engineering institutions and enrollment of students increases rapidly, hence Ministry of Human Resource and Development have decided that from 2002 admission of engineering courses through online procedure. MHRD give as a project to NIC (National Informatics Centre (NIC), DIT, MoCIT, and Government of India) under the National E-Governance Plan. National Informatics Centre (NIC) is a premier S & T institution of the Government of India, established in 1976, for providing e-Government / e- Governance Solutions adopting best practices, integrated services and global solutions in Government Sector.

TABLE 1: GROWTH OF AICTE APPROVED TECHNICAL INSTITUTIONS & STUDENT ENROLLMENT IN ENGINEERING & TECHNOLOGY COURSE FOR LAST SIX YEARS

Year	Number of Institutions	Student Enrollment	Added in Year
2005-06	1451	519922	78
2006-07	1511	550986	171
2007-08	1668	653290	394
2008-09	2388	841018	1345
2009-10	2972	1071896	1131
2010-11	3233	1314594	643
2011-12	3393	1485894	357

Source: Secondary Data (AICTE Approval Process Report 2012-13)

FIGURE 1: GROWTH OF ENGINEERING INSTITUTIONS FROM 2006-12

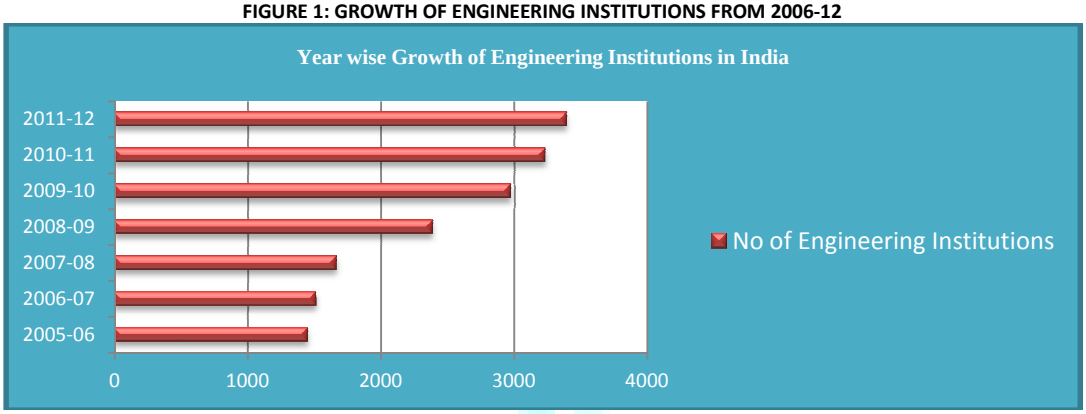
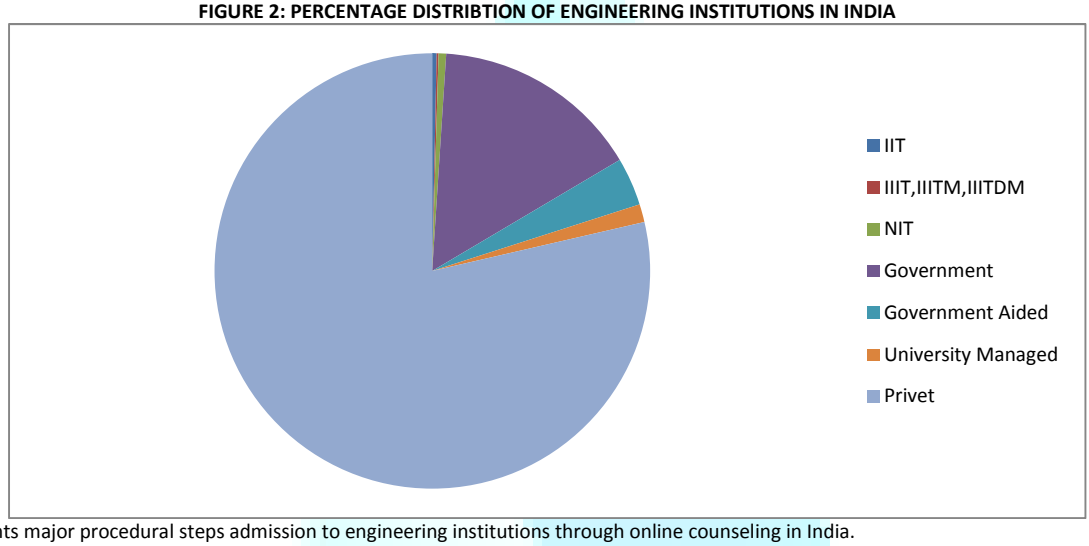


FIGURE 2: PERCENTAGE DISTRIBTION OF ENGINEERING INSTITUTIONS IN INDIA



This paper presents major procedural steps admission to engineering institutions through online counseling in India.

RESEARCH METHODOLOGY

This study is based on secondary data. The required data have been collected from various sources i.e. IIT-JEE counseling, AIEEE counseling, State counseling board and internet. The trend analysis of the data has been done. In order to analyze the collected data, compared various counseling activity and shows the number of help centers allotted for counseling.

TABLE 2: SUMMARY OF ONLINE COUNSELING PROCESS IN DIFFERENT STATES IN INDIA

Exam/State-wise Exams	No. of Engineering Institutions/Intake (Seat)	No. of Help/Reporting Centre	Process/Activity
IIT-JEE	17 9647	17	Online Registration at http://jeecounselling.iitd.ac.in/JCOP Online Choice Filling a) Obtain a User-ID b) Generate and print a challan for making the counseling fee payment c) fee payment at any State Bank of India branches d) Complete the registration Payment of counseling Fees Document to be sent to Zonal IITs
AIEEE	69 34803	39	Online registration at www.ccb.nic.in Online choice filling and locking of choices Online Seat Allotment and personally reporting to a Reporting Center Getting Admitted to Allotted Institute
WBJEE	96 NA	26	Online Registration at htpp://www.wbjeeb.nic.in or www.aieee.nic.in Payment of initial counseling fees through E-challan of UBI Online Choice filling and choice locking Allotment of Seat and Remote Admission at Reporting Centre Physical reporting at Allotted Institute
UPTU	327 118282	24	Registration at www.uptu.ac.in, www.mtu.ac.in, www.upsee.nic.in Phase-I : Off-Campus On-Line Counseling Phase-II: On-Campus On-line Counseling First Counseling http://www.upsee.nic.in
RPET	127 54806	78	Online Registration at www.techedu.rajasthan.gov.in or Online Preference/Choice Filling Allotment of Seat Reporting at help centre and deposited fees
Gujarat-CET	105 44243	75	Online Registration at www.gujacpc.nic.in Online Preference/Choice Filling Mock Round Allotment of Seat Reporting at help centre and deposited fees
Maharashtra-CET	309 114268	31	Online counseling through centralized Allotment Process Online Application Form on www.dte.org.in for CAP & CAPAI Confirmation of Online Application Form & Document Verification at ARC only Display of Provisional Merit List Filling up of Online Option Form for each of the CAP AI/ CAP rounds I/II/III. Confirmation of Online Option Form at ARC only Display of Provisional Allotment at ARC Reporting to the institute as per allotment of the CAPAI / CAP rounds I/II/III and confirmation of admission
MP-PET	221 90,360	62	Online Registration at www.dtempcounseling.org or www.mponline.gov.in Document Verification at approved Help Centre Online Preference/Choice Filling and Part Payment of Tuition Fee Online Allotment Reporting at Allotted Institute and Document Verification
Orissa JEE	99	20	Online registration at www.ojee.nic.in Online choice filling Reporting at nodal center, Payment of counseling fee, Document verification, Final choice locking and print out of final seat choice. Provisional Seat Allotment (Provisional round allotment) Part payment of Admission Fees through designated bank. Up-gradation, if any and final allotment.(Final round allotment) Reporting at the allotted Institute/Nodal Centres.(Rank wise Allotment of seats)
Uttaraknd	35 4428	01 University Help centre	Downloading of Bank-Challan & Depositing Counseling Fee Online Registration at http://uktech.ac.in or http://ukcounseling.nic.in Online Filling of Choices Allotment of seat Reporting at Allotted Institutes/Colleges
Haryana	166 64973	123,UTD	Depositing fees at www.hscs.org or www.hscs.in Online registration at www.tehadmissions.gov.in. Online choice filling and locking Allotment Reporting at the allotted Institute.

Table.2 shows the various states online counseling process with number of engineering institutions, number of students and help/reporting centre's to gives proper guidance regarding counseling process.

Rider- There may be difference in data due to non availability of data (Secondary Source)

SERVICE PROVIDERS AND USERS

- Directorate of Technical Education (DTE), State Technical University
- State Counseling Society
- National Informatics Centre (NIC), MP Online Limited
- The State Bank of India, Union Bank of India and ICICI Bank branches; Fee Collection Gateway
- Participating Institutions (PI)
- Candidates/Students and their parents

Services are provided to candidates by login into public websites by two links-

- Govt to Citizen (G2C)
- Govt to Govt (G2G)

BENEFITS OF ONLINE OFF-CAMPUS COUNSELING

- It saves the time, money and effort of the students, parents and also service providers.
- 100% transparency in the allotment of seat.
- Less number of manpower is required due to internet based counseling.

DRAWBACKS WITH ONLINE COUNSELING

There is a fear of misplaced options (Change the user name and password) that may result in loss of seat. Another fear is that the server downtime, if happens during counseling, can create a havoc as many candidates will not be able to understand the online error messages. Third fear is that during the internet banking payment option, there may be chance of server failure due heavy rush and may be failure of supply. There are some precautionary measures should be taken by the students while online counseling-

- Students should place as many options as possible by own.
- Change the password after registration in which temporary password received via SMS.
- Do not share user name, counseling password and internet banking password to others.
- Choices are filled at help centers or reporting centre's or own personal computers.

CONCLUSION

Online off-campus counseling process to the admission of engineering college is a significance of good governance in India. There may be need to reforms in the process through common online admission test conduct by MHRD. Therefore student need not to give various examinations and nor spent money, time and effort. According to their all India merit rank they can opt admission via online counseling to the premier Institute. To streamline the services, central board of secondary education initiates joint entrance examination from 2013.

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CUSTOMER SATISFACTION TOWARDS THE CHARGES AND SERVICES OF THIRD PARTY LOGISTICS SERVICES FOR INTERNATIONAL TRADE – AN EMPIRICAL STUDY

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ABSTRACT

Third party logistics (3PL) is a business dynamic of growing importance all over the world. However, it is at a very nascent stage in India, though some domestic and multinational companies are trying to establish themselves in this sector. This paper is an attempt to provide a 3PL perspective in India. The paper focuses on two major issues of services and charges provided by the 3PLs and the preferences of services by various international traders with respect to international trade –and impact of usage of third party logistics services on business results. The paper reveals that most 3PL users are satisfied with the current level of services provided by 3PL service providers as it has led to a positive impact on business results. As a result, the usage of third party logistics services is likely to increase substantially in the future.

KEYWORDS
International traders, outsourced services, Third Party Logistics.

1. INTRODUCTION

Outsourcing has been a strategic management tool for a time now. The 2010 3PL globalStudy affirms that shippers regard logistics and supply chain management as key to their success, and many credit 3PL' s with helping them to achieve critical service, cost, and customer satisfaction goals. Results of the review are based on the responses from 1,133 3PL users and non-users, as well as 3PL s, which were added for the first time to the survey group in 2009.The 2009 global annual 3PL Study, 64% of shipper respondents cited total landed cost (TLC) reporting and analysis as a critical capability they would like to see in their 3PL s. This strong interest in total landed cost – the sum of all costs associated with making and delivering products to the point where they produce revenue – suggested to take a deeper look in this area and the results clearly portrays that there his huge demand for 3pl sector all over the world. Shipper-3PL relationships are being impacted significantly by the prevailing uncertainty and economicvolatility in global markets, It is very important for 3PLs to mitigate or reduce any financial risk or service level impact that this may causesignificant challenges for both shippers and third-party logistics providers (John 2009).As a provider of outsourced logistics services, know that openness, transparency and good communication, flexibility and the ability to achieve cost and service objectives are key to the success of customer relationships ,but in order to be an effective partner for our customers, it is also increasingly important for us to understand the entire business, not just logistics Kai Peters(2008). Thus, outsourcing allows organizations to reallocate resources, less needed for the value creation, to its core competencies (Loren, 2002). This increasingly powerful outsourcing trend is true for the third-party logistics (3PL) services industry (Qureshi et al., 2008) in which 3PL service providers perform traditional logistics functions such as inbound and outbound transport, warehousing and other services such as reverse logistics and managerial activities (Fabbe-Costes et al., 2009). The functions are carried out by logistics service providers, with specialised sub-suppliers, on behalf of industrial logistics service buyers.

Third party logistics services are widely prevalent in North America (Lieb, 1992; Lieb and Randall, 1996) and Europe (Lieb, Miller and Wassenhove, 1993) and have been examined in a number of previous studies. Similar studies have focused on logistics issues in Bulgaria (Bloomen and Petrov, 1994), South Africa (Cilliers and Nagel, 1994), Australia (Dapiran, Lieb, Millen and Sohal, 1996), Korea (Kim, 1996), Asia Pacific (Millen and Sohal, 1996), Singapore (Bhatnagar, Sohal and Millen, 1999), and Indochina (Goh and Ang, 2000). These countries have availed large benefits of 3PL services over the last few years. However to date there has been very minimum number of comprehensive study reported in the literature that has focused on third party logistics services in India. There are many isolated examples of individual organizations and their respective logistics capabilities. Hence, it was considered important to carry out a comprehensive survey on 3PL practices in India.

The paper has been organized as follows. In the next two sections, the authorspresent a brief description of the Logistics outsourcing - third-party logistics (3PL) followed by a review of the relevant literature. Subsequently, the research methodology which is then followed by the results, based on data analysis, from the survey. Finally, future trends and managerial implications followed by conclusions arising from this research are presented.

2. LOGISTICS OUTSOURCING - THIRD-PARTY LOGISTICS (3PL)

Logistics research, and 3PL in particular, has received topical interest since the 1980s (Menon et al., 1998) and experienced rapid development during the past three decades (Berglund, 2000; Selviaridis& Spring, 2007).Technology is the key to all businesses and if you take a 3PL perspective our job is to reduce supply chain costs and add value for shippers(Kane 2010) and as it is a small margin business so driving the efficiencies that need to be driven to reduce costswith 50 percent of costs being labor cost. Cost reduction and improved reliability in services are the main factors likely to increase shipper respondents'use of 3PLs(Kai Peters 2010).Complexities of global trade, increased competition worldwide, and continued downward pressure on prices and margins are urging companies to develop better logistics systems in order to fulfill the need for a high service level at a lower cost (Sheffi 1990; Wilding and Juriado 2004; Lieb 2008) Logistics is about the art of managing material, information and financial flows within and between companies (Christopher, 1986; Chow et al., 1994; Jahre&Persson, 2005). Flows become business opportunities for logistics service providers if these are able to provide value (e.g. cost advantage and technical expertise) to any logistics activities, i.e., exceptional capabilities (Fawcett &Magnan, 2002). The logistics services industry has rapidly developed in regard to these capitalization opportunities of time and accuracy, which are important for customer service (Virum, 1993). The strategic advantage of 3PL service providers is the ability to economies by better use (engineering) of the existing logistics expertise and systems of the logistics services buyers (Sheffi, 1990; Sauvage, 2003). Hence, the logistics service providers capitalise on the information technology and alternative cost of buyers, to modify and/or create new systems and service offerings.

The development of a 3PL industry results from logistics services market restructuring through deregulation of transportation, which has consequences for price and service competition among carriers (Virum, 1993). Global markets and trade barrier reduction have increased customer requirements related to advanced logistics expertise and sophisticated technological capabilities (Sink & Langley, 1997), which are seldom core competencies of industrial organisations (Skjoett-Larsen, 1999). Thus, development of the logistics outsourcing phenomenon is not necessarily supported by company-specific reasoning only, but is a product of

the experienced outsourcing trend (Razzaque&Sheng, 1998). It should be noted that the literature contains work on the differences between users and non-users of 3PL services (e.g. Murphy &Poist, 1998).

Consequently, the predominant goals of buyer-provider co-operation are productivity, improved quality, benefit-sharing and jointly reduced uncertainty. Researchers have assessed both the advantages and drawbacks in logistics (see e.g. Leahy et al., 1995; Razzaque& Sheng, 1998). The logistics services configurations of service providers may vary in terms of resource and capacity headroom, but the notion of one-stop shopping2 has expanded the scope of outsourced and delivered services, enabling logistics service buyers to better leverage scale to achieve cost advantages.

The merger and acquisition activity in the 3PL industry explains the shift in logistics service buyers' propensity, from employing many logistics service providers (Lieb& Miller, 2002) to one-stop shopping. Therefore, procurement of logistics services from multiple providers declined at the end of the 90s. One material determinant was the growing size of logistics service buyers and the expanded scope of service requirements. The response from the logistics services supply-side included mergers and acquisitions and forming of logistics alliances. The complex requirements again resulted in a shift toward procurement from several logistics service providers, increasing international competition on the supply-side. The 3PL providers expanded their service portfolios to include financial services, purchasing services and contract manufacturing in specific agreements with detailed service scopes (Andersson&Norrman, 2002), well-defined margins (Lieb& Kendrick, 2003), standardization of services and the responsiveness to changing market conditions. In addition, the merger and acquisition activity is indeed one driving force for the global coverage of 3PL services.

3. LITERATURE REVIEW

The variety of research topics in the field explains the fragmented nature of the logistics discipline, of which a dominating purpose is to solve practical problems (Gubi, et al., 2003). This has resulted in logistics researchers being satisfied with the managerial content of research and regarding relationships with practitioners as unique (Kent &Flint, 1997). Therefore, logistics is associated with the common positivistic tradition of research, which seems to be the predominant research approach in logistics (Kovács&Spens, 2005). Conversely, Aastrup and Halldórsson (2008) maintain that the claim lacks comprehensive evidence, and that the positivistic tradition, in which past logistics research is supposedly housed, is rather a legacy or myth. Ashenbaum et al. (2007) show that the usage of 3PL firms has kept increasing over the past decade.In addition, they point out that expenditures on using third-party logistics has been growing constantly and is estimated to grow in the future and that the use of third-party logistics firms is becoming a common practice. The growth of 3PL firms, both on the supply side and demand side, has made it necessary to treat such firms as a separate industry (Berglund et al. 1999). As a growing industry, 3PL firms account for a large portion of the logistics sector. Currently the outsourcing volume is growing at roughly_10 billion yearly (Rebitzer 2009).

Mentzer and Kahn (1995) argue that research in logistics has substantive justification, but less theory testing and development, indicating that logistics research is influenced by applied studies. Logistics research represents a more combined discipline including borrowed and applied concepts, principles, methodologies and methods with the logic "...there is no reason to reinvent the wheel." (Stock, 1997). Disciplines are applied to the same complex realities but from different perspectives. Arlbjørn and Halldórson (2002) claim that logistics research is fragmented by nature, and therefore the critical stance towards discussions on how surrounding disciplines are applied in logistics, and the extent to which these are used, is valid. An agreed advantage of utilizing differentstreams of research is flexibility in topic selection and analysis. Following from this, propositions and hypotheses testing and application of rigorous data analysis methods are potential generators of logistics research contributions.

Scholars have proposed that the 3PL literature may be advanced through more studies with a comprehensive conceptual basis (e.g. Maloni& Carter, 2006; Marasco, 2008). In other words, research in the 3PL domain has had a relative lack of theoretical work in the past compared with the empirically based studies. Thus, the literature has a largely exploratory and descriptive content. Consequently, development of the 3PL domain requires more emphasis on theory development, constructs and conceptual frameworks for building a conceptual foundation in subsequent empirical studies.

Research in the 3PL domain has to a large extent included conceptual descriptive work on buying processes (Sink & Langley, 1997), costs dimensions of decisions on placing a logistics activity out to be undertaken by an external service provider (Maltz&Ellram, 1997) and considerations related to purchasing processes of service requirements, i.e. complexity (Andersson&Norrman, 2002).

Empirically, research has focused on very large manufacturing logistics services buyers (e.g. Lieb& Randall, 1996) as well as non-manufacturing and smaller logistics services buyers (e.g. Murphy &Poist, 1998). From the service provider perspective, 3PL services have been discussed in terms of distribution areas, i.e., the global reach of 3PL logistics services (Rao et al., 1993), advantages and disadvantages related to various provider attributes in terms of shared benefits and productivity, service quality and uncertaintygoing forward (Leahy et al., 1995; Razzaque& Sheng, 1998).

The ever increasing complexity of global logistics services has increased international competition among 3PL services providers due to increasing buyer requirements for consistency and coordination of processes, customer focus and improved supply chain visibility (Lieb& Kendrick, 2003). Recently, supply chain risk management and the related visibility issues have received topical interest from different perspectives, e.g. sustainability (Carter & Rogers, 2008) and decision-making (Francis, 2008), with a wide body of research topics on firms level analysis (Selviaridis& Spring, 2007).

The outsourcing of logistics activities is known to provide possibilities for measureable value to material and goods, new market openings and customer service (Razzaque&Sheng, 1998). In order to determine scope, a logistics service buyer must know, already at the pre-contractual stage of provider selection (Andersson&Norrman, 2002), about terms and conditions being the distinguishing determinants, e.g. service price quality and delivery, in the provider selection processes (Sink & Langley, 1997). Information is regarded as a major prerequisite for decision making, regarding the scope of services in efficient markets. Conversely, the conditions of efficient markets have been questioned in 3PL due to the information obscurity and "...problems with service supplier selection result from an inability of the competitive process to ensure an efficient market." (Sink & Langley, 1997:173). The problems related to service scope may be grounded in the visibility in (efficient) markets (Francis, 2008), dependencies between logistic activities (Lewis &Talalayevsky, 2000), and buyer power/dependence structures of exchanges (Davis-Sramek et al., 2007).

Moreover, the variety of logistics services provided and potentially "tiered", for logistics activities of industrial organisation deserves attention. Leahy et al. (1995) reported the most common logistics services provided to buyers in the United States: distribution strategy development, electronic data interchange capabilities, reports on performance, freight consolidation and carrier selection, information management, warehousing, consulting, freight payments and rate negotiations. In addition, Boyson et al. (1999) added logistics services such as fleet management, packaging and product returns (i.e. reverse logistics). Logistics services such as freight payment/consolidation and customs brokerage indicated a significantly increasing trend from 2000 through 2003 in e.g. the North American market (The North American 3PL Market, 2004). The 3PL services provided have recently been more customised and tailored to specific needs of buyers for differentiation. The literature has proposed normative frameworks for organising between different types of 3PL services and supply chain strategies (e.g. Bask, 2001). Therefore, it is worthwhile to note issues related to outsourcing of logistics activities.

Rao and Young (1994) found issues among logistics service buyers which were grouped into five categories; 1) closeness of the logistics activities to core competence; 2) control and risk liability; 3) operating service/cost trade-offs; 4) information technology and systems; and 5) market relationships. In a service tiering context, market relationships and control are interesting issues. Hence, market relationship issues relate to the cost of managing exchange relationships with several logistics service providers and the loss of buyer leverage due to many (sub-) suppliers. In turn, issues of control relate to the continuous measurement and monitoring of performance. As Razzaque and Sheng (1998) note, loss of control to 3PL providers has been the commonly raised issue that inhibits organisations from using logistics service providers. Other issues mentioned are reliability, responsiveness to changing circumstances, an understanding of buyers' corporate objectives and difficulties in switching logistics services providers.

However, previous research has emphasized more operational issues as well. Selviaridisand Spring (2007) note that scholars have identified and discussed problems with respect to disruption or inbound flows, service performance, insufficient provider expertise and inadequate employee quality, sustained time and significant costs of the effort spent onlogistics problem solving, inability of 3PL service providers to deal with changing circumstances and loss of customer communication. In addition, 3PL service buyers appear to be dissatisfied with 3PL providers' information and communication technology capabilities, and thus rely on their in-house systems (van Laarhoven et al., 2000). Hence, issues that are attributable to service tiering are found in early studies in the 3PL domain. In

order to control logistics activities handed over to logistics service providers, possibly in different tiers, monitoring behaviour and flows of information become essential.

Risk issues have been discussed in the logistics and supply chain domain, but not to any large extent in 3PL literature in particular. However, reference has been made to "third parties". The concept of risk is found to be an influencing and critical factor in logistics research from both buyer and provider perspectives (La Londe& Cooper, 1989). Risk liability arguments are reflected in the lack of information on service options and firm strategy (Rao& Young, 1994), loss of control (Razzaque& Sheng, 1998), and risk sharing in principal-agent relationships (Agrell&Norrman, 2004). Management of risk in advanced logistics outsourcing has received attention (Andersson&Norrman, 2004). Risk and risk management have been an issue in supply chain management in general. However, the 3PL buyer perceptions of risk in particular remain unexplored (Rao&Goldsby, 2009). Economic volatility has challenged shippers and 3PLs alike to contend with factors such as unpredictable demand, instability in fuel costs and currency valuation, and excess inventory (Jim Morton2010)

4. RESEARCH METHODOLOGY

To determine the satisfaction of charges and various services provided by logistics service providers for the international traders, a survey instrument was designed to focus on the following areas: (1) Assessment of competitors ;(2) Extent of usage of services offered by third party logistics service providers for carrying out specific logistics activities for effective services (3) Reasons for outsourcing and to know the international traders' expectations from 3PL;(4) To know the reasons for using multiple logistics service provider;(5) The benefits of using third party logistics services on specific business objectives; (6) The overall satisfaction with services provided by the third party logistics service providers; and (7) The future plans of current users of third party logistics services.

The respondents were requested to fill the survey that best captured the current state of logistics issues in the organization with emphasis on outsourcing. In addition to the questionnaire survey and a number of personal visits to various organizations were carried out to get first-hand information related to this field as well as cross-check on the responses received from the survey participants.

The target population for this study were the importers, exporters, and buying agentsselected from Coimbatore, Erode and Tirupur districts of Tamilnadu, India,. These areas are highly concentrated industrial cluster in TamilNadu. The study period was 2months and all together 72 responses were received.Finally; detailed data analysis was performed on the usable sample size of 72 Indian organizations. Analysis of the data is presented in the following section.

5. LIMITATIONS

Even though utmost care was taken by the researcher to overcome errors, omissions and bias in data, the researcher experienced certain limitations during various stages of the research. The study is conducted in Coimbatore district of Tamilnadu. Hence the results are applicable to Coimbatore district only, and it cannot be generalized for other areas. There is possibility of respondent's bias. Though the respondents are assured that the response given by them will be kept strictly confidential, there seems to be some reservation on their part. While care is taken to minimize it with several cross checks, it might not be totally eliminated.

6. RESULT ANALYSIS

6.1. PARTICIPANT'S PROFILE

The responding organizations represented a cross section of the industry types including a mix of partnership, proprietorship, private and public limited company. Out of the total sample (47.2%) responses are drawn from partnership organization,(31.9%) followed by private ltd company,(16.7%) are from proprietorship concern and public sector (4.2%).The status of the responding companies constitute (77%) of them are from domestic tariff area ,(20.8%) are followed by 100% EOU and only(1.4%) of the respondents belong to EPZ. Among the overall respondents,(76.4%) are exporters,(18.1%)of the respondents are both(Importers and Exporters), (4.2%)are importers and (1.4%) are buying agents .It is clearly denoted that exporters are morein numbers when compared to other traders in the sample population . Out of the total samples the majority of the products traded in the international trade are manufactured goods (90.3%), backed by primary goods (4.2%) and (1.4%) are machinery and the remaining (4.2%) are other goods according to their necessities

6.2.TRANSPORTATION MODE (S)

In south India majority of the international traders mode of transports constitute sea (95.8%), followed by air (63.9%) and (9.7%) of them use road ways and (1.4%) use railways only inbound services .out of the total respondents the majority (89.6%) of them use tuticorinseaport ,continued by (73.6%) of them use Chennai seaport, (29.2%)of them use cochin seaport and (9.7%)of the respondents use other nearest ports to their convince

6.3. PREFERENCE OF INTERNATIONAL TRADERS WITH RESPECT TO SHIPMENT MODE(S) AND TERMS OF SALE

Users of the services of 3PL providers were asked to categorize the mode of shipment they frequently use, out of the total response received the majority of the international traders prefer LCL (55.6%), and there is no much difference in the traders preference between LCL and 20"FCL, (54.2%) of them prefer 20"FCL, the remaining (45.8%) prefer 40"FCL and only (8.3%) prefer break bulk. The sale terms offered by the international traders depicts (76.4%) prefer FOB (Free on Board) continued by (44.4%) of the respondents prefer cost and freight, (31.90%)of the traders prefer CIF (cost insurance and freight) the remaining (15.3%) of the traders other terms of international trades .

6.4. SERVICES OFFERED BY VARIOUS 3PL'S

Out of the total respondents ,all the organizations have outsourced the following logistics activities to the 3PL ,the results depicts (22.2%)Inland transport,(9.7%)Bonded warehousing, (90.3%)Custom clearance,(52.8%) Documentation, (15.3%) Steamer agency, (8.3%)stevedoring, (40.8%) stuffing and destuffing, (56.9%) freight forwarding the result infers that the majority of the traders prefer customs clearance and documentation works from 3PLS

6.5. REASONSFOR USING MULTIPLE–LOGISTICS SERVICE PROVIDERS

In the Responding companies (61.1%) of the respondents use multiple logistics service and only (38.9%) respondents stick with on service providers The main reasons for preferring multiple services providers give us a valuable insights that (61.1%) of them prefer because of the convenience they enjoy, (27.8%) of the respondents prefer due to the rapport and the relationship they maintain with multiple service providers,(9.7%)of them prefer to reduce dependency on service provider to avoid monopoly environment on certain circumstance, and (18.1%)of the respondents prefer because of the benefits and the service difference they enjoy among various services providers.

6.6. CARGO TRACKING AND USAGE OF SUBCONTRACTORS

The results show that out of the samples it portrays (77.8%)of the service providers provide cargo tracking services whereas (22.2%) of the service providers don't have cargo tracking system. The traders prefer this service and they feel it is important for their uninterrupted trading. In the third party logistics service provider (61.90%) of them provide their own services and the remaining (39.9%)of them use subcontractors the service providers are cost sensitive and try to reduce their additional charges by using their own services

6.7. PREFERENCE OF THE TRADERS IN STUFFING

Results indicate that the (47.2%) exporters prefer ICD stuffing (Inland Container Depot), followed by house stuffing (41.6%) and (33.3%)of them prefer CFS stuffing ,the exporters are more comfortable with ICD stuffing. In the case of importers (25%) of them prefer house stuffing,(23.6%)of them prefer CFS stuffing (container freight station), (22.2%) prefer ICD stuffing (Inland Container Depot),the importers shows their interest based on their conveniences

6.8. COMPARISONS OF THE SERVICES WITH COMPETITIVE SERVICES PROVIDER

From the respondents it's found, they are very sensitive on the service provided (69.4%) of them compare charges and services with other service provider and (30.6%) of them don't compare their existing service providers with that of others. The 3PLs have to highly concentrate on the USP to find a stable position in logistics service

6.9. PERCEPTION OF CUSTOMER TOWARDS THE CHARGES LEVIED BY THE 3PLS

The respondents perception towards charges levied reveals that (13.33%) feel their inland transport charges are comparatively high, only(2.66%)reveals the charges are nominal,(1.3%)reveals the charges are low .The majority of the traders feels thatthe inland charges are high when compared to other charges .In the case of CHA charges are (6.67%)feel it is high ,(6.66%)of them feel it is normal and (2.66%)feel the CHA charges are low .

6.10. IMPACT OF OTHER SERVICE FACTOR

Out of the total samples it represents (81.9%) traders' feels that they are getting the best competitive prices and only (4.2 %) traders feels they don't get competitative prices ,(13.9%)of the respondents feels they may not get best competitive prices always

The survey reveal that(81.9%) majority of the traders have not responded for considering a change in logistics service provider, the least (2.8%)of the respondents depicts they consideration for changing the service providers ,(12.5%) have untapped segment for other service providers to enter inside the market ,(4.2%)of the respondents have no idea of changing the service providers .The result depicts the service providers reveals the charges monthly(40.3%),followed by (33.3%) of the service providers revise the charges yearly,(25%) revise the charges for every shipment ,and the least (1.4%)of them feel service providers revise every week depending on the current demands and supply factors To test the overall satisfaction of the services and charges it was found that the only (8.3%) of the respondents are highly satisfied, (91.7%) of the respondents are still satisfied they are still expecting customized services from the service providers .It is very happy to know that no trader are dissatisfied with the services and charges provided by their service providers

6.11. TWO WAY ANOVA COMPARING THE SERVICE CHARGES AND CONSTITUTION

The two way ANOVA test helps to know the inter comparison homogeneity and intra comparison heterogeneity .The two cases service charges and constitution are taken for the comparison

Aim: To find the significant variance between service charges and constitution

H_0 : There is no significant relation between two variables

H_a: There is significant relation between two variables.

Correction factor $\frac{(T)^2}{N} = \frac{75076}{20} = 3754$

TABLE 1: ANOVA TABLE REPRESENTING THE RELATIONSHIP BETWEEN SERVICE CHARGES AND CONSTITUTION

Source of variation	Sum of squares	DF	Mean of squares	F-Ratio	Significant level
Between services charges	605	4	151.25	0.758	5% level
Between constitution	4537	3	1512.33	7.58	
Residual Error	2394	12	199.5		

The F value in the two way ANOVA table is less than the table value .Herewith we conclude that the service charges will remain same for all kinds of services.On the other end the F value is greater than the table value and hence preference of services differs with respect to constitutions.

7. SUMMARY AND FUTURE TRENDS

Currently almost all the organization using third party logistics services are satisfied with the performance of 3PL service providers with respect to their expectations. Each and every international trader who is interviewed is having different logistics service providers. Repetition of the Logistics service provider is very rare. So Logistics service providers are wide spread all over the world globally and imply more competition prevailing in this industry. It was found that there is Lack of Awareness among the traders about the whole functions of the Logistics service providers and the various components of charges they are paying to the Logistics service providers. In some cases of international trade the buyers of the importing country also nominate the 3PLs for their convenience.

Compared to others the traders are concentrating much on domestic tariff area rather than 100% EOU.(6.4%) of the Exporters are engaged more in the international trade than the other traders.(90.3%) of the manufactured goods are used more in the international trade. Manufactured good comprises of textiles garments, cotton fabric, Acids and chemicals spray agricultural hand operators, grinders, electrical goods, synthetic spindle tape and more of ready-made garments, egg products, leathers, spices,(88.9%) of the respondents use Tuticorin,(73.6%) use Chennai port,(29.2%) use Cochin Port, and remaining (9.7%) traders use other ports. So Tuticorin port is having a good future in the next forthcoming years whereas .(95.8%) of the sea is preferred for the international trade, which is also the cheapest form of transport. The international traders are using air during the emergency periods or when they are not able to find the ship for their cargo or to send their sample.(76.6%) of the respondents prefer FOB for the international trade, which will be easy for the traders to deal in the formalities to be done.(90.3%) of the Logistics service providers are doing the customs clearance, (56.9%) of them are doing freight forwarding and (52.8%) of them are doing documentation. Most of the logistics service providers are concentrating on Custom Clearance, documentation freight forwarding. But the services like inland transportation, bonded warehouse, steamer agency and stevedoring are concentrated less by these peoples.(61.1%) of the international traders are using multi-logistics service providers. (7.8%) of the logistics service providers are having the cargo tracking system. This shows that each and every logistics service provider are having advanced technology. (61.1%) of the logistics service providers are using their own services. So these logistics service providers are cost sensitive who try to reduce their additional charges by using their own services.Exporters prefer ICD stuffing to stuff the goods in the container. Importers prefer house destuffing to destuff the goods from the container.(69.4%) of the international traders are price sensitive who compare the charges with the other logistics service providers. The main reason for this changes is because of changes in the economic conditions and the inflation .5.3% respondents states that they are dealing as buying agents for countries like Bangladesh, Taiwan, Korea, USA, Africa, Spain, Canada, China and Sri Lanka.

The empirical study clearly depicts that 3PLs has to concentrate on the following key areas to improve its existing services and customer base .According to the sayings of Mahatma Gandhi, "Customer is the king…" Each customer should be treated as a privileged customer of the company. So company should attract the customers according to their preferences, convenience and needs. This can be done by customizing the services instead of generalizing the services provided for each customer.Since all the services are provided by majority of the Logistics service providers, the company should make its service different from the other service providers. This can be done by following "Differentiation strategy". This can be done by making its service in a different way with efficiency and accuracy. This strategy should be developed in a way to attract new customer and to retain its existing customers. So the company should concentrate in improving the services as well as in providing new and additional services by expanding product line to meet the broader range of customer expectations. To explore the best way to meet customer's needs and to maintain a quality standard at every stage of operations involved in the process of the organization, the company can implement a management concept- "Lean six sigma for services". This concept will be helpful to serve the consumers with good quality, accuracy, speed and efficient service involved in the process of its operation. The outcome of any process are the result of what goes into that process, any output such as profit, growth, or ROI, is dependent on the process variables such as quality, lead time, offering attractiveness, non-value-add cost.

To attract more customers from abroad the company should go in for tie-up with a well established company in abroad, which will give more returns to the company. Since the buyer in abroad nominates many logistics service provider, tie-up strategy will help the company to expand its operations abroad also. This will also increase the brand name, reputation and market share of the company.Each and every logistics service provider was competing by their own technology. With the advent of IT, the effectiveness can be enhanced by implementing EDI, ERP and extranet, to improve customer responsiveness,Reduce transaction costs, communication costs and time.Increase accuracy, productivity and increase the ability to compete globally.Improve the quality of decision to exploit business opportunities.Bring together people who work in the various processes.Company should have to keep a close watch of its competitors and should try to change its strategies according to the market leader. So bench marking of its operations and various services offered, with the best in industry or make a comparison with the market leader in order to improve the quality levels.The company should modify its portal by providing additional features like

membership login to order, track and to know the rates for the shipment. This will be helpful to attract new customers and customers from abroad.69.4% of the international traders are price sensitive. So the company should quote its rates that make them feel competitive than the other service providers. The rates quoted should be understandable by the international traders, which should also help to compare it with the other service providers.

9. CONCLUSION

As an increasing number of firms are seeking to outsource their logistics businesses to 3PL providers, IT capability has also become a critical factor for 3PL providers in obtaining business from logistics users. The fast growth of Indian logistics industry has brought tremendous opportunities for logistics providers, but has also resulted in an intense competitive challenge from global players. The increased competition in Indian logistics industry has forced many 3PL providers to review their strategies. Drawing upon the logistics management literature and, this study should inculcate us to understand how 3PL providers can develop their services with respect to international trade which have direct impact in global competitiveedge. The data collected from 72 firms clearly depicts that the service providers should have strategic views on service aspects to enhance the strategies and capture the market .Further research should be undertaken to establish more mathematical models and techniques based on cost benefit analysis.

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GROWTH AND DEVELOPMENT OF MSME IN NORTH-EAST INDIA

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ABSTRACT

Micro, small and medium enterprises have been globally considered as engines of economic growth and social development, contributing to employment generation at low capital cost as well as nurturing entrepreneurial and promoting equitable development by spreading wealth even at the grassroots level. The North-East Region of India, which is known for its rich natural and mineral resources, is also known as an industrially backward region. With the help of secondary data sources, the paper is an attempt to study the performance of the sector in the region and briefly highlight the major institutions involved in the promotion and development of the sector.

JEL CODE
M10

KEYWORDS
MSMEs, North-East Region, Organizations, Performance, Problems.

INTRODUCTION

Micro, small and medium enterprises (MSMEs) have been globally considered as engines of economic growth and social development. Every new study has reiterated the importance of small businesses for an economy as they contribute towards creation of employment opportunities at low capital cost as well as play a key role in the industrialization of a developing country (Dobbs & Hamilton, 2007; Wennekers & Thurik, 1999). It also helps in nurturing entrepreneurial talent as well as promoting equitable development by spreading wealth even at the grassroots level (Mathur, 2012-17). For a developing country like India, where not only the problem of population but also that of unemployment and poverty is escalating, the role of MSMEs becomes very significant.

Growth of SSIs and small entrepreneurs in the country is said to have increased because of the promotional policies of the Government since the Third Five-Year Plan (Desai, 2000; Khanka, 2010). An OECD report (2004, p. 11) cited that there are studies which revealed that SMEs "contribute to over 55% of GDP and over 65% of total employment in high-income countries. SMEs and informal enterprises, account for over 60% of GDP and over 70% of total employment in low-income countries, while they contribute over 95% of total employment and about 70% of GDP in middle-income countries." Reddy (2007) in his study of small businesses in Fiji found that apart from employment generation, the income of the business operators also saw an increase.

It should be mentioned that prior to the enactment of "Micro, Small and Medium Enterprises Development (MSMED) Act, 2006", there were two separate ministries, namely, the Ministry of Small Scale Industries and the Ministry of Agro and Rural Industries. The Ministry of SSI was responsible for formulating policies, promotion, development and protection of SSIs in India. The definition of SSIs has been periodically revised and this definitional change of small scale industries in India can be seen as follows:

TABLE 1.1: DEFINITIONAL CHANGE OF SSIS IN INDIA

Year	Investment Limit	Employment Criterion
1955	Up to Rs.5 lakhs in fixed assets	Less than 50 if using power and up to 100 without power
1960	Up to Rs.5 lakhs in fixed assets	No condition
1966	Up to Rs.7.5 lakhs in plant and machinery for SSI unit and Rs.10 lakhs for ancillary units	No condition
1975	Up to Rs.7.5 lakhs for SSI units and Rs.15 lakh for ancillary units	No condition
1980	Up to Rs.20 lakhs for SSI units and Rs.25 lakhs for ancillary units	No condition
1985	Up to Rs.35 lakhs for SSI units and Rs.45 lakhs for ancillary units	No condition
1991	Up to Rs.60 lakhs for SSI units and Rs.75 lakhs for ancillary units	No condition
1997	Up to Rs.3 crore in plant and machinery for both SSI and ancillary units	No condition
1999	Up to Rs.1 crore in plant and machinery for both SSI and ancillary units	No condition
2003-04	Up to Rs.1 crore to Rs.5 crore in plant and machinery	No condition
2004-05	Up to Rs.5 crore	No condition

Source: http://www.dcmsme.gov.in/publications/circulars/circularmay1994

However, in pursuance to the amendment of the Government of India (Allocation of Business) Rules, 1961, on 9th May, 2007, the two ministries were merged to form a single Ministry, which is presently known as the Ministry of Micro, Small and Medium Enterprises. It was created "to assist the States in their efforts to encourage entrepreneurship, employment and livelihood opportunities and enhance the competitiveness of MSMEs in the changed economic scenario" (Annual Report 2011-12).

Till date, four censuses of the sector have been conducted. The First and Second All India Census of SSIs, conducted in 1973-74 and 1990-92 respectively, were carried out only for the registered SSI units involved in manufacturing activities. In the Third Census (2001-02), apart from studying the registered SSIs, a sample survey of the unregistered sector was also conducted for the first time. However, with the passing of the MSMED Act, 2006, the scope of the sector, which was earlier known as Small Scale Industries (SSIs) and Small Scale Service and Business Enterprises (SSSBEs), expanded to include a larger segment of the service sector and also medium enterprises. The Fourth Census, thus, encompassed these aspects and was carried out in a more defined manner, in the sense that enterprises were categorized into manufacturing and service units and further sub-divided into micro, small and medium enterprises based on their investment limit in plant and machinery for manufacturing sector and equipments for services. This is shown in the following table.

TABLE 1.2: PRESENT DEFINITION OF MICRO, SMALL AND MEDIUM ENTERPRISES

Classification	Investment in Plant & Machinery/ Equipment (excluding land and building)	
	Manufacturing Enterprises	Service Enterprises
Micro	Up to Rs.25 lakhs	Up to Rs.10 lakhs
Small	More than Rs.25 lakhs and up to Rs.5 crore	More than Rs.10 lakhs and up to Rs.2 crore
Medium	More than Rs.5 crore and up to Rs.10 crore	More than Rs.2 crore and up to Rs.5 crore

Source: Annual Report 2006-07

As per the Annual Report 2011-12 (Ministry of Micro, Small & Medium Enterprise [MoMSME]), the following are the key highlights of the MSME sector in india:

- This sector accounts for about 45 per cent of the manufacturing output and about 40 per cent of the total exports.
- Employs about 595 lakh persons in over 261 lakh enterprises across the country.
- Consistently registered a higher growth rate than the rest of the industrial sector.
- Manufactures over 6000 products, from traditional to high-tech items.

North-East India, which is known for its rich natural and mineral resources, is also known for its industrial backwardness, as declared by the Government of India (Srivastav & Syngkon 2008). A study sponsored by North East Council and Ministry of DoNER (Development of North Eastern Region) assessing and evaluating the impact of North-East Industrial and Investment Promotion Policy, 2007 revealed that out of the 8 NER states, only 5 states had some investment intentions for industrialization. They are Assam, Meghalaya, Sikkim, Arunachal Pradesh and Tripura. However, when the same was compared with the rest of the country, this investment came to only 0.7% of the total investment proposed in the entire country. In the same report, an analysis of data regarding number of proposals received from all the Indian states for industrialization showed a decrease in number for the entire country as well as NER (Mott McDonald 2010).

Recognizing the importance of MSMEs in bringing growth and development, the Governments of the North-Eastern states with assistance from the Central Government and various other institutions have been encouraging entrepreneurship and enterprise promotion in order to uplift the states economies. The paper is therefore an attempt to study the MSME sector in the region and its performance with the help of secondary data sources.

IMPORTANCE OF THE STUDY

The study is confined to the eight North-Eastern states of India, namely – Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya and Assam. It aims to present an overview of the sector in the region while at the same time studying its overall performance. Major institutions operating in the region and providing assistance to such enterprises will also be mentioned in brief. The data for the study is based on secondary data sources – Annual Reports, Fourth Census of the sector and literature review.

MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES (MOMSME) AND ITS ACTIVITIES IN NER

Desai (2000) stated that for industrialization to take place, it requires the promotion and growth of small scale industries, now known as MSMEs. Despite being a region rich in minerals and natural resources, the North-East Region (NER), as mentioned earlier, is considered industrially backward by the Government of India. Its geographical isolation, chronic insurgency problems and the terrain discourages potential investors from investing in the region. The growth of MSMEs in the region is therefore, somewhat slow when compared to the rest of the country. But despite the inherent problems, all efforts are being made to promote and encourage growth and development of such enterprises.

The MoMSME, which was then known as Ministry of SSIs, has been actively involved in the promotion and development of such enterprises in the region through its various organizations, some of which are discussed in brief as follows:

I. OFFICE OF THE DEVELOPMENT COMMISSIONER (MSME)

It was earlier established as Small Industry Development Organization (SIDO) and functions as an apex organization, acting as a link between the Ministry and its field organizations. It has set up MSME-DIs (Development Institutes) in all the eight NE states. It not only provides support in terms of training, consultancy services, credit, marketing, technology and infrastructure facilities but also assists the Government in policy formulation to promote and develop the sector (Annual Report 2010-11).

II. NATIONAL SMALL INDUSTRIES CORPORATION (NSIC) LTD.

NSIC has its zonal office at Guwahati and 5 sub-offices in Agartala, Imphal, Shillong, Naharlagun, and Dimapur. It provides technical training and organizes skill upgradation and entrepreneurship development programmes, exhibitions for the products and handicrafts of the NE states, conducts seminars and conferences and also provided assistance to units in NER under its various schemes (Annual Report 2003-04 & 2011-12).

III. INDIAN INSTITUTE OF ENTREPRENEURSHIP (IIE)

The institute was established in the year 1993 in Guwahati and began operating from April 1994. In order to create an environment for entrepreneurship in the region, the institute has organized a number of programmes such as Entrepreneurship Skill Development Programmes (ESDP), Entrepreneurship Awareness Programmes (EAP), Entrepreneurship Development Programmes (EDPs) on capacity building, sericulture, jute diversified products, science and technology, EDPs under Prime Minister's Employment Generation Programme (PMEGP) and for women. It is also involved in providing Rural Industries Programme (RIP) activities as well as conducting seminars, workshops for entrepreneurs and diagnostic studies of enterprises.

IV. KHADI AND VILLAGE INDUSTRIES COMMISSION (KVIC)

KVIC is a statutory organization established under the Khadi and Village Industries Commission Act, 1956 with the Central Office in Mumbai. The various programmes of KVIC are enforced through directly aided institutions, State KVIBs, NGOs and other recognized organizations. PMEGP and Scheme of Fund for Regeneration of Traditional Industries (SFURTI) are two of its major programmes that are implemented in all the eight NE states. Other schemes and programmes include Integrated Handlooms Development Scheme (IHDS), Product Development Design Intervention and Packaging (PRODIP) Scheme, Janashree Bima Yojana, schemes to promote coir and coir products, conducting exhibitions and providing marketing support for products manufactured by enterprises of North-Eastern region.

Other major organizations also working to improve and assist the sector in the regions are also mentioned briefly as follows:

I. NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT (NABARD)

It was established in the year 1982 with the aim to facilitate the flow of credit for the promotion and development of agriculture, small scale industries, cottage and village industries and other allied economic activities in the rural areas. It has its implementing agencies in all the eight states of NER (www.nabard.org).

II. SMALL INDUSTRIES DEVELOPMENT BANK OF INDIA (SIDBI)

It was established in April, 1990 with the aim to aid the MSME sector in the country and thereby contributing to economic growth, employment generation and bringing in balanced regional development. It was established with the aim of bringing in a balanced socio-economic development of the entire NER through the promotion, financing and development of MSMEs.

III. NORTH EASTERN DEVELOPMENT FINANCE CORPORATION LTD. (NEDFI)

NEDFi was incorporated under the Companies Act 1956 in the year 1995, promoted by All India Financial Institutions. It aims to provide not only the financial need to convert business ideas into realities but also promote, guide and assist entrepreneurs in the region. The corporate office is located in Guwahati with the branch offices spread in all the eight Northeastern states.

IV. NORTH EAST COUNCIL (NEC)

NEC was established by an Act of Parliament in 1971. The main purpose for its formation is to bring in social and economic development in the region and to ensure that this development is balanced through out the region. It looks into matters such as reviewing of projects and schemes, their implementation and evaluation, etc.

PERFORMANCE OF MSMEs IN THE REGION

As per the latest census report, i.e., Fourth All India Census of both the registered and unregistered sector, it was found that micro enterprises dominated the scenario all over the country, providing highest employment with manufacturing being the major activity engaged in. According to the Annual Report (2011-12) of Ministry of MSME, the following is the performance of the registered MSME sector in NER from 2006-07 to 2010-11, where data for 2010-11 presents the projected figures. The variables used to study performance are: number of working enterprises, number of employment, fixed investment and production.

TABLE 1.3: NO. OF WORKING ENTERPRISES

Year / State	No. of working enterprises				
	2006-07	2007-08	2008-09	2009-10	2010-11*
Sikkim	122	136	207	225	279
Arunachal Pradesh	417	480	587	698	829
Nagaland	1332	2110	4631	5602	9315
Manipur	4492	4530	4670	4759	4881
Mizoram	3715	3941	4419	4919	5403
Tripura	1343	1499	1711	1931	2180
Meghalaya	3010	3416	3826	4725	5497
Assam	19864	21618	23249	24927	26887
Total	**34295**	**37730**	**43300**	**47786**	**55271**

*Source: North East and the Registered MSMEs (*2010-11 Projected), MSME Annual Report, 2011-12*

TABLE 1.4: NO. OF EMPLOYMENT

Year / State	Employment (Person)				
	2006-07	2007-08	2008-09	2009-10	2010-11*
Sikkim	1159	1292	1967	2138	2651
Arunachal Pradesh	5411	6228	7617	9057	10757
Nagaland	16281	25790	56605	68473	113857
Manipur	19960	20129	20751	21146	21689
Mizoram	26032	27616	30965	34469	37869
Tripura	23166	25857	29514	33309	37604
Meghalaya	12700	14413	16143	19936	23193
Assam	210507	229095	246379	264162	284933
Total	**315216**	**350420**	**409940**	**452689**	**532543**

*Source: North East and the Registered MSMEs (*2010-11 Projected), MSME Annual Report, 2011-12*

TABLE 1.5: FIXED INVESTMENT

Year / State	Fixed Investment (Rs. in Crore)				
	2006-07	2007-08	2008-09	2009-10	2010-11*
Sikkim	27.82	31.01	47.20	51.31	63.62
Arunachal Pradesh	543.78	625.95	765.46	910.21	1081.04
Nagaland	718.33	1137.90	2497.44	3021.08	5023.46
Manipur	96.76	97.58	100.59	102.51	105.14
Mizoram	296.95	315.01	353.22	393.19	431.88
Tripura	326.57	364.50	416.05	469.55	530.10
Meghalaya	134.54	152.69	171.01	211.20	245.70
Assam	5867.40	6385.49	6867.26	7362.90	7941.84
Total	**8012.15**	**9110.12**	**11218.25**	**12521.95**	**15422.78**

*Source: North East and the Registered MSMEs (*2010-11 Projected), MSME Annual Report, 2011-12*

TABLE 1.6: PRODUCTION

Year / State	Production (Rs. in Crore)				
	2006-07	2007-08	2008-09	2009-10	2010-11*
Sikkim	51.37	57.26	87.16	94.74	117.48
Arunachal Pradesh	237.21	273.05	333.91	397.06	471.58
Nagaland	1396.04	2211.44	4853.65	5871.33	9762.85
Manipur	199.80	201.49	207.72	211.68	217.10
Mizoram	309.90	328.75	368.63	410.34	450.71
Tripura	608.30	678.96	774.98	874.63	987.41
Meghalaya	447.31	507.64	568.57	702.17	816.90
Assam	9389.20	10218.27	10989.20	11782.35	12708.79
Total	**12639.13**	**14476.87**	**18183.83**	**20344.29**	**25532.81**

*Source: North East and the Registered MSMEs (*2010-11 Projected), MSME Annual Report, 2011-12*

Table 1.3 indicates the spread of MSMEs in the region. As per the data, Assam leads the pack comprising of almost 53% of the registered enterprises in the region. The share of Sikkim for all the five periods on the other hand, is quite insignificant as its percentage share to the total ranges from 0.36% in 2006-07 to 0.47% in 2009-10 and 0.50% in 2010-11. The share of Arunachal Pradesh is also very low, but its contribution comes to at least 1% of the total share. Nagaland and Tripura shows almost the same percentage share in the year 2006-07, 3.88% and 3.92% respectively. While percentage share of Tripura remains almost constant for all the consecutive years, Nagaland shows a significant increase to 10.70% in 2008-09 and 16.85% in 2010-11. Mizoram and Meghalaya maintain, approximately, a consistent share, 10.31% and 9.30% respectively. However, Manipur showed a decline from 13.09% in 2006-07 to 9.96% in 2009-10 and 8.83% in 2010-11.

In Table 1.4 we have data showing the number of employment, wherein, once again Assam takes the lead, making up for almost 61% of the total share of employment in the region. The percentage share of Sikkim and Arunachal Pradesh is similar to the share as shown in Table 5.1. When we compare the data in Table 1.3 with that of Table 1.4 to study the average employment per unit for each state, it can be observed that Tripura has the highest number with 17.3 persons employed per unit, followed by Arunachal Pradesh, Nagaland, Assam, Sikkim and Mizoram. Also, although the number of working enterprises is least in Sikkim and Arunachal Pradesh, they have a higher average employment of 9.5 and 12.9 persons per unit compared to Manipur and Meghalaya, the two states with the least employment per unit, 4.2 and 4.4 respectively.

A peculiar trend is observed in case of five states, namely Nagaland, Manipur, Mizoram, Tripura and Meghalaya. In 2006-07, Tripura which has only 1343 units (3.93%), employs 23166 persons (7.35%) which is higher than Manipur, with 4492 units (13.09%) employing 19960 persons (6.33%) and Meghalaya, 3010 units (8.78%) employing 12700 persons (4.03). Again in 2007-08, despite having the lowest number of units, Tripura once again employs more persons than Nagaland, Manipur and Meghalaya and only 0.5% less than Mizoram. For the following three years, with the increase in number of units, Nagaland takes the lead in terms of employment while Tripura continues at an even rate.

Table 1.5 and 1.6 shows the fixed investment and production of enterprises in the region. A study of the data shows an increase in values in both the tables. When we study the percentage increase from 2006-07 to 2010-11 for all the eight states, we find that even though Assam has the highest values in terms of both fixed investment and production, its percentage increase for both tables is only 35.36% which is lesser than all the other states, except Manipur. Manipur shows a very low increase, which is only 8.66% for fixed investment as well as production, whereas, Nagaland displays a singular characteristic by showing an increase of almost 6 times from 2006-07 to 2010-11.

PROBLEMS ENCOUNTERED BY MSMEs

The importance of MSMEs cannot be undermined. They however, often operate under difficult circumstances. While small business entrepreneurs often have good ideas, their ignorance of the fundamentals of business and how to run it is one of the causes for failure (Brink *et al.* 2003). As per the Final Report of Fourth All India Census of MSMEs, micro enterprises occupy the highest percentage share in terms of number of units as well as employment generated in the country as well as the state. "However given their size, capital intensity and technology, micro enterprises are positioned at the weakest point in terms of job quality and income generating capacity" (ILO 2009).

Due to their weak financial strength, unclear information of business plans and accounting statements, the credit worthiness of MSMEs cannot be ascertained and as such they are considered as high-risk borrowers by investors and banks. Moreover, their size, lack of market knowledge, weak bargaining power and product quality also makes it tough for such enterprises to compete with the larger counterparts (Kumar, Batra & Sharma 2009). Coad and Tamvada in their study of small firms in India identified that while problems of labor and market were more visible in large enterprises, smaller and younger enterprises seemed more susceptible to problems relating to working capital, lack of demand, power shortages, equipment problems and also raw materials and management problems (2012).

Suman & Gangopadhyay identified problems like interferences from government officials for various clearances, difficulties in collection of outstanding payments from customers, especially in case of those enterprises who supply products to Government departments. They also observed that due to the inability of MSMEs to market or export their goods directly, larger enterprises end up selling or exporting the same in its own name (2011-12). Lack of security, experience and finance knowledge were also identified as impediments to growth of small businesses (Reddy 2007).

CONCLUSION

A study of the secondary data available shows that the economy of the Northeast region is slowly opening up to the rest of the country. While one of the reasons for the increase in number of enterprises and employment of MSMEs in the region may be partly due to the expanding of the scope of the sector, however this is not the sole reason. Number of programmes and schemes are being introduced by the ministry to encourage individuals to start their own businesses. The MSME units being small in size and more labour intensive have greater flexibility to adapt itself to changes in comparison to its larger counterparts. However, with the economy growing more complex each day, it becomes necessary for such units to keep up with the changing scenario for its survival as they have to face competition not only at the domestic level but also internationally.

Keeping in mind this vast pool of unexploited natural and human resources available as well as the limitations of the region, it therefore, becomes necessary to ensure that the schemes and incentives the Government and various institutions offer should be suitable and satisfy the requirements of the entrepreneurs. No doubt, the MSME sector of the states still have a lot of catching up to do with the rest of the country, but on a positive note, with the efforts of the Central Government as well as the State Governments and other supporting institutions, the region will soon be progressing towards creating an economy where entrepreneurship thrives.

LIMITATION AND SCOPE FOR FURTHER RESEARCH

The present study is wholly based on secondary data sources and therefore bears the inherent drawbacks associated to such data. Finally, from an academic point of view, the scope for research in this sector in the region is still quite unexplored. Lack of proper records and data makes it difficult for researchers to present an accurate and clear picture. But this should not be a deterring factor. Instead such researches should be encouraged as it will assist to give the region a platform to bring to fore not only the difficulties faced by the sector but more importantly, the vast pool of talent and variety of products that the region has to offer.

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GREEN MARKETING: HABITUAL BEHAVIOUR OF HOUSEHOLDS WITH SPECIAL REFERENCE TO KAKINADA, EAST GODAVARI DISTRICT, ANDHRA PRADESH

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ABSTRACT

Environmentalism has fast emerged as a worldwide phenomenon. Business firms too have risen to the occasion and have started responding to environmental challenges by practicing green marketing strategies. Green marketing has been little attempt to investigate in Indian scenario. Based on the data collected through survey, the paper makes an assessment of the extent of environmental awareness, habitual behaviour prevalent among households in Kakinada, East Godavari District, AndhraPradesh. The emergent issues considered were awareness of conservation of energy, recyclable, and environment-friendly goods. In the concluding section, findings of the study have been discussed and suggestions provided for undertaking more thorough investigations in the area.

KEYWORDS
Environmentalism, Environmental-Friendly Goods, Green Marketing, Recyclable.

INTRODUCTION

Many people believe that green marketing refers solely to the promotion or advertising of products with environmental characteristics. Generally terms like phosphate free, recyclable, refillable, ozone friendly and environmentally friendly are some of the things consumers most often associate with green marketing. In general green marketing is a much broader concept, one that can be applied to consumer goods, industrial goods and even services. R example, around the world there are resorts that are beginning to promote themselves as "ecotourism" facilities, i.e., that specialize in experiencing nature or operating in a fashion that minimizes their environmental impact. The American marketing Association (AMA) held the first workshop on "Ecological marketing" in 1975. The proceedings of this workshop resulted in one of the first books on green marketing entitles "Ecological marketing".

Thus "Green marketing" refers to holistic marketing concept wherein the production, marketing consumption an disposal of products and services happen in a manner that is less detrimental to the environment with growing awareness about the implications of global warming, non-biodegradable solid waste, harmful impact of pollutants etc., both marketers and consumers are becoming increasingly sensitive to the need for switch in to green products and services etc., while the shift to "Green" may appear to be expensive in the short term, it will definitely prove to be indispensable and advantageous, cost-wise too, in the long run.

GREEN MARKETING OPPORTUNITIES

Today, the households are becoming more concerned and aware about the natural environment. In the 1992 study of 16 countries (Ottman 1993), stated that more than 50% of consumers in each country, other Singapore, indicated they were concerned about the environment.

REASONS FOR PRACTICING GREEN MARKETING

According to Dalhammer et al, 2002, Yurman 1994 and Lawrence 1997 there are several suggested reasons for firms; increased use of Green marketing. In light of the above research, following important reasons may be cited:

- Organizations perceive environmental marketing to be an opportunity that can be used to achieve their objectives
- Organizations believe they have a moral obligation to be more socially responsible
- Governmental bodies are forcing first to become more socially
- Cost factors associated with waste disposal or reductions in material usage forces firms to modify their behaviour.

INTEGRATING ENVIRONMENTAL ISSUES IN CORPORATE CULTURE

The environmental responsible behaviour (Davis 1992) originates from the realization that they organizations belong to the world community. As a result of this, organizations achieve their profit objectives along with environmental objectives. Thus, environmental issues are also integrated into the firm's corporate culture.

ROLE OF THE GOVERNMENT

The governments have a key role in protecting the customer (Kangun et al 1994, Polonsky 1994 and Eugene and Eurel 2005). It becomes significant due to regulations enacted for protection of consumers in the following ways:

- Discouraging production of harmful goods or by-products
- Modify consumer and industry's use and/or consumption of harmful goods
- Ensure that all types of consumers have the ability to evaluate the environmental composition of goods.

COMPETITION

The firms, in order to maintain their competitive position, also practice environmental marketing. In many cases, firms observe competitors promoting their environment behaviours and attempt to emulate this behaviour. In some instance (Lawrence 1991) this competitive pressure has caused an entire industry to modify and thus reduce its detrimental environmental behaviour.

COST OF PROFIT ISSUES

Firms may also use green marketing in an attempt to address cost or profit related issues, like disposing of environmentally harmful by-products. Reduction of harmful waste may incur substantial cost savings. When attempting to minimize waste, the production processes should be re-examined. This approach can become useful to develop more effective production processes that not only reduce waste, but also reduce the need for some raw materials. This serves as a double cost saving, since both waste and raw material are reduced (Yurman 1994).

PROBLEMS IN GOING GREEN

One of the main problems is that firms using green marketing must ensure that their activities are not misleading the consumers or industry, and do not breach any of the regulations or laws dealing with environmental marketing. Green marketing claims must:

- Clearly state environmental benefits
- Explain environmental characteristics
- Explain how benefits are achieved
- Ensure comparative differences are justified

East Godavari district, as its name indicates, is a part of the Godavari delta

PROFILE OF EAST GODAVARI DISTRICT

East Godavari District is a district situated on the north east of the state of Andhra Pradesh, India. In Madras Presidency, The district of Rajahmundry was created in 1823. The Rajahmundry district was reorganized in 1859 into two - the Godavari and Krishna districts. Godavari district was further bifurcated into East and West Godavari districts in 1925. Its district headquarters is in Kakinada. It is the most populous district of Andhra Pradesh (out of 23). It was formed in 1925 when the old Godavari district was divided into west and east. In 1959 the Bhadrachalam Revenue Division, consisting of Bhadrachalam and Nuguru Venkatapuram Taluks of East Godavari district were merged into the Khammam district for geographical contiguity and administrative viability. The district is bounded on the north by Visakhapatnam District, on the northwest by Khammam District, on the east and south by the Bay of Bengal and on the west by West Godavari District. The small enclave (12 sq mi (30 km^2)) of the Yanam district of Puducherry state lies within this district. Rajahmundry and Kakinada are the two large cities in the Godavari districts. East Godavari district is also known as the rice bowl of Andhra Pradesh with lush paddy fields and coconut groves.

OBJECTIVES OF THE STUDY

- To study the habitual behaviour of households in Kakinada, E.G. District, A.P.
- To study the impact of demographic variable, Viz., Age, Income, Education etc of the households in influencing the behaviour towards green products.
- To analyze the awareness of Green products among households.

METHODOLOGY OF THE STUDY

Location of study	Kakinada-East Godavari District
Sampling Unit	Households (females)
Sampling size	99
Sampling method	Simple random sampling
Instrument for information	Structured questionnaire

ANALYSIS AND INTREPRETATION OF THE STUDY

CHART NO. 1: DO YOU HAVE THE PRACTICE OF COVERING THE PANS WITH LIDS WHILE COOKING?

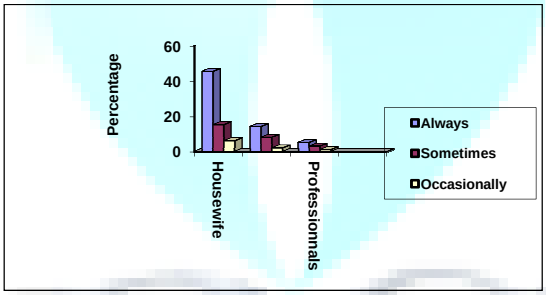

Chart 1 depicts the practice of covering the pans with lids while cooking out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 64.64 per cent are said that always practice of covering the pans with lids while cooking, 26.26 per cent responded some times and remaining 9.09 per cent responded occasionally.

CHART NO. 2: ARE YOU A CONSUMER OF SOLAR WATER HEATER?

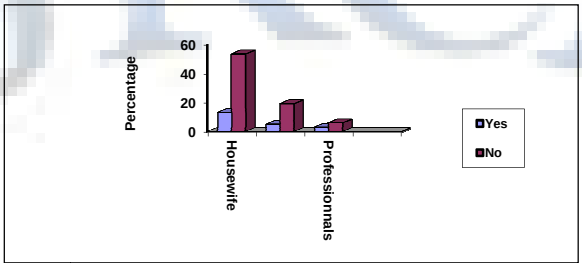

Chart 2 explains that consumers of solar water heater. Out of 99 respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 21.21 per cent are said that using the solar water heater and 78.78 per cent are said that not using solar water heater.

CHART NO. 3: IS YOUR WASHING MACHINE FULL LOADED WHILE USING?

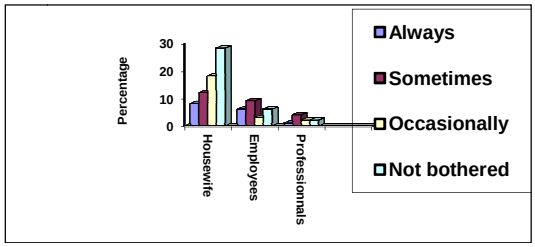

Chart 3 discloses washing machine fully loaded while using. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 15.15 per cent respondents are said that always washing full loaded while using, 25.25 per cent responded some times, 36.36 per cent responded occasionally and remaining 36.36 per cent said that not bothered.

CHART NO. 4: DO YOU GO FREQUENTLY TO SHOPS?

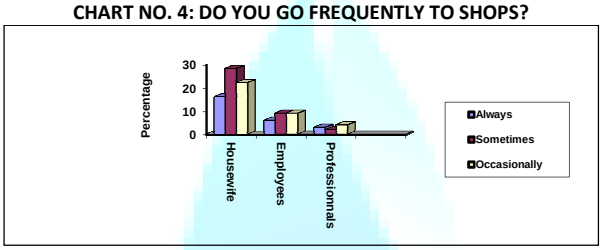

Chart 4 shows that go frequently to shops out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 25.25 per cent respondents are said that always go frequently to shops, 39.39 per cent responded some times, 35.35 per cent responded rarely.

CHART NO. 5: DO YOU PREFER TO NON – PLASTIC BAGS WITH YOU WHILE SHOPPING?

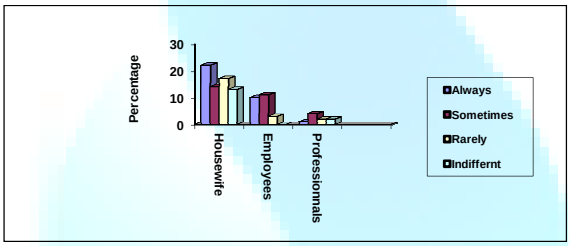

Chart 5 discloses usages of non – plastic bags while shopping, out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 33.33 per cent are said that always prefer to non – plastic bags while using, 29.29 per cent responded some times, 22.22 per cent responded rarely and remaining 15.15 per cent said that indifferent.

CHART NO. 6: DO YOU LIST BEFORE SHOPPING?

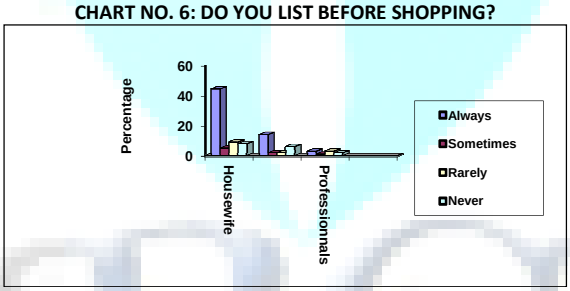

Chart 6 depicts list before shopping out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 61.61 per cent are said that always list before shopping, 8.08 per cent responded some times, 14.14 per cent responded rarely and remaining 16.16 per cent said that Never.

CHART NO. 7: HOW DO YOU USE WATER WHILE BRUSHING YOUR TEETH?

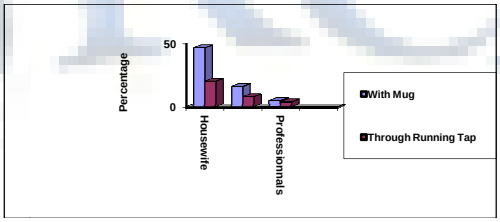

Chart 7 explains that usage of water while brushing our teeth, out of 99 respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 67.67 per cent are said that using water while brushing our teeth with mug and 32.32 per cent are said that Through Running Tap.

CHART NO. 8: DO YOU BUY RECHARGEABLE BATTERIES FOR TOYS AND HOUSEHOLD ITEMS?

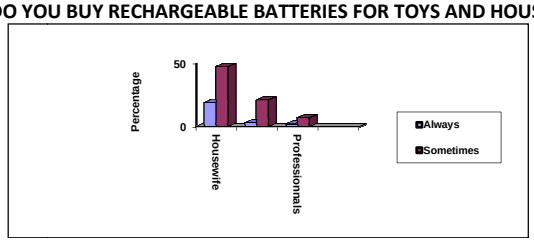

Chart 8 discloses, buy rechargeable batteries for toys and household items out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.
Out of 99 respondents 24.24 per cent are said that always buy rechargeable batteries, 75.75 per cent responded some times.

CHART NO. 9: DO YOU CONSUMER ELECTRICAL APPLIANCES THAT ARE ENERGY EFFICIENT?

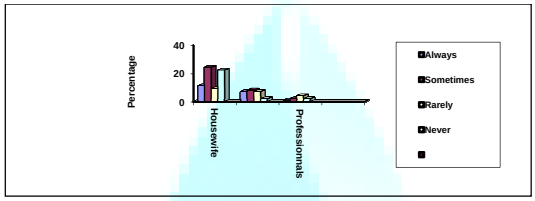

Chart 9 shows that the consumer electrical appliances that are energy efficient. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.
Out of 99 respondents 19.19 per cent are said that always electrical appliances that are energy efficient, 34.34 per cent responded sometimes, 20.20 per cent responded rarely and remaining 26.26 per cent said that Never.

CHART NO. 10: ARE YOU SEPARATE YOUR WASTE AS BIO-DEGRADABLE AND NON BIO- DEGRADABLE?

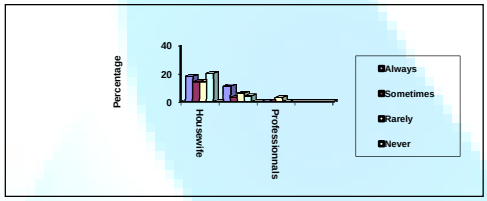

Chart 10 explains that wastage is separate as bio-degradable and non bio- degradable. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.
Out of 99 respondents 35.35 per cent are said that always wastage is separate as bio-degradable and non bio- degradable, 17.17 per cent responded sometimes, 23.23 per cent responded rarely and remaining 24.24 per cent said that Never.

CHART NO 11: HOW DO YOU WASH YOUR CAR/BIKE?

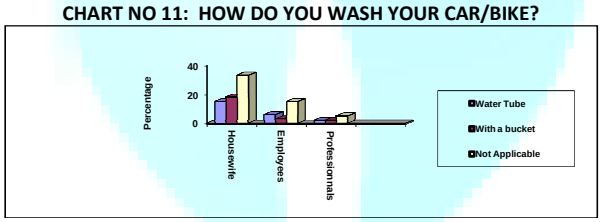

Chart 11 discloses how to wash their Car/Bike. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.
Out of 99 respondents 23.23 per cent are said that wash your Car/Bike with Water tube, 23.23 per cent responded with a bucket of water, 53.53 per cent responded not applicable.

CHART NO 12: DO YOU CRUSH YOUR PET BOTTLES AFTER USE?

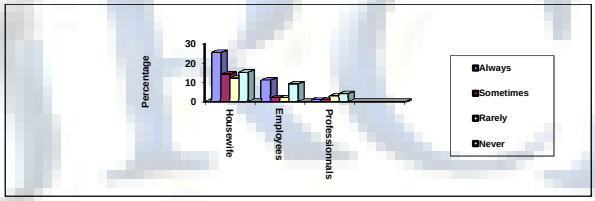

Chart 12 Depicts crush pet bottles after use. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.
Out of 99 respondents 37.37per cent are said that always crush pet bottles after use, 17.17 per cent responded sometimes, 17.17 per cent responded rarely and remaining 28.28per cent said that Never.

CHART NO 13: WHAT DO YOU PREFER FOR YOUR SECOND TIME OR MORE TIME PURCHASES?

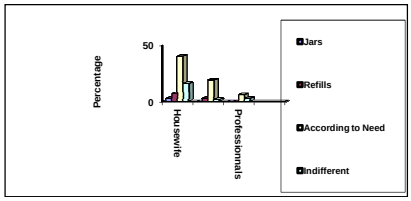

Chart 13 discloses prefer for second time or more time purchases. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 3.03 per cent are said that jars prefer for second time or more time purchases, 10.10 per cent responded refills, 65.65 per cent responded according to need and remaining 21.21 per cent said that Indifferent.

CHART NO 14: HAVE YOU EVER ENCOURAGED YOUR CHILD TO PLANT TREES?

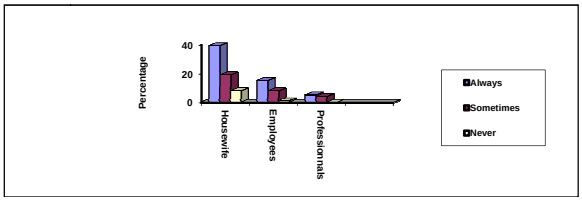

Chart 14 shows that encouraged child to plant trees. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 59.59 per cent are said that always encouraged child to plant trees, 31.31 per cent responded sometimes, and remaining 9.09 per cent said that Never.

TABLE NO 15: HOW DO YOU PACK LUNCH?

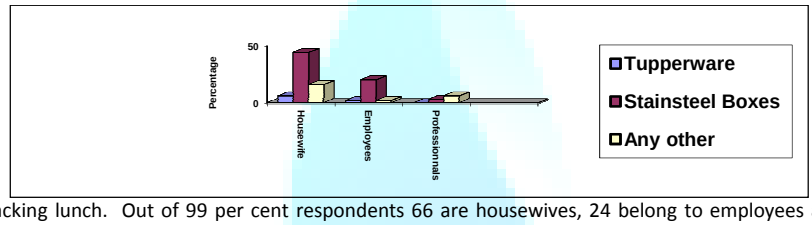

Table 15 explains that way of packing lunch. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 8.08 per cent are said that using Tupperware, 67.67 per cent responded using stainless steel boxes and remaining 24.24 per cent said that use any other.

CHART NO 16: WHAT DOES YOUR CHILD CARRY WITH THEM?

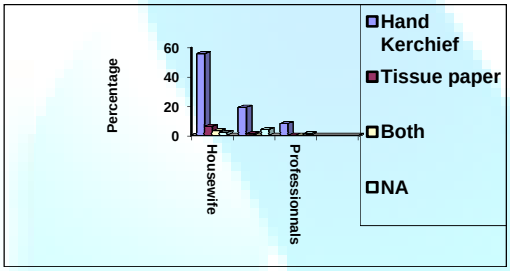

Chart 16 discloses child carry with them. Out of 99 per cent respondents 66 are housewives, 24 belong to employees and remaining 9 respondents are professionals.

Out of 99 respondents 82.82 per cent carry with them handkerchief, 7.07 per cent responded carry with them Tissue Paper , 3.03 per cent responded carry with them both and remaining 7.07 per cent carry with them NA.

MAJOR FINDINGS OF THE STUDY

- It is finding that many of the respondents used to use covering the pans with lids while cooking.
- Many of the respondents were not using solar water heater.
- Many of the respondents not bothered about their washing machines whether they are fully loaded or not while using.
- Many of the respondents frequently go to shops.
- Many of the respondents always prefer to non – plastic bags when shopping.
- Many of the respondents always prepared list before shopping
- Many of the respondents use water with mug while brushing teeth.
- Many of the respondents prefer to buy rechargeable batteries for toys and household items at sometimes only.
- Many of the respondents preferred to have electrical appliances that are energy efficient at sometimes only.
- Many of the respondents always wastage is separating as bio-degradable and non bio- degradable.
- Many of the respondents not applicable water tube and with a bucket of water when wash their Car/Bike.
- Many of the respondents always crush pet bottles after use.
- Many of the respondents said that according to need prefer for second time or more time purchases.
- Many of the respondents said that always encouraged their child to plant trees.
- Many of the respondents said that using stainless steel boxes for packing of lunch.
- Many of the respondents carry with them handkerchief.
- Many of the respondents have to some extent about aware of eco- friendly products available in the markets.
- Many of the respondents sometimes willing to pay more for green products.
- Many of the respondents always using paper cups and glass in family functions.
- Many of the respondents said that sometimes plants grow properly in public places.
- Many of the respondents said that always to send waste water to plants in house.

SUGGESTIONS OF THE STUDY

- It is suggested that government create awareness among the public the usefulness of solar power.
- To save power, public verify their washing machines whether fully loaded or not while washing.
- Public may carry jute bags while going to shopping.
- To minimize wastage of water, better to use mug while brush rather than open tap.

- Better to purchase rechargeable batteries rather than use and throughout batteries.
- Crush pet bottles after use.
- To minimize scrap encourage purchase of seconds.
- Encourage to use stainless steel boxes for packing of lunch.
- Better to separate bio-degradable and non bio- degradable things.

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A GENERALIZED CLASS OF PREDICTIVE ESTIMATORS OF FINITE POPULATION MEAN IN SAMPLE SURVEYS

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ABSTRACT

In this paper a generalized class of Srivastava's (1971) estimators and a generalized class of predictive estimators using auxiliary information are compared as regards their efficiencies to estimate the finite population mean in sample surveys. Some special cases are considered to derive conditions under which the predictive estimators are more efficient than their non-predictive counter parts.

AMS CLASSIFICATION
62 D05

KEYWORDS
Auxiliary variable, Ratio method of estimation, Predictive estimators.

1. INTRODUCTION

In large scale sample surveys it is a usual practice to search for auxiliary information to help improving the efficiency of estimates based on only study variable. The use of auxiliary information in sample surveys dates back to Cochran (1940) who used it for estimation of yields of agricultural crops in course of his research in agricultural sciences. Ratio method of estimation is one of the most popular methods to make use of auxiliary information to estimate the population mean or total of the study variable. It is well known that ratio estimator is a biased estimator whose bias decreases with increase in sample size and further under certain conditions it is more efficient than the sample mean per unit estimator using study variable in simple random sampling. During last century a large volume of research work on variants of ratio method of estimation has been developed. Srivastava (1971) suggested a class of estimators which includes ratio estimator as a special case. Basu (1971) proposed a model free approach of prediction, where the unobserved part in the sample is predicted with the help of auxiliary information to compute the estimate of the population mean. A number of modifications of the ratio estimators have been reviewed by Swain (2013) which is more efficient than the classical one under certain conditions.

Let there be N units in a finite population indexed by $U_1, U_2, \ldots\ldots U_N$. Each unit of the population is associated with a pair of real numbers (y_i, x_i) corresponding to the study variable y and the auxiliary variable x. A simple random sample without replacement of size n is selected out of the finite population under consideration.

With usual notations define $\overline{Y}$ and $\overline{X}$ as the population means of y and x respectively; S_y^2 and S_x^2 as the finite population variances of y and x respectively; ρ as the correlation coefficient between y and x; C_y and C_x as the coefficients of variation of y and x respectively.

Further define $\overline{y}$ and $\overline{x}$ as the sample means and s_y^2 and s_x^2 as the sample variances of y and x respectively. The classical ratio estimator of the population mean $\overline{Y}$ is given by,

$$\hat{\overline{Y}}_R = \frac{\overline{y}}{\overline{x}}\overline{X}$$

which is more efficient than the sample mean $\overline{y}$, when $\rho\frac{C_y}{C_x} > \frac{1}{2}$.

Although $\hat{\overline{Y}}_R$ is a biased estimator, whose large sample variance (i.e. bias up to $0\left(\frac{1}{n}\right)$) is given by

$$(\hat{\overline{Y}}_R) = \overline{Y}\left(\frac{1-f}{n}\right)\left(C_x^{\,2} - \rho C_y C_x\right)$$

Bias .

However the bias decreases with increase in sample size.

Following the footsteps of Basu (1971), Agarwal and Sthapit (1997) considered a predictive ratio estimator given by,

$$\hat{\overline{Y}}_{RP} = f\,\overline{y} + (1-f)\overline{y}\left(\frac{\overline{X}}{\overline{x}}\right).$$

Whose first order bias is always less than that of $\hat{\overline{Y}}_R$. Further, $\hat{\overline{Y}}_{RP}$ is more efficient than $\hat{\overline{Y}}_R$ if

$$K < \frac{1}{2}(1+\lambda),$$

Where $K = \rho\dfrac{C_y}{C_x}$ and $\lambda = 1 - f$

Srivastava (1971) suggested a class of estimators

$$t_g = \overline{y}H\left(\frac{\overline{x}}{\overline{X}}\right),$$

which includes the classical ratio estimator as a special case and H(.) is a function satisfying certain regularity conditions.

In the following section we compare the Srivastava's (1971) generalized class of estimators with that of the generalized class of predictive estimators using Basu's approach and obtain certain general conditions under which generalized class of the predictive estimators as more efficient than the generalized class of estimators for some special cases.

2. GENERALIZED CLASS OF PREDICTIVE ESTIMATORS

Srivastava (1971) proposed a generalized class of estimators to estimate the population mean $\overline{Y}$ of study variable *y* when information on single auxiliary variable *x* is available with known population mean $\overline{X}$ given by,

$$t_g = \bar{y}H(u) \tag{2.1}$$

where $u = \frac{\bar{x}}{\overline{X}}$ and *H(.)* is a parametric function satisfying the following regularity conditions.

(a) *H (1) = 1*

(b) The first and second order partial derivatives of *H* with respect to *u* exists and are known constants at the given point *u=1*.

Expanding *H(u)* by Taylor's series about the point *u=1*, we have,

$$H(u) = H(\mathrm{I}) + (\mathrm{u}-1)H'(1) + \frac{(u-1)^2}{2!}H''(1) + \ldots\ldots$$

$$= H(\mathrm{I}) + (u-1)H_1 + (u-1)^2 H_2 + \ldots\ldots\ldots\ldots \tag{2.2}$$

where $H_1 = H'(1)$, $H_2 = \frac{H''(1)}{2!}$, ... so on.

Now substituting, $\frac{\bar{y}}{\bar{Y}} - 1 = \epsilon_0$ and $\frac{\bar{x}}{\overline{X}} - 1 = u - 1 = \epsilon_1$

We write t_g as,

$$t_g = \bar{Y}(1+\epsilon_0)\{1+\epsilon_1 H_1 + \epsilon_1^2 H_2 + \ldots\ldots\}$$

$$= \bar{Y}[1+\epsilon_0 + \epsilon_1 H_1 + \epsilon_1^2 H_2 + \epsilon_0\epsilon_1 H_1 + O(\epsilon)] \tag{2.3}$$

Taking expected value of t_g up to first order of approximation,

$$E(t_g) = \bar{Y}[1 + \frac{1-f}{n}(H_2 C_x^{\,2} + H_1 \rho C_y C_x)]$$

$$(t_g) = \bar{Y}\left(\frac{1-f}{n}\right)[H_2 C_x^{\,2} + H_1 \rho C_y C_x]$$

Hence, Bias (2.4)

And to first order of approximation the mean square error (MSE) is given by,

$$\mathrm{MSE}(t_g) = \bar{Y}^2\left(\frac{1-f}{n}\right)[C_y^{\,2} + H_1^{\,2} C_x^{\,2} + 2H_1 \rho C_y C_x] \tag{2.5}$$

MSE (t_g) is minimum if $H_1 = -\rho\frac{C_y}{C_x}$

Hence , MSE $(t_g)_{min} = \frac{(1-f)}{n}\mathrm{C}_y^{\,2}(1-\rho^2)$ (2.6)

Basu's (1971) predictive approach starts with writing the population means $\overline{Y}$ of *y* as

$$\bar{Y} = \frac{1}{N}\sum_1^N Y_i = \frac{1}{N}\left(\sum_1^n Y_i + \sum_{n+1}^N Y_i\right)$$

$= \frac{1}{N}$ (sampled part of *y*'s + non-sampled part of *y*'s)

Hence, $t_g^* = \hat{\bar{Y}} = \frac{1}{N}\left(\sum_1^n y_i + \sum_{n+1}^N \hat{Y}_i\right)$,

where $\hat{Y}_i$ stands for the estimate of Y_i (for i = n+1, n+2, n+3, ... N) in the non-sampled part

Thus , $t_g^* = \frac{1}{N}[n\bar{y} + (N-n)\bar{y}H(u)]$

$= f\,\bar{y} + (1-f)\bar{y}H(u)$, where $f = \frac{n}{N}$ (2.7)

The estimator t_g^* belongs to the same class as that of t_g. Expanding t_g^* using Taylor's series expansion of $H(u)$, we have

$$t_g^* = \bar{Y}[1+\epsilon_0 + (1-f)\epsilon_1 H_1 + (1-f)^2 \epsilon_1^2 H_2 + (1-f)\epsilon_0\epsilon_1 H_1 + O(\epsilon)] \quad (2.8)$$

$$= \bar{Y}[1+\frac{(1-f)}{n}(1-f)(H_2 C_x^2 + H_1 \rho C_y C_x)] \quad (2.9)$$

So,

$$\text{Bias}(t_g^*) = \bar{Y}\left(\frac{1-f}{n}\right)(1-f)\left[H_2 C_x^2 + H_1 \rho C_y C_x\right], \quad \text{to first order of approximation} \quad (2.10)$$

$$\text{MSE}(t_g^*) = \bar{Y}^2\left(\frac{1-f}{n}\right)\left[C_y^2 + (1-f)^2 H_1^2 C_x^2 + 2(1-f)H_1 \rho C_y C_x\right] \quad (2.11)$$

$$\text{MSE}(t_g^*)_{\min} = \bar{Y}^2\left(\frac{1-f}{n}\right)C_y^2(1-\rho^2), \quad \text{for } H_1 = -\frac{1}{1-f}\rho\frac{C_y}{C_x} \quad (2.12)$$

3. COMPARISON OF t_g^* WITH t_g

MSE (t_g) – MSE (t_g^*)

$$= \bar{Y}^2\left(\frac{1-f}{n}\right)\left[H_1^2\{1-(1-f)^2\}C_x^2 + 2H_1\{1-(1-f)\}\rho C_y C_x\right] \quad (3.1)$$

Thus, t_g^* will be more efficient than t_g if,

$$H_1^2\{1-(1-f)^2\}C_x^2 + 2H_1\{1-(1-f)\}\rho C_y C_x > 0$$

$$\Rightarrow H_1^2(1+\lambda) + 2H_1 K > 0, \text{ where } \lambda = 1-f \text{ and } K = \rho\frac{C_y}{C_x}.$$

$$\Rightarrow H_1\{H_1(1+\lambda) + 2K\} > 0$$

$\Rightarrow$ either $H_1 < 0$ and $\{H_1(1+\lambda)+2K\} < 0$ (3.2)

or

$H_1 > 0$ and $\{H_1(1+\lambda)+2K\} > 0$ (3.3)

In the following Table-1 we compare certain special cases of t_g and its predictive counterpart t_g^* as regards to their efficiency. It may be mentioned here that t_g^* is always less biased than tg subject to first order approximation.

TABLE-1: SOME SPECIAL CASES OF GENERALIZED CLASS OF ESTIMATORS

Estimator $t_g = \bar{y}H(u)$ With following $H(u)$	H_1	Condition when t_g^* will be more efficient than t_g
$H(u) = \frac{\bar{x}}{\bar{X}} = u$	1	$K > -\frac{1}{2}(1+\lambda)$
$H(u) = \frac{\bar{X}}{\bar{x}} = \frac{1}{u}$	−1	$K < \frac{1}{2}(1+\lambda)$
$H(u) = \left(\frac{\bar{x}}{\bar{X}}\right)^{\alpha} = u^{\alpha}$	α	$K > -\frac{\alpha}{2}(1+\lambda)$
$H(u) = \left(\frac{\bar{X}}{\bar{x}}\right)^{\alpha} = u^{-\alpha}$	$-\alpha$	$K < \frac{1}{2}\alpha(1+\lambda)$
$H(u) = 2 - \left(\frac{\bar{x}}{\bar{X}}\right)^{\beta} = 2 - u^{\beta}$	$-\beta$	$K < \frac{1}{2}\beta(1+\lambda)$
$H(u) = 1 - \theta\left(\frac{\bar{x}^{\delta} - \bar{X}^{\delta}}{\bar{X}^{\delta}}\right)^{\beta} = 1 - \theta[u^{\delta} - 1]$	$-\theta\delta$	$K < \frac{1}{2}\theta\delta(1+\lambda)$
$H(u) = \omega_1 + \omega_2\left(\frac{\bar{X}}{\bar{x}}\right)^{q} = \omega_1 + \omega_2 u^{-q}$	$-\omega_2 q$	$K < \frac{1}{2}\omega_2 q(1+\lambda)$
$H(u) = \left[\alpha\left(\frac{\bar{X}}{\bar{x}}\right)^{g} + (1-\alpha)\left(\frac{\bar{x}}{\bar{X}}\right)^{h}\right]^{\delta} = [\alpha u^{-g} + (1-\alpha)u^{h}]^{\delta}$	$(1-\alpha)h - \alpha g$	$K < \frac{1}{2}\{\alpha g - (1-\alpha)h\}(1+\lambda)$

4. CONCLUSION

The predictive generalized class of estimators should be preferred over the generalized class of estimators when certain moderate conditions are satisfied. More over predictive estimators to first order of approximation are always less biased than their usual non-predictive counter parts.

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FINANCIAL LEVERAGE AND CAPITAL STRUCTURE PLANNING IN SMALL-SCALE INDUSTRIES

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ABSTRACT

Capital structure refers to the mix of long-term sources of funds and equity share capital/owners' capital including reserves and surplus. Capital structure is key to the objective of profit maximization, ensures the minimum cost of capital and the maximum rate of return to equity holders. The main objectives of this study are to examine: (i) whether in small firms while employing financial leverage its effects are considered or not, (ii) What considerations they recognize in determining the financing plan, and (iii) Whether they plan their capital structure or not. For the said purpose we have collected data through questionnaire from 400 small-scale units in Haryana. After analysis we found that in most of small-scale industries while employing financial leverage its effects are not considered, while taking financial decisions non- financial factors play an important role, cost of debt is considered only by big units of the sector and capital structure is also planned only by the same units.

KEYWORDS

Cost of Debt, Capital Structure Planning, Debt-Equity Ratio, Financial Leverage, Theories of Capital Structure.

INTRODUCTION

Financial leverage results from the presence of fixed financial charges in the firm's income stream. These fixed charges do not vary with the earnings before interest and taxes (EBIT) or operating profits. They have to be paid regardless of the amount of EBIT available to pay them. After paying them, the operating profits (EBIT) belong to the owners. Financial leverage is concerned with the effects of changes in EBIT on the earnings available to equity-holders. It is defined as the ability of a firm to use fixed financial charges to magnify the effects of changes in EBIT on the firm's earnings per share. In other words, financial leverage involves the use of funds obtained at a fixed cost in the hope of increasing the return to the shareholders.

There are two types of leverage – 'Operating' and 'Financial'. The leverage associated with investment (asset acquisition) activities is referred to as operating leverage, while leverage associated with financing activities is called financial leverage. While basically we are concerned with the financial leverage for purposes of financing decision of a firm.

The investment projects of a firm can be financed either by increasing the owners' claims or the creditors' claims. The owners' claim increases when the firm raises funds by issuing common shares or by retaining the earnings; the creditors' claims increase by borrowing. The various means used to raise funds represent the financial structure of an enterprise. Traditionally, short-term borrowings are excluded from the list of methods of financing the firm's capital budgeting decisions, and therefore, the long-term claims are said to form the capital structure of the enterprise. The term capital structure is used to represent the proportionate relationship between debt and equity.

REVIEW OF LITERATURE

In practice, financial management literature does not provide specified methodology for designing a small firm's optimal capital structure. Theoretical and empirical research suggests that financial planners should plan optimal capital structure. A number of research studies have been conducted regarding the choice of debt equity mix in the total capitalization of a firm in the International as well as Indian context. These studies have revealed the following:

INTERNATIONAL CONTEXT

In 1958 Modigliani and Merton Miller (hereafter called M-M) were the first to present a formal model on the relationship between the leverage, cost of capital and the value of the firm. They maintained that under a given set of assumptions, the capital structure and its composition has no effect on the value of the firm. MM model shows that the financial leverage does not matter and the cost of capital and the value are independent of the capital structure. When corporate taxes are taken into account, the value of a firm increases linearly with debt-equity ratio because of interest payments being tax exempted. M-M's work has been at the centre stage of the financial research till date. Their models have been criticized, supported, and extended over the last 55 years.

David Durand (1963) criticized the model on the ground that the assumptions used by M-M are unrealistic. Solomon (1963) argued that the cost of debt does not always remain constant. When the leverage level exceeds the accepted level, the probability of default in interest payments increases thus raising the cost of debt.

Stiglitz (1969, 1974) proved the validity of the M-M model under relaxed assumptions whereas Smith (1972), Krause and Litzenberger (1973), Baron (1974, 1975), and Scott (1976, 1977), supported the M-M model, but only under the conditions of risk free debt and costless bankruptcy. When bankruptcy has positive costs, there exists an optimal capital structure which is a trade-off between tax advantage of debt and bankruptcy costs.

This trade-off theory was challenged by Miller (1977). He argued that bankruptcy and agency costs are too small to offset the tax advantage of debt. But when personal taxes are taken into account, this advantage is completely offset by the disadvantage of personal tax. Thus, in equilibrium, the value of a firm is independent of its capital structure, even when the market is imperfect.

But Miller's model was rejected by De Angelo and Masulis (1980). They argued that even if bankruptcy, agency and related costs are ignored, introduction of non-tax debt shields is enough for a firm to have an optimal capital structure. And even if these costs are taken into account, an optimal capital structure exists, irrespective of availability of non-debt tax shields.

Masulis (1980, 1983), Brennen and Schwartz (1978) and Jensen and Meckling (1976) also advocated the existence of an optimal capital structure in an imperfect market, while using different mechanisms.

Empirical work by Bradley, Jarrell and Kim (1984), Long and Malitz (1985) and Titman and Wessells (1985) largely supports bankruptcy costs or agency costs as partial determinants of leverage and of optimal capital structure. DeAngelo and demonstrated that with the presence of corporate tax shield substitutes for debt, each firm will have a "unique interior optimum leverage decision with or without leverage related costs".

The findings of Allen N Berger (Oct.2002) are consistent with the agency costs hypothesis- i.e. higher leverage or a lower equity capital ratio is associated with higher profit efficiency, all else equal. He also concluded that under the efficiency risk hypothesis, the expected high earnings from greater profit efficiency substitute for equity capital in protecting the firm from the expected costs of bankruptcy or financial distress, whereas under the franchise-value hypothesis, firms try to protect the expected income stream from high profit efficiency by holding additional equity capital.

Ferri and Jones (1979) found that the industry-class was linked to a firm's leverage, but not in a direct manner than what has been suggested in other researches. Harris, Rodney, Roenfeldt and Cooley (1983) stated that financial leverage clienteles play an important role in the determination of the capital structure. Richard Kolondy and DianeRizzule Suher(1985) indicated that no relationship is shown between shareholders return and the company's pre-issue degree of financial leverage.

Chungchang (1992) found that the leverage can be used as an instrument to transfer wealth between investors and employees. The transfer can go in either direction. Hull (2002) found that the industry debt to equity norms are significantly more negative than returns for the firms moving closer to these norms.
Rajan and Zingales (2002) found that the extent to which firms are levered is fairly similar across the G-7 countries, with only United Kingdom and Germany being relatively less levered. Nissim and Penman (2003) stated that the financial statement analysis distinguishes leverage in financing activities from leverage in operations.

INDIAN CONTEXT

As per a study conducted by Sharma. M. L. (1986) on the financial appraisal of Industrial corporations in India, concluded that there could not be a uniform capital structure which will suit the requirements of all the companies. Capital structure has to be tailored to suit the needs of every individual company. However, it is possible to frame a model capital structure for a group of companies having similar characteristics.
Another study conducted by B. R. Choyal (1986) concluded that the funded debt constituted the major source of financing the total assets employed in three of the corporations under study. All five state level warehousing corporations under study adopted a conservative policy of financing by keeping the debt-equity ratio below the norm of 1:1. The management also relied more on borrowed funds to finance the fixed assets in these corporations.
According to the study conducted by Prasanna Chandra (1975), a significant relationship existed between the share price and the variables like return, risk, growth size, leverage, etc. Thus, leverage or the debt-equity mix in the capital structure is also one of the factors affecting the value of a share of a firm.
The earlier studies conducted by Bhatt (1990) and Pandey (1984) revealed that corporate managers generally prefer borrowings to owned funds because of the advantage of the lower cost and no dilution of existing management control over the company. However, in a recent study conducted by Babu and Jain (1998) it has been found that the corporate firms in India are now showing an almost equal preference for debt and equity in designing their capital structure. Freedom in paying dividend and ease in raising money are the reasons cited for equity preference. However, due to increasing competition, returns have become uncertain. Hence, companies would not prefer debt over equity though debt is a cheaper source of finance because of tax advantage.
Sharma and Rao (1969) tested the M-M model using cross-sectional analysis for engineering companies, wherein the value of a firm was found to be independent of its capital structure after allowing for tax advantage. But the results could not be generalized as the sample was homogenous. The other work by Pandey (1992) observed that the M-M theory is not fully valid under Indian conditions. He concluded that, initially, cost of capital and value of a firm are independent of the capital structure changes, but they rise after a certain level.

OBJECTIVE OF THE STUDY

The main objective of the study is to examine the important factors considered by small-scale industries while taking financing decisions and planning of capital structure and use of capital structure theories.

SCOPE OF THE STUDY

The present study deals with the small-scale industries in Haryana. It was not possible to cover all the states in India due to time and financial constraints. However, we believe that the findings of the study would have equal applicability for the enterprises in other States also, since there is much similarity among the small industries with respect to size, structure, operation and management.

DATA REQUIREMENT

The present study is based on primary data. The data have been collected through questionnaire, interviews and observations. The primary data are the main base of the study. For this purpose we have undertaken intensive case studies of 400 selected small-scale industries. While selecting these units we have taken enough care to see that these are representative of all type of industries and all districts in Haryana. For the said purpose we have divided all the industries into six categories such as Garments, Auto-parts, Electronics, Metal Products, Rubber and Plastics, and Others (Table 1).

TABLE 1.0: SAMPLE SIZE

Name of the Industry	**sample**
1. Garments	80
2. Auto-parts	40
3. Electronics	60
4. Metal Products	78
5. Rubber and Plastics	56
6. Others (Machinery parts, Paper products, Chemical products, etc.)	86
Total	**400**

FINANCIAL LEVERAGE IN SMALL-SCALE INDUSTRIES

The effect of financial leverage on the return to equity shareholders depends upon the relationship between earnings before interest and taxes on the one hand and the amount of interest charges and fixed preference dividend on the other. Financial leverage also involves the financial risk i.e., the risk of failure to cover the fixed financial costs of the company. When the rate of earnings is less than the rate of interest or preference dividend, the use of debt can result into loss to the equity share-holders. Debt is like fat which is good for a healthy person but dangerous for a person with high blood pressure. While using it, the debt absorbing and debt repaying capacity of the company must be kept in view. Thus, financial leverage has the potential of increasing as well as reducing the return to equity shareholders.

TABLE 1.1: EFFECTS OF FINANCIAL LEVERAGE IN THE DESIGNING OF CAPITAL STRUCTURE CONSIDERED BY SMALL-SCALE INDUSTRIES IN HARYANA

Name of Industry	**Yes**		**No**		**Total**
	No.	%	No.	%	**No.**
1. Garments	8	10.0	72	90.0	80
2. Auto-parts	7	17.5	33	82.5	40
3. Electronics	6	10.0	54	90.0	60
4. Metal Products	5	6.4	73	93.6	78
5. Rubber & Plastics	7	12.5	49	87.5	56
6. Others	10	11.6	76	88.4	86
Total	**43**	**10.8**	**357**	**89.2**	**400**

In small firms all the decisions are taken by the owners. And most of the businesses are owned or managed by such persons who are not having any formal education of commerce/business. So, most of the owners/and management do not know the meaning of the term “financial leverage” and its effect on the return to equity shareholders in small-scale industries. As per the information collected regarding the effects of financial leverage in designing the capital structure are considered or not, 89.2 per cent small-scale units gave their answer in negative. There are various reasons for not considering its effects. Most important among them is the limited choice between Debt and Equity. In small-scale industries equity capital is in scarcity. When finance is required the only choice is debt. So, effects of financial leverage are not considered in most of the small-scale industries.

On the other hand, the Small-scale industries which are considering the effects of debt capital on return on equity include those big units of small sector which have an option among equity or debt. And in these industries help of experts is taken, before taking financing decision, to study the options available in detail. Table 1.1 shows that only 10.8 per cent industries in small sector in Haryana are considering the effects of financial leverage. Among them the highest percentage is in Auto-parts industry, 17.5 per cent followed by Rubber and Plastics industry 12.5per cent, Others industry 11.6 per cent, Garments and Electronics industries, 10.0 per cent each and Metal Products industry 6.4 per cent.

CONSIDERATIONS IN FINANCING DECISION USED IN SMALL-SCALE INDUSTRIES

Determining the relative importance of the various financial problems faced by a small-scale industry would be both difficult and subjective; however, the cost and availability of long-term funds would have to be considered of prime import. Raising permanent capital for the expansion of an enterprise is not accomplished with ease, particularly for the small sector industry. In general, the small firm is thought to incur higher cost for its funds as well as a greater limitation - in terms of the diversity of sources. There are various considerations that must be recognized in determining which financing plan should be accepted by the company.

(i) TADING ON THE EQUITY.
(ii) DEBT-EQUITY RATIO.
(iii) THE ABILITY TO COVER FIXED FINANCING CHARGES.
(iv) NON-FINANCIAL INFLUENCES OF THE FINANCIAL MIX.

TABLE 1.2: CONSIDERATION IN FINANCING DECISIONS IN SMALL-SCALE INDUSTRIES IN HARYANA

Name of Industry	Trading on Equity		Debt-Equity Ratio		Interest Coverage Ratio		Non-Financial Factors		Total No.
	No.	%	No.	%	No.	%	No.	%	
1. Garments	4	5.0	5	6.3	10	12.5	61	76.2	80
2. Auto-parts	4	10.0	6	15.0	7	17.5	23	57.5	40
3. Electronics	5	8.3	6	10.0	10	16.7	39	65.0	60
4. Metal Products	2	2.6	5	6.4	6	07.7	65	83.3	78
5. Rubber & Plastics	3	5.4	3	5.4	6	10.7	44	78.5	56
6. Others	4	4.6	6	7.0	7	08.1	69	80.3	86
Total	**22**	**5.5**	**31**	**7.8**	**46**	**11.5**	**301**	**75.2**	**400**

Table 1.2 shows that in small-scale industries 75.2 per cent units consider non-financial factors for taking financing decisions. And important considerations, such as Trading on equity, Debt-equity ratio and Interest coverage ratio are considered only by 5.5 per cent, 7.8 per cent, and 11.5 per cent units respectively in small-scale industries. These factors are considered in financing decisions mostly by those industries which have an option between Equity and Debt as a source of financing, and are mostly large units. The other reason of considering them is having team of experts in management.

As said above in 75.2 per cent units in small sector, financing decisions are taken by considering non-financial factors, the main reasons of it are non availability of equity and preserve control. The maximum number of units in this category are from Metal Products industry 83.3 per cent followed by Others industry 80.3 per cent, Rubber and Plastics industry 78.5 per cent, Garments industry 76.2 per cent, Electronics industry 65 per cent, and least in Auto-parts industry 57.5 per cent units.

Interest coverage ratio is also very important tool in taking a financing decision, which is also not being paid much attention by small-scale industries. Only 11.5 per cent units are using it for financing decisions. In this category the leading one is Auto-parts industry, where 17.5 per cent units are considering interest coverage ratio for selecting the source of finance, followed by Electronics industry 16.7 per cent, Garments industry 12.5 per cent, Rubber and Plastics industry 10.7 per cent, Others industry 8.1 per cent and Metal Products industry 7.7 per cent units. Trade on Equity and Debt-Equity Ratios are also important factors for financing decisions. Debt-Equity Ratio is maximum considered by 15 per cent units in Auto-parts industry followed by Electronics industry 10 per cent, Others industry 7 per cent, Metal Products 6.4 per cent, Garments industry 6.3 per cent, and least by Rubber and Plastics industry just 5.4 per cent units. Trade on Equity factor is also maximum considered by Auto-parts industry, where 10 per cent units are using it for financing decision followed by Electronics industry 8.3 per cent, Rubber and Plastics industry 5.4 per cent , Garments industry 5 per cent, Others industry 4.6 per cent, and least in Metal Products industry 2.6 per cent units.

CAPITAL STRUCTURE PLANNING IN SMALL-SCALE INDUSTRIES

Capital structure refers to the mix of long-term sources of funds such as debentures, long-term debt, preference share capital and equity share capital including reserves and surpluses (i.e. retained earnings). Some companies do not plan their capital structure, and it develops as a result of the financial decisions taken by the financial manager without any formal planning. These companies may prosper in the short-run, but ultimately they may face considerable difficulties in raising funds to finance their activities. With unplanned capital structure, these companies may also fail to economize the use of their funds. Consequently, it is being increasingly realized that a company should plan its capital structure to maximize the use of funds and to adopt more easily the changing conditions.

It was pointed out that although the use of debt will, in most cases, cause the rate of return on equity capital to increase, it also increases the financial risk of the firm. That is, the use of debt increases the possibility of insolvency as well as variability in the earnings available to equity. A large majority of small industries are perfectly capable of assuming a certain amount of risk and should be interested in employing a level of debt commensurate with their ability to assume risk. If this level is exceeded, it is generally believed that the value of the firm will be adversely affected and the firm may actually experience insolvency. A paradox exists in small industries since in many cases the major source of funds is debt oriented, yet many small businesses cannot afford debt because they cannot stand risk. For this reason all owners and managers should be extremely careful when determining their capital structure.

TABLE 1.3: CAPITAL STRUCTURE PLANNING IN SMALL-SCALE INDUSTRIES IN HARYANA

Name of Industry	Yes		No		Total No.
	No.	%	No.	%	
1. Garments	8	10.0	72	90.0	80
2. Auto-parts	10	25.0	30	75.0	40
3. Electronics	15	25.0	45	75.0	60
4. Metal Products	10	12.8	68	87.2	78
5. Rubber & Plastics	8	14.3	48	85.7	56
6. Others	12	14.0	74	86.0	86
Total	**63**	**15.7**	**337**	**84.3**	**400**

In small-scale industries in Haryana as shown by Table 1.3 just only 15.7 per cent industries are planning their capital structure. The maximum number is 25 per cent in Auto-parts and Electronics industries followed by 14.3 per cent in Rubber and Plastics industry, 14 per cent in Others industry, 12.8 per cent in Metal

Products industry, and least is 10 per cent units in Garments industry, which plan their capital structure. Capital structure is planned only in large units of small scale sector particularly having a company form of organization. On the other hand 84.3 per cent units are not planning their capital structure at all. Maximum number of such units is in Garments industry 90 per cent, closely followed by Metal Products 87.2 per cent, Others industry 86 per cent, Rubber and Plastics industry 85.7 per cent, Auto-parts and Electronics industries 75 per cent each. Majority of these units are managed by persons having no knowledge of capital structure planning and who cannot afford the services of experts or do not have much choice among debt and equity to finance the future projects. These are the main reasons of not planning capital structure in small units. Small units depend on debts capital for their financial requirements.

CONSIDERATION OF COST OF DEBT IN SMALL-SCALE INDUSTRIES

The cost of capital is a very important aspect of financial management and many financial managers of middle-sized and large firms use it as the basis for accepting or rejecting investment projects. But to the managers of small firms due to its difficulty in computation this concept is less important. Nevertheless, it should be remembered that the debt is cheaper than equity capital not only because of the relative absence of risk from the view point of the investor when compared to equity capital but also because interest charges are tax deductible. The effective cost of debt capital is reduced by the amount of the firm's tax rate.

TABLE 1.4: BASIS OF SELECTING DEBT OR EQUITY IN SMALL-SCALE INDUSTRIES IN HARYANA

Name of Industry	Cost of Debt		Non-Financial Reasons		Total
	No.	%	No.	%	No.
1. Garments	8	10.0	72	90.0	80
2. Auto-parts	10	25.0	30	75.0	40
3. Electronics	15	25.0	45	75.0	60
4. Metal Products	10	12.8	68	87.2	78
5. Rubber & Plastics	8	14.3	48	65.7	56
6. Others	12	14.0	74	86.0	86
Total	**63**	**15.7**	**337**	**84.3**	**400**

As shown in Table 1.4, in small-scale industries in Haryana only 15.7 per cent industries are calculating cost of debt while taking a loan. It has been pointed out that cost of capital cannot be calculated in small and middle-sized firms with any degree of confidence. That's why, in such a less number of small-scale industries, this very important factor is used in selecting between debt and equity for financing. In this category the maximum percentage, 25 per cent, belongs to Auto-parts and Electronics industries, followed by Others industry 14 per cent, Rubber & Plastics industry 14.3 per cent, Metal Products 12.8 per cent, and the least in Garments industry 10 per cent. Only, those industries, which are planning their capital structure with the help of experts, calculate cost of capital. Due to this only big units are calculating cost of capital. In Auto-parts & Electronics industries large units are more in comparison to Garments industry and Metal Products industry so their percentage is more in using this factor. The other reason may be the choice among debt or equity.

THEORIES OF CAPITAL STRUCTURE USED IN SMALL-SCALE INDUSTRIES

There have been several major contributors to a theory of capital structure. Basically, there are two opposite schools. One is so-called traditional theory states that, up to a certain point, debt added to the capital structure will cause the market value of the firm to rise and the cost of capital to decline; however, after the optimum point has been reached, any additional debt will cause the market value to decrease and the cost of capital to increase. The second approach states that the cost of capital is unaffected by the amount of debt employed. One of the foremost advocates of the traditional approach is Ezra Solomon; the latter approach is defended by Modigliani and Miller.

As far as small scale industries are concerned all the industries which are planning their capital structure adopt the traditional theory of capital structure advocated by Ezra Solomon. These industries believe that a judicious use of debt increase the value of the firm and reduce the cost of capital. The optimum capital structure is the point at which the value of a firm is the highest and the cost of capital the lowest.

DEBT-EQUITY RATO IN SMALL-SCALE INDUSTRIES

The debt-equity ratio is determined to ascertain the soundness of the long-term financial position of the company. This ratio expresses a relationship between total liabilities (external equities) and the owner(s)'s equity (internal equities). It provides meaningful information for evaluating the relative position of creditors and owners. In other words, this ratio shows the relationship between different sources of company's finance. It indicates the extent to which the firm depends upon outsiders for existence or survival. A higher debt-equity ratio indicates higher financial risk. The choice of debt-equity ratio depends on relative cost of debt as compared to equity. The existing debt-equity ratio influences the future debt raising capacity of a business. If debt-equity ratio is already high, it becomes difficult nor it is desirable to raise fresh debts.

TABLE 1.5: DEBT-EQUITY RATIO IN SMALL-SCALE INDUSTRIES IN HARYANA

Name of Industry	0%		Upto 40%		41-80%		81-120%		121-160%		161-200%		Above 200%		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
1. Garments	–	–	1	1.3	4	5.0	8	10.0	10	12.5	22	27.5	35	43.7	80
2. Auto-parts	–	–	–	–	-	-	4	10.0	06	15.0	12	30.0	18	45.0	40
3. Electronics	–	–	-	-	4	6.7	4	6.7	07	11.6	12	20.0	33	55.0	60
4. Metal Products	–	-	3	3.8	3	3.8	4	5.1	06	7.7	18	23.1	44	56.5	78
5. Rubber & Plastics	–	-	2	3.6	2	3.6	2	3.6	05	8.9	15	26.8	30	53.5	56
6. Others	–	–	3	3.5	3	4.6	6	7.0	10	11.6	21	24.4	42	48.9	86
Total	**–**	**–**	**9**	**2.3**	**17**	**4.2**	**28**	**7.0**	**44**	**11.0**	**100**	**25.0**	**202**	**50.5**	**400**

With the help of above table we can analyse the Debt-Equity ratios in various small-scale industries. Table1.5 shows that 75.5 per cent industries in small sector are using external equities between 161 to 200 per cent or more of the owner(s)'s equities. Only one fourth industries in small-scale sector are using Debt capital less than 161 per cent of owner's Equity. In this category the maximum percentage is in Garments industry 28.8 per cent, followed by Others industry 26.7 per cent, Auto-parts and Electronics industries 25 per cent, Metal Products industry 20.4 per cent, and least in Rubber and Plastics industry 19.7 per cent.

As far as the standard of Debt-Equity ratio is concerned in a capital rich country, the practice is to use as little debt as possible. A debt-equity ratio of 1:3 or 33.3 per cent is regarded as good – and a ratio of 1:1 or 100 per cent would indicate an extremely heavy and unsatisfactory debt situation. But in under developed countries such standards cannot be expected. It is not unusual to find companies having a Debt-Equity Ratio of 2:1 or even 3:1 in the case of joint stock companies in India. But in small-scale industries the debt equity ratio more than 2:1 or more than 200 per cent is not considered good.

Now we can conclude that in majority of the small scale industries (50.5%) are using more than 200 per cent external equities which show a large share of financing by creditors relative to the owner(s). In future, these firms may face problem in getting further loans from outsiders and even face problem in paying interest on such a huge amount of loans. In this category the minimum percentage is 43.7 per cent, in Garments industry. Otherwise 45 per cent in Auto-parts industry, 48.9 per cent in Others industry, 53.5 per cent in Rubber and Plastics industry, 55 per cent in Electronics industry, and maximum 56.5 per cent units in

Metal Products industry are using more than 200 per cent external equities in comparison to owner(s)'s equities. The main reason of such a high percentage of external equities is shortage of owners' funds.

CONCLUSION

In small-scale industries the owners' are not familiar with the term financial leverage. That's the reason while employing financial leverage its effects are considered only by one-tenth units. And these units have option among debt and equity capital. Financing decisions are taken in two-third industries on the basis of non-financial factors. Important considerations such as Trading on Equity, Debt-Equity ratio and Interest Coverage ratio are considered only by five to eleven per cent units. In majority of small-scale industries capital structure is not planned. Only fifteen per cent units plan their capital structure and considered cost of debt while selecting Debt or Equity as a source of finance. In the small-scale industries majority of the units are using more than twice external equities in comparison to owner's equities.

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IMPACT OF SERVICE QUALITY ON SATISFACTION AND LOYALTY: CASE OF SINJAY RESTAURANT

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ABSTRACT

This study focuses on the relationship between service quality, customer satisfaction and customer loyalty of Sinjay Restaurant in Bangkalan, Indonesia. Service quality and customer satisfaction are key dimensions identified as important antecedents to loyalty. Particularly in the service industry such as restaurant, where intangibility is dominant, service quality is no longer sufficient as the sole source of competitive advantage. Customer satisfaction and service quality is identified as another sources of competitive advantage. This study analysed the antecedent factors that influence loyalty in the restaurant business. A questionnaire was designed and survey was conducted to collect the data from 147 customers. The research concluded that service quality has significant impact on customer satisfaction and customer loyalty, and customer satisfaction has stronger influence on loyalty. Theoretical contribution of this study is the nature of simultaneous model tested in developing world, which link all the antecedents variables of loyalty in the restaurant business. Practical contribution is for the managers to better understand what need to be emphasised in the service industry and to achieving customer loyalty. People aspect of service quality is found more important than physical evidence and process through technology aspect of service quality.

KEYWORDS
Service quality, Satisfaction, Loyalty, Sinjay Restaurant.

1. INTRODUCTION

Subsector culinary to contribute the largest revenue to the creative industry in Indonesia, or about 32.2% of the total contribution of the creative industries to GDP in 2011, or about Rp169, 62 trillion. "Now culinary sector is the biggest contributing to the creative industries, then followed by the fashion and handicraft," said Minister of Tourism and Creative Economy (Menparekraf), Mari Elka Pangestu in Jakarta on Wednesday, in a press conference when Indonesia Creative Products Week (PPKI) in 2012 in Epiwalk Kuningan, Jakarta. "We recognize the importance of support measures for the culinary industry," he said. The culinary industry, she said, has become one of the five sub-sectors that will be taken seriously in Indonesia given its potential is still huge. Even so, it will continue to support the development of other sub-sectors of creative industries http://www.investor.co.id/tradeandservices.

The restaurant industry has an important role as a job creator in the Indonesia economy in addition to its social impact on communities nationwide. Service quality of restaurant is recognized as an essential component of the customer satisfaction and therefore it is a cornerstone of the success of the fine dining restaurants. Downs and Haynes (1984) pointed out the relationship between the restaurant success and the effectiveness of its image management. A fine dining restaurant, therefore, must focus on its image using increased upgrades and improvements in décor, ambiance and interior design to attract customers and to differentiate itself from its competitors.

Restaurant industry are facing challenges of intense competition and increased customers' expectations over the last few years (Cheng et al., 1996). Increasing competition and continuously evolving customer demands have led restaurant to identify drivers of customer satisfaction and loyalty (Lenka, Suar and Mohapatra, 2009). Customer satisfaction leads to retention of customer. This is important since cost of acquiring a new customer is much more than cost of retaining the customer. Restaurants give top priority to providing better service quality to satisfy the customer. New marketing concepts and strategies (Ennew et al., 1993) paying greater attention to identifying customer needs and expectations (Morgan, 1989), and offering high service quality to customers (Thwaites and Vere, 1995; Lewis, 1993) have become important topics of research. The interest is largely driven by the realization that high service quality results in customer satisfaction and loyalty with the product or service, greater willingness to recommend someone else, reduction in complaints and improved customer retention (Zeithaml et. al., 1996). This paper examines whether service quality influences customers satisfaction and customer loyalty and whether customer satisfaction influences customers' loyalty. The study is conducted in Sinjay Restaurant in Bangkalan of Indonesia.

1.1. PROBLEM STATEMENT & OBJECTIVES OF THE STUDY

Customer loyalty is critical to the success of any restaurant that wants to gain and maintain market share. The restaurant is in need of an appropriate measure of customer satisfaction that will lead to customer loyalty from its primary source of customers. This suggests that management may wish to seek attributes that are responsible for customers' return business.

Customers who receive poor service will typically relate their dissatisfaction of the restaurant service to 15 - 20 others customers (Griffin, 1995). Gitomer (1998) reported that the cost of gaining a new customer is ten times greater than the cost of keeping a satisfied customer. In addition, if the service is particularly poor, 91% of customers will not return to the restaurant. Satisfied customers improve business and dissatisfied customers ruin business (Anderson & Zemke, 1998; Leland & Bailey, 1995). Therefore, customer satisfaction is important to be monitored and managed continually in the restaurants.

Restaurants must be aware of customer preferences and develop their services in line with targeted market needs and must effectively know how to manage quality to increase the restaurant chance for success. The demographic profile of customers may also affect their satisfaction and loyalty towards the restaurant. This suggests that restaurant may need to consider the demographic behavior of customers when developing service quality of the restaurant. This study focuses on fine dining restaurant middle scale segment. This study will help to identify factors contributing to the success or failure of fine dining restaurant positioning efforts. Those factors can be used by management to reposition the restaurant to improve or change the restaurant image in the respective target market. The purpose of this study is to examine the relationship between customer loyalty and two perquisites: customer satisfaction and the service quality of the fine dining restaurant segment from the point of view of customers. The data was collected from a cross-sectional survey of customers' satisfaction at a fine dinning restaurant segment to examine their overall satisfaction and their likelihood to return back and recommending the restaurant.

2. LITERATURE REVIEW

2.1. SERVICE QUALITY

Service is kind of performance that is offered by one party to another and in corporeality is a must part of it (Kotler & keller, 2006). Lewis and Mitchell, (1990); Dotchin and Oakland, (1994); Asubonteng, P.,McCleary, K.J. and Swan, (1996); Ducker (1991) defines service quality as "what the customer gets out and is willing to pay for" rather than "what the supplier (of the service) puts in". Customer expectations are beliefs about service delivery that function as standard or reference points against which performance is judged (Zeithaml and Bitner, 2003).

Parasuraman et al. (1988) have developed the famous scale of service quality – SERVQUAL – to quantitatively measure service quality, which has 22-items to assess service quality on five dimensions. The dimensions of SERVQUAL model were:

- Tangibles – physical attributes, physical facilities, equipment (for example, interior design), and appearance of personnel (for example, the appearance of employees).

- Reliability – : the service provider's ability to provide accurate and dependable services..
- Responsiveness – willingness to to assist its customers by providing fast and efficient service performances.
- Assurance – knowledge and courtesy of employees and their ability to inspire trust and confidence;
- Empathy – caring, the individualized attention the firm provides its customers. (Parasuraman et al., 1988).

The service quality dimensions that play a significant role in customer loyalty are reliability, empathy, and assurance. (Kheng et al., 2010). Research also proved that tangibles and assurance has the most significant effect while empathy has the least significant effect on customer satisfaction. (Ahmed et al., 2010) In all aspects, customers' perceptions are comparatively higher than of their expectations of the Restaurant's operation, and in fact the quality of offered services is low. The research findings also show that in the effects of service quality on service loyalty, customer satisfaction plays the role of a mediator. In addition there is a meaningful and positive relation between all dimensions of service quality with customer's satisfaction and loyalty, which in both cases assurance and tangibles have the most and the least relation with satisfaction and loyalty. (Mosahab et al., 2010). Service quality has also been defined as the result of a comparison between the received service and the expected service (Gronroos, 1984).

2.2. CUSTOMER SATISFACTION

Zeithaml and Bitner, (2000) defines customer satisfaction is the customers' evaluation of a product or service in terms of whether that service has met their needs and expectations. Satisfaction is often measured as the gap between expectations to a product or a service, and how the actual performance of the service corresponds to these expectations. That is, satisfaction is an evaluation of a service and is associated with to what extent a consumer likes or dislikes a service (Baker & Crompton, 2000; Bosque & Martín, 2008; Truong & Foster, 2006; Zeithaml et al., 2009; Parasuraman et al., 1985). This is in accordance with Bosque & Martín (2008, p. 553) who define satisfaction as "the consumer's response to the congruence between performance and comparison standard". Satisfaction is described as "an evaluation of an emotion" (Hunt, 1977, pp. 459-460). A satisfied customer is six times more likely to repurchase a product and share his experience with five or six other people (Grönroos, 2000; Zairi, 2000).

2.3. CUSTOMER LOYALTY

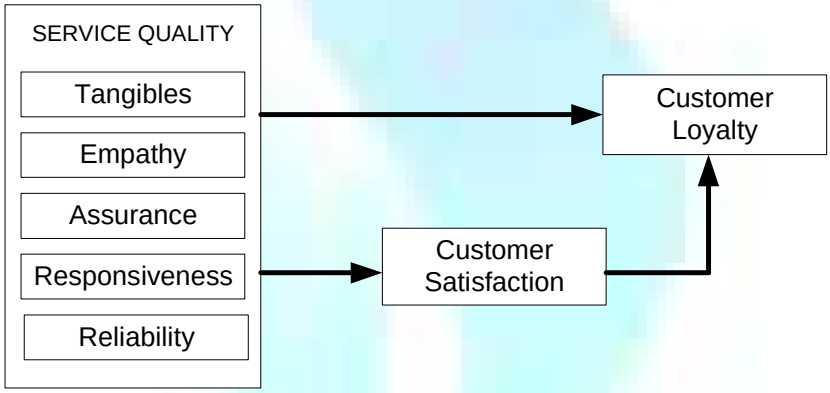
The concept of Loyalty may be understood as the consumer expectations or the predisposition to repurchase a product or service (Auh and Johnson, 2005). Customer loyalty is defined as repeated purchasing and referring a company to other customers (Heskett et al., 1997) and generating positive and measurable financial results (Duffy, 2003). Customer loyalty is concerned with the likelihood of customer returning, making business referrals, providing strong word-of-mouth references and publicity (Bowen and Shoemaker, 1998).

2.4. THE CONCEPTUAL MODEL OF THE RESEARCH

An literature review pointed out that service quality, customer satisfaction and customer loyalty are related to each other. Service quality is positively related to customer satisfaction and to customer loyalty. Besides there is a positive relationship between customer satisfaction and customer loyalty (Cavana et al, 2007; Garland & Gendall, 2004; Henkel et al, 2006; Heskett et al, 1997).

The following conceptual model has been used in this article

FIGURE 1: PROPOSED MODEL OF THE CUSTOMER SATISFACTION MEDIATION OF CUSTOMER LOYALTY



2.5. RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER SATISFACTION

Researchers have studied the relationship between service quality and satisfaction. Customer satisfaction is a key consequence of service quality and can determine the long-term success of a service organization (Parasuraman, Zeithaml, and Berry 1994). Parasuraman et al. (1988) specifically suggested that service quality is an antecedent of customer satisfaction. However, there is much debate whether customer satisfaction is an antecedent of service quality judgments (Parasuraman et al., 1985) or the other way round (Anderson and Sullivan, 1993; Taylor and Baker, 1994).

Some the relevant literature on service quality, we discovered that many scholars agree on the notion that a positive correlation exists between service quality and customer satisfaction and identified service quality to be the primary factor that affects customer satisfaction (Zeithaml and Bitner, 1996; de Ruyter et al., 1997). Thus,

H1: Service quality has a positive influence on customer satisfaction.

2.6. RELATIONSHIP BETWEEN CUSTOMER SATISFACTION AND CUSTOMER LOYALTY

Prerequisite of loyalty is satisfaction. A dissatisfied customer is more likely to search for information on alternatives and more likely to yield to competitor overtures than a satisfied customer (Anderson and Srinivasan, 2003). However, satisfaction is not sufficient on its own to automatically lead to repeat purchases or brand loyalty (Bloenier and Kasper, 1995). Shoemaker and Lewis (1999) found a weak link between customer satisfaction and brand loyalty in the casino industry. Fornell, Johnson, Anderson, Cha, and Bryant (1996) stated that increased customers satisfaction also increases brand loyalty in terms of repurchase likelihood and price tolerance given repurchase. According to Heskett et al. (1997) only 100% of satisfied customers become truly brand loyal and have relatively high repurchase rates. In addition, Bowen and Chen (2001) stated that customers must be extremely satisfied to show brand loyalty.

Loverlock (1996) identified customer satisfaction as an important driving force for customer loyalty and demonstrated a marked positive correlation between the two. Moreover, numerous studies conducted by several scholars have came to the same conclusion that customer satisfaction has direct influence over customer loyalty and it is one of the key variables that determines customer loyalty (Anderson and Sullivan, 1993; Oliver, 1999). Thus,

H2: Satisfaction has a positive influence on customer loyalty.

2.7. RELATIONSHIP BETWEEN SERVICE QUALITY AND CUSTOMER LOYALTY

Customer satisfaction or dissatisfaction is a well-known and established concept in several sciences. In marketing and consumer research, customer satisfaction has been used in order to describe differences between specific alternatives and brands Yi (1989).

Boulding et al. (1993) found positive relationship between service quality and repurchase intentions and willingness to recommend. Lenka et al. (2009) also found that service quality has positive impact on customer loyalty. Thus,

H3: Service quality has a positive influence on customer loyalty.

3. METHODOLOGY

This study uses convenience sampling. Customers were contacted through personal interview method. Variables for the study were service quality, customer satisfaction and customer loyalty.

3.1. RESEARCH METHODOLOGY

The objective of this research is to clarify the relationship between three variables of service quality, customer satisfaction, and customer loyalty. This research can be categorized as descriptive research based on the method of obtaining the considered data.

3.2. STATISTICAL POPULATION AND SAMPLE

The statistical population of this research is customers of a Sinjay Restaurant in Bangkalan, Indonesia. Since the statistical population was unlimited, therefore the following formula was used to get the size of the sample:

$$N = \frac{Z^2 \alpha / 2 \, \delta^2}{E^2}$$

The variance of the obtained answers from the primary sample was 880.87, and by putting it in the above mentioned formula, the reliability level (α) was 95 percent, and estimate accuracy (E) was 5, and the sample size was 150. A total of 150 questionnaires were distributed by the researcher and 147 filled questionnaires were received which shows 98.0 % response rate.

4. DATA ANALYSIS

4.1. RELIABILITY

Reliability is defined as the extent to which a questionnaire, test, observation or any measurement procedure produces the same results on repeated trials (Babbie, 2004). Of course validity is more critical to research. 'Validating that something is measured properly makes more sense than relying on that something is measured properly' (Field, 2009). A good measure must not only be reliable, but also valid. So a measure cannot be valid unless it is reliable, but a reliable measure may not be valid. Nevertheless, to be complete, the reliability of the answers is measures by studying the Cronbach's alpha (α).

The Cronbach's alpha ranges from zero to one, with zero indicating complete unreliability and a value of one indicating perfect reliability. According Gay (1992), scale's reliability coefficient is above 0.90, which shows that scale's reliability is very well; 0.80 is the minimum acceptable reliability coefficient. Other scholars, such as Nunnally (1978) believe that above 0.7 is acceptable reliability, if the research tools' reliability is too low, below 0.6, which should be reconsidered The Cronbach's Alpha for the three constructs are mentioned in table 1.

TABLE 1: RELIABILITY STATISTICS

Construct	Number of items	Cronbach's Alpha
Service Quality	15	0,915
Customer Satisfaction	5	0,859
Customer Loyalty	4	0,890

All dimensions' Cronbach's α coefficients are greater than 0.8. As a result, overall, the study's variables internal stability and consistency are better, reliability is higher, which shows the study's variables corresponding measure indicators have strong relationship, that is to say the questionnaire in this study has good reliability.

4.2. DESCRIPTIVE STATISTICS OF CONSTRUCTS

As we have seen, service quality is positively related to customer loyalty and customer satisfaction. There is a significant correlation between service quality and customer satisfaction (H1) with a correlation coefficient r = .917, between customer satisfaction and customer loyalty with a correlation coefficient r = .919 (H2) and between service quality and customer loyalty (H3) with a correlation coefficient r = .937.

TABLE 2: CORRELATIONS

Variables		Customer Loyalty	Service Quality	Customer Satisfaction
Customer Loyalty	Pearson Correlation Sig. (2-tailed) N	1 . 147	.937** .000 147	.917** .000 147
Service Quality	Pearson Correlation Sig. (2-tailed) N	.937*** .000 147	1 .000 377	.919** .000 147
Customer Satisfaction	Pearson Correlation Sig. (2-tailed) N	.917** .000 147	.919** .000 147	1 .000 147

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the correlation between the independent and dependent variables. The table shows that all variables are significant at the level of 1%. 0.937 is the correlation coefficient of service quality for customer's loyalty which is significant so we conclude that there is a large (r=0.937) positive relationship between service quality and customer's loyalty. The table also shows that the p-value is 0.000 which is less than 0.01 thus H2 is rejected i.e. there is a no relationship between service quality and customer's satisfaction in Sinjay Restaurant. 0.919 is the correlation coefficient of customer's loyalty for Customer satisfaction which is significant so we conclude that there is a medium (r=0.919) positive relationship between customer satisfaction and customer's loyalty. The table also shows that the p-value is 0.000 which is less than 0.01 thus H3 is rejected i.e. there is a no relationship between customer satisfaction and customer's loyalty in Sinjay Restaurant. 0.917 is the correlation coefficient of customer's satisfaction for customer's loyalty which is significant so we conclude that there is a medium (r=0.917) positive relationship between loyalty programs and customer's loyalty.

To dig deeper into the variable service quality, there is made a regression analysis between all the components of it, and customers satisfaction and loyalty (table 3). Results show that there are only positive correlations coefficients. Nevertheless, there is a clear difference visible in the strength of the correlation and R square scores. Some service quality components (tangibles, empathy and assurance) have a lower correlation coefficient and explain less variance of customer satisfaction and loyalty, than others (responsiveness and reliability). But, Field (2009) suggest, a correlation above 0,7 is normally indicated as a strong correlation.

TABLE 3: PEARSON'S CORRELATIONS DIMENSIONS (N=147)

	Customer Satisfaction	R square	Customer Loyalty	R square
Tangibles	0.736	0.542	0.713	0.508
Empathy	0.782	0.578	0.743	0.711
Responsiveness	0.894	0.799	0.868	0.753
Reliability	0.903	0.815	0.916	0.839
Assurance	0.799	0.638	0.784	0.615

* Significant at the 0.01 level (2-tailed)

There still is a change for a mediation effect as stated in the conceptual framework and suggested by other researchers. In several industries the direct relationship between service quality and customer loyalty is caused by customer satisfaction. If a mediation effect is found in this research, so the business model by focusing on creating satisfied customers instead.

The mediation effect is calculated by the different steps Verboon (2010) suggested. First, a regression analysis of service quality on customer satisfaction indicates a positive regression coefficient of 0.195 ($p < .000$). So hypothesis 1 is confirmed.

TABLE 4: LINEAR REGRESSION SERVICE QUALITY AND CUSTOMER SATISFACTION

	Unstandardized		Standardized	t	Sig.
	B	Std. Error	Beta		
(Constant)	.387	.147		1.956	.047
Service Quality*	.187	.046	.195	4.024	.000

* Dependent Variable: Customer Satisfaction

The second step tests is a prediction of service quality on customer loyalty. The prediction of service quality on customer loyalty is high (0.358) and significant. So hypothesis 2 is confirmed. While, the prediction of customer satisfaction on customer loyalty is 0.150 and significant. So hypothesis 3 is confirmed.

TABLE 5: LINEAR REGRESSION SERVICE QUALITY (MODEL 1) AND CUSTOMER SATISFACTION (MODEL 2) CUSTOMER LOYALTY

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.475	.243		1.952	.052
Model 1	Service Quality	.530	.095	.358	5.608	.000
Model 2	Customer satisfaction	.168	.073	.150	2.287	.023

* Dependent Variable: Customer Loyalty

5. DISCUSSIONS AND CONCLUSIONS

This research study was conducted to find the impact of service quality and customer satisfaction on customer's loyalty in Sinjay Restaurant. Research indicates that service quality, and customer satisfaction are the important factors that can increase the loyalty of a customer towards its restaurant but customers are slightly satisfied with the services of restaurant operating in Bangkalan, Indonesia. Hence in order to be successful, restaurants should focus on building customer loyalty by offering quality products and by treating people how they want to be treated for better and greater customer satisfaction. For that reason restaurants should offer loyalty programs to retain customers because loyalty programs helps in developing strong relationships with all the customers that could directly or indirectly affect the success of restaurants.

In addition, findings of this research show that there is a positive and meaningful relation among all fivefold dimensions of service quality with satisfaction and loyalty, which in both cases assurance and tangibles have the most and the least relation with satisfaction and loyalty. In other words, it sees that tangibles can be considered as health factors, and assurance as motivational factor. In addition, the fivefold dimensions of service quality can be observed from another point of view. In fact, these dimensions can be divided into two more general dimensions of resulted and processed. The resulted dimension includes reliability dimension, and the processed dimension includes other dimensions (tangibles, responsiveness, assurance, and empathy). Findings of this part too, show that both resulted and processed dimensions have a positive and meaningful relation with satisfaction and loyalty. But the important point is that there is significant relation between the processed dimensions and satisfaction and loyalty.

6. LIMITATION

This research was conducted in one restaurant in Bangkalan-Indonesia, thus may not be generalizable to other restaurant. Therefore, more restaurants need to be investigated. It is also suggested that other related factors of service quality such as internal marketing, HR, organizational behavior and leadership to be included in the future researches.

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E – COMMERCE RISK ANALYSIS USING FUZZY LOGIC

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ABSTRACT

This paper briefly analyzes the assessment of risks evolved in E – Commerce development with the aid of fuzzy decision support system (FDSS). A FDSS prototype which is web – based is suggested to aid EC project managers for finding potential EC risk factors and the corresponding project risks. A risk analysis model for EC development using a fuzzy set approach is proposed and incorporated into the FDSS. For running the fuzzy set approach, we used MATLAB software. The research methodology includes the following stages in this paper: First, identifying the factors effect on the development of the E-commerce with the help of experts; secondly, defining the suitable membership function for each factor. There are three layers in the fuzzy system that every layer's output is input for next layer. Then, the system calculates the final risk through SUGENO inference engine for E-commerce. Indeed the suggested architecture for the model with the help of experts is presented in this paper.

KEYWORDS

Fuzzy decision support system, Fuzzy Logic, Electronic commerce, Risk analysis.

1. INTRODUCTION

E-commerce (EC) is a modern business methodology which improves the quality of goods and services along with speed of service in delivery, at the same time it addresses the needs of organizations, merchants, and consumers to cut costs. It also applies the use of computer networks to search and retrieve information in support of human and corporate decision making'' (Kalakota and Whinston, 1996). It has been adopted widely in most enterprises.

Although EC offers various business possibilities, EC development is attacked by different types of risk, so risk management is necessary to avoid these issues. Indeed, a task that is critical to the proper management of EC development is the assessment of risk. An important step in advancing our knowledge requires that we understand and address these risks. According to Leung et al. (1998), most project managers worry about the time complexity involvement in risk management when it comes to prediction and assessment of risks. However, with the help of computer software systems, the time for analysis of risk can be significantly reduced. Risk analysis can be conducted by using the theory of probability, which estimates the likelihood and outcomes of any given risk. EC development is relatively new to most companies, and only very little information is available on the associated set of risks. The application of fuzzy set theory (FST) to risk analysis seems appropriate; as such analysis is highly subjective and related to inexact and vague information. There is a need to design and develop a fuzzy decision support system (FDSS) to aid EC practitioners to evaluate the risks related with EC development. This paper describes the research and development of a FDSS that can be used to effectively support EC project managers in conducting risk assessment in EC development. The motivation for the present work is the recognized absence and need for a system that aids in the evaluation of a company's risk level and provides an overall risk evaluation of EC development.

2. REVIEW OF LITERATURE

2.1. DEFINITIONS OF RISKS ASSOCIATED WITH EC

The concept of risk became popular in economics during the 1920s. Since then, it has been successfully used in theories of decision making in economics, finance, and the decision science. The Merriam - Webster (1994) dictionary defines risk as the possibility of loss or injury'' or ''someone or something that creates or suggests a hazard''. At present, there is no agreed upon universal definition of EC risk but information security is a widely recognized aspect of EC risk (Viehlandm, 2002).

Greenstein (2000) views risks associated with EC as the possibility of loss of confidential data or the destruction, generation, or use of data or programs that physically, mentally or financially harms another party, as well as the possibility of causing harm to hardware.

Mceachern (2001) uses the term ''cyber risk'' to define any risk associated with EC - including Web site destruction and manipulation, unauthorized access to customer records, Internet fraud, telecommunications theft, copyright infringement and denial of access. On the other hand, Viehlandm (2002) focuses on managing business risk in EC. He defines EC risk as the likelihood of a negative impact to organization itself when developing or operating EC strategy. In this paper, risks associated with EC development are the risks of direct or indirect loss to the organization in development an EC project, which refers to any project that involves development stages as planning, analysis, design and implementation of an EC system.

2.2. FUZZY RISK ANALYSIS RESEARCH

The techniques of risk analysis are powerful tools to help people manage uncertainty. Thorough risk analysis estimation and evaluation can provide valuable support for decision making. There are many risk analysis techniques currently in use that attempt to evaluate and estimate risk. These techniques can be either qualitative or quantitative depending on the information available and the level of detail that is required (Bennett and Bohoris, 1996). Quantitative techniques rely heavily on statistical approaches, which include Monte Carlo Simulation (White, 1995), Fault and Event Tree Analysis (White, 1995; Bennett and Bohoris, 1996), Sensitivity Analysis (White, 1995), Annual Loss Expectancy (Rainer and Snyder, 1991), Risk Exposure (Boehm, 1989), Failure Mode and Effects Analysis (White, 1995), etc; qualitative techniques rely more on judgment than on statistical calculations such as Scenario Analysis (Rainer and Snyder, 1991), FST (Rainer and Snyder, 1991), etc. Quantitative and qualitative techniques have their own advantages and disadvantages. Among these techniques, the application of FST to risk analysis seems appropriate; as such analysis is highly subjective and related to inexact and vague information. Since FST was introduced by Zadeh (1965) to deal with problems in which vagueness was present, linguistic values have been widely used to approximate reasoning. Numerous studies of FST in risk

assessment have appeared in different areas such as Information security, Software development Ground water nitrate risk management System failure Civil Hazardous materials Natural hazards Bank, etc.

2.3. THE SIGNIFICANCE OF FUZZY RISK ANALYSIS FOR EC

Through using EC, companies are able to connect with their trading partners for ''just in time production'' and ''just in time delivery'', which improves their competitiveness globally. Although EC offers great opportunities, there is no doubt that EC development involves many risks. In this study, we intend to present risks to EC as well as the risks that EC development shares with traditional systems. Every EC development is linked to a different degree of risk. However, most companies do not identify and assess EC-related risk. EC development has a lot in common with IT project development. Many IT and EC development cannot be completed on-time and on-budget (Stoehr, 2002). Proper risk management is an essential element of project success (Stoehr, 2002) because without appropriate risk management it fails to achievesignificant return on investment or defensive / competitive purpose. One of the important phases in risk management is risk analysis, which involves a process of risk identification and risk assessment. Proper risk assessment can enhance the chance of successful project implementation (Anderson and Narasimhan, 1979). McDonald (2000) and Stoehr (2002) point out that companies need to perform a risk analysis before engaging EC development.

3. RESEARCH OBJECTIVES

Research objectives in this paper are as follow:

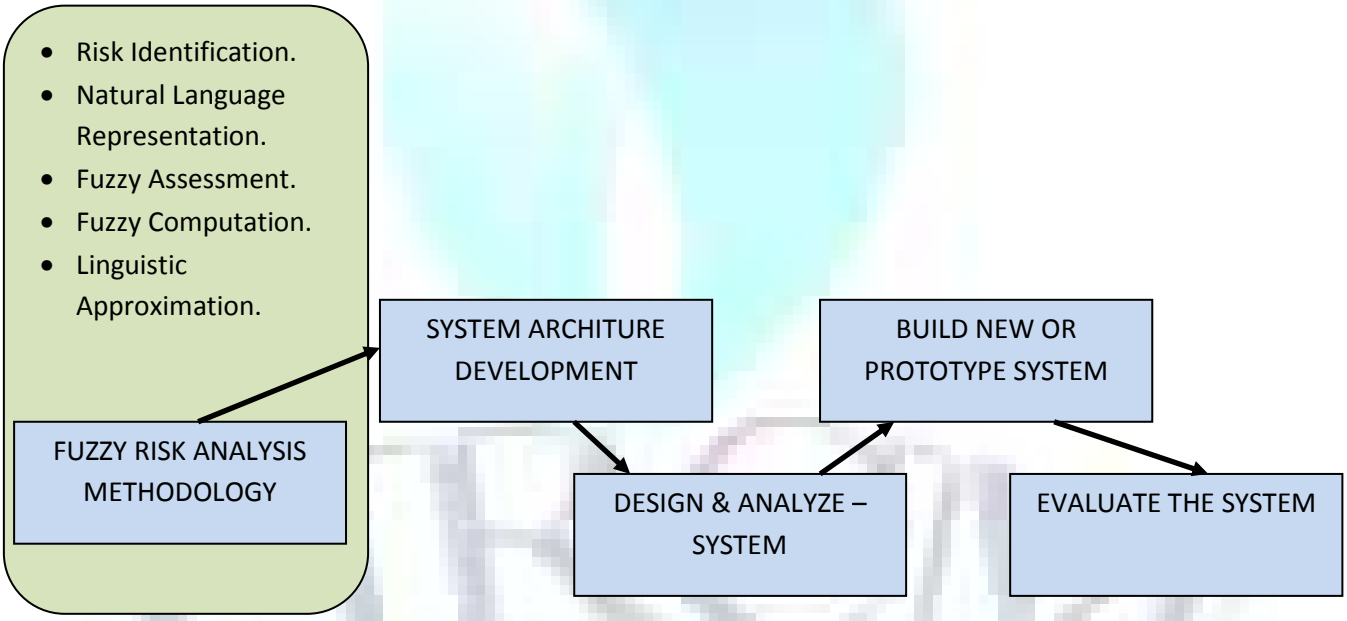
- To identify the factors affecting E-commerce development risk.
- To suggest a model to analyze the risks in E-commerce development based on fuzzy logic.

4. RESEARCH METHOD

4.1. SYSTEM DEVELOPMENT METHODOLOGY FOR THE FDSS

The purpose of this study is to design and develop a FDSS to assist EC project managers in identifying potential risk factors and evaluating the corresponding EC development risks. FDSS is constructed following the five-stage system development methodology, which is based on a generic IS development (Nunamaker, 1990), incorporated with the method for fuzzy risk analysis (Schmucker, 1984; Tee and Bowman, 1991; Tah and Carr, 2000; Wat and Ngai, 2001). Although this system development methodology is developed for the FDSS, we believe that other researchers can easily follow as a guideline to design and develop other FDSS for risk analysis in other application areas. The system development process consists of five stages, namely, construction of fuzzy risk analysis model, development of system architecture, analyzing and designing of the system, building of the prototype, and evaluation of the system. An overview of these five stages of system development is shown in figure 1. First, a fuzzy risk analysis model was constructed as the kernel of the system. Second, system architecture was developed. Third, system design and analysis were carried out in modularity with defining functionalities of the system components and an understanding of how they interact with one. Fourth, the prototype system was built in order to learn more about the concepts, framework, and design through the system-building process. Finally, the prototype system was evaluated by EC experts and potential users. Detailed descriptions of each phase are given in the following sections. To define the membership functions and calculate the risks and develop the model, we have used MATLAB software. Also, Visual Basic is selected for development of the fuzzy risk analysis component.

FIGURE 1: FDSS FRAMEWORK



5. RESULTS AND DISSCUSSION

5.1. PHASE 1. CONSTRUCT A FUZZY RISK ANALYSIS MODEL

Most existing risk analysis models are based on quantitative techniques such as Monte Carlo Simulation and Annual Loss Expectancy. However, the information that is related to most uncertainty factors is not numerical. FST provides an approximate model for the evaluation of the risk faced by EC projects through a linguistic approach. The procedure for fuzzy risk analysis is based on the works from Refs. (Schmucker, 1984; Tee and Bowman, 1991; Tah and Carr, 2000; Wat and Ngai, 2001) that consisted of five steps: risk identification, natural language representation,
fuzzy assessment aggregation, fuzzy weighted average computation, and linguistic approximation. The following sections give a detailed description of each step.

5.1.1. RISK IDENTIF ICATION

The first step is to conduct risk identification and compile a list of the most significant uncertainty factors and their descriptions. Before conducting fuzzy risk analysis, one must identify the components of risks associated with EC development. However, little empirical research has focused on identifying the potential risk factors that threaten EC development. In the study of Wat et al. (2004), a source-based approach to categorizing EC development risks is initially used, with technical, organizational, and environmental risks as three primary source categories. Then the potential risks associated with EC were identified with 51 risk items (table 2) associated with EC development based on a comprehensive literature review and interviewed with EC practitioners. An empirical study was conducted with 48 interviews with expertise used for the analysis. The demographic characteristics of expertise are shown in table 1. An exploratory factor analysis (EFA) of the survey data revealed 10 major dimensions of risks associated with EC development, namely: (1) resources risk, (2) requirements risk, (3)

vendor quality risk, (4) client–server security risk, (5) legal risk, (6) managerial risk, (7) outsourcing risk, (8) physical security risk, (9) cultural risk, and (10) reengineering risk. As a result of the study (Wat and Ngai, 2004) the risk classification framework as shown in figure 2 helps in the formulation of ways of accessing risks to EC development. In continuous we categorize these 10 variables to 3 levels; Technical, Organizational and environmental level (As shown in table 2).

TABLE 1: FREQUENCY DISTRIBUTION OF RESEARCH COMMUNITY

VARIABLES	FREQUENCY	AVERAGE	MEAN	MOD	MINIMUM	MAXIMUM
Age	48	42.5	41	37	30	58
Experience	48	7.9	8	9	3	13

VARIABLES	FREQUENCY	PERCENTAGE
DOCTRATE	21	43.8
PG	17	35.4
UG	10	20.8

TABLE 2: POTENTIAL RISKS ASSOCIATED WITH EC

VAR	POTENTIAL RISKS	VAR	POTENTIAL RISKS
V1	Hacker gaining unauthorized access	V2	Absence of firewall
V3	Lack of using cryptography	V4	Poor ''key'' management
V5	Malicious code attacks	V6	Disclosure of sensitive information
V7	Loss of audit trail	V8	Natural disaster-caused equipment failure
V9	Human factor-caused equipment failure	V10	Threat of sabotage in internal network
V11	Inadequate backup systems	V12	Software or hardware problem-caused failure system
V13	Site or network overload and disruption	V14	Poor design, code or maintenance procedure
V15	Wrong functions and properties development	V16	Wrong user interface development
V17	Project complexity	V18	Technological newness
V19	Continuous change of system requirements	V20	Wrong schedule estimation
V21	Project behind schedule	V22	Project over budget
V23	Inadequate cash flow	V24	Personnel shortfalls
V25	Lack of expertise & experience in EC	V26	Loss of key person
V27	Lack of top management support	V28	Poor project planning
V29	Indefinite project scope	V30	Lack of contingency plans
V31	Business process redesign	V32	Organizational restructuring
V33	Lack of trust between your organization an merchant or customer	V34	Inappropriate media for the product and service
V35	Lack of international legal standards	V36	New laws, regulations, and judicial decisions constantly change the online legal landscape
V37	Uncertain legal jurisdiction	V38	Incompletion of contract terms
V39	Loss of data control	V40	Loss of control over vendor
V41	Loss of control over information technology	V42	Hidden cost
V43	Unclear project objectives	V44	Lack of vendor expertise and experience
V45	Lock-in situation	V46	Vendor offers outdated technology skill
V47	Difference users with different in culture customers, and business styles	V48	Language barrier

5.1.2. NATURAL LANGUAGE REPRESENTATION

According to Karwowski and Mital (1986), traditional approaches to risk assessment obtain their overall risk scores by calculating the product of exposure, likelihood, and the consequences of a possible accident due to the hazard. A simpler approach that is advocated by some risk experts is to multiply the severity of consequences by the likelihood of their occurrence, as the likelihood of occurrence automatically includes exposure (Waring and Glendon, 1998). For example, Boehm (1989) defined risk impact as the product of the probability of an unsatisfactory outcome (Likelihood) and the loss to the parties affected when the outcome is unsatisfactory (Severity). Consequently, two linguistic variables, ''Likelihood'' and ''Severity'', are defined to calculate the overall risk. In FWA, ''Likelihood'' is the rating factor (Ri), and ''Severity'' is the weighting factor (Wi) that corresponds to rating factor i. Both linguistic variables have five terms. ''Likelihood'' is expressed in terms of ''Very Unlikely'', ''Unlikely'', ''Medium'', ''Likely'', and ''Very likely''. ''Severity'' is expressed as ''Minimal'', ''Low'', ''Moderate'', ''High'', and ''Critical''. In this study, the membership functions of the linguistic terms are characterized by triangular fuzzy numbers, as these are very often used in applications such as fuzzy controllers, and in managerial decision making, business and finance, and the social sciences, etc. (Bojadziev and M. Bojadziev, 1997). Table 3 shows the membership functions and the triangular fuzzy numbers of each linguistic term.

TABLE 3: FUZZY SET REPRESENTATION

LIKELIHOOD	SEVERITY	
Very unlikely	Very low	(0,0,0.25)
Unlikely	Low	(0, 0.25,0.5)
Medium	Medium	(0.25,0.5,0.75)
Likely	High	(0.5,0.75,1)
Very likely	Very high	(0.75,1,1)

5.1.3. FUZZY ASSESSMENT AGGREGATION

In this stage, an aggregate of several evaluators' fuzzy assessment is performed by using the fuzzy average operation for aggregate method. By allowing more than one evaluator to assess the risks associated with an EC project, a more objective and unbiased result can be obtained. The fuzzy average operation for aggregate method that is known as the ''Triangular Average Formula'' is used to determine the mean of evaluator opinions. Hence, the fuzzy average of each risk factor question from the risk assessment form can be obtained. The Triangular Average Formula is as follows:

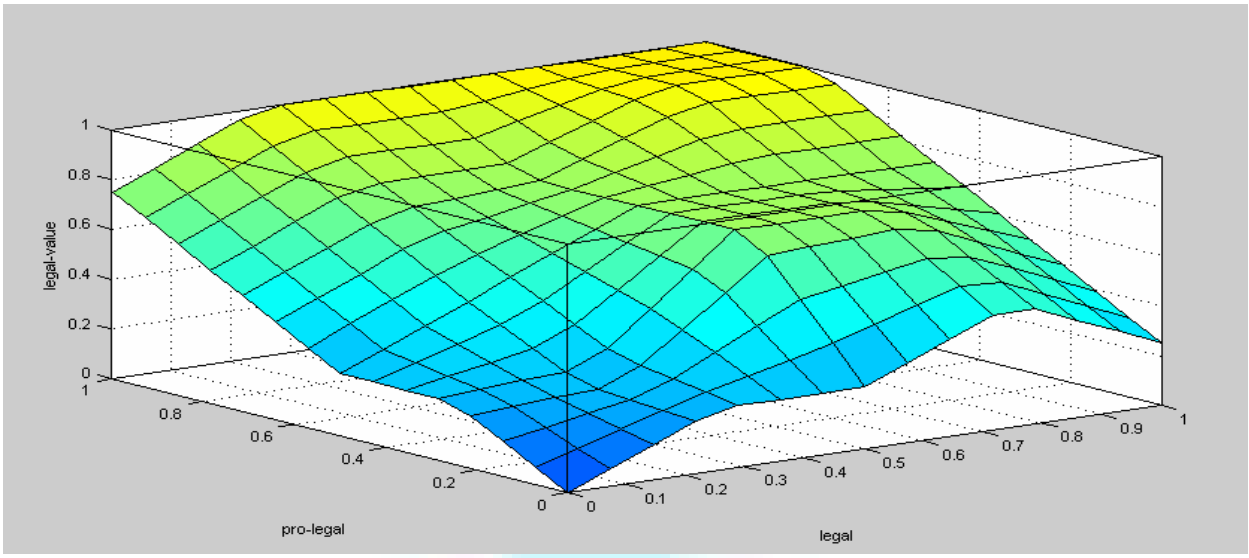
$A_{average} = A_1 + \ldots\ldots\ldots + A_n / n$

$A_{average} = (a_1^{(1)}, a_M^{(1)}, a_2^{(1)}) + \ldots\ldots\ldots\ldots\ldots + (a_1^{(n)}, a_M^{(n)}, a_2^{(n)}) / n$

LAYER 1

In this stage, the amount of risk for every factor calculated through Sugeno inference system. In this layer, there are 10 units for every factor. There are 26 rules for every factor. Also, the relationship between inputs and output in all situations has shown in a three dimensional diagram in figure 2.

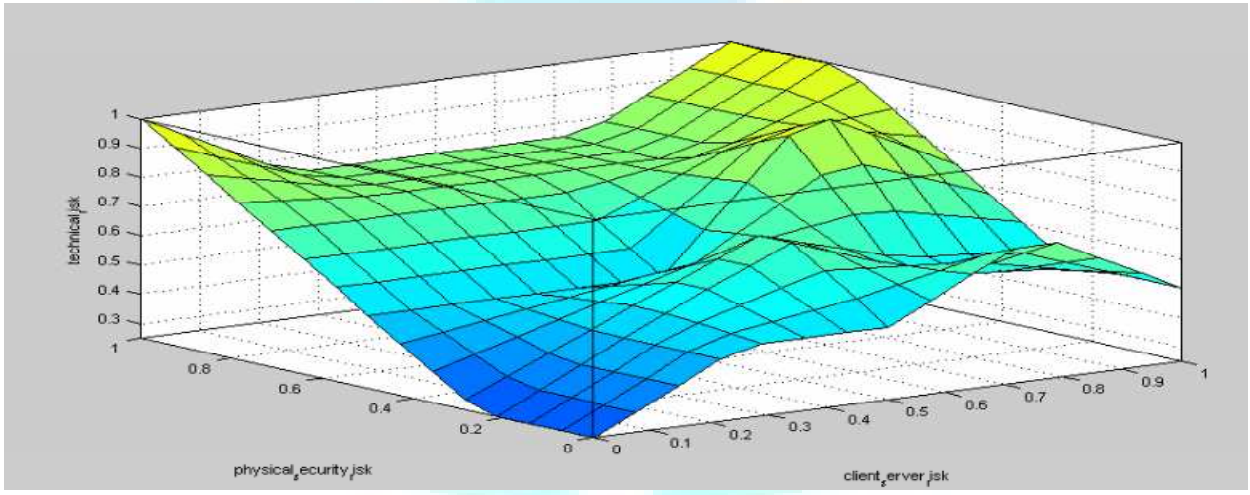
FIGURE 2: 3D DIAGRAM



LAYER 2

Now for the second subsystem we should define it according to the classification of the variables in table 2. It has 3 units. Every unit has 125 rules. The relationship between inputs and output in all situations has shown in a three dimensional diagram in figure 3.

FIGURE 3: 3D DIAGRAM

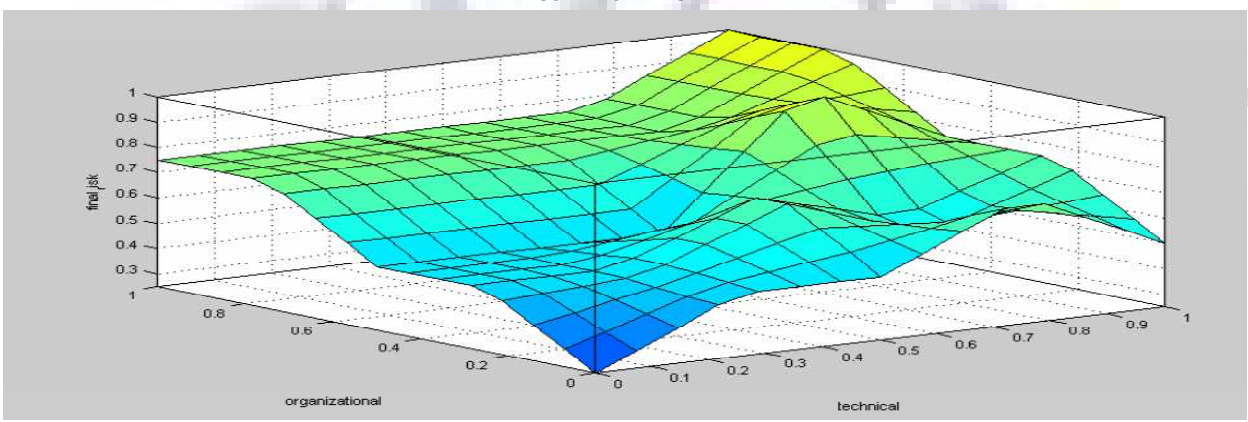


COMPUTING FINAL RISK

Layer 3

For the third and last subsystem again, according to the classification of the variables in table 2, we have three variables include organizational, technical and environmental level. It has 1 unit. It has 125 rules. The relationship between inputs and output in all situations has shown in a three dimensional diagram in figure 4.

FIGURE 4. 3D DIAGRAM



5.1.4. LINGUISTIC APPROXIMATION

As the result of the calculated fuzzy final risk value is a fuzzy number, it is necessary to translate it back into linguistic terms for easy interpretation. The goal of linguistic approximation is to find the linguistic term with the closest possible meaning to that of a defined fuzzy set. We translate the fuzzy number to the linguistic terms.

PHASE 2. DEVELOP SYSTEM ARCHITECTURE

Good system architecture provides a road map for the system building process by placing components into perspective, defining their functionalities, and demonstrating how they will interact with one another (Nunamaker et al., 1990). The Web is the center of activity in developing decision support systems (DSS) (Shim et al., 2002) while client–server architecture has been widely adopted in the integration of Web-based applications (Buser et al., 1999). The client–server relationship describes the distribution of tasks between a server and the clients who access that server. The FDSS is a client–server system with a two-tiered architecture. On the client side it is a front-end system that works with Web clients to obtain service requests and present results. On the server side, it is a back-end system that executes a fuzzy risk analysis and access database for data management. Indeed, such a two tiered architecture is suitable when developing noncritical applications with light transaction loads such as DSS or departmental applications (Dickman, 1995). Since the FDSS is a client–server system, it will be executed on the Web server. Whenever a Web browser (Client) sends a request for a page to the FDSS, the code is processed at that time by the Web server. For the system components contain in the FDSS, it is composed of three interrelated components, which are (1) database, (2) model base subsystem, and (3) user interface. These three components are the basic elements in DSS (Pearson and Shim, 1995). Figure 5 depicts the basic architecture of the FDSS.

PHASE 3. ANALYZE AND DESIGN THE SYSTEM

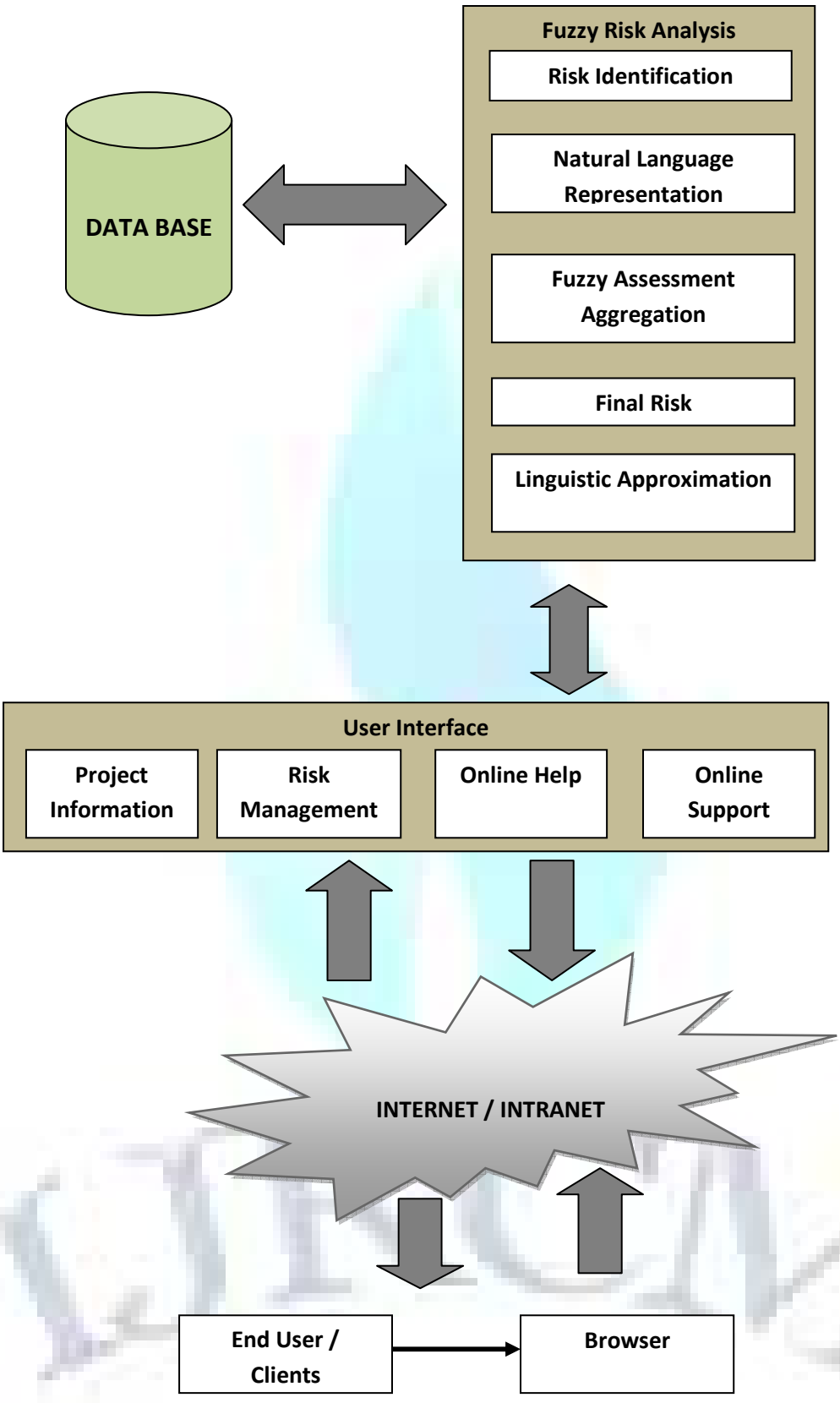
Analysis and design are important aspects of the system development process. Design involves an understanding of the domain being studied, the application of various alternatives, and the synthesis and evaluation of proposed solutions. Design specifications are used as a blueprint for the implementation of the system (Pandey and Barai, 1994).

The determination of system components and development platform is made during this phase. The design of DSS can be divided into three interrelated components, which are database, model base subsystem, and user interface (Pearson and Shim, 1995). The detailed specifications of these three system components, structure, and features are determined as follows.

DATABASE

The database system is responsible for the storage of data and its management. It maintains the necessary information on each EC project. The data is obtained from an external source through manual or automated processes and the results generated by the FDSS. To manipulate databases on the Web, ActiveX Data Object (ADO) is used to interface with relational databases via the Open Database Connectivity (ODBC) protocol (Anderson et al., 1999). ADO is chosen as the data access mechanism due to its high speed, ease of use, and low memory overheads. The underlying database can be any application that supports the ODBC protocol. The current implementation suggests use of Microsoft Access.

FIGURE 5: SYSTEM ARCHITECTURE OF THE FDSS



5.2. MODEL BASE SUBSYSTEM (FUZZY RISK ANALYSIS COM COMPONENT)

The model base performs activities to provide analytical capabilities for the DSS (Turban, 1995). Users can write their own models or use standard models at times. Fuzzy risk analysis model described is employed as a model base subsystem in FDSS. This model is translated into programming code and is integrated as the Component Object Model (COM). COM defines the binary interface between objects. It is a binary interoperability specification. The two most common reasons for using components are breaking up complex applications into manageable chunks and packaging code for re-use (Anderson et al., 1999). ASP scripting is mainly good to implement the FDSS. ASP script has the ability to interface with COM compliant software components. If functionality is needed but cannot be provided by scripting, then ASP components can be used. ASP components are COM-based, encapsulate a specific functionality, and are invoked either directly from an ASP page or indirectly via another ASP component (Power, 1999). Fuzzy risk analysis is implemented as the COM object that is stored in DLL for performing fuzzy risk analysis. When clients invoke the calculation of the overall risk faced by the EC project, the fuzzy risk analysis COM component is called to

access necessary information from the database, such as the likelihood and severity of each risk factor, to perform fuzzy averaging, calculate the fuzzy risk value, and obtain linguistic approximations. Eventually, the overall risk and risk score of each risk dimension are obtained.

USER INTERFACE

The design of the user interface is a key element in DSS functionality. The DSS interface should provide easy communication between the user and the system (Turban, 1995). Web browser serves as the user interface component of the DSS, which make the technology easy to understand and use (Shim et al., 2002). Besides, the FDSS consists mainly of menus and graphics, which are supplemented by natural language. A client invokes the system by connecting to the Web site through the standard HTTP protocol, which causes the interface component to be loaded from the server to the client station. Pull-down menus allow users to specify their needs, such the creation of a new project and the addition of an evaluator record.

PHASE 4. BUILD THE PROTOTYPE SYSTEM

The implementation of a system demonstrates the feasibility of the design and the utility of the functionalities that are envisaged (Nunamaker, 1990). Building a prototype system is one of the processes that allow insight into the problems and the complexity of a system during development research. FDSS is constructed using various commercial software packages and programming techniques.

PHASE 5. EVALUATE THE SYSTEM

Once the system is developed, the testing and evaluation of the prototype can be performed.

Through system evaluation, information can be captured on what users like and dislike, and what the system does and does not do to meet their needs.

Firstly, testing and evaluation of the system are performed. All of the FDSS modules are tested for accuracy and completeness, and the outputs generated are checked and validated. These tests ensured that the system is performing functions that will meet the requirements of users by assisting them in conducting risk management for EC development.

Secondly, once the FDSS is built, outcome evaluation is conducted in two phases. The first phase is domain expert evaluation, and the second phase is potential user (EC practitioner) evaluation. There are a number of approaches to evaluate DSS.

One of the criteria for the evaluation of a DSS is the measurement of the effectiveness of the system. Another evaluation criterion is to measuring user satisfaction. An evaluation form with several sections is designed. The first section measured the effectiveness and usability of the system with five point Likert scales (1=strongly disagree, 3=undecided, 5=strongly agree). Through measuring the effectiveness of the system, we can see the ability of the system to accomplish its objectives or mission. Items to measure the usability of the system reflect the usefulness and ease of use of the system. We can therefore assess user satisfaction as one of the potential indicators of the system's success. The second section of the evaluation form includes several open ended questions that are analogous to an interview in that they gave the respondents an opportunity to express themselves openly, particularly about the problems that they encountered and how the prototype could be improved. The final section collects the evaluators' personal information.

EXPERT EVALUATION

Evaluations by domain experts help to determine the accuracy of embedded knowledge (Gasching, 1983). They are asked to evaluate the system from two perspectives: effectiveness and usability of the FDSS.

POTENTIAL USER EVALUATION

Evaluations by users help to determine the utility of a system according to the following criteria: ease of interaction, the extent of its capabilities, its efficiency and speed, its reliability and whether it produces useful results (Gasching, 1983).

6. CONCLUSION

EC development takes place in a complex and dynamic environment that includes high levels of risk and uncertainty. This study has outlined an approach to the assessment of the risks associated with EC development using FST. A model of fuzzy risk analysis was proposed to assist EC project managers and decision makers in formalizing the types of thinking that are required in assessing the current risk environment of their EC development in a more systematic manner than before. The model is running with MATLAB software, defining membership function, then using SUGENO inference engine to calculate final risk. A Web-based FDSS is suggested and to incorporate the proposed risk analysis model. System evaluation was performed to ascertain whether the FDSS achieved its designed purpose, and the results were satisfactory. The result of the evaluation strongly supports the validity of the study approach to risk analysis using fuzzy sets, and demonstrates the feasibility of evaluating EC project risk. It was assumed that the ''weighting'' assigned by each evaluator in the risk evaluation was the same, but the relative importance placed on certain factors by individual decision makers and experts could be widely different. Further research is needed to develop different ''weightings'' for different evaluators.

VALIDITY OF THE MODEL

The validity of the model is presented in table 4 using one-sample t-test with the help of experts. Due to the significant levels of the test are below 5%, and all the means for variables of the model are more than 5, then the validity of the model is ascertained. The researchers with the help of experts' knowledge and through a standard questionnaire show the validity of the model by testing the model's variables.

TABLE 4: MODEL VALIDITY

Questions	Mean	S.D	T-test	Significant level
The model can assist in assessing risks associated with EC development	7.5	1.5	5.7	0.000
The model provide an effective mean to collect, store and analyze	6.83	1.33	4.7	0.001
The model monitor and mitigate risk perception on potential risk to EC development	6.83	1.58	4	0.002
It seems learning to operate the system would be easy for managers	6.83	1.80	3.5	0.005
My interaction with the model would be clear and understandable	7	1.90	3.6	0.004
I find the model to be flexible to interact with	7	1.70	4.03	0.002
The model's commands are self-explained and easy to understand	6.83	1.99	3.1	0.009
I find the model easy to use	7.16	1.58	4.7	0.001
The model is user friendly	7.16	1.33	5.6	0.000
Likely to recommend to other managers	7.16	1.30	7.09	0.000

BENEFITS OF USING FDSS

FDSS had been suggested and the results of the system evaluation can show that FDSS can be applied effectively for managing risks associated with EC development. The computations involved in the model of fuzzy risk analysis are tedious if performed manually. It is an easy task and the time for risk analysis can be significantly reduced. The Web-based FDSS automates a questionnaire instrument for risk assessment that helps the EC project managers to determine the overall risk of EC development. The benefits of using the system are as follows.

- Risks associated with EC development are identified. These risk items serve as a checklist that cover possible risks associated with EC development in technical, organizational, and environmental dimensions. EC project managers or EC practitioners can be informed and be able to recognize the risks associated with EC development.
- EC project managers can predict the overall risk of the project before start the implementation. An overall risk index can be used as early indicators of project problems or potential difficulties. Evaluators can keep track to evaluate the current risk level of their EC development.
- The system provides an effective, systematic, and more natural way by using the proposed fuzzy risk analysis model. Evaluators can just simply use the risk evaluation checklist and use the linguistic terms to evaluate the EC development risk level.

- Prioritization is necessary to provide focus for important risks. A list of ranked risk items associated with EC development will be produced. Therefore, the most serious risk item will be addressed first.

LIMITATIONS OF THIS STUDY

Although the FDSS comes out with many advantages, it still has some limitations. The limitations of that are summarized below.

- In spite of the fact that the system shows a satisfactory view in the effectiveness and usability, but FDSS do not get the chance to test it with real-life EC projects. The validity of the system can be established through in-depth case studies.
- This research only provides the risk items based on the risk classification framework shown in table 2. The list of risks shown in Table 2 is not exhaustive, but it is comprehensive enough for the purpose of this study.
- For simplification, the membership functions were evenly distributed by triangular fuzzy numbers. Various membership functions need to be estimated to be as realistic as possible.

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A SECTORWISE ANALYSIS OF NON PERFORMING ASSET IN STATE BANK OF TRAVANCORE

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ABSTRACT

The accumulation of huge non-performing assets in banks has assumed great importance. The depth of the problem of bad debts was first realized only in early 1990s. The magnitude of NPAs in banks and financial institutions is over Rs.1,50,000 crores. While gross NPA reflects the quality of the loans made by banks, net NPA shows the actual burden of banks. Now it is increasingly evident that the major defaulters are the big borrowers coming from the non-priority sector. The banks and financial institutions have to take the initiative to reduce NPAs in a time bound strategic approach. For the recovery of NPAs a broad framework has evolved for the management of NPAs under which several options are provided for debt recovery and restructuring. Banks and FIs have the freedom to design and implement their own policies for recovery and write-off incorporating compromise and negotiated settlements. This paper titled "A STUDY OF NON PERFORMING ASSET MANAGEMENT IN STATE BANK OF TRAVANCORE is an attempt to put light on the NPA operations in state bank of Travancore.

KEYWORDS
Nonperforming assets, banking.

1. INTRODUCTION

A 'non-performing asset' (NPA) was defined as a credit facility in respect of which the interest and/ or installment of principal has remained 'past due' for a specified period of time.
The accumulation of huge non-performing assets in banks has assumed great importance. The depth of the problem of bad debts was first realized only in early 1990s. The magnitude of NPAs in banks and financial institutions is over Rs.1,50,000 crores.
While gross NPA reflects the quality of the loans made by banks, net NPA shows the actual burden of banks. Now it is increasingly evident that the major defaulters are the big borrowers coming from the non-priority sector. The banks and financial institutions have to take the initiative to reduce NPAs in a time bound strategic approach.
Public sector banks figure prominently in the debate not only because they dominate the banking industries, but also since they have much larger NPAs compared with the private sector banks. This raises a concern in the industry and academia because it is generally felt that NPAs reduce the profitability of a banks, weaken its financial health and erode its solvency.
For the recovery of NPAs a broad framework has evolved for the management of NPAs under which several options are provided for debt recovery and restructuring. Banks and FIs have the freedom to design and implement their own policies for recovery and write-off incorporating compromise and negotiated settlements.

1.1 NEED AND IMPORTANCE OF STUDY OF NON PERFORMING ASSETS

The three letters "NPA" Strike terror in banking sector and business circle today. NPA is short form of "Non Performing Asset". The dreaded NPA rule says simply this: when interest or other due to a bank remains unpaid NPA for more than 90 days, the entire bank loan automatically turns a non performing asset. The recovery of loan has always been problem for banks and financial institution. To come out of these first we need to think is it possible to avoid NPA, no can not be then left is to look after the factor responsible for it and managing those factors.
With a view to moving towards international best practices and to ensure greater transparency, it has been decided to adopt the '90 days' overdue' norm for identification of NPAs, from the year ending March 31, 2004. Accordingly, with effect from March 31, 2004, a non-performing asset (NPA) shall be a loan or an advance where;

- Interest and/ or installment of principal remain overdue for a period of more than 90 days in respect of a term loan,
- The account remains 'out of order' for a period of more than 90 days, in respect of an Overdraft/Cash Credit (OD/CC),
- The bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,
- Interest and/or installment of principal remains overdue for two harvest seasons but for a period not exceeding two half years in the case of an advance granted for agricultural purposes, and
- Any amount to be received remains overdue for a period of more than 90 days in respect of other accounts.

As a facilitating measure for smooth transition to 90 days norm, banks have been advised to move over to charging of interest at monthly rests, by April 1, 2002. However, the date of classification of an advance as NPA should not be changed on account of charging of interest at monthly rests. Banks should, therefore, continue to classify an account as NPA only if the interest charged during any quarter is not serviced fully within 180 days from the end of the quarter with effect from April 1, 2002 and 90 days from the end of the quarter with effect from March 31, 2004.

2. RESEARCH METHODOLOGY

The research is an analytical study and tools used are :

1. Trend analysis
2. Simple percetages
3. Standard deviation,

3. OBJECTIVES OF THE STUDY

- To study the magnitude and trends of Gross Non Performing assets in SBT
- To analyze the sector wise Non Performing assets of SBT

4. ANALYSIS AND INTERPRETATION

4.1 TO STUDY THE MAGNITUDE AND TRENDS OF NON PERFORMING ASSETS IN SBT

TABLE NO. 4.1: GROSS NPA OF SBT

Gross NPA of SBT amounts in crore				
Years	Gross Advances	Gross NPAs		
		Gross NPA	Percent to gross Advance	Percent to total assets
2005-2006	18866.4	599.95	3.18	1.88
2006-2007	24786.28	535.38	2.16	1.41
2007-2008	28136.62	570.83	2.03	1.29
2008-2009	32710.93	544.39	1.66	1.10
2009-2010	38461	641.98	1.67	1.08

Source: Annual Report of SBT. Values computed.

INTERPRETATION

On the above table (4.1) gross advances, gross NPA, and its percentage to gross advances and total assets were stated clearly. The two ratios were showing a diminishing trend throughout the period of study.

GROSS NPA

It is the sum total of Non Performing assets arising from the Gross Advances of the firm.

TABLE NO 4.1.2: GROSS NPA OF SBT IN THE YEAR 2005-2010

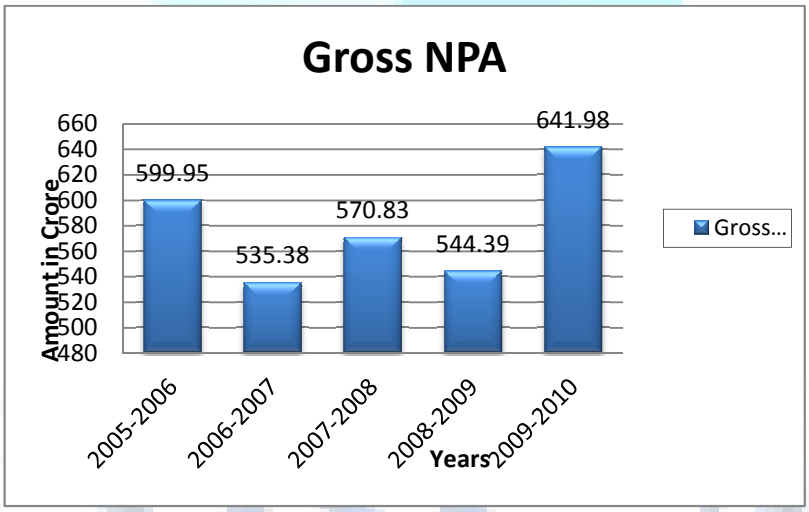
Year	Gross NPA
2005-2006	599.95
2006-2007	535.38
2007-2008	570.83
2008-2009	544.39
2009-2010	641.98

Source: Annual Report of SBT.

INTERPRETATION

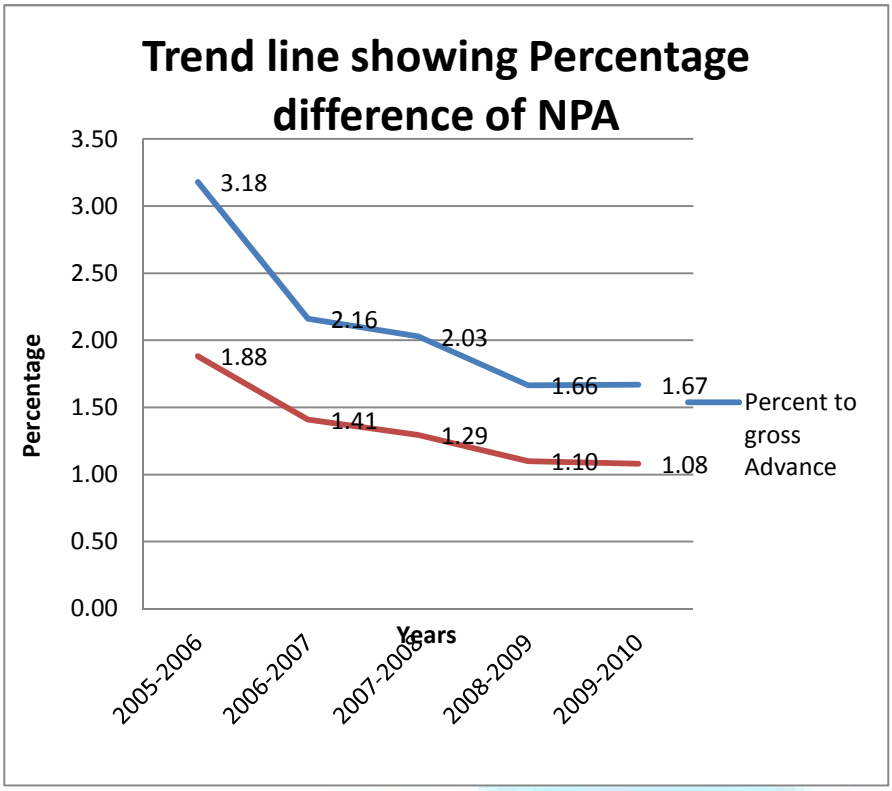
On the above table (4.1.2) Gross NPA of the SBT is absolute terms has increased form 599 crore in 2005-06 to 641 crore in 2009-10. It has shown increase of 42 crore in the year 2009-10 over the period 2005-06. There is a rising trend in Gross NPAs of the SBT during the period of the study.

CHART NO 4.1.2



TREND LINE SHOWING PERCENTAGE DIFFERENCE OF NPA

CHART NO 4.1.3



On the basis of analysis of data, it has been found that despite an increase in gross non performing assets in absolute terms during the year, asset quality (gross NPA as percentage to gross advances, and gross NPAs as percentage of total assets) of State bank of Travancore has improved consistently in the past five years as reflected in the decline in these two ratios. The gross NPA to gross advance ratio declined to 1.67 percent in the year 2009-10 from 3.18 percent in 2005-06. Further, the gross NPAs to total assets ratio consistency declined from 1.88 percent 2005-06 to 1.08 percent in 2009-10

The trend line (4.1.3) showing the declining rate of NPA throughout the period of study. Through this chart we can interpret that State bank of Travancore having a absolute rate of improvement of eliminating Non performing asset through out the year. The chart was rating the asset quality of state bank of Travancore as Excellent.

4.2 SECTOR WISE ANALYSIS OF NPA

TO ANALYZE THE SECTOR WISE NON PERFORMING ASSETS OF SBT

TABLE NO 4.2

Years	PRIORITY SECTOR				PUBLIC SECTOR	NON PRIORITY SECTOR	TOTAL
	Agriculture	Small scale industries	Others				
2005-2006	38.06	100.09	128.40	266.55	19.46	323.94	609.95
	6.24	16.41	21.05	43.70	3.19	53.11	100.00
2006-2007	66.85	75.99	128.08	270.92	17.04	252.15	540.11
	12.38	14.07	23.71	50.16	3.15	46.68	99.99
2007-2008	54.40	86.88	178.15	319.43	3.26	248.14	570.83
	9.53	15.22	31.21	55.96	0.57	43.47	100.00
2008-2009	29	78	277	384.00	3	161	548.00
	5.3	14.2	50.5	70.00	0.6	29.4	100.00
2009-2010	25	87	152	264.00	6	372	642.00
	3.8	13.6	23.7	41.10	1	57.9	100.00

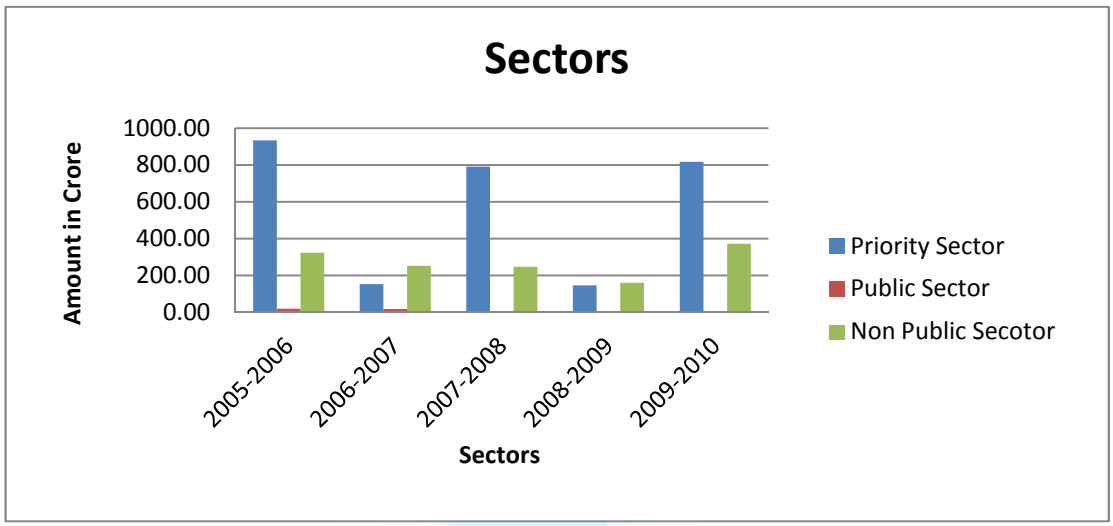
Source: Annual Report of SBT.

INTERPRETATION

On the above table (4.3) Sector wise NPAs have been classified into three sectors ie, priority sector, public sector and non priority sector. It terms of revised guidelines on lending to priority sector, broad categories of advances under priority sector including agriculture, small enterprises sector, and others ie, retail trade micro credit, education and housing. The study observed that sector wise mean NPA are 38 crore , 66 crore, 54 crore 29 crore and 25 crore for agriculture, small scale industries, others, public sector and non-priority sector respectively.

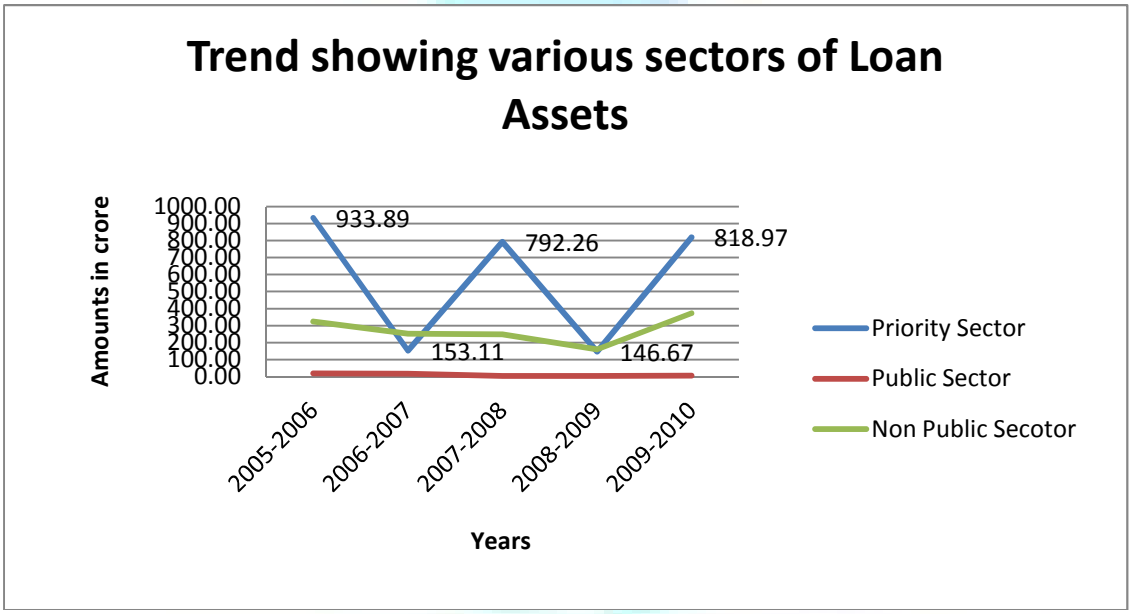
4.2.1 DIFFERENT SECTORS OF NPA

CHART NO 4.2.1



The above chart(4.2.1) shows that priority sector having a major role in the determiniation of nonperforming asset in state bank of travancore. Priority sector shows a huge fluctuation and public sector being more constant during the period of study

CHART NO. 4.2.1.1



4.2.2 PRIORITY SECTOR

Prioriy sector consists of two main participants i.e Smallscale industries and agriculture industries. In this study prioriy secor is classified as three SSI, Agriculure and others

TABLE NO. 4.2.2 PRIORITY SECTOR

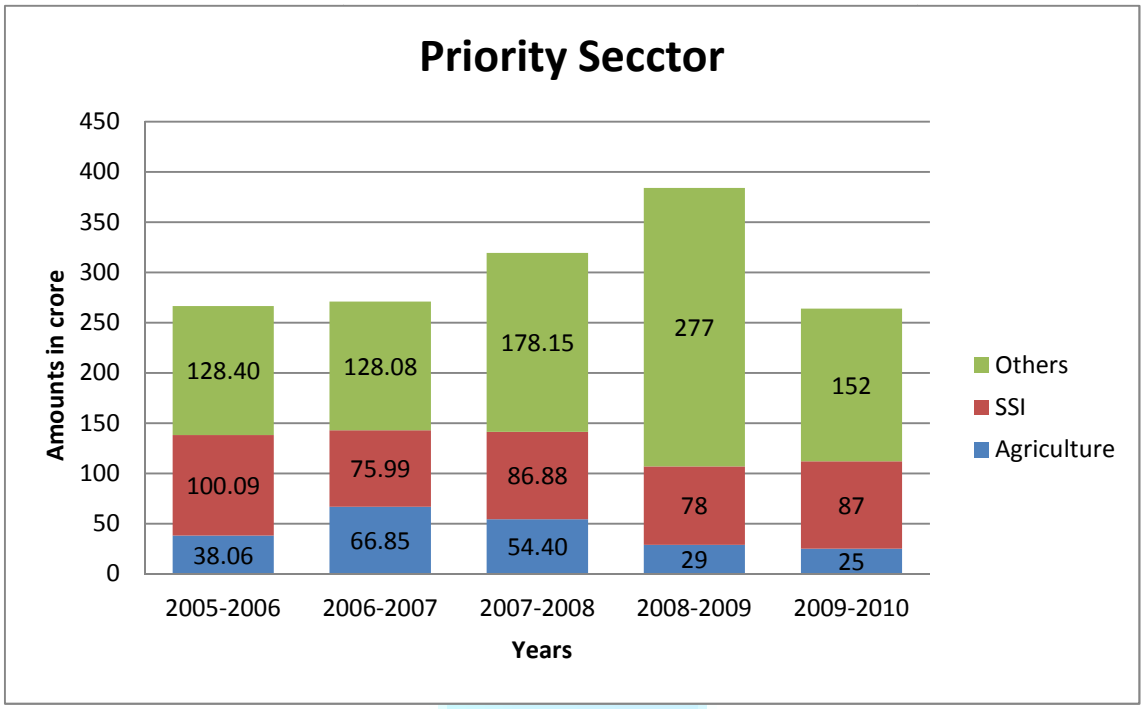
Years	PRIORITY SECTOR			
	Agriculture	Small scale industries	Others	Total
2005-2006	38.06	100.09	128.40	266.55
	6.24	16.41	21.05	43.70
2006-2007	66.85	75.99	128.08	270.92
	12.38	14.07	23.71	50.16
2007-2008	54.40	86.88	178.15	319.43
	9.53	15.22	31.21	55.96
2008-2009	29	78	277	384.00
	5.3	14.2	50.5	70.00
2009-2010	25	87	152	264.00
	3.8	13.6	23.7	41.10

Source: Annual Report of SBT.

INTERPRETATION

The above table(4.2.2) shows that agriculture and ssi contribute less when compared to other sectors. This trend is favourable for the performance of the bank.

CHART 4.2.2



MEAN

4.2.3 STANDARD DEVIATION

The following table show the standard deviation of different sectors of state bank of travancore.

TABLE NO 4.2.3 STANDARD DEVIATION OF DIFFERENT SECTORS OF SBT

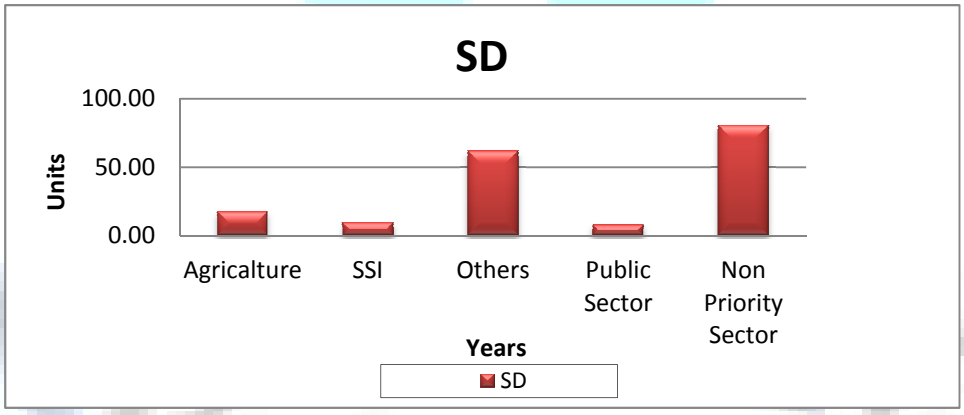
	Std Deviation
Agriculture	17.63
SSI	9.54
Others	61.83
Public Sector	7.89
Non Priority Sector	80.59

Source: Annual Reports of SBT. Values computed.

INTERPRETATION

The above chart (4.2.3) shows non priority sector having high ratio of standard deviation and SSI and public sector having less rate of standard deviation throughout the period of study

CHART NO 4.2.3



5.1 FINDINGS

- Gross NPA is of SBT is increasing year by year but the Percentage of Gross NPA towards Gross Advances showing decreasing trend this will help to reduce the NPA of the bank
- Non priority sector having more majority in participation of NPA thought of the period of study
- The trend line shows the declining rate of NPA throughout the period of study. State bank of Travancore having a absolute rate of improvement of eliminating Non performing asset through out the year. Sector wise mean NPA are 38 crore , 66 crore, 54 crore 29 crore and 25 crore for agriculture, small scale industries, others, public sector and non-priority sector respectively.
- Priority sector has a major role in the determiniation of nonperforming asset in state bank of travancore. Priority sector shows a huge fluctuation and public sector being more constant during the period of study
- Non priority sector having high ratio of standard deviation and SSI and public sector having less rate of standard deviation throughout the period of study

5.2 SUGGESTION

- **Credit administration**: A banks have to strengthen their credit administrative machinery and put in place effective credit risk management systems to reduce the fresh incidence of NPAs.
- **Better Inspection:** We shall keep a close watch on the manner in which NPA reduction is taking place.
- **Cash Recovery:** We should also insist that cash recoveries should more than offset the fresh write-offs in NPAs.
- **Perception:** The mindset of the borrowers needs to change so that a culture of proper utilization of credit facilities and timely repayment is developed.
- **Financial System:** As you are aware, one of the main reason for corporate default is on account of diversion of funds and corporate entities should come forward of avoid this practice in the interest of strong and sound financial system.
- **Coordinator:** Extending credit involves lenders and borrowers and both should realize their role and responsibilities. They should appreciate the difficulties of each other and should endeavours to work contributing to a healthy financial system.

CONCLUSION

Indian banking industry is largely dominated by the public sector banks with almost tow third share of total advances to the company. State bank of travancore shows their presence and have successfully expanded their business over last five year in the indian economy. The study conducted on management of NPA by state bank of travancore found that there is significant improvement in the asset quality as reflected by declined in the dives NPA ratio as well as asset wise classification of NPA of these banks . Asset quality of banks has registered a not worthy improvement with to most reduction in the NPA level in non priory sector . The study observed that there is a significant improvement in overall NPA management of SBT.

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SOFTWARE DEFECT PREDICTION USING REGRESSION STRATEGY

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ABSTRACT

In this paper we apply a machine learning method for the problem of estimating the number of defects called Regression Strategy (RS). RS initially automatically discretizes the number of defects into a number of defective classes, then forms a new model that finds the fault class of a software system. Finally, RS transforms the class output of the model back into a numeric detection. This way includes uncertainty in the models because apart from a certain number of defects, it also outputs a link interval of values, within which this estimate lies, with a certain quality level. To evaluate this method we perform a comparative experiment for analysis of the effectiveness of several machine learning algorithms in a software data. The data was collected and involves applications maintained by a Super Market in India.

KEYWORDS
Regression Technique, Software Engineering, Software Testing, Prediction.

1.0 INTRODUCTION

Although there are many definition of software quality, it is widely accepted that a software or project with many defects lacks good quality. Understanding the root causes of possible defects as well as identifying general software process areas that may need attention from the initialization of a project could save money, time, work, etc. The possibility of early detection of potential faults of software could help on planning, controlling and executing software development activities.

A cost effective method for analysis of defect is learning from previous mistakes to prevent current one. Today, there exist several data sets that could be mined in order to discover useful knowledge regarding defects [7], [14]. Using this knowledge one should ideally be able to: a) Identify potential fault-prone software, b) Estimate the specific number of faults, and c) Discover the possible causes of faults.

Several data mining methods have been proposed for defect analysis in the past [5], [9], [15] but few of them manage to deal successfully with all of the issues. Regression models estimates are difficult to interpret and also provide the exact number of faults which is too risky, especially in the beginning of a software project when very little data is available. On the other hand classification models that predict possible faults can be comprehensible, but not very helpful, because they give no clue or evidence about the actual number of faults.

These issues led us to the proposal of a different data mining approach, called Regression Strategy (RS) that benefits from the advantages and caters for the disadvantages of regression strategy approaches. RS involves the discretization of the expected variable into a finite number of intervals, the induction of a classification model for predicting such intervals and the transformation of the model's detection back into specific numerical estimates.

To our knowledge, RS has not been applied for software fault prediction in the past, despite the many benefits that it offers. It is a method that considers uncertainty, develops comprehensible results and it is an acceptable alternative to regression problems that need a logical explanation. Additionally the method performs all the tasks of defect prediction, estimation of a particular number, estimation of fault class with suitable suggestion for potential causes of faults.

In order to evaluate RS in terms of its correctness, we conducted a comparative evaluation of various algorithms for the implementation of the RS framework with classical regression algorithms used in previous approaches and other state-of-the art regression algorithms from the field of Machine Learning. For the evaluation of all these approaches a data set has been used that works on a maintenance data from super market application [14]. It contains data about the size and defects of each application. The results coming from the application of RS methods show that regression accuracy of the models is competitive to those of regression models and in most cases RS outdates them.

The rest of this paper is discussed as follows. The next section presents an overview of the related work. In Section 3, We present the RS framework along with details concerning the implementation of this method for the issue of software defect prediction. The description of the dataset and the learning algorithms applied to the data sets are found in section 4. Section 5 presents the evaluation results along with the extracted software fault prediction models. Finally, in Section 6, we conclude the paper and present ideas for future work.

2.0 LITERATURE REVIEW

The earliest studies in fault deduction focused on establishing relationships between software complexity, usually measured in coding, and defects. Widely known metrics introduced during 1970s is Halstead's theory [6] and McCabe's cyclomatic complexity [13]. The usual drawback of complexity metrics is that they indicate software size as the only predictor of defects. Therefore in 1980s and afterwards research has tried to relate software complexity to sets of different metrics, deriving multivariate regression technique [12], [9], [15]. Regression technique on the other hand presented the disadvantage of giving results difficult to interpret that ignored causal effects. In the 1990s classification models were adopted to solve these issues. Clustering [28], logistic regression [4], [8] and Bayesian nets [5] are applied for the prediction of fault-prone software. Most of the studies estimate potential fault proneness of software components without providing particular number of faults.

In the same decade due to the huge number of research in this area, several studies compared different methods such as regression techniques and classification techniques but each time the most accurate method varied

according to the context of the study. Principal component analysis, discriminant analysis, logistic regression, logical classification models, layered neural networks, and holographic networks are applied in [12], while MARS regression method and classification methods such as rules, CART and Bayesian networks are compared in [15]. Fenton and O'Neil [5] provided a critical literature review and suggested a theoretical framework based on Bayesian networks that could solve the issues founded. They argued that complexity metrics should not be the only predictor of defects, they pointed out that statistical methodologies should also be considered on the quality of data and the method of evaluation and finally they stressed that it is important to identify the relationship between faults and failures.

As discussed in [5] clearly all of the issues described cannot be solved easily, however modeling the complexities of software development using new probabilistic method presents a positive way towards future. In this study we propose the use of Regression Strategy for modeling uncertainty in software defect prediction. Using this method we have attempted to solve several of this issues discussed in literature such as, interpretability of the results, use of size as the only predictor, combination of results with expert opinion.

3.0 REGRESSION STRATEGY

Supervised Machine Learning considers the issues of approximating a function that gives the value of a target variable y, based on the values of a number of input variables x1, x2, …, xn. If y takes real values, then the learning task is called regression, while if y takes discrete values then it is called classification. Traditionally, Machine Learning research has focused on the classification work. It would therefore be very interesting to be able to solve regression problems taking advantage of the many machine learning algorithms and methods that exist for classification. It requires a mapping of regression problems into classification problems and back, which has been recently observed by some researchers.

The whole process of Regression Strategy (RS) comprises two critical stages: a) The discretization of the numeric target variable in order to study a classification model, and b) the reverse process of transforming the class output of the model into a numeric prediction.

Three methods for discretization are equal-interval binning, equal-frequency binning and K-means clustering. The first one divides the range of values of a numerical attribute into a predetermined number of equal intervals. The second one divides the range of values into a predetermined number of intervals that contain equal number of instances. The k-means clustering algorithm starts by randomly selecting k values as centers of the ranges. It then assigns all values to the closest of these centers and calculates the new centers as the mean of the values of these ranges. This process is repeated until the same values are assigned to each of the k ranges in two successive iterations.

After conducting the discretization process, any classification algorithm can be used for modeling the data. The next step is to make numeric predictions from the classification model that is produced. It predicts a number of classes which correspond to numerical intervals of the original target variable. There remains the problem of transforming this class to a specific number, in order to assess the regression error of the RS framework. A choice for this number should be a statistic of centrality that summarizes the values of the training instances within each interval.

4.0 IMPLEMENTATION OF REGRESSION STRATEGY

In this study in order to find the actual parameters of the discretization process of the RS framework, we decided to use a wrapper approach [11]. The wrapper approach evaluates the different configurations of an approach by performing cross validation and selects the configuration with the accuracy. Similar to that approach, we executed the discretization process using all three methods and experiment with the number of classes in the range 2 to 1+3.3log(n). The upper bound of the number of classes was proposed in however, this is just a statistical approach for the number of classes, that does not take into account any knowledge about the domain and tends to propose a rather huge number of classes. For this purpose, we used it as an upper bound in the wrapper approach.

In total, our implementation evaluates 3*(1+3.3log(n)-2)=9.9log(n) different configurations of the discretization process using 10-fold cross-validation [10]. The 10-fold cross-validation process splits the data into 10-equal disjoint parts and uses 9 of these parts for training the RS framework and one for testing. This is done 10 times, each and every time using a different data for testing. The training data are used initially to discretize the defects (using one of the configurations) and then to train a classification algorithm. The learned model is then applied to the test data. For the transformation of the output of the classification model back to a numeric estimate we use the median of the values in each interval, as it is usually a more robust centrality measure than the mean. So, for each test instance we calculate the absolute difference of the number of defects in this instance with the median value of the predicted class interval. The average differences for all test instances is the Mean. Absolute Error performance metric for numeric prediction. The configuration with the lowest average Mean Absolute Error over all the 10 folds of the cross validation is selected as the configuration to use.

5.0 LEARNING ALGORITHMS & DATA SETS

I firstly describe here the data set that was used in this research. I then present the learning algorithms that were used for RS and ordinary regression on this data set.

5.1. LEARNING ALGORITHMS

We used the WEKA machine learning library as the source of algorithms for research. For the RS framework we used the following classification algorithms as implemented in WEKA with default parameters unless otherwise stated:

- IBk: the k nearest neighbor algorithm [1].
- JRip: the RIPPER rule learning algorithm [3].
- PART: the PART rule learning algorithm [15].
- J48: the C4.5 decision tree learning algorithm [8].
- SMO: the sequential minimal optimization algorithm for training a support vector classifier using RBF kernels [6].

We will further analyze PART, RIPPER and C4.5 algorithms as the results of these algorithms are presented in section 4.

C4.5 outputs a decision tree, while the other two (PART and RIPPER) output a set of classification rules. Each rule has a body, which has one or more conditions under which the rule will fire, and a head which consists of the predicted class of defects. We also present two quantitative measures of the rule's quality: a) support, which is the is the ratio between the number of records that satisfy the rule body and the total number of records in the database, and b) confidence, which is the ratio between the number of database records that satisfy both the rule body and head and the number of records that satisfy just the rule body.

We must note here that RIPPER and PART belong to the divide and conquer family of rule learning algorithms. These algorithms learn one rule, remove the example that this rule covers and proceed with the next rule. Any remaining uncovered examples are handled by a default rule that fires without any conditions and predicts the most frequent class among the remaining examples. Therefore the support and confidence of each rule is reported based on the subset of the examples that remained for that rule. This also defines that the rules are presented in the order that they are discovered, and during the run time, they are considered in this order.

For ordinary regression we used the following algorithms as implemented in WEKA with standard parameters unless otherwise stated:

Linear: A least median squared linear regression algorithm [9].

- MLP: an algorithm for training a multi-layer perception [2].
- Reg-IBk: the k nearest neighbor algorithm [1], using cross-validation to select the best k value.
- SMOreg: the sequential minimal optimization algorithm of [2] for support vector regression using RBF kernels.
- M5P: an algorithm for producing M5 model trees[7], [2]. This algorithm is used twice, first time for the production of a model tree and another time for the production of a regression tree.
- REPTree: a fast regression tree learner that uses information variance reduction and reduced-error pruning [6].

5.2. PEKKA DATASET

The data set used in this research is the Pekka data set which comes from a big super market in India, which started to collect development and maintenance data as early as 1999 until 2011. The data were collected by Pekka Forselious and are presented in [14]. From the 100 projects of the database, a subset of 67 applications was presented in [14] and used in the evaluation. The variables of the data set used in our analysis are presented in table 1. Target of the study is, based on existing knowledge of historical data, to provide a prediction model for the number of faults that will appear during the maintenance of software applications.

TABLE 1: PEKKA DATASET VARIABLES

Classification Variables	BORG : Business Organization type
	MORG: Business Units
	APPTYPE: Application Type
	DBMS: Database system
	TPMS: Transaction Processing system
Risk Factors Values of risk factors range from 1 to 5. 1= least risky situation 5= most risky situation	R1: Total number of users
	R2: Configuration
	R3: Change management
	R4: Structural flexibility
	R5: Documentation quality
	R6: People dependence
	R7: Shutdown constraints
	R8: Online transaction processing integration
	R9: Batch processing integration
	R10: Capacity flexibility
Quantitative variables	F.P (function points)
	PCOBOL (% of code in cobol)
	PTELON (% of code in telon)
	PEASY ((% of code in easy)
	T (recovery capability)
	AGEEND (total months maintained)
	DISKSP (disk space used)
	AVETRANS (average transactions/ 24 h)
	CPU (cpu usage)
	PJCL (% of code in jcl)
	APPDEF (number of defects) target variable

6.0 OBSERVATION AND RESULTS

In this section we first present the evaluation results and then the classification models that were extracted from the data set will be presented and discussed. The performance of the approaches was measured by their average Mean Absolute Error (MAE) for the 10 folds of the cross-validation process. The MAE function is given below:

MAE = $\frac{1}{n}\sum_{i=1}^{n}(\boldsymbol{Pi}-\boldsymbol{Ei})$

Where n is the number of instances in the test set, P is the actual defect number and E is the predicted one. In addition, for RS we calculated the average classification accuracy of the algorithms which produces the percentage of projects for which the correct defect class has been successfully estimated, the average number of defect classes and the percentage of times that each of the 3 discretization methods was used.

TABLE 2: MAE OF RS & REGRESSION TECHNIQUE

Pekka Data Set		
Regression Strategy RS	SMO	6,69
	RIPPER	7,15
	PART	7,70
	C4.5	8,53
	IBk	7,88
Regression	SMOreg	7,07
	Linear	7,96
	REPTree	7,72
	M5P regression tree	7,71
	M5P model tree	7,28
	IBk	8,27
	MLP	7,22

Table 2 shows the average Mean Absolute Error of all the approaches on the Pekka dataset. We firstly notice that RS actually manages to get better regression error than the standard regression approaches. Indeed within the top three performers we find two RS approaches (SMO, RIPPER) and only one regression approach (SMOreg). The best average performance is obtained with RS and the SMO algorithm, while the SMOreg algorithm for regression is the second best. Relatively good performance is also obtained by the symbolic algorithms (RIPPER, C4.5 and PART) that produce comprehensible models. Another thing that must be noted is the fact that RS achieves improved performance overall than regression approaches, even though it uses a rough estimation of the actual numbers.

Table 3 shows the accuracy of the RS classification algorithms, the mean number of classes in the 10 folds of the cross-validation and the percentage of times that each of the three methods (M1:equal-width, M2: equal-frequency, M3:k-means) was used for discretizing the number of defects. We first notice that the most accurate algorithms are SMO and PART and this has certainly contributed to the corresponding low regression error of RS. However, RS with RIPPER managed to achieve low regression error even though the classification accuracy of RIPPER was relatively low. This shows that apart from the classification accuracy, the actual discretization of defects into intervals is also important for the regression error.

Initially, the RS and regression algorithms have been applied to the whole data set (67 projects). The results when considering the whole data set pointed out the project with ID 55, which presented 163 defects, as an outlier. Almost all classification methods created a fault class with that project as a single member while the rest of the projects were classified into another class. In order to create meaningful models whose results could be exploited the models were recreated omitting the project with ID =55.

TABLE 3: MEAN NUMBER, ACCURACY, AND PERCENTAGE OF DISCRETIZATION METHOD

PEKKA					
	Acc	Av. C	M1	M2	M3
SMO	0,94	2,00	1,00	0,00	0,00
PART	0,72	4,40	0,60	0,10	0,30
IBk	0,69	2,40	0,40	0,50	0,10
C4.5	0,67	3,90	0,60	0,10	0,30
RIPPER	0,46	5,40	0,40	0,60	0,00

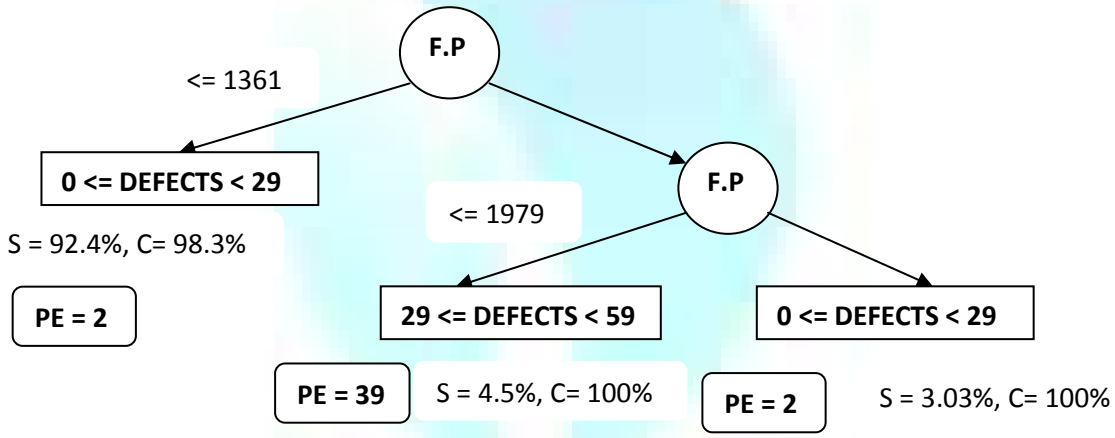
Table 4 presents the rule sets that were produced by RS with the RIPPER and PART algorithms came along with a point estimate in brackets, confidence and support values. In the results of the RIPPER approach function points and CPU usage are the independent predictors of faults. In the results of PART rules set the type of the organization and the unit in which the application is destined play important role in the estimation. The decision tree of Figure 1 has two splitting nodes. The number of function points is the splitting criterion for both nodes. For each suggested class the median number of the class is indicated as the most probable defect number of the class as a point estimate (PE) along with support and confidence values.

TABLE 4: RULE SETS BY RS WITH PART & JRIP ON PEKKA DATASET

JRIP list of rules			
Body	Head	(C)	(S)
F.P <= 986	9.5 < D <= 59 (20)	87.5	2.12
cpu >=292	2.5 < D <= 9.5 (5)	60.0	5.15
F.P >=671	2.5< D <=9.5 (5)	80.0	7.58
	0 <= D <= 0.5 (0)	39.5	65.15
PART list of rules			
Body	Head	(C)	(S)
F.P <= 939 and morg = CUSTOMER	0 <= D <= 8.43 (1)	92.31	19.7
F.P <= 939 and borg = RETAIL	0 <= D <= 8.43 (1)	85.71	21.2
morg = PAYMENT and r1=5	0 <= D <= 8.43 (1)	85.71	10.6
cpu <= 506 and r6=2	0 <= D <= 8.43 (1)	85.86	21.4
r5=1	0 <= D <= 8.43 (1)	63.26	5.48
morg= deposit	50.57 < D <= 59 (53)	100.0	3.03
Ageend <= 40	8.4 < D <= 16.86 (11)	66.67	4.55
	16.86 < D <= 25.29 (20)	74.55	3.39

A project variable that appears often in the results of the three classification methods is Function Points. This is answerable, as function points is a metric indicative of the size of a software application, and as the size of a software project grows so does its complexity. Software complexity is widely accepted as the primary - cause of faults. An interesting rule is the one indicated by PART decision list that application that are destined for deposit units tend to appear a large number of faults. Probably this can be explained by the fact that the requirements for applications for these units are relatively demanding and strict as a single fault could cause loss of money. Even small defects that otherwise would be ignored in such applications are recorded and fixed. Also the applications that have low CPU usage seem to be less fault proof. Another rule that can be confirmed intuitively is the one that supports that application with equal or less than 60 months of maintenance tend to present many defects. A surprise to us was that only r1, r5 and r6 (number of users, documentation quality and people dependence) appeared from the risk factors.

FIGURE 1: C4.5 DECISION TREE – PEKKA DATASET



One could argue that the predicted defect classes of RS are large and therefore may contain fuzzy information. This argument can be confronted with the fact that RS even when two few fault classes are considered succeeds comparable and even lower regression error from traditional regression models when considering the median value of a class as a point estimate. There are though several advantages by that type of prediction:

- It can provide a better understanding of software defects by automatically dividing their numerical values into significant intervals.
- Apart from a numerical estimate of defects, it also outputs an associated interval of values, within which this estimate lies, with a certain confidence. This way it reduces the level of uncertainty associated with just a point estimate, and provides more knowledge concerning the defects to the end user.
- It allows the production of comprehensible models of software defects that are easily interpretable by project managers and other non-experts in data mining technology.

7.0 CONCLUSION AND FUTURE WORK

In this paper the framework of Regression Strategy (RS) was applied to the problem of defect prediction. Our motivation was to exploit the advantages of classification algorithms in order to solve the main drawbacks of regression algorithms, such as the incomprehensibility of the produced models and their inability to provide a good point estimate of faults. RS provides a complete framework for defect prediction producing as an output a fault class into which the actual fault number may fall in, along with a particular most probable fault number within this class. The representation of the fault knowledge can be in the form of rules and decision trees which are among the most expressive and human readable representations for learned hypotheses.

In general RS as a data mining method offers a convenient way to solve problems that are not explained purely logically but rather probabilistically. Software defect estimation is one of these problems: we are not sure of the factors that affect directly the existence of faults and we expect a support from statistical methods to point out the underlying relationships that appear in fault data. Some of the results of the application of RS technique were expected and confirmed by intuition like the influence of a software application size on the existence of faults. The success of the method is that it provides a framework for discovering potential causes of faults that are not profound like the one that implies that applications for deposit organizations are fault-prone. In addition, we must stress the very good results of RS in terms of regression error. Despite the fact that RS outputs the median of an entire interval as its point estimate of faults, it manages to outperform most of the regression approaches in predictive accuracy.

In the future we intend to apply the proposed methodology to other software data sets [7] involving other software quality attributes in addition to defects. We will also experiment with methods that combine different classification algorithms such as Stacking [7] and Effective Voting [3] for the purpose of increasing the predictive performance of RS.

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SUGGESTED MODEL FOR XBRL ADOPTION

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ABSTRACT

Despite the fact that researchers in information systems research and has given a focus for understanding of users' adoption of standards, researchers have had a minimal focus upon the application of various adoption models that study a user's adoption of standards. This research is an attempt to fill the gap. Therefore, the aim of this research is to provide a comprehensive review of the extant information systems literature related to users' adoption of presentation standards with an emphasis on XBRL standard and to develop proposed model based upon the review. To achieve the overall aim of this research, there are three objectives are proposed, namely: to review and evaluate the suitableness of antecedent factors and models of technology adoption. (2) To determine the suitable factors of the different models used to understand the diffusion of XBRL; (3) and to formulate of hypotheses for this research, the development of a model for the adoption of XBRL. The contributions of this research are: it integrates the suitable information systems literature in order to consolidate the knowledge of technology adoption from the user's perspective; and provides clear directions for future research. That is, first, this research assesses the flexibility of antecedent models for studying technology adoption issues. Secondly, it joins antecedent research outcomes to develop a comprehensive and coherent picture for the adoption of technology research conducted in the information system area. Thirdly, this paper provides a suggested conceptual model that integrates factors from different technology adoption models to study technology adoption from the perspective of the user. Finally, the future directions of this research are contained in the concluding section.

KEYWORDS

XBRL, behavior intention, adoption.

1. INTRODUCTION

New innovations in digital financial reporting are occurring on a rapid rate in our information processing (Burnett, Friedman, & Murthy, 2006).The most important phase of transition, which is currently under way in the digital financial reporting area, is a shift from the traditional standards "manual processing" to XBRL in which modeling data and semantic meaning are converging together. Due to the above mentioned capabilities XBRL interactive data technologies is expected to play an important role in information processing. This emphasis is true for all users who adopted XBRL. In this environment there is a significant shift from academic institutions and public debate on the user adoption of XBRL technology. Since XBRL International considers that the rapid entry and the adoption of XBRL in all parts of the world it is important to both social and economic goals (Henderson, Sheetz, & Trinkle, 2011), It has set a target to make the business reporting the most extensible and transparency (Hodge, Kennedy, & Maines, 2004). However, the reported rate of XBRL adoption in the world (e.g. USA and Australia) is slow. This has led researchers to investigate the factors that are responsible for the slow uptake of XBRL.

Investigation of antecedent literature in the area of information systems clarifies that researchers have not yet undertaken research on XBRL in the areas of adoption from micro-level factor's perspective. Instead, most of the research related with XBRL has focused primarily on organizations, its usage and little insight into the determinants of user adoption or rejection determinants(Henderson, et al., 2011; Hodge, et al., 2004). Although Doolin and Troshani; Henderson et al (Doolin & Troshani, 2007; Henderson, et al., 2011) provide information about factors that lead to the adoption in an organizations; however, none of them focuses upon the determinants of adoption or rejection at a micro level between users. Recently conducted study (I Troshani & Hill, 2009) highlight the need to understand adoption and diffusion of XBRL. And they identified the environmental, organizational, and innovation-related factors as they apply to XBRL adoption and diffusion.

The limitation to studying adoption between users at a micro-level has resulted in a lack of suitable theoretical or conceptual models specific to XBRL. As pursued in the antecedent studies on adoption, the process building a conceptual model specific to XBRL adoption between users require the review, correspondence and integration of the suitable factors investigated in antecedent studies of information system. Therefore, this research aims mainly to develop a conceptual model to XBRL diffusion. To achieve the overall aim, the following three objectives of this research are: (1) to review and assess the suitableness of antecedent technology adoption models and factors to study XBRL diffusion;(2) to identify the pertinent factors from antecedent models to understand individuals diffusion of XBRL; and (3) to formulate research hypotheses and develop a model for the adoption of XBRL.

1.1 STRUCTURE OF THE PAPER

To build a conceptual model for the XBRL adoption several steps were followed and these are presented in this research. Having presented the topic of interest, this research now continues to place the ground and delineates the boundaries of topic under discussion in section 1. In section 2 the researcher presents a review of the antecedent works linked with XBRL adoption and a review on theoretical models of technology diffusion and adoption. Finally, section 3 provides the concluding implications, future research directions, limitations and contributions of this research.

1.2 BOUNDARY AND DEFINITIONS

Whilst attempting to studying the diffusion of any new technology there are many participants to suppose. Similarly, the diffusion of XBRL also involves different participants such as the companies, financial publishers and data aggregators, users , regulators and software vendors (Hoffman, 2006). The focus in this research is the users. Hence the proposed conceptual model will only account factors that are pertinent to the users. For the following reasons users is the focus of this research for the following reasons. Due to the following reasons users are considered to be the focuses of this research for the following reasons: first, there is small attention paid to the investigation of users ; secondly, users are resistant to accede to the technology in question. Therefore, the object of our research is the individual user. The second important thing at this stage is to clarify the meaning of the diffusion of XBRL.

Before continuing further, a term frequented within this proposal is extensible business reporting language (XBRL) and a short explanation of it is warranted. The umbrella term of 'XBRL' is a language for creating Business Reporting; these reports can be financial or non- financial(Hoffman, 2006). The term 'XBRL' has no established definition. It differs between researchers and evolves over time and expands to embrace new supporting technologies (e.g. Semantic Web); yesterday's XFMRL is today's ' XBRL. Given the variations in defining 'XBRL', for the purpose of this research we follow the best definition according to Charlie Hoffman father of XBRL, he says: "XBRL is an open-standard which supports information modeling and the expression of semantic meaning commonly required in business reporting."

XBRL is an open data standard based on XML for financial reporting. XBRL permits information modeling in business reporting in addition to express of semantic meaning commonly required in it. It depends on the XML syntax and associated XML technologies (e.g. XML Schema, XPath, XLink , and Namespaces) to create this semantic meaning(Engel et al., 2008; Isenmann, Bey, & Welter, 2007).

For create business reporting needs to the specifies the technical grammatical rules for taxonomy and instance document creation and the schema their core building blocks called XBRL specification, then needs to different taxonomies for purposes defining the tags for different accounting concepts such as asset and current asset and their relationships(e.g. current asset under asset) whereas instance documents then contain the facts employing the tags defined in the used taxonomy (e.g. total current asset equals 100$) (M Bovee, Ettredge, Srivastava, & Vasarhelyi, 2002; M. Bovee, Kogan, Nelson, Srivastava, & Vasarhelyi, 2005).

The architecture of XBRL has been criticized for example for its complexity (Doolin & Troshani, 2007), and Bovee et al (2005) described the development process of XBRL taxonomy is arduous in sector, country, firm level. Despite these limitations and costs incurred from XBRL implementation, literature lists many potential benefits of XBRL adoption. One benefits of XBRL is to define and exchange financial information, such as a financial statement. The XBRL Specification is developed and published by XBRL International.

2. LITERATURE REVIEW AND SUGGESTED MODEL

2.1 ADOPTION STUDIES

The adoption studies discussed henceforth provide mainly discussions of the factors that drive the success or slow uptake of XBRL deployment. As stated earlier, research on the IT managers' perceptions of XBRL adoption at the micro level is minimal (Henderson, et al., 2011; Pinsker & Wheeler, 2009). However, and as noted by this study this view has not been extensively researched and further research is required for purposes investigating users' perspective of XBRL adoption. Lin (2003) identified four major characteristics for companies that explained the high rate of XBRL adoption are company size, information risk, performance, and ownership diversification. Further research suggested that five success factors are responsible for driving the high penetration rate of XBRL between companies (Premuroso & Bhattacharya, 2008). These five key factors consist of the corporate governance, company performance liquidity, firm size, auditor type. Pinsker (2007) examined the users' perspectives of the efficiency and effectiveness of XBRL. This study suggested that usability and ease of use affect user attitudes toward XBRL adoption or acceptance. Ghani et al (2009) examined the users' perspectives of preferred presentation format and they suggested that a presentation format and actual performance including accuracy and cognitive effort are the factors that are severely affecting the adoption of presentation format including XBRL amongst the users.

However, now adoption studies on consumers have begun to emerge. Amongst the studies are (Doolin & Troshani, 2007; I Troshani & Doolin, 2007). These studies discussed the different level factors affecting the adoption of XBRL by combining factors taken from innovation diffusion theory and the technology acceptance model. The findings of these studies suggest that congruent experiences and opportunities in adopting a new technology affect user attitudes through the three extended technology acceptance model factors; namely perceived usefulness, perceived ease of use and perceived resources. Henderson et al (2009) investigated the organization level factors affecting the adoption of XBRL access in online survey. This research combines factors from two streams of prior research on adoption of complex information systems innovations and information technology standards. The researchers in this research suggest that environmental factors, organizational factors and innovation factors in adopting a new technology affect user attitudes.

2.2 THEORY OF PLANNED BEHAVIOR (TPB) AND ITS VARIATIONS

Although the TPB (Ajzen, 1985, 1988, 1991; Ajzen, 2005; Ajzen & Fishbein, 1980; Ajzen & Madden, 1986; Rawashdeh, Selamat, & Abdullah, 2011; Selamat & Rawashdeh, 2010) has its history between organizational researches, it is many adopted and adapted by researchers in information system to the study of adoption/acceptance, implementation, and usage information technology (Benbasat & Zmud, 1999). It is an expanded form of the TRA that was promoted to predominate over the TRA's limitations that dealt with an incomplete voluntary control (Chau & Hu, 2007; Fishbein & Ajzen, 1975).The main factor in TPB that reflects the motivational factors which reflects the motivational factors that affect the behavior of the individual's intention 'to perform the behavior. This was also accounted to be a main factor within the TRA. According to TPB and TRA that intentions indicate the quantity of readiness and effort spent, in order to achieve the behavior under question. Therefore, the stronger the intention of individual to employ in behavior, the more effectively it would be intelligible (Ajzen, 2005).

According to TPB there are three independent variables influence the use of individual of a specific information technology that conceptually define intentions regarding a particular behavior. These independent variables are (1) attitudes created by the individual's beliefs about the anticipations of outcomes related with information technology usage; (2) subjective norms created by the individual's beliefs about how important others anticipate the individual to behave regarding information technology usage; and (3) perceived behavioral control created by the individual's beliefs about the range to which the individual is qualified of actually using the information technology. Amongst TRA and TPB there are two common independent variables are attitudes and subjective norms, whilst the perceived behavioral control is an additional extension to framework of TPB to predominate over the limitations of incomplete voluntary control (Ajzen 2005). Although the process of usage does not describe in a specific context by TPB, however this theory has experienced a significant degree of predictive validity. Therefore it can be used to determine areas of respect for a particular context. According to the information systems literatures TPB can use as an effective diagnostic mean to investigate information technology adoption or acceptance and usage (Benbasat & Zmud, 1999). Therefore, this research considers all core factors of TPB that above-mentioned (Attitude, Subjective Norms and Perceived Behavioral Control) to develop proposed conceptual model of XBRL adoption. In order to increase the ability to predict of TPB, Taylor and Todd (1995) decomposed belief dimensions of attitudes and attributes of the innovations are also included (Rogers, 1995) as the antecedent dimensions of an attitude factor. This research supposes that the decomposed factor helps to increase ability to predict compared with the TPB and a deeper understanding when compared to TAM. This option of TPB is termed as the decomposed Theory of Planned Behavior (Taylor and Todd 1995).Bearing the above-mentioned reasons in mind, the model of XBRL adoption adopted the decomposed structure of attitude, subjective norms and perceived behavioral control factors. However, the sub factors of these are not fully similar to Taylor and Todd's (1995) study. This is because the context and subject of the two studies are different from one another.

2.3 SUGGESTED MODEL

2.3.1 FOUNDATIONS OF PROPOSED MODEL

Although TPB is a generalized theory, however it can be used to an extensive range of contexts to predict the different types of adoption of information technology. Its major factors reflect the core variables that have been determined as influential in antecedent usage research and are flexible enough to subsume situation-specific factors (Benbasat and Zmud 1999). Therefore, this research considers it as a guiding theory of our adoption research. The decomposed belief structure for XBRL adoption is adopted from Taylor and Todd (1995). The detailed factors to investigate XBRL adoption issues are derived directly from Rogers' (1995) innovations attributes and Venkatesh and Browns' (2001) model of adoption of technology between individuals.

2.3.2 DESCRIPTION OF PROPOSED MODEL

The adoption components assume that of the proposed diffusion model a user's intention of the adoption of XBRL is determined by three main factors. These are; (1) attitude towards behavior, which refers to the perception towards XBRL technologies ;(2)subjective norms, which refers to the social influences which may affect the intention to adopt XBRL;(3) perceived behavioral control that refers to beliefs with regard having the needed resources and opportunities to adopt XBRL between users. Accordingly, the three independent variables will help to identify and interpret the intention of the adoption of XBRL. A detailed description of the above-mentioned factors and sub factors and reasons for including them in proposed conceptual model is provided below.

2.4 ATTITUDE TOWARDS BEHAVIOR

2.4.1 PERCEIVED USEFULNESS

Despite the fact that perceived usefulness was considered as a direct determinant of usage (Adams, Nelson, & Todd, 1992; Davis, 1989; Gefen & Straub, 1997; Igbaria, Parasuraman, & Baroudi, 1996) behavior. Significant evidence supported that perceived usefulness was also found as a direct determinant of behavior intention such as TAM (Davis 1989), TAM2 (V. Venkatesh & Brown, 2001) and Augmented TAM or Combined TAM and TPB called (C-TAM-TPB) (Taylor and Todd 1995), Perceived usefulness is similar to the relative advantage of perceived characteristics of the Rogers' Innovations Diffusion Theory (V Venkatesh, Morris, Davis, & Davis, 2003). From the evidence, it is a good rationale to use perceived usefulness as the direct determinant of behavior intention in this research. This leads to the hypothesis:

***H1**: Perceived usefulness has a significant influence on the XBRL behavioral intention.*

2.4.2 PERCEIVED EASE OF USE

Perceived ease of use was also considered as the direct determinant of usage behavior (Adams, Nelson and Todd 1992; Davis 1989; Gefen and Straub 1997; Igbaria, et al 1996). In addition, significant evidence supported that perceived ease of use was also found as a direct determinant of behavior intention in a several theories and models including various TAM and UTAUT. Perceived ease of use is similar to the complexity of perceived characteristics of Rogers'

Innovations Diffusion Theory, although in the opposite direction (Venkatesh et al 2003). Based on many theories/models and previous research, perceived ease of use is justified as an important determinant to attitude towards the behavior of XBRL adoption in the research model. This leads to the hypothesis:

***H2**: Perceived ease of use has a significant influence on the XBRL behavioral intention.*

2.5 SUBJECTIVE NORMS

2.5.1 SOCIAL INFLUENCE

Venkatesh and Brown (2001) have supposed the social influence of families, friends, supervisors, and bosses as factors that can be used to measure subjective norms variable. The outcomes of Venkatesh and Brown's (2001) research consider that social influences are significant determinants of the behavior. Analogous, it is expected that users with XBRL are likely to influence their relatives, friends and bosses by informing them of the benefits offered by XBRL. Therefore, it is suitable to consider social influences as a measure of subjective norm for XBRL adoption between users. Hence, the hypothesis is:

***H3:** Social influence by family, friends, colleagues and bosses has a significant influence on the XBRL behavioral intention.*

2.6 THE PERCEIVED BEHAVIORAL CONTROL

2.6.1 KNOWLEDGE

The Lack of knowledge about an innovation, and its benefits affect the adoption rate (Rogers 1995). The Lack of awareness about XBRL of the benefits of the innovation between the users , the less likely the innovation gets adopted. Troshani and Raos' (2007) research suggests that in Australia the users knew what the potentials of XBRL were. The users were aware of the benefits of tagging financial information, which was essential to satisfy their needs. It is assumed that the adoption of XBRL requires a clear message of its usages and benefits between the total segments of society. Also, if users are not aware of what the benefits of adopting a particular innovation are, then it is expected that they are more likely to reject the decision to make a using due to the lack of the perceived needs. Therefore, the underlying hypothesis is:

***H4**: Knowledge has a significant influence on the XBRL behavioral intention.*

3. CONCLUSION

This research identified the factors that affect the decisions of XBRL adopters and non-adopters. Using these factors the researcher developed the model of XBRL adoption which is derived from antecedent technology adoption and diffusion models. The proposed model is based on the assumption that the attitudinal and normative factors are responsible for driving XBRL adoption, whilst the perceived behavioral control factor (knowledge) inhibit users from adoption of XBRL.

3.1 FUTURE RESEARCH DIRECTIONS

In order to test the underlying hypotheses that can verify the suggested model's future work includes: (1) to develop suitable items associated with each factor; (2) to select and develop suitable and reliable data collection tools and conduct pilot research; (3) to select a suitable sampling frame for the target population; (4) to determine the sample size and generate random numbers; and finally (5) to collect and analyze empirical data collected from the users. Completion of the above-mentioned future work will lead us to refinement and validation of the proposed model of XBRL adoption.

3.2 LIMITATIONS

This research is limited in terms of comparisons because of the lack of similar antecedent studies from different countries. Therefore, it would be not easy to analyze the impact of culture on the above-mentioned drivers and inhibitors of XBRL adoption. The comparison would also help to distinguish the usage of XBRL technology across-culture. This will be very interesting because it would help to understand the reasons for the rapid uptake in the one country, whilst slow in other regions. The second major limitation of this research is to collect sufficient empirical data from the participants. Since the adoption of XBRL is still in an early stage of diffusion, it is complicated to know who is a subscriber or who is not. Thus, in the future, we believe that it is necessary to send out a questionnaire survey of a large number of participants to collect sufficient data to verify the validity of the conceptual model.

3.3 RESEARCH CONTRIBUTIONS

The contributions of this research are that it integrates the suitable information systems literature in order to consolidate our knowledge of technology adoption from the user views and it provides clear guidance for future research. It assesses the flexibility of antecedent models to study the adoption of technology issues. Secondly, it joins the results of antecedent research in order to develop a comprehensive and coherent picture for the adoption of technology research in the area of information system. Thirdly, this research provides a suggested model that integrates factors from different models of technology adoption to study XBRL adoption from the user's perspective. Finally, its fourth contribution is future research guideline to follow in order to test and validate the conceptual model of XBRL diffusion.

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PURCHASE PERIOD WITH REFERENCE TO CONSUMERS' OF HOUSEHOLD COMPUTERS OF VELLORE DISTRICT IN INDIA

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ABSTRACT

Computers at home means an appliances like mixer, grinder, TV etc among middle class and higher class people in India. Therefore, a study on household computers finds a vital topic with reference to extensive buyer behavior literatures. There are studies which talk about the buying behavior of consumers with respect to the different types of household goods, but there is no sufficient evidence on household computers. This paper focus on the sources of information, shop visits and urgency period with respect to the time taken to purchase the household computers. Purchase period is taken as the dependent variable and all other variables like sources of information, shop visits and urgency period is taken as independent variables. A structured questionnaire was prepared after a pilot study and with focus group discussion points. The questionnaire was used for the interview to collect data from 518 samples who own computers in Vellore district by using Stratified Quota sampling method. The analysis of data using Structural Equation Method revealed that there is a negative regression with urgency period to purchase household computers when compared to the other two variables viz sources of information and shop visits. This study is delimited only to the one district in India and does not represent the whole population of the vast country.

KEYWORDS
sources, urgency, time taken, computers, shop visits, SEM.

1. INTRODUCTION

The previous studies, articles pertaining to the various dimension of the consumers' attitude and purchase decision has made this research to study the behavior of the consumer towards the household computers. The earlier studies led to identify the research problems based on the Theory of Planned Behaviour.

The framework used for this study is the Theory of Planned Behaviour (TPB), a well-regarded and well-researched Social Cognitive Model to explain human behaviour. The researcher has found out solutions for some of the problems, which form, very important for the business as well to the study area. Further, the model was remodeled to fit the study and decomposed model was developed.

2. OBJECTIVE OF THE STUDY

The overall objective of the study is to analyse the consumer attitudes and purchase decisions with reference to the consumers of household computers in Vellore district of Tamil Nadu. India.

The first objective of the research is to identify the consumer behaviour based on the conceptual background of the study which is based on the Theory of Planned Behaviour.

Secondly, to find out various sources of information which leads or intends a consumer to purchase a durable good, based on the study area and the profile of the consumers.

3. HYPOTHESIS

$H_0$1: There is no variance between sources of information and time taken to purchase.
$H_0$2: There is no variance between shop visits and time taken to purchase.
$H_0$3: There is no variance between urgency period and time taken to purchase

4. REVIEW OF LITERATURE

A time restriction creates a sense of urgency in consumers, thereby providing an impetus for action that feeds directly into purchase intentions (Swain, Hanna, & Abendroth, 2006). As the work of Swain, Hanna & Abendroth the urgency of purchase among the consumers increases when there is any time restrictions imposed by the manufacturers like discounts, offers etc. In this study the urgency of consumers is significant that the urgency of the consumers with the time taken to purchase a computer increases, but the focus of the study does not particularly study the discounts and offers of the manufacturers. The urgency of purchase was on the personal factors and economic factors. Therefore, when the urgency increases the time taken to purchase decreases (p=.085, 0.05 level), there is significance.

According to Mark (Forster, 2012)"The first is that people tend to think of the degree of urgency a task has in terms of when the task needs to be *finished*, when in fact the urgency relates to when the task needs to be *started*. This misconception is one reason why Prioritizing by Urgency is so often equated with deadline-chasing. The second is that in the complications of modern life people very rarely do actually prioritize by urgency. They only start to prioritize by urgency when their other methods, or lack of them, have failed. The result is the same as in the first reason: deadline-chasing." This study does not focus on the deadline-chasing rather the urgency of the purchase is compared with the personal and economic factors alone.

At times, due to urgency, the buyer compromises on the available product. For example, say, while travelling by rail you are stranded as there is an accident and the rail track is not free. After waiting for hours together when you feel hungry you buy and eat whatever food is available. Or suppose, your departure for the railway station is delayed and there is very little time to reach before the train-time, you will naturally hire a taxi or auto-rickshaw rather than waiting for a public bus (NIOS, 2003). Therefore, based on the study it is evident that the urgency does not have any impact on the factors like shop visits, enquiry etc but it depends on the urgency level of the buyer.

According to Moe & Fader (2001) there are three main reasons of dynamics which thery were looking to identify, first is the influence of visits. They also found out that visits have some effect, second is the adaptation effect. That is, does the incremental effect of each visit systematically evolve as the shopper gains experience? In this case, *k* is less than one, suggesting that subsequent visits have a diminishing (but still positive) impact on purchasing behavior as the shopper makes more visits to the site. Changes in purchasing thresholds, or the effect of past purchases, is the final dynamic, from the full model estimated, it seems that purchasing thresholds increase as a function of discounted purchasing experiences, and thus a consumer is less likely to re-purchase soon after a transaction occurs. The present study also focused on the number of shops visited before the purchase, but the result revealed that there is no significance when compared to the time taken to purchase.

"Once the consumer has recognized a problem, they search for information on products and services that can solve that problem. Belch and Belch (2007) explain that consumers undertake both an internal (memory) and an external search. Sources of information include: Personal sources, Commercial sources, Public

sources, Personal experience. The relevant internal psychological process that is associated with information search is perception. Consumers' tendency to search for information on goods and services makes it possible for researchers to forecast the purchasing plans of consumers using brief descriptions of the products of interest" (J Scott Armstrong and Terry Overton , 2012). This present study attempted to test the sources of information and purchase of the computers and it has do effect on it which is discussed in detail at the analysis.

According to the Wikipedia (2012) Consumer behaviour is influenced by internal conditions such as demographics, psychographics (lifestyle), personality, motivation, knowledge, attitudes, beliefs, and feelings. Psychological factors include an individuals' motivation, perception, attitude and belief, while personal factors include income level, personality, age, occupation and lifestyle. Behaviour can also be affected by external influences, such as culture, sub-culture, locality, royalty, ethnicity, family, social class, past experience reference groups, lifestyle, and market mix factors. The result from the study showed that unobserved variables have a greater influence on the purchase time taken of the computers. Thus, as per the information from the Wikipedia it is relavant that there are as many as more variables listed which has an effect on the present study.

5. RESEARCH METHODOLOGY

5.1. PROFILE OF STUDY AREA

The entire primary research was done in Vellore District by using a protocol. Vellore town is the headquarters of the Vellore District. Vellore District is one of historical places of Tamil Nadu. Now it is counted as one of the fastest growing district of Tamil Nadu. The geographical area of this district is 6077 sq.kms. The Vellore district has 8 talukas, 20 Blocks, 14 Municipalities, 753 Panchayat villages, 22 special village, 883 census village and 13 census towns. As per the 2001 census, Vellore district had a population of 3477317. Males constitute 50 percent and females 50 percent of the total population and 11 percent of the population is under six year of age. Vellore's average literacy rate is 74 percent, which is higher than the national average of 59.5 percent. Male literacy is 80 percent and female literacy is 68 percent. Vellore is emphasizing on education very much, for which in this district there are several famous Schools, colleges of different courses such as, Medical, Engineering, Art and Science College. Vellore is also a growing city due to the urbanization and there is a drastic technological growth in all parts and sectors of Vellore.

5.2. PILOT STUDY – FOCUS GROUP METHOD

A focus group session was conducted towards pilot study. Its main purpose is to get an insight into what Vellore District consumers think about computers, their preferred and appreciated brands. This method studied the ways in which people collectively discuss what household computer was, then constructed its attributes, and gave examples. The focus group interview was successful and useful in encouraging the interaction between participants. It was crucial to include the factor of interaction in research concerning consumption. The possibility of being challenged by other participants reduced the probability of participants giving inconsistent potentially wrong claims. Another reason for applying this technique was that it gives more control than a survey but still provides more flexibility than a structured interview.

The sample for the focus group session was drawn by the researcher with his team of doctors, managers, salesman, engineers, politicians and other professionals whom he knew by using convenience sampling and consisting of six members. The people selected were homogeneous as possible in terms of language, literacy level, and income. The discussions were observed and recorded by the researcher himself carefully by observation. The Lions Club of Vellore and Tirupattur assisted to select the professionals for the focus group discussion, an informal requisition to participate in the discussion was made by the researcher among the members of the club randomly. The researcher explained the topic of discussion through phone and he found out there was huge response from the members of the club which made the researcher to sort the samples to six by choosing the most appropriate professionals for the discussion. The discussion was held on a public holiday as per the convenience of the professionals to spend five hours in a day of three sessions. The first session was organised by the researcher himself to explain elaborately about the research topic (one hour) although he had already explained in the primary interview over the phone, the second session was to discuss about the topic where the researcher was a spectator and an observer and the final session was to frame the questionnaire.

5.5. SAMPLING

The researcher decided to collect the data through random sampling. When he approached various distributors at Vellore, Tirupattur, and other towns the distributors were reluctant and unwilling to part with list of buyers of household computers as they thought they would be leaking their business secrets and personal information of their customers. Therefore the researcher was left with no other option but to follow the Convenient Sampling for the continuance of research.

Here the researcher has stratified different towns of Vellore and identified totally eight towns. Thus, the researcher decided to collect required primary data from 60 respondents from each town by Convenient Sampling method. The researcher himself carried the data collection in all areas assisted by his team. With permission he entered the house to check whether they posses a computer or not? If the answer was positive he asked permission for the survey. Many respondents hesitated to cooperate in the beginning of the conversation; however, the researcher convinced them to participate in the survey by showing his ID card and by explaining the nature of the survey. Even then some respondents did not cooperate and were not ready to answer the survey. Some businessmen at home replied directly that they are not ready to answer any questions, thinking that the research team is from the government or from Income Tax Department.

6. ANALYSIS AND INTERPRETATION

Household computers today is "talk of the family", they talk about internet, online applications, online train reservations, chat, internet calls, etc, whole family is interested to know or to be aware what it is, there is a "want" to know what it means, and the parents' are now started to learn from their kids about using the computers. In the sample study, it is identified that the kids are teaching the parents on using the computers. Parents are also not bothered about their ego to learn from their kids, but the parents are still cautious on their children on monitoring them when they sit on computers. This analysis section focuses on the results of the study, mainly on the sources of information, urgency, shop visits and time taken to purchase the computers. The original study was on the perceptions and attitudes of the consumer towards the household computer, but this particular article focus only on the time taken to purchase the computers. The analysis was made by using SEM, and the overall path diagram was adequately fitting the model. The interpretations are followed under the results of each coefficient tables.

The language of the tool was in English with 67 variables under nine classifications to study the motivating factors, perception, attitude, and societal implication of computers use and level of satisfaction of the household computer users. The variables were measured using three points, five points scale with closed, open-ended and multiple-choice questions. The results are followed below:

REGRESSION WEIGHTS: (GROUP NUMBER 1 - DEFAULT MODEL)

Regression Weights			C.R.	P
Time Taken	<---	Sources of Information	.634	.526
Time Taken	<---	Shop visits	3.126	.002
Time Taken	<---	Urgency	-1.721	.085

The probability of getting a critical ratio as large as 0.634 in absolute value is .526. In other words, the regression weight for Sources of Information in the prediction of Time Taken is not significantly different from zero at the 0.05 level (two-tailed). It means the sources of information do not influence the time taken to purchase the computers.

The probability of getting a critical ratio as large as 3.126 in absolute value is .002. In other words, the regression weight for Shop Visits in the prediction of Time Taken is significantly different from zero at the 0.01 level (two-tailed).

The probability of getting a critical ratio as large as 1.721 in absolute value is .085. In other words, the regression weight for Urgency in the prediction of Time Taken is not significantly different from zero at the 0.05 level (two-tailed).

COVARIANCE'S: (GROUP NUMBER 1 - DEFAULT MODEL)

Covariance Between	Estimate	S.E.	C.R.	P
Sources and Urgency	.282	.104	2.708	.007
Sources and Shop Visits	.169	.113	1.497	.134
Shop visits and Urgency	.033	.038	.883	.377

The probability of getting a critical ratio as large as 2.708 in absolute value is .007. In other words, the covariance between **sources** and **urgency** is significantly different from zero at the 0.01 level (two-tailed).

The probability of getting a critical ratio as large as 1.497 in absolute value is .134. In other words, the covariance between **sources** and **shop visits** is not significantly different from zero at the 0.05 level (two-tailed).

The probability of getting a critical ratio as large as 0.883 in absolute value is .377. In other words, the covariance between **shop visits** and **urgency** is not significantly different from zero at the 0.05 level (two-tailed).

CMIN

CMIN	DF	P	CMIN/DF
22.913	6	.001	3.819

The **Independence model** has a discrepancy of 22.913, assuming that the independence model is correct, the probability of getting a discrepancy as large as 22.913 is .001. For the **Independence model**, the discrepancy divided by degrees of freedom is 22.913 / 6 = 3.819.

RMR, GFI

RMR	GFI	AGFI	PGFI
.118	.979	.964	.587

The Root Mean Square Residual (RMR) explains the sample variances and covariance as per the differences of .118 from their estimates obtained under the assumption that the model is correct. The smaller the RMR is the better. This model is better.

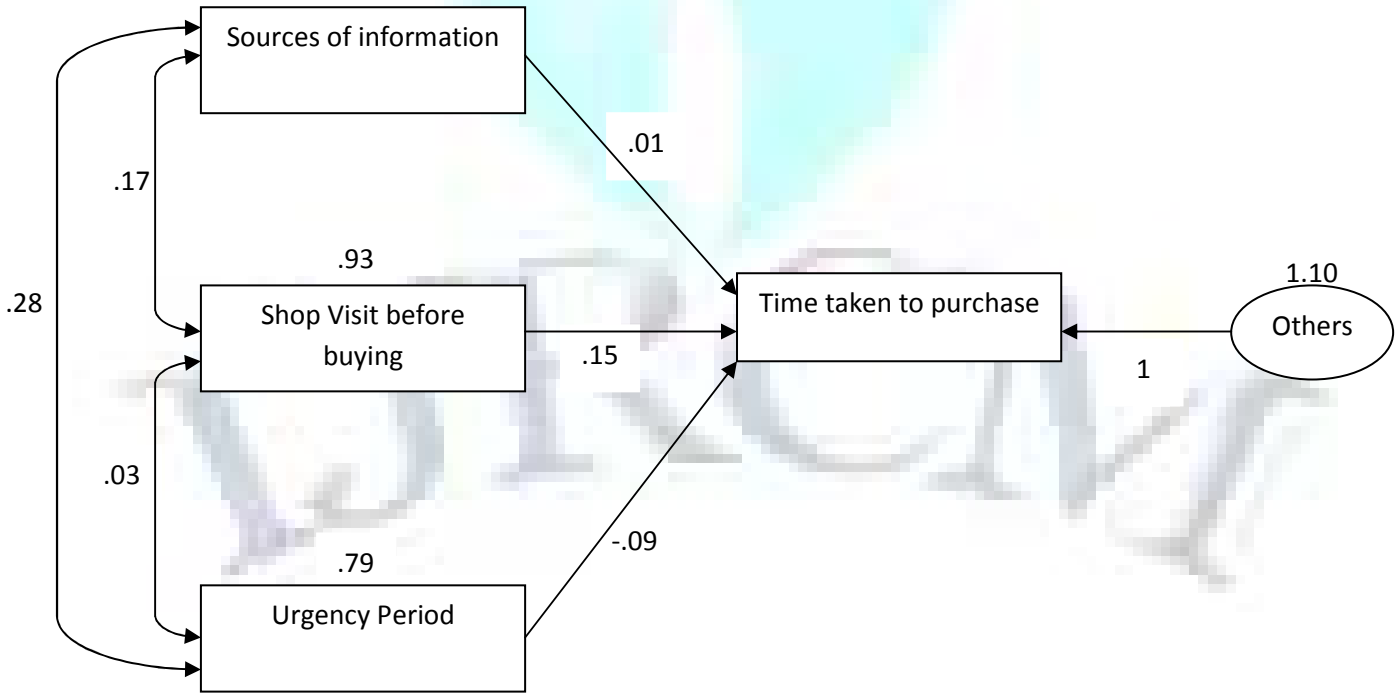
RMSEA

RMSEA	LO 90	HI 90	PCLOSE
.074	.043	.107	.093

With approximately 90 percent confidence, the population RMSEA for the **Independence model** is between .043 and .107. PCLOSE .093 for the **Independence model**, Under the hypothesis of "close fit" (i.e., that RMSEA is no greater than .05 in the population), the probability of getting a sample RMSEA as large as .074 is .093. Therefore, it can be concluded that this model is fitting adequately since it is .074 just below the required .08.

Number of variables in your model:	5
Number of observed variables:	4
Number of unobserved variables:	1
Number of exogenous variables:	4
Number of endogenous variables:	1

FIG. 1: TIME TAKEN TO PURCHASE



7. CONCLUSION

From the above results and analysis it is concluded that the sources of information and the shop visits has less influence than the urgency to buy the computers, it means there are other unobserved variables which influence the time taken to purchase. Therefore, it is revealed that there is variance with all the variables of the study, and so all the three hypothesis are rejected. As mentioned earlier in review of literature, Consumer behavior is influenced by internal conditions such as demographics, psychographics (lifestyle), personality, motivation, knowledge, attitudes, beliefs, and feelings. Psychological factors include individuals'

motivation, perception, attitude and belief, while personal factors include income level, personality, age, occupation and lifestyle. Behavior can also be affected by external influences, such as culture, sub-culture, locality, royalty, ethnicity, and family, social class, past experience reference groups, lifestyle, and market mix factors. The result from the study showed that unobserved variables have a greater influence on the purchase time taken of the computers. Thus, as per the information from the Wikipedia it is relevant that there are as many as more variables listed which has an effect on the present study.

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PRIMARY EDUCATION IN INDIA

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ABSTRACT

Primary education is the first stage of compulsory education. It is preceded by pre-school or nursery education and is followed by secondary education. The major goals of primary education are achieving basic literacy and numeracy amongst all pupils, as well as establishing foundations in science, mathematics, geography, history and other social sciences. Achieving universal elementary education will be an enormously challenging task given the fiscal crisis of the state at both central as well as state level. The challenges is heightened by the fact that the state governments, which account for 90 per cent total government spending on elementary education, have a fiscal deficit of at least 5 per cent of GDP and the central government's fiscal deficit of an additional 5 per cent of GDP, compounds the challenge of universalizing elementary education. The present analyses the growth of primary education in India and the public expenditure on primary education in India during 1991-92 to 2005-06. The study reveals that there is a tremendous growth in primary education. The public expenditure on education particularly primary education is also increased by the government.

JEL CODE
I21

KEYWORDS
Dropout rate, Education, Gross enrolment ratio, Primary Education, Public expenditure.

INTRODUCTION

Education is a critical input for human capital. Education is sought not only was it confers higher earning capacity on people but also for its other highly valued benefits. It provides knowledge to understand changes in the society and scientific advancements and thus facilitates innovations. Investment in education is considered as one of the main sources of human capital. Economically, expanding educational opportunities in a nation accelerates the development process. Primary education is the first stage of compulsory education. It is preceded by pre-school or nursery education and is followed by secondary education. In this stage of education is usually known as elementary education and is generally followed by middle school. In most countries, it is compulsory for children to receive primary education although it is permissible for parents to provide it. The major goals of primary education are achieving basic literacy and numeracy amongst all pupils, as well as establishing foundations in science, mathematics, geography, history and other social sciences. The relative priority of various areas, and the methods used to teach them, and an area of considerable political debate. Primary education is the most important step in child's educational step in a child's career. Primary school can offer children a safe environment in which to grow, even if their worked beyond the school walls is less than stable. Primary education provides children with skills and motivation that can help them cope with their individual circumstances. It provides children with better chances to explore new ideas, spend time with children of same age group and to develop their individual skills personality as well. Children who effectively develop during heir primary education will be emotionally and socially healthy. Achieving universal elementary education will be an enormously challenging task given the fiscal crisis of the state at both central as well as state level. The challenges is heightened by the fact that the state governments, which account for 90 per cent total government spending on elementary education, have a fiscal deficit of at least 5 per cent of GDP and the central government's fiscal deficit of an additional 5 per cent of GDP, compounds the challenge of universalizing elementary education. The government of India has initiated a programme to achieve Universal Elementary Education is called as Sarva Shiksha Abhiyan (SSA).

REVIEW OF LITERATURE

Sonia Bhalotra1 and Bernarda Zamora (2006) in their study "Primary Education in India" analysed the growth of school enrolment and completion rates for boys and girls in India, and also investigated the extent to which enrolment and completion rates have grown over time. They found that primary school attendance grew for both boys and girls in the age range 6-11, indeed, more rapidly for girls and completion rates for 12 year old children deteriorated. They also found that the elasticities of models for these schooling outcomes changed between 1992-93 and 1998-89. **Nirupam Bajpai and Sangeeta Goyal** (2004) in their study "Primary Education in India: Quality and Coverage Issues" have analysed the state of primary education in India. They found that literacy rates, especially in the younger age groups, for both boys and girls are on an upward trend. However, rising literacy rates have been accompanied by unevenness of achievements: across Indian states and across various socio-economic groups. States in the Western and Southern zones of India outperform those in the East and Center. Moreover, the densely populated states of Uttar Pradesh, Bihar and Rajasthan continue to lag behind the rest of India. Many schools have only one or two classrooms and most lack running water and toilets which shows that the Indian public education system is in low quality. The percentage of children who drop-out before completing primary schooling is high. They also pointed out that public expenditure on education in India has been rising over time. **Shanti Jagannathan in her study** "The role of Non Governmental Organizations in primary education - A study of six NGOs in India" analysed the role and contribution of a few NGOs in primary education and impact of the collaboration of the NGOs surveyed with the Government on elementary education in India. The results of the study established that NGOs can and do play a strong role in assisting the State. It has validated the premise in the introduction of the report and they have influenced the larger educational scenario through the adaptation of their models. It is, however, obvious that in aggregate terms, the participation of NGOs in primary education is negligible in the context of the large network of Government schools in India. The impact of NGO activities in primary education is, therefore, inherently limited in terms of the sheer scale of India's requirements. **Kapil Kaushik** (2010) in his research article "Problems and prospects of primary education in Mathura district: A geographical analysis" analysed the micro-regional variations in the attainment of primary education in Mathura district and examined the causal relationships between the variables of attainment in primary education with variables of primary educational facilities and socioeconomic development. This study showed that there were great spatial variations in the children's attainment in primary education at the block level in Mathura district The co-relation results showed that, both indicators that is, primary education facilities and socio-economic development were positively influenced by the attainment of children at primary level of education in the study area. But the influences of the socio-economic conditions on the attainment in primary education was more pronounced than availability of facilities for the primary education which shows that attainment of children in primary education was determined by the wish of parents rather than the children themselves. He concluded that the problem of primary education in Mathura district are still serious, in spite of many government-run programmes like SSA, mid-day meal etc. that they have to tackle as early as possible. So particular measures should be taken, like increasing the employment rate in rural areas, transformation of technology, knowledge or ideas from urban to rural areas and increase in the numbers of private schools can bring the homogeneity and increase the rate of attainment in primary education in the Mathura district.

MAJOR OBJECTIVES OF THE STUDY

1. To study the growth of primary education in India.
2. To analyse the public expenditure on primary education in India.

METHODOLOGY

PERIOD OF THE STUDY

The present study covers a period of fifteen years from 1991-92 to 2005-06.

SOURCES OF DATA

The present study is entirely based on secondary data. The secondary data related to growth of recognized Primary education institutions, Enrolment in primary education, Gross enrolment of primary students, Drop-Out rate, Teacher pupil ratio, Public expenditure on Education in collected from department of education Ministry of Human Resource articles and websites etc.

TOOLS OF ANALYSIS

In order to study the growth of primary education in India in terms of number of primary education institute, enrolment, gross enrolment of primary student, drop-out rate, teacher pupil ratio and the growth of public expenditure on education in India the annual growth rate was estimated as follows.

$$AGR = \frac{y_t - y_{t-1}}{y_{t-1}} \times 100$$

Where,

Y_t = current year

Y_{t-1} = Previous year

t = Time Period

ANALYSIS AND DISCUSSION

The Table.1 shows the growth of recognized primary education institution in India during the period 1991-92 to 2005-06.

TABLE 1: GROWTH OF PRIMARY EDUCATION IN INDIA

YEAR	PRIMARY EDUCATION INSTITUTIONS	ENROLMENT IN PRIMARY SCHOOL (IN MILLIONS)	GROSS ENROLMENT	DROPOUT RATE
1991-92	566744	100.9	86.5	45.8
1992-93	571248 (0.79)	99.6 (-1.29)	85 (-1.73)	45.0 (-1.75)
1993-94	570455 (-0.14)	97 (-2.61)	81.7 (-3.88)	44.2 (-1.78)
1994-95	586810 (2.87)	105.1 (8.35)	87.7 (7.34)	43.6 (-1.36)
1995-96	593410 (1.12)	107.1 (1.90)	88.6 (1.03)	42.0 (-3.44)
1996-97	603646 (1.72)	108.2 (1.03)	88.8 (0.23)	40.2 (-4.51)
1997-98	619222 (2.58)	110.3 (1.94)	91.1 (2.59)	39.2 (-2.49)
1998-99	628994 (1.58)	111.7 (1.27)	92.8 (1.87)	41.5 (5.87)
1999-2000	651434 (3.57)	113.6 (1.70)	94.9 (2.26)	40.3 (-2.89)
2000-01	638738 (-1.95)	113.8 (0.18)	95.7 (0.84)	40.7 (0.99)
2001-02	664041 (3.96)	133.9 (0.09)	96.3 (0.63)	39.0 (-4.18)
2002-03	651382 (-1.91)	122.4 (7.46)	95.3 (-1.04)	34.9 (-10.51)
2003-04	712239 (9.34)	128.3 (4.82)	98.2 (3.04)	31.5 (-9.74)
2004-05	767520 (7.76)	130.8 (1.95)	107.8 (9.78)	29.0 (7.94)
2005-06	77568 (0.66)	132.1 (0.99)	109.4 (1.48)	25.7 (-11.38)

Source: Department of Education, Ministry of Human Resource Development

Figures in the parentheses are annual growth rate.

PRIMARY EDUCATION INSTITUTIONS

The primary education institutions are increasing year-by-year in India. The primary education institutions have been increased from 5, 66,744 in 1991-92 to 7, 72,568 in 2005-06. The annual growth rate of primary education institution has been fluctuated during the study period. The annual growth rate was highest 9.34 per cent during 2003-04 and it was lowest (-1.94 per cent) during 2000-01.

ENROLMENT IN PRIMARY SCHOOLS

The enrolment in primary education is fluctuated in the study period. The table.1 depicts that the enrolment in primary education in India has been increased from 100.9 million in 1991-92 to 132.1 in 2005-06. The annual growth rate of enrolment in primary education was highest 8.35 during 1994-95 and it was lowest -2.61 during 1993-94.

GROSS ENROLMENT RATIO

Gross enrolment ratio is defined as the percentage of the enrolment in the primary to the estimated child population in the age group of 6 to 11. The Gross Enrolment of Primary student has been increased from 86.5 million in 1991-92 to 109.4 million in 2005-06. The annual growth rate Gross Enrolment of primary student has been fluctuated during the study period. The annual growth rate of Gross Enrolment was highest 9.78 per cent during 2004-05 and it was lowest -3.88 per cent during 1993-94.

DROP-OUT RATE IN PRIMARY EDUCATION IN INDIA

The gross drop-out represents the percentage of pupil who drop-out from a given or cycle or level of education in a given school year. The drop-out rate in primary education has been decreased from 45.8 in 1991-92 to 25.7 in 2005-06 which is a welcomed one. The annual growth rate of drop-out rates in primary education has been fluctuated during the period. The annual growth rate was highest (5.87 per cent) in the year 1998-99 and it was lowest (-11.38 per cent) in the year 2005-06. This was due to the positive effects of government schemes and programmes such as SSA, Free education to primary children, noon meal scheme etc.

PUBLIC EXPENDITURE ON EDUCATION IN INDIA

Investment in education is considered as one of the sources of human capital. Economically, expanding educational opportunities in a nation accelerates the developmental process. Economic growth means the increase in real national income of a country and naturally the contribution of an educated person to economic growth is more that of an illiterate person. Expanding access to education, especially at lower level is a common objective of governments in developing countries and it has met with considerable success over the last two decades. Developing countries have been quiet successful at expanding enrolments in education, especially at the lower levels. Developing countries also increased their investment in education particularly primary education. The following table.2 shows the public expenditure on primary education in India.

TABLE 2: PUBLIC EXPENDITURE IN PRIMARY EDUCATION

Year	Expenditure on Primary Education (Rs. in crores)	Expenditure on education (Rs. in crores)	Total Expenditure (Rs. in crores)	GDP (Rs. in crore)	% of primary education expenditure to		
					total expenditure on education	total expenditure	GDP
1991-92	10367.22	18757.61	170370.38	589086	55.3	6.09	1.76
1992-93	11321.50 (9.2)	2952.97 (11.7)	190327.49 (11.7)	673221	54.0	5.95	1.68
1993-94	13071.14 (15.5)	23413.1 (11.7)	218535.15 (14.8)	781345	55.8	5.98	1.67
1994-95	15133.05 (15.8)	27232.15 (16.3)	251691.92 (15.2)	917058	55.6	6.01	1.65
1995-96	18433.93 (21.8)	31516.59 (15.7)	286194.55 (13.7)	1073271	58.5	6.44	1.72
1996-97	21543.63 (16.9)	36371.64 (15.4)	329389.92 (15.1)	1243546	59.2	6.54	1.73
1997-98	24083.17 (11.8)	41109.32 (13.0)	370838.48 (12.6)	1390148	58.6	6.49	1.73
1998-99	30191.07 (25.4)	51225.26 (24.6)	439768.12 (18.6)	1598127	58.9	6.87	1.89
1999-2000	34068.78 (12.8)	61281.46 (19.6)	512519.33 (16.5)	1786525	55.6	6.65	1.93
2000-01	39274.60 (15.3)	62498.09 (2.0)	572160.14 (11.6)	1925416	62.8	6.86	1.88
2001-02	40019.36 (1.9)	64847.7 (3.8)	619713.14 (8.3)	2100187	61.7	6.45	1.75
2002-03	43403.45 (8.5)	68561.55 (5.7)	678548.31 (9.5)	2265304	63.3	6.20	1.76
2003-04	47409.51 (9.2)	73044.93 (6.5)	743668.96 (9.6)	2549418	64.9	6.38	1.89
2004-05	52123.42 (9.9)	81280.85 (11.3)	797345.74 (7.2)	2855933	64.1	6.54	1.82
2005-06	59561.84 (14.3)	97224.19 (19.6)	916465.26 (14.9)	3250932	61.3	6.50	1.83

Source: Educational Statistics in India, 2006-07, Department of Education: Ministry of Human Resource Development.

Figures in the parentheses are annual growth rate.

From the above table it is clear that the public expenditure on education has increased from Rs. 18757.61crores in 1991-92 to Rs. 97224.19 crores in 2005-06. The lowest annual growth rate was -13.38 in 2001-02 and the highest annual growth rate was 13.57 in 1998-99.

The public expenditure on primary education in India during the period from 1991-92 to 2005-06 has increased sizably. The public expenditure on primary education has increased from Rs. 10367.22 crores in 1991-92 to Rs. 59561.84 crores in 2005-06. The lowest annual growth rate was -13.38 in 2001-02 and the highest annual growth rate 13.57 was seen in 1998-99.

Public expenditure on primary education as a percentage of total expenditure of Indian has increased from 6.09 per cent in 1991-92 to 6.50 per cent in 2005-06. The average share of public expenditure on education during the study period is 6.9 per cent.

Public expenditure on primary education as a percentage of total expenditure on education has increased from 55.3 per cent in 1991-92 to 61.3 per cent in 2005-06. The average share of public expenditure on education during the study period is 63.5 per cent.

Public expenditure on primary education as a percentage of Gross Domestic Product of India has increased from 1.76 per cent in 1991-92 to 1.83 in 2005-06. It is evident from the table.2 that during the period from 1991-92 to 2005-06, the public expenditure on primary education as a percentage of GDP of India is nearly same.

CONCLUSION

The primary education institutions are increasing year-by-year in India. The primary education institutions have been increased from 5,66,744 in 1991-92 to 7,72,568 in 2005-06. The enrolment in primary education in India has been increased from 100.9 million in 1991-92 to 132.1 in 2005-06. The gross Enrolment of primary student has been increased from 86.5 million in 1991-92 to 104.4 million in 2005-06. The drop-out rate in primary education has been decreased from 45.8 in 1991-92 to 25.7 in 2005-06. Public expenditure on education has increased from Rs. 18757.61 crores in 1991-92 to Rs.97224.19 crores in 2005-06. Public expenditure on primary education in India during the period from 1991-92 to 2005-06 has increased sizably from Rs. 10367.22 crores in 1991-92 to Rs. 59561.84 crores in 2005-06. The average share of public expenditure on education during the study period is 6.9 per cent. The average share of public expenditure on education during the study period is 63.5 per cent. It is evident from the study that during the period from 1991-92 to 2005-06, the public expenditure on primary education as a percentage of GDP of India is nearly same. The study reveals that there is a tremendous growth in primary education. The public expenditure on education particularly primary education is also increased by the government of India should take necessary steps to decrease the dropout rate by allocating more funds to harvest the yield of education and also to realize the fruits of economic growth in India.

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DEVELOPMENT OF AN ORGANIZATIONAL CAPABILITY PROFILE FOR SMALL BUSINESS FIRMS IN JAMMU AND KASHMIR

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ABSTRACT

Small business firms are one of the most important parts of any economy. They not only provide employment to millions of educated youth but also maintain local talent. Small business firms are differentiated from large business firms mostly on the basis of number of employees in the firms and amount of capital used by the firm. Yet there are others mean as well who are used by different countries as per the convenience to differentiate between big and small level firms. Present study seeks to identify major problems faced by small level firms in Jammu and Kashmir State. The study also identifies various capability profile elements whose proper maintenance and tracking can improve the level of efficiency in small business firms. The paper further identifies and develops various measures and approaches which can be implemented for improving the status of each individual capability profile element for better productivity of small firms in Jammu and Kashmir State.

KEYWORDS

Organizational Capability, Brand Equity, Vertical Integration, Capacity Utilization, Technological Upgradation.

INTRODUCTION

The role of industrial sector cannot be denied as it is the backbone of any economy in the world weather it is developed or developing. After the end of Second World War almost all developed as well as developing economies focused on the development of agriculture as they considered that only a well established agriculture sector can make a country very rich and self sustained. But in late 1950s it was realized that without industrial set up it is not possible to survive and then afterwards the race for better industrial setup started.

India also shifted its focus from agriculture to industrial sector in 1960s. Different laws and Acts were passed to develop a better mechanism for industrial growth. But this mechanism focused only on the development of large and mega industries and other small and micro industries were left behind to survive of their own. Later in 1970s the importance of small and micro industries was realized and new procedures and mechanisms were included in industrial policies which were also helpful to small and micro industries. Today small and micro industries in India are trying their best efforts to sustain and maintain their business in the markets. But these firms are facing many challenges for their sustainability. These challenges include lack of financial resources as they have no proper source from where they can get financial support, Lack of management experience because these firms have less resources and so are not able to go for good talent search. The other challenges which are hurdles in the ways of development of small firms are poor location, laws and regulations, general economic conditions, poor infrastructure, corruption, low demand for products and services, shortage of raw materials, inability to control costs and problems of dumping of cheap foreign products and others.

OBJECTIVES

1. To assess various problems faced by small business firms in performing business operations effectively in Jammu and Kashmir State.
2. To determine various capability elements which can increase the strategic advantage of small business firms?
3. To develop a mechanism which could be used by small business firms in different capability areas for achieving higher value in their activities.
4. To devise a framework which could help small business firms in determining their future targets?
5. To determine various processes and approaches which could increase capabilities in multiple functions of small business firms in Jammu and Kashmir?

MATERIAL AND METHODS

Present study has been worked out with the help of primary as well as secondary data. The primary data has been collected with the help of a pretested questionnaire from the people who are a part of small business firms in Jammu and Kashmir State. The secondary data has been collected from various reports on small business firms as well as from different offices of Registrar and Deputy Registrars of small companies from various zones and districts in Jammu and Kashmir State. The data and information so collected from primary as well as secondary resources has been analyzed statistically and certain cartographic has been applied to develop a framework which could help self help groups to sustain their business in long run.

RESULT AND DISCUSSION

Organizational capability factors make multiple smooth ways for conduct of business operations by small level business firms throughout the world. But there is a need for proper assessment of different capability elements and their proper implementation. Various capability factors along with different suggested approaches and measures have been given below:

1. FINANCIAL CAPABILITY

This capability factor and related approaches with it have been tabulated in table 1. Financial capability helps small business firms to proper analyze their financial problems. Determination of cheap sources of finance including govt. and other developmental agencies, developing high level of credit worthiness, developing efficient budget and feasible capital structure and tax benefits procedures from Government are the best approaches that must be adopted by small business firms in Jammu and Kashmir for good business.

2. MARKETING CAPABILITY

This capability factor helps small business firms to rectify and devise certain marketing development procedures for their products and services. The various approaches that could generate better yield in marketing have been determined as floating differentiated products in market, mechanism for delivering value products and services, efficient communication mechanism and maintaining brand equity through better after sale service.

3. OPERATIONAL CAPABILITY

This capability factors enhances the productivity of operations in firms which could then generate value products. Small business firms in Jammu and Kashmir should adopt the measures such as estimation of demand and procedures for capacity utilization, high level of R&D and consistency, technological upgradation and collaboration and favorable locations with a scope for vertical integration that will be highly efficient for modifying production capacity and management.

4. PERSONNEL CAPABILITY

It helps in the management of personnel and enhances ways for their development. This factor should be much focused because in small business firms manpower plays much active role than in bigger firms. Proper human resource planning and management system, effective carrier and development system,

maintaining high level of organizational loyalty and excellent training opportunities and congenial work environment are the best approaches for small business firms by which they can boost their manpower in Jammu and Kashmir State.

5. INFORMATION MANAGEMENT SYSTEM

Proper management and dissemination is one of the major factors in today's complex business environment. It is almost impossible for a firm to survive in long run if this capability factor in not taken into high consideration by firms. Identifying easy and convenience sources of accessing information, Proper information sharing and dissemination mechanism, Developing a wide coverage of network system and Implementation of a good information security system are the approaches which will be useful in managing information by small level firms in Jammu and Kashmir.

TABLE 1: ORGANIZATIONAL CAPABILITY PROFILE FOR SMALL BUSINESS FIRMS

S.NO.	CAPABILITY FACTOR	APPROACHES AND MEASURES
01.	**FINANCIAL CAPABILITY**	a) Determination of cheap sources of finance including govt. and other developmental agencies.
		b) Developing high level of credit worthiness.
		c) Developing efficient budget and feasible capital structure.
		d) Tax benefits procedures from Government.
02.	**MARKETING CAPABILITY**	a) Floating differentiated products in market.
		b) Mechanism for delivering value products and services.
		c) Efficient communication mechanism.
		d) Maintaining brand equity through better after sale service.
03.	**OPERATIONAL CAPABILITY**	a) Estimation of demand and procedures for capacity utilization.
		b) High level of R&D and consistency.
		c) Technological upgradation and collaboration.
		d) Favorable locations with a scope for vertical integration.
04.	**PERSONNEL CAPABILITY**	a) Proper human resource planning and management system.
		b) Effective carrier and development system.
		c) Maintaining high level of organizational loyalty.
		d) Excellent training opportunities and congenial work environment.
05.	**INFORMATION MANAGEMENT SYSTEM**	a) Identifying easy and convenience sources of accessing information.
		b) Proper information sharing and dissemination mechanism.
		c) Developing a wide coverage of network system.
		d) Implementation of a good information security system.

CONCLUSION

Development of an organizational capability profile plays a very important role in modifying the condition of small business firms in Jammu and Kashmir. In this paper different capability factors have been identified which acts as critical success factors for survival of small business firms. These capability factors are financial capability, marketing capability, operational capability, personnel capability and information management system capabilities. These all capability factors make the financial, marketing, operational, personnel and informational operations very feasible and smooth and finally make ways for development of small business firms. Different approaches which could be adopted in this paper are also most important and necessary to be implemented in all identified dimensions so integrate activities and develop a fully fledged capability profile for small business firms in Jammu and Kashmir State.

RECOMMENDATIONS

1. There must be procedures with modern approach which could be helpful in reducing per unit cost of products.
2. Higher level of customization must also be adopted to meet diversified demands of consumers.
3. Supply chain management mechanism and other inventory control procedures should be brought under value chain procedure.
4. Points of parity and points of differentiations must be identified and properly communicated to final consumers and customers for enhancing brand image.
5. Local trade and sale promotion programs need to be implemented at higher level of frequency.
6. Higher level of localization and local responsiveness programs must be designed and used to get a maximum number of local customers.
7. Due to financial constraints the small firms must invest in its profitable projects and products.
8. Product and service extensions must be adopted at regular intervals as per the changing needs and desires of consumers.
9. Regular market research must be done so as to identify unique and modern preferences in the market.
10. It's feasible for small firms to adopt a pricing strategy which makes consumer as value pricing.
11. Small business firms must also identify niches not covered by big firms and offer their products accordingly.
12. Assessment of local culture as well as talent could be very fruitful for survival of small business firms.
13. A feasible mechanism for customer relationship management must be adopted to cater multiple complaints.
14. Small firms should also organize and finance local events which will finally promote them in market.
15. Products must be made and sold in such a way that it will reduce overall cost of consumers.

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LIQUIDITY RISKS MANAGEMENT PRACTICES BY COMMERCIAL BANKS IN BANGLADESH: AN EMPIRICAL STUDY

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ABSTRACT

This study of liquidity risks management processes is essentially an investigation of how banks manage liquidity risk is associated with solvency uncertainty at the renouncing stage. In such a case, the procedure outlined above is adopted to the risk considered so as to standardize measured, constrain and manage the risks. To illustrate how this achieved, this review of firm-level risk management begins with a discussion of risk management controls in this area. To insure, banks can accumulate liquid assets, or enhance transparency to facilitate renouncing. A liquidity buyer provides complete insurance against small liquidity shocks, while transparency over partial insurance against large ones as well. We observes that, due to leverage, banks can under-invest in both liquidity and transparency, and within that have a bias towards liquidity as it preserves internal control.

KEYWORDS

Core risks, Liquidity risks, Liquidity risks management, Risks management committee.

1. INTRODUCTION AND VIEWS OF LIQUIDITY RISKS

Banks perform maturity transformation and insure public's liquidity needs, but in process become exposed to liquidity risk (Diamond and Dybvig, 1983). When renouncing frictions prevent a solvent bank from covering a liquidity shortage, it may go bankrupt despite having valuable long-term assets. Most recent bank liquidity events in developed countries were associated with increased solvency concerns. Global scanning and the effect of globalization has had a significant impact on all types of business entities and their activities have become global by nature, thereby affecting the greater part of economic life (ohmac,1990, Barnet and Cavanagh,1994, Brecher Costello,1994). Due to globalization of banking business, banks are new exposed to diversified and complex risks. As a result, effective management of such risks has been core aspects of establishing good governance in banking in order to ensure sustainable performance. Risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty, while the types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity of business activities, volume etc. In banking sector regular and prime activities are the management of risks. Bank accept risks in order to earn profit, they must make a comprehensive balance alternative strategies in terms of their risks characteristics with the goal of maximizing shareholders wealth. In doing so, banks recognize that there are different types of risks and that the impact of a particulars investment policy. In recognition of the importance of an effective risks management system and policies Bangladesh Bank as guardian of all financial institutions has issued guidelines on managing core risks in banking sector. Generally the core risks are categories into five broad classes such as, credit risks, assets and liability or balance sheet risks, foreign exchange risks, liquidity risks, and money laundering risks. The core risks and benefits of globalization distributed unevenly developing countries facing tremendous difficulties in meeting the challenge globalization, according to the literature, which suggested that the current process of globalization is unsustainable for us in the long run unless we introduce new ways and dynamic policies able to govern it (Tisdell, 2001). In responding the core risks in the banking sector and meet its obligation and commitment as they fall due commercial bank have been made the strengthen structure for liquidity risks management. To survive, a bank must be able to support itself with own funds for the duration of liquidity stress, and/or alleviate the markets concerns over its solvency to regain access to funds as soon as possible.

However, liquidity risk is the potential loss to an institution arising from either its inability to meet its obligations or to fund increases in assets as they fall due without incurring unacceptable cost or losses and leading to bankruptcy or rise in funding cost. Liquidity is the solvency capacity of business entities or bank and which has special reference to the degree of readiness in which assets can be converted into cash without any loss. Liquidity risk is the danger of having insufficient cash to meet a bank's obligations when due (Rose, Peter S.2005) Liquidity risks also include our inability to liquidate any asset at reasonable price in a timely manner. Banks traditionally use the statutory liquidity reserve and their borrowing capacity in the volatile inter-bank money market as the source of liquidity. But a conscious approach to measure and monitor the liquidity is somewhat lacking in our market. We can learn and draw benefit by showing the best practices, tools and techniques of liquidity management demonstrate the types of liquidity risks in such a way:

Funding risk: it is the need to replace net outflows of funds whether due to withdrawal of retail deposits or non-renewal of wholesale funds.

Time risk: time risk is the need to compensate for non-receipt of expected inflows of funds, e.g. when a borrower fails to meet his repayment commitments.

Call risk: call risk is the need to find fresh funds when contingent liabilities become due. Call risk also includes the need to be undertaking new transactions when desirable.

And management concerned about the following liquidity factors:

Some factors increasing liquidity risk, these are:

- Erosion of confidence in a bank within the marketplace because of earnings difficulties or other reasons.
- Depending on one market or on a few counter-parties for deposits.

- Unstable financial markets and
- Extensive 'short' borrowing or 'long' lending operations.

Some factors are reducing liquidity risk, these are:

- Availability of related party funding
- Maintenance of a high level of liquid assets
- Government deposit insurance, if any and
- Maintenance of a closely matched, as possible, maturity structure between assets and liabilities.

Early Warning indicators of liquidity risk: An incipient liquidity problem may initially reveal in the bank's financial monitoring system as a downward trend with potential long-term consequences for earnings or capital. Given below are some early warning indicators that not necessarily always lead to liquidity problem for a bank; however these have potential to ignite such a problem. Consequently management needs to watch carefully such indicators and exercise further scrutiny/analysis wherever it deems appropriate.

Examples of such internal indicators are:

a) A negative trend or significantly increased risk in any area or product line.
b) Concentrations in either assets or liabilities.
c) Deterioration in quality of credit portfolio.
d) A decline in earnings performance or projections.
e) Rapid asset growth funded by volatile large deposit.
f) A large size of off-balance sheet exposure.
g) Deteriorating third party evaluation about the bank

2. OBJECTIVES OF THE STUDY

The ultimate objective of the study is to review the theoretical and empirical knowledge as risk management as well as liquidity risk management is a discipline at the core of every financial institution and encompasses all the activities that affect its risk profile and the economic consequences of financial solvency and performance of risk management process. To achieve this main objective, the following specific objectives of the study are also identified while liquidity risks involve measurement, monitoring and controlling risks to ensure that:

a) The individuals who take or manage risks clearly understand it.
b) The organization's risk exposure is within the limits established by BOD.
c) Limit of Sufficient capital as a buffer is available to take risks.

3. METHODOLOGY OF THE STUDY

Various business journals and research papers, diagnostic study reports and newspaper articles have been surveyed in making this study significantly fruitful, transparent and objective oriented. However, this paper has been conducted mainly on the basis of literature survey and desk work of secondary information. Meanwhile few academicians, qualified chartered accountants and cost and management accountants (public practice or not) and senior bank management personnel have been personally consulted with in order to have their thoughts and views in this regards.

4. DESIGN OF THE STUDY

4.1. PREPARATION FOR BASEL II ACCORD – STRENGTHENING RISK MANAGEMENT SYSTEM AND CAPITAL BASE OF THE BANK

In order to make the banks in Bangladesh more shock absorbent as well as to cope with international best practice for risk management and, a sound and robust banking industry, Bangladesh Bank has taken measures to implement BASEL II from January 2009.

BASEL Committee on Banking Supervision published a more comprehensive new package on capital adequacy requirement known as BASEL II for strengthening the capital adequacy, improving supervisory system to assess the adequacy of capital based on a thorough review of risks, reinforce risk management system and market discipline with the ultimate objective of having strong capital base that are commensurate with risk profile of the Bank comprising credit risk, market risk and operational risk that can ensure long term stability and solvency of banking company and banking sector as a whole. A National Steering Committee comprising senior officials from banking industry, Bangladesh Bank and Chartered Accountant Firms has been constituted. Furthermore, a Coordination Committee and a Basel II implementation Cell have been established. In the meantime, Bangladesh Bank has done two studies one is self-audit on Basel core principles for effective Bank supervision and the second one is quantitative impact study in order to assess readiness of the banks for implementation of Basel II.

Under standardized approach, Basel II requires the recognition of External Credit Assessment Institutions for this a guideline has been prepared by BB and recognition process of credit rating agencies is under process. Bangladesh Bank has already issued Guidelines on Risk based capital adequacy for banks (revised regulatory capital framework in line with BASEL II) vide BRPD Circular No. 09 dated December 31, 2008.

In line with Bangladesh Bank requirement, the Bank has already formed a Basel II Implementation Unit to ensure smooth and timely implementation of Basel II Accord. Capacity building measures are underway so that the Bank is fully prepared to adopt the Accord in 2009.

4.2. LIQUIDITY RISKS MANAGEMENT PROCESSES

A bank has adequate liquidity when it can obtain sufficient funds, either by increasing liabilities or by converting assets, promptly and at a reasonable cost. Liquidity is essential in all banks to compensate for expected and unexpected balance sheet fluctuation and to provide funds for growth. The price of liquidity is a function of market conditions and market perception of the risks, both interest rate and credit risks, reflected in the banks balance sheet and off- balance sheet activities. It is the policy of the Bank to maintain adequate liquidity at all times and in both local and foreign currencies. Liquidity risks are managed on a short, medium and long-term basis. There are approved limits for credit-deposit ratio, liquid assets to total assets ratio, maturity mismatch, commitments for both in on-balance sheet and off-balance sheet items and borrowing from money market to ensure that loans & investments are funded by stable sources, maturity mismatches are within limits and that cash inflow from maturities of assets, customer deposits in a given period exceeds cash outflow by a comfortable margin even under a stressed liquidity scenario. However, an effective liquidity risk management includes systems to identify measure, monitor and control its liquidity exposures. Management should be able to accurately identify and quantify the primary sources of a bank's liquidity risk in a timely manner. To properly identify the sources, management should understand both existing as well as future risk that the institution can be exposed to. Management should always be alert for new sources of liquidity risk at both the transaction and portfolio levels.

- A liquidity risk management involves not only analyzing banks on and off-balance sheet positions to forecast future cash flows but also how the funding requirement would be met. The later involves identifying the funding market the bank has access, understanding the nature of those markets, evaluating banks current and future use of the market and monitor signs of confidence erosion. Managing liquidity risk
- The formality and sophistication of risk management processes established to manage liquidity risk should reflect the nature, size and complexity of an institution's activities. Sound liquidity risk management employed in measuring, monitoring and controlling liquidity risk is critical to the viability of any institution. Institutions should have a thorough understanding of the factors that could give rise to liquidity risk and put in place mitigating controls.
- Management Information System and Liquidity Risks Management: Key elements of an effective risk management process include an efficient MIS, systems to measure, monitor and control existing as well as future liquidity risks and reporting them to senior management.
- An effective management information system (MIS) is essential for sound liquidity management decisions. Information should be readily available for day to day liquidity management and risk control, as well as during times of stress. Data should be appropriately consolidated, comprehensive yet succinct, focused, and available in a timely manner. Ideally, the regular reports a bank generates will enable it to monitor liquidity during a crisis; managers would

simply have to prepare the reports more frequently. Managers should keep crisis monitoring in mind when developing liquidity MIS. There is usually a trade -off between Managing liquidity risk accuracy and timeliness. Liquidity problems can arise very quickly, and effective liquidity management may require daily internal reporting. Since bank liquidity is primarily affected by large, aggregate principal cash flows, detailed information on every transaction may not improve analysis.

- Management should develop systems that can capture significant information. The content and format of reports depend on a bank's liquidity management practices, risks, and other characteristics. However, certain information can be effectively presented through standard reports such as "Funds Flow Analysis," and "Contingency Funding Plan Summary". These reports should be tailored to the bank's needs. Other routine reports may include a list of large funds providers, a cash flow or funding gap report, a funding maturity schedule, and a limit monitoring and exception report. Day-to-day management may require more detailed information, depending on the complexity of the bank and the risks it undertakes. Management should regularly consider how best to summarize complex or detailed issues for senior management or the board. Beside s other types of information important for managing day-to-day activities and for understanding the bank's inherent liquidity risk profile include:

a) Asset quality and its trends.
b) Earnings projections.
c) The bank's general reputation in the market and the condition of the market itself.
d) The type and composition of the overall balance sheet structure.
e) The type of new deposits being obtained, as well as its source, maturity, and price. As far as information system is concerned, various units related to treasury activities, the dealing, the treasury operation & risk management cell/department should be integrated. Furthermore, management should ensure proper and timely flow of information among front office, back office and middle office in an integrated manner; however, their reporting lines should be kept separate to ensure independence of these functions.

4.3. LIQUIDITY RISK MEASUREMENT AND MONITORING

- An effective measurement and monitoring system is essential for adequate management of liquidity risk. Consequently banks should institute systems that enable them to capture liquidity risk ahead of time, so that appropriate remedial measures could be prompted to avoid any significant losses. It needs not mention that banks vary in relation to their liquidity risk (depending upon their size and complexity of business) and require liquidity risk measurement techniques accordingly. For instance banks having large networks may have access to low cost stable deposit, while small banks have significant reliance on large size institution deposits. However, abundant liquidity does not obviate the need for a mechanism to measure and monitor liquidity profile of the bank. An effective liquidity risk measurement and monitoring system not only helps in managing liquidity in times of crisis but also optimize return through efficient utilization of available funds. Discussed below are some (but not all) commonly used liquidity measurement and monitoring techniques that may be adopted by the banks.
- Contingency Funding Plans; In order to develop a comprehensive liquidity risk management framework, institutions should have way out plans for stress scenarios. Such a plan commonly known as Contingency Funding Plan (CFP) is a set of policies and procedures that serves as a blue print for a bank to meet its funding needs in a Managing liquidity risk timely manner and at a reasonable cost. A CFP is a projection of future cash flows and funding sources of a bank under market scenarios including aggressive asset growth or rapid liability erosion. To be effective it is important that a CFP should represent management's best estimate of balance sheet changes that may result from a liquidity or credit event. A CFP can provide a useful framework for managing liquidity risk both short term and in the long term. Further it helps ensure that a financial institution can prudently and efficiently manage routine and extraordinary fluctuations in liquidity.
- Cash Flow Projections: At the basic level banks may utilize flow measures to determine their cash position. A cash flow projection estimates a bank's inflows and outflows and thus net deficit or surplus (GAP) over a time horizon. The contingency funding plan discussed previously is one example of a cash flow projection. Not to be confused with the re-pricing gap report that measures interest rate risk, a behavioral gap report takes into account bank's funding requirement arising out of distinct sources on different time frames. A maturity ladder is a useful device to compare cash inflows and outflows both on a day-to-day basis and over a series of specified time periods. The number of time frames in such maturity ladder is of significant importance and up to some extent depends upon nature of bank's liability or sources of funds. Banks, which rely on short- term funding, will concentrate primarily on managing liquidity on very short term. Where as, other banks might actively manage their net funding requirement over a slightly longer period. In the short- term, bank's flow of funds could be estimated more accurately and also such estimates are of more importance as these provide an indication of actions to be taken immediately. Further, such an analysis for distant periods will maximize the opportunity for the bank to manage the GAP well in advance before it crystallizes. Consequently banks should use short time frames to measure near term exposures and longer time frames thereafter. It is suggested that banks calculate daily GAP for next one or two weeks, monthly Gap for next six month or a year and quarterly thereafter. While making an estimate of cash flows, following aspect needs attention

a) The funding requirement arising out of off- Balance sheet commitments also need to be accounted for.
b) Many cash flows associated with various products are influenced by interest rates or customer behavior. Banks need to take into account behavioral aspects instead of contractual maturity. In this respect past experiences could give important guidance to make any assumption.
c) Some cash flows may be seasonal or cyclical.
d) Management should also consider increases or decreases in liquidity that typically occur during various phases of an economic cycle.

- **Liquidity Ratios and Limits:** Banks may use a variety of ratios to quantify liquidity. These ratios can also be used to create limits for liquidity management. However, such ratios would be meaningless unless used regularly and interpreted taking into account qualitative factors. Ratios should always be used in conjunction with more qualitative information about borrowing capacity, such as the likelihood of increased requests for early withdrawals, decreases in credit lines, decreases in transaction size, or shortening of term funds available to the bank. To the extent that any asset-liability management decisions are based on financial ratios, a bank's asset-liability managers should understand how a ratio is constructed, the range of alternative information that can be placed in the numerator or denominator, and the scope of conclusions that can be drawn from ratios. Because ratio components as calculated by banks are sometimes inconsistent, ratio-based comparisons of institutions or even comparisons of periods at a single institution can be misleading.

i. **Cash Flow Ratios and Limits.** One of the most serious sources of liquidity risk comes from a bank's failure to "roll over" a maturing liability. Cash flow ratios and limits attempt to measure and control the volume of liabilities maturing during a specified period of time.
ii. **Liability Concentration Ratios and Limits.** Liability concentration ratios and limits help to prevent a bank from relying on too few providers or funding sources. Limits are usually expressed as either a percentage of liquid assets or an absolute amount. Sometimes they are more indirectly expressed as a percentage of deposits, purchased funds, or total liabilities.
iii. **Other Balance Sheet Ratios.** Total loans/total deposits, total loans/total equity capital, borrowed funds/total assets etc are examples of common ratios used by financial institutions to monitor current and potential funding levels.

- **Accounting estimates and Liquidity ratios:** In addition to the statutory limits of liquid assets requirement and cash reserve requirement, the board and senior management should establish limits on the nature and amount of liquidity risk they are willing to assume. The limits should be periodically reviewed and adjusted when conditions or risk tolerances change. When limiting risk exposure, senior management should consider the nature of the bank's strategies and activities, its past performance, the level of earnings, capital available to absorb potential losses, and the board's tolerance for risk. Balance sheet complexity will determine how much and what types of limits a bank should establish over daily and long-term horizons. While limits will not prevent a liquidity crisis, limit exceptions can be early indicators of excessive risk or inadequate liquidity risk management. However, Most of the banks estimate liquidity based on the ratios on a specific date. There are two types of liquidity indicators:

a) Asset based or Stored Liquidity Ratios, b) Liability based or Purchased Liquidity Ratios.

a) Asset based or Stored Liquidity Ratios:

1) Cash position indicators = Cash + Deposits / Total Assets

2) Liquid Securities Indicators = Govt. Securities / Total Securities

3) Risk less Assets Position = Cash+ Deposits+ Govt. Securities / Total Assets

4) Net Treasury Funds Position = Balance of Reserves with Central Bank / Total Assets

5) Liquidity Assets Ratio = Cash+ Reserves+ Govt. Securities / Total Assets

6) Capacity Ratio = Net Loan + Lease or Rent / Total Assets

7) Pledged Securities Ratio = Pledged Securities / Total Securities Holdings

b) Liability based or Purchased Liquidity Ratios:

1) Hot Money deposit = Withdraw able Hot Money Deposits / Total Hot Money Deposits

2) Short- term Deposit to Assets= Short- term Deposits / Total Assets

3) Short- time Investments to Sensitive Liabilities = Short- time Investments / Sensitive Liabilities

4) Deposits Brokerage Index = Brokerage deposits / Total Assets

5) Core Deposits Ratio = Core Deposits / Total Assets

6) Deposits Composition Ratio = Current Deposits / Term Deposits

7) Transaction Deposits Ratio = Transaction Deposits / Non- transaction able Deposits

- Internal Controls and Liquidity risks: In order to have effective implementation of policies and procedures, banks should institute review process that should ensure the compliance of various procedures and limits prescribed by senior management. Persons independent of the funding areas should perform such reviews regularly. T he bigger and more complex the bank, the more thorough should be the review. Reviewers should verify the level of liquidity risk and management's compliance with limits and operating procedures. Any exception to that should be reported immediately to senior management / board and necessary actions should be taken. Senior management and the board, or a committee thereof, should receive reports on the level and trend of the bank's liquidity risk at least quarterly. A recent trend in liquidity monitoring is incremental reporting, which monitors liquidity through a series of basic liquidity reports during stable funding periods but ratchets up both the frequency and detail included in the reports produced during periods of liquidity stress. From these reports, senior management and the board should learn how much liquidity risk the bank is assuming, whether management is complying with risk limits, and whether management's strategies are consistent with the board's expressed risk tolerance. The sophistication or detail of the reports should be commensurate with the complexity of the bank.

4.4. TECHNIQUES OF LIQUIDITY RISK MEASUREMENT

- Liquidity Tracking: Measuring and managing liquidity needs are vital for effective of a bank. By assuring the bank's ability to meet its liabilities as they become due, liquidity management can reduce the profitability of an adverse situation. The importance of liquidity transcends individual institutions, as liquidity shortfall in a bank can have repercussions on the entire system. The ALCO should measure not only the liquidity positions of the bank on an ongoing basis but also examine how liquidity requirements are likely to evolve under different assumptions. Experience shows that assets commonly considered being liquid, such as government securities and money market instruments, could also become illiquid when the market and players are unidirectional. Therefore, liquidity has to be tracked through maturity or cash flow mismatches. For measuring and managing net funding requirement, the use of a maturity ladder and calculation of cumulative surplus or deficit of funds at selected maturity dates is adopted as a standard tool.
- Time Buckets: The maturity profile could be used for measuring the future cash flows of a financial institute in different time buckets. The time buckets shall be distributed as under:

a) 1 day to 30/31 days(one month);
b) Over one month and up to two months;
c) Over two months and up to three months;
d) Over three months and up to six months;
e) Over six months and up to one year;
f) Over one year and up to three years;
g) Over three years and up to five years;
h) Over five years and up to seven years;
i) Over seven years and up to ten years;
j) Over ten years;

- CRR and SLR Requirement: Every bank is required to maintain a Cash Reserve Ratio (CRR) of 5% on the basis on its customer deposits. The CRR is maintained with the non- interest bearing current account with the Central Bank. In addition, every financial institute is required to maintain a Statutory Liquidity Reserve (SLR) of 18% including CRR on all its liabilities. There is no restriction on where these SLR will be maintained. The banks holding deposits are given freedom to place the mandatory securities in any time buckets as suitable for them. These SLRs shall be kept with banks and financial institutions for different maturities.
- Time Bucket Mismatch: Within each time bucket, there could be mismatches depending on cash inflows and outflows. While the mismatches up to one year would be relevant since these provide early warning signals of impending liquidity problems, the main focus should be on the short-term mismatches viz., 1-90 days. The cumulative mismatches (running total) across all time buckets shall be monitored in accordance with internal prudential limits set by ALCO from time to time. The mismatches (negative gap) during 1-90 days, in normal course, should not exceed 15% of the cash outflows in this time buckets. If the bank, in view of current asset-liability profile and the consequential structure mismatches, needs higher tolerance level, it could operate with higher limit sanctioned by ALCO giving specific reasons on the need for such higher limit.
- Statement of Structural Liquidity: The statement of structural liquidity shall be prepared by placing all cash inflows and outflows in the maturity ladder according to the expected timing of cash flows. A maturing liability will be a cash outflows while a maturity asset will be a cash inflows. While determining the likely cash inflows/ outflows, every financial institute has to make a number of assumptions according to its asset-liability profiles. While determining the tolerance levels, the bank should take into account all relevant factors based on its asset-liability base, nature of business, future strategies, etc. The

ALCO must ensure that the tolerance levels are determined keeping all necessary factors in view and further refined with experience gained in liquidity management.

- Short-term Dynamic Liquidity: In order to enable the bank to monitor its short-term liquidity on a dynamic basis over a time horizon spanning from 1 day to 6 months, ALCO should estimate short-term liquidity profiles on the basis of business projections and other commitments for planning purposes.
- Liquidity Risk Strategy: The liquidity risk strategy defined by board should enunciate specific policies on particular aspects of liquidity risk management, such as: **Composition of Assets and Liabilities**. The strategy should outline the mix of assets and liabilities to maintain liquidity. Liquidity risk management and asset/liability management should be integrated to avoid steep costs associated with having to rapidly reconfigure the asset liability profile from maximum profitability to increased liquidity. **Diversification and Stability of Liabilities**. A funding concentration exists when a single decision or a single factor has the potential to result in a significant and sudden withdrawal of funds. Since such a situation could lead to an increased risk, the Board of Directors and senior management Managing liquidity risk should specify guidance relating to funding sources and ensure that the bank have a diversified sources of funding day-to-day liquidity requirements. An institution would be more resilient to tight market liquidity conditions if its liabilities were derived from more stable sources. To comprehensively analyze the stability of liabilities/funding sources the bank need to identify:

a) Liabilities that would stay with the institution under any circumstances;
b) Liabilities that run-off gradually if problems arise; and
c) That run-off immediately at the first sign of problems.

ACCESS TO INTER-BANK MARKET

The inter-bank market can be important source of liquidity. However, the strategies should take into account the fact that in crisis situations access to inter bank market could be difficult as well as costly. The liquidity strategy must be documented in a liquidity policy, and communicated throughout the institution. The strategy should be evaluated periodically to ensure that it remains valid. The institutions should formulate liquidity policies, which are recommended by senior management/ALCO and approved by the Board of Directors (or head office). While specific details vary across institutions according to the nature of their business, the key elements of any liquidity policy include:

a) General liquidity strategy (short- and long-term), specific goals and objectives in relation to liquidity risk management, process for strategy formulation and the level within the institution it is approved;
b) Roles and responsibilities of individuals performing liquidity risk management functions, including structural balance sheet management, pricing, marketing, contingency planning, management reporting, lines of authority and responsibility for liquidity decisions;
c) Liquidity risk management structure for monitoring, reporting and reviewing liquidity;
d) Liquidity risk management tools for identifying, measuring, monitoring and controlling liquidity risk (including the types of liquidity limits and ratios in place and rationale for establishing limits and ratios);
e) Contingency plan for handling liquidity crises.

- To be effective the liquidity policy must be communicated down the line throughout in the organization. It is important that the Board and senior management/ALCO review these policies at least annually and when there are any material changes in the institution's current and prospective liquidity risk profile. Such changes could stem from internal circumstances (e.g. changes in business focus) or external circumstances (e.g. changes in economic conditions). Reviews provide the opportunity to fine tune the institution's liquidity policies in light of the institution's liquidity management experience and development of its business. Any significant or frequent exception to the policy is an important barometer to gauge its effectiveness and any potential impact on banks liquidity risk profile.
- Institutions should establish appropriate procedures and processes to implement their liquidity policies. The procedural manual should explicitly narrate the necessary operational steps and processes to execute the relevant Managing liquidity risk liquidity risk controls. The manual should be periodically reviewed and updated to take into account new activities, changes in risk management approaches and systems.

CONCLUDING REMARKS

Liquidity risk is considered a major risk for banks. It arises when the cushion provided by the liquid assets are not sufficient enough to meet its obligation. In such a situation banks often meet their liquidity requirements from market. However the conditions of funding through market depend upon liquidity in the market and borrowing institution's liquidity. Accordingly an institution short of liquidity may have to undertake transaction at heavy cost resulting in a loss of earning or in worst case scenario the liquidity risk could result in bankruptcy of the institution if it is unable to undertake transaction even at current market prices. Banks with large off-balance sheet exposures or the banks, which rely heavily on large corporate deposit, have relatively high level of liquidity risk. Further the banks experiencing a rapid growth in assets should have major concern for liquidity.

Liquidity risk may not be seen in isolation, because financial risk are not mutually exclusive and liquidity risk often triggered by consequence of these other financial risks such as credit risk, market risk etc. For instance, a bank increasing its credit risk through asset concentration etc may be increasing its liquidity risk as well. Similarly a large loan default or changes in interest rate can adversely impact a bank's liquidity position. Further if management misjudges the impact on liquidity of entering into a new business or product line, the bank's strategic risk would increase.

Bank might be in the form of an Asset Liability Committee (ALCO) comprised of senior management, the treasury function or the risk management department. However, usually the liquidity risk management is performed by an ALCO. Ideally, the ALCO should comprise of senior management from each key area of the institution that assumes and/or manages liquidity risk. It is important that these members have clear authority over the units responsible for executing liquidity-related transactions so that ALCO directives reach these line units unimpeded. The ALCO should meet monthly, if not on a more frequent basis. Generally responsibilities of ALCO include developing and maintaining appropriate risk management policies and procedures, MIS reporting, limits, and oversight programs. ALCO usually delegates day-to-day operating responsibilities to the bank's treasury department. However, ALCO should establish specific procedures and limits governing treasury operations before making such delegation. Since liquidity risk management is a technical job requiring specialized knowledge and expertise, it is important that senior management/ALCO not only have relevant expertise but also have a good understanding of the nature and level of liquidity risk assumed by the institution and the means to manage that risk.

Banks have good reason to worry about risk management; they continue to be caught by dramatic turns in the economic cycle that arrive without much warning. Even if these turns could be predicted in advance, many activities are not yet liquid enough to remove or hedge the risk. The recent crises in Asia and emerging markets indicate that banks worldwide continue to have difficulty in dealing with illiquidity. Moreover, they appear to be caught in a vicious cycle that moves between rapid growth in the 'good' times and virtual standstill when a crisis hits home. To break through this cycle, banks need to adopt a more structured and top-down approach to risk management. The challenge is to make strategic decisions on the desired shape of the institution and ensure that there is a sound balance between businesses such as wholesale and consumer banking. Typically, the decision to participate in a particular business and allocate resources to that business assumes a large part of the risk. Once that decision is made, the bank should be prepared to incur stress related losses from time to time. As long as the risk profile is in balance and well diversified, the institution can absorb these as part of its normal business. Once the risk appetite has been defined, the focus shifts to day-to-day decision making. To support the lines of business and front-line staff in this process, banks are increasingly adopting risk-adjusted profitability measures.

Now a day, EVA has become one of the dominant performance indicators and has been fully integrated into the executive remuneration scheme. EVA provides a natural incentive to focus on risk. It provides a more constant message regarding the risk of volatile activities, relative to other measures, and in the best parts of the cycle serves as a reminder that the underlying risk can still be significant. It also supports strategies that optimize the use of capital as a scarce resource. Conversely, during a downturn it provides a more balanced picture of the value of the business. This ensures that there is as much focus on protecting the franchise as there is on eliminating unacceptable risks.

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AN ANALYSIS OF COST OF PRODUCTION OF BANANA AND PROFITABILITY AT NARSINGDI AND GAZIPUR DISTRICT IN BANGLADESH

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ABSTRACT

The economy of Bangladesh is traditionally agricultural. The most of her inhabitants directly or indirectly are involved in agricultural activities for their livelihood. Agriculture has a great contribution to the Gross Domestic Product (GDP) of the country. Earlier more than 50 percent of GDP came from this sector. When industrialization started the activities of the population started diversification towards different sectors. As a result, the contribution of the agriculture sector is slowly reducing and now reached 19 percent share of GDP. Banana is one of the major crops of Bangladesh. It occupies an important position among the fruits of the country not only for its highest production among the fruits but also for its increasing popularity to many farmers as an economic crop. The present acreage of banana covers about 40percent of the area and 27 percent fruit production of the country. Bangladesh is one of the most popular country of the world more than 140 million people living in 147570 square km, which require about 23.08 million tons of food grains. Over the year, there has been an average food deficit of about 4 million tons annually, which was met through food aid and import. Study was based on data collected from 40 farmers from 2 districts namely Gazipur and Narsingdi of Bangladesh. Results of the study revealed that, cost of production of banana per hectare as maximum, minimum and mean were tk. 254000, tk. 20400 and tk. 231100 respectively. The gross returns obtained as maximum, minimum and mean were tk. 551000, tk. 521000 and tk. 529000. The net returns as maximum, minimum and mean were tk. 347000, tk. 278000 and tk. 297900. The study shown that gross marketing margin of Aratdar, wholesaler, Petty trader, Retailer was tk. 25, tk. 40, tk. 30 and tk. 50 respectively per eighty banana. The net marketing margin of Aratdar, wholesaler, Petty trader, Retailer was tk. 14.08, tk. 28, tk. 53, tk. 17.50 and tk. 39.60 respectively per eighty bananas. Marketing cost of the Aratdar, wholesaler, Petty trader, Retailer was tk. 15.92, tk. 11.47, tk. 12.50 and tk. 10.40 respectively per eighty bananas. Most of farmer faced problems on lack of fertilizer, insufficient labor and lack of subsidy. The objectives of the study were to estimate the cost of production, returns of banana and to identify the marketing channels of banana.

KEYWORDS
Food security, human resource development, macro economics, poverty alleviation.

1. INTRODUCTION

Bangladesh has been a predominantly an agrarian economy since time immemorial. More than 80 percent of its population directly or indirectly depends on agriculture. About 20.87 percent of gross domestic product (GDP) is derived from agriculture and two third of total employment comes from agriculture (BBS, 2008).

Banana (*Musa accuminata* L.) belongs to the family Musaceae. The edible banana believed to have originated in the hot, tropical regions of south-east Asia. It is one of the oldest fruits known to mankind. Banana plants are the largest plants on earth without a woody stem. Banana is the most delicious fruit used as subsidiary food. It is consumed as table purpose as well as culinary fruit, its leaves are universally used for serving meals in South India and chopped banana stems are used as cattle feed. Some species of banana yield fiber, which is used for making ropes. The tip of inflorescence is cooked as a vegetable in some places. The plant is also used for decoration purpose in wedding, festivals and fairs. It is used as raw material in industries for preparation of banana powder, chips, juices and beer. The juice of banana stem is used in making paper bond, tissue paper etc. In Bangladesh Bogra, Narsingdi, Monshigonj, Dinajpur, Rangpur, Meherpur, Kushtia, Jessore, Mymensingh, Barisal Chittagong hill tracts etc. are leading banana producing districts (BBS, 2008). There are more than 40 varieties available in Bangladesh. The important varieties are: Amritsagar, Sabri (Malvog), Jahaji/ Singapuri/ Nepali/ Kabuli (dwarf), Ganasundari, Mehersagor, Agnisshor, Kabri Champa/ chinichampa, Japkathali Atekola, Verarvog, Choalpoush, Behula, Mondira, Bierbati etc. The ripen banana fruit contains 70 percent moisture, 27 percent carbohydrates, 1.20 percent protein, 0.09 percent ash, 0.50 percent crude fiber and 0.30 percent fat. In addition to this, it also contains 290 ppm phosphorus, 120 ppm ascorbic acid, 80 ppm calcium, 7 ppm niacin, 6 ppm iron, 0.5 ppm riboflavin and 0.5 ppm thiamine. It also supplies 104 calories of energy.

Bananas have no fat, cholesterol or sodium. Bananas are essential for athletic and fitness activity because they replenish necessary carbohydrates, glycogen and body fluids burned during exercise. Ref. Banana is also a very important staple food for many developing countries for their food security.

2. REVIEW OF LITERATURE

The number of small scale commercial banana farming has currently been decreasing in different areas in Bangladesh. In the past banana was cultivated in the homestead areas and some farmers of the country cultivating banana as a field crop. Only a few economic studies on banana cultivation have so far been conducted in this country. However, an attempt has been made in this chapter to review some of the studies related to the present study.

Subaiah *et al.* (1980) found in their study that a high yield of banana could be achieved from intercropping with green and black gram. The findings on the economics of intercropping with banana revealed that net return was relatively higher with green gram followed by black gram.

Mohendra and Das (1981) carried out a research and reported in their study that the shooting and harvesting period of banana was significantly influenced by different spacing and intercrops, namely onion tomato and capsicum. They found that the earliest shooting and harvesting was fovoured by onion by followed by chili.

Haque (1988) conducted a research at Bangladesh Agricultural University Mymensingh during October to November 1988. He examined the economic performance of banana production.

Begum (2001) conducted a study on production and marketing of banana of three union of Sirajgong Upazilla major Bogra district. The reported banana marketing in the study area was Farmer, Faria, Beparies, Wholesaler-1, Wholesaler-2 and Retailer were Tk. 6.00, 12.00, 6.50 and 9.50 respectively.

A general survey of the relevant literature reveals that a few studies on banana production have been conducted in different areas of Bangladesh. But study on marketing of banana in Bangladesh is scanty. Therefore, the present study attempts to analyze the production and marketing of banana in some selected areas of Narsingdi and Gazipur district.

3. STATEMENT OF THE PROBLEM

Bangladesh is an agricultural country. Most of the population of Bangladesh is directly or indirectly dependent on agricultural sectors and most of the employment sectors are circled in agricultural base. So we should give more emphasis to the agricultural sector. In our country many kinds of product is cultivated, some are directly used for food, some are used in industrial sectors and so many kinds. I prefer to analyze the cost of inputs of the different agricultural product and how the corresponding cost of the production can be economic model. In case of this research I try to give emphasize on the Economic Modeling of the Cost of Inputs for Banana Production**.**

4. OBJECTIVES

The specific objectives were the followings-

i) To estimate the costs and returns of banana.

ii) To identify the marketing channels and marketing cost incurred by the producer.

iii) To identify the problems encountered in production and marketing of banana.

5. LIMITATION OF THE STUDY

Several limitations had taken place in this study. Among them, the following were worth mentioning:

1. Personal barriers like inability to understand some agriculture terms created a few problems the researcher.
2. The survey was conducted in the field. However, due to confidential reason, all necessary information was not available.
3. It was difficult to collect data from the traders for this study because they were afraid of income tax.
4. Another problem was the initial non-cooperation of the respondents.

However, this problem was overcome through persuasive explanation with the respondents of the study area.

6. RESEARCH METHODOLOGY

6.1. AREA, POPULATION AND SAMPLE SIZE

Bananas are mainly grown in the districts of Narsingdi, Gazipur and Tangail in Bangladesh. Gazipur and Narsingdi were selected purposively as the study area. Kapasia upazilla of Gazipur and Monohordi upazilla of Narsingdi were purposively selected as the study area. Two villages were purposively selected from each of the selected upazilla. Banana cultivators of these selected villages constituted the population farmers of the study. Ten cultivators were randomly selected from each selected village. Thus a total of 40 banana farmers constituted the sample farmers for the study.

TABLE 1: STUDY AREA AND SAMPLE FARMERS

Farmers Type	Districts	Upazilla	No. of Villages	No. of sample farmers
Banana	Narsingdi	Monohordi	2	20
	Gazipur	Kapasia	2	20
	Total		4	40

Source: Field survey, 2013.

All the available banana ten wholesalers involved in marketing were selected from nearby markets of the selected farmer's villages. Ten retailers were purposively selected from nearby markets of the selected farmer's villages.

6.2. APPROACH AND ANALYTICAL TOOLS

Three interview schedules containing direct questions with appropriate scales were prepared according to the objectives of the study and collected data from three types of respondents, viz. cultivators, wholesalers and retailers. Each of the three draft schedules were pre-tested for necessary corrections, additions and adjustments before going for final data collection. Validity and reliability of some scales were properly determined. Data were collected by the investigators during the period of March to April 2013 by face to face interviews with farmers, wholesalers and retailers. Identification and determination of chemical fertilizers and pesticides were done by asking direct questions to the respondents. From the responses of the respondents the rate of fertilizers and pesticides used by the farmers were determined.

6.3. DATA MANAGEMENT AND ANALYSIS

Data collected from the respondents were compiled, tabulated and analyzed in laboratory in accordance with the objectives of the study. Statistical package for social science (SPSS) software is used for data analysis. Statistical measures such as number and percentage distribution, range, average, mean difference were used whenever necessary.

7. SOURCES OF DATA

The study is involved in collection of data both from the primary and secondary sources. Different types of data and their sources are discussed under the following heads:

7.1 PRIMARY DATA

Primary data have been collected through field survey. One set schedule of questionnaire was used for the respondents. The data thus collected have been subsequently processed, tabulated and analyzed for the purpose of the study.

7.2 SECONDARY DATA

The secondary sources include govt. publications; annual reports on banana cultivation, seminar papers, journals, published and unpublished thesis, and topic related various books, web site etc.

8. RESULTS AND DISCUSSION

The results of the present study are discussed in the following section:

This section deals with the socio-economic characteristics of the sample farmers. An effort has, therefore, been made in this section to describe briefly some of the basic socio-economic characteristics.

TYPE OF THE SAMPLE FARMER

It was observed from the table that small, medium and large farmer was 45, 40 and 15 percent respectively. Most of the farmer was small type as 45 percent at study area.

TABLE 2: TYPE OF THE FARMER

Type of farmer	Frequency	Percent
Small	18	45.0
Medium	16	40.0
Larger	6	15.0
Total	40	100.0

Source: Field survey, 2013

AGE CATEGORY OF THE RESPONDENTS

The respondents of the study area were categorized on the basis of their age groups viz. young aged (up to 30) years, middle aged (31-40) years, adult aged (41-50) years and above (>51) years old aged. In table 2, young, middle, adult and old aged respondents were 27.5 , 27.5, 25.00 and 20.00 percent respectively. Young and middle aged people more involved in banana production.

TABLE 3: AGE DISTRIBUTION OF THE SAMPLE FARMERS IN THE STUDY AREA

Type of farmer	**Age of The farmer**	Frequency	Percent
Young aged	up to 30	11	27.5
Middle aged	31-40	11	27.5
Adult aged	41-50	10	25.0
Old aged	more than 50	8	20.0

Source: Field survey, 2013.

EDUCATION STATUS OF THE SAMPLE FARMER

It was observed that, primary level educated farmer was 55 percent. Secondary and higher secondary educated farmer was 44.5 and 2.5 percent respectively. Highest rate of educated farmer was at primary level.

TABLE 4: EDUCATION STATUS OF THE FARMER

Type of education	Level of education	Frequency	Percent
Primary	1-5	22	55.0
Secondary	6-10	17	42.5
Higher secondary	more than 11	1	2.5

Source: Field survey, 2013.

PROBLEM FACED BY THE FARMER

Most of the farmer was covered with problems. From table it was observed that 25 percent farmer faced the problem for fertilizer and pesticide. It is the most vital problem. Second vital problem was lack of subsidy as 20 percent. Others problems were lack of labor, high price of pesticide and fertilizer, insufficient of finance and lack of knowledge to identify the diseases as 17.50, 12.5, 7.5 and 7.50 percent respectively.

TABLE 5: PROBLEM FACED BY THE FARMER

Problems	Frequency	Percent
Lack of Subsidy	8	20.0
Lack of Pesticide and Fertilizer	10	25.0
Lack of Labour	7	17.5
High price of Pesticide and Fertilizer	5	12.5
Lack of Knowledge to identify Disease	7	17.5
Insufficient of Finance	3	7.5

Source: Field survey, 2013.

COST OF PRODUCTION OF BANANA OF 1HECTARE LAND

From the table we may say that, maximum, minimum and mean land cost was tk. 100000, tk. 80000 and tk. 89825 respectively. Here most frequent cost was tk. 90000 by 6 farmers among 40 farmers. Maximum, minimum and mean of land preparation cost was tk. 38000, tk. 32000 and tk. 34812 respectively. Among 40 farmers 8 farmers shown land preparation cost was tk. 34000. Maximum, minimum and mean of fertilizer cost was tk. 20000, tk. 15000 and tk. 17462 respectively. Most frequent fertilizer cost was tk. 18000 by 7 farmers. Maximum, minimum and mean of insecticide cost was tk.7200, tk.5700 and tk.6357 respectively. Most frequent insecticide cost was tk. 6500 by 9 farmers. Maximum, minimum and mean of weeding and earthing up cost was tk. 37000, tk. 36000 and tk. 33552 respectively. Most frequent insecticide cost was tk. 34000 by 9 farmers. Maximum, minimum and mean of stalking cost was tk. 40000, tk. 32000 and tk. 35425 respectively. Most frequent stalking cost was tk. 35000 by 9 farmers. Maximum, minimum and mean of total cost of production was tk. 254000, tk. 204000 and tk. 231100 respectively. Most frequent cost of production was tk. 238600 by 2 farmers. Maximum, minimum and mean of total return was tk. 551000, tk. 521000 and tk. 529000 respectively. Most frequent total return was tk. 521000 by 4 farmers. Maximum, minimum and mean of net return was tk. 347000, tk. 278000 and tk. 297900 respectively.

TABLE 6: COST OF PRODUCTION OF BANANA OF 1HECTARE LAND

Name of variable	Frequency (Mode)	Taka/ha	Minimum	Maximum	Mean
Land cost	6	90000	80000.00	100000	89825
Land preparation cost	8	34000	32000.00	38000.00	34812
Sucker cost	6	6000	5000.00	6400.00	56425
Planting cost	7	5500	5000.00	6000.00	54950
Fertilizer cost	7	18000	15000.00	20000.00	17462
Insecticide cost	9	6500	5700.00	7200.00	6357
Irrigation cost	11	2500	2200.00	3000.00	2523
Weeding & Earthing up cost	9	34000	36000.00	37000.00	33552
Stalking cost	9	35000	32000.00	40000.00	35425
Total production cost	2	238600	204000	254000	231100
Salling price of banana	10	530000	520000	550000	52755
By product salling price	10	1500	1000.00	2000.00	1447
Total return	4	521300	521000	551000	529000
Net return	0	0	278000	347000	297900

Source: Field survey, 2013.

PER SORI COST OF THE FARMER

From the table we saw that, per sori cost of banana by small, medium and large farmer was maximum tk. 144, tk. 159 and tk. 152 respectively and minimum as tk. 93, tk. 98 and tk. 99 respectively. The mean value of per sori cost was tk. 123.54, tk. 126.91 and tk. 125.99 respectively.

TABLE 7: SORI COST OF SAMPLE FARMER

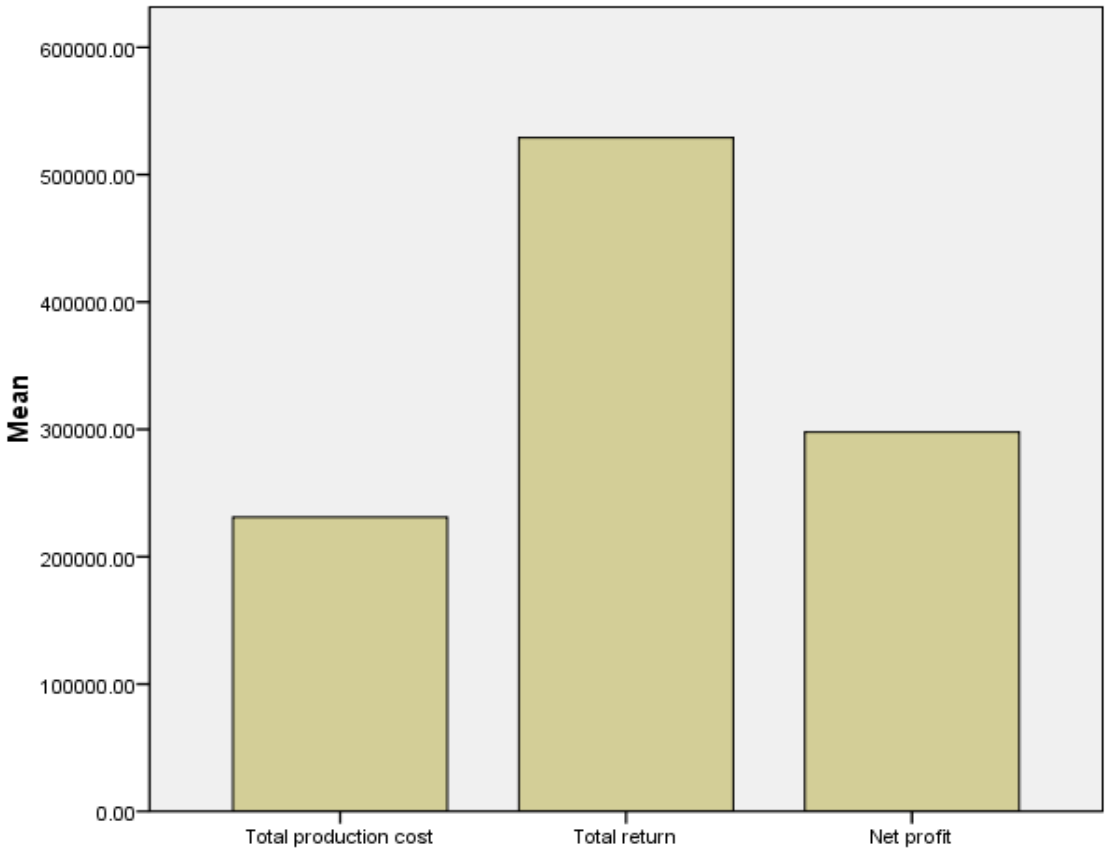
Type of farmer	Mean	N	Minimum	Maximum
Small	123.54	18	93	144
Medium	126.91	16	88	159
Large	125.99	6	99	152
Total	125.25	40	88	159

Source: Field survey, 2013.

GRAPHICAL REPRESENTATION OF COST OF PRODUCTION OF BANANA (1 HA)

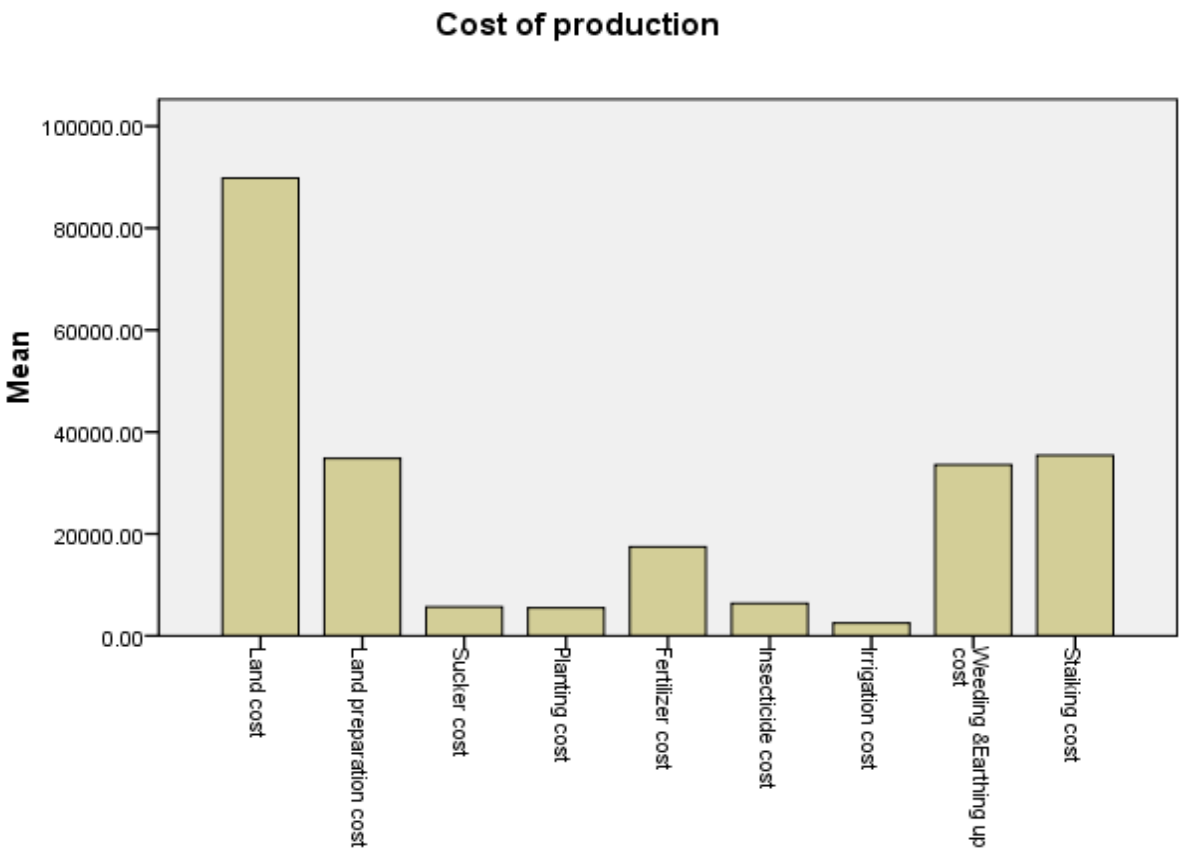
The graph shown that most costed variable was land cost. Second most costed variable was stalking cost then weeding and earthing up and land preparation cost was almost same. The lowest costed variable was irrigation.

FIG 1: GRAPHICAL REPRESENTATION OF TOTAL COST



GRAPHICAL REPRESENTATION OF TOTAL COST, TOTAL RETURN AND NET RETURN (1 HA)

FIG 2: GRAPHICAL REPRESENTATION OF TOTAL COST, TOTAL RETURN AND NET PROFIT



It was observed from the graph that, the cost of production of 1ha. land was tk. 200000 up. Total return was more than tk. 500000 up. The net return was more or less tk. 300000.

9 CHANNELS OF BANANA MARKETING

Marketing channel is the process through which a product flows on its way to the ultimate consumers. A number of intermediaries were found in banana marketing channels. They were Aratdar, Petty trader, Wholesaler and Retailer. They performed the marketing function of buying and selling, assembling, grading, storage, transportation, risk bearing etc.

The typical model of banana marketing channels is discussed below:

Channel A: Producers→ Aratdar→ Retailer→ Consumer.

Channel B: Producers→ Wholesaler→ Retailer→ Consumer.

Channel C: Producers→ Petty trader→ Wholesaler→ Retailer→ Consumer.

Channel D: Producers→ Retailer→ Consumer.

Channel E: Producers→ Wholesaler→ Distant wholesaler→ Retailer→ Consumer.

MARKETING MARGIN OF INTERMEDIARIES

Table shows that, petty trader purchased from farmers or from farias at Tk. 180 per eighty banana and sold to wholesalers at Tk. 210. Wholesaler purchased at Tk. 210 and sale at Tk. 250. Aratdar purchased at Tk. 255 and sale at Tk. 280. So, gross margin 0f aratdar, wholesaler, petty trader and retailer is Tk. 25, Tk.40, Tk. 30 and Tk. 50 respectively. Retailer is the highest gross margin earner.

TABLE 8: GROSS MARKETING MARGIN OF INTERMEDIARIES (Taka/eighty bananas)

Intermediaries	Purchase price	Sale price	Gross margin
Aratdar	255	280	25
Wholesaler	210	250	40
Petty trader	180	210	30
Retailer	280	330	50

Source: Field survey, 2013.

NET MARKETING MARGIN OF INTERMEDIARIES

Table shows that the net market margin of aratdar, wholesaler, petty trade and retailer is tk. 14.08, tk. 28.53, tk. 17.50 and Tk. 39.60 respectively. Retailer achieved higher net marketing margin.

TABLE 9: NET MARKETING MARGIN OF INTERMEDIARIES (Taka/eighty bananas)

Intermediaries	Purchase price	Sale price	Gross margin	Marketing cost	Net margin
Aratdar	250	280	30	15.92	14.08
Wholesaler	210	250	40	11.47	28.53
Petty trader	180	210	30	12.50	17.50
Retailer	280	330	50	10.40	39.6

Source: Field survey, 2013.

MARKETING COST OF BANANA INTERMEDIARIES

From the table we observed that, on an average the marketing cost per eighty bananas was Tk. 16.62 where the share of transportation cost was the largest Tk. 3.85 and second largest Tk. 3.75 of total marketing costs. Marketing cost was the highest for Aratdar Tk. 20.15 per eighty bananas. Marketing cost for petty trader, wholesaler and retailer was Tk. 18.62, Tk. 13.02 and Tk. 10.68 respectively.

TABLE 10: MARKETING COST OF BANANA FOR INTERMEDIARIES (per/eighty bananas)

Cost of items	Aratdar	Petty trader	Wholesaler	Retailer	All average
Transportation	4.25	4.50	4.72	1.93	3.85
Loading and unloading	1.75	1.52	1.00	1	1.32
Wastage	5	6	3	1	3.75
Personal expense	0.75	0.50	0.3	2	0.89
Rent	1.30	0.50	1	2	1.20
Tax	1.6	1	1	1.00	1.15
Security	0.75	0	0	0	0.18
Electricity	1.75	0	0	0.35	0.53
Mobile bill	2	3	1	1.00	1.75
Others	1	1.6	1	0.40	1
Total	20.15	18.62	13.02	10.68	16.62

Source: Field survey, 2013.

10. RECOMMENDATIONS

The institutional recommendations are put forward with a view to improving the banana production as well as the existing marketing system of banana in the study areas. In the light of analysis of the study and observation, it was found that the banana is a prospective fruit but some special initiative is needed to improve its production and marketing potential. Measure should be taken to improve the knowledge of a farmer to the modern cultivation technique and encouraged them to adopt new technology to increase the production. Government should provide fertilizer and pesticide at low price as if, every farmer can get it easily. Government should subsidy to farmer during the natural calamity. The existing marketing is a problem, it is needed to reduce the marketing channel and marketing margin of the intermediaries by developing a well communicated co-operative marketing system. Government should take different steps to control the price system and ensure the price spread at a reasonable level to establish an efficient marketing system. For developing a more dynamic marketing channel in favor of the producer and intermediaries, another study program could be taken to generate information and suggestions.

11. CONCLUTION

Despite of some limitations, the findings of the study confirm that the farmers can obtain positive net return from cultivation of banana. In the context of income generation and poverty alleviation, production of crop like banana may play a crucial role in meeting the cash needs of the farmers. The findings of the study also revealed that the trading of banana is a profitable venture to different intermediaries. The profit of the retailer was higher than that of other intermediaries and the profit was found reasonable. But the marketing efficiency was not good in the study area. The gap between the producer's price and consumer's price was huge and the producers do not get their reasonable price for their product. On the other hand the intermediaries especially the retailer's net marketing margin is high enough and ultimately the consumers are the main sufferer of this marketing system. For this reason, the government should take an effective step to control the price system and price spread of the market and make sure that the producers can get their reasonable price and also the consumer can also get the product in a reasonable price. Banana is not only important source of nutrition but also an important source of cash income to growers and traders. Moreover, a large number of people were involved in the production and marketing of banana. So the farmers and intermediaries could be more benefited financially if production and marketing of banana are to be well expanded.

12. SCOPE FOR FURTHER RESEARCH

On the basis of the scope and limitations of the study and observations made by the researchers, the following areas were identified for further research:

1. This study was conducted in selected upazillas of three districts of Bangladesh, namely, Narsingdi and Gazipur. It is recommended that such studies should also be conducted in other areas of Bangladesh.
2. There are many subject-matter areas on the effects of excess use of chemical inputs in banana cultivation and marketing. Further research is needed in connection with other aspects related to society and environment.
3. There were many fruits, but only selected banana were considered for this study. Further research is needed to determine the effect of excess use of chemical inputs in other fruit cultivation and marketing.

13. ACKNOWLEDGMENTS

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Last but not least, the researchers would like to express their sincere thanks to the banana farmers, wholesalers and consumers of the study areas for their co-operation and patience in giving their valuable inputs during data collection.

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THE ENTREPRENEURSHIP DEVELOPMENT IN VOCATIONAL & TECHNICAL TRAINING A CASE STUDY: KASHAN

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ABSTRACT

The main purpose of this study is to survey the role of vocational & technical trainings in development of entrepreneurship in KASHAN. Totally, 536 people were involved in this estimation. Research Method was applicable in terms of purpose and descriptive in terms of method and the whole study is an integration study. Data collection tool was a questionnaire, the sampling method was random and the subject volume was computed through KOOKRAN formula. To analyze the data descriptive and educible statistics were used. Research results show that there is a meaningful relation between personality of individuals, behavioral characteristics of the individuals, vocational and technical trainings ,new occupations, entrepreneurship skills and development of entrepreneurship. Among the research variables, behavioral characteristics of the entrepreneurs had the maximum average or the highest importance. The study findings suggest that sexuality factor was more effective for men than for women, both in vocational & technical training and in new occupations. Age Factor was only effective in new occupations and education factor was similarly effective in all the variables.

KEYWORDS
entrepreneurship, relativity, innovation, entrepreneur training, Entrepreneur skills, Vocational & technical trainings, New Occupation.

1) INTRODUCTION

Education of human force required for societies in form of technical and vocational trainings from the end of nineteenth & twentieth century's, have been considered by many countries.

Following the scientific and industrial developments after world war II. These training courses were developed surprisingly throughout the world so that today technical and vocational training of work and social affairs ministry after ministry of education has been shifted in many countries especially industrial societies, in order to meet economic and social needs. Since training is one of the important aspects in developing entrepreneurship and organization of technique & vocations have been playing an important role in this issue, recognition and realization of entrepreneur people is one of the important initiations to meet the purpose in which entrepreneurship capacities exist.(http://www.etvto.ir)

2) EXPRESSION OF THE SUBJECT

In this world which is changing continuously, successfulness will belong to those societies and organizations which make a meaningful relation among their rare resources, their management and entrepreneurship capacities. In other words, societies and organizations can have a forward improvement and can equip their human resources with knowledge and skills of creative entrepreneurship by providing necessary structures, so that they can conduct other society resources & organizations to create, grow, develop and manage properly. Hence, entrepreneurship skill training is essential to improve any society. (Aghazadeh and Rezazadeh, 2004).

Since some parts of entrepreneurship skills are acquisitive, they may be trainable. Many aspects of entrepreneurship can be trained but to be risk taking and to be brave is a prerequisite for succeed. However, entrepreneurship training plays an important role in improvement of its level. Entrepreneurship training with enhancement of creativity, innovation, flexibility, responsibility indifferent conditions, self-management, will result in behaviors and conclusions. Unsuccessfulness in entrepreneurship is one part of training process which points out that entrepreneurship can be matched by training and education. Every person must acquire skills to become on entrepreneur.

Generally, entrepreneurship skills can be categorized in to three parts: individual skills, management skills and technical skills. (Ebrahimi and Zareei, 2008).

Entrepreneur and entrepreneurship first were considered by economists, all economical isms form 16th century until now, have explained entrepreneurship in their theories. In economist's view point, entrepreneur is a person who combines resources, labor forces, material & other properties together to raise their values rather than before, as well as somebody who establishes new techniques, principles and variations. (Vesper, 1993).

Entrepreneurship is a process in which opportunities are followed by persons for themselves or for the organizations they work for, regardless the resources controlled by them. (Hurley, 1990). Joseph Schumpeter was the only famous economist who separated the classic economical principles by focusing on economical analysis of reliability of economical life and mobility imbalance which was against stationarybalance. He introduced entrepreneurshipas the key point of his theory about economical development and the implement of economical alterations. (Prokopenko, 1991).

Entrepreneurship has been defined as the development of opportunities and innovative initiation accompanied with danger, either established before or independent or dependent. And trend the direction toward establishment of new organization, regardless of sort or potential of the organization, creating wealth , creative creature , a trend beyond the job and vocation and method of the life. Entrepreneurship has been defined as creating valuable process from nothing.

Variations of socio economic system in the current time, have been derived from advance and established shifts in science & technology and regarding to this conservative reality, most of scholars tried to discuss the role of entrepreneurs in real development process i,e elements which can accept responsibility in proper situation by focusing on intellectual power and also their ability to adapt risks as the development engine of the economy.

Vocational and Technical training in the country should act to train encouragement of entrepreneurs and regarding to the important position of technology & vocation organization of the country, it seems that this organization has located in a position which can play an important role in development of creative entrepreneurship in Kashan. This study has been carried out to assess the role of technical & vocational training courses in development of entrepreneurship and recognition of problems and barriers available in the process and to provide executive strategies. .(Samad aghayi , 2001)

3) RESEARCH HYPOTHESIS OBTAINED FROM RESEARCH QUESTIONS ARE AS FOLLOW

1. There is a meaningful relation between personality of individual and development of entrepreneurship.
2. There is a meaningful relation between behavioral characteristics of individuals and development of entrepreneurship.
3. There is a meaningful relation between vocational and technical trainings and development of entrepreneurship.
4. There is meaningful relation between entrepreneurship skills and development of entrepreneurship.
5. There is a meaningful relation between new occupations and development of entrepreneurship.

4) IMPORTANCE AND ESSENTIALITY OF THE RESEARCH

Today, global variations itineration has put the entrepreneurs in the mainline of technical developmentand economical progress. Successful experiences of many developed countries and also some developing countries to pass economical crisis because of development of entrepreneurship in their countries, made other countries pay special attention to entrepreneurship and entrepreneurs. On this basis, entrepreneurship development was considered from different aspects. Training is one of the important aspects to developentrepreneurship. According to the most studies, entrepreneurship properties or skills are most acquisitive not genic, so training has become one of the most important and widespread activities in universities.

In other words, alterations and variation of social- economical systems, now is derived from development and variation in science and technology, which led to changes in interests and tastes. Without a doubt, present time organizations and systems are encountered with different and extensive changes and international threats. Therefore to guarantee andcontinue the organizations' life need to find solutions and new methods to fight the problems much depending on innovation, creativity, new products, processes and new approaches.

In our county, in spite of intelligent and responsible people and also having lots ofnatural raw materials, gross national product (GNP) is in low level.

A great number of young or even educated people are disadvantaged of vocational creating facilities. It is emphasizedon the preference creating occupations in other government activities in different levels. In addition, many companies are close to prorogation ,because of low efficiency, lack of demand and etc, or they are prorogated. Also lack of competitive conditions in global market is another problem. Hence, development of entrepreneurship is very important & essential. (Hemmati, 2008).

Formation of a nation & government depends on development of human resources and organizations which educate human resources. UNESCO describes the importance of this subject that vocational and technical training is an essential factor to maintain the complex structure of social, economical and modern civil development. Hence, it is necessary to create fundamental changes not only in training system structure but also in economical and social theories, and concepts, on the basis of development of human resources in vocational & technical training (Marsi, 1994).

5) RESEARCH PURPOSES

Regarding to this fact that the purpose to do this study is to assess the role of technical & vocational training courses in development of entrepreneurship in Kashan, it can be noted that this study is practical in terms of purpose and regarding to this note that in this study, librarian study methods have been used to collect data about the research literature such as books, scientific magazines, Persian & English papers, thesis, websites, computer, information system such as internet, and in order to assess the texts, field methods such as questionnaire about collecting data on confirming or rejecting the study questions have been used, it can be suggested that this study is a correlation study in terms of kind of study and is a descriptive-scaling study in terms of nature and study method. (Hafeznia, 2000).

5.1 STATISTIC POPULATION & SUBJECTS

The population used in this study composed of three technical and vocational centers and 145 independent instruction centers of technique & vacation in Kashan. In this study, assessment was carried out among the trained and in-service trained trainees in courses such as IT, financial-commercial affairs, electricity, mechanics, argon gas welding, sewing, painting, carpentry, electric welding, automobile electricity, agriculture, home appliance, lathing, hand craft industries, food industry, hotel management, tourism and civil.

5.2 DETERMINATION OF THE SUBJECT POPULATION & METHOD OF SAMPLING

Since view assessment from all the statistic population was not possible, sampling selection was done on simple random method from the population under studied.

As it is assumed that there is no difference between trainees of vocational & technical centers of the city , it is hypothesized that the target population is integrated and to estimate the population volume Kookran formula was used for infinite (very big) societies and as α=0.05, and d=0.042, the population volume was obtained 536.

5.3 DATA COLLECTION TOOLS

Data collection tools in the current study were librarian studies & questionnaire. The questionnaire composed of thirty questions which were in shape of closured and the measurement scale was Lickert which was a ranging scales series or gradation.

The questions had a range of 5 options in which very high option (No.1) is located in one side and very low (No.5) option is located in another side.

In the middle of the range there are high option with number 2, middle with number 3 and low option with number 4. In terms of options, the repliers can select and check one of the 5 options conformed to his/her view point.

The table below shows the enclosure questions of the questionnaire with each of the desired variables in this study.

TABLE 1: NUMBER OF THE QUESTIONNAIRE ABOUT THE VARIABLES

Number of questions	Variables Research
7-6-5-4-3-2-1	Entrepreneurial Personality properties
12-11-10-9-8	Entrepreneurial Behavioral properties
18-17-16-15-14-13	Vocational & technical training
23-22-21-20-19	Vocational & technical Skills
30-29-28-27-26-25-24	New Occupation

5.4 STABILITY AND VALIDITY OF THE QUESTIONNAIRE

In this study , the questionnaire stability was measured by α-krounback method and obtained 0.9 which is an acceptable value as the more the obtained value closed to 1 , it means the stability of the questionnaire and in terms of validity of the questionnaire ، the other questionnaire was used ، so that the questionnaire was provided to some guide masters of management and entrepreneurship course and they were asked about each question and evaluation of the hypothesis and eventually they all confirmed the questionnaire .

5.5 RESEARCH TERRITORY

5.5.1 Research topical territory

This study is generally about entrepreneurship, in terms of subject, and is specially about role of vocational & technical trainings in development of entrepreneurship.

5.5.2 RESEARCH PLACE TERRITORY

Place territory in this study is the vocational & technical training center & private institutions of Kashan.

5.5.3 RESEARCH TIME TERRITORY

Time territory of this study is Spring & summer of 2011, and interval of gathering data is autumn of 2011.

5.6 RESEARCH VARIABLES

In this study, the personality traits of entrepreneurship, behavioral characteristics of entrepreneurs, vocational & technical training, vocational and technical skills and new occupations, are independent variables and entrepreneurship development is dependent variable.

TABLE 2: VARIABLES RESEARCH

dependent variable	independent variables
entrepreneurship development	Personality properties
	Behavioral properties
	Vocational & technical training
	Vocational & technical Skills
	New Occupation

6) DATA ANALYSIS

To analyze the data, methods of descriptive statistics (such as absolute abundance distribution table, abundance percentage, average and standard deviation in order to collect data through the questionnaire) and in part of conceptual statistics ،SPSS 15 software were used for statistical tests (such as single sample T-test, independent T-test ,one-way-ANOVA test, Friedman test and LSD test).

In this study, the statistical hypo for all the study questions are as follow:

$$\begin{cases} H_0: \mu <= 3 \\ H_1: \mu > 3 \end{cases}$$

6-1) RESEARCH HYPOTHESIS ANALYSIS

Is there a meaningful relation among personality traits of individuals, behavioral properties, vocational & technical trainings, vocational & technical skills, new occupations and entrepreneurship development? Following table shows these information:

TABLE3: RESEARCH HYPOTHESIS

Meaningful	Meaningfulness level	Degree of freedom	t	Studied Variable	Research Hypo
Significant	0.000	535	31.28	Personality properties	First Hypo
Significant	0.000	535	33.28	Behavioral properties	Second Hypo
Significant	0.000	535	22.36	Vocational & technical training	Third Hypo
Significant	0.000	535	19.83	Vocational & technical Skills	Forth Hypo
Significant	0.000	535	13.005	New Occupation	Fifth Hypo

According to table3, about First Hypo: since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between personality traits of people and entrepreneurship development.

About Second Hypo: since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between their behavioral properties and entrepreneurship development.

About Third Hypo: since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between Vocational & technical trainings and entrepreneurship development.

About Forth Hypo: since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between vocational & technical skills and entrepreneurship development.

About Fifth Hypo: since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between new occupations and entrepreneurship development.

6-2) DESCRIPTIVE STATISTICS OF DEMOGRAPHIC VARIABLES OF THE REPLIERS BASED ON SEXUALITY, AGE & EDUCATION

In this part, information about personal features can be observed such as sexuality, age and educational major which are provided in the following table:

TABLE 4: ABUNDANCE DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF THE REPLIERS

Percent of abundance	education	Percent of abundance	age	Percent of abundance	sexuality
60.3%	diploma	69.8%	13-25	37.1	Male
11.4%	Associate degree	25.9%	25-35	62.9	Female
27.6%	B.A(B.S)	3.7%	35-45	0.0	No Reply
7%	M.A(M.S)	6%	45-55		

By studying Table.4, based on abundance distribution of demographic variables of the repliers, the following results could be obtained :

1) %37 of the studied population included successful male entrepreneurs and 63% of them composed of successful female ones.

2) Also,69.8% of the entrepreneurs were between 13-25 , 25.9% were 25-32, 3.7% of them were 35-45 and 6% of them were 45-55 years old.

3) 60.3% of the entrepreneurs had Diploma, 11.4% had associated degree, 27.6% had B.A and 7% had an M.A degree.

6-2-1) SEXUALITY

In order to survey whether there is a meaningful difference among trained people in terms of vocational and technical skills, regarding to their sexuality, and entrepreneurship development?

To do this, one – factor variance analysis test was used to couple compare the studied variables. According to demographic properties, Tokki test used: statistical hypo is defined as:

$$\begin{cases} H_0: \mu_1 = \mu_2 \\ H_1: \mu_1 \neq \mu_2 \end{cases}$$

H_0: role of vocational & technical training in entrepreneurship development, based on sexuality is the same.

H_1: role of vocational & technical training in entrepreneurship development, based on sexuality is not the same.

TABLE 5: SURVEY OF MEANINGFULNESS OF AVERAGE DIFFERENCE AMONG THE SEARCH QUESTIONS, BASED ON SEXUALITY

Meaning fullness level	Independent t	Average score of female ideas	Average score of male ideas	Surveyed variable
0.123	1.54-	3.85	3.77	Personality properties
0.113	1.58-	3.95	3.86	Behavioral properties
0.034	2.12	3.61	3.74	Vocational & technical training
0.799	o.254-	3.09	3.08	Vocational & technical skills
0.006	2.76	3.39	3.59	New Occupation

According to the results of table 5, in a meaningfulness level of %95 based on sexuality (meaningfulness number in vocational & technical training and new occupations was less that %05), vocational & technical training level in male was more effective in two training variables in comparison to women , but in other variables, no difference observed.

Therefore, there is a meaningful difference in average difference among research questions, based on sexuality and H_0 will be failed and H_1 will be confirmed, consequently.

6-2-2) AGE

To survey this issue whether there is a meaningful difference among trained people of vocational and technical courses, based on age, and the entrepreneurship development, or not? One factor variance analysis (ANOVA) test was used in order to couple compare the studied variables, and based on demographic properties Tokki test used.

Statistical hypos used in this test were as follow:

$$\begin{cases} H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 \\ H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \end{cases}$$

H_0: Role of vocational & technical trainings in entrepreneurship development of Kashan, for different ages was the same.

H_1: Role of vocational & technical trainings in entrepreneurship development of Kashan, for different ages was not the same

TABLE 6: SURVERY OF MEANINGFULNESS OF AVERAGE DIFFERENCE AMONG THE RESEARCH QUESTION BASED ON AGE

Meaningfulness level	f	Surveyed variable
0.677	0.508	Personality properties
0.587	0.644	Behavioral properties
0.134	1.867	Vocational & technical training
0.604	0.619	Vocational & technical skills
0.021	3.274	New Occupation

According to table 6 results, in a meaningfulness level at 95% , based on age, (regarding to the meaningfulness number of new occupation of less than 0.05), age was only effective in new occupations and had no effect on other factors. In case of new occupation, it was resulted that the more age increased, the more importance of occupation decreased. Therefore, there was a meaningful difference in the average difference among research questions based on age, so H_0 failed and H_1 confirmed

6-2-3) EDUCATION

To survey whether there is a meaningful difference among trained people of vocational & technical training courses, based on their education, and entrepreneurship development one – factor variance analysis (ANOVA) was used to compare studied couple variables, according to demographic properties. Tokki test was used.

Statistical hypos used in this test were as follow:

$$\begin{cases} H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 \\ H_1: \mu_1 \neq \mu_2 \neq \mu_3 \neq \mu_4 \end{cases}$$

H_0: role of vocation & technical training in entrepreneurship development in Kashan, for different educational levels was the same.

H_1: role of vocation & technical training in entrepreneurship development in Kashan, for different educational levels was not the same.

TABLE 7: SURVEY OF MEANINGFULNESS OF AVERAGE DIFFERENCE A AMONG RESEARCH QUESTIONS , BASED ON EDUCATION

Meaningfulness level	f	Surveyed variable
0.995	0.024	Personality properties
0.783	0.358	Behavioral properties
0.230	1.442	Vocational & technical training
0.141	1.829	Vocational & technical skills
0.233	1.429	New Occupation

According to table7, in a meaningfulness of %95, based on education (regarding to the meaningfulness number of more than 0.05) , level of vocational & technical training organization in entrepreneurship development in terms of education , was the same for all factors and there was no meaningful difference there for, h_1 is failed & h_0 is confirmed.

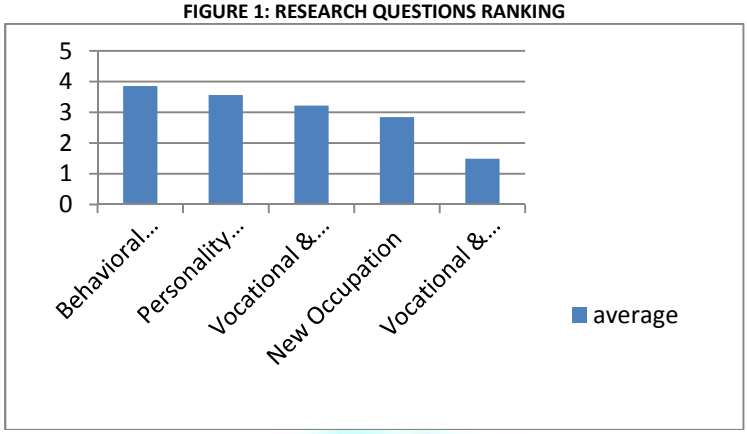
6-3) RESEARCH QUESTION RANKING (PERFORMANCE OF APPLIED VARIABLE TO DEVELOP ENTREPRENEURSHIP):

To determine the importance degree of research questions, depending on hypos about role of vocational & technical training. In entrepreneurship development, freedman test was used. The results were as follow:

TABLE 8: RESEARCH QUESTIONS RANKING

average	Surveyed variable
3.86	Behavioral properties
3.57	Personality properties
3.22	Vocational & technical training
2.85	New Occupation
1.49	Vocational & technical skills

FIGURE 1: RESEARCH QUESTIONS RANKING



According to table 8 results, behavioral properties of entrepreneurs of vocational & technical organization had the maximum average or the highest degree of importance. After that, personality traits, vocational and technical training, new occupation and vocational **&** technical skill, were the next importance's , respectively

7) CONCLUSION

According to the obtained results from Table.9 the following notes could be concerned:

TABLE 9: RESEARCH RESULTS

Meaningful	Meaningfulness level	Degree of freedom	t	Studied Variable	Research Hypo
Significant	0.000	535	31.28	Personality properties	First Hypo
Significant	0.000	535	33.28	Behavioral properties	Second Hypo
Significant	0.000	535	22.36	Vocational & technical training	Third Hypo
Significant	0.000	535	19.83	Vocational & technical Skills	Forth Hypo
Significant	0.000	535	13.005	New Occupation	Fifth Hypo

1. Since the statistical amount of the observed test was in a meaningful level of %95. it can be concluded that in this meaningfulness level, ho is rejected and h1 is confirmed (meaningfulness number 0.000, in all cases is less than standard amount (0.05) and t>3). In the other word, there is a meaningful relation between personality traits of people, their behavioral properties, Vocational & technical trainings, vocational & technical skills, New occupations, and entrepreneurship development. Therefore, hype 1,2,3,4 and 5 of the study are confirmed.
2. Since the questionnaire used in this study is an author-made questionnaire, α-Krounback coefficient in this paper was 0.9 which is close to 1 and its stability is also confirmed.
3. The recognized factors in development of entrepreneur entrepreneurship activities in technical & vocational organization by using the questionnaire are: personality traits of the entrepreneurs, behavioral traits of the entrepreneur, technical & vocational trainings ،technical & vocational skills and new business
4. Personality traits play role in entrepreneurship development of entrepreneurs in vocational & technical organization, Furthermore, indices of personality factor including high self-confidence ,success questing and accepting competition , good performance and responsibility, creativity and innovation, effective communication with others, ability to manage and risk taking have been effective in entrepreneurship development.
5. Behavioral properties play role in entrepreneurship development of entrepreneurship development of entrepreneurs in vocational and technical organization. Furthermore, indices of behavioral factors including experience, age and educational level, occupation and life conditions, work conscience, morality and behavior, were effective on entrepreneurship development.
6. Technical and vocational trainings exist in development of entrepreneurship of the entrepreneurs ,further more ,indicators of technical & vocational training components ,composed of techniques to face high risk activities ،innovation and creativity, marketing & customer. Adsorption methods, increase of skills and human experience and meeting occupational needs were all affective in development of entrepreneurship.
7. Technical and vocational trainings in development of entrepreneurship of the entrepreneurs are available in Technical & Vacation organization , furthermore, Technical & Vocation component indicators such as compatibility of the assigned duties with the acquired skills during the training course , ability to manage the shifts derived from it advance in environmental conditions, increase of work capacity to act , required skills to do occupational duties and trust of the employers are all effective in development of entrepreneurship.
8. Business exists in development of entrepreneurship activities of the entrepreneurs , i,e, the component indicators of business such as acceptation , occupation improvement , good occupational background , proper occupational opportunity , theoretical knowledge required to do a business, entrepreneurship skill abilities and ability to collect a team to do a task about entrepreneurship are all affective in development of entrepreneurship.
9. Regarding to considered variables and factors, behavioral properties of entrepreneurs of vocational & technical training organization had the maximum average or highest degree of importance and offers that, personality traits; vocational & technical skill had the next degrees of importance, respectively.

8) SUGGESTIONS

8-1) MAIN SUGGESTIONS

1. During lifetime of management knowledge, researchers have tried to help organizations to select the best option for employment, by creating deferent tests. It is offered that. These managers consider these properties in their employment process.
2. Providing facilities and principal allowance to the people who intend to begin new enterpreneuring accusations.
3. Specifying the probationers capable of entrepreneurship , familiarity and training of them to begin enterpreneuring occupations , also decreasing the young's vacancy , improving morale of happiness and innovation among educated young's and capable trained probationers.
4. Propagating the creative games in kindergartens and elementary schools, paying attentions to innovation and creativity at high schools, colleges, identifying of trained people, capable for entrepreneurship and appearance of their abilities and capabilities.
5. Receiving facilities and credits from related organizations and preventing to refer entrepreneurs to other related organizations.
6. Holding seminars and training courses of entrepreneurship for managers, according to their needs in differ at levels, entrepreneurs lectures and thanking for them, creating motivation of entrepreneurship and the background to improve entrepreneurship
7. Producing videos and programs in mass media to establish entrepreneurship in society and propagation creativity and innovation, calling 2008 as year of creativity and innovation which provided encouragement of innovation in society, a generation at the society involve with these concepts and will apply it.

8-2) SUGGESTIONS FOR FUTURE INVESTIGATIONS

1. Study of vocational **&** technical training, proportioned to society needs.
2. Study of social economical and cultural factors and policies on entrepreneurs succeed.
3. Study of level of applicability of vocational **&** technical trainings in order to make a good relation between educational majors and occupations.
4. Study of the needs of occupation conditions for trained people in different technical and vocational major, in area level, according to the current facilities.

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MANAGING CURRICULUM CHANGE IMPLEMENTATION IN GHANA: DOES GENDER MAKE A DIFFERENCE IN TEACHER CONCERNS?

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ABSTRACT

The concerns that teachers express about a curriculum change determine the extent to which they implement that change. A "Stages of Concerns" model developed by Horsley and Loucks-Horsley (1998) identifies seven stages of concerns (awareness, informational, personal, management, consequences, collaboration and refocusing) through which teachers pass when managing the implementation of a new curriculum. Designed within the Stages of Concerns model, this study investigated the concerns of primary school teachers as they implemented a curriculum change in Ghana. Specifically, the study sought to find out the concerns of male and female teachers and to determine whether there were any significant differences in the concerns expressed by the two groups of teachers about the change and its implementation. Data were gathered from 316 primary school teachers in the Cape Coast Metropolis of Ghana. Group profile analysis indicated that male teachers had low collaboration concerns but high management and consequence concerns while female teachers had low informational concerns and high personal, collaboration and refocusing concerns. ANOVA results established a statistically significant difference between male and female teachers' concerns at the management stage, with female teachers having more management concerns than their male counterparts. Implications for implementing future curriculum change are drawn.

KEYWORDS
Curriculum change, curriculum implementation, reform, teacher concerns.

INTRODUCTION

In September 2007, Ghana introduced an educational reform that brought changes in the curricula of Basic Schools (Year 1-9). In the primary school (Year 1-6) new subjects such as Information and Communication Technology (ICT), French Language, Creative Arts, and Citizenship Education were added to the curriculum. New curriculum materials such as syllabi and textbooks were introduced; and daily contact time increased from four and half hours to five hours (Cobbold and Ani-Boi, 2011). These changes were aimed at helping pupils to acquire the foundational skills for inquiry, creativity and innovation; develop the ability to adapt constructively to the changing local and global environment; develop good citizenship skills to enable them participate in national development; and develop the skills and aptitudes of assimilating new knowledge (Ministry of Education, Youth and Sports (MOEYS), 2004).

Any change in curricula comes with new demands on the part of the teacher and naturally the success of any reform effort depends highly on the teachers' role. Emphasizing the importance of teachers' role in curriculum change implementation, Marsh (1997) states that curriculum change starts as a plan but it only becomes a reality when teachers implement it with real students in a real classroom. He explains that careful planning and development are obviously important, but they count for nothing unless teachers are aware of the product and have the skills to implement the curriculum in their classrooms.

Since teachers are the critical agents for bringing changes into their classrooms, the teachers themselves should be the major focus of analysis and source of evidence regarding the implementation of curriculum change (Leung, 2008). Teachers' concerns should be of high priority in determining the success of any change effort. Lack of such consideration for teachers may affect their attitude toward programme implementation. Therefore, there is a genuine need to determine teachers' concerns in managing the implementation of the curriculum change in primary schools in Ghana as a curriculum improvement endeavour. A recent study which investigated such concerns found high personal and management concerns and low informational concerns among the primary school teachers (Cobbold and Ani-Boi, 2011). What remains unknown is whether the concerns expressed by the teachers are related to their gender. Such a research focus is very important in view of the fact that in Ghana there is unequal proportion of male and female teachers at the basic school level, with male teachers constituting about 53 percent. Besides, in Ghana females are perceived as less competent in many fields of endeavour, including teaching. Since teachers' concerns in implementing curriculum change are related to their level of competence, it is important to find out whether the two issues – low representation of females in teaching and public perception of female competence – play out in the concerns that teachers express about managing the implementation of the new curriculum. The thrust of the current study was, therefore, to ascertain if teachers' gender makes a difference in the type of concerns they express when implementing a curriculum change.

OBJECTIVES OF THE STUDY

The objectives of this study are:

1. To investigate the concerns male teachers have about implementing the new primary school curriculum in Ghana
2. To examine the concerns female teachers have about implementing the new primary school curriculum in Ghana
3. To determine any differences in the concerns expressed by male teachers and those expressed by female teachers

RESEARCH QUESTIONS

1. What concerns do male teachers have about implementing the new primary school curriculum?
2. What concerns do female teachers have about implementing the new primary school curriculum?
3. Is there a significant difference between the concerns of male teachers and the concerns of female teachers about implementing the new primary school curriculum?

RESEARCH HYPOTHESIS

The following hypothesis based on the third research question was formulated for the study:

H_0: There **is no** significant difference between male and female teachers in the concerns they have about implementing the new curriculum in primary schools.

LITERATURE REVIEW

CONCEPTUAL FRAMEWORK

Marsh and Willis (2007) posit that curriculum change is a generic term that encapsulates both planned and unplanned alterations in an instructional programme. It includes restructuring of the curriculum itself; class regrouping and organization; the use of new curriculum materials; changes in teaching practices; and changes in beliefs or understandings of how the curriculum affects learning (Fullan, 2007). Leung (2008) argues that teachers may apply various approaches to implementing a curriculum change, and that the critical factors for success include teachers' competence in teaching the new curriculum, further professional

development of teachers, enhancement of teachers' capacity in curriculum planning, and collegial team working in schools. For Brady and Kennedy (2003), managing the change process requires school collaborative cultures, which include improving teacher effectiveness, creating professional confidence and responding to change. It can be argued that teachers' response to change is a function of their reaction towards the change, which is expressed in the various concerns they have about that change.

Therefore, one research domain that has been studied extensively in connection with curriculum implementation is teachers' concerns. This body of research has shown that teachers' concerns influence their attitude towards a reform and their attempts to implement it (Cheung, Ng and Hattie, 2000). The concept of teacher concerns was introduced by Fuller (1969) to describe the feelings, perceptions, frustrations and motivations teachers have as they move through different stages of their development. According to Fuller, teachers' developmental concerns manifest at three levels: self, task and impact concerns. Self-concerns relate to the teachers' anxiety about their ability to take over the new demands in the school environment; task concerns refer to the daily duties of a teaching job, especially in relation to limitations posed by time, large class size and the lack of resources. Finally, impact concerns deal with teachers' apprehension concerning students' outcomes.

The Concerns-Based Adoption Model (CBAM) of curriculum implementation (Horsley and Loucks-Horsley, 1998) extends Fuller's (1969) conceptualization and identifies seven stages of concerns: awareness, informational, personal, management, consequences, collaboration and refocusing. The first three stages constitute self-concerns, the fourth relates to task-concerns and the last three represent impact concerns. According to the model, the feelings, perceptions, frustrations and subsequent questions, uncertainties and possible resistance, or the satisfaction and motivations teachers may have as they become involved in the implementation of an educational change, tend to follow the above stages. Initially, teachers have little knowledge of the change but may not want to learn about it (awareness); later on they are concerned about their ability to respond to the requirements of the change (personal) and they show their willingness to learn more about it (informational). Self-concerns gradually decrease and teachers focus on the processes and tasks of using the innovation (management). Finally, teachers overcome task-concerns and focus upon the effects of the change on students' learning (consequences) and how to make the programme work better by actively working on it with colleagues (collaboration); they also seek out new and better ways to implement the programme for success (refocusing). Low concern at any stage means that the teachers are least concerned in that they have what it takes to meet the challenges of that stage while high concerns implies that teachers lack the knowledge, skills and dispositions required for meeting the expectations of that stage.

REVIEW OF RECENT STUDIES

The construct of stages of concerns has been used to study the implementation of curricular changes in the form of innovations or reforms. Recent studies in this domain include those that investigated teachers' concerns generally and those that related teachers' concerns to variables such as teaching experience, gender, subject taught and school type. Studies that investigated teachers' concerns generally found that most teachers have high personal and collaborative concerns (Sun and Cheng, 2007), high management concerns (Cheng and Ng, 2000; Christou, Eliophotou and Philippou, 2004; Morris, Junjie, Fong-Lok and Timmy, 2008), very high concerns about informational and personal issues (Charambous, Philippou and Kyriakides, 2004; Liu and Huang, 2004; Yang and Huang, 2008) as well as high "impact concerns" – consequence, collaboration and refocusing (Leung, 2008; Liu and Huang, 2004). Generally, the research evidence indicates that teachers initially express self-concerns but this decreases with in-service training, and task and impact concerns increase (Goldsmith, 1997; Vaughan, 1997). Also, teachers' concerns in succeeding stages are influenced by their concerns in preceding stages (Charambous, Philippou and Kyriakides, 2004).

Relating teachers' concerns to specific demographic variables, Cheung and Ng (2000) found that Hong Kong teachers' stages of concern about implementing the Target-Oriented Curriculum were affected by their experience with the new curriculum and the type of school they teach, but not with their subject areas. The study by Lau and Shiu (2008) also showed that teachers' teaching experience had a significant influence at the refocusing stage. In contrast, another study involving primary school teachers implementing Information Technology in Kuwait found no significant differences in the concerns of teachers with different levels of teaching experience, but found significant difference between the concerns of male and female teachers at the management and refocusing stages (Alshammari, 2000). This latter finding about teachers' concern in relation to their gender was confirmed by Fritz and Miller (2003)] who concluded that the teaching concerns of student teachers differed in terms of gender. Roxie (2005), however, did not find significant differences in teachers' concerns with respect to teaching experience and gender.

Thus, it appears from the research evidence that the relationship between teachers' gender and their concerns about implementing curriculum change remains inconclusive and needs further investigation, especially in Ghana where not even a single study in this direction has been conducted.

METHODS

DATA COLLECTION PROCEDURES

The study involved 153 male and 163 female teachers who were randomly sampled from a total population of 678 primary school teachers in the Cape Coast Metropolis of the Central Region of Ghana. Data were collected using a 35-item Stages of Concerns Questionnaire developed by Hall, George and Rutherford (1986). The questionnaire had seven sections representing the seven stages of concern, with each section having five questions. This was adapted, pre-tested and administered to the teachers in their respective schools. The adaptation involved substituting the words 'curricula change/reform' and 'school' (words commonly used in the educational sector in Ghana) for 'innovation' and 'faculty' in the original questionnaire in order to make the items clearer and more understandable for the Ghanaian teachers. Secondly, though the original instrument had five sequential statements under each stage of concern, these statements were mixed up until after data had been collected. The reason for altering the order of the statements was to avoid giving the respondents any clues that would make them select responses that did not represent their real situation.

The pre-testing involved 60 teachers selected from a district in the Eastern Region of Ghana It was done to re-establish the validity and reliability of the instrument because of the minor changes made to the original instrument and the fact that it was being used in a different setting. The pre-test result established the following Cronbach's alpha co-efficients for the seven sections of the survey: awareness concerns (.83), personal concerns (.83), informational concerns (.83), management concerns (.83), consequence concerns (.83), collaboration concerns (.82), and refocusing concerns (.83). The overall Cronbach's alpha reliability co-efficient was .83, meaning the instrument had high reliability (Fraenkel and Wallen, 2000).

In completing the questionnaire, the teachers were asked to indicate the level and intensity of their concerns about the implementation of the new curriculum by checking, for each item, one of 4 response categories: 0 – Irrelevant, 1 – Not true of me now, 2 – Somewhat true of me now, and 3 – Very true of me now.

DATA ANALYSIS

The data were analyzed in three stages. Firstly, group profile analysis was done to categorize the various items into the seven stages of teacher concerns. Secondly, percentile means for the stages of concern – awareness, informational, personal, management, consequence, collaboration and refocusing – were calculated for male teachers and female teachers. This was to help determine the teachers' stages of concern with respect to their gender. Thirdly, one-way analysis of variance (ANOVA) was used to test for any significant differences in the concerns of male and female teachers. The results of the analyses are presented and discussed in the sections which follow.

RESULTS

PERCENTILE MEANS OF MALE TEACHERS' CONCERNS

Results of group profile analysis using percentile means are presented in Table 1 and illustrated graphically in Figure 1. The results indicate that male teachers have their first and second high concerns at consequence (79.0) and management (69.0) stages respectively. This means the teachers were still grappling with issues about the impact of the new curriculum on their pupils' learning; they were also not certain of the procedural and task requirements for implementing the

change. The lowest concern recorded by male teachers was collaboration (47.0). This means the teachers saw the need to work together to make the implementation successful, and were doing more in that direction.

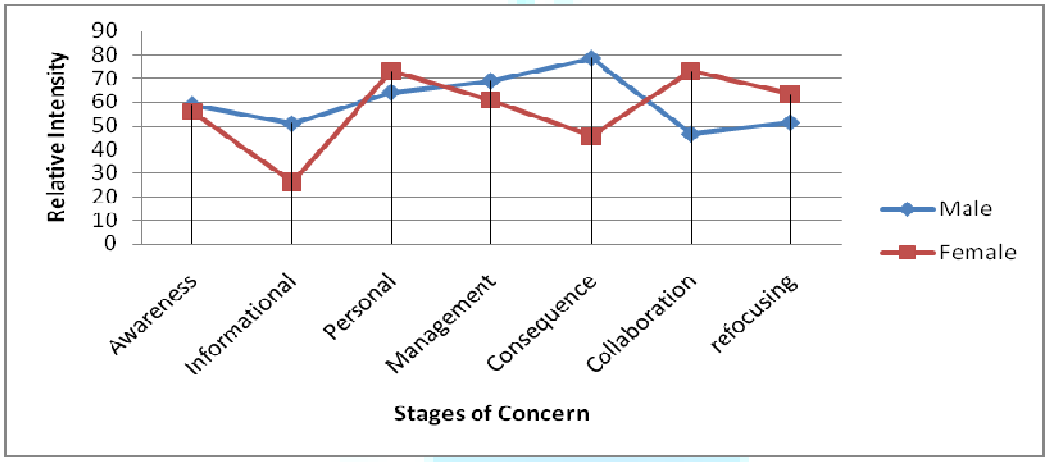
PERCENTILE MEANS OF FEMALE TEACHERS' CONCERNS

Female teachers recorded their first high concerns at both personal (73.0) and collaboration stages (73.0) and their second high concerns at refocusing stage (63.3). High personal concerns means that female teachers doubted their ability to respond to the requirements of the change and high collaboration concerns implied that the teachers perhaps did not see the need to team up with colleagues to manage the change or were not clear about ways in which they could do this. Consequently, there was little urge on their part to seek out new and better ways to implement the change for success (high refocusing concerns). Finally, female teachers had low informational concerns (23.6), implying that they were much more willing to learn more about the new programme.

TABLE 1: PERCENTILE MEANS OF MALE AND FEMALE TEACHERS' CONCERNS

Stages	Aware.	Info.	Person.	Manage.	Conseq.	Colla.	Refocus.
Male	59.0	51.0	64.2	**69.0**	**79.0**	47.0	51.4
Female	56.0	26.3	**73.0**	61.0	46.0	**73.0**	**63.3**

FIGURE 1: GRAPHICAL PROFILE OF MALE AND FEMALE TEACHERS' CONCERNS



TESTING OF HYPOTHESIS

A one-way analysis of variance (ANOVA) at 0.05 alpha level was used to test the hypothesis that there is no significant difference between male and female teachers in the concerns they have about implementing the new curriculum in primary schools. Gender is the independent variable here because it was presumed to influence teacher concerns (the dependent variable)**.** The results are presented in Table 2.

TABLE 2: ANOVA FOR GENDER AND TEACHER CONCERNS

		Sum of Squares (SS)	Deg. of Freedom (DF)	Mean Squares (MS)	F	Sig.
Awareness	Gender	24.743	1	24.743	2.745	.099
	Residual	2830.801	314	9.015		
Informational	Gender	1.726	1	1.726	.141	.707
	Residual	3833.945	314	12.210		
Personal	Gender	.057	1	.057	.007	.934
	Residual	2633.120	314	8.386		
Management	Gender	64.268	1	64.268	4.486	.035
	Residual	4497.970	314	14.325		
Consequence	Gender	1.698	1	1.698	.152	.697
	Residual	3512.669	314	11.187		
Collaboration	Gender	13.117	1	13.117	.725	.395
	Residual	5681.501	314	18.094		
Refocusing	Gender	9.363	1	9.363	1.290	.257
	Residual	2278.371	314	7.256		

p = 0.05

Analysis of variance found that there was a statistically significant difference between male teachers' and female teachers' concerns at the management stage (F=4.486, p < 0.05), but there were no statistically significant differences between male and female teachers' concerns at the other six stages of concerns: awareness (F=2.745, p = **.099**), informational (F=0.141, p = **.707**), personal (F=0.007, p = **.934**), consequence (F=0.152, p = **.697**), collaboration (F=0.725, p = **.395**) and refocusing (F=1.290, p = **.257**). The difference between the management concerns of male teachers and that of female teachers suggests that primary school teachers' sex might play a crucial role in their ability to manage the changes brought about by the 2007 curriculum.

DISCUSSION OF FINDINGS

One finding from the study is that male primary school teachers have high concerns at consequence and management stages, but low concerns with regard to collaboration. This means that male teachers' apprehensions were on the impact of the 2007 curriculum change on pupils, and how to best use available information and resources, including time, and plan activities to achieve the desired impact. These concerns pose a greater threat to the implementation and the institutionalization of change in any form (Fullan, 2007). Low collaboration concerns of male teachers suggest that they did see the need to work with other teachers and schools regarding the implementation of the change. Given the individualistic and isolationist culture in most Ghanaian primary schools, this is surprising and points to the emergence of communities of practice in the study schools. Such school collaborative culture, Brady and Kennedy (2003) emphasize, are important in managing any change process.

Female teachers had high concerns at personal, collaboration and refocusing stages, though they expressed low informational concerns. Having high personal concerns indicate that female teachers were worried about effects of the change on their roles and responsibilities, and about their capability to meet the demands of the change. Not surprisingly, they had not developed interest in coordinating and cooperating with other teachers (high collaboration concerns) in order to maximize their efforts to use the new curriculum. Unlike their male counterparts, female teachers were not interested in sharing their experiences about the change with other schools and teachers and to also tap experiences of colleagues in order to reap the benefits of the change. This is contrary to

popular opinion that women generally like to discuss things that pose a challenge to them with other people. Perhaps the female teachers felt inadequate to meet the numerous requirements of the change, as reflected in their high personal concerns, but did not want other colleagues to be aware of this inadequacy.

Female teachers recorded refocusing as their second high concern, implying that they had ideas about the change and how to improve upon its use. This was reflected in their expression of low informational concerns, which means female teachers had enough information about the reform. This may have been possible through their efforts to share ideas about the reform with other teachers.

The statistically significant difference in the management concerns of male and female teachers found in this study has also been reported by another study (Ashmmari, 2000) which investigated the concerns of primary school teachers implementing Information Technology in Kuwait. In a study of student teachers using internet-based communication to teach agriculture, concerns expressed were also found to be dependent on gender (Fritz & Miller, 2003). Similar studies, however, found no differences in teacher concerns with respect to gender (Hall, George and Rutherford, 1986).

CONCLUSIONS AND IMPLICATIONS

By referring to the findings of this study, several significant implications for the implementation of new curriculum in Ghana can be drawn.

First, it was found that male teachers have high concerns at management and consequence stages and low concerns at collaboration. Given the research evidence that collaboration among teachers is important in managing any curriculum change process (Brady and Kennedy, 2003), school heads should develop and nurture this culture in their schools through school-based curriculum development and peer observation of teaching. Once this collaborative culture has been accepted teachers can utilize it to advantage when implementing new curricula.

Second, it was found that female teachers have high concerns at personal, collaboration and refocusing stages and low concerns at informational stages. Thus, together, both male and female teachers have major concerns regarding the tasks and impacts of implementing the new curriculum. The tasks refer to issues of efficiency and time demands of implementing the new curriculum, and the best use of relevant information and resources, scheduling, time and organization. The impacts refer to the consequences of implementing the new curriculum for pupil learning, the collaboration of teaching the new curriculum among teachers, and the refocusing of the teaching approach to improve the implementation process. These findings suggest the need for policy makers to provide on-going and quality support to cater for the authentic professional needs of the teachers as they implement the new curriculum.

Finally, the study found a statistically significant difference in the management concerns of male and female teachers, with the latter having more management concerns than the former. Differences in management concerns of teachers imply differences in their levels of efficacy to teach the new curriculum (Charambous, Philippou and Kyriakides, 2004) and suggest the necessity for differentiated workshops to address separately the management concerns of male and female teachers.

Generalization of the findings of the present study to all primary school teachers in Ghana may be limited by the fact that only teachers in one district – the Cape Coast Metropolis – were included in the study. However, by highlighting the major findings, it is expected that the study will exercise an impact on policy makers and implementers in their efforts to achieve curriculum change in primary schools. Some researchers recommend that a "systematic monitoring of teacher concerns by the government is necessary during the process of curriculum change; with the aid of information about teachers' stages of concern, change agents can design effective interventions" (Cheung and Ng, 2000). The present study provides critical insights for such monitoring with a view to reviewing the progress of change and proposing actions for continuous improvement. Moreover, the study adds to the scanty literature on teachers' concerns about implementing curriculum change with particular reference to the Ghanaian context.

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OVERCOMING THE PERCEIVED BARRIERS OF E-COMMERCE TO SMALL AND MEDIUM SCALE ENTERPRISES IN GHANA – A PROPOSED MODEL

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ABSTRACT

The barriers to ecommerce adoption by Small and Medium scale Enterprises (SMEs) have been widely stated in the literature. However, there is a paucity of existing and ongoing researches and proposals to circumvent these barriers. This study therefore investigates the perceived barriers of ecommerce to Small and Medium scale Enterprises and proposes a model to overcome these barriers. Through a critical review of literature and empirical study using interviews, focus group discussions and questionnaires, to verify and validate findings from the literature; the study found security and trust, efficient payment system, high cost of ICT infrastructure, and effective product delivery systems as barriers hindering ecommerce adoption by Ghanaian SMEs. According to the National Communication Authority, the total Cellular/Mobile Voice Subscriber Base in Ghana as at September, 2012 stood at 24,884,195. This suggests that a payment medium via the telephone has a high potential patronage. The paper proposes a model to help Small and Medium scale Enterprises in Ghana overcome the perceived barriers so as to enjoy the full benefits presented by ecommerce adoption. The model proposes an e-Commerce partnership between Mobile Network Operator (MNOs), vendors (SMEs) and Courier Service Providers to render e-Commerce services to customers with payment made through cell phones (Mobile Money).

KEYWORDS
E-commerce, Overcoming, Perceived Barriers, Proposed Model, SMEs.

INTRODUCTION

The benefits derived from e-Commerce have not been fully attained by Ghanaian Small and Medium Scale Enterprises (SMEs) due to the slow adoption of e-Commerce. The adoption, according to Addo (2012) has been slow due to certain barriers including lack of e-payment penetration. According to the National Communication Authority, the total Cellular/Mobile Voice Subscriber Base in Ghana as at September, 2012 stood at 24,884,195. This suggests that a payment medium via the telephone has a high potential patronage. Mobile Network Operators (MNOs), MTN, AirTel, and Tigo, who form 72% of the total subscriber base, have introduced mobile money systems as a means of transferring money and payment for specific service bills like electricity, DStv, Gotv, airtime, School fees and general payment for certain registered services. There are indications of high utilization for the payment of these services.

Small and Medium Scale Enterprises (SMEs) constitute 90% of all businesses across the world (Hall,2002) and forms 70% of enterprises in Ghana (Frempong, 2007). However, the SMEs are yet to adopt the strategic benefits e-commerce systems present, as research shows that many of them are yet to embrace the technology in ways that will allow them to capitalize on its potential benefits (Cragg and Mills, 2009). About 91% of the organizations in Ghana, the majority being SMEs are not involved in e-commerce (INIIT, 2002), indicating a relatively slow e-commerce adoption.

LITERATURE REVIEW

ELECTRONIC COMMERCE (E-COMMERCE)

E-commerce is the sharing of business information, exchange of goods and services, payments, the creation and maintaining of business relationships and conducting business transactions by means of telecommunications network (Zwass, 1996; Fruhling and Digman, 2000; Mahadavan, 2000 and Laudon and Laudon, 2006). E-commerce is also defined by Lee & Viehland (2008) as the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the Internet. Authors in recent times have begun to define more explicitly the difference between e-commerce and e-business. E-commerce is emerging as the term used when discussing the process of transacting business over the Internet. E-business, on the other hand, involves the fundamental reengineering of the business model into an Internet based networked enterprise. The difference in the two terms is the degree to which an organization transforms its business operations and practices thorough the use of the Internet (Hackbarth & Kettinger 2000, Mehrtens et.al. 2001, Poon 2000, Poon & Swatman 1997). Whiles the above definitions suggest all those processes should be done through telecommunication network and may restrict transactions to digital goods, we consider in this paper e-commerce to be the ordering and paying for goods and services via telecommunication network. Delivery of the goods could be made physically by the organization, picked up physically by the customer or outsourced to a third party Courier Service. Chaffey, Ellis-Chadwic, Mayer, and Johnston, (2009) categorised various model of e-Commerce into:

- (C2C) Customer to Customer where consumers directly transact with other consumers in the cyberspace. (Hoffman & Novak, 1996) identified C2C interaction as important model in Internet based transactions and suggested the need for companies to take it into consideration in their market planning effort. Their assertion is exemplified by the growth of social network site in recent times
- (B2C) Business to Customer is where customers learn about products or services through electronic publishing, and buy them using electronic cash and secure payment systems, and have them delivered electronically or through physical channel (Vaithianathan, 2010).
- (B2B) Business to Business is e-market transaction in which businesses, governments, and other organisations depend on computer-to-computer communications as a fast, an economical, and a dependable way to conduct business transactions (Vaithianathan, 2010).
- (C2B) Customer to Business is type of online transactions where consumers initiate trading with companies.
- (C2G) Customer to Government is type of online interaction where feedback is given to government through pressure group or individual sites.
- (B2G) Business to Government is type of online interaction where feedback from businesses is given to government and non-government organisations
- (G2C) Government to Citizen is type of online interaction through which government offer national transactions such as local government services, national government information, and tax information.

BARRIERS TO E-COMMERCE

E-commerce comes with a number of benefits including competitive advantage, easy integration of back office activities, allowing suppliers and buyers to interact efficiently, and reaching out to larger markets (Lomerson et al, 2004) and makes marketing flexible and accessible for 24 hours resulted in increased business hours across the world (Hagel and Lanseng, 1994).

In the face of these benefits are a number of barriers that hinder SMEs from adopting e-commerce. Kapurubandara and Lawson (2006) categorise the barriers as either external or internal. These barriers include trust issues where customers do not trust electronic transactions especially on the web. Other barriers include a suitable e-payment medium for customers to pay for transactions online, logistics for delivery of indirect e-commerce products and high cost of investment to the SMEs (Addo, 2012; Amoako, 2012; Kapurubandara and Lawson, 2006; Frempong, 2007, Boateng et. al, 2011).These barriers have been difficult to overcome. Internal barriers like characteristics of business owner have been overcome or reduced through continuous education. Chapman et al., 2000; Love et al., 2001; Tuunainen, 1998 also reported that weak financial position of SMEs and the resistance to invest in complex Information System is seen as major barriers in information systems adoption. However findings by Ghobakhloo et al, (2011) found that e-Commerce adoption cost is not perceived to be a major barrier by 235 SMEs surveyed in Iran. Furthermore, e-commerce security issue is becoming a major issue in Ghana, more especially with the advent of 'Sakawa' cyber fraud activities among some Ghanaian youth. In view of this both SMEs and their customers see the Internet as insecure medium to transact business and prefer to undertake all transactions offline in order to avoid risk of falling victim to Internet fraud. Khalifa et al. (1999) reiterated this point by stating that perceived or real risk, such as Internet security, authentication and legal issues were some barriers to adoption of e-Commerce.

SMALL AND MEDIUM SCALE ENTERPRISES (SMEs)

Small and Medium sized Enterprises (SMEs) has been defined differently by various researchers. According to Van der Wijst (1989) small and medium businesses as privately held firms with 1 – 9 and 10 – 99 people employed. Jordan et al (1998) define SMEs as firms with fewer than 100 employees and less than €15 million turnover. Steel and Webster (1991), and Osei et. al., (1993) however used an employment cut-off point of 30 employees. Osei et. al., (1993) classified SMEs into three categories namely; micro - employing less than 6 people; very small - employing 6-9 people; Small - between 10 and 29 employees. The Regional Project on Enterprise Development Ghana on the other hand argued that small enterprises have between 5 – 29 employees whereas medium enterprises have 30 – 99 employees.

Small and Medium sized Enterprises (SMEs) do play a major and important role in today's world economy, and they are recognized as one of the main contributors to economic, development and employment growth. On the other hand, the revolution in Information technology (IT) and communications changed the way people conduct business today. In recent years, increasing numbers of businesses have been using the Internet and other electronic media in conducting their marketing efforts, giving the chance for Electronic business which is a new phenomenon to grow in a very dramatic and dynamic way. Adopting E-business by Small and Medium enterprises can change both the shape and nature of its business all over the world. Because the increase usage of the Internet and other Electronic business tools (i.e.: E-mail, Intranets, Extranets and Mobile phones) in electronic transactions might create not only a lot of opportunity for small business enterprises but also can eliminate a lot of threats. From this perspective, it is noticed that the Internet, electronic media tools are playing a vital and essential role in conducting marketing activities within business enterprises regardless of its type or size (Nelson, 2000). There is a growing recognition of the role of small and medium enterprises (SMEs) in economic development. They are often described as the engine of growth and prolific job creators. Even in the developed industrial economies, it is the SME which has the largest employer of workers rather than the multinationals (Mullineux, 1997). Interest in the role of SMEs in the development process continues to be in the forefront of policy debates in most countries. Governments at all levels have undertaken initiatives to promote the growth of SMEs (Feeney and Riding, 1997). SMEs represent over 90% of private business and contribute to more than 50% of employment and of GDP in most African countries (UNIDO, 1999). Small enterprises in Ghana are said to be a characteristic feature of the production landscape and have been noted to provide about 85% of manufacturing employment of Ghana (Steel and Webster, 1991; Aryeetey, 2001).

IMPORTANCE OF THE STUDY

The theoretical contribution of this paper is to explain the 'Whys' and 'Hows' of ecommerce in Ghanaian Small and Medium Scale Enterprises. The study investigates 'why' Ghanaian Small and Medium sized Enterprises have fail to adopt ecommerce despite the numerous benefits to be derived; and eventually proposes a model on 'how' these barriers hindering ecommerce adoption can be circumvented. Whiles there have been several studies on the barriers of ecommerce to Small and Medium sized in developing countries, none of the existing studies strive to propose a model for overcoming these barriers, hence this study bridges the existing research gap in the area. It is imperative to note that, the researchers at the time of this research were unaware of any studies that propose a model to overcome the perceived barriers of ecommerce to SMEs in developing countries. Therefore the results of this study can provide valuable insights for both academia and practitioners in the e-business area.

STATEMENT OF THE PROBLEM

Notwithstanding the numerous studies on electronic commerce the world over, this paper attempts to empirically answer the following questions (1) what are the perceived barriers to ecommerce adoption by Ghanaian SMEs; and (2) how can SMEs overcome the perceived barriers to ecommerce adoption?

OBJECTIVES

The objective of this paper is to empirically investigate the perceived barriers of ecommerce adoption and to propose a model to help SMEs in Ghana overcome the perceived barriers so as to enjoy the full benefits presented by ecommerce adoption. The paper also proposes an e-Commerce partnership between Mobile Network Operator (MNOs), vendors (SMEs) and Courier Service Providers to render e-Commerce services to customers with payment made through mobile money.

METHODOLOGY

The study started with a review of literature to ascertain the barriers to existing e-commerce models. This allowed the author to identify primary studies that can be used to investigate a specific research question (Khan et. al. 2010) Through the critical literature review, ten articles that provide answers to the question: what are the barriers to e-commerce adoption by SMEs?, were selected. These ten articles were identified through a computer search of online databases of published works and conference proceedings in the e-business area. The articles were searched by the title based on the following criteria:

- ✓ E-commerce (AND) Adoption
- ✓ E-commerce (AND) Barriers
- ✓ SMEs (AND) E-commerce

The results of the literature reviewed are summarized in table 1 below

TABLE 1: E-COMMERCE ADOPTION BARRIERS

AUTHOR	COST OF ICT INFRASTRUCTURE	TRUST AND SECURITY	EFFICIENT PAYMENT SYSTEM	EFFICIENT DELIVERY SYSTEM
Kapurubandara & Lawson (2006)	*	*	*	*
Addo (2012)	*	*		
Amoako (2012)	*	*	*	*
Frempong (2007)	*	*		
Boateng et. al, (2011)	*	*	*	
Van Toorn et. al. (2006)	*	*	*	*
Darch and Lucas (2002)	*	*		
Idris (2012)	*	*		
Paul Jones et. al. (2003)	*	*		
Abdel Nasser (2012)	*	*	*	

Table 1 above shows the result of the literature review. Published studies from the year 2002 to 2012 (10 years) were considered to ensure that current study is firmly rooted and supported by literature. It is imperative to note that the most eminent barriers that persist in most of the existing empirical studies are selected for consideration in this study.

In order to verify and validate the finding from the literature, Managers of ten (10) selected SMEs were brought together in a focus group to discuss the perceived barriers and the way forward. The discussion focused on the high cost of ICT infrastructure identified in the literature from previous studies as a barrier to ecommerce adoption by Ghanaian SMEs.

A survey using self-administered questionnaire was also used to confirm the issue of security and trust, lack of efficient electronic payment and effective delivery system identified through literature as challenges to the adoption of ecommerce in developing countries. The questionnaire was pretested on selected customer relation officers and marketing executives for their comments and suggestions, and after developed the final questionnaire. The questionnaire was developed on a 1 – 5 likert scale. Two Hundred (200) questionnaires were randomly distributed to customers from the selected SMEs in the manufacturing, retail, pharmaceutical, agribusiness and service industries, across the major cities in Ghana: Accra, Tema, Kumasi, and Tarkorade. After a follow up, 150 representing 75% of the administered questionnaires were retrieved. However, 10 incomplete questionnaires were excluded from the analysis. After excluding incomplete and invalid responses, the study ended up with 138 valid and usable questionnaires, representing 69% response rate, which is on the high side to confirm a perception in this research.

Managers of Mobile Network Operators and a popular Courier Service, EMS operated by Ghana post were also interviewed with the goal to understand their business processes and the prospects of the proposed model. Questions for the five face-to-face interviews were formulated from the identified barriers (efficient payment system and delivery system). Personal observations were also conducted to validate the data collected through the interviews. The data collected was used to identify all relevant (existing and abstract) partners. The study ends with a rich picture diagram and an activity diagram to depict the interaction among the various actors.

FINDINGS/RESULTS AND DISCUSSIONS

The study sets out to investigate the perceived barriers to ecommerce adoption in Ghanaian SMEs in order to propose a model to overcome these perceived barriers.

From the literature reviewed and empirical study conducted, cost of ICT Infrastructure, Security and Trust, Efficient Payment System and Effective delivery System were identified as the perceived barriers. The result of the empirical study is shown in Table 2.

TABLE 2: MEANS AND STANDARD DEVIATIONS OF PERCEIVED BARRIERS (N=138)

No	Perceived Barrier	Mean	standard deviation
1	Doing business online (internet) is not secured therefore I do not trust such systems	3.97	0.80
2	I consider lack of electronic payment medium as a reason why I don't do business online	3.77	0.76
3	I do not do business online because of lack of effective delivery	3.75	0.79

(5=strongly agree, 4=agree, 3=neutral, 2=disagree, 1=strongly disagree)

After a careful analysis of existing e-business models, a new model which ensures integration between Mobile Network Operators (MNOs) and SMEs was proposed as a way to overcome the perceived barriers. The proposed model identified the following, shown in fig 1 below, as relevant actors; Vendor (SMEs), Broker (E-commerce website), Mobile Network Operators (MNOs), Courier Service, Customer and Certificate Authority (CA). These actors are all present in the existing e-business model with the exception of the Broker and Certificate Authority, which we have found relevant due to problems identified with the existing models; issue of cost and trust.

CERTIFICATE AUTHORITY (PERCEIVED BARRIER – SECURITY AND TRUST)

Data collected from customers with questionnaires showed the results indicated in Table 2.The results indicate that customers do not trust the existing mobile payment systems in Ghana and feel they are less secured. This was realized after customers indicated on a 1 to 5 likert scale the extent to which they trust doing business online. Existing empirical studies (Addo, 2012; Amoako, 2012; Kapurubandara and Lawson, 2006; Frempong, 2007, Boateng et. al, 2011) also suggest the issue of security and trust on the part of consumers as a major challenge to the adoption of mobile payment systems and e-commerce in developing countries. These challenges we believe exist due to the non existence of a trusted third party in the existing system. For instance, in the developed countries (US for example) where electronic payments utilization is high, trusted authorities such as VeriSign serves as a trusted third-party between users of the electronic payment systems and the merchants. In view of this, we strongly believe this issue of security and trust on the part of consumers can be circumvented with the introduction of a ***Certificate Authority (CA)*** which acts as a trusted third-party in the proposed model shown in fig 1.

A Certificate Authority (CA) in the propose model therefore is a registered company that serves as a trusted authority in the proposed system to issue and manage security credentials of both brokers and mobile money providers (MNO). By the Ghana's Electronic Transaction Act, 2008 (Act 772), and the National IT Agency Act, 2008 (Act 771), the National IT Agency shall facilitate the establishment of a Certifying Authority, which shall issue licences for encryption and authentication services over a website. Thus all CAs must register with the certifying authority and be issued a license to operate. The CA will issue a public key certificate which states that the CA attests that the public key contained in the certificate belongs to the person, organization, server, or other entity noted in the certificate. A CA's obligation in this model is to verify an applicant's credentials, so that users (relying parties) can trust the information in the CA's certificates. The usual idea is that if the user trusts the CA and can verify the CA's signature, then they can also verify that a certain public key does indeed belong to whoever is identified in the certificate. If the CA can be subverted, then the security of the system breaks down. For example, suppose an attacker, Mark, manages to get a certificate authority to issue a false certificate tying Franka to the wrong public key, which corresponding private key is known to Mark. If Eric subsequently obtains and uses the public key in this certificate, the security of his communications could be compromised by Mark — for example, his messages could be decrypted, or he could be tricked into accepting forged signatures. A certificate authority therefore helps to curb such eventualities in the model.

THE BROKER (PERCEIVED BARRIER – HIGH COST OF ICT INFRASTRUCTURE)

Interviews conducted with managers of selected Small and Medium Enterprises (SMEs) in Ghana professed high cost of ICT Infrastructure as a major barrier to electronic commerce and it associated electronic payment system. Setup cost with respect to building, and IT infrastructure and operational cost also include cost of employing, training and maintaining the requisite skilled IT personnel. Findings from existing empirical studies also corroborate this finding. Frempong (2007) suggested cost of ICT investment as a major factor underpinning its adoption by SMEs in Ghana. Rajon et. al., 2011 also stated cost (setup) as reason for the selection of free and open source ecommerce software by SMEs in under developed countries. Addo, 2012; Mokaya, 2012, also identified high cost of implementation as a reason for the non-adoption of e-commerce by SMEs in Ghana and Kenya respectively. We therefore propose the introduction of a ***Broker*** in the proposed model to mitigate this problem and encourage more SMEs to do business online. The broker will be responsible for the setting up and maintaining the needed e-commerce platform which all SMEs will subscribe to, hence setup and operational cost will be borne by the broker and not the SMEs.

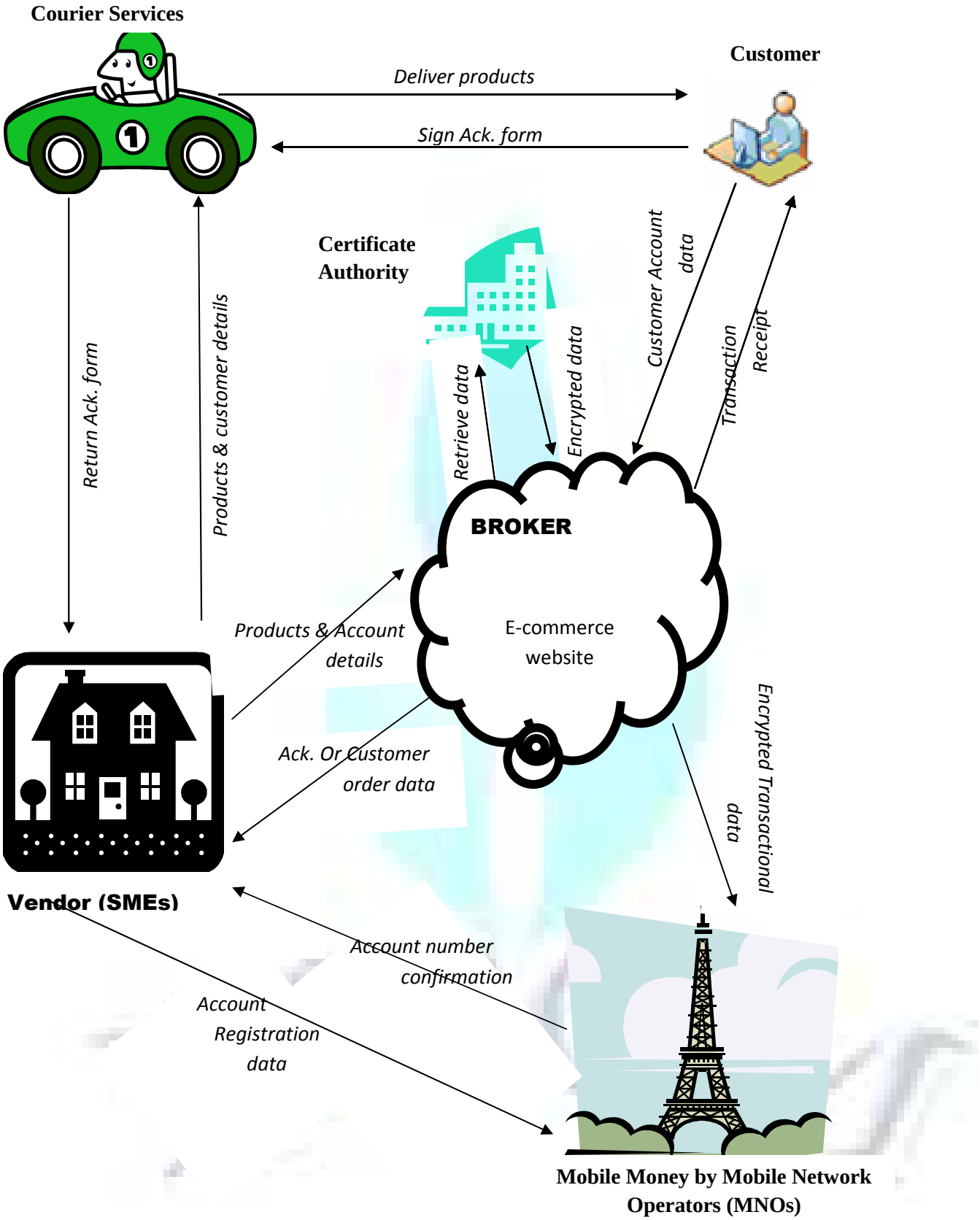
A broker in this model is a conceptual actor which could be a company to provide vendors with the necessary platform on which commerce can be undertaking. Brokers or intermediaries create markets by bringing buyers and sellers together and facilitating transactions between them. The broker's role in this model is like the traditional brick-and-mortar situation where a person or a company builds a shopping mall or complex and lease it out to various business owners. The broker provides a website with vendor's (SMEs) product information and online ordering mechanisms. Users select the products they want to buy and place an order. The product price can be fixed or negotiable. Vendors who want their products and services to appear on a broker's website must do so through periodical subscription. After an agreement is reached and contracts are signed, the vendor supplies to the broker the list of products and services to be displayed on the website together with their mobile money payment account supplied by a Mobile Money Payment Service Provider.

MOBILE MONEY PAYMENT SYSTEM (PERCEIVED BARRIER – EFFICIENT PAYMENT SYSTEM)

Several payment systems exist for the payment of goods and services online, from direct payment upon delivery to the use of credit and debit cards and e-banking and mobile payments (PwC, 2003; Krueger, 2004). The credit and debit cards forms of payments are less pronounced in Africa and in Ghana. Mobile payment (m-payment) involves the payment of goods and services using a mobile device such as PDA and more commonly, a mobile phone (Mensah, Laar and Alirah, 2012). The most common in Ghana is the mobile money. About 80% of the Ghanaian population is unbanked (PwC, 2012) and the initial implementation of mobile money is to enable the unbanked perform money transfers. Drawing on the success of the M-PESA (Sultana, 2011), mobile money seems to be the future of e-payment systems in Ghana and three leading mobile telecom operators MTN, airtel and Tigo forming about 72% of the market share have rolled out mobile money payment system. The issue of trust on the part of consumers, however, continues to be a challenge in the adoption of mobile money in Ghana (Tobbin and Kuwornu, 2011). Mensah et al (2012) developed a proposed model for the improvement of m-payment systems in Ghana. Their model suggests a way of inter-payment among mobile money operators and provides a legal framework for such a process. The empirical study conducted found mobile money payment as efficient and reliable payment system from both customers and operators perspectives. Customers emphasized the ease of use and comfort brought by its introduction for funds transfer and for the payment of bills for certain essential services.

In view above findings, we believe the mobile money payment system can be used as a way to overcome the problem of efficient payment systems in the ecommerce model. A Mobile Network Operator (MNO) in this model (fig 1) is a network operator with nationwide coverage that provides electronic cash facility (mobile money) to its customers for performing various transactions nationwide. Examples include Tigo cash, Airtel money, and Mtn mobile money. An MNO should allow the transfer of cash electronically from one customer to another and should also enable online payment through an intermediary (broker). The MNO in the proposed model should have a web portal through which customers can make transfers among themselves. However, in this model the web portal through which data (account details, transactional data) will be transmitted shall be secured by a Certificate Authority (CA) contracted by a broker to ensure confidentiality, privacy and trust in the system. An MNO may register vendors (SMEs) who want to do business online and after provide them with account numbers which will be used by customers for making payments, and a personal identification numbers (PIN) known only to the vendors, which the vendors may use to access their account. The Vendor (SME) then makes the name of MNO and the account numbers available to the Broker, who would use such account numbers to direct all payments to the particular SME.

FIG. 1: RICH PICTURE DIAGRAM OF THE E-COMMERCE NETWORK MODEL FOR AN SME



COURIER SERVICES (PERCEIVED BARRIER – EFFECTIVE DELIVERY SYSTEM)

The lack of effective product delivery system in the current ecommerce model has been one of the major factors underpinning its adoption by SMEs in Ghana as confirmed in our findings in Table 1. Separate studies conducted by Kapurubandara and Lawson (2006), Amoako (2012) and Van Toon et. al. (2006) all corroborates this finding. However, during our interviews with selected SMEs, it was realized a formal agreement or partnership between the SMEs and Couriers Services in Ghana could help overcome this barrier to the latter. Sentiments expressed by owners of selected SMEs are captured in the following quotation "if we are able to partner the courier services, we can reach a wider coverage of customers across Ghana, since they have already established the trust with customers". Managers of some Courier Services also expressed that such partnership would be beneficial since it would increase their profit margins. With these

sentiments expressed by both sides there are no doubts that a proposal for such partnership would be welcomed by both parties, hence the introduction of a courier service in the proposed ecommerce model.

The courier service is a company which is contracted by a vendor to dispatch goods to customers at their various locations. A courier service in this model must be a registered company with a reputation to deliver products on time. The courier service is an important actor/player in this model since the effectiveness of the model is also dependent on the ability to deliver products on time to customers irrespective of their location. Established courier services in Ghana such as DHL, Fedex, EMS etc could be used. The courier service may receive a phone call from the vendor during which the details of ordered products and customer information (names and addresses) including delivery dates shall be made known. The courier service then sends an agent who will pick up products from vendors' location for onward delivery to customer. The courier service then sends acknowledgement of receipt signed by customers to vendors for verification and also returns all undelivered products to the vendor.

VENDOR (SMEs)

A vendor in this model refers to any Small and Medium Scale Enterprise (SME) which has subscribed to a broker to undertake commerce on a designated platform. A vendor may be a shop, a company or an individual offering some products for sale to the general public (specifically within the catchments areas or scope of the mobile money merchants). A vendor is a wholesaler or retailer or goods or services. A vendor with the help of a broker (one who provides the platform form commerce) puts out some products on an e-commerce site for the general public. A vendor however must hold accounts with all mobile money merchants (MNO) specified by the broker as the payment mechanisms, to be able to accept payments from all customers. The vendor makes his money the same way as traditional "brick-and-mortar" shops: through the profit margin in the product price

CUSTOMER

A customer in this model may be a person, group of persons, institution or company which holds an account with a mobile money merchant and is willing to purchase a product or service being put out for sale from a vendor through an intermediary (broker). In other words, a customer is a person or group of persons with the desire to make online purchases. Every customer in this model must have a mobile money account and a known residential or work address for the delivery of ordered products. A customer visits an online shop manned by a broker and browses through the list of products and services on display. The customer then selects products or services into a shopping cart. At the point of checkout the customer selects his mobile money merchant and initiates payment. If the process succeeds the customer receives an electronic receipt which details the list of products or services purchased and their quantities, total amount paid and arrival date.

BUSINESS PROCESSES OF THE PROPOSED MODEL (ACTIVITY DIAGRAMS)

The Activity diagrams shown in fig 2 & 3 depict the sequential business processes and concurrencies in the proposed model. In the diagrams, Activities are depicted by rounded rectangles, transitions between activities are shown as arrows, the bold bars show how one threat of control "forks" into multiple threads or that multiple threads "join" together to form one thread. Actors in model are shown as swine lanes with each swim lane representing a single actor and its activities. Decisions are represented with diamonds with a description on the right side in a square bracket.

FIG. 2: ACTIVITY DIAGRAM OF CUSTOMER ORDER

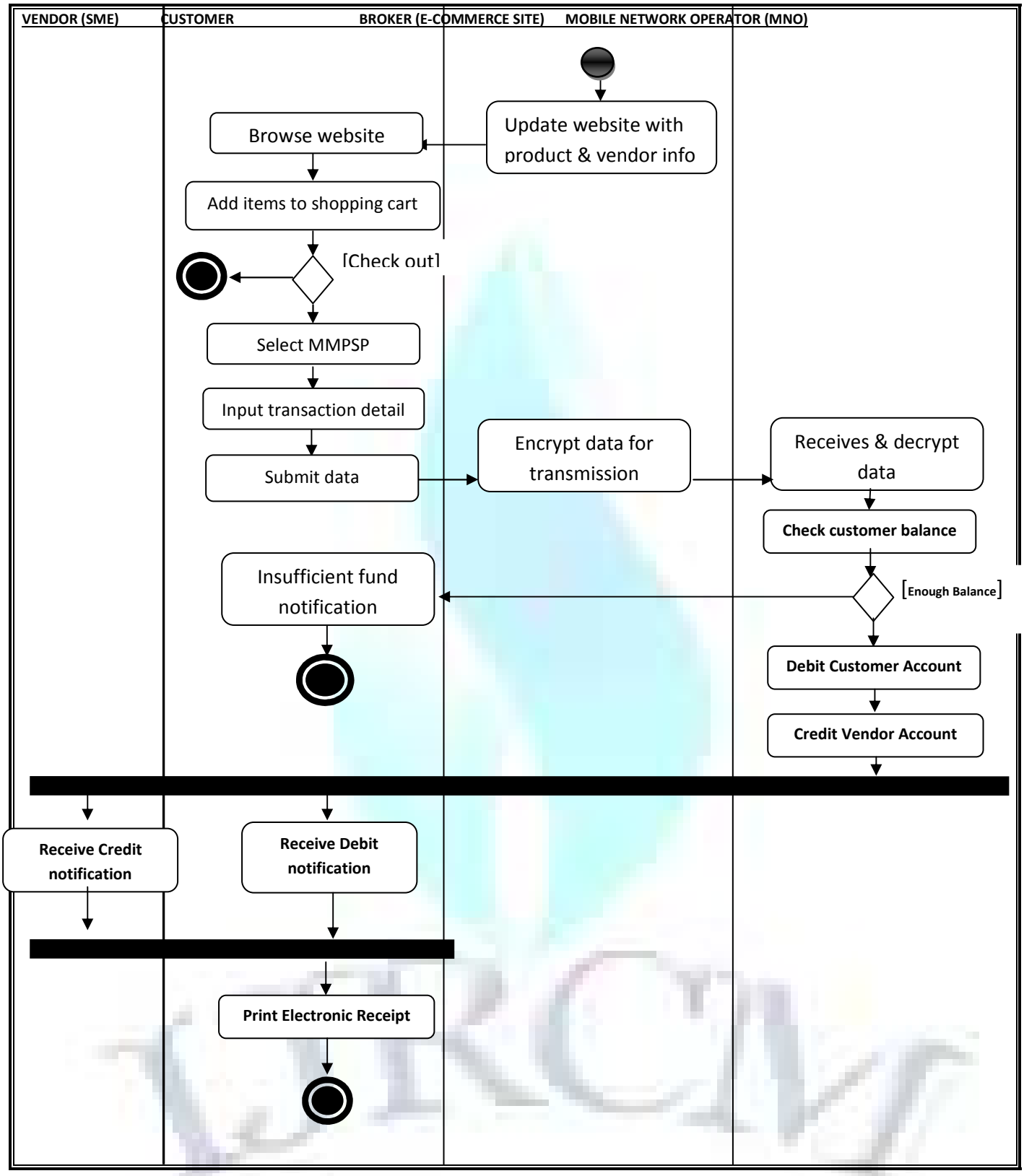
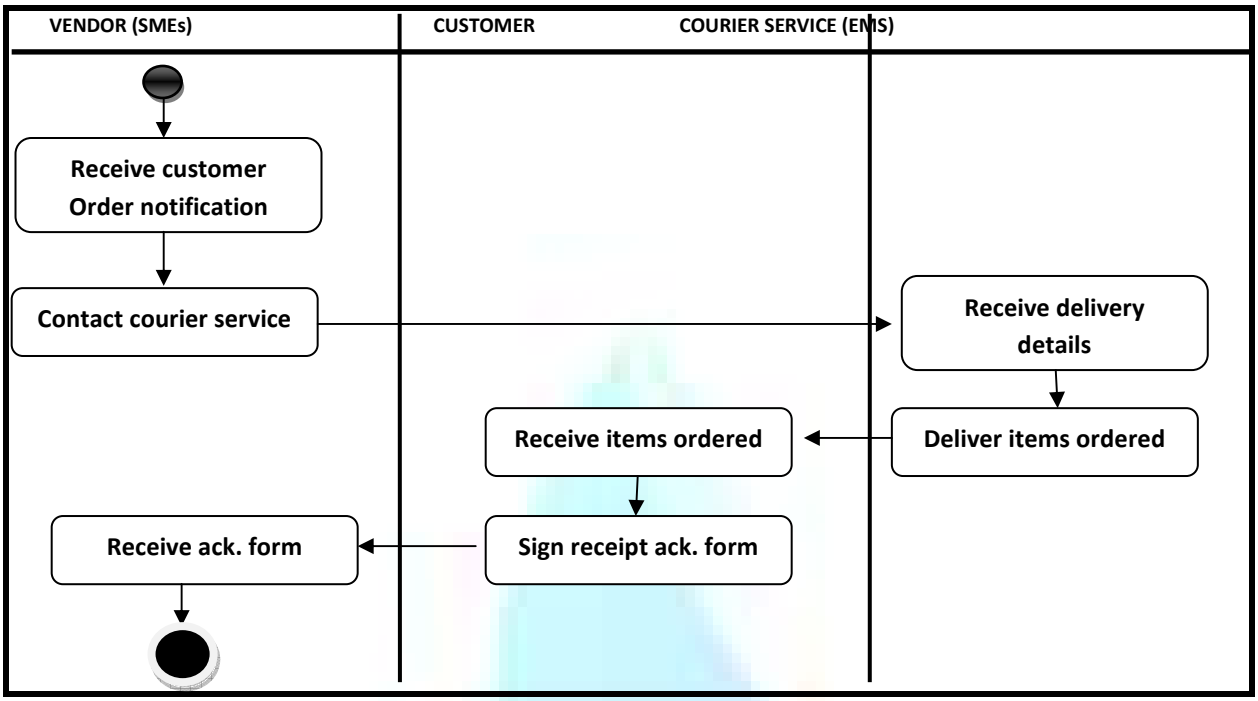


FIG. 3: ACTIVITY DIAGRAM OF CUSTOMER ORDERS DELIVERY



The Activity diagram in Fig 3 shows the sequential business proposes that transpires between different actors in the model (vendor, customer, broker and mmm) when a customer initiates an order. It is however imperative to note that, for the purpose of simplification, the activities of the Certificate Authority as depicted in the rich picture are left out. The Certificate Authority (CA) after the issuance of certificate to the vendor and MMM, when a customer initiates an order process, the CA is responsible for ensuring that data to be transmitted is properly encrypted with the certified keys of the recipient and ensures appropriate decryption of data when data reaches recipients. This helps to ensure secure transmission of financial and personal data in electronic form in the proposed model. Fig 2 on the other hand shows the sequential processes undertaken by the vendor, and courier service in ensuring the customer receives the items ordered.

CONCLUSIONS AND RECOMMENDATIONS

The theoretical contribution of this paper is to explain the 'Whys' and 'Hows' of ecommerce in Ghanaian Small and Medium Scale Enterprises. The above discussions indicate that an e-commerce network model could helps to overcome barriers like lack of e-payment system, high cost ICT Infrastructure, lack of efficient delivery system and the issue of security and mistrust of electronic transactions by customers. This model proposes mobile money payment system introduced by the Mobiles Network Operators (MNOs) as a way to overcome the problem of efficient payment system, Certificate Authority who will provide digital certificates for encryption and decryption as a way of overcoming the issue of security and trust in the ecommerce circles, a courier service to deliver effective transport system and a broker who will provide the ICT infrastructure for ecommerce to circumvent the problem of high cost of ICT infrastructure underpinning the adoption of ecommerce by Ghanaian SMEs.

LIMITATION OF THE STUDY

This study was conducted with the assumption that the existing mobile money payment systems will have a minimal down time, since the proposed model is dependent on the availability of the mobile money payment systems.

The proposed model is also limited by the lack of inter-operability between the Mobile Money Payment Service Providers. This prevents customers from one Mobile Money Payment Service Provider from doing business with others. For instance, a customer who holds an MTN mobile money account can only buy goods and services from vendors with MTN mobile money account, but not from those with AirTel money or Togo cash.

SCOPE FOR FURTHER RESEARCH

Further studies could be undertaken to develop a model for ensuring inter-operability between the Mobile Money Payment Service Providers, which would allow an in-depth analysis into the business requirements for ensuring such integration. A cost and benefit analysis could also be carried out. The e3-value model could also be used as tool for determining the actual economic value created by the model.

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ORIGINAL EQUIPMENT MANUFACTURING IN ETHIOP

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ABSTRACT

It is to introduce and encourage producing spare parts of automobile vehicles as an ancillary production center. In Ethiopia many imported vehicles from different parts of the world are in daily use. Maximum numbers of vehicles are of Toyota. Also the spare parts are imported by spending lot of money and time. The main source of transport for all the classes of people are taxis and buses in the country. There are some private taxies operating in all the cities like matador vans, three wheelers (Bajaj and TVS) from India which are the cheapest mode of transport for the poor people. Also two wheelers (motor bikes) of China (Lifan), India (TVS & Bajaj) and Europe can be seen on the roads, which are of small quantities. Ethiopia claims that there are lots of resources available in the country. It is true the country has treasure of resources which are not being fully utilized or explored. This paper is in relation to develop spare parts for the automobile vehicles. Utilizing the resources like man, machine and the techniques available to produce the spare parts as OEM (Original Equipment Manufacturer).In developed countries in the mass manufacturing industry; they are using latest equipment and improved methods in process to produce the quality goods. Similarly it is possible to produce the same items maintaining the same quality here by using the proper tooling. The spare parts of hydraulic break system are chosen from Automobile industries. Break system of hydraulic is of two types1. Foundation breaks 2. Disc brake. The parts are chosen from foundation brake system, in which wheel cylinder and master cylinder for passenger car and tandem master cylinder for truck are provided. Totally there are three sub-assemblies in the system. 1. Back plate assembly 2.Wheel cylinder assembly 3.Master cylinder assembly.

KEYWORDS
Wheel cylinder, Master cylinder & Back plate Assembly.

1. INTRODUCTION

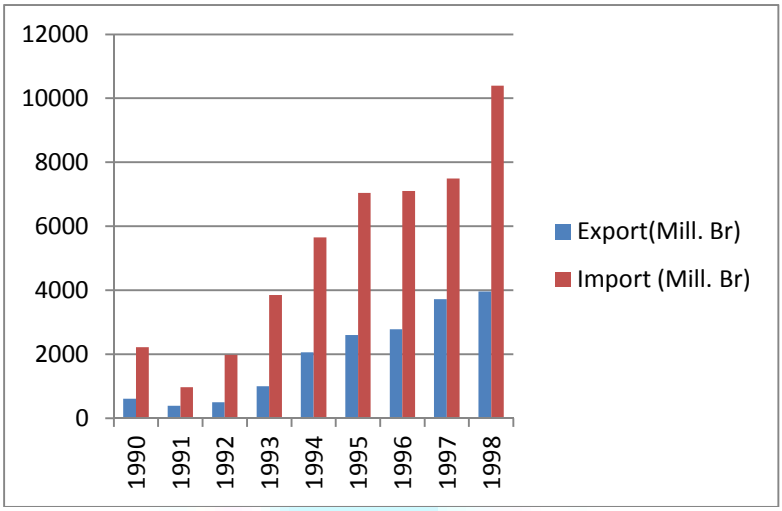
Products from original equipment manufacturers (OEMs) are usually comprised of a substantial number of technologically separable components, which are often procured from independent suppliers. An increasingly popular contract form used by OEMs to engage suppliers is the so-called branded component contract. The distinguishing feature of these contracts is the presence of the OEM's brand and the supplier's brand on the end product and or on marketing materials.

1.1. ETHIOPIAN INDUSTRIAL POLICY

The Government's broad economic and industry specific policies are designed to increase the growth potential and international competitiveness. [1]In addition, Ethiopia's extensive minerals and energy resources ensure that Ethiopia has relatively low utility charges for industrial users. Ethiopia's levels of educational attainment are a source of competitive advantage and underpin the skills base of the workforce. [10]The Ethiopian Government is undertaking initiatives across the education spectrum to produce employees who will better meet the changing needs of future employers.[11] Ethiopia's welcoming attitude to foreign investment, today, *Invest Ethiopia*, the Government's inward investment agency, provides foreign firms with information in regard to potential investment opportunities in Ethiopia.[12],[13] *Invest Ethiopia* can provide information on location, joint venture partners, establishment costs and skills and taxation information.

All of the motor vehicles operating in the country are imported. [2]As a result, the following statistics of import of motor vehicles will provide a clear picture of the growth of the automotive.

1.2. IMPORT AND EXPORT IN ETHIOPIA



1.3. FACTORS AFFECTING THE AUTOMOTIVE MARKET

- Fluctuating demand (seasonality of the demand)
- Tough terrain (road condition)
- Lack of capacity in repair and maintenance
- Lack of foreign currency for importation
- Lack of adequate bank finance

There are good numbers of industries in operation throughout the country in various sectors and are in different fields. Mostly the sugar and cement industry is doing well in the country. Agricultural industry, textile industry and spare parts manufacturing units including floricultural industry are some of the additional activities.

1.4. AUTO SPARE PARTS PRODUCTION

The spare parts manufacturing company Akaki industry is well established company in the country apart from the other industries like Mesfin Industrial Engineering, Maru metal and automotive company, are operating for manufacturing the trolleys and for tankers production. [3][BISHOFTU automotive industry, FDRE metals & Engineering Corporation, Metals and Engineering Corporation Adama, Agricultural Machinery Industry, Bus body units and auto garages/works shops are in operation for the full capacities. There are some steel manufacturing units producing nails and zinc sheet manufacturing. As mentioned earlier the spare parts and vehicle manufacturing industry is not in operation. [9]Main focus of the above mentioned industries is assembling, upgrading and localizing city and cross country buses, mid and mini-buses, construction, military and agricultural vehicles. So emphasis is to be made to establish this industry in the country to have their own products. This paper is for manufacturing the Original Equipment Manufacturing in Ethiopia by taking collaboration from other countries which are doing well and interested in giving the technology.

1.5. VALUE OF IMPORT OF MOTOR VEHICLES

Period	Motor vehicles (in thousand birr)	Increase from previous year	Increase during five years
1979 - 1980	135789	-	
1980 - 1981	165328	22%	
1981 - 1982	259372	57%	
1982 - 1983	164765	-36%	
1983 - 1984	210621	28%	
1984 - 1985	179589	-15%	32%
1985 - 1986	287134	60%	
1986 - 1987	339324	18%	
1987 - 1988	369944	9%	
1988 - 1989	379220	-25%	
1989 – 1990	189288	-32%	5%
1990 – 1991	249844	32%	
1991 – 1992	177203	-29%	
1992 – 1993	402403	127%	
1993 – 1994	825890	105%	
1994 – 1995	1015951	23%	43%
1995 – 1996	1393422	37%	
1996 – 1997	1117480	-20%	
1997 – 1998	795978	-29%	
1998 – 1999	1390946	75%	
1999 – 2000	1548459	11%	52%
2000 - 2001	1456285	-6%	
2001 – 2002	1437245	-1%	
2002 – 2003	1817630	26%	
2003 - 2004	2124501	17%	37%

The growth of the automotive sector can also be analyzed from the employment creation perspective. As the following table indicates, the employment creation of the sector has been gradually increasing though with fluctuation for some years. [4]As it's discussed above, the manufacture of motor vehicles in Ethiopia is limited to assembly, manufacture of bodies of vehicles and small scale manufacture of parts and accessories.

NUMBER OF EMPLOYEES

INDUSTRIAL GROUP	NUMBER OF EMPLOYEES				
	2000/01	2001/02	2002/03	2003/04	2004/05
Manufacture of motor vehicles	1,060	1,082	1,019	1,130	1,232
Manufacture of bodies for motor vehicles	987	1,009	946	1,029	1,148
Manufacture of parts and accessories for motor Vehicles and their engines	73	73	73	101	84

The above table indicates that the number of employees engaged in the manufacture of motor vehicles bodies and accessories increased from 1,060 in year 2000/ 2001 to 1,232 in year 2004/05. [2]This overall increase in number of employees engaged in the sector by more than 16% implies the growing trend in the manufacturing section of the automotive industry

2. AN OVER VIEW OF ASIAN COUNTRIES AUTOMOBILE INDUSTRY

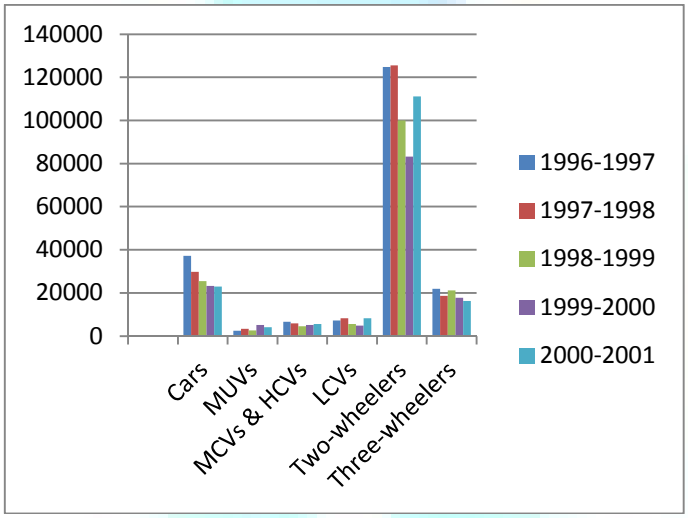
2.1. EXPORT MARKET OF CHINA FROM 1990 TO 2000

	Total (in unit)	**Trucks** (in unit)	**Passenger cars** (in unit)	**Auto parts** (ten thousands of US$)	**Total auto products** (ten thousands of US$)
1990	4 431	3 254	73	8 170	12 784
1991	4 108	2 253	789	10 138	15 284
1992	6 375	2 243	914	12 395	30 615
1993	11 116	4 534	2 866	17 165	42 422
1994	18 648	10 234	784	24 580	51 520
1995	17 747	9 070	1 413	37 609	72 138
1996	15 112	6 525	635	38 208	81 650
1997	14 868	8 297	1 073	44 718	98 784
1998	13 627	8 176	653	48 960	88 343
1999	22 717	3 868	326	70 599	118 727
2000	39 327	7 093	523	152 400	247 900

2.2. AUTOMOBILE INDUSTRY IN INDIA

In India, as in many other countries, the auto industry is one of the largest industries. It is one of the key sectors of the economy. [5]The industry comprises of automobile and the auto component sectors and encompasses commercial vehicles, multi utility vehicles, passenger cars, two-wheelers, three-wheelers, tractors and related auto components. [7], [8]There are at present 13 manufacturers of passenger cars and multi utility vehicles, 7 manufacturers of commercial vehicles, 11 of 2- or 3-wheelers and 10 of tractors besides 4 manufacturers of engines.

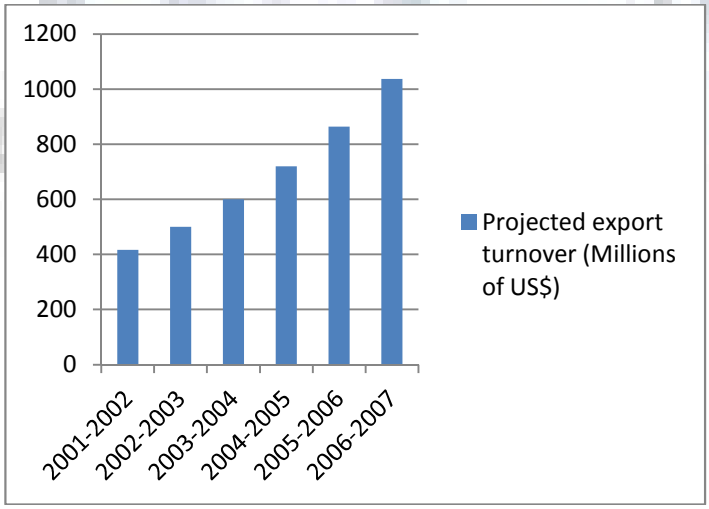
2.2.1. INDIAN CAR EXPORTS, 1996-2001 (number)



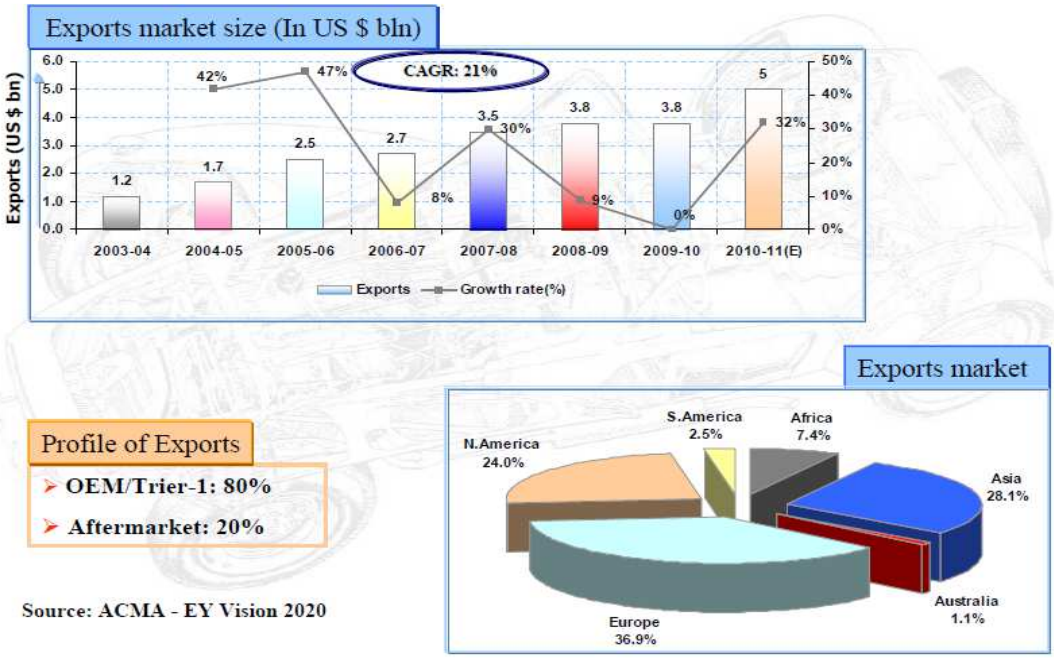
2.2.2. MAIN EXPORT DESTINATIONS

Cars	Egypt, Kenya, Nigeria, Somalia, Tanzania, Afghanistan, Nepal, Turkey, Hungary, Greece, Italy, Netherlands, Spain, Austria, Malta
CVs	Egypt, African countries, Nepal, Sri Lanka, Jordan, Kuwait, Hungary, Russian Federation, France, Brazil
Two-wheelers	African countries; Bangladesh; Sri Lanka; Turkey; United Arab Emirates; Paraguay; United Kingdom; Germany; Argentina; Mexico; Australia; Hong Kong, China

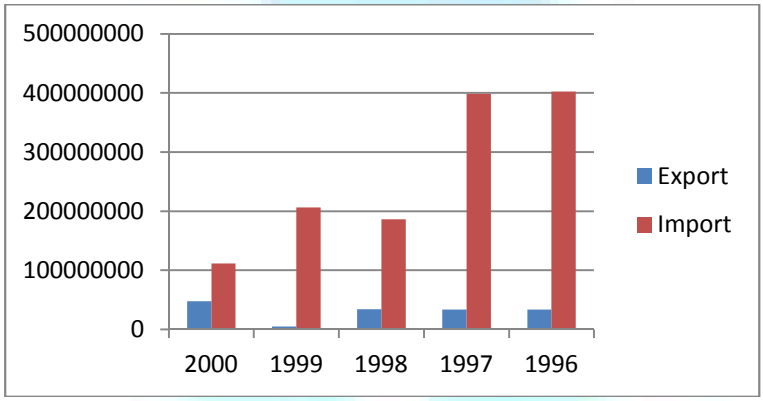
2.2.3. PROJECTED EXPORT TURNOVER (millions of USD)



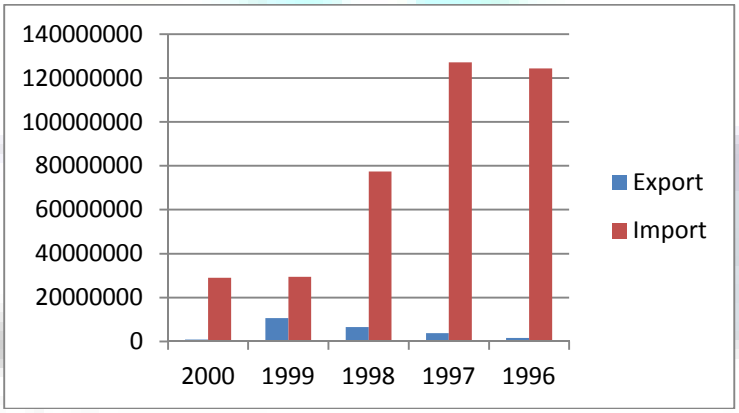
2.2.4. EXPORT MARKET SIZE (in USD bln)



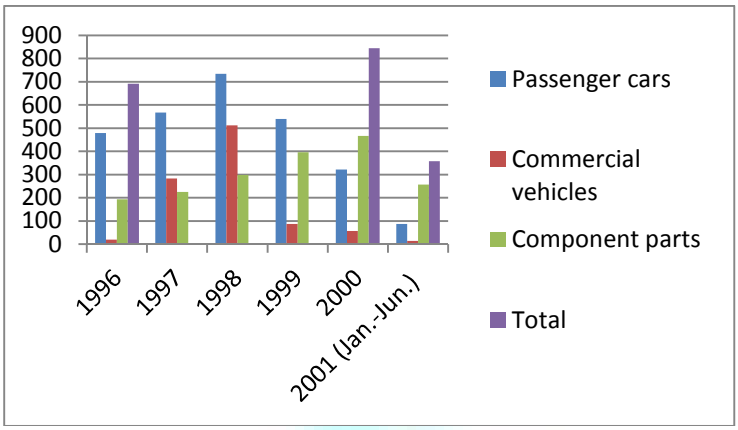
2.2.5. INDONESIA TO THE WORLD: CBU COMPLETELY BOUGHT OUT



2.2.6. INDONESIA TO THE WORLD: CKD COMPLETELY KNOCKED DOWN



2.2.7. MALAYSIA [6]



2.2.8. AUSTRALIA'S TOP TEN EXPORT MARKETS, 2000-2001

Market	Vehicles [000 of A$]	Components in [000 of A$]	Total [000 of A$]	Change on 1999 - 2000 [%]
Saudi Arabia	1 208 675	25 028	1 233 702	+73.9
United States of America	498 729	488 143	986 872	+31.3
New Zealand	363 204	147 083	510 286	-8.7
Republic of Korea	2 041	386 107	388 148	-4.1
United Arab Emirates	230 393	11 587	241 980	+100.5
Japan	34 139	194 836	228 976	-1.8
Kuwait	170 756	6 795	177 051	+36
Indonesia	93 000	58 955	151 955	+11.1
United Kingdom	11 233	54 216	65 449	-32.2
Oman	59 668	2 490	62 158	+31.9

3. CONCLUSION

It is suggested to collaborate with the countries of Asia, which are in the field and select required items to be produced as OEM product with proper contract and start producing the goods. For all these activities there is one agency known as MSE (Macro Small Enterprises) in almost all the cities of the country. The MSE agency is very keen in cluster development activities and motivates the entrepreneur in producing the products. As mentioned, it is suggested to begin the first phase of production with simple products like wheel cylinder assembly, whose manufacturing process is simple and easy. Also it involves simple operations, which can be performed by using conventional machines with suitable fixtures. After fully establishing this product and satisfying the domestic market, proceed for the second phase of producing the master cylinder assembly and finally for the last phase of back plate assembly production. By this time hopefully gaining the local market for the products and after sufficient inflow of finance, think of going for purchasing latest equipment to improve the quality of the product and enhance the rate of production, even to grab the international markets. Once the products produced are accepted in the international market like other countries, who are in the same field, really the country will gain good reputation and feel proud saying that **MADE IN ETHIOPIA**. Let the world recognize the products produced in Ethiopia and full fill their need of demand.

So this is really a good chance for investors, young entrepreneurs to utilize the opportunity and exhibit the skills in producing the products and standing in local and international market. The commerce and industry bureau in collaboration with financial institutions will arrange to fund. The investors, entrepreneurs can obtain the various schemes of these institutions and get benefited from them.

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AN ANALYSIS OF COST OF PRODUCTION OF GROUNDNUT AND PROFITABILITY AT MANIKGONJ DISTRICT IN BANGLADESH

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ABSTRACT

Bangladesh is an agricultural country. The most of her inhabitants directly or indirectly are involved in agricultural activities for their livelihood. Agriculture has a great contribution to the Gross Domestic Product (GDP) of the country. Earlier more than 50% of GDP came from this sector. When industrialization starts happening the activities of the population starts diversification towards different sectors. As a result, the contribution of the agriculture sector is slowly reducing and now reached 19% share of GDP. Still agriculture plays vital role and is known as the most important sector of the economy Bangladesh by birth possesses very fertile land in which diversified crops grow very easily. Groundnuts are one of the major oilseed crops of Bangladesh, but yields are low when compared to the world average, with the result that Bangladesh produces only about 40% of its domestic oil consumption. Groundnuts are mostly used as ingredients for a number of industrially processed foods and contribute little to oil production.

KEYWORDS
Food security, human resource development, macro economics, poverty alleviation.

1. INTRODUCTION

Bangladesh has a large agrarian base with 76 percent of total population is living in the rural areas and 90 percent of the rural population directly related with agriculture. Increasing food production and attaining food security in Bangladesh require sustainable growth of agricultural sector. The Agro-Economic contribution is 20.83 percent of the Gross Domestic Product. Rice is the main food for above 150 million populations. The population growth rate is 2 million per year. According to this rate, the total population will become 233.2 million within 2050. However, she faces a tremendous challenge for providing food security to the increasing population. Therefore, it is imperative to increase oil seed production in order to meet the growing demand for edible oil &vegetable fat emanating from population growth. The diverse climatic phenomena like cyclone, drought, changing rainfall patterns and temperature; there has been a significant lost in food grain and oil seeds production in every year. Therefore, the Climate Change Impacts on groundnut Production in Bangladesh, challenges are faced by the agricultural sectors from the climatic conditions.

2. STATEMENT OF THE PROBLEM

Most of the population of Bangladesh is directly or indirectly dependent on the agricultural sectors and most of the employment sectors are circled in agricultural base. So it is high time our concentration should be increased in the agricultural sector. In our country many kinds of product is cultivated some are directly used for food; some are used in industrial sectors, and so many kinds. I prefer to analyze the cost of inputs of the different agriculture product, and how the corresponding cost of the production can be economic model. In case of this research I try to give emphasize on the Economic Modeling of the Cost of Inputs for groundnut Production.

3. OBJECTIVES OF THE STUDY

Mainly Farmers & Farming are the life-blood of modern economy. The specific objectives were the followings:

1. To get an overall idea about the groundnut Cultivation Systems as a whole under the study.
2. To generate per unit cost of production and profit per acre.
3. To evaluate the factors affecting the Groundnut Cultivation Systems & analysis the relating factors & identifies the findings as the Economic Model.
4. To identify the problems & give suggestion for Groundnut Cultivation in Bangladesh.

4. LIMITATION OF THE STUDY

Several limitations had taken place in this study. Among them, the following were worth mentioning:

1. Personal barriers like inability to understand some agriculture terms created a few problems the researcher.
2. The survey was conducted in the field. However, due to confidential reason, all necessary information was not available.
3. Respondents were very busy. A study that encloses interview of 30 farmers cannot conclude anything accurately and as such, it was based on miss information.

5. REFERENCE & LITERATURE

Groundnut *(Arachis hypogaea* L.) is the third most important legume crop in Bangladesh which is grown on 27073 ha with a production of 34240 metric tons in 2002-2003 (BBS, 2005). It is used as edible oil, to make cake, biscuit and bakery in the food industries. Recently the area of groundnut is being decreased due to the competition with *rabi* crops like wheat, potato, *boro* rice and mustard (Biswas *et al.,* 1997). Moreover, most of the char areas of Bangladesh become inundated in the *kharf* season which causes the decline of groundnut area. In *kharf* season, only some high lands are used for groundnut cultivation.

The temporal way of increasing food production includes adoption of modern varieties, practicing of improved cultural techniques and following the appropriate cropping systems. Intercropping system is one of the important approach of cropping systems, emerged as an important tool for increasing crop production. Better intercrop production could be achieved with the choice of appropriate crops (Santalla *et al.,* 2001), population density and planting geometry of component species/crops (Myaka, 1995). Combination of groundnut (Jhinghabadam) and hybrid maize in intercropping systems may increase the production and fulfill the demand for maize and groundnut. In this context, the experiment was conducted to find out the performances of different varieties of hybrid maize under intercropping systems with groundnut for higher productivity and profitability

6. METHODOLOGY OF THE STUDY

6.1 PROFILE OF THE STUDY AREA

Research was done on farmers of seven villages of three Unions namely Bachamara, Charkatary, Bagutia of Doulat Pur Upzila under Manik Gonj districts, Dhaka division of Bangladesh. There are about 500 farmers are cultivating groundnut in the mentioned above Unions. Out of these 30 farmers has been selected randomly for the study. A total of 30 clients, who have taken groundnut cultivation have been interviewed for collecting data.

6.2 RESEARCH DESIGN

In this section, I would try to follow the appropriate methodology to obtain the necessary primary and secondary data and analyze them in the light of desired objectives of the study. There are various methods of study in the nature of a set pattern for conducting socio-economic research.

6.3 SOURCES OF DATA

The study is involved in collection of data both from the primary and secondary sources. Different types of data and their sources are discussed under the following heads:

6.4 PRIMARY DATA

Primary data have been collected through field survey. One set schedule of questionnaire was used for the respondents. The data thus collected have been subsequently processed, tabulated and analyzed for the purpose of the study.

6.5 SECONDARY DATA

The secondary sources include govt. publications; annual reports on groundnut cultivation, seminar papers, journals, published and unpublished thesis, and topic reelected various books, web site etc.

7. ANALYSIS AND INTERPRETATION OF THE DATA

BACK GROUND STUDY OF FARMER

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30-35	2	6.7	6.7	6.7
	35-40	6	20.0	20.0	26.7
	40 Above	22	73.3	73.3	100.0
	Total	30	100.0	100.0	

From the above table ,it may be said farmer above 40 years are highly interested in groundnut cultivation.it means experienced farmers have better probability to succeed groundnut cultivation.

TYPE OF FARMER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	large farmer	7	23.3	23.3	23.3
	medium farmer	15	50.0	50.0	73.3
	small farmer	8	26.7	26.7	100.0
	Total	30	100.0	100.0	

From the above table , we may say that medium famers are more interested in groundnut cultvationthan large farmers & small farmers.Because medium farmers are more care ful in making profits and seeks highly profitable crops.Small farmers are interested in food grain (rice,wheat,maize,millet,etc).Large farmers have more land,they cultivate various types of crop ,so they are not inteestde in particular crop.

FAMILY MEMBER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4.00	5	16.7	16.7	16.7
	5.00	12	40.0	40.0	56.7
	6.00	7	23.3	23.3	80.0
	7.00	3	10.0	10.0	90.0
	9.00	2	6.7	6.7	96.7
	11.00	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

From the above table it may be said family having members more than 4 are interested in groundnut cultivation .Because it is highly labor intensive cultivation it requires labors in land preparation ,sowing of seed ,weeding& earthing up ,harvesting ,sun drying ,grading ,transportation etc activities.

ADULT SON

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nil	10	33.3	33.3	33.3
	1-5	20	66.7	66.7	100.0
	Total	30	100.0	100.0	

From the above table we may say that farmers having adult son are highly interested in groundnut cultivation. Because adult sons can help their fathers in groundnut cultivation activities in land preparation ,sowing of seed ,weeding& earthing up ,harvesting ,sun drying ,grading ,transportation etc.

MALE SERVANT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nil	12	40.0	40.0	40.0
	1-5	18	60.0	60.0	100.0
	Total	30	100.0	100.0	

From the above table it may be said farmers having male servant are interested in groundnut cultivation .Those who have no male servant are not interested in groundnut cultivation because it is a highly labor intensive process.

SUMMARY OF VARIABLE COST AND TOTAL COST ARE AS FOLLOWS

Respondents	Land rent	Human Labor	Seeds	Fertilizer	Insecticides	Total
1	8400	16000	5625		300	30325
2	8820	16450	5850	600	500	32220
3	9450	15800	5400			30650
4	8400	16400	5850	500	200	31350
5	7000	14700	6000	600	300	28600
6	9450	17300	5850	400	100	33100
7	8400	15250	5000			28650
8	7350	15600	5200			28150
9	7350	14850	5625			27825
10	8400	14300	5000			27700
11	8000	15500	5625	800		29925
12	7200	15900	5000			28100
13	7500	15500	5000			28000
14	8400	14870	5200			28470
15	9450	16000	5200			30650
16	8000	15000	5625	600	500	29725
17	7350	14200	5000			26550
18	10000	17750	5460		200	33410
19	8000	13700	5200		300	27200
20	7200	14650	5000	500		27350
21	10500	17960	5850			34310
22	10500	16200	4550			31250
23	10500	18050	5625			34175
24	8400	17550	5320			31270
25	9000	15450	5250		300	30000
26	8000	16950	5200	440	200	30790
27	7200	13950	5000	400	200	26750
28	7980	18300	5200		200	31680
29	7200	16300	5200	600		29300
30	8400	16450	5200	600		30650

Note: the cost for per acre in groundnut cultivation about 30 respondents in taka.

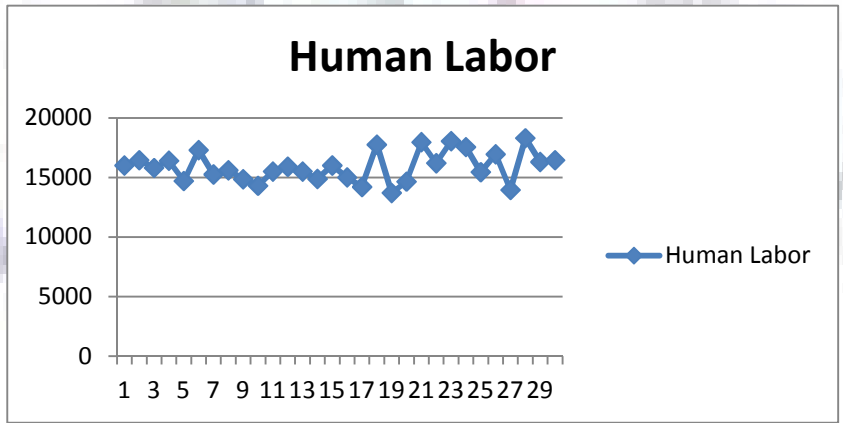
Here the cost of groundnut cultivation of 30 respondents shows vertically the costs (land rent cost, seeds, labor, fertilizer, insecticide ,farmyard manner and machinery). Actually the rent of land, human labor ,seed cost are the high reason . in this study area we have seen that farmers cultivate groundnut just after rainy season .So they do not depend on irrigation . Here we may see that the maximum total cost per acre is 34310(tk.) and minimum total cost per acre is 26550(tk.) and the average total cost is 29938(tk.) so here a fluctuation is exists in maximum total cost and minimum cost. So our duty is to find out that if the cost of the production increased then actually the net output or net return will increase or not, or the decrease of maximum cost will not effect on average output. We also calculate that if the cost increase or decreased then total output fluctuates or not, that means the responsiveness of output in case of rise or decrease of cost.

8. GRAPHICAL REPRESENTATION OF THE COST

8.1 COST OF HUMAN LABOR

The cost which is incurred for the manual activities (land preparation ,sowing ,weeding, harvesting ,sun drying , sorting ,grading etc.) of the groundnut cultivation. In case of groundnut cultivation it is so significant. However the cost of human labor are shown in following graph:

FIGURE-8.1: COST OF HUMAN LABOR

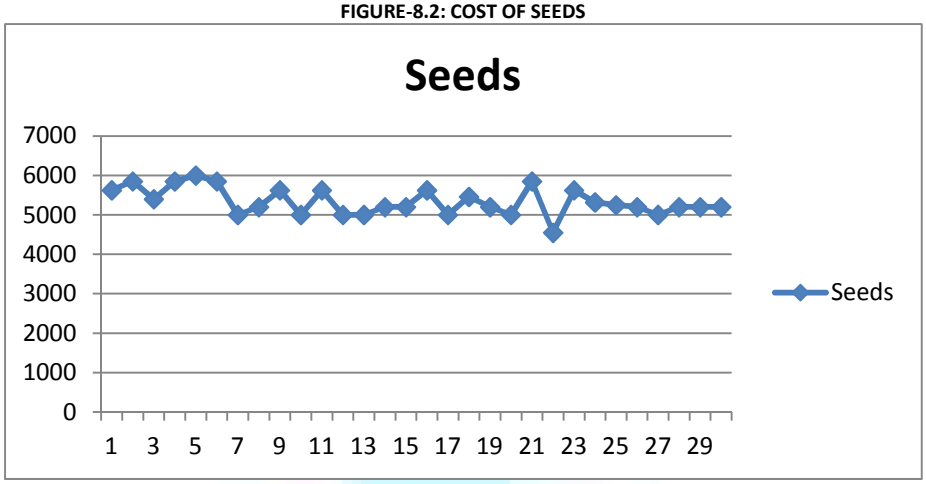


The figure-8.1 shows the variation of the cost of labor of the 30 respondents. The table also shows the minimum cost is TK.13700 and the maximum cost is TK.18300 per acre.

8.2. COST OF SEEDS

Cost incurred for buying seed is called seeds cost. However the cost of Seeds are shown in following graph.

FIGURE-8.2: COST OF SEEDS

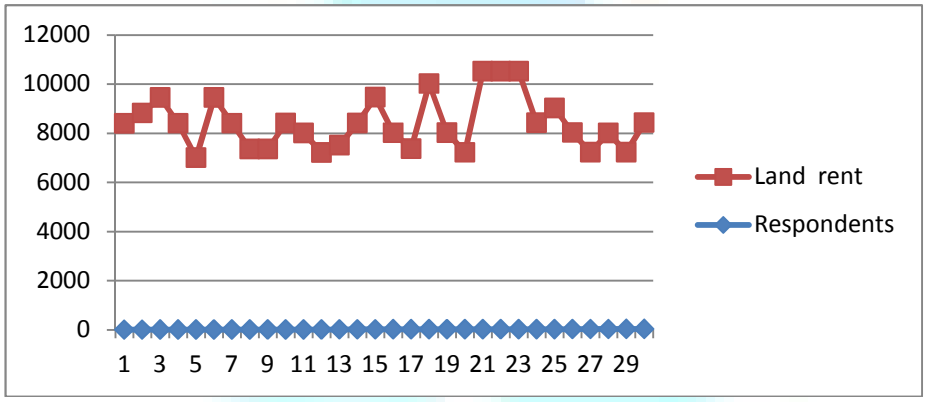


The figure-8.2. shows the variation of the cost of seeds of the 30 respondents..The table also shows the minimum cost is TK.4550 and the maximum cost is TK.6000 per acre.

8.3. LAND RENT COST

Land rent costs are the cost which is given to the owner of the land for the use of the land. However the costs of land are shown in following graph:

FIGURE-8.3COST OF LAND RENT



The figure-9.3vii shows the variation of the cost of land rent of the 30 respondents. The table also shows the minimum cost is TK.7200 and the maximum cost is TK.10500 per acre.

THE TOTAL COST AND TOTAL REVENUE OF THE RESPONDENTS ARE AS FOLLOWS:

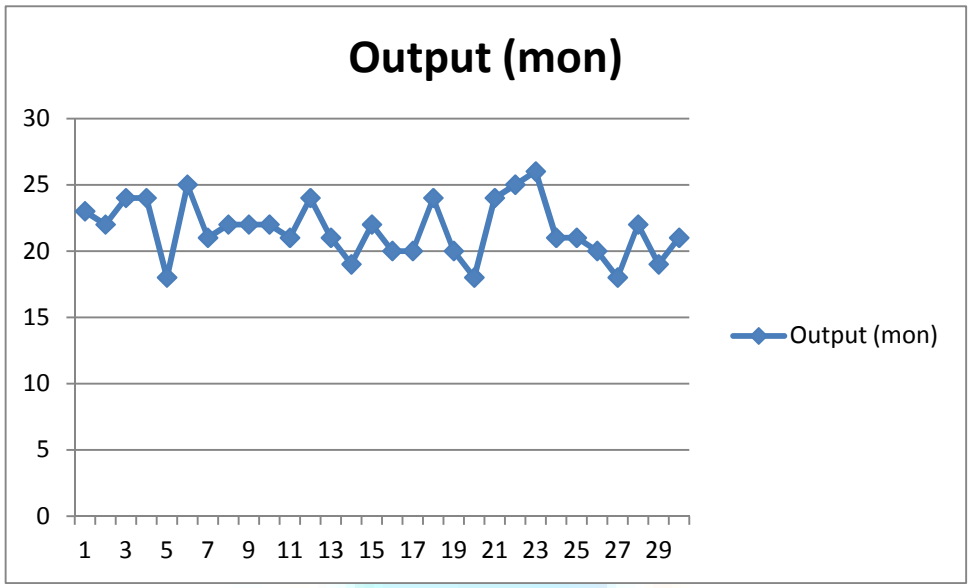
Respondents	Output (mon)	Tk. Per 40kg	Total Revenue	Total Cost	Net Profit
1	23	2800	64400	30325	34750
2	22	3000	66000	32220	33780
3	24	2800	67200	30650	36550
4	24	2700	64800	31350	33450
5	18	3000	72000	28600	43400
6	25	2800	70000	33100	36900
7	21	2700	56700	28650	28050
8	22	2800	61600	28150	33450
9	22	2700	59400	27825	31575
10	22	2800	62600	27700	34900
11	21	2800	58800	29925	28875
12	24	2700	64800	28100	36700
13	21	2800	58800	28000	30800
14	19	2800	53200	28470	24730
15	22	2800	61600	30650	30950
16	20	2600	52000	29725	22275
17	20	2800	56000	26550	29450
18	24	2700	64800	33410	31390
19	20	2800	56000	27200	28800
20	18	2700	48600	27350	21250
21	24	2800	67200	34310	32890
22	25	2600	65000	31250	33750
23	26	2700	70200	34175	36025
24	21	2400	50400	31270	19130
25	21	2600	54600	30000	24600
26	20	2600	52000	30790	21210
27	18	2700	48600	26750	21850
28	22	2600	57200	31680	25520
29	19	2700	51300	29300	22000
30	21	2800	58800	30650	28150

A GRAPAGRAHICAL PRESENTATION OF THE TOTAL OUTPUT AND REVENUE

8.4. I. AMOUNT OF TOTAL OUTPUT

The output means what amount of production is achieved. However the total output is shown in following graph.

FIGURE-8.4.I

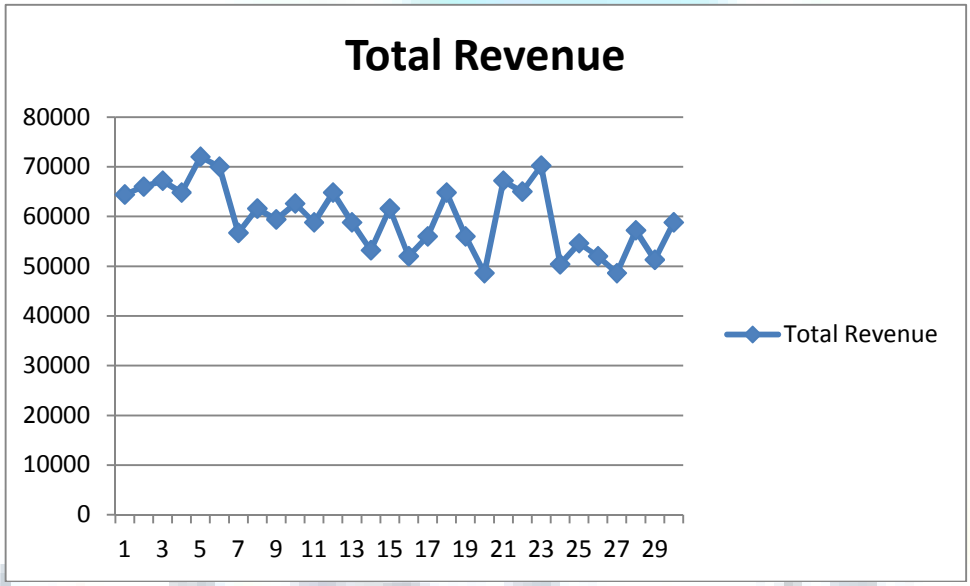


The figure-**8.4.I.** shows the variation of the total output of the 30 respondents. The table also shows the minimum output is 18 mon and the maximum output is 26 mon per acre.

8.4. II. TOTAL REVENUE

The price of goods sold and service rendered by a business. Equal to the inflow of cash and receivables in exchange for services rendered or goods delivered during the period. However the total revenue is shown in the following graph.

FIGURE-8.4.II



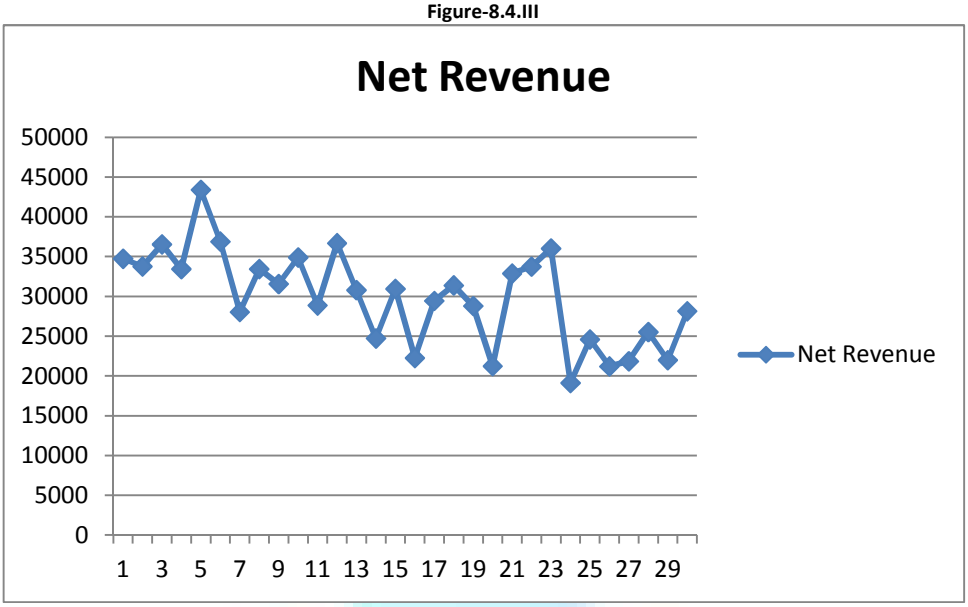
The figure-8**.4.II.** shows the variation of the total revenue of the 30 respondents. The table also shows the minimum revenue is TK 48600.and the maximum revenue is TK 72000, per acre.

8.4. III. NET REVENUE

The total cost subtracting from total revenue is called net revenue. However the net revenue are shown in the following graph.

AMOUNT OF TOTAL REVENUE

Figure-8.4.III



The above figure Shows the variation of the net revenue of the 30 respondents. The table also shows the minimum net revenue is TK 19130.and the maximum net revenue is TK 43400, per acre.

CORRELATION

		Land Rent	Seed Cost	Weeding and earthing up	Harvesting Cost	Total Cost	output	Net Revenue
Land Rent	Pearson Correlation	1	-.051	-.235	.411(*)	.252	.433(*)	.383(*)
	Sig. (2-tailed)	.	.789	.212	.024	.179	.017	.037
	N	30	30	30	30	30	30	30
Seed Cost	Pearson Correlation	-.051	1	.514(**)	.107	.348	-.007	.005
	Sig. (2-tailed)	.789	.	.004	.574	.060	.970	.979
	N	30	30	30	30	30	30	30
Weeding& earthing up	Pearson Correlation	-.235	.514(**)	1	.084	.254	.073	.055
	Sig. (2-tailed)	.212	.004	.	.660	.175	.702	.771
	N	30	30	30	30	30	30	30
Harvesting Cost	Pearson Correlation	.411(*)	.107	.084	1	.698(**)	.932(**)	.822(**)
	Sig. (2-tailed)	.024	.574	.660	.	.000	.000	.000
	N	30	30	30	30	30	30	30
Total Cost	Pearson Correlation	.252	.348	.254	.698(**)	1	.687(**)	.461(*)
	Sig. (2-tailed)	.179	.060	.175	.000	.	.000	.010
	N	30	30	30	30	30	30	30
Output	Pearson Correlation	.433(*)	-.007	.073	.932(**)	.687(**)	1	.901(**)
	Sig. (2-tailed)	.017	.970	.702	.000	.000	.	.000
	N	30	30	30	30	30	30	30
Net Revenue	Pearson Correlation	.383(*)	.005	.055	.822(**)	.461(*)	.901(**)	1
	Sig. (2-tailed)	.037	.979	.771	.000	.010	.000	.
	N	30	30	30	30	30	30	30

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

1. There is significant positive correlation between land rent and harvesting. Because higher land rent means more fertile of land that provides more output. As a result harvesting cost increases.
2. There is significant positive correlation between land rent and output .it is possible to get more output from the fertile land that have more rental value.
3. There is significant positive correlation between land rent and net revenue .Higher land rent means more fertile land that provides more output. As a result total profit & net revenue increase.
4. There is significant positive correlation between seed cost and weeding& earthing up.Higher seed cost means more density of seedlings those need to be thinning & weeding.
5. There is significant positive correlation between seed cost and harvesting& total cost. Harvesting is an important cost items of total cost. Higher harvesting cost increases total cost.
6. There is significant positive correlation between harvesting cost& output.Higher harvesting cost means more output.
7. There is significant positive correlation between harvesting cost& net revenue. Higher harvesting cost means more output that earns more net revenue.
8. There is significant positive correlation between total cost& output .Higher output is only possible when farmers spends more in land rent, seed cost ,weeding ,harvesting, sorting &grading etc sectors.
9. There is significant positive correlation between total cost& net revenue. More revenue is only possible when farmers spends more in land rent, seed cost, weeding, harvesting, sorting & grading etc sectors.
10. There is significant positive correlation between net revenue & output. Net revenue will be higher from higher output.
11. There is significant negative correlation between land rent & weeding cost. Higher rental value means land is more fertile and free from weeds.

PROBLEMS

1.High cost of seed.
2.Low quality of seed.
3.lack of agricultural credit facilities.
4.Malpractices of beparies/intermediaries.
5.labor shortage in season of cultivation.
6.High price fluctuation of groundnut.
7.Low dormancy of groundnut.
8.Malpractices of village moneylender

RECOMMENDATION

By considering the problems of groundnut cultivation in my study at Bachamara,Charkatary, Bagutia Unions of Doulatpur upazilla in Manik Gonj district some suggestion are given below.

1. Government should take the necessary steps to improve the groundnut cultivation.
2. Overall cost controlling system should be developed by the authority of Government agricultural board.
3. Trained manpower should be appointed to solve the supervisory problem of groundnut cultivator.
4. Strong and efficient administration should be established to control the cost of every sector of the cultivation.
5. Modern technology should be undertaken for better cost control.
6. Fruitful research should be conducted on cost minimization and also for betterment of groundnut cultivation.
7. Control the cost of , seeds and other items which are need for the cultivation.
8. Agricultural credit facilities to be ensured easily.

CONCLUSIONS

It is evident from the findings of the study that the cultivation of groundnut profitable to the farmers. Cultivation of groundnut requires highest costs (Tk. 34310/acre) and receives highest net returns (Tk. 43400/acre) . The cultivation is also a labour intensive crop. It was also found from the Farmers face problems generally, with the high cost of seed,fertilizers and their availability in time for the cultivation .

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LEVEL OF JOB SATISFACTION OF GARMENTS WORKER: A CASE STUDY ON SAVAR AREA IN DHAKA DISTRICT

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ABSTRACT

The term job satisfaction refers to an individual's general attitude toward his or her job. A person with high level of job satisfaction holds positive attitude toward his job while a person who is dissatisfied with his job holds negative attitude towards his job. Job satisfaction also occurs when a job meets the expectations, values and standards of an individual and will influence their commitment and performance. So from here, it is how an organization gets satisfaction from their workers in order to get their commitment to perform well. The study revealed that significantly lower percentage of the workers was satisfied with their present job. The study further suggested that working hours, overtime benefits, recognition for good work, management policy, promotional opportunity & good relation with colleagues were more important than working environment, job status, autonomy in work, participation in management, and open communication for their overall job satisfaction. There was not significant influence of personal factors such as age, experience, marital status, income, education, & skill on overall job satisfaction among the workers of garment industries at Savar area in Dhaka districts. The data are collected by face to face interview with a schedule of questionnaire and the core value of workers satisfaction and dissatisfaction that they feel from working in the garments industries situated at Dhaka district are placed here.

KEYWORDS
Autonomy, career development, job security, participation, task identity.

1. PRELUDE

Job satisfaction has been defined as a pleasurable emotional state resulting from the appraisal of one's job; an affective reaction to one's job; and an attitude towards one's job. Job satisfaction is the amount of pleasure or contentment associated with a job. If you like your job intensely you will experience high job satisfaction. If you dislike your job intensely, you will experience job-dissatisfaction. Job satisfaction is an individual's emotional reaction to the job itself. It is his attitude towards his job. Bangladesh, as we know, being a third world country is trying to expand its industrialization programs. As a result of this effort, various types of industries, such as, jute mills, textiles, garments factories, tobacco companies, tea factories, cement factories, steel industries, iron industries and metal industries etc. have been set up. This study analyzed the job satisfaction of the workers of garments industries situated at Savar area in Dhaka District.

2. LITERATURE REVIEW

The most frequently used definition of job satisfaction has been given by Locke (1976), who defined it as " a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences". There seems general consensus that job satisfaction has obtained a recognized position in the literature of industrial and organizational psychology (Maanen and Katz 1976).Harter, Schmidt and Hayes (2002) mentioned that 7,855 articles having being published between 1976 and 2000, on job satisfaction. Cole and Cole(*www.teammax.)* in their study mentioned that majority of the examining the employee satisfaction-performance relationship has been conducted on the micro level of analysis and a handful of studies have explored the relationship between aggregated employee job satisfaction attitudes and organizational (unit level) performance (Ostroff 1992; Ryan, Schmitt and Jonson 1996; Harter, et.al 2002; Schnieder, Hanges, Smith and Salvaggio 2003; Bowen and Ostroff 2004; Wright, Dunfold, and Snell 2001; Wright, Gardner, Moynihan and Allen 2005). Cole and Cole mentioned that the current understanding of how aggregated employee attitudes influence and are influenced by important business outcomes is limited and they based on the evidence to date) concluded that employee satisfaction is related to meaningful business outcomes and these relationships generalize across companies (and industries). They have also mentioned at their study that there is potential for longitudinal research in the area of aggregated employee satisfaction and this longitudinal study would suggest not only some directionality from employee attitudes to business outcomes (as well as the reverse) but a

reciprocal relationship in some cases Khan (2001) in his study mentioned that there is deliberate feminization of the workforce of the garment industry in Bangladesh and there are three reasons behind this deliberate feminization. These are: (1)Garment factory owners perceived that like the poor women workers of other Asian NICs who had been socially and economically oppressed for so long and who have low aspirations wages, teen age girls and young women from rural areas of Bangladesh have low aspiration wages. so, they appointed mainly unskilled teen age girls or young women mainly from the rural areas; (2) Since they are already in a susceptible socio-economic condition, as compared to their male counter parts, will agree to work for extra hours and if situation demands it will be easier to dismiss them; (3) most garment factory owners perceived them as docile, trustworthy and manageable. The author also mentioned in his study that most Bangladeshi garment factory owners have failed to see any causal relationship between labor standards and productivity outcomes. Therefore, many of them have become cost effective mainly by lowering labor standards and taking opportunities for low-wage employment due to the profusion of a young female labour force. Delahanty (1998) mentioned that workers of garment factories in Bangladesh frequently suffer from hacking coughs, severe eye strain due to poor lighting and working hours, respiratory problems, low back and joint pain and urinary tract infections because they are denied access to toilet facilities. The authors also mentioned that travel to and from factories are dangerous and women are often sexually harassed

Paul- Majumder and Begum (2000) found (most of the data of this study have been collected from the survey of 1990; 1993 and 1997) that male and female workers of garment industry work about 12 hours a day, there is absence of leave facilities and weekly holiday. They found that although the workers were paid for overtime work on weekly holiday, no alternative holidays were given to these workers whereas workers in other export and non export industries enjoy almost all weekly holidays. Prospects of promotion for the workers in the garment industry are slandered. Most of the garment factories are overcrowded, congested and poorly ventilated. The consequences of these sub-standard working conditions garment workers in

Bangladesh are exposed to toxic substances and dust. The workers, particularly the operation and sewing helpers, who are mostly female, continuously breathe in these substances. Most of the garment factories do not have adequate fire protection measures and toilet facilities are very poor. The study found that garment workers in Bangladesh suffer from the absence of lunchroom, lack of pure drinking water and lack of canteen facilities. and they are not entitled to any fringe benefits including accommodation allowance, health care, emergency funds and transportation.

Absar (2001) in her study mentioned that Bangladesh has the cheapest unit of labor cost in South Asia. It costs only 11 cents to manufacture a shirt in Bangladesh whereas it costs 79 cents in Sri Lanka and 26 in India.

Clearly, the comparative advantage of Bangladesh in this case lies in having the cheapest unit labor cost.

The author also mentioned that workers of garment factories in Bangladesh are asked to work whole months at a time without a single day off.

Rogers (2010) in his writing mentioned that Bangladeshi garment workers are the lowest paid garment workers in the world. Although their minimum wage was supposed to have risen to about $40 a month in

November 2010, many garment factory owners are still paying the old minimum wage of $24 a month.

He also mentioned that most Bangladeshi garment workers do not belong to unions and most of the union leaders are working for the interest of the garment factory owners and those who are actually trying to help them are being harassed by the employers Islam and Swierczek (2003) analyzed the impact of technological change on job satisfaction of women garment workers in Bangladesh. The specific relationship between job satisfaction and the overall impact defined in socio economic terms shows that fair pay; task significance, bureaucracy, conflicts and information sharing are significantly related. Task significance and information sharing are positively related

to the overall impact. Unfairness in pay, high bureaucracy and higher level of conflicts cause a limited positive overall impact on women workers. The positive relationships to technological change include improvement of task significance, salary increase improvement of the quality of supervision, improved quality of relation and increase benefits. The negative consequences are unfair pay, work dissatisfaction, bureaucracy, conflicts between management and workers, decreased promotion for workers.

The controlled trade regime on textile and clothing, which was based on the Multi-fiber Agreement (MFA) made in 1979, was abolished on January 01, 2005. Yamagata (2007) reviewed the impacts of the changes on the main markets and examined the prospects for the markets for the markets and the source of countries. The author mentioned that the most critics before the MFA Phase-out declared that the garment industry in the low-income exporters will fall down because of the low level of technology incorporate into the shallow accumulation of physical capital, poor physical and institutional infrastructure and distance from the main markets. Among the lowest low-income countries Bangladesh and Cambodia were considered to be the most susceptible because they rely on clothing for as much as three quarters of the composition of all export commodities. Even inside the countries, exporters widely publicized their distressed situation and asked their government and international society for assistance. However, Bangladesh and Cambodia knocked over this forecast and have come out as tough exporters of garments and maintained rapid growth even during the high time for China. The author has mentioned that Bangladesh and some other low-income countries may penetrate more into the markets of developed countries if there would be the absence of labor disputes, wage increases, skilled labor shortages or insufficient physical and insufficient. If they handle those issues cleverly, they would become really competitive.

This study is unique in that although many studies have been conducted on the garment workers in Bangladesh, not a single study has been conducted to explore the job satisfaction of the workers of garment industry. The hypotheses for this study were developed based on the various studies conducted on the workers of garment sector in Bangladesh.

3. RATIONALE OF THE STUDY

There are many employees' are engaged in the private sectors organization in Bangladesh. They are involving with a huge number of problems. But they don't get scope to express their opinion to the higher authority due to stress, fear, lack of knowledge etc. On the other hand they have a limited power to find out the actual problem involving with their job. The private sector organizations of our country are involving with strike, bribe, slowdowns, non-cooperation, lock out etc. Only by the help of job satisfaction it is possible to overcome. The knowledge of job satisfaction is very much important to understand their problems at the workplace. But no substantial work has so far been conducted on socio economic background, job satisfaction and job security of the non-government organizations; especially on garments industries at Savar area in Dhaka District. So it is very essential to conduct a research study on levels of job satisfaction in workers of garments industries.

4. STATEMENT OF THE PROBLEM

The consequences of job satisfaction are very much important to an organization in terms of its efficiency, productivity, employee relations, absenteeism and turnover and to an employee in terms of his health and well being. Job satisfaction is the function of the perceived relationship between what one expects and obtains from one's job and how much importance or value he attributes to it. The indicators of job satisfaction such as, health, job safety, sustain facilities provided by respective authority, working environment, relationship with co-workers, salary structure, participation in factory management etc. With the end of the view, the present study has been designed to conduct a research work on the workers of various garments industries at Savar in Dhaka District; the socio economic background of employees, job satisfaction, job dissatisfaction and their consequence as the related issue.

5. OBJECTIVE OF THE STUDY

The main objectives of the study are as follows:

1. To identify the determinants of job satisfaction of Garments Industries.
2. To evaluate the social background of the workers of Garments Industries.
3. To find out the constraints of achieving job satisfaction.

6. RESEARCH HYPOTHESIS

1. H_1: Task identity affects on job satisfaction of employee.
2. H_2: Job security affects on job satisfaction of employee.
3. H_3: Work environment affects on job satisfaction of employee.
4. H_4: Relationship with Co-workers affects on job satisfaction of employee
5. H_5: Compensation benefits affects on job satisfaction of employee.
6. H_6: Overtime benefits affects on job satisfaction of employee.

7. LIMITATIONS OF THE STUDY

On the way of this study researcher has faced the following problems, which in terms may be considered as the limitations of the study. These are as follows:

1. The researcher could not spend sufficient time, which was required for the in-depth study.
2. The study mostly limited to only the 100 workers out of the 500000 workers of garments industries at Savar area in Dhaka District; which may be more in number for getting more accurate result.
3. Corrective measures for identified problems are not covered in it due to lack of experience.
4. All the respondents do not give answer correctly.

8. METHODOLOGY OF THE STUDY

In the present study, methodology is taken to indicate the underlying principles and methods or organizing and the systems or inquiry procedure leading to completion of the study. This chapter deals with various methodological issues relating to the study like profile of the sample unit, sample size of the respondents, sources of data and analysis of data used in the study. There are many garments industries at Savar area in Dhaka District but among them we have collected data from 10 garments industries such aSkyline Group ,Renoka GarmentsLtd ,Sahariar GarmentsLtd ,Oli Knitting Febrics Ltd ,Ector Febrics Ltd ,IDS Group, Young One Hightech Sportswear Ltd, Beximco Ltd ,Fountain Ltd ,ONUKA Ltd. have been selected for the purpose of my study.

SAMPLE SIZE OF THE RESPONDENTS

The present study conducted on the workers of ten garments industries at Savar area in Dhaka, Bangladesh. Total 10000 workers are working in these industries Limited. Out of the total 10000 workers, only 100 workers have been selected randomly for the study purpose. The 100 sample respondents have been selected from the five different departments.

SOURCES OF DATA

Both primary and secondary data are used for the purpose of the study. The study is mainly based on primary data. The primary data have been collected through personal interview of the workers of garments industries. However, the data could not be collected from primary sources, would be collected through secondary sources. Different types of data and their sources are discussed under the following heads.

PRIMARY DATA

The primary data have been collected through personal interview with the workers used by structured questionnaire. To collect the primary data researcher used three sets of interview schedules, specially prepared in the light of the objectives of the study. The collected data have been subsequently processed, tabulated and analyzed for the purpose of the study. The collected data have been processed, tabulated and analyzed in the logical manner.

SECONDARY DATA

The data could not be collected from primary sources have been obtained through secondary sources. The secondary sources include books, journals, annual report and unpublished research works.The collected data have been analyzed through the following statistical instruments: **Frequency Table:**

TASK IDENTITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	18	17.8	18.0	18.0
	Agree	76	75.2	76.0	94.0
	neither agree/disagree	1	1.0	1.0	95.0
	Disagree	5	5.0	5.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above data we may say that workers (94%) are satisfied with the task identity. Because in garments sector works are classified into various categories. So, hypothesis 1 is accepted. That means task identity significantly affects on job satisfaction.

JOB SECURITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	9	8.9	9.0	9.0
	Agree	42	41.6	42.0	51.0
	neither agree/disagree	5	5.0	5.0	56.0
	Disagree	33	32.7	33.0	89.0
	strongly disagree	11	10.9	11.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table it would be said that workers (51%) are moderately satisfied with their job security.
So, hypothesis 2 is accepted. job security significantly affects on job satisfaction.

AUTONOMY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	11	10.9	11.0	11.0
	Agree	39	38.6	39.0	50.0
	neither agree/disagree	3	3.0	3.0	53.0
	Disagree	37	36.6	37.0	90.0
	strongly disagree	10	9.9	10.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table it may be said that workers 50%) are moderately satisfied in autonomy at work place. Because only skilled laborers enjoy independence.

TASK SIGNIFICANCE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	31	30.7	31.0	31.0
	Agree	36	35.6	36.0	67.0
	neither agree/disagree	3	3.0	3.0	70.0
	Disagree	25	24.8	25.0	95.0
	strongly disagree	5	5.0	5.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table we may say that garments owner shows task significance to their workers. Workers are happy with their task significance.

CAREER DEVELOPMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	4	4.0	4.0	4.0
	Agree	25	24.8	25.0	29.0
	neither agree/disagree	29	28.7	29.0	58.0
	disagree	32	31.7	32.0	90.0
	strongly disagree	10	9.9	10.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table we may say that workers are not satisfied in career development opportunities.

PARTICIPATION IN MANAGEMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	3	3.0	3.0	3.0
	Agree	16	15.8	16.0	19.0
	neither agree/disagree	12	11.9	12.0	31.0
	Disagree	33	32.7	33.0	64.0
	strongly disagree	36	35.6	36.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table we may say that workers do not have any opportunities to participate in managerial decision.

RELATIONSHIP WITH CO-WORKER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	71	70.3	71.0	71.0
	Agree	21	20.8	21.0	92.0
	Disagree	5	5.0	5.0	97.0
	strongly disagree	3	3.0	3.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

Above table shows that there is prevailing a good relationship among the coworkers.

So Hypothesis 4 is accepted. Good relationship with co workers (92%) influences on job satisfaction.

WORK ENVIRONMENT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	10	9.9	10.0	10.0
	Agree	74	73.3	74.0	84.0
	neither agree/disagree	3	3.0	3.0	87.0
	disagree	6	5.9	6.0	93.0
	strongly disagree	7	6.9	7.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

Maximum workers (84%) agree that they are satisfied with the work environment of the garments.

So, hypothesis 3 is accepted. work environment affects on job satisfaction.

BONUS PACKAGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	7	6.9	7.0	7.0
	Agree	25	24.8	25.0	32.0
	neither agree/disagree	19	18.8	19.0	51.0
	disagree	32	31.7	32.0	83.0
	strongly disagree	17	16.8	17.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

Table shows that, bonus package are not sufficient to satisfy the workers expectation.

COMPENSATION/SALARY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	3	3.0	3.0	3.0
	Agree	22	21.8	22.0	25.0
	neither agree/disagree	11	10.9	11.0	36.0
	Disagree	36	35.6	36.0	72.0
	strongly disagree	28	27.7	28.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

The table shows that compensation package cannot satisfy the workers(64%) because of the increasing cost of living.
So, hypothesis 5 is not accepted. Compensation/salary does not affect on job satisfaction.

OVERTIME BENEFITS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	25	24.8	25.0	25.0
	Agree	66	65.3	66.0	91.0
	neither agree/disagree	3	3.0	3.0	94.0
	Disagree	3	3.0	3.0	97.0
	strongly disagree	3	3.0	3.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table it may be said that workers are highly satisfied with overtime benefits. In export oriented readymade garments sector workers have opportunity to get involve in overtime work schedule.
So, hypothesis 6 is accepted. Over time benefits affects on job satisfaction.

OVERALL SATISFACTION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	29	28.7	29.0	29.0
	Agree	45	44.6	45.0	74.0
	neither agree/disagree	13	12.9	13.0	87.0
	Disagree	6	5.9	6.0	93.0
	strongly disagree	7	6.9	7.0	100.0
	Total	100	99.0	100.0	
Missing	System	1	1.0		
Total		101	100.0		

Source: Field survey.

From the above table, we can say 74% workers are satisfied with their job.

CORRELATION

	Task identity	Job Security	Autonomy	Task significance	Career development	Participation in Management	Bonus	Compensation	Overtime benefits	Overall Satisfaction
Task identity	1	0.164	0.098	0.296 [88]	-0.164	0.066	-0.028	0.034	0.168	0.003
Pearson Correlation	_	0.103	0.330	0.003	0.102	0.511	0.781	0.740	0.094	0.979
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Job Security	0.164	1	0.240*	-0.032	0.199*	0.125	-0.104	0.184	0.075	0.185
Pearson Correlation	o.103	_	0.016	0.750	0.047	0.251	0.302	0.067	0.456	0.065
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Autonomy	0.098	0.240*	1	0.304**	0.278**	0.307**	0.112	0.323**	0.240*	-0.037
Pearson Correlation	0.330	0.016	_	0.002	0.005	0.002	0.268	0.001	0.016	0.711
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Task significance	0.296	-0.032	0.304	1	-0.186	0.282**	0.206*	0.081	0.177	-0.106
Pearson Correlation	0.003	0.750	0.002	_	0.064	0.004	0.040	0.425	0.078	0.294
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Career development	-0.164	0.199*	0.278**	-0.186	1	-0.170	0.126	0.095	0.121	0.117
Pearson Correlation	0.102	0.047	0.005	0.064	_	0.090	0.213	0.345	0.230	0.245
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Participation in	0.066	0.125	0.307**	0.282**	-0.170	1	0.146	0.382**	0.082	0.022
Management	0.511	0.215	0.002	0.004	0.090	_	0.147	0.00	0.417	0.828
Pearson Correlation										
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Bonus	-0.028	-0.104	0.112	0.206*	0.126	0.146	1	0.061	0.040	-0.100
Pearson Correlation	0.781	0.302	0.268	0.040	0.213	0.147	_	0.548	0.696	0.321
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Compensation	0.034	0.184	0.323**	0.081	0.095	0.382**	0.061	1	0.088	0.016
Pearson Correlation	0.740	0.067	0.001	0.425	0.345	0.000	0.548	_	0.386	0.875
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Overtime benefits	0.168	0.075	0.240*	0.177	0.121	0.082	0.040	0.088	1	0.220*
Pearson Correlation	0.094	0.456	0.016	0.078	0.230	0.417	0.696	0.386	_	0.028
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100
Overalls	0.003	0.185	-0.037	-0.106	o.117	0.022	-.100	0.016	0.220*	1
Pearson Correlation	0.979	0.065	0.711	0.294	0.245	0.828	0.321	0.875	0.28	_
Sig.(2-tailed)										
N	100	100	100	100	100	100	100	100	100	100

**correlation is significant at 0.05 level (2-tailed)

* Correlation is significant at 0.01 level (2-tailed)

1. Task identity has significant positive correlation with task significance. If individual worker finds specific task identity in his workplace, it will help to perform his /her duties properly and increases overall job satisfaction.
2. Autonomy has significant positive correlation with Job security. When a worker feels independence in his/her workplace, it positively affects job security.
3. Career development facilities have significant correlation with Job security. When a worker gets career development opportunities to enrich his/her career, that helps a worker to increase job security.
4. Autonomy has significant positive correlation with task significance. When a worker enjoys autonomy in his/her workplace, it will positively affect task significance.
5. Autonomy has significant positive correlation with Career development. When a worker enjoys autonomy in his/her workplace, he/she gets career development opportunities that help increasing job security.
6. Participation in management has significant positive correlation with Autonomy. When a worker can participate in management, he/she feels autonomy at workplace that increases job satisfaction.
7. Autonomy has significant positive correlation with Compensation/Salary. Autonomy and Compensation/Salary affect job satisfaction positively.
8. Overall job satisfaction has significant positive correlation with Overtime benefits. Due to minimum Compensation/Salary workers are happy to get overtime benefits to earn more maintaining minimum standard of living.
9. Task significance has negative correlation with Career development. When task significance does not influence on career development, it means there is lack of proper human resource management practices.

MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.390(a)	.152	.012	1.12183

a Predictors: (Constant), OVERTIME, SKILLVARIETY, JOBSECURITY, BONUSPACKAGE, FEEDBACK, WORKSCHEDULE, CAREERDEVELOPMENT, COMPENSATION, TASKSIGNIFICANCE, WORKENVIRONMENT, TASKIDENTITY, AUTONOMY, PARTICIPATION, COWORKERS RELATIONSHIP.

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	19.138	14	1.367	1.086	.382(a)
	Residual	106.972	85	1.258		
	Total	126.110	99			

a Predictors: (Constant) OVERTIME, SKILLVARIETY, JOBSECURITY, BONUSPACKAGE, FEEDBACK, WORKSCHEDULE, CAREERDEVELOPMENT, COMPENSATION, TASKSIGNIFICANCE, WORKENVIRONMENT, TASKIDENTITY, AUTONOMY, PARTICIPATION, COWORKERS RELATIONSHIP.

b Dependent Variable: OVERALLSATISFACTION.

COEFFICIENTS (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.114	.921		1.210	.230
	TASKIDENTITY	-.030	.210	-.017	-.145	.885
	FEEDBACK	.031	.116	.030	.267	.790
	JOBSECURITY	.174	.101	.193	1.728	.088
	AUTONOMY	-.159	.111	-.179	-1.433	.155
	TASKSIGNIFICANCE	-.076	.118	-.087	-.647	.519
	SKILLVARIETY	.106	.102	.124	1.031	.305
	COWORKERRELATIONSHIP	.157	.181	.134	.871	.386
	WORKSCHEDULE	-.064	.118	-.063	-.537	.593
	CAREERDEVELOPMENT	.125	.132	.116	.945	.348
	WORK ENVIRONMENT	-.212	.150	-.182	-1.410	.162
	PARTICIPATION	.141	.130	.146	1.083	.282
	BONUSPACKAGE	-.074	.103	-.079	-.719	.474
	COMPENSATION	-.044	.109	-.047	-.409	.683
	OVERTIMEBENEFITS	.380	.152	.276	2.498	.014

a Dependent Variable: OVERALL SATISFACTION.

From the above table we may say that, overtime benefits has no significant relation with overall job satisfaction.

RMG workers consider to other factors regarding job satisfaction like compensation benefits, task identity, task significance.

On the other hand the task identity is the greatest value which means workers are very satisfied with their responsibility. Moreover, other factors like compensation benefits, work schedule, task significance moderately satisfy the workers.

9. FINDING OF THE STUDY

Job satisfaction plays an important role to the workers of any organization in terms of its productivity, efficiency, employee relationship, absenteeism and turnover. From the analysis of the present study we find the following findings:

1. There was no significant influence of personal factors on the overall job satisfaction.
2. There was a significant positive correlation between job satisfaction and performance and a significant negative correlation between job satisfaction and absenteeism and accident.
3. The workers of the organization always expect good behavior from their higher authority.
4. There is very good relation with co-workers in the work place

10. LIST OF PROBLEMS

1. Low salary according to the cost of living.
2. Delay in payment
3. Lack of recreational facilities.
4. Lack of job training facilities.
5. Lack of safety in work place in emergency period(fire,earthquakew)
6. Lack of canteen facilities.
7. Lack of childcare facilities.
8. Lack of transport facilities.
9. Lack of medical facilities.
10. No pension management at the end of service life.

11. RECOMMENDATIONS

The present study was an attempt to obtain a better understanding about the causes of job satisfaction of garments industries at Savar in Dhaka District, Bangladesh. The following recommendations may be made in light of the present study:

1. Compensation / Salary &bonus package should be increased according to cost of living and to be paid regularly at just time.
2. Work place safety net program to ensured for increasing job satisfaction level.
3. Participation in management to be ensured.
4. Job security & training facilities to be ensured.
5. The promotional opportunities should be increased then present stage of promotional opportunities.
6. Workers are to be rewarded for their better performance.

12. CONCLUSIONS

It has been mentioned elsewhere in this paper that Bangladesh has overturned the prediction of the critics regarding the MFA Phase-out and this country has emerged as tough exporters of garments and maintained rapid growth during the high time for China. It has also been mentioned elsewhere in this study that many of the garment factory owners in Bangladesh have become cost effective mainly by lowering labor standards. The study found that workers of garment sector in Bangladesh are not satisfied with wage; safety facilities; leave policy; promotion policy and behavior of the owner. These findings show the true picture because these are in line with the various previous findings of study conducted on the garment workers' wages and working conditions. Besides, the two resource persons of this study also passed the same comment. The study also found that the workers in garment sector of Bangladesh are satisfied with working environment; present health care facility and overtime benefits. It is known that job satisfaction is a matter of perception and that perception may or may not be accurate. The various previous studies show that workers in garment sector of Bangladesh do not get proper health care facility and overtime benefits. The two resource persons of this study passed the same comment. The researchers can tell in this regard that the garment workers' satisfaction regarding health care facility and overtime benefits is due to their lack of awareness regarding their legal rights for health care facility and overtime benefits. The workers satisfaction regarding working environment and also does not reflect the true picture because in the organizations where trade unions are discouraged by the employers (although forming trade union is a legal right of the workers) and where employers have become cost effective mainly by lowering labor standards at this situations workers cannot get satisfactory work environment. This satisfaction is due to the workers' lack of awareness regarding the standards of working environment Minimum wages have been revised but workers demanded for Tk. 5000 as their minimum wage but have Tk 3000 as their minimum wage and still the garment factory owners are the lowest paid garment workers in the world. Many garment factories have introduced fire exit and fire extinguishers at the factories but there is tendency to lock the main gate deliberately. Therefore, the mere existence of fire exits and fire extinguishers cannot ensure the safe work

environment. Therefore, it can be mentioned that there may be some positive changes regarding some labor standards, which are not satisfactory at all and the overall quality of work life of the garment factory workers in Bangladesh has remained as dissatisfactory.

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INDIRECT TAX SYSTEM IN INDIA

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ABSTRACT

All civilized countries need to collect taxes for several reasons, such as to finance developmental activities, to meet their day-to-day expenses related to maintenance of a free and fair society, to control the economy through fiscal measures, and to a certain extent, to change the economic behavior of people. The major sources of tax revenue for the federal government are duties of excise on manufactured commodities, duties of customs on imported goods, and newly levied service taxes. Other taxes, such as the wealth tax, the estate tax etc., though imposed does not contribute significantly to the national exchequer. This authority of national governments to collect monies from taxpayers must recognize a balance between the nations' authority to tax and taxpayers' rights. Ideally this direct tax collection can be analogized to the extraction of honey from the abode of honeybees where honeybees are not disturbed and careful extraction of the honey results in a circular process where more honey is deposited by honeybees giving better opportunity to the extractor to get the honey in perpetuity.

KEYWORDS

Central Board of Direct Tax (CBDT), Value Added Tax (VAT), Securities Transaction Tax (STT), Annual Growth Rate (AGR).

INTRODUCTION

India is common law of federal country, with separation of powers between the legislature, the judiciary and the executive. There is a division of legislative powers between states and the federation itself under article 246 of the Constitution. Each state has its own executive government, which functions independently from the federal government. Taxes consist of indirect taxes, and may be paid in money or as its labor equivalent. India has a well developed taxation structure. The tax system in India is mainly a three tier system which is based between the Central, State Governments and the local government organizations. The Central Excise Department spread over the entire country administers and collects the central excise duty. The apex body that is responsible for the policy and formulation of rules is the Central Board of Excise and Customs which functions under the control of the Union Finance Ministry. The Central Excise officers are also entrusted with the administration and collection of Service tax, Customs duty and other indirect taxes.

OBJECTIVES OF THE STUDY

- To study on Major Indirect Taxes
- To overview an Indirect Taxes Sub System
- To compute Indirect Taxes Annual Growth Rate
- Analysis of Annual Growth Rate

RESEARCH METHODOLOGY

Secondary Data are used in this research study. This study secondary data are collecting from books, journals, reports and internet, magazines.

TOOLS USED

Tools are used in calculations of Annual Growth Rate in the Formula are used:

AGR = CY – PY / PY * 100

Where,

AGR = Annual Growth Rate,
CY = Current Year,
PY = Previous Year.

Note- 1. All Table Source in Indian Public Finance Statistics Year of 2010-2011 and 2011-2012.

IMPORTANT INDIRECT TAXES IN INDIA

An indirect tax is a tax collected by an intermediary (such as a retail store) from the person who bears the ultimate economic burden of the tax (such as the customer). An indirect tax is one that can be shifted by the tax payer to someone else. An indirect tax may increase the price of a good so that consumers are actually paying the tax by paying more for the products.

The some important indirect taxes in India are as under:

CUSTOMS DUTY

The Customs Act was formulated in 1962 to prevent illegal imports and exports of goods. Besides, all imports are sought to be subject to a duty with a view to affording protection to indigenous industries as well as to keep the imports to the minimum in the interests of securing the exchange rate of Indian currency. Duties of customs are levied on goods imported or exported from India at the rate specified under the customs Tariff Act, 1975 as amended from time to time or any other law for the time being in force.

TABLE -1: CUSTOMS DUTY ANNUAL GROWTH RATE IN PERIOD OF 2003 TO 2011

YEAR	CUSTOMS DUTY (Rs. In Crore)	ANNUAL GROWTH RATE (%)
2002-2003	44851.62	-
2003-2004	48629.22	8.4224
2004-2005	57610.9	18.4697
2005-2006	65067.14	12.9424
2006-2007	86327.24	32.6741
2007-2008	104118.94	20.6096
2008-2009	99878.86	-4.0723
2009-2010	83323.71	-16.5752
2010-2011	131800	58.1783
2011-2012	151700	15.0986
AVERAGE	**87330.76**	**16.1942**

In the year 2008, 2009 Customs Duty collection is not possible, remaining years are as well.

Under the custom laws, the various types of duties are leviable:

1. *Basic Duty:* This duty is levied on imported goods under the Customs Act, 1962. *Additional Duty (Countervailing Duty) (CVD):* This is levied under section 3(1) of the Custom Tariff Act and is equal to excise duty levied on a like product manufactured or produced in India. If a like product is not manufactured or produced in India, the excise duty that would be leviable on that product had it been manufactured or produced in India is the duty payable. If the product is leviable at different rates, the highest rate among those rates is the rate applicable. Such duty is leviable on the value of goods plus basic custom duty payable.
2. *Anti-dumping Duty:* Sometimes, foreign sellers abroad may export into India goods at prices below the amounts charged by them in their domestic markets in order to capture Indian markets to the detriment of Indian industry. This is known as dumping. In order to prevent dumping, the Central Government may levy additional duty equal to the margin of dumping on such articles. *Protective Duty:* Tariff Commission set up by law recommends that in order to protect the interests of Indian industry, the Central Government may levy protective anti-dumping duties at the rate recommended on specified goods.
3. *Export Duty:* Such duty is levied on export of goods. At present very few articles such as skins and leather are subject to export duty. The main purpose of this duty is to restrict exports of certain goods.
4. *National Calamity Contingent Duty:* This duty was imposed under Section 134 of the Finance Act, 2003 on imported petroleum crude oil. This tax was also leviable on motor cars, imported multi-utility vehicles, two wheelers and mobile phones.
5. *Education Cess:* Education Cess is leviable @ 2% on the aggregate of duties of Customs (except safeguard duty under Section 8B and 8C, Countervailing Duty (CVD) under Section 9 and anti-dumping duty under Section 9A of the Customs Tariff Act, 1985). Customs Duty bound rates under international commitments are exempted from this Cess. *Secondary and Higher Education Cess:* Leviable @1% on the aggregate of duties of Customs.
6. *Road Cess:* Additional Duty of Customs on Motor Spirit is leviable and Additional Duty of Customs on High Speed Diesel Oil is leviable by the Finance Act (No.2), 1998. and the Finance Act, 1999 respectively. *Surcharge on Motor Spirit:* Special Additional Duty of Customs (Surcharge) on Motor Spirit is leviable by the Finance Act, 2002.

CENTRAL EXCISE DUTY

The Central Government levies excise duty under the Central Excise Act, 1944 and the Central Excise Tariff Act, 1985. Central excise duty is tax which is charged on such excisable goods that are manufactured in India and are meant for domestic consumption.

The term "excisable goods" means the goods which are specified in the First Schedule and the Second Schedule to the Central Excise Tariff Act 1985. It is mandatory to pay Central Excise duty payable on the goods manufactured, unless exempted eg; duty is not payable on the goods exported out of India. Further various other exemptions are also notified by the Government from the payment of duty by the manufacturers.

TABLE -2: CENTRAL EXCISE DUTY ANNUAL GROWTH RATE IN 2003 TO 2011

YEAR	UNION EXCISE DUTIES (Rs. In Crore)	ANNUAL GROWTH RATE (%)
2002-2003	82309.52	-
2003-2004	90774.31	10.2841
2004-2005	99125.43	9.1999
2005-2006	111225.56	12.2069
2006-2007	117612.76	5.7426
2007-2008	123611.03	5.1000
2008-2009	108612.78	-12.1334
2009-2010	102991.37	-5.1756
2010-2011	137262.52	33.2757
2011-2012	163549.66	19.1510
AVERAGE	**113707.49**	**8.6279**

In the year 2008, 2009 Annual Growth Rate is negative value, since tax collecting is very poor. In the remaining year Central Excise Duty is average collected.

Various Central Excise Duties are:

1. *Basis Excise Duty:* Excise Duty, imposed under section 3 of the 'Central Excises and Salt Act' of 1944 on all excisable goods other than salt produced or manufactured in India, at the rates set forth in the schedule to the Central Excise tariff Act, 1985, falls under the category of Basic Excise Duty In India.
2. *Special Excise Duty:* According to Section 37 of the Finance Act, 1978, Special Excise Duty is levied on all excisable goods that come under taxation, in line with the Basic Excise Duty under the Central Excises and Salt Act of 1944. Therefore, each year the Finance Act spells out that whether the Special Excise Duty shall or shall not be charged, and eventually collected during the relevant financial year.
3. *Surcharge:* (a) Special Additional Duty of Excise on Motor Spirit: This is leviable by the Finance Act, 2002. (b) Surcharge on Pan Masala and Tobacco Products: This Additional Duty of Excise has been imposed on cigarettes, pan masala and certain specified tobacco products, at specified rates in the every Budget.

SERVICE TAX

The service providers in India except those in the state of Jammu and Kashmir are required to pay a Service Tax under the provisions of the Finance Act of 1994. The provisions related to Service Tax came into effect on 1st July, 1994. Under Section 67 of this Act, the Service Tax is levied on the gross or aggregate amount charged by the service provider on the receiver. However, in terms of Rule 6 of Service Tax Rules, 1994, the tax is permitted to be paid on the value received. The interesting thing about Service Tax in India is that the Government depends heavily on the voluntary compliance of the service providers for collecting Service Tax in India.

TABLE -3: ANNUAL GROWTH RATE IN SERVICE TAX PERIOD OF 2003 TO 2011

YEAR	SERVICE TAX (Rs. In Crore)	ANNUAL GROWTH RATE (%)
2002-2003	4122.21	-
2003-2004	7890.71	91.4194
2004-2005	14199.98	79.9582
2005-2006	23055.26	62.3612
2006-2007	37597.82	63.0770
2007-2008	51301.8	36.4489
2008-2009	60940.99	18.7892
2009-2010	58422.15	-4.1332
2010-2011	69400.02	18.7906
2011-2012	82000	18.1556
AVERAGE	**40893.09**	**42.7630**

Service Tax year of 2003 is very well because in the year high tax revenue, remaining years of Service Tax collection is medium. In 2009 this tax is not possible. Overall Service Tax mean is Rs. 40893.09 Crore and Annual Growth Rate is 42.76%.

SALES TAX

State governments impose sales tax on the first sale of a commodity under the power given to them under entry 54 of the state list of the seventh schedule of the Constitution of India. Sales Tax in India is a form of tax is imposed by the Government on the sale or purchase of a particular commodity within the country. Sales Tax is imposed under both, Central Government (Central Sales Tax) and State Government (Sales Tax) Legislation. Generally, each State follows its own Sales Tax Act and levies tax at various rates. Thus, Sales Tax Acts as a major revenue-generator for the various State Governments.

TABLE -4: GENERAL SALES TAX ANNUAL GROWTH RATE IN 2003 TO 2011

YEAR	GENERAL SALES TAX (Rs. In Crore)	ANNUAL GROWTH RATE (%)
2002-2003	83768.12	-
2003-2004	98001	16.9908
2004-2005	116234.31	18.6052
2005-2006	136499.62	17.4349
2006-2007	162297.08	18.8993
2007-2008	167731.27	3.3483
2008-2009	190816.72	13.7634
2009-2010	231460.92	21.3001
2010-2011	296240.13	27.9871
2011-2012	350874.15	18.4425
AVERAGE	**183392.33**	**17.4191**

All the year (2003 to 2011) Sales Tax revenue is positive, year 2007 is less tax collection and the year 2010 tax revenue is high.

VALUE ADDED TAX (VAT)

From 10th April, 2005, most of the States in India have supplemented sales tax with a new Value Added Tax (VAT). The practice of Value Added Tax (VAT) executed by State Governments is applied on each stage of sale, with a particular apparatus of credit for the input Value Added Tax (VAT) paid. Value Added Tax (VAT) in India classified under the tax slabs are 0% for essential commodities, 1% on gold ingots and expensive stones, 4% on industrial inputs, capital merchandise and commodities of mass consumption, and 12.5% on other items. Variable rates (State-dependent) are applicable for petroleum products, tobacco, liquor, etc. Value Added Tax (VAT) levy will be administered by the Value Added Tax Act and the rules made there-under and similar to a sales tax. It is a tax on the estimated market value added to a product or material at each stage of its manufacture or distribution, ultimately passed on to the consumer. Value Added Tax (VAT), in simple terms, is a multi-point levy on each of the entities in the supply chain. The value addition in the hands of each of the entities is subject to tax.

Value Added Tax (VAT) can be computed by using any of the three methods:

1. *Subtraction method:* The tax rate is applied to the difference between the value of output and the cost of input.
2. *The Addition method:* The value added is computed by adding all the payments that is payable to the factors of production (viz., wages, salaries, interest payments etc).
3. *Tax credit method:* This entails set-off of the tax paid on inputs from tax collected on sales.

SECURITIES TRANSACTION TAX (STT)

Securities Transaction Tax (STT) is a tax being levied on all transactions done on the stock exchanges. Securities Transaction Tax (STT) is applicable on purchase or sale of equity shares, derivatives, equity oriented funds and equity oriented Mutual Funds. A person becomes investor after payment of Securities Transaction Tax (STT) at the time of selling securities (shares). Selling the shares after 12 months comes under long term capital gains and one need not have to pay any tax on that gain. In the case of selling the shares before 12 months, one has to pay short term capital gains @10% flat on the gain. However, for a trader, all his gains will be treated as trading (Business) and he has to pay tax as per tax sables. In this case the transaction tax paid by him can be claimed back/adjusted in tax to be paid. The overall control for administration of Direct Taxes lies with the Union Finance Ministry which functions through income.

LIMITATIONS OF THE STUDY

This study is only taking in indirect taxes do not take in direct taxes. In this study are only major or particular indirect taxes are covered. These studies Value Added Tax (VAT), Securities Transaction Tax (STT) are not compute Annual Growth Rate. In this study was not full overview of sub indirect taxes system in India.

CONCLUSION

This study present major indirect Indian tax system and sub indirect taxes are displayed. Indirect taxes (customs duties, union excise duties and service tax) collected by Central Board of Excise and Customs. Customs Collection Rate used in this chapter is defined as the ratio of revenue collection (basic customs duty + countervailing duty) to value of imports (in per cent) unadjusted for exemptions, expressed in percentage. This study computation of Author own Annual Growth Rate (AGR) calculation in the period of 2003 to 2011, in the period Annual Growth Rate is increasing or decreasing every year. So, every states and federal government indirect taxes revenue collection are very helpful to growth in society, poverty development, develop to every department infrastructure facilities in India.

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BOARD MECHANISMS AND PROFITABILITY OF COMMERCIAL BANKS IN KENYA

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ABSTRACT

The role of effective board mechanism as key components of corporate governance has become an issue of global significance and has received new urgency due to various corporate scandals and failure. This study seeks to examine the impact of board mechanisms (audit committee size, audit committee composition, board size, and board composition) on profitability based on the annual reports of nine listed banks in Kenya in the period 2008 to 2012. Using multiple regression as a method of estimation the results of this study reveal that board size, board composition, audit committee size and audit committee composition have no effect on bank profitability in the selected sample. The study suggests that banks with effective board mechanisms may improve financial performance depending on the measure used although not all board mechanisms are significant. The study is significant because it can aid the policy makers in the formulation of policies, which can be effectively implemented for better and easier regulation of banks. The findings of the study have significant managerial and theoretical implications.

KEYWORDS
Board mechanisms, bank profitability, board size, audit committee, Kenya.

1.0 INTRODUCTION

The Board of Directors is responsible for the long-term strategic direction for profitable growth of the company whilst being accountable to the shareholders for legal compliance and maintenance of the highest corporate governance standards and business ethics. The Board performs a key monitoring function for dealing with agency problems in the firm (Fama, 1980; Jensen, 1993). Board mechanism is a key component in corporate governance which can be defined as a frame work that protect stakeholders rights by illustrating an effective board of directors, efficient internal control and audit in addition to reliable financial reporting and disclosure (Melvin and Hirt (2005). The separation of ownership and control in modern corporations leads to an agency problem where the agent operates the firm in line with their own interests, instead of shareholders (Jensen and Meckling, 1976). The need for corporate governance arises from these potential conflicts of interest among stakeholders such as shareholders, board of directors and managers in the corporate structure. Imam and Malik (2007) argues these conflicts of interest often arise from two main reasons. First, different participants have different objectives and preferences. Second, the participants have imperfect information as to each other's actions, knowledge, and preferences. Effective board mechanisms is intended at reducing divergence of interest and monitoring of controlling interests of the firm, in the absence of which firm value declines (Nanka-Bruce, 2009). According to Abu-Tapanjeh (2006) good board mechanism is a fundamental necessity to keep on running a firm successfully. It has long played a crucial role in enhancing the long-term value of stakeholders in the business environment. Board mechanisms provides structures that works for the benefit of the firm and can help in increasing firm's performance by reducing agency problem (Khan et al., 2011).

There are different board mechanisms adopted that safeguard the interests of the stakeholders (Sanda et al., 2005). Such board mechanisms include board size, board gender diversity, size of audit committee, and board of directors' educational qualification and experience. Many researchers have studied the impact of board mechanisms on firms' performance from different perspectives in different environments using a number of variables of interest (Sanda et al., 2005; Abu-Tapanjeh, 2006; Aljifri and Moustafa, 2007; Ibrahim et al., 2010; Al-Hawary, 2011; Khatab et al., 2011). The researchers' found mixed results on the relationship between corporate governance mechanisms and firms' performance.

Lupu and Nichitean (2011) argue good corporate governance of banks in developing economies is of even greater importance given the dominant position of banks as providers of fund. In developing economies banks are typically the most important source of finance for the majority of firms. A sound financial system is based on profitable and adequate capitalized banks. As it is said by different researchers, performance of banks is affected by good corporate governance practice and policies. Despite this aspect, little attention has been paid to the research of board mechanisms in less developed economies in general and particularly in Kenya. The aim of this paper is to examine the impact of board mechanism have on profitability of commercial banks in Kenya. The Banking industry is the subject of analysis in this study for two reasons. Firstly, even though information asymmetries exist in all sectors it is larger in banking industry since banks are generally more opaque than non-financial firms (Levine, 2003). This greater informational asymmetry between insiders (bank management) and outsiders (shareholders and depositors), and the opacity of their assets and activities in banking sector amplifies the agency problem. Thus, it requires giving special attention to banks corporate governance mechanisms. Secondly, banks are corporations which activate different areas of business. Banks have a dominant position in developing economic financial systems, and are important engines of economic growth (Levine, 1997). Hence, banking failure would affect the entire financial system and economy. Keeping this in view and the potential contribution of the banking industry to the economy of developing countries, this study is conducted to measure and analyze the impact of board mechanisms on firms' profitability using commercial banks in Kenya.

1.1 AN OVERVIEW OF THE BANKING SECTOR IN KENYA

According to the CBK (2010), the banking sector comprised 43 commercial banks, 1 mortgage finance company, 2 deposit taking microfinance institutions, 2 representative offices of foreign banks and 126 foreign exchange bureaus. In Kenya the corporate governance of banks is directed and supervised by the Central Bank of Kenya. The commercial banks in Kenya are licensed and regulated pursuant to the provisions of the Banking Act and the regulations and prudential guidelines issued by the Central Bank of Kenya. The Central Bank of Kenya monitors and controls the banking business and functions as regulators of the country's money supply. Accordingly, CBK issues directives on the size, composition and competence of board of directors. According to the Banking Act, the CBK is responsible for issuing directives on the qualification and competency to be fulfilled by directors; the minimum number of directors in the membership of the board of a bank, the duties, responsibilities and good corporate governance of the boards of directors of bank and the maximum number of years a director may serve in any bank. The Kenyan banking system is well regulated with the CBK conducting off-site and on-site surveillance. Over the last few years, the Banking sector in Kenya has continued to growth in assets, deposits, profitability and products offering. The growth has been mainly underpinned by an industry wide branch network expansion strategy both, automation of a large number of services and a move towards emphasis on the complex customer needs rather than

traditional 'off-the-shelf' banking products. Players in this sector have experienced increased competition over the last few years resulting from increased innovations among the players and new entrants into the market

The financial liberalization reform of 1995 allowed the participation of private financial institutions in the economy. Private Banks' participation has increased and hence the share of their banking assets to total commercial banking assets increases. The banking environment in Kenya has, for the past decade, undergone many regulatory and financial reforms. These reforms have brought about many structural changes in the sector and have also encouraged foreign banks to enter and expand their operations in the country. Kenya's financial sector is largely bank-based as the capital market is still considered narrow and shallow (Ngugi *et al*, 2006). Banks dominate the financial sector in Kenya and as such the process of financial intermediation in the country depends heavily on commercial banks. In fact Ngugi *et al*, (2006) describes the banking sector in Kenya as the bond that holds the country's economy together. Sectors such as the agricultural and manufacturing virtually depend on the banking sector for their very survival and growth. Key banking sector policy developments which have taken place include the introduction of credit reference bureaus, Islamic banking, agency banking and licensing of deposit taking microfinance institutions (CBK 2010). As in most developing countries, financial sector policy in Kenya aims at achieving more effective intermediation, and improving soundness and depth (Ngugi *et al*, 2006). According to (Ngugi *et al*, 2006) the Kenyan authorities have chosen to pursue these goals within a distinctive strategic framework for the financial sector, and emphasize the importance of further strengthening corporate governance and accountability of financial institutions. Ensuring better corporate governance of corporations, financial institutions and markets is increasingly recognized as a pre-condition for the economic development.

2.0 REVIEW OF LITERATURE

This section reviews previous studies pertaining to the relationship between board mechanisms and firms' financial performance. The important empirical studies are summarized below in this section. The Guidelines on Corporate Governance Practices by Public Listed Companies in Kenya set out good corporate governance requirements which listed companies should comply with and adhere to, observe and report on. Of particular interest is the composition and role of the Board, qualifications and experience of directors, board committees and general corporate governance. As listed companies, the commercial banks in Kenya need to adhere to best practice in corporate governance and also report on its said compliance on a regular basis

2.1 BOARD SIZE AND FIRM PROFITABILITY

The Board is responsible for the firm's corporate governance practices and recognizes its responsibilities to shareholders and other stakeholders to uphold the highest standards in economic, social, environmental and ethical matters by ensuring that the bank conducts its business in accordance with best practice in corporate governance. Kiel and Nicholson (2003) argue that board size is crucial to achieving the board effectiveness and improved firm performance.

Bathula (2008) studied the association between board characteristics and firm performance. Board characteristics which were considered in the research included; board size, director ownership, chief executive officer duality, gender diversity, educational qualification of board members and the number of board meetings. Additionally, firm age and firm size was used as control variables. Firm performance was measured by return on assets. To test the hypothesis a sample of 156 firms over a four year period data from 2004 to 2007 was used. The sample included all firms listed on New Zealand stock exchange. Empirical analysis was undertaken using Generalized Least Squares analyses. The findings of the study showed that board characteristics such as board size, chief executive officer duality and gender diversity were positively related with firm performance, whereas director ownership, board meetings and the number of board members with PhD level education was found to be negatively related. Firm age and firm size does not have significant influence.

According to Lawal (2012), board size affects the quality of deliberation among members and ability of the board to arrive at optimal corporate decisions. Therefore, identifying the appropriate board size is essential because size can be detrimental to corporate governance effectiveness beyond optimal level. However, determining an ideal size of the board has being an ongoing and controversial debate in corporate governance literature (Lawal, 2012). Many studies prefer that the number of board size must be between seven to fifteen directors (Ogbechie, et.al, 2009). However, other studies argue that the size of the board should be limited to seven or eight members (Lipton and Lorsch, 1992; Jensen, 1993). Jensen (1993) argues that a larger board leads to less effective monitoring due to coordination and process problems inherent in large board size. Larger boards can be less participative, less cohesive, and less able to reach consensus. Coordination, communication and decision-making problems increasingly impede company performance when the number of directors increases (Uadiale, 2010).

Al-Manaseer et al. (2012) also argues that boards with too many members lead to problems of coordination in decision making. Small board size are favored to promote critical, genuine and intellectual deliberation and involvement among members which presumably might leads to effective corporate decision making, monitoring and improved performance (Lawal, 2012). In contrast Klein (2002) suggested that larger boards are able to promote effective monitoring due to their ability to distribute the work load over a greater number of observers. Thus, board size can influence the financial performance of firms. Therefore, it is expected that commercial banks in Kenya with large board size are more likely to be more profitable; thus the following hypothesis is formulated:

H1: There is a relationship between board size and bank profitability.

2.2 BOARD COMPOSITION AND FIRM PROFITABILITY

The board needs to have the right balance between independent, non-executive and executive directors of diverse skills, expertise, competencies and experience to effectively guide the company and ensure that the objective of shareholder value maximization is achieved. The skills, knowledge and experience as well as the demographic profile of the board are regularly reviewed to ensure that the board composition remains appropriate given the dynamics of the banking industry. Board composition is part of the broader concept of board diversity. Boards are concerned with having the right composition to provide diverse perspectives. Greater non-executive directors representation on boards provides some additional skills and perspectives that may not be possible with an all executive director board (Boyle and Jane, 2011).

Board diversity promotes more effective monitoring and problem-solving. Boyle and Jane, (2011) suggest that non-executive directors will bring diverse viewpoints to the boardroom and will provoke lively boardroom discussions. Board diversity and independence is supported by different theoretical perspectives. Agency theory is mainly concerned about monitoring role of directors and argues representation from diverse groups will provide a balanced board so that no individual or group of individuals can dominate the decision-making of the board (Erhardt et al., 2003). The management may be less able to manipulate a more heterogeneous board to achieve their personal interests. Non-executive directors are associated with effectiveness in the oversight function of boards of directors. The oversight function may be more effective if there is diversity in board which allows for a broader range of opinions to be considered.

According to Erhardt et al. (2003), diversity of the board of directors and the subsequent conflict that is considered to commonly occur with diverse group dynamics is likely to have a positive impact on the controlling function and could be one of several tools used to minimize potential agency issues. From the stakeholders' theory, diversity also provides representation for different stakeholders of the firm for equity and fairness (Keasey et al., 1997). From resource dependency perspective, the board is a strategic resource, which provides a linkage to various external resources (Walt and Ingley, 2003). This is facilitated by board diversity. On the other hand, Haniffa and Hudaib (2006), revealed insignificant association between board composition and firm performance. However, many scholars now believe that an increase in board diversity leads to better boards and governance on the ground that diversity allows boards to tap on broader talent pools for the role of directors (Bathula, 2008). The following hypothesis is formulated based on the above discussion:

H2: There is a relationship between board composition and bank profitability.

2.3 AUDIT COMMITTEE SIZE AND FIRM PROFITABILITY

The role of the board audit committee is to review the bank's financial position and make recommendations to the board on all financial matters. This includes assessing the integrity and effectiveness of accounting, financial, compliance and other control systems. The committee deals with all matters relating to the financial statements and internal control systems of the banks including dealing with independent auditors and Central Bank of Kenya inspectors. It also provides the assurance that the banks complies with legal and regulatory provisions in its operations and business conduct.

Jensen and Meckling (1976) argue the audit committee plays a significant role in the monitoring process carried out by the directors of the firm and auditing is used by firms to reduce agency costs. In addition to that they revealed that most essential board decisions originate at the committee level, and this includes the

audit committee. Audit committees thus, represent another internal governance mechanism whose impact is to improve the quality of financial management of a company and hence its performance.

Kyereboah-Coleman (2007) reported a significant positive relation between size of the audit committee and firm performance (ROA and Tobin's q) using the overall sample. Kyereboah-Coleman (2007) describe that size of the audit committee could be an indication of the seriousness attached to issues of transparency by the organization. However, only using Ghanaian sample the size of the audit committee showed a negative effect on performance.He explained as free-ridership and difficulty in consensus building in large groups leads to low performance.

In addition, Lin et al (2006) found significant positive association between audit committee size and occurrence of earnings restatement. It was explained that a certain minimum number of audit committee members may be relevant to the quality of financial reporting. Aldamen et al. (2011) reveals that smaller audit committees with more experience and better educational qualifications are more likely to be associated with positive firm performance. Based on the above discussion, the following hypothesis is formulated:

H3: There is a relationship between audit committee size and bank profitability.

2.4 AUDIT COMMITTEE COMPOSITION AND FIRM PROFITABILITY

The audit committee is a sub-committee of the board of directors and its primary role is to monitor and review financial statements (Yammeesri and Herath, 2010). An audit committee has a particular role of ensuring that the interests of shareholders are properly protected in relation to financial reporting and internal control (Habbash, 2010). The use of an audit committee is an important part of the decision control system for internal monitoring by boards of directors (Fama and Jensen, 1983). Monitoring is performed by external audit and audit committees. The existence of an audit committee improves the monitoring of corporate financial reporting and internal control and it helps to promote good corporate governance in turn this improves firms' financial performance by reducing agency cost (Al –Sa'eed and Al-Mahamid, 2011). Size is vital characteristics of audit committees (Habbash, 2010). Independence audit committee is necessary to achieve the negotiations and delegations carried out by the board members to positively affect their firms. Improving auditor independence is important to improve transparency of financial reporting. The audit committee should be independent from the management to improve the oversight role and protect the interests of shareholders. If the audit committee is independent from the organization's management and owners, they should be able to prevent management to manipulate the financial results (Beasley, 1996). Sommer (1991) points out that the presence of independent audit committee is an indicator of the commitment of the firm's corporate governance practice. Some of the previous literature suggest that the majority of audit committee members should be independent (Klein, 2006). However, some previous literatures provide evidence that there is a positive effect on the quality of financial statements with the presence of independent audit committees (Petra, 2007). Sunday (2008) studies the relationship between audit committee composition and firm in Nigerian listed companies, and he did not find a significant relationship between audit committees composition and firm performance. However, Sunday (2008) found that audit committee contributes to better share price if it has independent members, because they have better understanding of financial risk. Furthermore, Kyereboah-Coleman (2007) found that audit committee size has a positive relationship with the effectiveness to monitor misreporting. Based on the above discussion, the following hypothesis is formulated:

H4: There is a relationship between audit committee composition and bank profitability.

3.0 IMPORTANCE OF THE STUDY

The results of this study will contribute to commercial banks by identifying relevant corporate board mechanisms and how this affects bank profitability. The result of this study contributes to the existing literature by providing evidence on the relation between board mechanisms and banks' financial performance. The empirical results would also be useful for regulators, policy makers, managers and business people in making policies and decisions. It can serve as a stepping stone for future researchers who want to conduct study on related topic. To the best of the researcher's knowledge no empirical study has been undertaken to ascertain the impact of board mechanisms on financial performance of commercial banks in Kenya. The current study, therefore, seeks to fill this gap using panel data from the banking industry in Kenya.

4.0 STATEMENT OF THE PROBLEM

There is a renewed interest on the need to strengthen board mechanisms to ensure that managers and directors take measures to protect the interest of a firm's stakeholders. The role played by the Board of directors has become an issue of global significance and has received new urgency due to various corporate scandals and failures (Lawal, 2012). In Kenya, the boards of the banks are responsible for the governance of the banks and are committed to ensuring that its business and operations are conducted with integrity and in compliance with the law, internationally accepted principles and best practices of corporate governance and business ethics. In this respect, the board ensures that the banks comply with all relevant local legislation, including the provisions of the Banking Act and the prudential regulations issued by the CBK. Several studies have been done in developing and developed countries to investigate the relationship between board mechanisms and firm performance. However, the results of the previous studies are inconsistent. Further, studies that critically assess the impact of board mechanisms and firm performance are, so far limited in the country. This is perhaps due to the fact that both board mechanisms and other corporate governance mechanisms are new, and it is only now that they are recognized as important strategies in the process of corporate policy development in Kenya.

5.0 OBJECTIVES

GENERAL OBJECTIVE

The primary objective of the study is to examine the impact of board mechanisms on the profitability of commercial banks in Kenya.

SPECIFIC OBJECTIVES

1. To examine the relationship between board size and profitability of commercial banks in Kenya.
2. To investigate the relationship between board composition and profitability of commercial banks in Kenya
3. To investigate the association between audit committee size and profitability of commercial banks in Kenya
4. To examine relationship between audit committee composition and profitability of commercial banks in Kenya

6.0 HYPOTHESES

1. *H1*: There is a relationship between board size and bank profitability.
2. *H2*: There is a relationship between board composition and bank profitability.
3. *H3*: There is a relationship between audit committee size and bank profitability.
4. *H4*: There is a relationship between audit committee composition and bank profitability.

7.0 RESEARCH METHODOLOGY

7.1 RESEARCH DESIGN

The study utilized explanatory research design with a mixed approach as it sought to identify and evaluate the causal relationships among the key study variables. Mixed methods research provides better inferences as it is able to capitalize the strength of quantitative and qualitative approach and remove any biases that exist in any single research method (Creswell, 2003). Finally, a panel data study design was used. The advantage of panel data analysis is that more reliable estimates of the parameters in the model can be obtained between the different variables under consideration (Gujarati, 2004).

7.2 SAMPLING DESIGN

The population of the study was all commercial banks operating in Kenya in the period 2008-2012. According to the information obtained from Central Bank of Kenya there were 43 registered banks operating in Kenya of which nine are listed in the Nairobi Securities Exchange. The sample size for the study comprised a total of nine commercial banks which were listed on the Nairobi Stock Exchange (NSE) during the study period. Purposive sampling was used to get the sample in order to include a representation critical to providing answers to the research hypotheses.

7.3 DATA SOURCE AND COLLECTION METHODS

The data for this study was collected from secondary sources. The secondary sources of data were the audited financial statements of the sample commercial banks over a period of five years (2008-2012). Data for the study were extracted from the annual reports of the nine listed banks. The website of each of the banks was visited to collect necessary data for the study. In all, 45 observations were obtained after editing the annual reports of the nine banks and were used for the study.

7.4 DESCRIPTION OF VARIABLES AND MEASUREMENTS

7.4.1 DEPENDENT VARIABLES

Return on assets (ROA) is the measurement utilized to measure bank profitability. ROA is the earnings after tax divided by total assets of the bank.

7.4.2 INDEPENDENT VARIABLES

This section provides measurements of the board mechanisms as independent variables which are considered as follows. The size of a bank is calculated as the total number of directors serving on the board of directors. The board composition is measured as the ratio of independent directors to the total number of directors. The audit committee size is measured as the total number of members serving on the audit committee. The audit committee composition is measured as the ratio of independent members to the total number of members serving in the audit committee. The description of the study variables is presented in Table 1.

TABLE 1: DESCRIPTION OF VARIABLES

Variables	*Description*
Measures of bank profitability(dependent variable)	
Return on Asset (ROA)	Profit after tax/Total Asset
Measure of Board Characteristics (independent variable)	
Board Size (BSIZE)	The total number of directors serving on the board of directors
Board Composition)	The proportion of independent directors to the total number of directors
Audit Committee Size	The total number of members serving on the audit committee
Audit Committee Composition	The proportion of independent members on the audit committee

Source: Author's construction

7.5 MODEL SPECIFICATION

To estimate the impact of board mechanisms on the bank profitability of sample commercial banks in Kenya the following general empirical research model is developed.

$$Yit = \beta 0 + \Sigma \beta K Xit + \varepsilon it \quad (1)$$

Where:

- Yit represents the dependent variable (ROA) of bank *i* for time period *t.*
- $\beta 0$ is the intercept
- βK represents the coefficients of the Xit variables
- Xit represents the explanatory variables (BSIZE, BCOM, ASIZE and ACOM) of bank *i* for time period *t.*
- εit is the error term

Therefore, the panel data model relating to the impact of board mechanisms on the bank profitability was stated as:

$$ROAit = \beta 0 + \beta 1(BSIZEit) + \beta 2(BCOMit) + \beta 3(ASIZEit) + \beta 4(ACOMit) + \varepsilon it \quad (2)$$

Where:

i denote banks ranging from 1 to 9 (cross-sectional dimension).

t denote years ranging from 2008 to 2012 (time-series dimension).

DEPENDENT VARIABLES

ROA*it* Return on Asset for *i*th bank and time period *t*

INDEPENDENT VARIABLES

BSIZE*it* Board size for *i*th bank and time period *t*

BCOM*it* Board composition for *i*th bank and time period *t*

ASIZE*it* Audit committee size for *i*th bank and time period *t*

ACOM*it* Audit committee composition for *i*th bank and time period

7.6 DATA ANALYSIS AND PRESENTATION

Correlation and multiple regression analysis were employed to analyze data collected. The correlation analysis was used to identify the relationship between the independent and dependent variables using Pearson correlation analysis. The correlation analysis shows only the degree of association between variables and does not permit the researcher to make causal inferences regarding the relationship between variables (Marczyk et al., 2005). Therefore, multiple regression method is used to examine the relationship between the firm profitability and board size, audit committee size, audit committee composition, and board composition SPSS 17 software was used for analysis and the results were presented through tables.

8.0 RESULTS AND DISCUSSIONS

8.1.1.DESCRIPTIVE STATISTICS

Appendix 1 presents the descriptive statistics of the board mechanisms that influence the profitability of commercial banks in Kenya. The Table shows that the mean of board size is approximately 10.5 with a maximum of 13 members and a minimum of eight members. The mean of board composition is 76.40%, while the maximum and minimum are 92% and 50% respectively which means that some companies have a full independent board of directors, and some companies have one half dependent boards of directors. In regards to the board size and board composition, the Guidelines on Corporate Governance Practices by Public Listed Companies in Kenya require that the board of directors should consist of at least three directors and 22 directors as a maximum. Further, that one third (33.33%) of the board of directors or three members of them should be independent directors. The mean of Audit Committee size is 4.8, while the maximum and minimum are 10 and 2 respectively. The Audit Committee size should have a minimum of three members in Kenya. Therefore, it is clear that the Audit Committee in the listed banks in the Nairobi Securities exchange have more than three members in average. The mean of Audit Committee composition is almost 85.67 %, while the maximum and minimum are 100% and 33% respectively. This implies s 85.67 % of the Committee members are independent while almost 14.33 % shows dependent members which means that some companies have fully dependent Audit Committee. Table 4.1 reveals that the mean of ROA is approximately 4.38% with a maximum of 7% members and a minimum of 1%. According to Flamini et al. (2009.) the average ROA in Sub-Saharan Africa,(SSA) was about 2%. Thus, the average ROA of listed Kenyan banks is above average of the SSA.

8.1.2 CORRELATION ANALYSIS

Appendix 2 summarizes the correlation between the independent variables and dependent variable. It displays that board size, board composition, audit committee size and audit committee composition are not related to the bank profitability (ROA). Furthermore, Appendix 2, also presents the correlations between the independent variables to each other. It shows that there exists relationships between board size, audit committee size, audit committee composition and board composition. The Board size has a positive significant relationship with board composition, which means that the size of board of directors plays a significant role in determining the board composition. In other words, large board size leads to larger board composition. However, board size has a negative significant relationship with audit committee size, which means that the board size is significant in determining the audit committee size. This implies that large board size leads to smaller audit size this could due to the fact the large board is already involved in this monitoring function hence no need for replication of roles. Besides, Appendix 2 also shows that audit committee composition has relationship with all the other independent variables. Meanwhile, audit committee size plays a significant role not only in determining the audit committee composition; as it has a significant negative relationship with audit committee composition, which means that larger audit committee leads to more executive (dependent)board of directors.

8.1.3 MULTIPLE LINER REGRESSION ANALYSIS

To assess the impact of board mechanism on bank profitability, the dependent variable ROA was regressed on the independent variable (board size, audit committee size, audit committee composition, and board composition). Appendix 3 shows multiple regressions which is related to ROA as dependent variable. The analysis in Appendix 3 indicates that the overall effect of the explanatory variables on the bank's profitability is statistically insignificant (overall p-value=0.086). This indicates that the independent variables determine 3.1% of the ROA variance. This means that there are other factors affecting ROA by 96.9%.Table 3 above shows that there is no statically significant relationship between all independent variables namely board size, audit committee size, audit committee composition, and board composition on the bank profitability (ROA).

9.0 FINDINGS

The results from Appendix 2 and 3 demonstrate that board size is negatively correlated with bank profitability, implying that a reduction in the board size of a bank is likely to trigger an increase in its profitability. However there is an insignificant relationship between board size and bank profitability (ROA). Based on this finding, the first hypothesis, which stated that there is a relationship between board size and bank profitability (ROA), is rejected. This finding is similar to some previous studies. Fama and Jensen (1983); Lipton and Lorsch (1992); Yermack (1996); Jensen (1993); Eisenberg et al. (1998); and Cheng (2008).who did not find significant relationship between board size and firm performance (ROE and ROA). Based on the analysis of this study, the argument by Klein (2002) and Andres and Vallelado (2008) that a large board size should be preferred to a small size because of the possibility of specialization for more effective monitoring and advising functions is not supported. It suggests that banks in Kenya that constitute large boards of directors should be burdened with some significant decline in their profitability. Shakir (2008), argues that the board size does not reflect its effectiveness. If the board has adequate experience and knowledge, it would be a crucial to ensure that the board functions effectively. Guest (2009) points out that the relationship between board size and firm performance may differ due to differences in national institutional characteristics and firm specific characteristics. In the other words, the functions of the boards are different due to differences in institutional backgrounds. Therefore, the expected relationship between board size and firm performance could be different as a result.

Evidence presented on Appendix 2 and 3 reveal board composition (proportion of non-executive directors) is negatively correlated with profitability of a bank. However, this is statistically insignificant. Therefore, hypothesis *H2* is rejected. This is consistent with some previous studies such as Haniffa and Hudaib (2006),Chaganti et al.(1985); Daily and Dalton (1992), Klein (1998); Kesner et al. (1986); Zahra and Stanton (1988); and Fosberg (1989) that no relationship exists between board composition and firm performance. This result does not necessarily contradict the notion that non-executive directors presence on boards may be useful and positive in general. Nevertheless, the high number of non-executive directors on the boards of sample Kenyan commercial banks does not necessary give them sufficient monitoring power. The result is not surprising because other studies that examined the association between proportion of non-executive directors on boards and firm performance also found insignificant result (Rose, 2007; Habbash, 2010).

Based on the result in Appendix 3, there is no significant relationship between audit committee size and profitability which imply that the third hypothesis is rejected. This result is consistent with studies by (Jensen and Meckling, 1976); Kyereboah-Coleman, 2007; Aldamen, et al., 2011 ;AbdurRouf (2011); Mak and Kusnadi (2005).). Kyereboah-Coleman (2007) point out that the size of the audit committee negatively influence performance using Ghanaian sample firms. Further, Sunday (2008) studied the relationship between audit committee composition and firm performance (ROA and profit margin) in 20 non-financial firms listed in Nigeria, and the result could not provide a significant association between them. This study result supports the notion that a certain minimum number of audit committee members may be relevant to the quality of financial reporting and to enhance financial performance. Free-riding and difficulty to reach in consensus in large groups inversely affect financial performance.

As shown in Appendix 3, the relationship between audit committee composition and profitability is not significant; this result rejects the fourth hypothesis which stated that there is a relationship between audit committee composition and firm performance (ROA).This result is consistent to Mak and Kusnadi's (2005) in Malaysia and Singapore. In addition, Sunday (2008) studies the relationship between audit committee composition and firm performance (return on assets and profit margin) in 20 non-financial firms listed in Nigeria, and he could not provide a significant association between them. This study result supports the arguments that the structure of the audit committee should also comprise a number of directors, which fairly reflects the Company's shareholding structure. The audit committee composition should not be biased towards representation by a substantial shareholder but should reflect the Company's broad shareholding structure. The composition of the audit committee should also provide a mechanism for representation of the minority shareholders without undermining the collective responsibility of the directors.

10.0 CONCLUSION

The objective of this paper was to examine the relationship between board mechanisms and bank profitability in Kenya. This study did not find any significant association between board mechanisms (board size, audit committee size, audit committee composition, and board composition) and bank profitability (ROA). Similar to Mak and Kusnadi (2005) and AbdurRouf (2011), this study found no association between audit committee size and bank profitability. In addition, the study investigated the relationship between audit committee composition and firm performance, and it did not find a significant relationship between them, which is similar to Mak and Kusnadi's (2005) and Sunday (2008) in Malaysia and Nigeria respectively. Furthermore, the study did not find evidence about the relationship between board size and firm performance, which is consistent to Topak (2011) who could not find a relationship between firm size and firm performance in the Turkish listed companies.

11.0 RECOMMENDATIONS

This study examined the impact of board mechanisms on firms' profitability by taking evidence from selected commercial banks in Kenya. On the basis of the findings and conclusions reached, the following recommendations were forwarded.

- This study revealed that the boards of banks are dominated non-executive directors and board diversity is very limited in Kenyan commercial banks. Thus, there is much to be done to improve the balance of boards in Kenyan banks with a great care about their qualification and competency. The board of directors of every listed company should reflect a balance between independent, non-executive directors and executive directors.
- The study recommends the board size of banks to be small in number to optimal level with better educational qualification since small board size with better educational qualification is more effective in monitoring managers and help to improve performance. However, the size of the board should not be too large to undermine an inter-active discussion during board meetings or too small such that the inclusion of a wider expertise and skills to improve the effectiveness of the board is compromised.

- Finally, the study recommends that Kenyan commercial banks should make their audit committee size small to improve their performance. Experienced directors should be assigned in committee based on their practical background to make them to contribute more in promoting good governance. The chairman of the audit committee should be an independent and non-executive director. The audit committee should have adequate resources and authority to discharge their responsibilities.

12.0 SCOPE FOR FURTHER RESEARCH

Based on the outcomes of this study, the following issues are suggested for further research. First, by further increasing the study population and the sample size to the whole financial sector. Second, by taking evidence from other industries and increasing the number of observations through the use of large sample size and long years data. The relationship between board mechanisms and firms' financial performance can also be further explained if future researchers conduct study including more board mechanisms variables.

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14.0 APPENDICES

APPENDIX 1: DESCRIPTIVE STATISTICS

	N	Minimum	Maximum	Mean	Std. Deviation
RETURN ON ASSET	45	.01	.07	.0438	.01466
BOARD SIZE	45	8.00	13.00	10.5111	1.12052
BOARD COMPOSITION	45	.50	.92	.7604	.13277
AUDIT COMMITTEE SIZE	45	2.00	10.00	4.8222	2.24913
AUDIT COMMITTEE COMPOSITION	45	.33	1.00	.8567	.22071
Valid N (listwise)	45				

APPENDIX 2: CORRELATION ANALYSIS OF RETURN ON ASSET (ROA) AND BOARD MECHANISM

		ROA	BSIZE	BCOM	ASIZE	ACOM
ROA	Pearson Correlation	1	-.065	-.129	.166	-.153
	Sig. (2-tailed)	.	.672	.397	.277	.317
	N	45	45	45	45	45
BSIZE	Pearson Correlation	-.065	1	.475(**)	-.450(**)	.474(**)
	Sig. (2-tailed)	.672	.	.001	.002	.001
	N	45	45	45	45	45
B COM	Pearson Correlation	-.129	.475(**)	1	-.667(**)	.365(*)
	Sig. (2-tailed)	.397	.001	.	.000	.014
	N	45	45	45	45	45
ASIZE	Pearson Correlation	.166	-.450(**)	-.667(**)	1	-.822(**)
	Sig. (2-tailed)	.277	.002	.000	.	.000
	N	45	45	45	45	45
ACOM	Pearson Correlation	-.153	.474(**)	.365(*)	-.822(**)	1
	Sig. (2-tailed)	.317	.001	.014	.000	.
	N	45	45	45	45	45

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX 3: SUMMARY OF REGRESSION RESULTS

MODEL SUMMARY(b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.177(a)	.031	-.065	.01513

a Predictors: (Constant), AUDIT COMMITTEE COMPOSITION, BOARD COMPOSITION, BOARD SIZE, AUDIT COMMITTEE SIZE

b Dependent Variable: RETURN ON ASSET

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	4	.000	.324	.860(a)
	Residual	.009	40	.000		
	Total	.009	44			

a Predictors: (Constant), AUDIT COMMITTEE COMPOSITION, BOARD COMPOSITION, BOARD SIZE, AUDIT COMMITTEE SIZE

b Dependent Variable: RETURN ON ASSET

COEFFICIENTS(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.050	.043		1.164	.251		
	BSIZE	.001	.003	.046	.237	.814	.643	1.554
	BCOM	-.010	.028	-.086	-.342	.734	.380	2.631
	ASIZE	.000	.003	.035	.090	.929	.162	6.156
	ACOM	-.008	.022	-.114	-.352	.727	.229	4.365

a Dependent Variable: RETURN ON ASSET

Source: SPSS regression results based on the data obtained from sample banks

FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM IN INDIA: AN ANALYSIS

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ABSTRACT

Food insecurity is undoubtedly one of major crisis facing by mankind. Malnutrition is chronic problem and number of people suffering from malnutrition has been steadily increasing in recent years. India is facing tremendous challenges in providing nutritious, healthy, and stable diets to growing population. In recent decades, demographic and economic growth has challenged the limits of economic, social and ecological sustainability, which questioned about food security at the regional, national as well as global level. Despite technological advances that have modernized the conditions of production and distribution of food, hunger and malnutrition still threaten the health as well as well-being of the millions of people. Food insecurity exists when people are undernourished as a result of physical unavailability, lack of social or economic access and inadequate food utilisation. This truncation or shortness of human development undermines a country's potential for economic development. A number of attempts have been made at national as well as at state level to study the problem of food security. But problem of food insecurity has become more serious in the last two decades in India. The present study is an attempt to analyse the causes, extent and effects of food insecurity and to identify the discrepancies in the system, find the ways to remove the anomalies and to make the mechanism more effective for achieving food as well as nutritional security to all in general and weaker sections in particular.

JEL CODES
I300, O150.

KEYWORDS
Absorption, Food Security, Poverty, Public Distribution System, Mal-nutrition.

INTRODUCTION

We live in the world with widespread poverty, hunger and undernourishment. Hunger relates not only to food production and agricultural expansion, but also to the functioning of the entire economy and even more broadly the operation of the political and social arrangements that can, directly or indirectly, influence people's ability to acquire food and to achieve health and nourishment (Sen, 2000). The correct theorisation of the questions of food security and poverty has become particularly important at the present time, which is one of rapid changes in the economic environment in which small producers including farmers and workers are living. In a poor developing country, the incidence of poverty is very closely linked to the availability of food, in which the staple foodgrains still remain predominant, accounting for three-fifths of the daily energy intake of the population (Patnaik, 2008).

Food security has attracted much attention because in the past decade and a half since India successfully embraced economic reforms and achieved high growth but this high growth rate has little impact on food security and the nutrition levels of its population. The achievements of Indian agriculture since the early 1970s have helped to ensure macro-level food security to a large extent but a considerable number of people mainly weaker sections of the society continue to live in poverty and hunger (Rao, 1995). A striking feature of the Indian economy today is the paradoxical situation whereby foodgrains stocks with the government are at record high and centre is keen on exporting food, even while poverty persist and off-take from PDS declines (Swaminathan, 2002).

The Public Distribution System (PDS) scenario in the most of the states at present is characterised by low level of off-take from ration shops, narrowing of price differences, increasing private trade and declining viability of distribution network. Further, a large number of vulnerable groups do not have access to PDS as they do not possess ration cards and food subsidies do not reach the poorest households (Mittal et. al. 1997)

Thus, the problem of food security has emerged as important at the global as well as regional level. It is adversely affecting the developed region in general and underdeveloped regions in particular. Children and women from the under developed countries are adversely affected by chronic food insecurity.

WHAT IS FOOD SECURITY?

In general words, food security refers to the availability of food and ones access to it. A household is considered to be "food secure" when its occupants do not live in hunger or fear of starvation. Food insecurity exists when people are undernourished as a result of physical unavailability, lack of social or economic access and inadequate food utilisation.

- "Food Security means that food is available at all the time, that all persons have means of access to it, that is nutritionally adequate in terms of quantity, quality and variety and that is acceptable within the given culture. Only when all these conditions are place can a population is considered food secure

  (Food and Agricultural Organisation of United Nation, 1996)
- "All people at all the time have physical and economic access to sufficient, safe and nutritious foods to meet their dietary needs and food preferences for an active healthy life."

  (World Food Summit, 1996)

DIMENSIONS OR COMPONENTS OF FOOD SECURITY

Food security, in a broad sense has four dimensions- availability, accessibility, utilization and vulnerability. The interaction among these determines the status of food security in a country.

1. **Availability of Food: -** Availability of food encompasses domestic agricultural production and food imports. It addresses supply side and is determined by the level of food production, stock level and net trade.

2. Accessibility of Food: - Access to food is largely determined by the households' purchasing power and food subsides (either direct or indirect through various programmes).

3. Utilisation/Absorption of Food: - The utilisation of food is concerned with nutritional requirements of household members, based on their age and sex. The pattern of food utilization generally depends upon cultural factors (diet preferences, nutritional knowledge and caring practices), distributional factors (intra-household distribution of food), and absorption possibilities (depending upon quality of water, health and quality of food itself).

4. Dimension of Vulnerability: - Vulnerability denotes various external factors and contextual risks such as environmental risks (floods, droughts, earthquakes, cyclones and so on), as well as nutritional and health risks, which destabilise the food security of people across the others three dimensions.

EXTENT OF FOOD INSECURITY AT GLOBAL LEVEL

The world is facing tremendous challenges of providing nutritious, healthy and stable diets to feed its growing population. In recent decades, demographic as well as economic growth has challenged the limits of economic, social and ecological sustainability, which has given rise to the questions about food security at the global level. Despite technological advances that have modernised the conditions of production and distribution of food, hunger and malnutrition still threaten the health as well as well-being of the millions of people around the world. Regional and global economic crises and chronic problems of underdevelopment have made the situation worse particularly in the developing world (Bora, 2010). The number of undernourished people in the world has increased from 843 million in 1990 to 1.02 billion in 2009 and marginally declined to 926 million in 2010. On the other hand, 1.15 billion were overweight and 343 million were obese, which is problematic for health security (Ruth, 2010).

The region of Asia is still lagging in some major areas. It has been slow in reducing the extent of hunger, in ensuring that girls and boys reach the last grade of primary education, in reducing child mortality, in improving maternal health provision and in providing basic sanitation. About one person in six suffers from malnourishment and one child in three is underweight. India alone has more food insecure people i.e. 231 million than the whole of sub-Saharan Africa. (Buck, 2011).

South-Asian economies recorded high growth rate in past but despite this high growth in food production and consumption, the region has the highest concentration of food insecure people. South Asia still has the highest number of people (423 millions) living on less than one dollar a day. The region has the highest concentration of undernourished (299 million) and poor people with about 40 per cent of the world's hungry. Despite an annual 1.7 per cent reduction in the prevalence of undernourishment in the region in the past decade, the failure to reduce the absolute number of the undernourished remains a major cause for concern. Estimates by the Food and Agricultural Organisation (FAO) indicate that by 2010, Asia will still account for about one-half of the world's undernourished population, of which two-thirds will be from South Asia (Haq, 2011).

FOOD SECURITY IN INDIA

It is ironic that food security is an important issue more than five decades after independence. The worst irony, however is, that food security is an issue at a time when the country has mountains of foodgrains and overflowing godowns (Srivastava, 2003). With a population approaching almost 1.2 billion in 2010, India is likely to be the second most populous country in the world. Considering the extent of poverty and its correlates hunger and malnutrition indicate that economy is still far from the point of overcoming the food problem. Thus ensuring food and nutrition security is a challenge for India.

By considering the dimensions of food security, i. e., availability, accessibility and absorption, we can measure the extent of food insecurity in India. The dimension of physical availability of food realise that India is largely self-sufficient in food production at the national level and at present it is facing the challenge of tackling huge foodgrains surpluses that tend to accumulate as public buffer stock. Except for edible oils and pulses, the dependence on the imports is very low for the most of the agricultural commodities. The physical availability of foodgrains in India was estimated at 241.6 million tonnes in 2011-2012. But annual growth rate of cereals availability from 1951 to 2010 was only 0.33 percent per annum. The availability of pulses has negative growth rate and per capita availability of pulses has declined from 60.7 grams in 1952-52 to 37.0 grams in 2009-10. Total per capita food availability has increased from 394.9 grams in 1951-52 to 444.0 grams in 2009-10 at the growth rate of 0.20 percent per annum (Ministry of Finance and Economic Affairs, 2011).

Abundance of food does not translate into adequate access to food for all because poverty, unemployment, food prices and diversion or exclusion from public distribution system constrain the purchasing power of the poor and other vulnerable sections. Growth alone also may not be able to ensure food security for the poor and vulnerable. The poor suffer from limited access to food and to means of livelihood. Thus, food access refers to the ability of households to secure food at a reasonable price. Access to food is largely determined by the households' purchasing power and food subsides (either direct or indirect through various programmes).

An interrelated and important aspect of food/nutritional security is utilisation/absorption of food. Despite of intervention through several food-based social safety net programs, malnutrition levels continue to be severe and persistent. Poor nutrition, overall poverty along with lack of hygiene and inadequate health facilities like drinking water, toilet facilities and clean cooking fuel influence the children as well as women health. So, there is an urgent need to envisage an integrated nutrition and health programmes for all vulnerable groups (Dev, 2003).

The percentage of population below minimum calories consumption has increased from 64.8 percent in 1983 to 75.8 percent in 2004-05. In the rural areas, the proportion of population below standard norms has increased from 66.1 percent in 1983 to 79.8 percent in 2004-05 and this ratio has increased from 60.5 percent to 63.9 percent for the urban areas respectively. Whereas in 2009-10 people below minimum calorie norms has decreased to 62 and 57 percent in the rural and urban areas. For whole India, it has come down to 63 percent (Mehta, 2010). The calories consumption in the rural areas was 2240 kcal in 1983-84 which has decreased to 2047 kcal in 2004-05. In the urban areas calories consumption has also decreased from 2070 kcal in 1983 to 2021 kcal in 2004-05. This shows that in both rural as well as urban areas; average calorie intake is less than standard norms (Ministry of Statistics and Programme Implementation, 2012).

Malnutrition among women and children is the main issue of food insecurity in India. Due to hunger and malnutrition the percentage of underweight children has remained stagnant between 1998 and 2006 and more than half of India's women and three-quarters of its children are anemic, with no decline in these estimates in the past eight years. Anaemia among ever-married women continues to be a serious problem in India. National Family Health Surveys revealed that percentage of moderate and mild anaemia among women aged 15-49 years has increased from 15 percent in 1998-99 to 16 percent in 2005-06 and from 35 to 39 percent respectively. Meanwhile, 35.6 percent of women suffer from chronic energy deficiency, indicated by a body mass index below 18.5. Anaemia among children under three years old was found to be extremely widespread at the time of NFHS-2 and the prevalence of anaemia actually increased further between NFHS-2 and NFHS-3. In the period between the two surveys, there was an increase in the prevalence of mild anaemia from 23 percent to 26 percent and moderate anaemia from 46 percent to 49 percent (Ministry of Health and Family Welfare, 2006).

In vast country like India, the issue of food security differs across states because India is diversified not only in the geography but also in caste, culture, religion and others socio-economic activities. A lot of variations also exist at the state and regional level. Every state has different type of resources and culture, so meaning of food security change under different socio-economic culture because in a broad sense; food security includes cultural factors like diet preferences, nutritional knowledge and caring practices. In India, some states are very rich like Punjab and Haryana are food surplus states and contributing more than half of foodgrains in the central pool whereas on the other hand states like Bihar, Jharkhand and Chhattisgarh are underdeveloped and nutritional levels of their residents are very low.

The average intake of calorie in major states has below minimum calorie intake norm (2400 kcal for the rural areas and 2100 kcal for the urban areas). In the rural areas, every state has been consuming less than minimum norms. If we take 1890 kcal as a minimum norms then states become able to fulfill the require energy. But Karnataka and Tamil Nadu did not fulfill the requirement of 1890 kcal of calorie consumption. In the rural areas calorie intake was 2047 kcal and 2020 kcal in the urban areas which was below minimum standard (Ministry of Statistics and Programme Implementation, 2012).

PUBLIC DISTRIBUTION SYSTEM IN INDIA

The Public Distribution System (PDS) evolved as a system of management of scarcity and for distribution of foodgrains at affordable prices. Over the years, PDS has become an important part of Government's policy for management of food economy in the country. The programme was evolved with the twin objective of

providing incentive prices to farmers for a sustained supply of food and subsidising its consumption. One of the objectives of the PDS is to insulate the poor from rising open market prices (Khera, 2011). The primary Policy objective of the Public Distribution System is to ensure food security for the country through timely and efficient procurement and distribution of foodgrains. This involves procurement of various foodgrains, building up and maintenance of food stocks as well as their storage. India has achieved self-sufficiency in the foodgrains and maintained huge stocks of foodgrains. In October, 2010 central pool hold 277.77 lakh tonnes of wheat and 184.44 lakh tonnes of rice whereas minimum norms were 140 lakh tonnes for wheat and 72 lakh tonnes for rice. Total stock of India was 462 lakh tonnes and minimum norms were 212 lakh tonnes in October, 2010 (Ministry of Finance and Economic Affairs, 2011).

In India, Public distribution system is criticised on the ground of wastage of foodgrains. It is true that every year lot of foodgrains damaged in India. Lack of financial assistance, storage capacity, lack of transportation and improper management are some basic causes of this crisis. The total storage capacity available with Food Corporation of India (FCI) and State Governments was a little over 42.6 million tonnes. The covered capacity available with FCI was 274.71 lakh tonnes in 2011 and that available with State agencies was 151.19 lakh tonnes in 2010. FCI has a total storage capacity of about 306 lakh tonnes with a capacity utilisation of 71 percent (Department of Food and Public Distribution, 2010). . In India, every year average 0.58 lakh million tonnes of foodgrains are damaged (Kumar, 2010). There is a debate in India that despite wasting the foodgrains on the roads and open spaces we should distribute it to poor section freely.

Average per capita purchase of grain is approximately 1 kg per month in the case of rice, and even lower (less than 500 grams) in the case of wheat. A per capita purchase of rice has increased from 0.70 kg per month to 1.18 kg per month in the rural areas whereas it has increased from 0.40 kg per month to 0.69 kg per month in the urban areas during 2001-02 to 2007-08. In the case of wheat it has increased from 0.20 kg per month to 0.39 kg per month in the rural areas and 0.10 kg per month to 0.21 kg per month in the urban areas in the subsequent period (Khera, 2011). The poor northern states of Assam, Bihar, Jharkhand and Uttar Pradesh, which performed badly before targeting, continued with very low percentage of PDS purchase. In these states, condition is much worse in the both rural as well as in urban areas.

The food management concludes that by implementing various polices, India has maintained large stock of foodgrains which can provide food security to all the citizen of the country. But past trends to access to PDS shows the negative trend. The system of narrow targeting and inclusion of wrong as well as exclusion of needy persons has increased. People have very limed access to ration cards and access to PDS has decreased in India. NSS data on holding ration cards reveals that in 2004-05, only 26.5 percent of rural households and 10.5 percent of urban households hold Below Poverty Line cards. Antyodaya card holders formed less than 3 percent of rural households and less than 1 percent of urban households (National Sample Survey Organisation, 2007). The main problem of the system is improper distribution, procurement and wastage of foodgrains because in 2009-10 India was procuring only 52.61 millions tonnes of foodgrains against 175.26 millions tonnes, i. e., 30 percent of total production. Many economists argue that India has sufficient food to implement universal PDS. According to one estimate 23 crore households of India require 133.032 million tonnes of foodgrains for universal PDS (Banerjee, 2011).

FOOD SECURITY ACT

The national advisory council has proposed the National Food Security Act (NFSA) aimed at protecting all children, women and men in India from hunger and food deprivation. The proposed NFSA aims to ensure public provisioning of food and related measures, to enable assured economic and social access to adequate food with dignity, for all persons in the country, at all times, in pursuance of their fundamental right to be free from hunger, malnutrition and other deprivations associated with the lack of food and related matters.

The proposed act is expected to ensure subsidised grains to 75 percent of Indian population including 90 per cent of the rural and 50 per cent of the urban population. The entire population would be divided into two categories, the Priority group (AAY/BPL families): comprising 46 percent of the rural and 28 percent of the urban population and a General group or non-priority (APL families): comprising 44 percent of the rural and 22 percent of the urban population (Sen, 2011). BPL families would be entitled to receive 35 kg of rice and wheat at subsidised prices of Rs 3/kg and Rs 2/kg respectively while the non-priority group would receive 20 kg of rice and wheat at 50 percent of the Minimum Support Price.

The draft has also proposed legal entitlements for children and expecting mothers. The act aims at covering the entire population by 2014. The act would rely on large part on India's Public Distribution System for procurement of foodgrains and allocation to different states for distribution to the intended beneficiaries. But there is no clarity between these two groups and how these groups will be identified. The National Advisory Council and others committees are unable to solve this problem and they have given totally different ways for identification.

Under this proposal, the per capita calorie requirement is fixed at 1776 kcal in urban areas and 1999 kcal in rural areas whereas the Indian Council of Medical Research has called for higher requirements of 2400 kcal for rural areas and 2100 kcal for urban areas The unique identity card, Aadhaar, developed by the Unique Identification Authority of India would form the basis for choosing the beneficiaries of the scheme. Thus the proposed food security bill by NAC (national advisory council) excludes 10 percent of the rural population and 50 percent of urban population (Sengupta, 2011).

Thus food security act is an opportunity because existing hunger in India require legal entitlement and this is a dire need. This can be regarded as appreciable step in India. But the framework of poverty estimation and identification is complex and impractical. Proper distribution and procurement are the issues in the way of implementation of the act. The need of the time is simplified, transparent and equitable framework for practicability of the act.

SUGGESTIONS

Agriculture is the mainstay of the Indian economy. The contribution of agriculture to the livelihood of the vast majority of India cannot be overstated. Sen has rightly said that food security lies in ecologically resilient and economically efficient farming which provide a livelihood to farmers and sufficiency in food at household, community, as well as national level. The three dimensions of the agriculture policy i e ecological security, livelihood security and food security can only be achieved by sustainable agriculture. Today, there is a need to improve the agricultural scenario with the multiple goals of growth, equity, employment and efficiency.

The provision of the secure access to food still remains a relevant and critical issue for the public policy in India. The central problem of food insecurity is associated with local and national level fluctuations in output, distribution, inadequate transport/marketing structure and poverty. Hunger in India is an integral component of poverty. Increased production of food provide only pre-condition to move toward removal of hunger, the last solution of this problem remain contingent upon removal of poverty, in the sense of enabling the poor to earn the requisites for the decent living in the normal course of working. In this view poverty eradication through employment generation provides appropriate solution. The success of the strategy for employment depends on technical and vocational education and training. It is, therefore, recommended that a concerted effort should be made toward a broad-based employment strategy with focus on increasing farm productivity and diversified rural economy. The issue of food security should be the central concern of public policy and public debate in India.

Food Corporation of India, Central Warehousing Corporation and State Warehousing Corporation are the main agencies for procurement and storage of foodgrains. At present these agencies have very low space to store procured grains. Due to lack of storage facilities, insects and micro-organism, we are wasting large amount of foodgrains annually. In this direction, government should provide improved storage and procurement structure to the farmers. So, there is need for additional construction of grain storage. Village grains banks should be established for storage and distribution of foodgrains. It is also recommended that economical and various forms of godowns should be constructed. The stage has now come when the country must take a conscious turn to handle storage problems.

At present, there is a further need to improve the efficiency of PDS because governance of PDS is the major problem in the implementation of most of the programmes. So, some measures are suggested for improvement. Firstly, the quality of grains supplied through PDS needs to be improved. Secondly, the expansion of PDS shops in the rural areas and the regular and timely opening of shops need to be ensured. Thirdly, margin of profit for PDS dealer should also increase. Fourthly, Universal Public Distribution System is the heart and soul of State Food Policy. It should be built on the principles of non-exclusion for poor and needy people, easy access to Public Distribution System shops and adequate availability of food grain at an affordable price.

Hunger in India requires legal entitlement. Under the Indian Constitution, there is no fundamental right to food but justifiability of the right to food comes from a much broader "right to life and liberty" as enshrined in Article 21 (IV). Food security act is an opportunity and this can be regarded as appreciable step in India. But the framework of poverty estimation and identification is complex and impractical. Proper distribution and procurement are the issues in the way of implementation of the act. The need of the time is simplified, transparent and equitable framework for practicability of the act. So, to improve the standard of living and achieve the goal of food security these laws should be implemented with earnestness and determination. Secondly, to overcome the technicality of the laws authority should organised some legal education programmes.

Government of India has introduced various programmes and policies to improve the level of poor and vulnerable sections. But the main limitation of these programmes is, less coverage and improper implementation. So for effective result of these policies, barriers like corruption should be controlled and the poverty alleviation and employment generation schemes should be implemented in such a way that actual needy and poor people should be benefitted more from these programmes. The condition of food security at regional and household level is more alarming in majority of states. So, effective measures are needed to achieve the goal of hunger free, food and nutritional secure India.

Community measures like education, health facilities, children care and women empowerment are some issues which can improve the nutritional status at household level because in India women and children are mostly affected by food insecurity. In country like India where barriers like caste, religion and socio-economic culture are dominant, community measures can play important role in solving the problem of food security at micro level.

CONCLUSION

Food insecurity is undoubtedly one of the major crisis facing by mankind. Malnutrition is chronic problem and number of people suffering from malnutrition has been steadily increasing in the recent years. India is facing tremendous challenges in providing nutritious, healthy and stable diets to the growing population. In recent decades, demographic and economic growth has challenged the limits of economic, social as well as ecological sustainability, which has given rise to questions about food security at the global level, national and regional levels. Despite technological advances that have modernised the conditions of production and distribution of food, hunger and malnutrition still threaten the health as well as well-being of the millions of people.

To sum up, we can say that the recent trend in agricultural production and ongoing policy reforms of the economy are kind of changes which offer considerable scope for improvements in food security system. In present time, we should induce some hard thinking on the prevailing food security system because it is true that at the moment policy makers' main concern is to cope with large and mounting stocks of foodgrains which are now literally spilling over on the open spaces. Further, success in reaching food to the poor depends not merely on improvements in the food security system but even more critically on the thrust of the broader development policies affecting agriculture and the rural poor. Therefore, multi-pronged strategy should be adopted for ensuring the food security to all in general and weaker section in particular through proper implementation of anti-poverty and employment programmes, management of foodgrains at grass-root level, efficient working, i.e., transparency and good governance of Public Distribution System and by implementing the National Food Security Act with earnestness and determination.

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