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   HYPOTHESES

   RESEARCH METHODOLOGY

   RESULTS & DISCUSSION

   FINDINGS

   RECOMMENDATIONS/SUGGESTIONS

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CONTRIBUTIONS TO BOOKS

● Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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● Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

● Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

UNPUBLISHED DISSERTATIONS AND THESES

● Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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WEBSITES

● Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

EXTENT OF ABSOLUTE POVERTY IN RURAL SECTOR OF HIMACHAL PRADESH: A MEASURE OF UNEMPLOYMENT

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ABSTRACT

Poverty, unemployment and inequality are related phenomenon. Success in solving or reducing one of these can be assumed to have a favorable effect on the others. Conceived in this broad sense, the alleviation of poverty in one form or the other has always occupied an important place in the list of stated objectives of all the five year plans of the country. The concern for a direct attack on the poverty problem emerged distinctly from the Fourth Plan from which various poverty elimination and employment generation programmes have been started. Yet, achievement has been for from satisfactory. The available data from different sources indicates that the condition of the poor continues to be as appealing as it was at the beginning of planning. This paper discusses the likely scenarios regarding the magnitude of poverty and unemployment in Himachal Pradesh. The extent of poverty/ unemployment has been worked out highest on the smaller size of holding and shows inverse relationship with an increase in the size of holdings. Policy interventions such as provision of non-farm permanent and seasonal employment, commercialization of agriculture, development of horticulture, animal husbandry, dairy development, forestry, cottage industry, art & craft industries, education & social services and public works etc. can benefit the chronically poor people.

KEYWORDS

household, man days, consumer unit.

INTRODUCTION

Poverty in India exists due to the slow pace of economic development as well as due to the unequal distribution of development gains. A large number of empirical studies conducted by the individual scholars and the Government agencies, by using different calorie norms and/or the value of poverty line put forth highly diverging figures of rural poverty. The concept of poverty in India has been used mostly in the sense of absolute poverty and has been measured in terms of a minimum level of per capita consumption expenditure needed to ensure a normative calorie intake. Poverty is found both in rural and urban areas but is more acute and widespread in rural areas. Moreover, urban poverty is an overflow of rural poverty. The incidence of poverty expressed as percentage of people below the poverty line in 1999-2000 is observed 27.1 percent in rural area and 23.6 percent in urban area. For the country as a whole, this percentage has been observed 26.1 percent during the same period. While in absolute term, the number of poor is observed 260 million with about 75 percent of these being in the rural areas for the same period. A number of studies revealed that the extent of poverty is higher in rural areas than in urban areas. A study by Minhas (1970) revealed that the extent of rural poverty was very high during 1956-57 i.e. 65 percent and this has been reduced to 56.6 percent during 1967-68. Ojha (1970) findings revealed that 51.8 percent of rural population was below poverty line during 1960-63 at calorie norm of 2250 per capita per day. Bardhan (1970) estimated that 38 percent during 1960-61 and 54 percent of the rural population was below poverty line during 1968-69. Dandekar and Rath (1971) by applying the minimum calories norm of 2250 per capita per day consumption expenditure during 1960-61, concluded that about 40 percent rural and 50 percent urban population falls below the poverty line. Hashim and Padam Singh (1986) studied the extent of rural poverty during 1960-61 to 1983-84. Their findings revealed that 55.50 percent of rural population was below poverty line during 1960-61 and 44.98 percent were below poverty line during 1970-71. This figure came to 40.40 percent during 1983-84. According to the Planning Commission of India the extent of poverty in rural India was 28.2 percent during 1989-90. Krishna (2003) found that a number of households had climbed out of poverty in the past 25 years. Simultaneously, however, a large number of previously non-poor households had also fallen into poverty, resulting in a rather small net improvement in the poverty situation in this area. Since the reasons for people overcoming poverty are quite distinct from the reasons why they succumb to it. Dev and Mahajan (2003) observed that employment growth recorded a drastic decline during 1993-94 to 1999-2000 as compared to the period of 1983-84 to 1993-94. Bhalla and Hazall (2003) on the basis of NSS data found that there were 3.98 million unemployed in India in 1973-74 and their number had increased to 7.49 million by 1993-94 and to as much as 9.15 million by 1999-2000. In the meantime the incidence of unemployment had increased from 1.64 percent in 1973-74 to 1.96 percent in 1993-94 and to 2.25 percent in 1999-2000. S.Mahendru et al.(2007) and Himanshu (2007)by using the NNS data concluded almost same that in spite of higher overall growth, the extent of decline in poverty in the post reform period (1993-2005) has not been higher than in the pre-reform period (1983-1993) ,further they concluded that the inequality has increased significantly in the post reform period and seems to have slowed down the rate of poverty reduction but the extent of decline in 1995-05 seems to have been higher than in 1993-2000 in spite of slower growth in agriculture in the latter years. Datta (2008) worked out that the estimate of Head count ratio of poverty for 2005-06 to 2004-05, the decline in the Head count ratio between two years is 1.4 to 1.6 percent due to higher rate of economic growth rate accompanied by the impressive growth in the agriculture sector while the trend rate of decline between 1993-94 and 2004-05was 0.8 percent. Martin (2008) in his article discussed that in 2005, 40 percent of India's population lived below poverty line whose consumption is less than $1.25 a day. While 25 years earlier 60 percent of India's population lived below the same real line. This is clear progress. India's long term pace of poverty reduction by this measure is no more than average for the developing world excluding China. Himanshu (2010) studied that estimates of the incidence of rural poverty show a head count ratio of 41.8 percent for 2004-05 as against the official estimate of 28.3 percent. The estimates reveal much larger rural-urban differences but less concentration of either rural or urban poverty in few states. In Himachal Pradesh 34.1 percent of population was living below the poverty line According to the study conducted by the federation of Chambers of Commerce and Industry in 1972. The extent of rural poverty in Himachal Pradesh on the basis of the value of poverty index for 1972-73 and 1973-74 has been calculated equal to 31.53 percent and 47.01 percent respectively (Sharma, 1982). Thakur (1985) concluded that on the basis of the value of poverty index the percentage of poor has been worked out 71.06, 50.65 and 26.34 percent on the marginal, small and medium size of holdings respectively. Ramna et al. (2008) worked out that the Percentage of poor on the marginal, small, medium and all holdings together are 43.46, 29.89, 20.17 and 33.53 percent respectively.

In this paper an attempt has been made to estimate the extent of poverty and unemployment in the rural sector of Himachal Pradesh with a view to achieve the following *OBJECTIVES*:
1.   to study the socio-economic characteristics of the respondents,
2.   to asses the extent of poverty & unemployment with the help of poverty/ income criterion; and
3.   to pinpoint the causes of poverty / unemployment and to suggest measures for reducing the volume of poverty and unemployment.

DATA SOURCE & METHODOLOGY

Himachal Pradesh is a hilly State. Cropping pattern and agricultural income of the farmers vary according to altitude of the State. Therefore on the basis of altitude the cultivated land in the State has been categorized into three zones viz., (a) low hill zone, ranging between 1200- 3000 feet, (b) mid hill zone from 3000-5000 feet and (c) high hill zone of 5000 feet and above. In the valley areas of low hill zone, the main agricultural products are food grain, i.e., wheat, maize,

paddy, pulses, sugarcane, oilseeds etc., whereas due to suitable topography and climatic conditions, the high hill zone of the state is widely known for horticultural products, viz., apple, seed potato, apricot, grapes, ginger, dry fruits etc. The agricultural activities in the mid-hill zone bear similarity in some areas to that of low-hill zone while in other areas to high hill zone. Therefore the present study is conducted in district Mandi of Himachal Pradesh because Mandi district falls in the mid hill zone of the state, so the topography, climatic conditions, access to resources as well as cropping, income, consumption and employment pattern in this district bear similarity to some area of low hill zone while, other area to high hill zone of the state. In order to provide the factual position of the problem, district Mandi from the mid-hill zone of the State has been selected purposely. A sample of 111 households consisting of 51 marginal having land <1 hectare, 40 small having land 1-2 hectares & 20 medium farmers having land above 2 hectares have been selected with the help of multistage random sampling. The required information has been collected from the sample households with the help of pre-tested schedule during 2002-03. After tabulating the data in homogenous categories and working out the averages and percentages, the following methods are applied with a view to find out the magnitude of poverty/ unemployment. The measure of poverty involves distinct problems. The first is the specification of the 'poverty line' i.e., which should be the value of consumption basket considered to represent the socially accepted 'minimum' standard of living. Once the poverty line is determined, the second step is that of determining an 'Index of Poverty'. In the present study the poverty line has been determined on the basis of the value of minimum nutritional requirements, i.e. 2400 calories per consumer unit per day as has been suggested by the Government of India, Planning Commission and Indian Council of Medical Research. The value of minimum per consumer unit per day consumption basket (i.e. both out of home grown stock as well as out of purchases) has been calculated by multiplying quantities of different food items by their respective actual retail prices prevailing in the sample area during the period of investigation i.e. 2002-03. The total number of males, females and children of varying age have been converted into 'Standard Consumer Units' or adult male value by applying the scale of coefficient suggested by the Indian Council of Medical Research, e.g. a family consisting of father, mother and three children aged 10, 8, 6 years has an 'adult male value' or consumption units of 4.9 (i.e. 1.6+1.2+0.8+0.7+0.6). Keeping in view the hilly topography and the extreme climatic variations in the area under study the minimum food requirements are 'necessary' but not sufficient for the survival of mankind. Therefore, in order to work out the value of 'poverty line' allowances have also been made to the minimum non-food requirements by working out the ratios of total non-food expenditure to the total food expenditure for each holding group.

RESULTS AND DISCUSSION

The results and discussion based on the first hand information are presented below;

SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

Demographic profile is an important indicator of determining the socio-economic well being of the family and society at large. In the study area total sample population has been worked out 635 persons. The family human labour days by converting into 'standard mandays' by attaching proper coefficient of efficiency have been worked out 173.75, 155.75, 86.25 and 415.75 on the marginal, small, medium and among all the holdings together respectively. Sex-ratio is an important indicator to know about the proportion of males and females in the total population and has been worked out 871, 1025, 1096 and 972 females per thousand males on the marginal, small, medium and among all the holding groups together respectively.

TABLE I: BASIC CHARACTERISTICS: SOME INDICATORS

Sr. No.	Particulars		Size Class of Holdings			
			Marginal Holding	Small Holding	Medium Holding	All Holdings
1.	Total Number of Households		51	40	20	111
2.	Total Sample population	Male	139	120	63	322
		Female	121	123	69	313
		Total	260	243	132	635
3.	Sex-ratio per thousand male		871	1025	1096	972
4.	Average Size of Family		5.09	6.08	6.6	5.72
5.	Percentage of Family workforce		65.38	60.91	59.09	62.36
6.	Percentage of Dependents		34.62	39.09	40.91	37.64
7.	Total Standard Mandays		173.75	155.75	86.25	415.75
8.	Per Household Standard Mandays		3.41	3.89	4.31	3.75
9.	Total Number of Consumer Units		308.3	277.7	153.7	739.7
10.	Number of Per Household Consumer Units		6.05	6.94	7.69	6.67
11.	Literacy Percentage	Male	85.62	87.50	87.30	86.65
		Female	64.46	75.61	75.36	71.25
		Total	75.77	81.48	81.06	79.60

The average family size for the sample households has been worked out 5.09, 6.08, 6.6 and 5.72 on the marginal, small, medium and all holding groups together respectively. The percentage of family workforce (15-59 years) among the sample households has been worked out 65.38, 60.91, 59.09 and 62.36 percent on the respective size of holding groups. Total number of consumer units when converted into 'Standard Consumption Units' by applying the scale of coefficient suggested by the Indian Council of Medical Research have been worked out 308.3, 277.70, 153.70 and 739.70 on the marginal, small, medium and among all the holding groups together respectively. While the number of per household consumer unit came out 6.05, 6.94, 7.69 and 6.67 on the respective size of holding groups. While the percentage of literacy has been worked out 75.77, 81.48, 81.06 and 79.60 percent on the marginal, small, medium and all the holdings together respectively. This literacy percentage has been worked out lowest on the marginal size of holding mainly due to the reason that households falling on this holding size cannot afford to bear the expenses of education of their children due to meager household income and uneconomic size of holding. While households falling on the small and medium size of holdings can afford to make investment on the education of their children due to their sound and regular sources of income.

EXTENT OF ABSOLUTE POVERTY – A MEASURE OF UNEMPLOYMENT

The household consumption expenditure on both food and non-food items as well as the extent of absolute poverty which is used as a measure of unemployment among the sample households has been presented below.

VALUE OF POVERTY INDEX: A NUTRITION APPROACH

In the present study the value of average daily diet composition (at 2002-03 prices) has been suggested by the Indian Council of Medical Research (ICMR) which provides 2400 calories per consumer unit per day has been adopted for determining the value of poverty line. In order to arrive at the per consumer unit per month consumption of food items, the quantity of food items consumed by each household during the month preceding the survey have been divided by the number of respective households 'standard consumer units'. The value of per consumer unit per month consumption basket has been calculated by multiplying the quantities of different food-items by their respective prices prevailing in the study area during the period of investigation (i.e. 2002-03). In order to meet out the minimum requirements i.e. 2400 calories the value of per consumer unit per month food items has been worked out Rs. 262.80 and Rs. 124.65 on non-food items among the poor sample households. Per consumer unit per month actual consumption expenditure on food items has been worked out Rs. 391.33, 440.77 and 461.15 among the marginal, small and medium size of holdings respectively.

TABLE – II: PER CONSUMER UNIT PER MONTH CONSUMPTION EXPENDITURE ON FOOD AND NON-FOOD ITEMS AMONG THE SAMPLE HOUSEHOLDS

S.No.	Items	Size Class of Holdings (Value in Rs.)			
		Marginal Holding	Small Holding	Medium Holding	All Holdings
1	Food Items	391.33	440.77	461.15	431.08
2	Non-Food Items	148.73	216.01	248.58	204.44
3	Food and Non-Food Items	540.06	657.70	709.73	635.52
4	% Expenditure on Food Items	72.46	67.02	64.98	67.83
5	% Expenditure on Non-Food Items	27.54	32.98	35.02	32.17
6	% Expenditure of Non-Food Items to Food Items	38.01	49.22	53.90	47.43

1. Per consumer unit per month Consumption Expenditure on Food Items = Rs.262.80.

2. Ratio of Non-Food Expenditure to Food Expenditure = Rs.47.43% i.e. Rs.124.65.

3. Value of Poverty Index (1+2) i.e. Rs.262.80 + Rs. 124.65 = Rs.387.45.

Among all the holdings together the value of per consumer unit per month consumption expenditure on food items came out Rs. 431.08. While the per consumer unit per month actual consumption expenditure on non-food items has been worked out Rs. 148.73, 216.01, 248.58 and Rs.204.44 on the marginal, small, medium and among all the holding groups together respectively. This table further shows that the percentage of per consumer unit per month consumption expenditure on non-food items to food items has been worked out 38.01, 49.22, 53.90 and 47.43 percent on the marginal, small, medium and among all the holding groups together respectively. The percentage of per consumer unit per month consumption expenditure on non-food items to food items has been worked out lowest on the marginal size of holding and shows an increasing tendency with an increase in the size of holdings. This happened mainly due to the fact that marginal farmers have uneconomic size of holdings, meagre household income and lack of gainful employment opportunities & vice versa.

VALUE OF POVERTY INDEX: A NUTRITION PLUS APPROACH

Minimum food requirement is necessary but not sufficient for the survival of mankind. Like the minimum food requirement a certain minimum amount of non-food items is equally important for the survival of mankind. No specific norm comparable to 'minimum calorie requirements' has so far been suggested by any Government agency or individual scholar for non-food items. But in the present study due consideration has been given to the non-food items such as fuel, light, clothing, footwear, health, education, fairs and festivals etc. The minimum non-food requirements vary from region to region due to variation in the topography, climatic conditions, nature, type and intensity of economic activities carried out. Therefore, in this study in order to find out the value of poverty index the value of minimum non-food requirements has been worked out by calculating the ratio of total non-food expenditure to the minimum food expenditure. The per consumer unit per month consumption expenditure on food and non-food items among the holding groups consisting of poor has been worked out Rs. 431.08 and Rs. 204.44 respectively. Thus the ratio of non-food expenditure to food expenditure among the holding groups consisting of poor came out 47.43 percent (see table II). This ratio has been suggested by different individuals for different areas. Sastry and Suryanarayana (1981) have suggested 36 percent for the rural areas and 46 percent for the urban areas of Andhra Pradesh as the minimum monthly expenditure on non-food components to the food components. Thakur (1985) have suggested 46.63 percent of the rural poor of Himachal Pradesh as the minimum monthly expenditure on non-food components to food components. Sharma (1994) have suggested 65 percent for the tribal poor of Kinnaur District of Himachal Pradesh as the minimum monthly expenditure on non-food components to the food components. Sharma (1997) have suggested 65 percent for the tribal poor and 54 percent for the non-tribal poor of Chamba District of Himachal Pradesh as the minimum monthly expenditure on non-food items. In the present study the minimum non-food requirements to the poor in the study area has been worked out 47.43 percent. This percentage is higher to the percentage (i.e., 46.63 %) suggested by Thakur for the rural Himachal Pradesh and Sastry and Suryanarayana (i.e., 36%) for the rural Andhra Pradesh. The comparatively higher ratio of non-food expenditure in the present study came out mainly due to manifold increase in prices of non-food items like cloth, footwear, light, fuel, medicines as well as increase in fee in educational institutions. In order to determine the value of poverty index both minimum expenditure on food and non-food items has been calculated. Hence, the value of both minimum food and non-food requirements (i.e., Nutrition Plus Approach) has been worked out Rs. 387.45 (i.e., 262.80 for food items + Rs. 124.65 for non-food items). With the help of 'Nutrition Approach' i.e. by taking into account the value of minimum food requirements by providing 2400 calories per consumer unit per day the value of poverty index has been worked out Rs. 262.80. According to this 'poverty' or 'income criterion' all those persons who earn income less than the value of poverty index i.e., 262.80 are termed unemployed and/or underemployed as has been shown in Table II. Thus by applying this 'poverty' or 'income criterion' the percentage of unemployed and/or underemployed has been worked out 33.41, 23.41, 17.57 and 26.36 percent on the marginal, small, medium and among all the size of holdings together respectively (see Table III).

TABLE – III: PERCENTAGE OF POOR/ UNEMPLOYED BY SIZE CLASS OF HOLDINGS ON THE BASIS OF PER CONSUMER UNIT PER MONTH FOOD EXPENDITURE AT 2002-2003 PRICES

S.No.	Items	Size Class of Holdings (Value in Rs.)			
		Marginal Holding	Small Holding	Medium Holding	All Holdings
1	Total Number of Persons	308.30	277.70	153.70	739.70
2	Total Number of poor/unemployed Persons	103.00	65.00	27.00	195.00
3	Percentage of Poor/unemployed	33.41	23.41	17.57	26.36

While with the help of 'nutrition plus approach' the percentage of poor has been worked out 43.46, 29.89, 20.17 and 33.53 percent on the marginal, small, medium and among all the holdings groups together respectively (see Table – IV).

TABLE – IV: PERCENTAGE OF POOR/UNEMPLOYED BY SIZE CLASS OF HOLDINGS ON THE BASIS OF PER CONSUMER UNIT PER MONTH FOOD AND NON-FOOD EXPENDITURE AT 2002-03 PRICES

S.No.	Items	Size Class of Holdings (Value in Rs.)			
		Marginal Holding	Small Holding	Medium Holding	All Holdings
1	Total Number of Persons	308.30	277.70	153.70	739.70
2	Total Number of poor/unemployed Persons	134.00	83.00	31.00	248.00
3	Percentage of Poor/unemployed	43.46	29.89	20.17	33.53

It is obvious from the given tables (i.e., III & IV) that the percentage of poor according to 'nutrition approach' is lower than the percentage of poor according to 'Nutrition Plus Approach'. The poverty or 'income criterion' of unemployment can be worked out by taking into account only the value of minimum food items providing 2400 calories per consumer unit per day (i.e. the 'nutrition approach') because it ignored the expenditure made on non-food items such as clothing, footwear, light, fuel, health, education, fairs and festivals etc. While calculating the value of poverty index which is equally important for the survival of human being. Therefore, from the policy point of view the 'Nutrition plus approach' is more reliable to work out the value of poverty index or income criterion of unemployment and thereby the percentage of poor and/ or unemployed.

CONCLUSION AND SUGGESTIONS

The results of the study indicated that there exist a lot of variations in the literacy percentage, distribution of household consumption expenditure which resulted a wide variation in the extent of poverty/ unemployment in the study area. The magnitude of unemployment according to poverty/ income (Nutrition and Nutrition plus approach) criterion has been worked out highest on the marginal size of holding and shows a decreasing tendency with an increase in the size

of holdings. Uneconomic size of holdings, lack of regular and seasonal gainful employment opportunities, higher dependency and low literacy percentage, lack of irrigation facilities, uncertainty of rain and lack of awareness of the rural people etc. are the main causes of poverty/unemployment in the study area. In spite of various poverty alleviation programmes the desired objective of reducing rural poverty has not been achieved due to wrong identification of beneficiaries, administrative failures and poor delivery system, lack of adequate infrastructural facilities and lack of people's participation in effective implementation of these programmes. Thus in order to reduce the extent of poverty/unemployment emphasis should be laid down on the soil and water conservation, minor irrigation, rural roads and land reforms in the infrastructure sector; drinking water supply, general education, technical education and health in the social service sector; horticulture, animal husbandry, dairy development, forestry in the agricultural sector and small scale & cottage industries in the industrial sector etc.

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THE ENTREPRENEURSHIP CORE COMPETENCES FOR DISTRIBUTION SERVICE INDUSTRY

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ABSTRACT

Entrepreneurship has emerged as the most potent economic force. The focus of economic development has shifted more heavily toward entrepreneurship. The distribution service industry is very important in Taiwan, so to explore the entrepreneurship core competency for distribution service industry is became an important issue. This study aims to understand the entrepreneurship core competencies for distribution service industry. This study used the in-depth interview techniques to interview with 6 successful entrepreneurs who established their own stores over 3 years. Then, this study conducted group discussion to confirm the domains, items and criteria of entrepreneurship core competences for distribution service industry. Base on the interview and group discussing results, this study summarized the 11 entrepreneurship core competencies including the cognitive of entrepreneurial processes, entrepreneurial traits/behaviors, business foundation skills, communication skills, digital skills, professional innovation, financial management, human resource management, marketing management, operations management and risk management, within three domains as entrepreneurial skills, ready skills, and business functions skills.

KEYWORDS

Distribution Service Industry, Entrepreneurship, Entrepreneurship Core Competences.

INTRODUCTION

Entrepreneurship has been recognized and accepted by economies the world over as the catalyst to boost innovation and growth for an economy (Biju & Vardhan, 2011). It has emerged as the most potent economic force. The focus of economic development has shifted more heavily toward entrepreneurship (Raposo & Paco, 2011). In other words, national incomes and change of unemployed population significantly and positively influence entrepreneur development (Hsiao et al., 2012a). The European Union (UN) considered that the entrepreneurship was one of the "new basic skills" in the economic life (European Commission, 2006). Nowadays, entrepreneurship has become the key word that attaches great attention by governments and workers (Liu & Hu, 2010).

The entrepreneurs are not inherent, the skills and knowledge of entrepreneurial abilities can be learned (Okudana & Rzasa, 2006). Rasmussen and Sorheim (2006) pointed out that it was possible to educate individuals to become entrepreneurs. According to the 2009 SME White Paper on SMEs in 2008, the business over 10 years was only 45.1% in Taiwan (Ministry of Economic Affairs, 2009). It seen entrepreneurship does have a high risk, not every entrepreneur can succeed. Headd (2003) indicated that the failure rates for starting a new business might be as high as 30% over the first 2 years of established. People can make higher survival of starting a business if they accepted well entrepreneurial education before starting a business (Shepherd, Douglas, & Shanley, 2000; Hsiao et al., 2012a, 2012b).

According to 2011 statistics presented by the Taiwan's Small and Medium Enterprise Administration, Ministry of Economic Affairs pointed out that there were 1.27 million SME in Taiwan, this is 97.63% of all firms, growth of 2.55% compared to 2010. Among them, there were 80.09% for the service industry, and wholesale and retail trade accounted for 50.94% of service industry. Belonging to the self-employed and employers 180.3 million, of which 60.5 million wholesale and retail trade industry, accounting for 33.5% (Small and Medium Enterprise Administration, Ministry of Economic Affairs, 2012). In terms of product

value, wholesale and retail trade in 2000 amounted to US$ 0.3 trillion in 2011 reached US$ 0.475 trillion, the 10-year growth of 58.6% (Statistics Department, Ministry of Economic Affairs, 2012), this means that SMEs, especially for service, play an important role for Taiwan's economics.

Taiwan's government announced "The Ministry of Economic Affairs and Services roadmap" in October 2012. It will promote the guiding blueprint for wholesale and retail, logistics services, that is expected to spend US$ 10 billion during the period to 2020. The service sector GDP annual growth rate will reach to 5.14% and the services sector will become to promote sustained economic growth engine in Taiwan (Ministry of Economic Affairs, 2012). The distribution service industry is very important service type in Taiwan (Chen, 2006), so to explore the entrepreneurship core competency for distribution service industry is became an important issue.

OBJECTIVE
The object of this study was to understand the entrepreneurship core competencies for distribution service industry.

REVIEW OF LITERATURE
DEFINITION OF ENTREPRENEURSHIP
The term of entrepreneurship was from the 12th century French compound verb entreprendre (*entre + prendre*). In modern English, it means "to undertake" (Hoang & Huang, 2008; Hsiao et al., 2012a). The European Commission had defined in 2006 as: "Refers to an individual's ability to turn ideas into action" (European Commission, 2006). The European Commission made another definition in 2009 as "Entrepreneurship is an attitude that reflects an individual's motivation and capacity to identify an opportunity and to pursue it in order to produce new value or economic success (European Commission, 2009). In the Oxford English Dictionary defined entrepreneurship as "A person who sets up a business or businesses, taking on financial risks in the hope of profit" (Soanes & Stevenson, 2006; Hsiao et al., 2012a).

Entrepreneurship is the act of creating a new business (Liu & Hsieh, 2006). It includes creativity, innovation and risk taking, as well as the competences to plan and manage projects in order to achieve target. Shane and Venkataraman (2000) said that entrepreneurship was entrepreneurs use entrepreneurship, discovery, assessment, or create opportunities. Lo, Wang and Hsu (2007) gave a definition of entrepreneurship as a process of creating profit. In this process, entrepreneurs can identify, and discover business opportunities. Ulhøi (2005) considered that the entrepreneurs were to take advantage and identify of starting a new business opportunities and willing to take risks. Entrepreneurship was not only in the creation of new business but also the source of personal and social development and innovation (Brush et al., 2004). General speaking, Hsiao et al. (2012b) aggregated entrepreneurship as a combination of production factors including labor, capital, technology, management and knowledge. It also included creativity, innovation and risk taking, as well as the competences to plan create, assess or discover business opportunities and manage projects in order to achieve object.

ENTREPRENEURIAL COMPETENCES
Competency can refer to the individual's effective implementation, it can play the role of a good job, qualified for the duties and tasks, and it can be observed. Competences usually contain knowledge, affective and skills (Tien, 2001).

The Consortium for Entrepreneurship Education designs a National Content Standards for entrepreneurial competences standards. There are fifteen major standards, which are divided into three major skills: entrepreneurial skills**,** ready skills and business functions skills (The Consortium for Entrepreneurship Education, 2004; Hsiao et al., 2012b). The entrepreneurial skills are the unique traits, behaviors and processes that differentiate an entrepreneur from an employee or manager. It includes entrepreneurial processes, entrepreneurial traits/behaviors. The ready skills are the business, or entrepreneurial knowledge and skills that are prerequisites or co-requisites for the study of entrepreneurship. It includes business foundations, communications and interpersonal skills, digital skills, economics, financial literacy, professional development. Business functions skills are the business activities performed in starting and running a business. It includes financial management, human resource management, information management, marketing management, operations management, risk management, strategic management (The Consortium for Entrepreneurship Education, 2004). Townsend, Busenitz and Arthurs (2010) indicated that ability expectancies were a robust predictor of starting a business decision. Zhang (2008) believed that the entrepreneurs should have adventurous, entrepreneurial ability, independent operational capability, as well as technical, social and management capabilities.

The entrepreneurial competences should be able to distinguish into three competences that were the entrepreneurial professional competence, entrepreneurial basic capacity and entrepreneurial management capacity (Chang et al., 2012). Hindle (2007) proposed in the entrepreneurship program, the business plan course was required for covering the professional skills and the external environment of the wheel-like diagram. He considered that entrepreneurship education could not be off campus within the ivory tower of academia. Entrepreneurship education must link with external resources. In the most peripheral alliance partners, Internet, alumni and tutors to help students learn. In the second ring, the students must have entrepreneurial professional courses including marketing, sales, organizational behavior, strategy, business development, opportunity assessment, financial and accounting, creativity and other professional skills training. Schools may be developed their own characteristics courses. In the inner ring, it can integrate all knowledge and skills by business plan. Hood & Young (1993) survey 100 CEO, pointed out that marketing was the most important areas of entrepreneurship, leadership was entrepreneurial core skills, and creativity was the most important cognitive skills in the entrepreneurial. In Chandler and Jansen (1992) survey, they found that entrepreneurs should have five abilities that were organizational behavior, the ability to grasp the opportunities, the ability of the operational assets, professional and technical capabilities and knowing people ability. American Association of Business and Management in 2001 referred to the entrepreneurial abilities including the ability of entrepreneurs and entrepreneur's opportunity, marketing capabilities, economics capabilities, financial capabilities, accounting capabilities, management capabilities, global market capabilities, legal capabilities and enterprise planning capabilities (Chou, 2005).

Sung (2008) pointed out that started a new business could be divided into six stages: new venture idea, screening, formal plans, financing, set up and start-up. The various stages of the required knowledge and skills are shown in table 1. It can be seen from table 1 that in the early days of the new venture idea stage, entrepreneurs should have creative thinking, innovation management ability and creativity commercialization assessment capabilities. In the screening stage, entrepreneurial vision assessment, evaluation of the investment is very important. In the planning stage, the entrepreneur must have a business plan writing and assessment capacity. In the financial stage, entrepreneurs need to have the ability to get funds and the ability to make financial planning and investment framework arrangement. In the set-up stage, entrepreneurs must clearly understand the knowledge of the Companies Act and the protection of intellectual property rights. In the start-up stage, knowledge and skills of production, service, finance, sales, control and management, strategic planning, leadership are needs.

TABLE 1: VARIOUS STAGES OF THE REQUIRED KNOWLEDGE AND SKILL FOR STARTING A NEW BUSINESS

Stages	required knowledge and skill
New Venture Idea	creative thinking, innovation management ability, creativity commercialization assessment
Screening	assessment of entrepreneurial vision, investment assessment
Formal Plans	prepare a business plan, venture proposal assessment
Financing	financial planning, how to arrange the investment framework
Set Up	the protection of intellectual property rights, the legal form of the various companies
Start-Up	produce, service, finance, sales, control and management, strategic planning, leadership knowledge and skills

Source: Sung(2008), p.88。

The main content of the Grade B store service skills certificate specification of Council of Labor Affairs in Taiwan include commercial theory of outlets, stores and merchandise plans, management and operation of technology and customer service. The disciplines of skills certificate specification include retail store management, store merchandise management, store sales management, store human resources management, store operations planning and management,

store shopping district operations, store customer service management, retail crisis handling eight (Central office of the Council of Labor Affairs, 2006). It can be regarded as the entrepreneurial professional competence s for the distribution service industry.

RESEARCH METHODOLOGIES

The implementation of this study included two stages. First, six successful entrepreneurs were interviewed. Their stores all established over three years. The background of them is shown in table 2. The interview questionnaire is revised from The National Content Standards for Entrepreneurship Education (Consortium for Entrepreneurship Education, 2004). After collecting the interview data, the researchers used entrepreneurial skills, ready skills and business functions skills as the analytic domains. And in entrepreneurial skills includes entrepreneurial processes, entrepreneurial traits/behaviors two items; in ready skills includes business foundations, communications skills, digital skills, and professional innovation ability four items; in business functions skills includes financial management, human resource management, marketing management, operations management, and risk management five items. Subsequently, definitions for these domains and items were used as objective criteria for selection. When the sentence fitted the criteria, it was drawn to the corresponding item. After the assortment, the core competence for distribution service industry was established for further discussion.

Secondly, the researchers conducted group discussion to confirm the domains, items and criteria of entrepreneurship core competences for distribution service industry.

TABLE 2: THE BACKGROUND OF SUCCESSFUL ENTREPRENEURS

No	Sexual	Education	Experience	Category
A	M	junior college	9 yr.	convenience store
B	M	Senior vocational high school	10 yr.	convenience store
C	M	Senior vocational high school	23 yr.	specialty store
D	F	University	3 yr.	beverages store
E	F	University	3 yr.	breakfast store
F	F	Senior vocational high school	3 yr.	beverages store

RESULTS

Table 3 is the summaries of the core competencies for distribution service industry entrepreneurs. The domains of entrepreneurship core competences for distribution service industry include entrepreneurial skills, ready skills and business functions skills.

There are 11 items in these domains. The entrepreneurial skills mean the unique traits, behaviors and processes that differentiate an entrepreneur from an employee or manager. It includes entrepreneurial processes, entrepreneurial traits/behaviors two items.

The ready skills mean the basic business knowledge and skills that are prerequisites or co-requisites for becoming a successful entrepreneur; it includes business foundations, communications skills, digital skills, and professional innovation ability four items.

The business functions skills mean the business activities performed in starting and running a business. It includes financial management, human resource management, marketing management, operations management, and risks management five items.

There are 34 criteria in these items. In entrepreneurial processes, there are 4 criteria that are to assess market trends and opportunities, to assess opportunities for venture creation, to select sources to finance venture creation/start-up, and to have business law knowledge.

In entrepreneurial traits/behaviors, there are 4 criteria that are to have leadership ability, to have risk taking ability, to have creativity and Innovation ability, and to have positive initiative.

In business foundations, there are 2 criteria that are to have concepts of business management and to have concepts of marketing.

In communications skills, there are 3 criteria that are to use communications technologies/system, to have personnel communication ability and to have ethics in communication.

In digital skills, there are 2 criteria that are to use basics computer and to use computer applications

In professional innovation ability, there are 3 criteria that are to have product innovation ability, to have technology innovation ability and to have technology innovation ability.

In financial management, there are 3 criteria that are to have money management ability, to have product inventory management ability and to have costs/benefits analysis ability

In human resource management, there are 3 criteria that are to have human resource planning ability, to have human resource training and developing ability and to have manpower management ability.

In marketing management, there are 3 criteria that are to have product selling ability, to have product promotion ability and to have product pricing ability.

In operations management, there are 4 criteria that are to manage target market, to serve customers, to have daily operations ability and to have strategic planning ability.

In risk management, there are 3 criteria that are to make property and personnel safety, to manage disaster and to treat emergency events.

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TABLE 3: SUMMARIES OF THE CORE COMPETENCIES FOR DISTRIBUTION SERVICE INDUSTRY ENTREPRENEURS

Domains	Items	Criteria
Entrepreneurial Skills: The unique traits, behaviors and processes that differentiate an entrepreneur from an employee or manager.	Entrepreneurial processes	To assess market trends and opportunities
		To assess opportunities for venture creation
		To select sources to finance venture creation/start-up
		To have business law knowledge
	Entrepreneurial traits/behaviors	To have leadership ability
		To have risk taking ability
		To have creativity and Innovation ability
		To have positive initiative
Ready Skills: The basic business knowledge and skills that are prerequisites or co-requisites for becoming a successful entrepreneur	Business foundations	To have concepts of business management
		To have concepts of marketing
	Communications skills	To use communications technologies/system
		To have personnel communication ability
		To have ethics in communication
	Digital skills	To use basics computer
		To use computer applications
	Professional innovation ability	To have product innovation ability
		To have technology innovation ability
		To have service innovation ability
Business Functions Skills: The business activities performed in starting and running a business	Financial management	To have money management ability
		To have product inventory management ability
		To have costs/benefits analysis ability
	Human resource management	To have human resource planning ability
		To have human resource training and developing ability
		To have manpower management ability
	Marketing management	To have product selling ability
		To have product promotion ability
		To have product pricing ability
	Operations management	To manage target market
		To serve customers
		To have daily operations ability
		To have strategic planning ability
	Risk management	To make property and personnel safety
		To manage disaster
		To treat emergency events

CONCLUSIONS AND RECOMENDATIONS

Base on the interview and group discussing, this study summarized the 11 entrepreneurship core competencies for the distribution service industry, including the cognitive of entrepreneurial processes, entrepreneurial traits/behaviors, business foundation skills, communication skills, digital skills, professional innovation, financial management, human resource management, marketing management, operations management and risk management, within 3 domains as entrepreneurial skills, ready skills, and business functions skills. In the planning of entrepreneurship education courses, the marketing and distribution management department of universities can reference these competences. If these entrepreneurship core competencies directory set into curriculum and to reinforce existing courses. It will be better able to meet the needs of future students towards entrepreneurial path.

This study explores on distribution service industry. It is recommended that future researchers can follow this research process to copy to other industries. It can make a comparison between industries, such like service industry and manufacture industry. It can find out what same or differences between them.

This study is focus on micro-enterprise entrepreneurs. It does not cover large distribution industry enterprises. The entrepreneurship core competencies only reference in the creation of micro-entrepreneurs. It is recommended that future researchers can expand the study and make a comparison the same and differences between micro-enterprise and large enterprises.

In this study, only uses the interview and group discussion method. It is recommended that future researchers can base on the results, to take the questionnaire and to investigate more samples. For example, in authors' previous (Hsiao et al., 2012b), we used the techniques of Analytic Hierarchy Process (AHP) to solicit opinions from 17 excellent franchisees that selected from Taiwan Family-Mart Chain Stores. The results show that the entrepreneurial skill is the most important factor for starting a store in the criteria level. This means that if the entrepreneurs have more entrepreneurial skills, it will be possible success. So, how to strengthen the entrepreneurial skills of entrepreneurial candidates are the important issues in the distribution service industry entrepreneurial education. Entrepreneurial candidates can be teaching by writing and planning a business plan.

The outline of interviews is base on the literature review. But in actual use, it may be affected by the impact of the background and experience of the respondents. May be caused the time of the interview and the interview questions inconsistent. It can be said that this is the limitation of this study.

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THE RELATIONSHIP BETWEEN MACROECONOMIC VARIABLES AND CEMENT INDUSTRY RETURNS: EMPIRICAL EVIDENCE FROM PAKISTANI CEMENT INDUSTRY

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ABSTRACT

This particular study has been conducted in order to find the empirical relationship between macroeconomic variables and cement industry returns for the period of 01/1999 to 01/2008. The variables include Interest rate, Inflation, Exchange rate and Stock Index. The data have been examined using multivariate cointegration analysis, Granger causality analysis, and Impulse response and variance decomposition. After confirmation of the stationarity of the data, the researcher applied multivariate Co integration Analysis showed that the null hypothesis of co integration between the cement industry returns and macroeconomic variables can not be rejected. Therefore, the results provide evidence of a long-term relationship between macroeconomic variables and cement industry returns. The result shows that the relationship between Cement Industry Returns and macroeconomic variable is not strong. It is found that return of T-Bills & Exchange rate does Granger Causes the return of cement industry; these results are consistent with Hassan & Javeed (2009) results. Returns of T-Bills to returns of cement, returns of exchange rate to returns of Index, and returns of Inflation to T-Bill have unidirectional relationship. While return of T-bill to Index, and Index to T-Bill have a Bi-directional relationship. Variance Decomposition Analysis shows that the prices of cement fluctuate itself by 96% while T-Bill is main sources of volatility followed by Inflation rate. Thus the finding of the study is appearing that there is long term relationship between the macroeconomic variables and cement industry returns. The impact of the behavior of these variables helps the investors to take a wise decision about the trading of cement stocks.

KEYWORDS

Macroeconomic, Cement Industry, Stationarity, Co Integration.

INTRODUCTION

The causal relationship between monetary variables and equity returns has been one of the most debated topics in finance during the last few decades. The idea of whether stock prices and exchange rates are related has been studied since the 70's. Franck and Young (1972) was the first study that examined the relationship between these two variables. Equity prices are the most closely observed asset prices in an economy and are considered the most sensitive to economic conditions; high volatility or abnormal movements in equity prices from fundamental values can have adverse implications for the economy. Thus, it becomes imperative to understand the relationship and dynamics of monetary variables and equity market returns.

Financial economists, policy makers and investors have long attempted to understand dynamic interactions among macroeconomic variables, exchange rates and stock prices. Theoretically, their causal interactions may be motivated using such models as the standard stock valuation model, monetary and portfolio allocation models of exchange rate determination, and standard Aggregate Demand – Aggregate Supply (AD-AS) textbook models. According to the stock valuation model, stock price represents the discounted present value of the firm's future cash flows. This means that any change in such economic variables as real output, money supply, exchange rates and others may affect stock prices through their influences on firms' cash flows and discount factors. At the same time, changes in stock prices may also influence variations in economic activities and act as a channel of monetary transmission mechanisms.

As for the effect of macroeconomic variables such as money supply and trade balance on stock prices, the efficient market hypothesis (EMH) suggests that competition among the profit-maximizing investors in an efficient market will ensure that all the relevant information currently known about changes in macroeconomic variables are fully reflected in current stock prices, so that investors will not be able to earn abnormal profit through prediction of the future stock market movements. This response is neither equal nor homogeneous across all economic changes, and it becomes imperative to investigate the interactions among monetary factors Causal Relationship among Monetary Variables and Equity Return. Therefore, it can be concluded that, in an information efficient market, past (current) levels of economic activity are not useful in predicting current (future) stock prices. Stated in Granger jargon,

Although Ibrahim (1999) covered a wider range of macroeconomic variables, he mainly concentrated on bivariate interactions between the stock price, on the one hand, and a macroeconomic variable of interest, on the other. Secondly, the existing studies normally end at reporting co integration and Granger causality test results as a way of describing the strength of the interactions. However, better measures for the strength of dynamic interactions are variance decomposition and impulse-response functions (Lastrapes and Koray, 1990). In particular, unlike Granger causality tests, these measures capture both the direct and indirect effects of innovations in one variable, on other variables in the model. Accordingly, the dynamic interactions among these variables can be fully addressed.

In this study the researcher attempts to evaluate the dynamic interactions among various macroeconomic variables and the stock price for the case of Cement industry in Pakistan. The macroeconomic variables considered include inflation, interest rate, the exchange rate and KSE 100 Index.

The purpose of the present study is to investigate the empirical relationship between cement industry's stock prices and macroeconomic aggregates: inflation, interest rate and the exchange rate, using monthly data that span from 1/1999 to 01/2007, the present analysis has a main focus on identifying dominant macroeconomic factors for stock price fluctuations in Cement industry in Pakistan. It also aims at evaluating dynamic behavior of other variables emphasizing and the roles of exchange rates in domestic economic performance.

The rest of the Paper is structured as follows. In the next chapter, I overview the cement industry in Pakistan and chapter third is all about the literature review. In chapter four of the paper outlines the empirical approach used in the analysis, which is based on co integration tests which capture the presence of a long-run relationship among the variables, variance decomposition and impulse-response functions are to gauge the strength of these dynamics. Next in the paper, I describe the data and present the results from the co integration tests. Lastly, section concludes with the main findings.

LITERATURE REVIEW

Kandir (2008) has studied the impact of Macroeconomic Variables on Stock Returns based on Turkish economy. The findings of the literature suggest that there is a significant linkage between macroeconomic factors and stock return in the countries examined. The impact of pricing common stocks has been a great concern in the finance literature. Building on Markowitz'(1952) mean variance portfolio model, Sharpe (1964), Lintner (1965) and Mossin (1966) introduced the first and generally accepted asset pricing theory, commonly called capital asset pricing model (CAPM). CAPM uses just one factor, namely stock market index, in order to explain common stock returns.

Hassan and Javaid (2009) in their study examined the lead lag relationship among stock prices and four important monetary variables which include money supply, T-bill rates, exchange rates, and inflation for the period 6/1998 to 6/2008 by using multivariate co integration analysis and the Granger causality test. The results provided evidence on information transmission in equity markets and explained the impact of changes in monetary variables on the stock market. Multivariate regression analysis provided evidence of one co integration vector, which is an indicator of a long-term relationship among the variables concerned. Hassan and Javaid (2009) concluded that monetary variables have a long-run as well as short-run relationship with equity returns. The identification of the impact of monetary variables on stock market behavior facilitates investors in making effective investment decisions as by estimating expected trends in exchange rates; interest rate, and money supply, investors can estimate the future direction of equity prices and thus allocate their resources more efficiently.

Another interesting point of the results is the relationship observed between respective stock market prices and monthly oil prices. As hypothesized, the relationship would be inverse. However this relationship was not consistent for all of the BRIC countries, which alternated between a positive or negative relationship as the time-frame was carried forward, with significance value only for India at MA(1). Since this study did not include other macroeconomic variables, such as inflation, it may be that oil prices themselves may not have as much of a profound effect as expected. Instead, the change in oil prices may be better reflected in the inflation rate, which may have a more profound effect on stock market prices. Also the exponential growth in oil prices did not occur until after the beginning of 2004, which is towards the end of the timeframe of this study.

The same alternation between positive or negative relationships was observed for the dependent variable and its moving average except for Russia at MA(1). It appears past stock market prices overall did not have a significant impact on current stock prices, as their respective regression parameters appeared to be considerably low in nature.

The stock market of Pakistan remained highly volatile for the last fifty months. Three intense financial crises were observed during this period. First, stock market was crashed in March 2005. Second collapse was observed in the second quarter of the year 2006. Third and the most serious crash were observed from May 2008 to January 2009. The major source of this volatility was political uncertainty and instability — such as judiciary crisis, terrorist attacks, assassination of Benazir Bhutto (Chairperson, Pakistan Peoples Party, and former Prime Minster of Pakistan) — for the last crisis in the stock market but the first two crashes were due to bad governance and hold of speculators in the stock market. Hence, there was a need to study the behavior of stock market and determine the economic factors for policy recommendations that could safeguard the investors of stock markets.

This study investigated long-run and short-run relationships between five macroeconomic variables and stock prices in Lahore Stock Exchange. All the series used in this analysis was found non-stationary at levels but stationary at first difference. Two long-run relationships were found between macro economic variables and LSE25 Index. In the long-run, inflation had a negative impact on stock prices while Industrial production index, real affective exchange rate, and Money supply affected stock returns positively. However, three month Treasury bills rate showed insignificant positive impact on stock returns in the long-run. The VECM analysis depicted that the coefficient of ecm1 (–1) and ecm2 (–1) was significant showing speedy adjustment. The results of Variance Decomposition illustrated that among the macroeconomic variables, inflation was explaining the maximum variance.

Ibrahim and Yusoff (2001) explored Macroeconomic Variables, Exchange Rate and Stock Price from Malaysian perspective. The study analyzes the dynamic interactions among financial variables, the stock price and exchange rate, and three basic macroeconomic variables-real output, price level and money supply-using time-series techniques of co integration and vector auto regression. Some important results are detailed as follows. The inclusion of the macroeconomic variables and the exchange rate improve the predictability of the Malaysian equity prices. Conversely, the movements of the stock market also contain information on future variations of these variables particularly the consumer prices. We note specifically that movements in the Malaysian stock market are driven more by domestic factors, particularly the money supply, than by the external factor (i.e., the exchange rate).

Mehrara (2006) examined the causal relationship between stock prices and macroeconomic aggregates in Iran, by applying the techniques of the long–run Granger non–causality test recently proposed by Toda and Yamamoto (1995). The informational efficiency of major stock markets has been extensively examined through the study of causal relations between stock price indices and macroeconomic aggregates. The findings of these studies are important since informational inefficiency in stock market implies on the one hand, that market participants are able to develop profitable trading rules and thereby can consistently earn more than average market returns, and on the other hand, that the stock market is not likely to play an effective role in channeling financial resources to the most productive sectors of the economy. The findings imply that macroeconomic variables are significant in predicting changes in stock prices. Thus, it can be claimed that stock price variability is fundamentally linked to economic variables, although the change in stock price lags behind those economic activities. In other words, while macro variables Granger-caused stock prices, no reverse causality was observed. So, the stock price index is not a leading indicator for economic variables, which is inconsistent with the findings that the stock market rationally signals changes in real activities (Fama, 1991; Geske & Roll, 1983). More over, it may be concluded that Iran stock market does not have informational efficiency at least with respect to three macroeconomic variables: money Supply, trade balance and industrial production.

Ismail and Isa (2006) in their study on Modeling the Interactions of Stock Price and Exchange Rate in Malaysia studied the nonlinear interactions between stock price and exchange rate in Malaysia using a two regimes multivariate Markov switching vector auto regression (MS-VAR) model with regime shifts in both the mean and the variance. It reveals that a nonlinear model is more appropriate compared to linear models for all series being analyzed but did not give information regarding the nature of the nonlinearity. Therefore, instead of modeling the returns of stock price and changes of exchange rate series as a linear VAR model we employed a nonlinear two regimes multivariate Markov switching vector autoregressive (MS-VAR) model with regime shifts in both the mean and the variance to extract common regime shifts behavior.

Mohammad, Hussain and Ali (2009) studied the Impact of Macroeconomics Variables on Stock Prices from Pakistan's perspective. They intended to find the relationship between macroeconomic variables and prices of shares in Karachi stock exchange in Pakistan context.

They find out that changes in the macroeconomics variables cannot be used as a trading rule by investors to earn consistently abnormal profits in the stock market. Current as well as past information on the growth on the variables are fully reflected in assets prices so that investors are unable to formulate some profitable trading rule using the available information.

Léon (2008) investigates the effects of interest rates changes on the stock market returns and volatility in Korea. It estimates two GARCH (1,1) models: model 1 without interest rates, and model 2 which includes interest rates in both the conditional mean and variance. Konan found that estimates of conditional market returns and variance parameters are nearly identical for both models. Meanwhile, the conditional market returns is shown to have a negative and significant relation with the interest rates conforming to the results reported in the U.S. market. The conditional variance is positively related to the interest rates but this correlation is not significant as compared to the one documented in the U.S. market. These results indicate that interest rates have a strong predictive power for stock returns in Korea, and a weak predictive power for volatility. Finally, diagnostic checks confirm that the models are fairly specified. The results of this paper have an important policy implication for investors. It is well known that the interest rate is the price of capital allocation over time. A high interest rate attracts more savings, whereas a reduction in the interest rate encourages higher capital flows to the stock market by those expecting a higher rate of return. Investors should therefore pay attention to the monetary policy as a mean for adjusting their investments.

Maysami, Howe and Hamzah (2004) investigated that An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security. What this means, in simple terms, is that no investor should be able to employ readily available information in order to predict stock price movements quickly enough so as to make a profit through trading shares. This study examined the relation between macroeconomic variables and the Sector Stock Indices represented by the SES All-S Equities Finance Index, SES All-S Equities

Property Index and SES All-S Equities Hotel Index, as well as the Singapore's composite stock index, using Johansen's (1990) VECM, a full information maximum likelihood estimation model.

This study found different degrees of statistical relationships, between the inflation, GDP, unemployment, money supply and stock price. The research found that, our variables have different effects on the companies we selected, which belong to the same industries. But it has different sensitivity to our variable, the research can say that another forces affect the price in this company to give us this result. It could be internal or external forces, so we have different results. According to the variable choose by researcher, the strongest variable effect among our collection was money supply. It has strong positive influence on most companies in our sample. The researcher can depend on this variable for forecasting the stock price. The second variable was CPI, it has a strong effect on most companies, but this effect have unlimited direction, (positive and negative) we can say that this variable must be studied with another one to be able to determine the effect on stock price. As for inflation and unemployment, both have a weak influence on most companies. Therefore, the study depends on estimating the stock price from this variable is a weak estimate.

Naeem and Rashid (2006) conduct a study on the relativity on stock prices and exchange rates (Stock Prices and Exchange Rates: Are they Related? Evidence from South Asian Countries), in long run and short run. If stock prices and exchange rates are related and the causation runs from exchange rates to stock prices then crises in the stock markets can be prevented by controlling the exchange rates. Moreover, developing countries can exploit such a link to attract/stimulate foreign portfolio investment in their own countries. Similarly, if the causation runs from stock prices to exchange rates then authorities can focus on domestic economic policies to stabilize the stock market. If the two markets/prices are related then investors can use this information to predict the behavior of one market using the information on other market. There is no theoretical consensus on the relationship between stock prices and exchange rates either. For instance, portfolio balance models of exchange rate determination postulate a negative relationship between stock prices and exchange rates and that the causation runs from stock prices to exchange rates. In these models individuals hold domestic and foreign assets, including currencies, in their portfolio. Exchange rates play the role of balancing the demand for and supply of assets. An increase in domestic stock prices lead individuals to demand more domestic assets. To buy more domestic assets local investors would sell foreign assets (they are relatively less attractive now), causing local currency appreciation. Results show no long run and short-run association between stock prices and exchange rates for Pakistan and India. No short-run association was also found for Bangladesh and Sri- Lanka. However, there seem to be a bi-directional long-run causality between these variables for Bangladesh and Sri Lanka. Our results suggest that in South Asian countries stock prices and exchange rates are unrelated (at least in the short-run), therefore, investors cannot use information obtained from one market (say stock market) to predict the behavior of other market. Moreover, authorities in these countries cannot use exchange rate as a policy tool to attract foreign portfolio investment; rather they should use some other means to do this (e.g., use interest rates, reduce political uncertainty, improve law and order situation, produce conducive investment climate etc.). The above results provide evidence against the portfolio balance models of exchange rates determination that postulates a uni-directional causation that runs from stock prices to exchange rates; neither do these results support the traditional models that hypothesized causation from exchange rates to stock prices. We, however, suggest that the significance of our results could possibly be improved upon by applying daily or weekly data.

Aydemer & Dimerham in (2009), study the relationship of stock index with exchange rate. The results of empirical study indicate that there is bidirectional causal relationship between exchange rate and all stock market indices. While the negative causality exists from national 100, services, financials and industrials indices to exchange rate, there is a positive causal relationship from technology indices to exchange rate. On the other hand, negative causal relationship from exchange rate to all stock market indices is determined.

DATA DESCRIPTION AND METHODOLOGY

This study investigates the long-term relation between the Cement Industry returns and macroeconomic variables that includes Stock Index, Interest rate/T-Bills, Inflation and Foreign Exchange Rate by using monthly data for the period 01/1999 to 12/2007. The preference for monthly data is in line with earlier work done by Chan and Faff (1998) and Arshad & Tariq (2009) to explore the long-run relationship between macroeconomic variables and capital markets. In this particular study 14 cement companies have been selected on the basis of availability and trading through out the under study period.

CEMENT INDUSTRY RETURNS

Cement Industry returns has been calculated by using following equation

$R_t = \ln(P_t / P_{t-1})$ --------------- (I)

Where R_t is return for month 't' and P_t and P_{t-1} are closing values of cement industry average returns for the month 't' and 't-1' respectively.

INTEREST RATE

T-Bill rates are used as proxy for the interest rate. The change is measured by by the following formula.

Change in Interest Rate = $\ln(TB_t / TB_{t-1})$-----(II)

FOREIGN EXCHANGE RATE

The change in the foreign exchange is measured by using the end-of-month USD and PKR exchange rate and the change in calculated by the following formula.

Change is foreign exchange rate = $\ln(XR_t / XR_{t-1})$ ----(III)

Where "X" is the Foreign Exchange rate USD vs PKR

INFLATION RATE

In this study we use Consumer Price Index (CPI) as the best proxy for inflation. The change in CPI is calculated by the following formula.

Change in Inflation/CPI = $\ln(CPI_t / CPI_{t-1})$

The following methods can also be used testing the long term relationship between the Cement Industry Returns and Monetary Variables.

- Descriptive statistics matrix
- Correlation Matrix
- Co integration Tests
- Correlation Matrix
- Granger causality test
- Impulse response analysis
- Variance Decomposition Analysis

For using the above techniques we need the data to stationary. So in order to check the stationarity of the data the researcher have to check the unit root test by using Augmented Dickey-Fuller (ADF) test and Phillip-Perron test. The basic autoregressive model is $Z_t = \alpha Z_{t-1} + u_t$, where Z_t is the variable studied, t is the time period, α is a coefficient, and u_t is the disturbance term. The regression model can be written as

$\Delta Z_t = (\alpha - 1) Z_{t-1} + u_t = \delta Z_{t-1} + u_t$, ---------(IV)

The ADF tests assume that the error terms are statistically independent and have a constant variance. This assumption may not be true for all the data used, and so the Phillip-Perron test is used to in order to confirm the correction of the the above assumptions and permit the error disturbances to be heterogeneously distributed. This can be represented mathematically by

$Z_t = \alpha_0 + \alpha_1 Z_{t-1} + \alpha_t \{t- T/2\} + u_t$------------(V)

Test statistics for the regression coefficients under the null hypothesis that the data are generated by $Z_t = Z_{t-1} + u_t$, where $E(u_t) = 0$ ------------(VI)

If a time series is non-stationary but becomes stationary after differencing, then it is said to be integrated of the order one i.e. I (1). If two series are integrated of order one, there may exist a linear combination that is stationary without differencing. If such a linear combination exists then such streams of variables are called cointegrated.

Cointegration tests are divided into two broader categories: (i) residual-based tests, and (ii) maximum likelihood-based tests. Residual-based tests include the Engle-Granger (1987) test while maximum likelihood-based tests include the Johansen (1988, 1991) and Johansen-Juselius (1990) tests. During this study, the

researcher apply the Johansen and Juselius test to determine the presence of cointegrating vectors in a set of nonstationary time series data. The null hypothesis is that there is no cointegration among the series. The vector autoregressive (VAR) approach is employed to test multivariate cointegration. This assumes that all the variables in the model are endogenous. The Johansen and Juselius procedure is employed to test for a long-run relationship between the variables. Johansen and Juselius suggest two likelihood ratio tests for the determination of the number of cointegrated vectors. The maximal eigen value test evaluates the null hypothesis that there are at most "r" cointegrating vectors against the alternative of r +1 cointegrating vectors. The maximum eigen value statistic is given by,

λmax = - T ln (1 - λr+1) ---------------(VII)

Where λ r+1,…,λn are   the   n-r   smallest squared   canonical correlations and T = the number of observations.

A trace statistic tests the null hypothesis of r cointegrating vectors against the alternative of r or more cointegrating vectors. This statistic is given by

λ trace = -T Σ Ln (1 - λi) -------------(VIII)

In order to apply the Johansen procedure, lag length is selected on the basis of the Schwarz criterion.

If cointegration is present in the long run, then the system of equations is restructured by inserting an error correction term to capture the short-run deviation of variables from their relevant equilibrium values. This is necessary as the impact of financial development is generally more apparent in the short run and disappears in the long run as the economy expands and matures. According to Granger (1988), the   presence of cointegrating vectors indicates that Granger causality must exist in at least one direction. A variable Granger causes the other variable if it helps forecast its future values. In cointegrated series, variables may share common stochastic trends so that dependent variables in the VECM must be Granger-caused by the lagged values of the error correction terms. This is possible because error correction terms are functions of the lagged values of the level variables. Thus, evidence of cointegration between variables itself provides the basis for the construction of an error correction model (ECM). The ECM permits the introduction of past disequilibrium as explanatory variables in the dynamic behavior of existing variables and thus facilitates in capturing both the short-run dynamics and long-run relationships between variables. The chronological Granger causality between the variables can be explored by applying a joint F-test to the coefficients of each explanatory variable in the VECM. The variance decomposition of cement industry returns is based on an analysis of responses of the variables to shocks. When there is a shock through the error term, the researcher study the influence of this shock on other variables of the system and thus obtain information on the time horizon and percentage of the error variance. The F test is in fact a within-sample causality test and does not allow us to gauge the relative strength of the causality among variables beyond the sample period.

In order to examine out-of-sample causality, the researcher use variance decomposition analysis which partitions the variance of the forecast error of a certain variable into proportions attributable to shocks to each variable in the system. Variance decomposition analysis presents a factual breakup of the change in the value of the variable in a particular period resulting from changes in the same variable in addition to other variables in preceding periods. The impulse response analysis investigates the influence of a random shock to a variable on other variables of interest. Impulse responses of returns in various markets to a shock in oil innovations are also examined. Impulse responses show the effect of shocks separately for different days whereas variance decomposition analysis exhibits the cumulative effect of shocks.

RESULTS AND DISCUSSION

Table-1 exhibits descriptive statistics. The average monthly returns in percentage terms in the Cement Industry are 1.84%. This is equivalent to an annualized return of 24.46%. Average inflation per month is 0.2% whereas T bill rates appear to change at a rate of 0.31% per month. The Percentage changes in exchange rates range from a minimum of -3.06% to a maximum value of 3.86%. However, significant volatility is observed in cement industry returns and monitory variables especially change in exchange rate and inflation.

TABLE-1: DESCRIPTIVE STATISTICS

	R_Cement	R_Index	Change in T bill rate	Change in X rate	Inflation
Mean	0.018383	0.025693	-0.00319	0.001911	0.001943
Median	0.023694	0.02224	0	0.000485	-0.00301
Std Dev	0.107044	0.0847260	0.102147	0.008842	0.161215
Skewness	0.531802	-0.02321	-0.59647	1.111967	-0.19013
Minimum	-0.24485	-0.21278	-0.4242	-0.03067	-0.46618
Maximum	0.376752	0.241106	0.320027	0.038597	0.476291

Significant correlation is observed between cement industry returns and monetary variables except Interest rate. Interest rates are negatively correlated with cement industry returns, which is in line with economic rationale but this relationship is weak. An increase in interest rates leads to an increase in discount rates in the economy. Since the price of equity shares is theoretically equal to the present value of cash flows, higher discount rates lead to a reduction in prices. Similarly, the interest rate parity theory is also confirmed by our results as the interest rate is negatively correlated with exchange rates.

TABLE-2: CORRELATION MATRIX

	CEMENT	INDEX	T-BILL	XRATE	INFLATION
CEMENT	1				
INDEX	.970**	1			
T-BILL	-.087	-.147	1		
XRATE	.455**	.498**	-.033	1	
INFLATION	.716**	.694**	.206*	.184	1

Correlation analysis is a relatively weaker technique. The causal nexus among monetary variables has been investigated by employing multivariate cointegration analysis. Cointegration analysis tells us about the long-term relationship among cement industry returns and set of monetary variables. Cointegration tests involve two steps. In the first step, each time series is scrutinized to determine its order of integration. To meet this requirement, unit root tests designed by Dickey and Fuller (1979) and Phillips and Perron (1988) have been employed. In the second step, the time series is analyzed for cointegration by using the likelihood ratio test, which includes (i) trace statistics and (ii) maximum Eigen value statistics.

A financial time series is said to be integrated to order one i.e, I (1), if it becomes stationary after differencing once. If two series are integrated to order one and a linear combination of these is stationary without requiring differencing, then the data streams are cointegrated.

Our first step is to test the stationarity of the index series. For this purpose, the ADF test for unit roots has been used at level and first difference. Table-3 exhibits the results of the Dickey-Fuller (ADF test), which clearly show that the time series is not stationary at level but that the first differences of the logarithmic transformations of the series are stationary. Thus, the series is integrated to the order of one I (1).

TABLE-3: UNIT ROOT ANALYSIS

	ADF- Level	ADF- Ist Diff	PP- Level	PP- Ist Diff
Ln Cement	-1.1053	-8.4316	-0.42177	-8.36124
Ln Index	-0.49463	-10.312	-0.421	-10.4592
Ln T bill rate	-1.87384	-3.22524	-1.611	-7.15766
Ln X rate	-2.30593	-5.9441	-2.322	-5.89088
Ln Inflation	-1.59794	-9.96236	-1.639	-9.95774
1% Critic. Value	-3.49252	-3.49313	-3.493	-3.49313
5% Critical Value	-2.88867	-2.88893	-2.889	-2.88893
10% Critical Value	-2.58131	-2.58145	-2.581	-2.58145

The Dickey-Fuller test requires that the error terms be statistically independent and data homoskedastic. However, in certain cases these assumptions may not be true for some data, and so the researcher uses another important technique, the Phillips-Perron test, to test the stationarity of the time series. Table-3 also reflects the results of the Phillips-Perron test, which confirms the results of the ADF test. Thus, we can conclude that the series is I (1).

Having met these prerequisites, we can now perform cointegration analysis. The maximum likelihood-based Johansen (1988, 1991) test and Johansen-Juselius (1990) procedure is used to determine the presence of cointegrating equations in a set of nonstationary time series. A trace statistic has been used to test the null hypothesis of "r" cointegrating vectors against the alternative of "r" or more cointegrating vectors. Table-4 exhibits the results of the multivariate cointegration test for the entire sample period.

TABLE-4: MULTIVARIATE COINTEGRATION ANALYSIS TRACE STATISTIC

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	Critical Value 0.05	Prob.
None *	0.292	74.000	69.819	0.022
At most 1	0.189	37.404	47.856	0.329
At most 2	0.079	15.203	29.797	0.767
At most 3	0.052	6.475	15.495	0.639
At most 4	0.007	0.790	3.841	0.374

The trace test indicates one cointegrating equation at α = 0.05.

The trace test indicates the presence of one cointegrating equation at the 0.05 level. Therefore, the result provides evidence of a long-term relationship between monetary variables and cement industry share prices. However, it must be noted here that the Johansen cointegration tests do not account for structural breaks in the data.

According to the representation theorem, if two variables are cointegrated then Granger-causality must exist in at least one direction. The results of Granger causality are reported in Table-5. Rejection of the null hypothesis at 5% indicates that there exists unidirectional Granger causality between the Interest rate and cement industry returns at the 5% level. Similarly, unidirectional Granger causality also exists between the interest rate and inflation, exchange rate and Index. There exists bidirectional Granger causality between the Interest rate and Index returns at the 5% level this indicates that monetary variables are Granger-causing cement industry returns.

TABLE-5: GRANGER CAUSALITY TEST

Null Hypothesis:	Obs	F-Statistic	Prob.
R_INDEX does not Granger Cause R_CEMENT	106	0.04346	0.8353
R_CEMENT does not Granger Cause R_INDEX		0.94456	0.3334
R_TBILL does not Granger Cause R_CEMENT	106	4.65641	0.0333
R_CEMENT does not Granger Cause R_TBILL		1.14757	0.2866
R_XRATE does not Granger Cause R_CEMENT	106	1.80564	0.182
R_CEMENT does not Granger Cause R_XRATE		0.59262	0.4432
R_INFLA does not Granger Cause R_CEMENT	106	0.46904	0.495
R_CEMENT does not Granger Cause R_INFLA		5.22049	0.0244
R_TBILL does not Granger Cause R_INDEX	106	7.69112	0.0066
R_INDEX does not Granger Cause R_TBILL		3.86979	0.0519
R_XRATE does not Granger Cause R_INDEX	106	7.67458	0.0066
R_INDEX does not Granger Cause R_XRATE		0.06488	0.7995
R_INFLATION does not Granger Cause R_INDEX	106	0.86024	0.3558
R_INDEX does not Granger Cause R_INFLATION		0.74239	0.3909
R_XRATE does not Granger Cause R_TBILL	106	0.8848	0.3491
R_TBILL does not Granger Cause R_XRATE		3.5746	0.0615
R_INFLATION does not Granger Cause R_TBILL	106	0.5425	0.4631
R_TBILL does not Granger Cause R_INFLATION		4.18214	0.0434
R_INFLATION does not Granger Cause R_XRATE	106	1.2118	0.2735
R_XRATE does not Granger Cause R_INFLATION		0.02546	0.8736

The responses of cement industry returns have also been examined by using impulse response analysis (IRF) in the VAR system and results are shown in Figure-1. Impulse response functions capture the effect of, T-bill rates, exchange rate and inflation and Index on cement industry returns in Pakistan.

Figure-1 shows the impulse response of cement industry returns from a one standard deviation shock to monetary variables. The statistical significance of the impulse response function has been examined at 95% confidence bounds. These figures confirm that there is no statistically significant impact has been observed with reference to a variation in exchange rates. This is reasonable because Pakistan has had a managed floating rate system and, during the last five years, exchange rates have been managed within a small range by the State Bank of Pakistan through open market operations.

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FIG.-1: IMPULSE RESPONSE ANALYSIS
RESPONSE TO CHOLESKY ONE S. D. INNOVATION
Response to Cholesky One S.D. Innovations
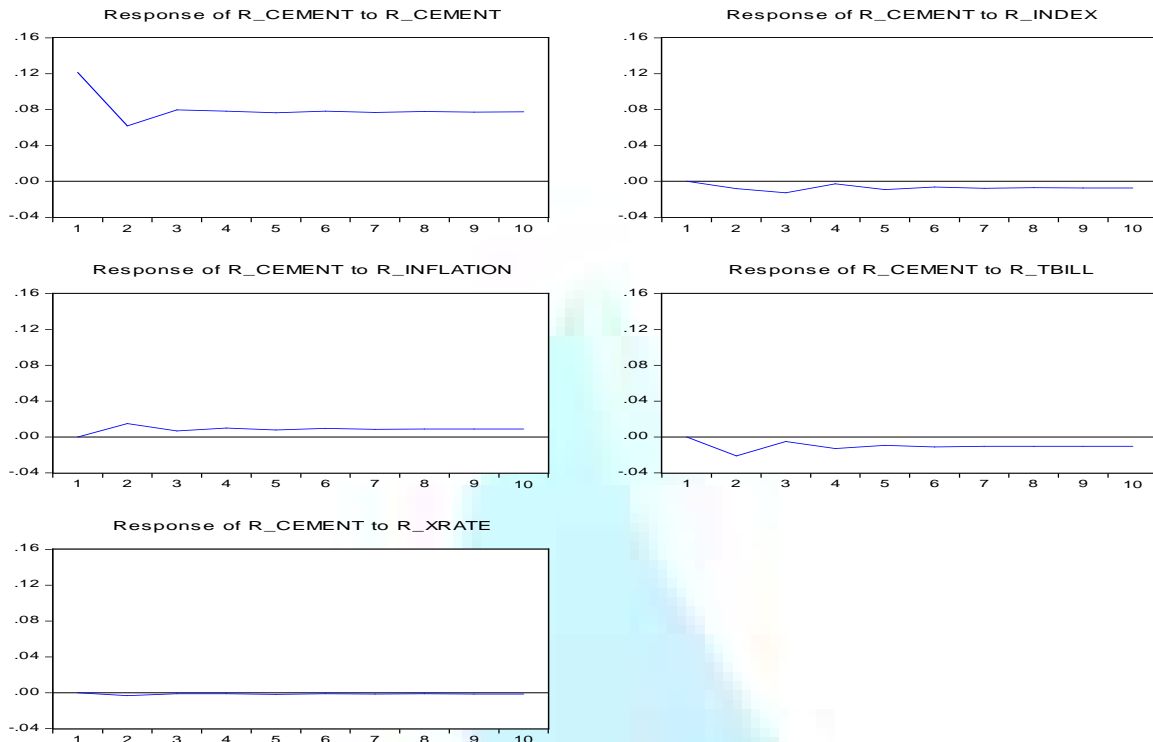
Impulse response functions display the response of an endogenous variable over time to a given innovation. On the other hand, variance decomposition analysis expresses the contributions of each source of innovation to the forecast error variance for each variable. Thus, the researcher conducted a variance decomposition analysis to measure the degree to which shocks to the Cement Industry are explained by cement returns, stock index, T-bill rates, exchange rates and inflation. It also helps identify the pattern of response transmission over time.

Table 6 exhibits the decomposition of forecast error variance for the equity market that is explained by monetary variables.

TABLE-6: VARIANCE DECOMPOSITION ANALYSIS

Period	S.E.	R_CEMENT	R_INDEX	R_INFLATION	R_TBILL	R_XRATE
1	0.121	100.000	0.000	0.000	0.000	0.000
2	0.139	96.112	0.342	1.184	2.309	0.054
3	0.161	96.204	0.877	1.055	1.820	0.045
4	0.180	96.119	0.726	1.153	1.962	0.039
5	0.196	96.111	0.842	1.130	1.875	0.041
6	0.212	96.098	0.816	1.167	1.880	0.039
7	0.226	96.097	0.835	1.171	1.859	0.039
8	0.239	96.106	0.831	1.179	1.846	0.038
9	0.252	96.103	0.835	1.186	1.838	0.038
10	0.264	96.106	0.837	1.191	1.828	0.037

Variance Decomposition analysis suggests that the change in T-bill rates considerable sources of volatility in cement industry returns followed by Inflation.

CONCLUSION

This research paper has been conducted to investigates that how macroeconomic variables affect the cement industry returns. The macroeconomic variables include, KSE100 Stock Index, T-Bills Rate, Exchange Rate and Inflation for the period 01/1999 to 12/2007.

Multivariate co integration analysis and Granger causality test has been used to test the relation of cement industry returns and macroeconomic variables.

For the confirmation of co integration analysis, the researcher needs to find the stationary of the data so the researcher used Augmented Dicky Filler Test and Phillip-Perron test. The data was found stationary at first difference by experiencing both the test.

After confirmation of the stationarity of the data, the researcher applied multivariate Co integration Analysis showed that the null hypothesis of co integration between the cement industry returns and macroeconomic variables can not be rejected. Therefore, the results provide evidence of a long-term relationship between macroeconomic variables and cement industry returns.

The result shows that the relationship between Cement Industry Returns and macroeconomic variable is not strong. It is found that return of T-Bills & Exchange rate does Granger Causes the return of cement industry; these results are consistent with Hassan & Javeed (2009) and Nishat (2001). That indicates that Interest rate and Exchange have negative relationship.

Returns of T-Bills to returns of cement, returns of exchange rate to returns of Index, and returns of Inflation to T-Bill have unidirectional relationship. While return of T-bill to Index, and Index to T-Bill have a Bi-directional relationship.

Impulse response of the data have been also checked and found that one standard deviation change in Index causes decrease the values cement stocks. Similarly, one standard deviation change in T-Bill rate leads to a reduction in the prices of the cement stocks due to increase the discount rate. This result is consistent with Hassan & Javeed (2009).

Variance Decomposition Analysis shows that the prices of cement fluctuate itself by 96% while T-Bill, Inflation, Index and Exchange rate contribute 2.3%, 1.184%, 0.342%, and 0.054 respectively for the first period. For all the rest of the 9 periods the significant contribution is of T-Bill rates followed by Inflation.

Thus the finding of the study is appearing that there is long term relation between the macroeconomic variables and cement industry returns. The impact of the behavior of these variables helps the investors to take a wise decision about the purchase of cement stocks.

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OUTLOOK OF MANAGEMENT STUDENTS TOWARDS EFFICIENCY OF ONLINE LEARNING-A CASE STUDY OF SHIVAMOGGA CITY, KARNATAKA STATE

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ABSTRACT

The main objective of the study was to find out the perception, opinion, problems and prospects of the online education among the management students and to examine the relationship between gender and perception of online education. For the data collection to reach above objectives structured questionnaire was prepared. Hypothesis test was carried out by using Chi-square test to align the relationship between gender and their perception towards online education. The result was surprising that the perception towards online education changes due to gender difference and male students have better perception when compared to female students. Majority of the respondents realizing a growing demand of online education in the study area.

KEYWORDS
Gender, Management Students, Online Education.

INTRODUCTION

ver the last decade or so, the Internet has made an indelible impact on higher education by enabling the phenomenal growth of online education. Teaching without the teacher's personal presence in the classroom to provide direct instruction is a modern day miracle of 21st century education. Computer-related course instruction has made a tremendous impact on the provision of instruction and student learning at colleges and universities (Piotrowski & Vodanovich, 2000). Most colleges across the country now offer fully online (asynchronous) courses and more recently blended (synchronous) courses. Asynchronous interactivity is where participants are separated geographically and are not engaged at the same time, as they would in a face-to-face or telephone conversation. Rather, exchanges are mainly by e-mail and there is some elapsed time between message exchanges. In a synchronous format there is a blending of face-to-face and online learning. These modified learning environments created by web-based technologies, not only eliminate barriers of time, space and learning styles, providing increased access to higher education, they challenge the traditional styles of teaching and learning.

REVIEW OF LITERATURE

- **Yehia Mortagy & Seta Boghikian** in the study entitled *"A Longitudinal Comparative study of students perception in Online Education"* stated that there was a change over time in students perceptions. In the study the students opined about the faculty that they have high expectation from faculty member and they are available to interact, communication and present quality feedback to students.
- **Karl.L.Smart and James.J.Cappel** the study entitled *"Students perception of online learning: A comparative study"* examines students perception of integrating online components in two undergraduate business courses where students completed online learning modules prior to class discussion. The study found out that participants in an elective course rated the online modules significantly better than those in a required course. The study stated that elective curse rated the online modules marginally positive while those in the required course rated them marginally negative.
- **Fahme Dabaj & Havva Basak** the study entitled "*The role of gender & age on students perception towards online education a case study: Sakarya University, Vocational High School"* reveled students registered to the online programm by will the preferred the traditional face to face education due to the difficulties of the nonverbal communication, their incompetency of using the technology required and thier belief in traditional face to face learning more than online education.

RESEARCH QUESTION

The students' perception may change due to students background environment etc., The study made an attempt to analyse the perception, problems, prospects and opinion of management students towards online education. This study answer to the research question of Management students perception towards online education and to seek answer whether there are relationships between the gender and their perception to online education?

OBJECTIVES OF THE STUDY

- To know the management students perception and opinion towards efficiency of online education
- To align the relationship between perception of online education and gender
- To study the problems and barriers of students for adoption of online education
- To examine the prospects of online education in the future.

HYPOTHESIS OF THE STUDY

Ho: There is no significant relationship between Gender and perception of management students towards efficiency of online education

H1: There is significant relationship between Gender and perception of management students towards efficiency of online education

- Ho(a): Online education enhances critical thinking
- Ho(b): online education provides flexibility for accomplishment of tasks
- Ho(c): Creates and extends user friendly environment
- Ho(d): Provides for reliable and consistent information
- Ho(e): Fails to customize the services to the targets due to mass reach

RESEARCH METHODOLOGY

This study is conducted based on descriptive research. Primary data has been collected through questionnaire from the management students and secondary data from websites, book etc., The research was carried out on the basis of structured questionnaire. The population been huge and unlimited the survey was done out among 84 MBA students. To analyse the collected data master table and required sub table were prepared. The statistical tool such as chi-square test was used which are appropriate to this study. Statistical package 12.0 was employed to work .

RESULT & DISCUSSION

TABLE 1: OPINION OF RESPONDENTS TOWARDS EFFICIENCY OF ONLINE EDUCATION

Factors	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree		Total	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Face to Face interactions at the class room is more Effective	62.00	73.81	18.00	21.43	2.00	2.38	62.00	73.81	18.00	21.43	2.00	2.38
Requirement of teachers physical presence is felt	12.00	14.29	42.00	50.00	20.00	23.81	12.00	14.29	42.00	50.00	20.00	23.81
Online education motivates in learning as it provides diverse opportunities for learning	28.00	33.33	28.00	33.33	20.00	23.81	28.00	33.33	28.00	33.33	20.00	23.81
Online education provides for more versatile learning	24.00	28.57	30.00	35.71	22.00	26.19	24.00	28.57	30.00	35.71	22.00	26.19
Offers single platform for global access	20.00	23.81	46.00	54.76	4.00	4.76	20.00	23.81	46.00	54.76	4.00	4.76
Online Education should be a part of MBA curriculum	32.00	38.10	34.00	40.48	8.00	9.52	32.00	38.10	34.00	40.48	8.00	9.52

Source:Primary Data

TABLE 2: PERCEPTIONS OF THE RESPONDENTS TOWARDS ONLINE EDUCATIONAL EFFICIENCY

Factors	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Online Education Enhances Critical Thinking	12.00	14.29	22.00	26.19	34.00	40.48	8.00	9.52	8.00	9.52
Provides flexibility for accomplishment of tasks	18.00	21.43	24.00	28.57	20.00	23.81	18.00	21.43	4.00	4.76
Creates and extends user friendly platforms	18.00	21.43	30.00	35.71	28.00	33.33	8.00	9.52	0.00	0.00
Provides for reliable and consistent information	10.00	11.90	40.00	47.62	22.00	26.19	12.00	14.29	0.00	0.00
Fails to customize the services to the targets due to mass reach	18.00	21.43	44.00	52.38	16.00	19.05	4.00	4.76	2.00	2.38

Source:Primary Data

TABLE 3a: PROBLEMS AND BARRIERS FOR ADOPTION OF ONLINE EDUCATION

Factors	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Process of delivery is mechanical and monotonous	38.00	45.24	28.00	33.33	12.00	14.29	6.00	7.14		
Lack of proximity to receive feedback	16.00	19.05	42.00	50.00	4.00	4.76	18.00	21.43	4.00	4.76
Makes the audience isolated	34.00	40.48	34.00	40.48	10.00	11.90	4.00	4.76	2.00	2.38
Lack of Face to Face, Personal, Social contact	30.00	35.71	36.00	42.86	12.00	14.29	6.00	7.14		
Difficulty in Non-Verbal communication and to cope up	8.00	9.52	42.00	50.00	20.00	23.81	10.00	11.90	4.00	4.76

Source:Primary Data

TABLE 3b: PROSPECTS OF ONLINE EDUCATION IN FUTURE

Factors	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Punctual and rational information base for enhancing efficiency	16.00	19.05	40.00	47.62	24.00	28.57	4.00	4.76	0.00	0.00
Adequate responses and motivation looking at the future prospects	12.00	14.29	34.00	40.48	24.00	28.57	12.00	14.29	2.00	2.38

RESULT

From the above table it can be inferred that majority of the respondents belong to the category of II semester MBA and Female response was high in the survey. Table 1 shows the opinion of respondents towards of online education. Majority of the respondents strongly agree that face to face interaction at the class room is more effective than the online discussion and the physical presence of teachers. This response proves that even today the students are favorable to the traditional teaching this favorableness might be due to the active involvement, fruitful discussion essence among students and teacher interaction etc., At the same time the respondents gives positive opinion towards online education that it motivates and provides diverse opportunities for learning. They also agree for the fact that it offers platform for global access. This response shows that awareness level of internet and growing demand of online education. Table 2 states both the positive and negative perception of the respondents towards online educational efficiency. On the positive side majority of the respondents agree that online education enhances critical thinking, provides flexibility, extends user friendly platforms and gives consistent, reliable information. On the negative side same majority responded like it fails to customize the services to the targets due to the mass reach , as an essence of success of services lies in customization to the beneficiary for the benefit sought, necessary orientation should be provided to its beneficiaries to reap the optional benefit from the same. Online Education is not free from problem and barriers. the target audiences are encountering problems in adoption of online education. In the table 3(a) & (b) shows the response based on the problems and barriers for adoption of online education and prospects of online education in future. As per the response it is infer that majority of the respondents strongly agree that process of delivery in online education is mechanical and monotonous, there is lack of proximity to receive feed back and it makes audience isolated, lack of personal and social contacts and majority of the students opined that they fails to cope up with the online education because of their communication. As man is social being he/she wants belongingness and interaction between the people. This might be one of the reason where in the study majority of the respondents encountered above problems in adoption of online education. At the same time in the table 3(b) respondents looking for the better prospects of online education in future. They felt it gives punctual and rational information base for enhancing efficiency and it motivates for future prospects.

HYPOTHESIS TESTING

Ho: There is no significant relationship between Gender and perception of management students towards efficiency of online education
H1: There is significant relationship between Gender and perception of management students towards efficiency of online education
Ho(a): Online education enhances critical thinking

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Male	10	12	8	4	6	40
Female	2	10	26	4	2	44
Total	12	22	34	8	8	84

Degrees of Freedom- 4; Level of Significance 5%;Chi-square Calculated Value – 17.23; Chi-square Table Value 9.488 As per chi-square test, calculated value is greater than the table value the null hypothesis is rejected.
Ho(b): Online education provides flexibility for accomplishment of tasks

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Male	12.00	14.00	10.00	2.00	2.00	40.00
Female	6.00	10.00	10.00	16.00	2.00	44.00
Total	18.00	24.00	20.00	18.00	4.00	84.00

Degrees of Freedom- 4; Level of Significance 5%;Chi-square Calculated Value – 13.48; Chi-square Table Value 9.488 As per chi-square test, calculated value is greater than the table value the null hypothesis is rejected.
Ho(c): Creates and extends user friendly environment

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Male	16.00	20.00	2.00	2.00	0.00	40.00
Female	2.00	10.00	26.00	6.00	0.00	44.00
Total	18.00	30.00	28.00	8.00	0.00	84.00

Degrees of Freedom- 4; Level of Significance 5%;Chi-square Calculated Value – 37.04; Chi-square Table Value 9.48. As per chi-square test, calculated value is greater than the table value the null hypothesis is rejected
Ho(d):Provides for reliable and consistent information

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Male	6.00	22.00	6.00	6.00	0.00	40.00
Female	4.00	18.00	16.00	6.00	0.00	44.00
Total	10.00	40.00	22.00	12.00	0.00	84.00

Degrees of Freedom- 4; Level of Significance 5%;Chi-square Calculated Value – 4.53; Chi-square Table Value 9.488.As per chi-square test, calculated value is less than the table value the null hypothesis is accepted.

Ho(e):Fails to customize the services to the targets due to mass reach

Gender	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
Male	10.00	20.00	8.00	2.00	0.00	40.00
Female	8.00	24.00	8.00	2.00	2.00	44.00
Total	18.00	44.00	16.00	4.00	2.00	84.00

Degrees of Freedom- 4; Level of Significance 5%;Chi-square Calculated Value – 1.811; Chi-square Table Value 9.488As per chi-square test, calculated value is less than the table value the null hypothesis is accepted.

RESULT

Considering the significance and the chi square analysis, a cross-tabulation analysis between the independent and dependent variables for those who have significance value indicating the existence of a meaningful relationship between them, were considered to analyze and interpret the results regarding the objectives of this study research. Regarding gender, the analysis showed that in the case of Ho(a), Ho(b), Ho(c) there is significant relationship between gender and the perception of management students towards online education. On the contrary, Ho(d) and Ho(e) showed that there is insignificant relationship between the gender and the perception of management students. The null hypothesis was rejected on the three parameters Ho(a), Ho(b) and Ho(c), , It can be concluded from the cross tabulation and the chi-square analysis that Male students have better perception towards online education when compared to female students. This result where in the favorability of the responses towards online education in terms of enhancing critical thinking and versatility towards stated tasks for accomplishment and user friendly platform to realize the benefits have significant relationship with gender perception. The perception towards consistency and the reliability of information is questioned in the gender as the authenticity of the information extended is under a dilemma for acceptance and there is also failure for service customization with an objective of mass reach.

CONCLUSION

If we concentrate minutely on each factors of the study, we can conclude that there was a mix response from the respondents. Majority of the students till today realizing the face to face interaction at the class room are more effective than online learning and they strongly felt the importance of physical presence of teachers. On the contrary the same respondents believe that online education motivates and provide versatile education. On the three parameter the research conclude that the there is changing perception among genders towards online education. Male students have better perception about online education. At the same time the target mass faced with the problem while adoption of online education. Finally, in the scope area of the research the question of online education adoption and perception among gender is in dilemma, necessary orientation should be taken to make realize its benefit to the mass.

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TRAFFIC RELATED MORTALITY AND ECONOMIC DEVELOPMENT

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ABSTRACT

An increasing number of traffic-related mortality not only means a considerable loss of human lives but also important economic costs to societies. The aim of this paper is to analyse relationship between economic development and traffic-related mortality. Canonical Correlation Analysis method is used in this study to examine the relationship between traffic-related mortality and economic development. Data were collected from 36 countries by using World Bank, International Road Federation, United Nations, International Monetary Fund and World Health Organization statistics. GINI Index (measure of inequality of a distribution of income), Human Development Index (HDI) and Motor vehicles per 1000 population (V/P) have a heavier influence on the traffic-related mortality. The relationship between GINI Index and traffic-related mortality is positive and very strong. HDI and V/P is highly negatively correlated to traffic-related mortality variables. There is a negative and significant relationship between economic development and traffic-related mortality.

KEYWORDS
Traffic-related mortality; economic development.

1. INTRODUCTION

Road traffic injuries and fatalities are a global public health problem and constitute a large majority of the deaths caused by all injuries. Low and middle income countries contribute 90% of the all Disability Life Years lost due to crashes and 85% of all road deaths per 100 000 population from road crashes (WHO, 2001; Garg and Hyder, 2006). An increasing number of road accidents not only means a considerable loss of human lives but also important economic costs to society (Garcia-Ferrer et al., 2007). The relation between traffic fatalities and economic growth has also been largely analyzed in the literature (Smeed, 1949; Haight, 1980; Jacobs and Sayer, 1983; Joksch, 1984; Wintemute, 1985; Grossman and Krueger, 1995; Soderlund and Zwi, 1995; van Beeck et al., 2000; Dano, 2005; Kopits and Cropper, 2005; Bishai et al., 2006; Hyder and Garg, 2006; Garcia-Ferrer et al., 2007; Paulozzi et al., 2007). Prior studies have recorded a biphasic relationship between traffic fatalities and economic development with fatalities rising for the low income countries and falling for the high income countries (van Beeck et al., 2000; Bishai et al., 2006). Road traffic fatality in international comparisons, like other environmental factors described by Kuznets curves (Grossman and Krueger, 1995), follow an interved U-Shaped pattern in relation to economic development (Kopits and Cropper, 2005; Garg and Hyder, 2006). The growth in motor vehicles that accompanies economic growth usually brings an increase in deaths due to traffic accidents for developing countries. But the situation in industrialized countries was the opposite (Kopits and Cropper, 2005). However, increases in Gross Domestic Product (GDP) per capita in high-income countries appear to reduce the number of traffic deaths, but do not reduce the number of crashes or injuries (Bishai et al., 2006).

The objective of this paper is to analyse the relationship between economic development and traffic-related mortality. It is hypothesized that economic development is related to fatalities for different road users. The findings suggested that there is a strong relationship between economic development variables and traffic-related fatalities.

The specific objectives of this study are to examine the association between HDI, GINI Index, V/P, GNI, GDP and traffic related mortality; and to analyze the relationship between pedestrian, bicyclist, motorcyclist, motor vehicle occupant, total mortality rates per 100 000 population and economic development.

2. MATERIAL AND METHODS

2.1. DATA

Data of this study was collected from 36 countries (Argentina, Australia, Brazil, Canada, Colombia, Costa Rica, Croatia, Czech Republic, Denmark, Ecuador, Egypt, Estonia, Finland, Georgia, Germany, SAR, Hungary, Israel, Japan, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Panama, Paraguay, Peru, Poland, Slovakia, Slovenia, Spain, Sweden, Thailand, UK, USA) by using World Bank, International Road Federation (IRF), United Nations (UN), International Monetary Fund (IMF) and World Health Organization (WHO) statistics. Data for the variables used in this study have been included in two groups. It was assumed that the traffic-related mortality data set (Y variables set) was the dependent variables (criterion), while the economic development data set (X variables set) was the independent (predictor) variables.

Traffic-related mortality variables (Y variables set) are;
Y1: Pedestrian mortality rates per 100 000 population,
Y2: Bicyclist mortality rates per 100 000 population,
Y3: Motorcyclist mortality rates per 100 000 population,
Y4: Motor vehicle occupant mortality rates per 100 000 population,
Y5: Total mortality rates per 100 000 population.
Data for Y variables set were obtained from the World Health Organization which collects and standardizes mortality data submitted by national vital records agencies worldwide (WHO, 2006).

The 10th revision of the International Classification of Diseases (ICD-10) codes (WHO, 1992) used to define the categories of road users (pedestrian, bicyclist, motorcyclist, occupant and total).

In this study The Gross National Income (GNI), Motor vehicles per 1000 population (V/P), Human Development Index (HDI), GINI Index and Gross Domestic Product (GDP) nominal per capita have been used as the indicator of economic development.

Economic development variables (X variables set) are;

X1: The Gross National Income (GNI) per capita in current U.S. dollars (World Bank Group, 2005): GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI is the gross domestic product modified to exclude goods and services produced domestically by foreign companies and to include goods and services produced abroad by domestic companies (Pulozzi et al., 2007; The World Bank, 2007).

X2: Motor vehicles per 1000 population (V/P): It indicates number of motor vehicles per 1000 population included passenger cars, buses, coaches, lorries and vans (IRF, 2006). Motor vehicles per 1000 population (V/P) had been used in some previous studies (Smeed, 1949; Kopits and Cropper, 2005; Bishai et al., 2006; Darcin and Darcin, 2007; Paulozzi et al., 2007) as indicator of economic growth/development or quality of life. It has been revealed that V/P strongly correlates with national income (van Beeck et al., 2000; Paulozzi et al., 2007)

X3: Human Development Index (HDI) (UN, 2006): The Human Development Index is a comparative measure of life expectancy, literacy, education, and standards of living for countries worldwide (Wikipedia encyclopedia, 2007). HDI have been suggested as measures of socioeconomic development of a country (Marmot, 1998; Stewart et al., 2001; UN, 2006).

X4: UN GINI Index (UN, 2006): The GINI Index is a measure of inequality of a distribution of income. GINI Index of 0 represents perfect economic equality and 100 represents perfect inequality (Wikipedia encyclopedia, 2007).

X5: Gross Domestic Product (GDP) nominal per capita (IMF, 2007): The Domestic Product is the value of all final goods and services produced within a nation in a given year, divided by the average population for the same year (Wikipedia encyclopedia, 2007). GDP has been used as an indicator of economic development in some previous studies (van Beeck *et al.*, 2000; Kopits and Cropper, 2005; Bishai *et al.*, 2006).

2.2. STATISTICAL APPROACH

The relationship between traffic-related mortality and economic development was examined by Canonical Correlation Analysis (CCA) method using NCSS (Number Cruncher Statistical System) packaged-software.

Canonical correlation is an exploratory statistical technique that examines the relationship between two sets of variables where each set contains more than one variable. It can be considered as a method of aggregating multiple associations into a few significant associations (Johnson and Wichern, 2002; Martin *et al.*, 2005).

CCA is a generalization of the ordinary Pearson correlation coefficient to multi-dimensional variables (Ridderstolpe *et al.*, 2005) and measures the association between two sets of multi-dimensional variables by assessing the correlation between the linear combinations of one set of variables with the linear combinations of a second set of variables (Johnson and Wichern, 2002; Martin *et al.*, 2005; Ridderstolpe *et al.*, 2005).

CCA can be viewed as an extension of multiple regression to situations involving more than one single response variable (Anderson, 1984; Borga, 1998; Ridderstolpe *et al.*, 2005). CCA finds the coordinate system that is optimal for correlation analysis. Canonical correlations are invariant to scaling of the variables (Ridderstolpe *et al.*, 2005).

The optimization criterion is to maximize the association between two groups of variables rather than to maximize the amount of multivariate variation (Martin *et al.*, 2005). CCA is not an indicator of causality (Khattree and Naik, 2000), but a common spatial structure of canonical variables pairs is evidence of the spatial association between these groups of variables (Johnson *et al.*, 2002; Wu *et al.*, 2002; Martin *et al.*, 2005)

CCA gives the maximum correlations between two sets of variables, and at the same time it gives the optimal explanation of variability within the subgroup of variables. Canonical correlation is the most appropriate and powerful multivariate technique if there are multiple dependent and independent variables, It has been used in many fields and represents a useful tool for multivariate analysis. Canonical correlation represents the only technique available for examining the relationship with multiple dependent variables. Canonical correlation derives the variates to maximize their correlation.This is another unique feature of canonical correlation (Hair *et al.*, 1998).

CCA is used to investigate the relationship between a linear combination of the set of X variables with a linear combination of a set of Y variables. Consider two groups of variables (X and Y) such that one has p variables (X1, X2,…,Xp), and the other has q variables (Y1, Y2, …,Yq). Linear combinations of the original variables can be defined as canonical variates (Wm and Vm) as follows:

$Wm = am1X1 + am2X2 + … + ampXp$ (1)

$Vm = bm1Y1 + bm2Y2 + … + bmqYq$ (2)

The two resulting linear combinations, one of x-variables and one of y-variables are called the first canonical variables or the first pair of canonical variables (Ridderstolpe *et al.*, 2005).

The correlation between Wm and Vm can be called canonical correlation (Cm). Squared canonical correlation (canonical roots or eigenvalues) represents the amount of variance in one canonical variate accounted for by the other canonical variate (Hair et al., 1998).

The linear combination of the components of X and the components of Y would be W=a'X and V=b'Y, respectively. Variances and (co)variances of canonical variates as follows:

$Var(W) = a'Cov(X)a = a'\Sigma11a$ (3)

$Var(V) = b'Cov(Y)b = b'\Sigma22b$ (4)

$Cov(W,V) = a'Cov(X, Y)b = a'\Sigma12b$ (5)

Then the correlation coefficient between W and V canonical variates is

$$r(V,W)= \frac{a'\Sigma12b}{[(a'\Sigma11a)(b'\Sigma22b)]^{1/2}} \quad (6)$$

The null hypotheses is that

$H0 : r1 = r2 = … = rm = 0$ (7)

and alternative hypotheses is that

$H1$: not all r's are equal.   (8)

For testing the above hypothesis, the most widely used test statistic Wilks' lambda is defined as follows:

$\Lambda = \prod_{i=1}(1- ri^2)$ (9)

It is used Wilks' lambda statistic to develop an approximate chi-square test with pq degrees of freedom:

$\chi^2 = -[n- 0.5 (p + q + 1)] \ln\Lambda$ (10)

In formula (10) n is the number of cases, ln states the natural logarithm function, p is the number of variables in one set and q is the number of variables in the other set.

The statistical significance of χ^2 test is compared with α= 0.05, 0.01, 0.001 critical value of chi-square statistic with pq degrees of freedom.

Matrix scores on canonical variates of Vi and Wi are calculated by using values in original data. The sum of canonical scores for each variate is equal to zero. Correlation coefficients between canonical scores (Vi and Wi) and observed values (Xi, Yi) are called as canonical weights or canonical structure and calculated as follows:

$CViXi = corr(Vi,Xi)$ (11)

$CViYi = corr(Vi,Yi)$ (12)

Canonical weights are used to determine which variables effect markedly to which one of the canonical variates. The canonical weights allow the user to understand how each variable in each set uniquely contributes to the respective weighted sum of canonical variate.

Explained variance is the sum of the squared canonical weights divided by the number of variables in the set and defines how much variance each canonical variate explains.

$$\text{Explained Variance (X)} = \sum_{i=1}^{k} c\, vixi^2 / p \quad (13)$$

$$\text{Explained Variance (Y)} = \sum_{i=1}^{k} c\, wiYi^2 / q \quad (14)$$

The high number of explained variance can clarify whether or not eigenvalues of solution matrix are acceptable level to state correlation between observed two sets by canonical correlation of the sets.

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22

3. RESULTS

Canonical correlation analysis was performed to examine the association between a set of independent (X) variables and a set of more than one dependent (Y) variable. Descriptive statistics (the mean values and standard deviation) of each variable considered in both sets are presented in Table 1.

TABLE 1: DESCRIPTIVE STATISTICS SECTION

Variable	Mean	Standard Deviation
Pedestrian	37,39286	219,697
Bicyclist	0,028	3,49E-02
Motorcyclist	7,43E-02	0,1844433
MV_occupant	0,2951429	0,4000689
Other_type_vehicle	2,37E-02	4,25E-02
Total	1,017714	1,399977
GNI_per_capita__US__	13041,71	11827,31
MV_per_1000_people	330,08	211,2793
Human_Developme_Index	0,8718857	7,52E-02
UN_GINI_Index	37,29714	10,37966
GDP__Nominal__per_capita_	20515,74	17904,04

The Pearson's correlations between variables of traffic-related mortality and variables of economic development are shown in correlation matrix (Table 2).

TABLE 2: CORRELATION MATRIX

	Pedestrian	Bicyclist	Motorcyclist	Occupant	Other_type	Total	GNI	V/P	HDI	GINI	GDP
Pedestrian	**1**	-0,09	-0,05	0,1	-0,01	**0,56**	-0,17	-0,23	-0,25	0,11	-0,17
Bicyclist	-0,09	**1**	**0,62**	0,1	0,15	**0,38**	**-0,41**	**-0,37**	**-0,31**	**0,32**	**-0,39**
Motorcycli	-0,05	**0,62**	**1**	0,13	0,14	**0,5**	-0,27	**-0,35**	**-0,31**	**0,41**	-0,29
Occupant	0,1	0,1	0,13	**1**	**0,9**	**0,7**	**-0,48**	**-0,57**	**-0,65**	**0,48**	**-0,49**
Other_type	-0,01	0,15	0,14	**0,9**	**1**	**0,66**	**-0,39**	**-0,49**	**-0,61**	**0,37**	**-0,4**
Total	**0,56**	**0,38**	**0,5**	**0,7**	**0,66**	**1**	**-0,55**	**-0,69**	**-0,75**	**0,61**	**-0,57**
GNI	-0,17	**-0,41**	-0,27	**-0,48**	**-0,39**	**-0,55**	**1**	**0,69**	**0,84**	**-0,49**	**0,95**
V/P	-0,23	**-0,37**	**-0,35**	**-0,57**	**-0,49**	**-0,69**	**0,69**	**1**	**0,84**	**-0,62**	**0,74**
HDI	-0,25	**-0,31**	**-0,31**	**-0,65**	**-0,61**	**-0,75**	**0,84**	**0,84**	**1**	**-0,62**	**0,86**
GINI	0,11	**0,32**	**0,41**	**0,48**	**0,37**	**0,61**	**-0,49**	**-0,62**	**-0,62**	**1**	**-0,57**
GDP	-0,17	**-0,39**	-0,29	**-0,49**	**-0,4**	**-0,57**	**0,95**	**0,74**	**0,86**	**-0,57**	**1**

An absolute value over 0.30 are accepted for significant at the five percent level for the degrees of freedom.

Any correlation coefficients with an absolute value over 0.30 are accepted for significant at the five percent level for the degrees of freedom available with data.

There is significant correlation within economic development set, between one economic development variable and others. Among traffic-related mortality set variables there is significant correlation between bicyclist and motorcyclist, between other type of vehicle and motor vehicle occupant, between total mortality and other traffic-related mortality variables.

Correlations between traffic-related mortality and economic development variables are significant except correlation between motorcyclist and GNI; motorcyclist and GDP; pedestrian and all economic development variables.

Total mortality is highly negatively correlated to economic development variables and HDI is also highly negatively correlated to traffic-related mortality variables.

The correlation between total mortality and HDI (-0.75) is stronger than among other variables. It can be said that the most suitable indicator of traffic mortality is HDI.

Through canonical correlation analysis, a composite (also called as canonical function) of the traffic-related mortality accounts that correlate with a composite of the economic development accounts is derived. The canonical correlation analysis procedure provides as many pairs as there are accounts in the smaller set, which is five in this study. The test statistics for the canonical correlation between the first pair (0.93) was found to be significant (p<0.01) from the likelihood ratio test. The remaining canonical correlations are not statistically significant (p>0.05). Therefore, only the first canonical correlation (the highest possible correlation on the x-variable and y-variable side) has been used. By construing the first canonical variate it is possible to find relationship between traffic-related mortality and economic development as rate of 87% (Table 3).

TABLE 3: CANONICAL CORRELATION SECTION

Variate Number	Canonical Correlation	R-Squared	F-Value	Num DF	Den DF	Prob Level	Wilks' Lambda
1	0,934831	0,87391	3,16	30	98	0,00001	0,06679
2	0,571934	0,327108	0,89	20	84	0,605152	0,529704
3	0,447807	0,200531	0,54	12	69	0,877469	0,787206
4	0,104278	0,010874	0,07	6	54	0,998564	0,984661
5	0,067191	0,004515	0,06	2	28	0,938617	0,995485

F-value tests whether this canonical correlation and those following are zero.

The results shown in Table 3 can also be visualized in Figure 1. The correlation coefficient of the data in the first plot (Y1 versus X1) is the first canonical correlation coefficient. There is strong relationship between the first pair of canonical variates. This supports the level of association between traffic-related mortality and economic development (r=0.93).

FIGURE 1

Scores Plot of Y1 vs X1
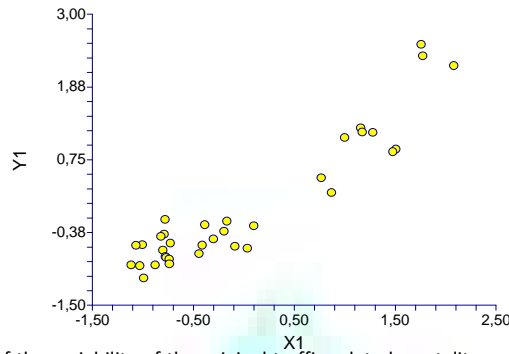
The first canonical variate suggests that 30.4% of the variability of the original traffic-related mortality variables (Y set) is explained by traffic-related mortality canonical variable Y1 (variate Y1) and 60.6% of the variability of the original economic development variables (X set) is accounted by the economic development canonical variable X1 (variate X1) (Table 4).

TABLE 4: VARIATION EXPLAINED SECTION

Canonical Variate Number	Variation in these Variables	Explained by these Variates	Individual Percent Explained	Cumulative Percent Explained	Canonical Correlation Squared
1	Y	Y	30,4	30,4	0,8739
1	Y	X	26,6	26,6	0,8739
1	X	Y	53	53	0,8739
1	X	X	60,6	60,6	0,8739

Explained variance for the first canonical correlation also determines how much of the variance in one set of variables is accounted for by the other set of variables. For the first canonical variate, 26.6 percent of the Y set's variance is explained by the canonical variable X1 (variate X1), and 53 percent of the variation in X set variables is explained by the canonical variable Y1 (variate Y1). These results indicate that the first canonical correlation has low practical meaningful if variation in Y variables explained by X variates. It has medium meaningful if variation in X variables explained by Y variates. It can be said that traffic-related mortality and economic development interdependencies are strong enough (Table 4).

Standardized canonical coefficients for the first X, Y variate are given in Table 5. It shows variation (kind of standard deviation) in canonical variate in parallel with 1 standard deviation increase in original variables. In other words these coefficients represent relative contributions of original variables to the related variate.

Equations of Y1 and X1 canonical variate are as follows:

Y1=-1,89(pedestrian) – 0.37(bicyclist) – 1.05 (motorcyclist) – 0.24 (V/P) – 1.42(other vehicles) + 3.65(total)

X1= 0.20(GNI) – 0.04(V/P) – 0.78(HDI) + 0.59(GINI) + 0.16(GDP)

TABLE 5: STANDARDIZED CANONICAL COEFFICIENTS SECTION

Standardized Y canonical coefficients section						Standardized X canonical coefficients section				
Pedestrian	Bicyclist	Motorcyclist	Occupant	Other_type	Total	GNI	V/P	HDI	GINI	GDP
-1,89	-0,37	-1,05	-0,24	-1,42	3,65	0,2	-0,04	-0,78	0,59	0,16

Since the canonical coefficients can see unstable due to small sample size or presence of multicollinearity in the data, the loading were also considered to provide substantive meaning of each variable for the canonical variate (Akbas and Takma, 2005).

The relationship between the original variables and canonical variables was evaluated with the correlation coefficients between canonical variables commonly called structure coefficients (Khattree and Naik, 2000; Johnson and Wichern, 2002; Martin *et al.*, 2005).

Canonical loading/cross-loading analysis was performed to investigate any correlation between variables within and between Y and X set's variables. The correlations between variables and canonical variates provide information about the relative contributions of variables to each canonical relationship (Hair *et al.*, 1998; Wong and Lau, 2001).

To evaluate the important accounts of the significant canonical function, canonical loading and cross-loading were used in this study. The criteria of selecting canonical loading over 0.40 (Avlonitis and Gounaris, 1999; Wong and Lau, 2001; Hosany, 2007) and canonical cross-loading over 0.30 (Hair *et al.*, 1998; Chengalur-Smith and Duchessi, 2000; Wong and Lau, 2001; Wu and Chen, 2006) were considered to be important.

The variable-variate correlations (canonical loadings and canonical cross-loadings) of the first significant pairs of canonical variables (canonical variate) are presented in Table 6 and 7.

TABLE 6: VARIABLE-VARIATE CORRELATIONS (CANONICAL LOADINGS)

	Y variable set							X variable set				
	Pedestrian	Bicyclist	Motorcyclist	Occupant	Other_type	Total		GNI	V/P	HDI	GINI	GDP
Y1	0,22	0,32	0,42	0,68	0,6	0,82	X1	-0,61	-0,8	-0,86	0,9	-0,68

TABLE 7: VARIABLE-VARIATE CORRELATIONS (CANONICAL CROSS-LOADINGS)

	Y variable set							X variable set				
	Pedestrian	Bicyclist	Motorcyclist	Occupant	Other_type	Total		GNI	V/P	HDI	GINI	GDP
X1	0,2	0,3	0,39	0,64	0,56	0,77	Y1	-0,57	-0,75	-0,81	0,84	-0,64

Canonical loadings of function 1 revealed that four of six traffic-related mortality variables (total traffic mortality, MV occupant mortality, other type vehicle mortality, motorcyclist mortality) were found to be correlated with the same canonical variable set. Total traffic mortality (0.82) and MV occupant mortality (0.68) are the most influential variables in forming Y1 (Table 6).

Judging from the result of canonical loadings individually by the subset (economic development set) itself, it was found that all of the economic development variables significantly correlated within the subset. GINI Index (0.90), HDI (-0.86) and V/P (-0.80) are the most influential variables in forming X1 (Table 6).

All of the variables have positive loadings on the traffic-related mortality set. GINI Index have positive loading on the economic development set, but there were negative correlations between other economic development variables and canonical variables.

Canonical cross-loadings revealed that all of the economic development variables correlated (-0.57 to 0.84) with traffic-related mortality canonical variate (Table 7). Five traffic-related mortality variables (bicyclist, motorcyclist, MV occupant, other type vehicle, and total mortality) correlated with economic development canonical variate.

4. DISCUSSION

There is consensus regarding the effect of economic development on traffic-related mortality. In previous studies it is found that there is lower risk for total traffic accident mortality among rich countries (Joksch, 1984; Soderlund and Zwi, 1995; Dano, 2005; Bishai et al., 2006; Paulozzi et al., 2007). Findings of this study suggest that there is a negative and significant relationship between economic development and traffic-related mortality.

Income inequality generally effects health (Kawachi et al., 1999; Lynch et al., 2000; Jones and Wildman, 2005). While some studies have expressed no strong relationship between income inequality and mortality or health (Judge et al., 1998; Mellor and Milyo, 2001; Muller, 2002; Osler et al., 2002; Sturm and Gresenz, 2002; Gerdtham and Johannesson, 2004; Lorgelly and Lindley, 2007), some studies expressed significant and strong relationship (Wilkinson, 1996; McIsaac and Wilkinson, 1997; Blakely et al., 2000; Deaton 2001; Judge and Peterson, 2001; Subramanian and Kawachi, 2004). This study concludes that relationship between GINI Index and traffic-related mortality is positive and very stronger.

There is nonlinear relation between per capita GDP and traffic accident (Anbarci et al., 2006). Higher levels of GDP per capita are associated with lower mortality (Bester, 2001; Kennelly et al., 2003; Tapia Granados, 2005). Lower levels of GDP per capita mean poorer health and higher mortality (Davey et al., 1994; Benzeval and Judge, 2001; Kennelly et al., 2003; Tapia Granados, 2005). Van Beeck and colleagues (2000) showed mortality rates rose and fell with gross domestic product. Anbarci et al., (2006) find that 'as per capita income initially rises, as expected, traffic fatalities also increase. This relation remains positive up to a level of per capita GDP of approximately $15,000. Beyond that level, further increases in per capita GDP lead to falling rates of traffic fatalities'.

Bishai et al. (2006) suggest that 'increase in GDP in a lower income country is associated with a rise in the number of crashes, the number of traffic injuries, and the number of deaths. Increases in GDP in richer countries appear to reduce the number of traffic fatalities, but do not reduce the number of crashes or injuries. The negative association between GDP and traffic deaths in rich countries may be mediated by lower injury severity and post-injury ambulance transport and medical care'.

Paulozzi and colleagues (2007) suggest that 'increases in GNI per capita are associated with reductions in total mortality rates and also in pedestrian mortality rates'. In this study it is found that there in no correlation between GNI and pedestrian mortality rates and also GDP and pedestrian mortality rates. GINI Index, HDI and V/P are more associated with reduction traffic-related mortality than GNI and GDP.

V/P is a good predictor of the variation in total deaths per vehicle (Allen, 2005; Paulozzi et al., 2007) and strongly correlates with national income (Van Beeck et al., 2000; Anbarci et al., 2006; Paulozzi et al., 2007). In developing countries as per capita income rises, motorization rates also rise as do rates of traffic fatalities (Anbarci et al., 2006). But developed countries with a higher vehicle ownership usually have a lower fatality rate. Bhalla et al. (2007) found that "in the absence of road safety interventions, the historical trend of initially rising and then falling fatalities observed in industrialized nations occurred only if motorization was through car ownership. In all other cases studied (scenarios dominated by scooter use, bus use, and mixed use), traffic fatalities rose monotonically". In this study it is found that V/P is a good predictor of traffic related mortality.

In addition to this HDI is clearly a significant factor in the fatality rate of a country (Bester, 2001). The variable HDI seems to have a very strong relationship with mortality as well as the other economy variables, and seems to contain in it some of the main elements related to why some countries do better in safety development than others. HDI shows how far a country or province has to go to provide essential needs to all its people (Justus, M., 1995). It is a measure of development based on relative achievement in economic growth, education and health, and a powerful predictor of infant and maternal mortality rates (Lee et al., 1997). This study concluded that HDI is the most suitable indicator of traffic-related mortality.

5. CONCLUSION

This study which examines the relationship between two sets is different from the previous research. Because the relationships among multiple dependent traffic-related mortality and multiple independent (economic development) variables was analyzed in this study. Then, the answer of the question "what is the relationship between economic development and traffic-related mortality?" was incestigated. Different from other studies GINI Index and HDI are used in this study to examine the effect of traffic mortality

It can be said that GINI Index, HDI and V/P have a heavier influence on the traffic-related mortality. Similarly total traffic accident mortality has the heaviest influence on economic development. In other words the lower GINI Index or the higher HDI or the higher V/P means the lower traffic-related mortality. If a country has the higher total traffic-related mortality, the country has the lower economic development level.

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SUBSCRIBER'S PERCEPTION TOWARDS CUSTOMER CARE SERVICE IN MOBILE TELECOMMUNICATION WITH SPECIAL REFERENCE TO TUTICORIN CITY

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ABSTRACT

Customer care service is an important service, especially in the mobile telecommunication sector. Because most of the time people want to know about their balance, call tariff, rate cutter, new offers, activation and deactivation, billing details and so on. Therefore customer care service is considered as a significant one. Sometimes, due poor customer care service, some customer may switch over from their service provider to other new service provider. Here, the research is going to analyse whether the service representatives are giving percept service to the society or not and also whether the subscribers are satisfied with their mobile telecommunication operator with special reference to Tuticorin city.

KEYWORDS

Customer care, Customer, service, Service quality, & Subscriber's Satisfaction.

INTRODUCTION

Customer service is the provision of service to customers before, during and after a purchase. According to Turban et al. (2002), "Customer service is a series of activities designed to enhance the level of customer satisfaction – that is, the feeling that a product or service has met the customer expectation." The importance of customer service may vary by product or service, industry and customer. The perception of success of such interactions will be dependent on employees "who can adjust themselves to the personality of the guest," according to Micah Solomon. From the point of view of an overall sales process engineering effort, customer service plays an important role in an organization's ability to generate income and revenue. From that perspective, customer service should be included as part of an overall approach to systematic improvement. A customer service experience can change the entire perception a customer has of the organization.

Some have argued that the quality and level of customer service has decreased in recent years, and that this can be attributed to a lack of support or understanding at the executive and middle management levels of a corporation and/or a customer service policy. To address this argument, many organizations have employed a variety of methods to improve their customer satisfaction levels, and other key performance indicators (KPIs).

The mobile telephone network has aggrandized greatly since 2000. The number of mobile phone connections crossed fixed-line connections in Sept 2004 and currently there are an estimated 929.37 million mobile phone users in India compared to 31.53 million fixed line subscribers. India primarily follows the GSM mobile system, in the 900 MHz band. Recent operators also operate in the 1800 MHz band. The dominant players are Aircel, Vodafone, Airtel, Tata Indicom, Tata Teleservices, MTS, Uninor, Reliance Infocomm, Idea Cellular and BSNL/MTNL. There are many smaller players, with operations in only a few states. International roaming agreements exist between most operators and many foreign carriers. India has the fastest growing telecom network in the world with its high population and development potential. However, rural India still lacks strong infrastructure. India's public sector telecom company BSNL is the 7th largest telecom company in world.

Telephony introduced in India in 1882. The total number of telephones in the country stands at 960.9 million, while the overall teledensity has increased to 79.28% as of May 31, 2012. and the total numbers of mobile phone subscribers have reached 929.37 million as of May 2012. The mobile tele-density has increased to 76.68% in May 2012. In the wireless segment, 8.35 million subscribers were added in May 2012. The wire line segment subscriber base stood at 31.53 million.

Indian telecom operators added a staggering 227.27 million wireless subscribers in the 12 months between Mar 2010 and Mar 2011 averaging at 18.94 million subscribers every month. To put this into perspective, China which currently possesses the world's largest telecommunications network added 119.2 million wireless subscribers during the same period (March 2010 - March 2011) - averaging 9.93 million subscribers every month (a little over half the number India was adding every month). So, while India might currently be second to China in the TOTAL number of mobile subscribers, India has been adding nearly twice as many subscribers EVERY month until March 2011. Mobile teledensity increased by almost 18.4 percentage points from Mar 2010 and Mar 2011 (49.60% to 67.98%) while wire line subscriber numbers fell by a modest 2.2 million. This frenetic pace of monthly subscriber additions means that the Indian mobile subscriber base has shown a year on year growth of 43.23%. According to recent reports, India was purported to overtake China to become the world's largest mobile telecommunications market by the year 2013. It was also predicted that by 2013, the teledensity will shoot up to 75% and the total mobile subscriber base would be a colossal 1.159 billion.

OBJECTIVES

1. To know about need of customer care service.
2. To find out the quality of customer care service in mobile telecommunication sector.
3. To analyse customer perception regarding customer care service.
4. To study the factors affecting customer care service quality.
5. To ascertain the level of satisfaction and give suggestion to the mobile service providers for offering better service to their customers.

REVIEW OF LITERATURE

CUSTOMER RELATIONSHIP MANAGEMENT

According to Cohen and Moore (2000), CRM is concentrated on the use of information technology so as to aid the organization to stay abreast of its customers' needs and concerns. Customer Relationship Management also helps the organization to respond in time and appropriately to their customers' calls. On the other hand, Jarre (2000) stated that Customer Relationship Management is a business strategy and process issue that involves several other strategies other than the application of technology. The approach on CRM covers all business processes that an organization employs so as to determine, select, obtain, enhance and retain its customers. Indeed, at present, CRM is regarded as the integration of business processes, technological solutions and advanced analysis, which enables

companies to understand clients from a multifaceted perspective. Through this understanding, companies are able to establish deeper and more profitable customer relations (Zabin, 2004).

The CRM strategy may be thought as a new development in business and management, when in fact, it has been around since time immemorial. There may be variations of the old concept in comparison to the present time. However, the objective remains the same. Before, CRM is applied in businesses through personal interactions. For instance, a shop owner in the past would know all his customers by name, their lifestyles, hobbies, occupations and buying preferences. When needed, all these information are stored and readily accessible for the shop owner to use (Zabin, 2004). Nowadays, this may not be very much applicable to modern companies. As an alternative, companies now depend on go-betweens to establish the connection for them. These come in the form of marketing vehicles, which act as a go-between communication flows, and contact management channels to intercede service and support flows. No matter how varied people define Customer Relationship Management, its main rationale remains the same, and that is the application of strategies to improve customer relations.

It may appear to be a simple management task. On the contrary, the implementation of CRM requires several factors. For instance, this strategy requires that an organization see customer relations as a means to recognize the needs and wants of its customers. The organization must successfully create, satisfy and sustain its clients while concurrently helping in the attainment of its objectives (Greco and Ragins, 2003). In order to come up with customized solutions geared towards the enhancement of customer functionality as well as to the recognition of new customer functionalities, customer intimacy and partnering are required. In turn, networking of customer relationships, which involves channel members, end users, advertising agencies, research firms are established and require management. In general, three important things must be incorporated to a CRM program. These include how to identify individual customers, how to gain relevant knowledge about individual customers and how to cross-sell to each individual customers in a real-time and context-sensitive manner (Zabin, 2004).

Aside from this challenge, the implementation of CRM also requires the organization to view this strategy holistically. This means that CRM should be assimilated well to all the processes within the organization, from marketing to collections. This is said to be a challenge as most companies employing CRM have this tendency to view this strategy narrowly, seeing it as a mere tactical series of transactions. In contrast, the effective strategic implementation of CRM needs information from all related departments for the purpose of using customer information intelligently that will eventually lead to the creation of strong customer partnerships or relations (Butler, 2000). Furthermore, the consistency of the response from different customer points of contact with the company must also be addressed as a possible challenge. For instance, online customers can acquire immediate response to their applications, questions and suggestions. However, this may not be true for customers who have contacted the company using a different channel such as the telephone or a traditional retail outlet (Butler, 2000).

Upon the company's realizations on what it actually needs, several CRM strategies can be employed. Weiss (1999) suggests that personalization and online interactivity can be used to help build emotional connections with stakeholders in ways that no other medium can. Forrest and Mizerski (1996) maintain that the highest use of the Internet among businesses has been as a listening medium. The World Wide Web has progressed into a medium with various generic relationships -building attributes (Weiss, 1999). The higher the quality of the data a company can obtain about its customers, and the more comprehensive the data is, the more the organization will be able to use decision analysis to predict customer behavior (Butler, 2000). More targeted and customized relationship strategies can result from better predictions of customer needs. Online CRM can enhance the importance of the relationship for both customers and the e-business. Customers can receive more products and communications that are more suitable to their needs and lifestyles, and the e-business can benefit from a group of high-value repeat customers.

In spite of the many considerations that management has to make in order to effectively implement CRM into its operations, several others are trying to work on employing such strategy. This is due to the fact that intimate customer relationships provide the marketer several advantages. One of which is the establishment of committed customers. Committed customers are more than simple repeat purchasers as they have an emotional connection to the seller (Dick &Basu, 1994; Lim &Razzaque, 1997). These emotions may come in the form of trust, liking and believing in the organization's capability to respond instantly and effectively to a customer's concern (Fournier, 1998). The company considers committed customers as its assets as they can possibly be a source of favourable word-of-mouth referrals. These customers are more resistant to competitors' offers. Aside from this effect, CRM provide a point of leverage to realize economies of scope. Committed customers are often amenable to line extensions (Bejou& Palmer, 1998). Leveraging the customer base can facilitate cross-selling complementary products as well as selling up to higher quality substitutes. The ability of CRM to reduce costs has been explored as well in the recent years. When CRM is applied along with other work processes, the strategy is capable of reducing churn or turnover in a company's customer base. Thus, better customer management can lead to lower sales and service costs, higher buyer retention and lower customer replacement expenditures (Reichheld, 1996).

Sanjeev Panandikaret al., (2000) made a "comparative study on service of cellular operators: An approach of multidimensional profile analysis". They summarized the multivariate analysis was carried out in order to compare the cellular operators on the satisfaction levels of key quality elements. They would give the cellular operators performance on the key service quality elements. Sigma scaling is used to get more accurate values of the consumer's perception.

Francis Sudhakar, et al., (May 2000) made a "study of consumer behavior in BPL mobile cellular Ltd". They found that consumers were aware more about prepaid card. Present day consumers gave more importance to collect information about product category, and brand before making through advertisement.

Selvaraj (et a)l., (2000) A study on consumer behaviour towards cell phones users in Tutticorin city", their major findings were that the majority of the respondents who use cell phone are male. They also pointed out that the existing customers are satisfied with the cellular service and is having good prospective customers for cellular services.

ESSENTIAL DUTIES AND RESPONSIBILITIES

1.   Creates customer satisfaction and loyalty through effective and timely resolution of a variety of customer inquiries.
2.   Provides support for new data products and service initiatives.
3.   Increases revenue via execution of various sales initiatives.
4.   Successfully completes Advanced Care training and additional training to focus on specific areas as required.
5.   Delivers one-contact resolution of customer issues.
6.   Uses automated Knowledge system, as well as any training tools provided to deliver exceptional service to meet T-Mobile's productivity and quality standards.

STATEMENT OF THE PROBLEM

Customer care service has very significant role in making customer satisfaction. Customer care service is starting after the sale process over. It is used to make a customer as a loyal customer to our company. It asks the people regarding the problems of our product and grievances of our customer and tries to fulfill them as much as possible. Thus customer will get satisfaction. As a result of that, they will be the loyal customer to the particular service provider. But, actually many of the grievances of the mobile customer are not rectified by the customer care service. It makes dissatisfaction on mobile operator. Therefore, customer may want to switch over from that mobile operator. That is why this study is going to study about effectiveness of customer care service.

HYPOTHESIS

1)   H0:- People do not contact customer care mostly for activation and deactivation of the service
2)   H0: - Aircel is not the best service provider of customer care service.

RESEARCH METHODOLOGY

Sources of Data: Here, the primary data as well as secondary data are used.

Data Collection: The data were collected through well structured questionnaire in the random manner. There were 100 respondents selected for this study.

Scope of study: It is covered only Tuticorin city only.

Tools of study: The chi-square was used for analysis purpose.

LIMITATIONS

1)   It is covered only some leading companies only
2)   It is made on the basis of selected customer's opinion.

DATA ANALYSIS AND INTERPRETATIONS

On the basis of the research data, the following analysis have been done and found some important facts.

MOBILE SUBSCRIBERS

TABLE 1

Brand	No of Respondents	Percentage
Aircel	38	38%
Airtel	29	29%
Vodafone	21	21%
BSNL	12	12%

In this research, 40% respondents belong to Aircel, 32 respondents belong to Airtel, 16 respondents belong to Vodafone and 12 respondents belong to BSNL service provider.

MODE OF PLAN

TABLE 2

Mode of Plan	Respondents	Percentage
Pre paid	91	91%
Post paid	9	09%

Pre paid mode is most preferred by the mobile subscribers, because here there are 91% subscribers have pre paid mode and the balance 9% customer only have post paid mode.

PURPOSE OF CONTACTING CUSTOMER CARE

H0:- customer do not contact customer care mostly for activation and deactivation of the service

H1: - Customer contact customer care mostly for activation and deactivation of the service

PURPOSE OF CONTACTING CUSTOMER CARE

TABLE 3

Brands	Regarding Payments	Details about VASs service	Activation/deactivation	Tower Problem	Expected Values
Aircel	2	7	9	1	25
Airtel	3	9	10	4	25
Vodafone	2	6	16	1	25
BSNL	3	6	11	10	25

Chi square value: 9.351 Table value: 7.815

Interpretation of Chi: - As the 95% level of confidence Chi square value 9.351 is more than the table value 7.815, so the null hypothesis is rejected, it means that customer contact customer care mostly for activation and deactivation service.

From the above data analysis it has been found that most of the users of telecommunication contact to their customers care for activation and deactivation of various services. Then they also contact for information about various value added services provider by companies like validity, call rates, SMS pack, caller tones etc. Tower (Network) service has been found a problem of mainly BSNL users and to some extent of Airtel users as well.

Aircel Subscribers' satisfaction towards customer care service

H0: - Aircel is not the best service provider of customer care service.

H1: - Aircel is the best service provider of customer care service.

AIRCEL SUBSCRIBERS' SATISFACTION TOWARDS CUSTOMER CARE SERVICE

TABLE 4

Brands	Highly Satisfied	Satisfied	Natural	Dissatisfied	Highly Dissatisfied
Aircel	12	8			
Airtel	2	9	7	4	6
Vodafone	4	11	2	1	
BSNL		3	2	9	20

Table value: 9.488 & Chi square value 11.143

Interpretation of Chi: - As the 95% level of confidence Chi square value 10.143 is more than the table value 9.488, so the null hypothesis is rejected, it means Aircel is the best service provider of customer care service in the mobile telecommunication sector.

From the above data interpretation we can conclude that Aircel is the best service provider of customer care service in this study area. The Vodafone and Airtel service are also satisfactory as most of the users have rated it as satisfied service provider. But BSNL is to be found as a not satisfactory service provider. Most of the users said that they have not talk to their customer care service provider even for a single time.

THE CUSTOMER SERVICE REPRESENTATIVE WAS VERY COURTEOUS

TABLE 5

Brands	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Aircel	14	7			
Airtel	12	9			
Vodafone	9	12	2		
BSNL	1	2	12	6	14

Above data analysis shows that most of the users of all companies found their customer service provider courteous. But the result of BSNL is not good as the users say that they have not talk to their customer care service provider even for a single time. Some of them have talk but after a lot of waiting time. So BSNL customers are found not satisfied with their customer care representatives. Because, BSNL customer care representatives are not courteous.

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29

SATISFACTION WITH THE PROCESS OF GETTING YOUR QUERIES RESOLVED

TABLE 6

Brands	Highly Satisfied	Satisfied	Neutral	Unsatisfied	Highly Unsatisfied
Aircel	14	16	1		
Airtel	4	10	3		
Vodafone	3	6	7	3	1
BSNL		3	5	9	15

From above data analysis we can say that most of the users, who are satisfied with their customer care service, are also satisfied with the process of getting their queries resolved. Aircel has the first place in getting queries resolved, Followed by Airtel and Vodafone. BSNL has very poor service here also.

THE CUSTOMER SERVICE REPRESENTATIVE WAS VERY KNOWLEDGEABLE

TABLE 7

Brands	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Aircel	19	5	1		
Airtel	14	1	3		
Vodafone	10	7	6		
BSNL	6	4	8	6	10

Above data analysis shows that most of the customers of all service providers found their customer service provider knowledgeable. But the result of BSNL is again not good as the users say that they have not talk to their customer care service provider even for a single time. Some of them have talk but after a lot of waiting time. So they are found not satisfied.

OVERALL SATISFACTION

TABLE 8

Brands	Highly Satisfied	Satisfied	Neutral	Unsatisfied	Highly Unsatisfied
Aircel	4	16	2	1	
Airtel	2	11	6	2	
Vodafone	3	9	8	2	
BSNL		6	8	11	9

As per the above table, we can say that Aircel customer has satisfied with their service representatives followed by Airtel .Vodafone customer has low satisfaction toward their service representatives. Due to very poor service of customer service representatives, BSNL customer has very low satisfaction.

CONCLUSION

On the basis of this research, it has come to know that customer care has very significant role in satisfaction of customer's needs and wants, especially mobile telecommunication. Since Customer care service is an after sale service, it has vital roll in the area of retaining the customer. If the customer care does not satisfy the customer needs and grievance then the customer will get dissatisfaction. This will automatically create a mind set to switch over from the current operator to other operators. Customer is the king of the market, so we have to retain our existing customer. For that purpose, the organization should strength their policy and services in a well versed manner. Because getting new customer is more expensive and also risky one than retaining the existing customer.

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A STUDY OF WAVELET BASED IMAGE COMPRESSION ALGORITHMS

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ABSTRACT

Day by day the use of different digital devices is increases. All printed documents such as images are converted into digital form. It is necessary to compress images to make efficient transfer and storage of data. Visual data is stored in form of bits which represents pixels. An image often contains redundant and/or irrelevant data. Wavelet is the image compression algorithm. It is also known as Discrete Wavelet Transforms (DWT). It treats the image as a signal or wave. Wavelets are analyzed with respect to the scale. Wavelet algorithms can process data at different scales or resolutions. The different types of wavelets are used for image compression are Haar, Daubechies, Biorthogonal, Symlets and Coiflet. The image wavelet compression process consists of different steps such as : Wavelet Transformation, Quantization and Entropy Coding.

KEYWORDS
DWT, Entropy, Quantization, Transformation.

1.   INTRODUCTION

Wavelet compression is also known as Discrete Wavelet Transforms (DWT). It treated the image as a signal or wave. The transform organizes the image information into a continuous wave, typically with many peaks and dips, and centre it on zero. The image is treated as a series of waves, one for each color channel (i.e., Red, Green, and Blue), and it may break up big images into large tiles for ease of processing. Having centered the wave, the transform records the distances from the zero line to points along the wave i.e. these distances are known as coefficients, and then takes the average between adjacent coefficients to produce a simplified version of the wave; in effect, it reduces the image's resolution or detail by one-half.

Wavelet is functions. It is used to satisfy certain mathematical requirement. It is used to representing a data or other functions. Fourier has discovered that he could superpose sins and cosines to represent other functions.

2.   WAVELET IMAGE COMPRESSION

The image wavelet compression process consists of the following steps: Wavelet Transformation, Quantization and Entropy Coding. Below figure represent the block diagram of general compression and decompression process and wavelet based image compression process.

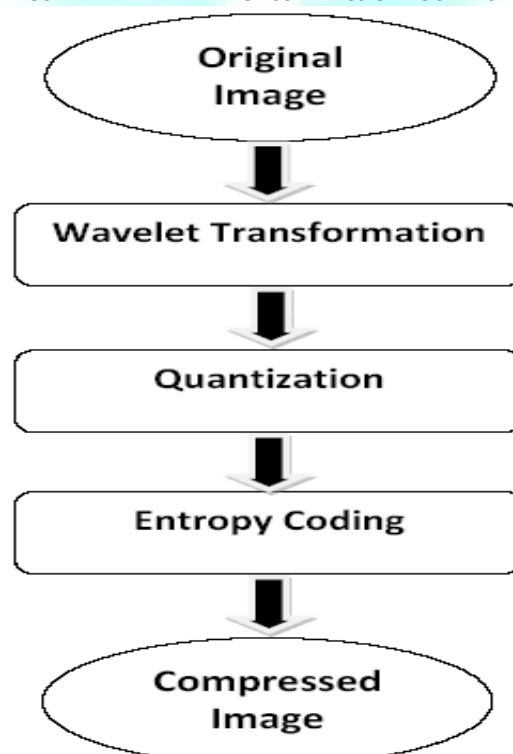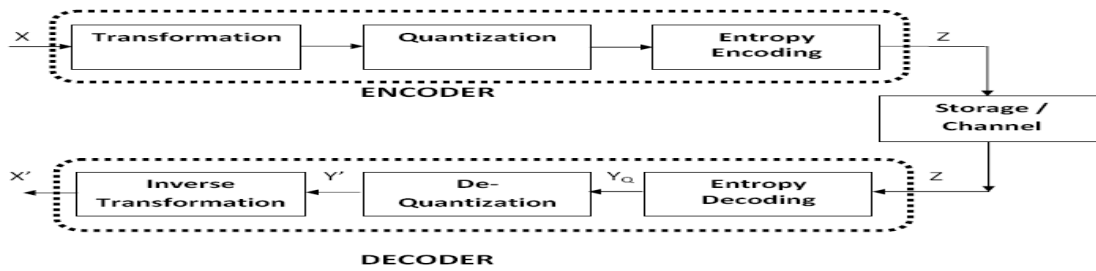**FIGURE – 1 WAVELET IMAGE COMPRESSION ROUTINES**

FIGURE – 2 BLOCK DIAGRAM OF GENERAL COMPRESSION AND DECOMPRESSION PROCESS

3.   IMAGE QUALITY EVALUATION

The image quality can be evaluated following two different methods: Objective and Subjective.

3.1   OBJECTIVE METHOD

These methods are based on computable distortion measures. A standard objective measure of image quality is reconstruction error.

The double stimulus impairment scale method uses reference and test conditions which are arranged in pairs such that the first in the pair is the unimpaired reference and the second is the same sequence impaired. The method uses the five grade impairment scale with proper description for each grade:

TABLE – 1 GRADE OF IMAGE QUALITY EVALUATION

Grade	Meaning
5	imperceptible
4	perceptible, but not annoying
3	slightly annoying
2	annoying
1	very annoying

3.2   SUBJECTIVE METHOD

Subjective assessments methods of image quality are experimentally difficult and lengthy, and the results may vary depending on the test conditions.

4.   TYPES OF WAVELETS

Several families of wavelets that have proven to be especially useful are included in the wavelet toolbox. Here five different types of wavelets are used for image compression such as Haar, Daubechies, Biorthogonal, Symlets and Coiflet. The details of these wavelet families have been shown below:

4.1.   HAAR WAVELET

The first DWT was invented by the Hungarian mathematician Alfred Haar in 1909. Haar wavelet is the first and simplest method. It is the simplest of all wavelets and its operation is easy to understand. It have its own their limitations also. They are piecewise constant and hence produce irregular, blocky approximations.

4.2.   DAUBECHIES (DB4) WAVELET

It is a family of orthogonal wavelets. It defines the discrete wavelet transform. It can be characterized by a maximum number of vanishing moments for some given support. Each wavelet type of this class, it has a scaling function which is known as father wavelet also. It generates an orthogonal multi resolution analysis.

4.3.   BIORTHOGONAL WAVELET

The biorthogonal family of wavelets exhibits the property of linear phase, which is needed for signal and image reconstruction. By using two wavelets, one for decomposition and the other for reconstruction instead of the same single one, interesting properties are derived. Below figure on left side represent decomposition and on right side represent reconstruction.

FIGURE – 3 BIOR 1.5 WAVELET FUNCTION WAVEFORM

bior 1.5
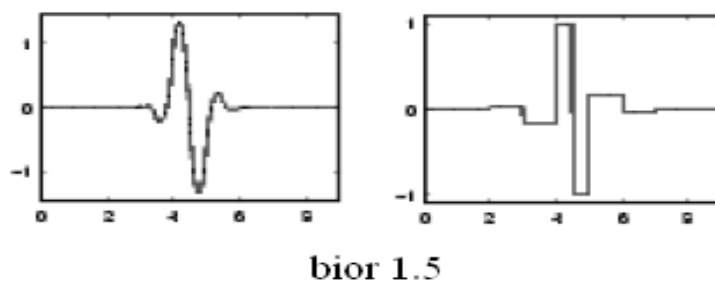
4.4.   SYMLETS WAVELET

The Symlets are nearly symmetrical wavelets proposed by Daubechies as modifications to the db family. The properties of the two wavelet families are similar. There are 7 different Symlets functions from sym2 to sym8. Below figure shows the sym2 function.

FIGURE – 4 SYM2 WAVELET FUNCTION WAVEFORM

Sym2

4.5. COIFLET WAVELET

Coiflets are discrete wavelets designed by Ingrid Daubechies, at the request of Ronald Coifman, to have scaling functions with vanishing moments. This looks like
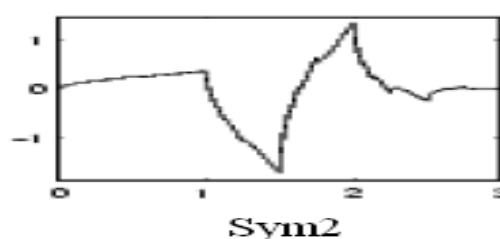
$B_k = (-1)^k C_{N-1-k}$

Where k is the coefficient index

B is a wavelet coefficient

C is a scaling function coefficient and

N is the wavelet index

5. TRANSFORMATION

There are two dimensional wavelet transformations such as one dimensional wavelet transform and Multilevel Decomposition Wavelet Transform.

5.1. ONE-DIMENSIONAL WAVELET TRANSFORM

The one-dimensional discrete wavelet transform can be described in terms of a filter band as shown in below figure:

FIGURE – 5 ONE DIMENSIONAL WAVELET TRANSFORM
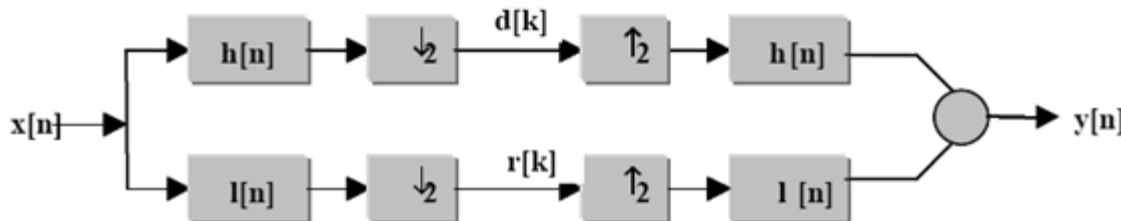
An input signal x[n] is applied to the low pass filter l[n] and to the analysis high pass filter h[n]. The odd samples of the outputs of these filters are then discarded, corresponding to a decimation factor of two. The decimated outputs of these filters constitute the reference signal r[k] and the detail signal d[k] for a new-level of decomposition. During reconstruction, interpolation by a factor of two is performed, followed by filtering using the low pass and high pass synthesis filters l[n] and h[n]. Finally, the outputs of the two synthesis filters are added together.

The above procedure can be expressed mathematically as the following equations.

$$d[k] = \sum_n x[n] \bullet h[2k-n]$$

$$r[k] = \sum_n x[n] \bullet l[2k-n]$$

$$x[n] = \sum_n (d[k] \bullet g[-n+2k]) + (r[k] \bullet h[-n+2k])$$

5.2. MULTILEVEL DECOMPOSITION WAVELET TRANSFORM

In a multilevel decomposition, the above process is repeated. The previous level's lower resolution reference signal ri[n] becomes the next level sub-sampling input, and its associated detail signal di[n] is obtained after each level filtering. Below figure shows this procedure.

FIGURE – 6 THREE LEVEL DECOMPOSITION FOR WAVELET TRANSFORM
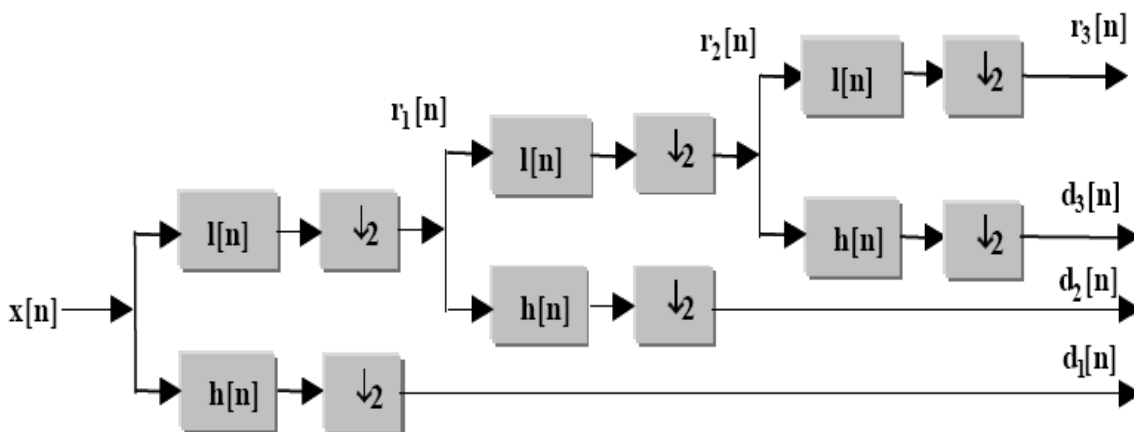
The original signal x[n] is input into the low-pass filter l[n] and the high pass filter h[n]. After three levels of decomposition, a reference signal r3[n] with the resolution reduced by a factor of 23 and detail signals d3[n], d2[n], d1[n] are obtained. These signals can be used for signal reconstruction.

The three levels of wavelet transform implementation are shown in below figure:

FIGURE – 7 WAVELET TRANSFORM IMPLEMENTATION
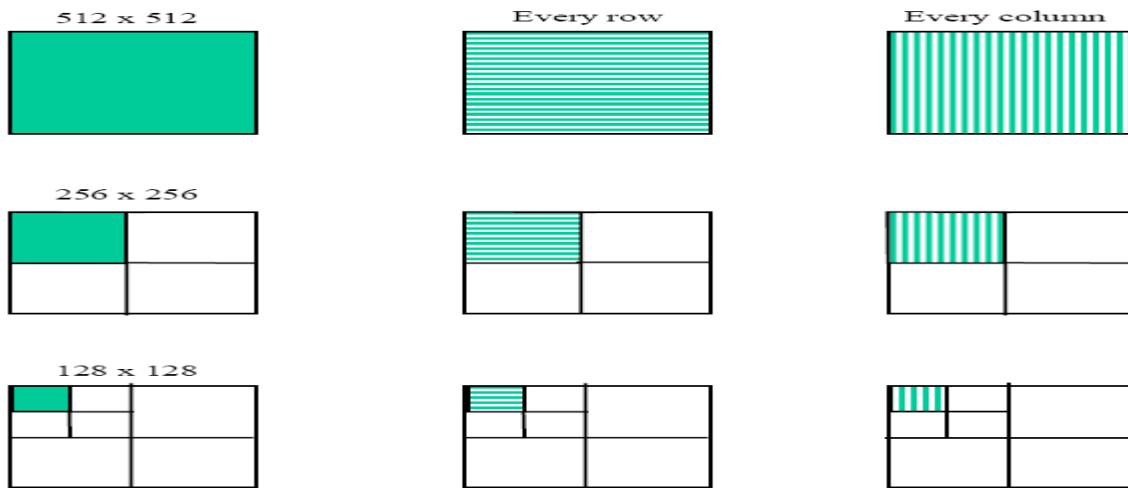
6.   EXPERIMENTAL STUDY

Wavelet based image compression algorithm experiment is performed on Cameraman image. This experiment was performing in different algorithms such as Haar, Daubechies, Biorthogonal, Symlets and Coiflet at different level. In our experiment we perform this study up to five level. Below images represent the different algorithm at different decomposition level and compressed image.

FIGURE – 8 ORIGINAL CAMERAMAN IMAGE

FIGURE – 9 HISTOGRAM OF CAMERAMAN IMAGE
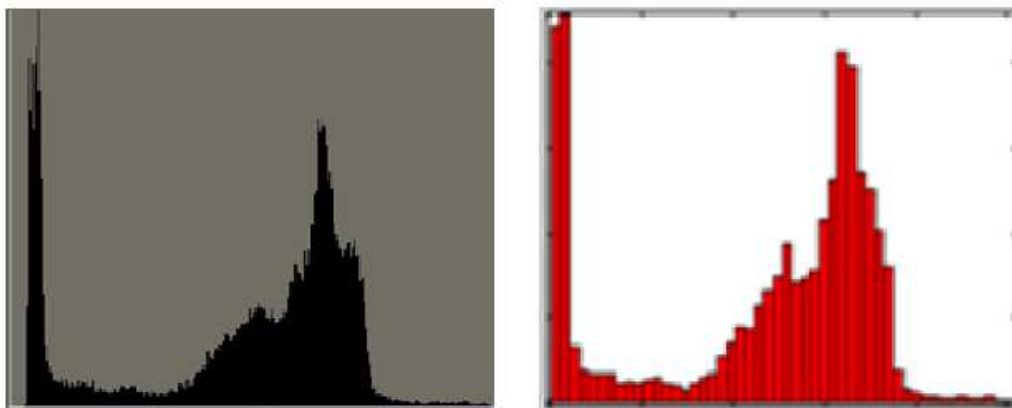
TABLE – 1 STATISTICS OF CAMERAMAN IMAGE

Mean	115.5
Median	141
Mode	8.56
Standard Deviation	64.01
Median Absolute Deviation	30
Mean Absolute Deviation	54.26

Below table shows the different wavelet based image compression algorithm at different decomposition level on cameraman image.

TABLE – 2 CAMERAMAN IMAGE COMPRESSION RESULT

Compression Algorithm	Decomposition Level				
	1	2	3	4	5
Haar	25	11	9	10	10
Daubechies	26	12	10	10	9
Biorthogonal	61	54	50	49	50
Symlets	62	55	51	52	52
Coiflet	62	55	50	49	49

FIGURE – 10 HAAR WAVELET IMAGE COMPRESSION CHART
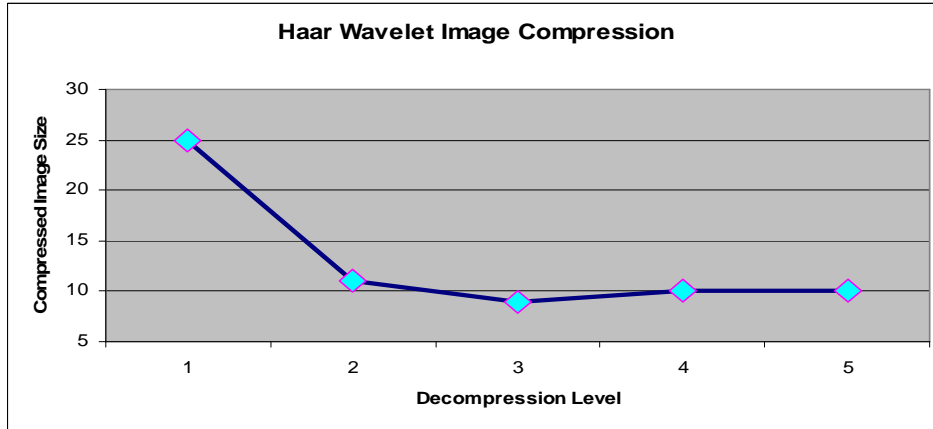
FIGURE – 11 DAUBECHIES WAVELET IMAGE COMPRESSION CHART
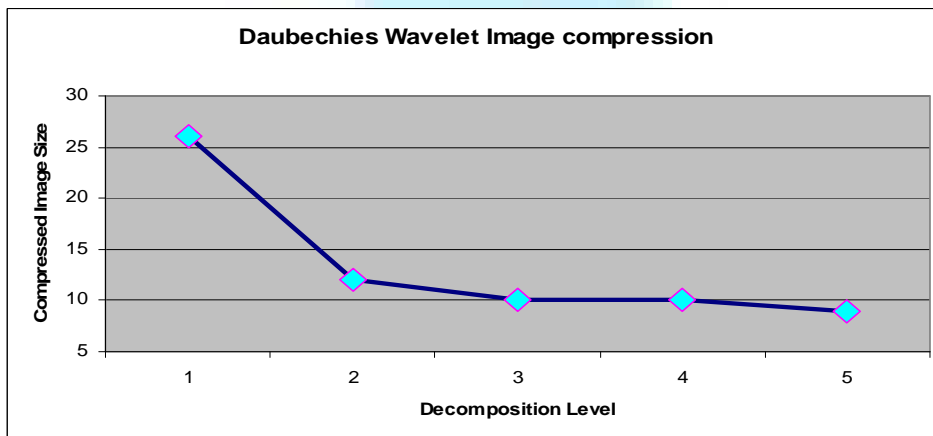
FIGURE – 12 BIORTHOGONAL WAVELET IMAGE COMPRESSION CHART
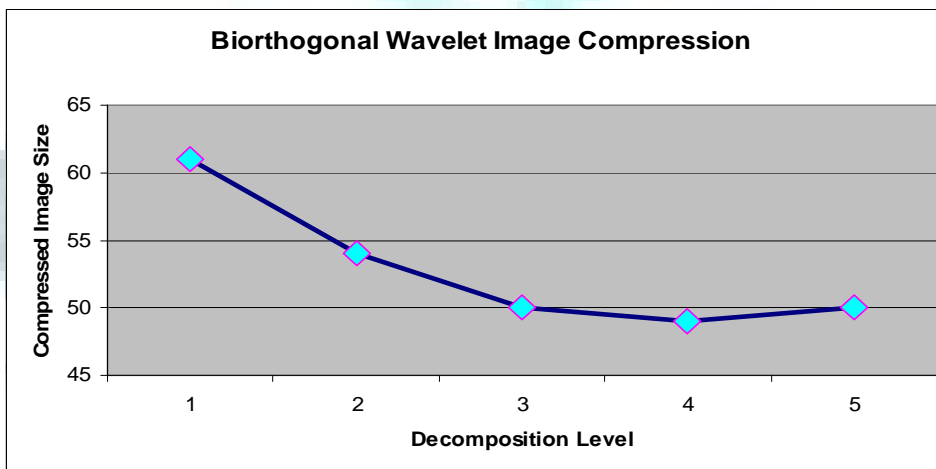
FIGURE – 13 SYMLETS WAVELET IMAGE COMPRESSION CHART
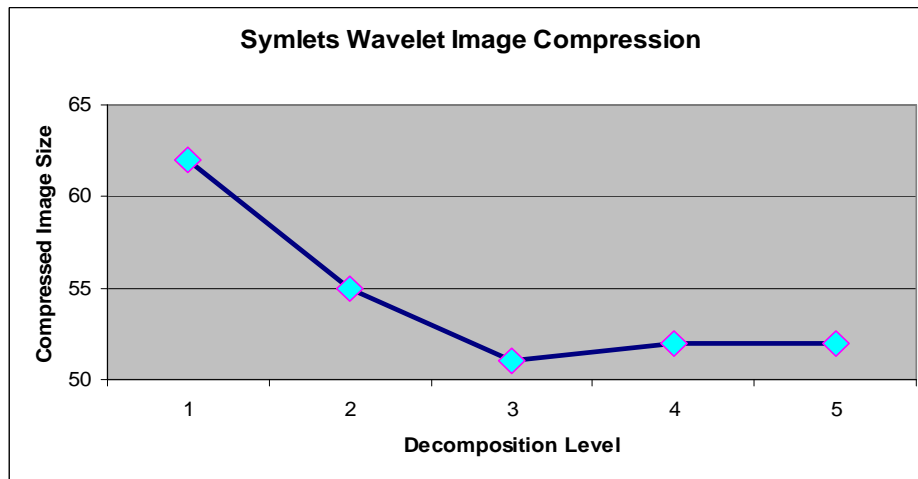
FIGURE – 14 COIFLET WAVELET IMAGE COMPRESSION CHART
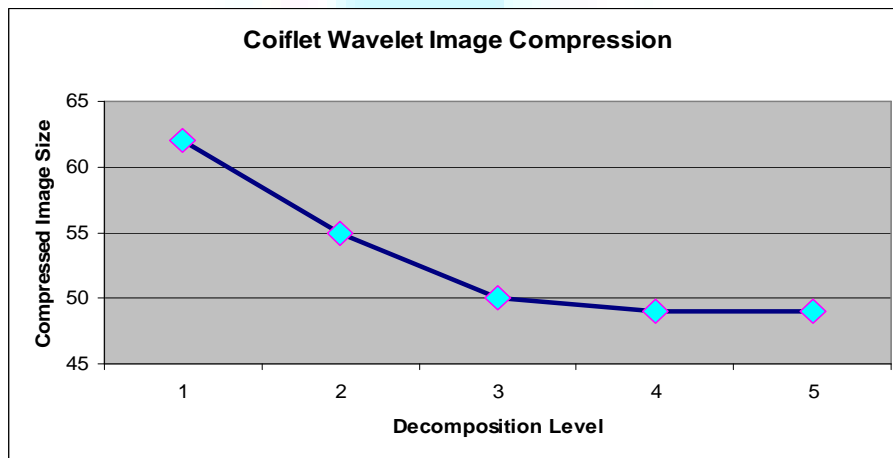
7.   CONCLUSION

From the experimental study of cameraman image of different algorithms at different level, it concludes that when you increase the decomposition level, the compressed image size is decrease which is shown in above table. This experimental study concludes that the best compression is performed by Haar and Daubechies wavelet image compression algorithm. Symlets, Biorthogonal and Coiflet wavelet image compression algorithms are also compressed the image at good level.

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A STUDY OF CONSUMER'S IMPULSE BUYING BEHAVIOUR WITH REFERENCE TO EFFECT OF PROMOTIONAL TOOL IN THE OUTLETS OF CHHATTISGARH

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ABSTRACT

The study aims to analyse sales promotion tools on impulse buying behaviour of consumers in organised Retail. Sales promotion is designed by retailers to gain attention of consumers who get influenced to visit a store which increases the chances of unplanned buying. Primary data is collected from 122 randomly selected shoppers in Bhilai city.For this a questionnaire was developed to collect the views and opinions of consumers. Descriptive data analysis along with ANOVA was applied to analyse the data. The results of this study indicate that price form of promotion have a significant impact on impulse buying.Moreover Non price form of promotion like premium,sweepstakes also influences consumer impulse buying decision which varies according to gender. The sample size for the current research is very small and is geographically limited to Bhilai. A larger sample with data collection from other cities may produce different results. Present study will contribute the retailer to form some strategies to increase the sales by using the most effective sales promotion tool on consumer.

KEYWORDS
impulse buying, retailer, Sales Promotion.

INTRODUCTION

In today's cut throat competition among business rivals, knowledge about the consumer is the first step toward a successful competitive strategy. To accumulate accurate information about consumer behaviour is the main purpose of marketing research. To understand why and how people acquire products is part of the focus of marketing concepts. The process used by individual in selecting, purchasing and using good and services is of utmost importance to the marketers. And the course of action which consumer adopts to purchase a product is the subject matter of consumer behaviour. Consumer behaviour may be defined as the decision process and physical activity that individual is engaged in when evaluating acquiring, using disposing of goods and services (Loudon and Bitta, 1988). The study of consumer behaviour is very complex but it is necessary for the marketers to know about their target market how they behave, what influences them to make a decision to buy and what process they follow when selecting a product or service, And to understand this behaviour is actually the study of consumer behaviour. During the decision-making process, consumers use rational thinking. However, there can be factors, such as time and the encouragement of peers that cause consumers to abbreviate the decision-making process to make purchase decisions and therefore exhibit irrational consumption behaviour, called "impulse buying" (Mowen and Minor, 1998). According to prior studies, Researchers have declared that vendors can make customers to be impulsive through some store incentives, promotions, product packaging, sales and other things (Dholakia 2000). Sales promotions are a marketing tool for manufacturers as well as for retailers. Manufacturers use them to increase sales to retailers (trade promotions) and consumers (consumer promotions). Our focus will be on retailer promotions, which are used by retailers to increase sales to consumers. Typical examples of retailer promotions are temporary price reductions (TPRs), coupons, premiums etc.

LITERATURE REVIEW

Sales promotion has become an indispensable tool of marketing and marketers are using it immensely for a couple of decades. One of the dominant reasons of its massive usage is its direct impact on the consumers' purchase behaviour (Ansari, 2011).The American Marketing Association (AMA) defined sales promotion as those marketing activities other than personal selling, advertising, publicity that stimulate consumer purchasing and dealer effectiveness such as display, shows and exhibitions, demonstrations and various non-recurrent selling efforts not in the ordinary routine.

According Kotler and Armstrong (2002), consumer promotion is a category of sales promotion including free samples, winning contests, different price packs, and sweep stakes. Sales promotion is projected to increase the sales of final ultimate consumers of the product.Many researchers found that sales promotion is an important marketing activity which increases the sales of the store.It is a technique which attracts consumer to check out the product and results into unplanned buying.Cooper, (1992) examined consumers' response to retailers' price promotions. The study suggests that the discounting and changes in purchase intention depend on the discount level, store image, and whether the product advertised is a name brand or a store brand.Ion and Faber in their research showed that people are buying more impulsively, more react to the promotional gifts (such as free gifts, Discounts, free samples, etc.) (Youn et al., 2000).

The operational definition of each tool investigated in this study is as follows:
- ✓ **TEMPORARY PRICE REDUCTION**is the percentage or cent offs on the price of any product.
- ✓ **COUPONS**are paper offers that are available in magazines and newspapers, may be downloaded from the Internet, or are available at the point-of-purchase and entitle the recipient to a reduction in price for a product or service.
- ✓ **PROMOTIONS**are packages with extra content.
- ✓ **PREMIUMS**are items offered free or at a reduced price with the purchase of another item.
- ✓ **SWEEP STAKES**are provides a chance to win a large prize based on chance or luck.

Impulse buying Impulse buying is simply defined as the sudden and immediate purchase decision inside a store with no prior intention to buy the specific product or products (Kollat& Willet, 1967; Beatty & Farrell, 1998). According to Rook (1987, p.191), "Impulse buying occurs when a consumer experiences a sudden, often powerful and persistent urge to buy something immediately. Stern (1962) in their studies refers the term "Impulse buying" as "unplanned buying"-that is, it describes any purchase which a shopper makes but has not planned in advance. According to him, impulse purchasing was classified as four types: pure, reminder, suggestion & planned impulse buying. Pure impulse buying is a novelty or escape-type purchase which breaks normal buying items. Second category i.e. Reminder impulse buying occurs when a shopper sees an item and remembers that the stock at home is low, or recalls an advertisement or other information and a previous decision to buy. Third type of impulse buying is Suggestion impulse purchasing which occurs when a shopper sees a product for

the first time and visualizes a need for it. Last category is planned impulse buying which occurs when a shopper enters the store with some specific purchases in mind but with the expectations and intention of making other purchases, depending on price specials, etc.

FIGURE 1: PRICE & NON-PRICE PROMOTION VARIABLES
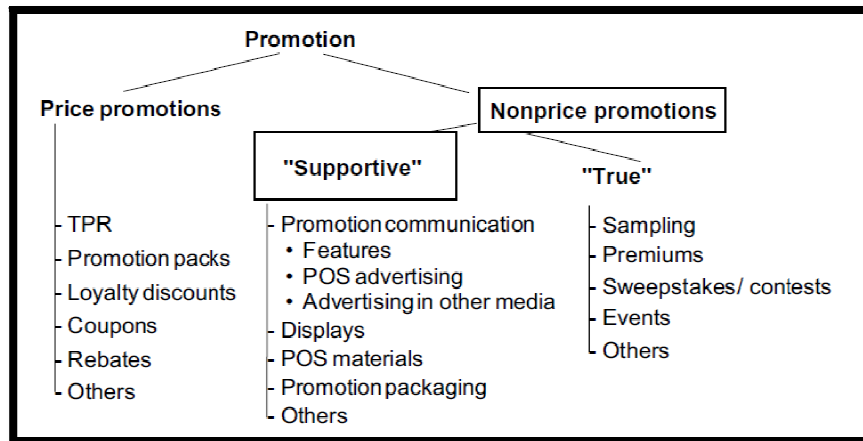
NEED / IMPORTANCE

With the emergence of organized retail in Chhattisgarh, drastic change in lifestyle and consumption patterns of consumers has been observed. People are now more inclined towards spending their weekend at malls, which influences them to visit stores. This lead to breakdown of traditional pattern of planned buying. Unplanned buying or impulse buying is a common phenomenon that usually takes place by a consumer nowadays. Many efforts have been given to analyse the purchase behaviour of consumers in previous studies. But impulse buying behaviour still needs to be explored. Nowadays marketers are smart enough to develop promotional strategies which instantly influence buying decision of consumers without giving them chance to plan their purchase.

FIGURE 2: SIZE OF INDIAN RETAIL (in US$ bn).
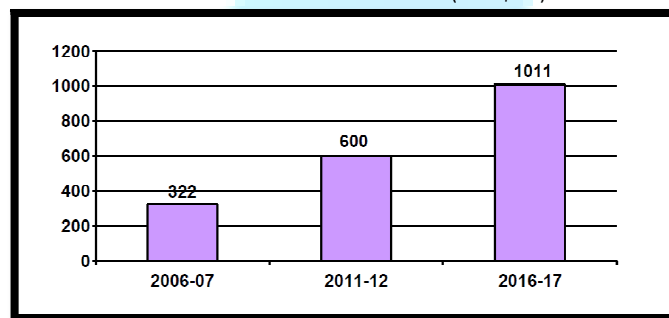
Source: Technopak Analysis, CSO and other sources

STATEMENT OF PROBLEM

The purpose of the research study is to test the Impact of the independent variables that is various sales promotion tools such as discounts, schemes & coupons regarding consumer purchasing with the dependent variable that is; impulse buying behaviour of consumers who shop in the malls of Raipur.Most of the researches had focussed on impact of various variables on impulse buying but less attention is paid on price and non-price forms of promotional variables.Since price has always been a majordeciding factor in every purchase, it becomes necessary to study the individual effect of price and non-price promotional tools so that marketers can plan their strategies accordingly. Therefore, this research will fill the gap in the promotions literature by addressing this topic with the following problem statement:

* How do price promotions influence impulse buying behaviour of consumers?
* How do nonprice promotions influence impulse buying behaviour of consumers?

RESEARCH OBJECTIVES

* To analyse various sales promotion tools which influences impulse buying among consumers?
* To find out the most influencing promotional tool towards impulse buying behaviour among consumers.

RESEARCH HYPOTHESIS

H1: Price form of promotions influences impulse buying behaviour among consumers.
H2: Non Price form of promotions influences impulse buying behaviour among consumers.

FIGURE 3: RESEARCH MODEL BASED ON PRICE & NON-PRICE VARIABLES.

RESEARCH METHODOLOGY
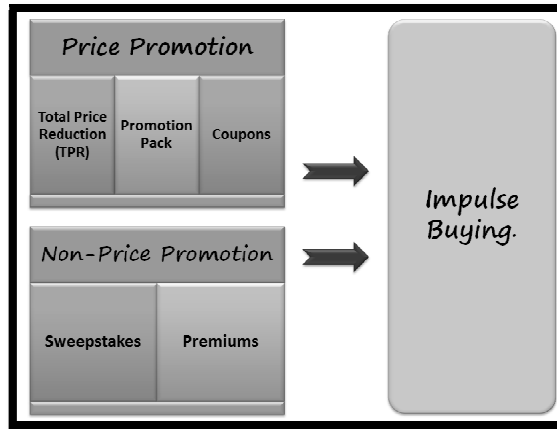
Research Approach	Survey Method was used for Collection of Primary Data. Questionnaire was developed to find the impact of promotion on consumers.
Research Instrument	Data collected with the help of Research Questionnaire with 5 pointLikert Scale consisting predetermined questions, given to the consumers to know their opinions and interest
Sample Unit	Consumers / Shoppers of Bhilai & Raipur City.
Sample size	122 consumers randomly selected from Business man, Service class, Household persons & Students.
Sampling Design	Convenient sampling was used to collect the data.

RESULTS & DISCUSSION

TABLE 1: ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5349	14	382.07	0.56	0.88	1.92
Within Groups	30538	45	678.62			
Total	35887	59				

For analysis the questionnaire uses single factor ANOVA to test the difference among the mean of price and non-price form of promotion.

Analysis on the data shows that, calculated F value is less than critical F value (table value).Hence, the null hypothesis is accepted i.e. Price form of promotions influences impulse buying behaviour among consumers.

FINDINGS

Majority of respondents belong to students (i.e. 31%). The second largest group is that of serviceclass,which comprises of 30 % of whole sample. From the table it can be seen that most of the respondent have no definite time period to visit the mall.

TABLE 2

Frequency of visiting the mall	BUSINESS MAN	SERVICE	HOUSEHOLDS	STUDENTS	Total
Once in a week	05	04	0	03	12
Once in a month	02	10	06	09	27
Bi-monthly	03	03	02	04	12
No definite time period	14	19	15	23	71
TOTAL	24	36	23	39	122

It is found that most of the visitors visit mall for shopping which is 61 i.e. 50 % of the survey. Further it can be seen that most of the students visit malls for spending leisure time.

TABLE 3

Purpose Of Visiting The Mall	Business Man	Service	Households	Students	Total
Shopping	13	23	13	12	61
Spending Leisure Time	04	08	06	16	34
Watching Movie	05	03	03	09	20
Other	02	02	01	02	07
Total	24	36	23	39	122

RECOMMENDATIONS

Retailers need to create sufficient awareness about various sales promotion tools categorised under price and non-price tags. Almost all the female buyers are easily attracted towards price promotional tools as compared to male buyers. Therefore marketers need to design price and non-price promotion specifically focussed more on males. Further retailers should focus on identifying the psychology of consumers which motivates them for impulse buying due to sales promotion. By understanding the insights of motives of consumer retailer can identify exact sales promotion technique which influences the consumers mostly. Through this he can plan the marketing activities which will be implemented to boost the sales an also helps the retailer to make the consumer loyal towards his product.

CONCLUSION

The results of the study show that, price form of promotion influences impulse buying among consumers.TPR is the major tool which mostly influences the consumer as it provides direct off on the product.Mostly females are more attracted towards TPR.Further it is seen that coupons and promotion packs which are other forms of price promotion also influences impulse buying behaviour of consumers. Non price form of promotion such as premiums and sweep stakes have lesser impact on impulse buying behaviour. As premium packs provides assured free gifts with product which sometimes seems to be not so much useful for

consumers. Sweepstakes on other hand does not assures gift but gives a chance to consumer to win a prize which is based on chance .So consumers are having lesser influence of this promotion tool on impulse buying behaviour.

SCOPE FOR FUTURE RESEARCH

In this paper, research is made by taking various variables altogether. Each variable can be studied individually so that effectiveness of individual variable can be studied more accurately. Further investigation can also be done on the basis on other demographic aspects. Moreover, segment specific research can be done to learn how differently these promotional variables influence buying decision in different segment.

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STUDY OF CONSUMER BEHAVIOR IN CELL PHONE INDUSTRY

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ABSTRACT

The number of cellphone users has increased in large in past few years from few hundreds to now in millions. Earlier phone was considered as a mode of communication for people in distant locations and that too in case of any emergencies. But now the things are entirely different. Cell phones have become utmost necessity of every one of all age people. The study attempts to investigate the basic reason and mindset of consumer while purchasing a cell phone handset and its service. The researcher has surveyed 145 cell phone consumers from Pune and Pimpri-Chinchwad area. The result indicates that the price, appearance and user friendliness were considered as the prime factor while purchasing a handset, and cost, quality of service and network connectivity were considered as the most influential factor in terms of service provider selection. This paper concludes by proposing a model for understanding the consumer behavior in cell phone industry to enhance the consumer satisfaction.

KEYWORDS
Cell phone, Consumer, Network Coverage, Quality of Service.

INTRODUCTION

The growing market of telecom sector from wired to wireless has bring the mobility in terms of consumer requirements. In early 1980's telephone was considered as the only mean of communication to people at remote locations. With change in science and technology the mode of communication has also emerges with new trends. In past decades the telecommunication sector has changes from wired to wireless to mobility communication. As per telecom statistics the communication media and corresponding number of users for wired to wireless has changed remarkably from few hundred to several millions. According to figures released by Telecom Regulatory authority of India in their press releases, India has now crossed around 900 million Telecom subscribers across the country by the end of year 2012. Mobile number Portability requests from customers have also increased significantly in last couple of years. With revolutionary change in 2G and 3G services, the subscriber is more demanding in terms of several Value Added services.

CHART 1: SHOWING OPERATOR WISE MONTHLY MOBILE SUBSCRIBER ADDITION
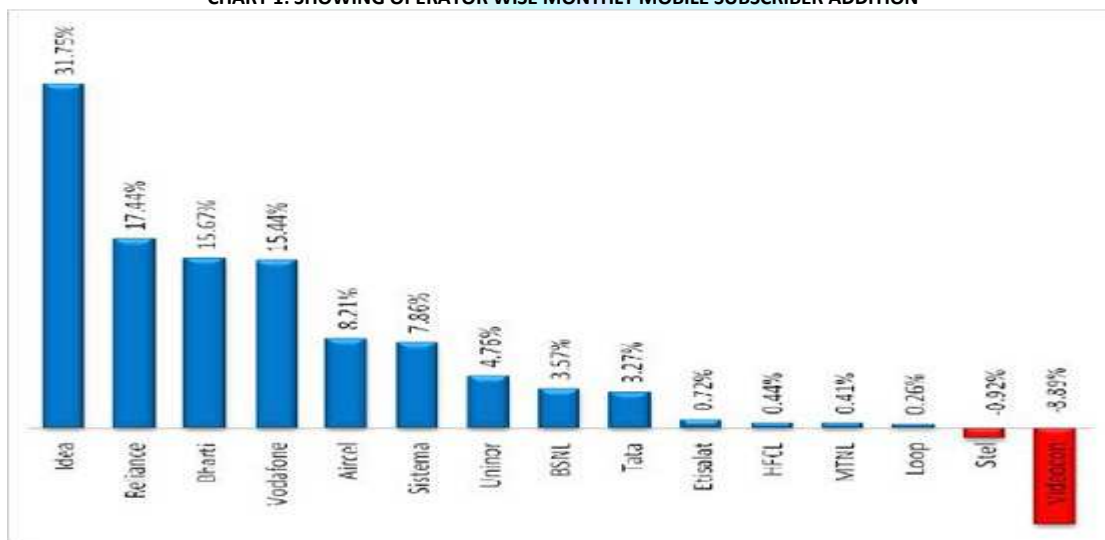
Source : COAI statistics

This mobility in communication technology allows people to be in touch with each other anytime and anywhere. With increasing technology the consumer is now becoming more and more demanding in terms of availing the services. Consumer awareness towards service quality is providing a new dimension in forcing the service quality standards. This paper studies the basic motive of cell phone service factors that affect the consumer behavior. The paper describes the cell phone service factors including various value added services which are availed by 2G and 3G consumers.

Mobile Technology : 1G, 2G, 3G, 4G...

The first generation cell phones were based on analog technology and were started in late 1970s. The digital technology based cell phones were started with voice and data based services in early 1990s. This 2nd generation cellular service was based on multiple digital standards including GSM, CDMA and Personal digital Communication. Multiple text and graphics rich packets transmission started with 2.5 generation mobile services. The third generation technology has added many multimedia facilities to existing 2G technology. 3G cellular service providers provide various value added services to subscribers with very high speed under a common standard known as UMTS – universal Mobile Telecommunication System. The fourth generation mobile technology can speed up the transmission up to 50 times higher than that of 3G technology.

LITERATURE REVIEW

The telephony market in India has started long back in 1990s. In 1994 Government had issued licenses for cellular mobile services only for metropolitan cities : Delhi, Mumbai, Kolkata & Chennai. In past few years the telecom scenario has spread like a web among consumers. The change in technology from 0g to 3g, has changed the consumer mindset. Quality is highly correlated with customer satisfaction & customer satisfaction is affected by the customer behavior. Customer is the consumer who assesses the quality from consumer perception.

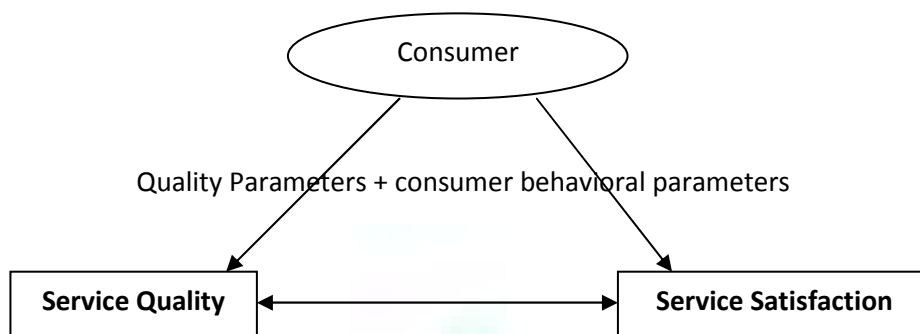**FIG. 1: CONSUMER RELATION WITH SERVICE QUALITY AND SERVICE SATISFACTION**

TABLE 1 : ATTRIBUTES AFFECTING THE CONSUMER BEHAVIOR

Quality Attributes	Behavioral Attributes	Service Satisfaction
Cost	Economical Attributes	Low cost
Network Coverage	Psychology Attribute	Getting connected with good network
Customer care	Sociology (emotional)	Having a feeling that someone take care of our service
VAS	Desire, Ease of Use	Availability of applications with comfort
Cell phone make	Appearance , Brand image	Model appearance and Handy
Cell phone look	Appearance	Model appearance and Handy

Table 1 shows the quality and behavioral attributes affecting the service satisfaction of customer. Past survey on telecom sector and several TRAI press releases shows that with increase in number of subscriber in cell phone world, more and more services are offered by service providers to attract the more and more customers. But the consumer behavior which is changing with day by day is not taken in to consideration while expanding the market.

Consumer behavior is varying depending upon the consumers' perception towards expected service quality and accordingly service satisfaction also changes. As per Telecom Regulatory Authority of India (TRAI) the desired key attribute for cell phone service sector to bring the customer satisfaction are[1] :

1. Provision of service
2. Billing performance
3. Help services
4. Network performance, reliability and availability
5. Maintainability
6. Customer satisfaction with offered supplementary services
7. Overall customer satisfaction

Customer satisfaction is affected by consumer behavior. The service quality awareness among consumers has changed consumer behavior towards their service need and service expectations. People get fascinated very fast with new emerging telecom trends. But this fascination some times last only for few months and then dissatisfaction starts. The need arises to understand such change in consumer behavior towards such telecom market to get the fruitful market growth. In this paper the defined parameters as given by TRAI are studied from consumer behavior and are analyzed accordingly.

As per the telecom regulatory Authority of India customer satisfaction for cell phone users can be measured through service quality parameters. These quality parameters need to be defined separately for tangible and non-tangible characteristics. Consumer market is attracted by both the service effectiveness of non-tangible characteristics as well as with the appearance of tangible things.

A recent survey conducted by Govt. on 2g and 3g users through online portals, it has been observed that the 2g and 3g market may run successfully if they are launched and marketed to the right consumers and as per their demand and needs. (Survey on 3Gportal.com by Trifica, Jones 2002). The paper also studies the consumer affection and demand towards various popular 3G Value added services

RESEARCH METHODOLOGY AND DATA ANALYSIS

Survey based research methodology is used by the researcher. Primary data is collected through questionnaires within Pune and Pimpri Chinchwad area. The targeted consumers divided in to three age groups. Groups are divided with reference to age group below 18, 18 to 25 and above 25 years. Total 147 valid data was collected comprising of 102 male and 45 female respondents. Questions having the choice of cell phone handset and service features are collected from various consumers on five point Likert scale.

A survey conducted by the author on 147 cellphone users indicate that age is one of the factor which differentiate the consumer choice towards service quality. Students prefer good and slick model of handset compared to the old traditional model. 88% consumers of age group 18 to 25 years prefer cell phone for entertainment. Only 12% youngsters thinks that cell phone should be used with only incoming and outgoing mode. Questions were set based on TRAI (Telecom Regulatory Authority of India) service quality press releases based on set QoS (Quality of Service) parameters. Questionnaire is divided in to four categories :

A. General Information
B. Usage of Mobile Services (2G Users)
C. Usage of Mobile Services (3G Users)
D. 3G VAS Benefits
E. Comments (Open Ended Question)

Secondary data is collected through published articles, journals and press releases related to cellular services and consumer satisfaction. Telecom Regulatory Authority of India and Cellular Operators' Association of India (COAI) has been used as the major source of secondary data.

RESULTS AND OBSERVATIONS

- Majority of students procured their first cell phone at the age below 18 years. Between 18 to 26 years of age 92% consumers are used of their cell phone and uses 2nd or sometimes 3rd cell phone.
- 72% consumers of age group below 18 years uses their cell phone as prime mode of entertainment. While 22% consumers mostly students uses it primarily for communication to their friends, relatives. 6% consumers are neutral about the basic use of their cell phones.
- 90% consumers of age group below 18 and between 18 to 25 years prefer sleek model with value added services in 2G or 3G services.
- 88% girls prefer good looking phone and never restrict themselves with branded phone. Usually such group prefers china made phones or the model with maximum supporting applications. For them mode of communication is secondary need. Majority of student community fall into this category.
- 85% targeted group belongs to student category and 15% belongs to some employment.

FACTORS AFFECTING THE MOBILE PHONE SELECTION

Price and additional features (Value Added Service) have been observed as the most important factors while purchasing a cell phone. 62% consumer look towards cost as the prime factor and 38% consider VAS as the main factor affecting the decision of cell phone purchase.

- 88% youngsters prefer the current model but cost comes as the major hurdle for them.
- 55% Consumer prefers branded cell phone but their decision depends upon their guardian or financer.
- A factor analysis on 10 factors for cell phone selection suggests that three prime factors are there whose eigen value is close to and larger than 1.0. The first factor is cellular brand who is having highest loading factor related to four variables : VAS, Screen Appearance, Voice Quality and Lookup. The 2nd and 3rd factors are cell phone market condition and influential resource respectively. Price, Memory and Make of cell are the major variables affecting the decision of consumer while procuring the cell phone and depends upon the cell phone market condition.

TABLE 2 : FACTOR ANALYSIS ON CELL PHONE SELECTION

Factors			
Choice Factor Variables	Cell phone Brand	Cell phone Market condition	Resource person (Influenced by)
Value Added Services	.88		
Screen Appearance	.72		
Voice Quality	.70		
Lookup	.69		
Price		.81	
Memory		.72	
Make			.77
Advertisement			.68
Friends			.44
Family			.28

FACTORS AFFECTING THE CELL PHONE SERVICE PROVIDER SELECTION

The variables which affect the decision of consumer regarding the cellular operator selection include network range, call drop frequency, customer care service by operator, price, free calls facility and SMS facility, VAS. Operator selection is influenced mainly by three factors :
1. Network coverage quality
2. Customer care quality
3. Charges (Billing).

The first factor Network Coverage has the highest loadings for service provider in terms of service quality and consumer satisfaction.

TABLE 3: FACTOR ANALYSIS ON SERVICE PROVIDER SELECTION

Factors			
Choice Factor Variables	Service provider Brand & Quality	Service provider Market condition	Resource person (Influenced by)
Network Coverage	.81		
Voice Quality	.80		
Customer care	.77		
Value Added Services	.76		
Billing charges		.84	
Free call facility		.73	
Advertisement			.42
Friends			.25
Family			.24

The choice of service operator was primarily affected by network availability. Around 81% consumer thinks that network coverage could be the highest priority while considering the service provider by name. 84% consumer relates billing as the highest factor but in relation with market conditions. Depending upon market value their decision for service provider selection varies. Table 3 shows the factor analysis of nine statements. Three identified factors were 1) service provider brand & quality, 2) Market condition, 3) Influential person. Four factors have the highest loadings for brand image and service quality. Two variables strongly affect the market condition. While last three variables have strong loadings for influential person factor.

SERVICE QUALITY AND CONSUMER PERCEPTION

Consumer behavior is the study of experiences which every individual, group of people or any organization gets towards some service, or some product use or any other. Consumer behavioral attributes are basically related to psychological, sociological and economical factors. But it is very difficult to predict the consumer behavior as it is affected by four different roles: the customer (the actual buyer), the service provider(brand), the seller(shop keeper) and the actual user. This study considers the consumer behavior from actual user point of view. Perception of every individual differs from consumer to consumer. Gender and age influences the consumer selection and perception towards service provider selection and cell phone selection. Students and young consumers of age group 18 to 24 years are more influenced by their friends and advertisements.

The study indicates that the psychological attributes with ease of use and availability of value added services with minimum expense put a positive influence on the utilization of perceived services. Consumer perception of age group 18 to 24 years towards service quality differs from that of age group 25 and above.

CONCLUSION

This study was conducted to understand the cell phone market and consumer decision related to cellular services and cellular product. The main observation of this study are as follows :
1. Though the study was conducted considering the average minimum age of cell phone users as 18 years but the study shows that the minimum age of cell phone users has lowered down from 18 years to 12-14 years.
2. Basic factors affecting the cellular service provider selection are service provider brand, their market conditions and influential person(s) along with their impact on variables like network coverage, billing, customer care, value added service and free call facilities.
3. Basic factors affecting the cell phone selection are service provider brand, their market conditions and influential person(s) along with their impact on variables like screen, appearance, price, memory and additional applications and features.

This study reveals the consumer perception towards the cell phone service and cell phone model selection. Results may vary from consumer to consumer. Although price and features appeared to be the preferred choices of consumer but value added services like internet surfing, call tracking applications and other advanced applications were also considered as important factors. These value added service did not considered under the scope of study, but these were reflected as general consumer perception as answered by many consumers in open ended question.

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43

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ANOTHER APPROACH OF SOLVING UNBALANCED TRANSPORTATION PROBLEM USING VOGEL'S APPROXIMATION METHOD

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ABSTRACT

Solution of any Transportation Problem (TP) necessitates Initial Basic Feasible Solution (IBFS) to get optimal schedule of shipment of goods. The better the initial solution is, less computational efforts and less time is required to generate optimal solution. One of the most powerful methods to determine IBFS is Vogel's Approximation Method (VAM) among many other methods available in the vast literature of TP. Very few literature are available on handling unbalanced TP using VAM. Initial solution of unbalanced TP is very much based on how VAM process 'ZERO' in the dummy cells. For this purpose we have presented another approach of getting IBFS of unbalanced TP using VAM and to test efficiency of proposed heuristic with the existing methods for the same VAM and VAM-Total Opportunity Cost (TOC).

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C630 Computational Techniques

KEYWORDS
Initial Basic Feasible Solution, Real Allocations, Total Opportunity Cost, Unbalanced Transportation Problem, Vogel's Approximation Method.

1.0   INTRODUCTION

The Transportation Problem (TP) deals with a situation in which a single product is to be transported from several sources (S) (called origin, supply / capacity centers) to several sinks (called destination, demand / requirement centers). In general, let there be m sources S_1, S_2, ... S_m having a_i (i=1,2,...,m) units of supply or capacity, respectively, to be distributed among n destinations (D) D_1, D_2,..., D_n with b_j (j=1,2,...n) units of requirement, respectively. Let c_{ij} be the cost of shipping one unit of the commodity from sources i to destination j for each route. If x_{ij} represents number of units shipped per route from source i to destination j, then the problem is to determine the transportation schedule so as to minimize the total transportation cost satisfying supply and demand condition. That is, the problem is to determine how quantity of goods to be shipped from each origin to several destinations so as to minimize the total transportation cost.

Mathematically, Transportation Problem is stated as follows:

Minimize (total cost) Z = $\sum\limits_{i}^{m} \sum\limits_{j}^{n} c_{ij} * x_{ij}$

Subject to the constraints

$\sum\limits_{j}^{n} x_{ij} = a_i$, ▼ i = 1,2,...,m (supply constraint)

$\sum\limits_{i}^{m} x_{ij} = b_j$, ▼ j = 1,2,...,n (demand constraint)

$x_{ij} \geq 0$ for all i and j
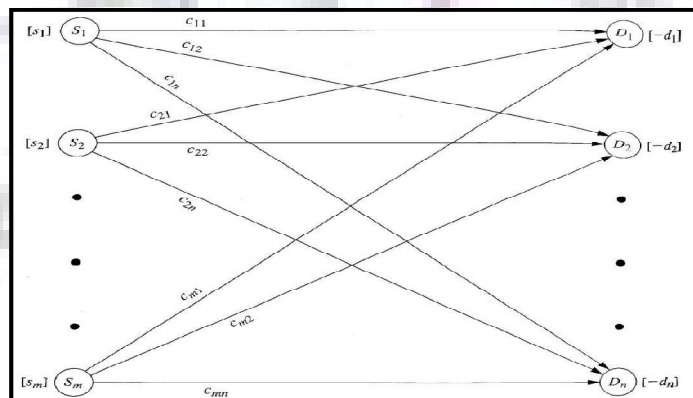
Original Unit Transportation Cost Matrix is known as TC matrix. Kirca and Satir [6] first transformed the TC Matrix to Total Opportunity Cost Matrix (TOCM), where for each row / column in the original TC Matrix, Row Opportunity Cost Matrix (ROCM) / Column Opportunity Cost Matrix (COCM) is generated by subtracting the smallest cost in the row /column from other cost elements in the same row / column. Transportation Cost Matrix obtained by adding corresponding elements of ROCM and COCM is known as TOCM; i.e. TOCM = ROCM + COCM. Kirca and Satir [6] effectively use the Greedy algorithm (LCM) with some tie-breaking rules on the TOC matrix to generate an IBFS to the TP. Mathirajan and Meenakshi [7] used VAM on the TOC matrix instead of TC matrix which showed significant improvement in IBFS. Now we shall develop TOC Matrix of a balanced TP using an example. Table – 1 and Table – 2 shows the TC and TOC matrix respectively as shown below:

TABLE – 1					TABLE – 2				
Balanced Transportation Problem (**TC**) Matrix					Balanced Transportation Problem (**TOC**) Matrix				
↓S \ D →	A	B	C	Supply	↓S \ D →	A	B	C	Supply
01	2	7	4	50	01	1	9	5	50
02	3	3	1	80	02	4	2	0	80
03	5	4	7	70	03	5	1	9	70
04	1	6	2	140	04	0	8	2	140
Demand	70	90	180	340	Demand	70	90	180	340

Necessary and sufficient condition for the existence of a feasible solution to the transportation problems is called **rim condition** given by
Total Supply = Total Demand i.e. $\Sigma\ a_i = \Sigma\ b_j$

Most of the TP are Unbalanced in nature. If total demand is not the same as total supply, the problem is called **Unbalanced Transportation Problem**.

(i)   When the total capacity of the origins exceeds the total requirement of destinations (**Supply Imbalance TP**), a dummy destination (column) is introduced in the transportation matrix which absorbs the excess capacity. The cost of shipping from each origin to this dummy destination is assumed to be zero. The insertion of a dummy destination establishes equality between the total origin capacities and total destination requirements. The problem is then amenable for solution by the transportation algorithm. For some of the unbalanced TP, the dummy values are taken as positive numbers. Few TPs use unit inventory holding costs in the cells of dummy column.

(ii)   When total capacity of origins is less than the total requirement of destinations   (**Demand Imbalance TP**), a dummy origin (row) is introduced in the transportation matrix to meet out the excess demand. The cost of shipping from the dummy origin to each destination is assumed to be zero. The introduction of a dummy origin establishes the equality between the total capacity of origins and the total requirement of destinations. The problem is then amenable for solution by the transportation algorithm. For some of the unbalanced TP, the dummy values are taken as positive numbers. Few TPs use unit shortage cost in the cells of dummy row.

An attempt to get better initial solutions for the problem is made so that computational effort at the second step becomes easier and less number of iterations is required to determine the optimum solution. A number of heuristic are available to get an initial basic feasible solution. Although some heuristics can find an initial feasible solution very quickly, often the solution they find is not very good in terms of minimizing total transportation cost. On the other hand, some heuristics may not find an initial solution so quickly, but the solution they find is often very good in terms of minimizing total cost. Well known heuristics methods are North West Corner Rule, Least Cost Cell Method, Vogel's Approximation Method (VAM) [1, 2]**.** Shimshak [3] et al's version of VAM, Goyal's [4] version of VAM, Ramakrishnan's [5] version of VAM show improvement in determination of initial feasible solution for large scale Transportation Problems. Kirca and Satir [6] developed a heuristic to obtain efficient initial basic feasible solution, called **T**otal **O**pportunity **C**ost (**TOC**). Mathirajan and Meenakshi [7] extended TOC using the VAM procedure. They coupled VAM with the total opportunity cost TOC and achieved very efficient initial solutions. An **I**mproved version of VAM (**IVAM**) was suggested by Serdar Korukoglu and Serkan Balli [8]. Goyal [4] and Ramakrishnan [5] proposed to use maximum shipping cost as the cost in the dummy cells. Hence they discourage making allocations in the cells of dummy row / dummy column until last step.

Usually the zero cells in dummy row / dummy column are treated the same way as real cost cells and then the problem is solved as balanced problem. Various heuristics are available for finding IBFS of Transportation Problem. One of the most efficient methods to determine IBFS is VAM. Allocations in the TP matrix always depend on all previous allocations. While applying Original VAM to find IBFS of any Unbalanced TP, first allocation is made to dummy cell in the problem matrix. Hence, actually we begin the solution with allocation in a dummy (fictitious) cell first, which is least preferred for making allocation. However the cost in the dummy cells is zero, it does not add to the initial cost of transportation, it affects the remaining allocations in the matrix and quality of initial solution of unbalanced TP. However, insertion of dummy row below the real origins / dummy column after the real destinations suggests that we desire allocations to be done in corresponding dummy cells at last.

2.0   ANOTHER METHOD FOR SOLVING UNBALANCED TRANSPORTATION PROBLEM

In this article we propose that zero / non-zero cost dummy cells should not be treated as real cost cells until last allocation. It should also be taken care that at any stage dummy cells should not be considered for computing penalties or shipment of goods while using VAM for getting IBFS of unbalanced TP. All initial allocations are done in '**REAL**' cells and allocations to dummy cells are done at the end. We shall call this method '**VAM-R'**. Goal of this methodology is the same suggested by Goyal [4]. Objective of this paper is to compare IBFS obtained using proposed algorithm with solution using original VAM applied to unbalanced TP and solution using original VAM applied to TOC matrix of unbalanced Transportation (VAM-TOC).

2.1   PROPOSED ALGORITHM – [VAM-R]

Following is the algorithm for another method of solving unbalanced transportation problem.

Step 1: Balance the given transportation problem if either (total supply > total demand) or (total supply < total demand).

Step 2: Determine the penalty cost for each row and each column by subtracting the lowest cell cost in the row or column from the next lowest cell cost in the same row or same column.

Here ignore computing penalty for dummy row / dummy column. Also ignore zero / non-zero dummy cell values while computing penalties.

Step 3: Select the rows or columns with the highest penalty costs. If tie occurs in highest penalties among rows or columns, then select least cost cell in those rows or columns. Further if there is tie in least cost cells, select the cell with maximum possible allocation at lowest cost. (i.e. allocating as much as possible to the feasible cell at the lowest transportation cost.) If tie occurs in allocating maximum possible amount then select cell in the row (column) with maximum supply (demand).

Step 4: Strike off the row or column for which supply or demand is exhausted.

Step 5: Repeat steps 2-4 on the reduced matrix until all requirements have been met in such a way that allocation(s) in the dummy cells will be done at the end.

Step 6: Compute total transportation cost for the feasible allocations using the original   transportation cost matrix.

To compare our method with Goyal's method [4], we have taken an example illustrated by Goyal [4] and then solved using both methods. The results are shown in Table – 3, Table – 4 and Table – 5 respectively. These tables show TC matrix illustrated by Goyal, IBFS using Goyal's method and IBFS using VAM-R.

TABLE – 3

↓From \ To →	1	2	3	Available
A	06	10	14	**50**
B	12	19	21	**50**
C	15	14	17	**50**
Required	**30**	**40**	**55**	**125 / 150**

IBFS using Goyal's Method is shown below.

TABLE – 4

↓From \ To →	1	2	3	Dummy	Available
A	06	10 [40]	14 [10]	**21**	**50**
B	12 [30]	19	21	**21 [20]**	**50**
C	15	14	17 [45]	**21 [5]**	**50**
Required	**30**	**40**	**55**	**25**	**150**

IBFS using proposed algorithm [VAM-R] is shown below.

TABLE – 5

↓From \ To →	1	2	3	Dummy	Available
A	06	10 [40]	14 [10]	0	50
B	12 [30]	19	21	0 [20]	50
C	15	14	17 [45]	0 [5]	50
Required	30	40	55	25	150

2.2   COMPARISON BETWEEN VAM, GOYAL'S METHOD AND VAM-R

IBFS using VAM-R algorithm is better than solution using conventional VAM for unbalanced TP. It is interesting to note that both method, Goyal's method and VAM-R, give the same initial solution which comes out to be 1665. However optimum solution is 1615. If we solve the same problem using VAM it requires **2** improvements while Goyal's method and our method require only one improvement for the same optimum solution. Goyal [4] suggested that the costs of transportation in dummy cells are assumed equal to the highest unit transportation cost before applying VAM. With this modification to applying VAM for unbalanced TP, the allocation of units in dummy cells is given least priority. VAM-R algorithm differs from Goyal's modification to applying VAM in two ways. One, it considers transportation costs in the dummy cells equal to zero as compared to highest unit transportation cost suggested by Goyal [4]. Second, values in the dummy cells are avoided while computing penalties for each row and each column at every stage and hence they are avoided for making allocation until last real allocation is done.

Next, we shall take another example to illustrate our method when dummy cell values are zero.

Example-1: - Here we wish to minimize the cost of advertisement (Rs.) in different age-group (13-18, 19-25, 26-35, above 35) using different media (M1, M2, M3). Vohra N. D. [9]

Table – 6 and Table – 7 respectively shows the original TC matrix and IBFS using VAM.

TABLE – 6

Media	←- Age Groups --→				Supply
	13-18	19-25	26-35	> 35	
M1	10	07	10	10	40
M2	12	09	12	10	30
M3	14	12	09	12	20
Demand	30	25	15	10	80 / 90

TABLE – 7

Media	←- Age Groups --→				Dummy	Supply	Penalties				
	13-18	19-25	26-35	> 35			P1	P2	P3	P4	P5
M1	10 [15]	07 [25]	10	10	0	40	7	←(3)	0	0	-
M2	12 [10]	09	12	10 [10]	0 [10]	30	←(9)	1	2	2	←(2)
M3	14 [5]	12	09 [15]	12	0	20	9	3	←(3)	2	2
Demand	30	25	15	10	10	90					
P1	2	2	1	0	0						
P2	2	2	1	0	-						
P3	2	-	1	0	-						
P4	(2) ↑	-	-	0	-						
P5	2	-	-	(2)↑	-						

IBFS USING VAM

We obtained IBF non-degenerate Solution Using VAM as Rs. 750.

This solution requires 1 improvement to reach optimum solution as Rs. 740

Now we shall solve the same example using VAM-R which results in optimal solution as shown in Table – 8.

TABLE – 8

Media	←- Age Groups --→				Dummy	Supply	P1	P2	P3	P4
	13-18	19-25	26-35	> 35						
M1	10 [15]	07 [25]	10	10	0	40	←(3)	0	0	-
M2	12 [15]	09	12	10 [10]	0 [5]	30	1	2	2	←(2)
M3	14	12	09 [15]	12	0 [5]	20	3	←(3)	2	2
Demand	30	25	15	10	10	90				
P1	2	2	1	0	X					
P2	2	-	1	0	X					
P3	↑(2)	-	-	0	X					
P4	2	-	-	↑(2)	X					

IBFS USING VAM-R   IBF non-degenerate Solution Using VAM-R is Rs. 740

which is **Optimum Solution**.

Hence proposed algorithm, VAM-R, works efficiently on unbalanced TP as it reduces the computational task, i.e. number of iteration(s) required for improvement of IBFS to get optimum solution and time required to reach optimum solution. Also the number of penalties has reduced.

Remark:-

1. Here P1, P2 … P4, P5 denote respective row penalties and column penalties.

2. 'X' denotes that 'no' penalty is computed for dummy column.

3. Values in **[ ]** show actual non-zero allocation in corresponding cells.

4. ←(3) under P1 denotes highest penalty to be considered for allocation in the lowest cost cell in row M1 and so on.

Example-2: - Next, we take an example where dummy values are non-zero.

TABLE – 9

↓ Supplier \ Outlet →	O1		O2		O3		Supply
S1	5		1	[10]	7		10
S2	6	[60]	4	[10]	6	[10]	80
S3	3	[15]	2		5		15
Demand	75		20		50		145 / 105

Table – 9 shows original TC matrix.

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47

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TABLE – 10

↓ Supplier \ Outlet →	O1	O2	O3	Supply
S1	5	1 [10]	7	10
S2	6 [60]	4 [10]	6 [10]	80
S3	3 [15]	2	5	15
Dummy	5	3	2 [40]	40
Demand	75	20	50	145

Table – 10 shows IBFS using VAM-R algorithm. IBFS using VAM-R is Rs. 595 which is the same as **Optimum Solution**. Here, **non-zero** cell values in the dummy column represent unit penalties for unsatisfied demand at respective retail outlet. Thus, VAM-R works efficiently in case of non-zero dummy cell-values.

3.1   COMPUTATIONAL EXPERIMENT AND MEASURES OF PERFORMANCE

Quality of any heuristic is major concern because closer the IBFS to optimum solution, less number of iterations is required to determine optimum feasible solution. For testing efficiency and evaluating performance of the proposed algorithm, VAM-R, with available heuristics, VAM and VAM-TOC, computational experiment were carried out on a set of **12 unbalanced TP** of both type – Supply Imbalance and Demand Imbalance; with zero and non-zero values in dummy cells. Performance measures used to determine efficiency of proposed heuristic are as follows:

1) Percentage of Optimum Solutions by each heuristics and
2) Average Number of Iterations required to obtain optimal solution using the initial solution by any heuristic.

3.2   ANALYSIS AND COMPARISON

Comparison of Percentage of Optimum Solutions and Average Number of Iterations required determining optimal solution using the initial solution by any heuristic.

Table – 11 shows IBFS using three heuristics; VAM, VAM-TOC and VAM-R along with Number of Iterations required to obtain optimal solution using the initial solution by any heuristic.

TABLE – 11

IBFS using VAM	No. of Iteration to reach optimum solution	IBFS using VAM-TOC	No. of Iteration to reach optimum solution	IBFS using VAM-R	No. of Iteration to reach optimum solution	Optimum Solution using MODI method
820	2	740	1	760	1	720
1510	1	1540	1	1510	1	1465
740	2	710	0	710	0	710
97	3	113	1	92	0	92
168	1	140	1	128	0	128
917	1	909	1	917	1	893
98	1	98	1	90	0	90
2752	1	2424	0	2424	0	2424
700	0	700	0	700	0	700
14544	0	14544	0	14544	0	14544
180	0	196	1	180	0	180
1590	0	1590	0	1610	1	1590
Total =	12	Total =	7	Total =	4	-

SUMMARY RESULTS

TABLE – 12

Heuristics Surveyed	(% of Best Solution , Standard Error)	Average Number of Iterations required to reach Optimum Solution for IBFS that are non-optimal
VAM – R	(66.67%, 13.61%)	1.0
VAM	(33.33%, 13.61%)	1.5
VAM – TOC	(41.67%, 14.23%)	1.0

4   CONCLUSION

Vogel's Approximation Method is applied to original Transportation Cost matrix in two different ways. One is conventional VAM approach and other is alternative approach of using VAM for Unbalanced TP, i.e. VAM-R. Also VAM is applied to Total Opportunity Cost (TOC) matrix, as suggested by Mathirajan and Meenakshi [7], (VAM-TOC). Original VAM is weaker to produce good quality IBFS of unbalanced TP. VAM-R approach of making allocations to all 'REAL' cells first and allocations in the dummy cells be made at last benefit much in the terms of defined performance measures. Large proportion of problems produces optimum solution very quickly and requires less computational effort and less time to reach optimal solution. VAM-R is more competent to handle dummy cells in unbalanced TP and hence produce better quality IBF solutions of unbalanced TP.

Summary Results Table – 12 clearly shows that, for unbalanced Transportation Problem, applying VAM-R is more efficient than original VAM and VAM-TOC heuristics in terms of percentage of best solutions and average number of iterations required to reach optimal solution.

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PROBLEM OF NON-PERFORMING ASSETS OF STATE BANK OF INDIA: A CASE STUDY OF NAGPUR DISTRICT

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ABSTRACT

The banking sector is the back bone of the financial system of the country. The State Bank of India being the biggest Public Sector Bank having largest national and international presence with highest consumer base and heading on its way to implement BASEL-II recommendations of the best international banking practices, Reserve Bank of India has release guidelines for meeting deadline for implementing BASEL-II norms. Now, the growing size of NPA is a matter of grave concern especially when State Bank of India is the largest Gross NPA holder in which huge amount of funds are blocked, crunching fund availability for credit creation and channelization of funds from excess to the needy sector of society, thereby hindering the growth prospects of the bank in particular and economy as a whole. However, the bank is undergoing transition period from conventional banking to International best practices, according to which the percentage of gross NPA should come down 9% to 3% another important necessary of reducing burgeoning NPAs is, when commercial banks are already under heavy pressure to maintain high statutory reserves under Cash Reserve Ratio, Statutory Liquidity Ratios in addition to 9% of Credit to Risk Weighted Assets Ratio of total lending, consequent upon this a substantial part of active fund kept under aforesaid reserves leaving the banks with short of funds for credit creation, in such situation huge bulk of burgeoning Gross NPA cant be afforded especially when a lot of instruments for reducing NPA is available in the market such as Special Purpose Vehicles, Corporate Debt Restructuring and SARFESI Act by Govt. of India. The importance of study of subject with reference to the State Bank of India in the Nagpur district i.e in Vidarbha Region arises when the State Bank of India's NPA is touching its all time high due to severe crop failure in whole of the Vidarbha Region. The subject is of great relevance and importance not only for banking industry in the region but also for which operating all over India. RBI in one of its report on the subject has stated that the reduction of NPAs to be treated as "National Priority"

KEYWORDS

NPA- Non Performing Assets, SARFESI-Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest, STD-Standard Assets, DOUB - Doubtful Assets, EA-Enforcement Agents.

INTRODUCTION

The State Bank of India being the biggest Public Sector Bank having largest national and international presence with highest consumer base and heading on its way to implement BASEL-II recommendations of the best international banking practices. The growing size of NPA is a matter of grave concern especially when State Bank of India is the largest Gross NPA holder in which huge amount of funds are blocked, crunching fund availability for credit creation and channelization of funds from excess to the needy sector of society, thereby hindering the growth prospects of the bank in particular and economy as a whole. However, the bank is undergoing transition period from conventional banking to International best practices, according to which the percentage of gross NPA should come down 9% to 3% another important necessary of reducing burgeoning NPAs is, when commercial banks are already under heavy pressure to maintain high statutory reserves under Cash Reserve Ratio, Statutory Liquidity Ratios in addition to 9% of Credit to Risk Weighted Assets Ratio of total lending, consequent upon this a substantial part of active fund kept under aforesaid reserves leaving the banks with short of funds for credit creation, in such situation huge bulk of burgeoning Gross NPA can't be afforded especially when a lot of instruments for reducing NPA is available in the market such as Special Purpose Vehicles, Corporate Debt Restructuring and SARFESI Act by Govt. of India.

OBJECTIVES

1.	To study the loan profile, pattern and causes of NPA in the Nagpur Region.
2.	To examine the recovery procedure of loan and exact causes of default in the repayment of loans by beneficiaries of State Bank of India in study area.
3.	To probe into the credit availability and the end use.
4.	To work out optimum tools and solution to alleviate the size of NPA by making bad loans to good loans of State Bank of India in Nagpur District.
The objective of study of NPA is to work out institution and problem specific effective measures to contain the problem of NPA.

RESEARCH METHODOLOGY

AREA OF STUDY
The area of study is Nagpur District, Vidarbh region Maharashtra.
PERIOD OF STUDY
The period chosen is from March 2005 to March 2008. To analyses the relation between the social-economic characteristic of beneficiary and defaulter.
SOURCES OF DATA
The data sources used in this dissertation are basically taken as the secondary data. The data are collected through various books, magazines, articles, journals, internet etc. The important source of data for the research work is as follows:
o	Annual report of Reserve Bank of India.
o	Annual Report of State Bank of India.
o	Report on Trends Progress in the Banking Sector.
o	Various magazines and journals.
Analysis Procedure: In this study a sample of six blocks of Nagpur and has been taken out of a total 13 blocks and they are:
•	Nagpur City
•	Kamti
•	Katol

- Narkhed
- Kalmeshwer
- Saoner

The selection is based on the fact that the above districts represent about 80% of total industries in and about of total bank credit sanctioned to various quarters. The study has been divided into two phases:

STATE BANK OF INDIA

State Bank of India was formed in 1955 by an Act of the Parliament, the State Bank of India Act 1955 (Act). A Central Board of Directors was constituted according to the Act. The Board is headed by the Chairman, appointed under section 19(a) of SBI Act. The Chairman and Managing Directors are whole time Directors. There were 9 other directors on the Board including eminent personalities from academics and industry. These included representatives of shareholders and staff of the Bank, nominee officials of Government of India and Reserve Bank of India and directors nominated by the Government of India under Section 19(d) of the State Bank of India Act. 1955.

2 Directors elected by the shareholders under Section 19 C

1 Director, appointed by the GOI U/s 19(ca), representing workman staff of the Bank.

1 Director, appointed by GOI U/s 19(cb), representing non-workmen staff of the Bank.

3 Directors nominated by the Central Government under Section 19(d)

1 Director nominated by the Central Government under Section 19(e)

1 Director nominated by the Reserve Bank of India under section 19(f)

The composition of the board complied with the provions laid down in Clause 49.

SHAREHOLDING PATTERN OF SBI- TABLE-9

COMPOSITION OF THE BOARD

The State Bank of India is committed to the best practices in the area of corporate governance, in letter and in spirit. The Bank believes that good corporate governance is much more than complying with legal and regulatory requirements. Good governance facilities effective management and control of business, enables the Bank to maintain a high level of business ethics and to optimize the value for all its stakeholders. The following is the list of top ten shareholder of the Bank as on 31.03.2008

NAGPUR DISTRICT

Nagpur is known as the second capital of Maharshtra State and the geographical centre of Indian Subcontinent. The total area of Nagpur district, 228 sq kms comprises of 13 blocks of Tehsils namely, Kuhi, Mauda, Ramtek, Saoner, Nagpur Rural, Umerer, Katol, Kalameshwar, Narkhed, Bhiwapur, Parsivni, and Kamti. Nagpur became capital of Central Provinces in 1861 later in 1950 Nagpur declared as the capital of Madhya Pradesh, but in 1960 again Nagpur city the district were transferred to Maharashtra State, as a part of state reorganization. The surrounding region is an undulating plateau rising northward to the Satpura Range, from 889 to 2,142 feet (271 to 663m) high and is drained by the Kanhan and Pench rivers in the centre, the Wardha in the west, and the Wainganga in the east. Both these rivers later merge as tributaries into the Godavari River. The soil is fertile black (cotton) in the west and the north and alluvial in the east, this way. The foundation of Cotton Market was laid in 1950. The average annual rainfall is 45 inches, with more rain in east than in the west. In the west, the hills are forested. In the northeast are the hills of Ramtek. The main agricultural crops in the district along with the cropping period and market area are given below. The banking sector can play leading role in development of the region. The State Bank of India is having highest branch net work of 271 branches amongst the commercial banks in Nagpur District.

Nagpur District comprises of 13 blocks or Tehsils as discussed above. However, Following is the administrative set of State Bank of India, Nagpur Zone which is comprised of 12 districts of Vidarbha region (Including Nagpur District) as shown below.

REGIONS/DISTRICT

Region-1	Nagpur City, Bhandara and Gondia
Region-2	Nagpur Rural, Chandrapur and Gadchiroli
Region-3	Buldana
Region-4	Akola and Washim
Region-5	Amravati
Region-6	Yavatmal and Wardha

NON PERFORMING ASSETS

The banking industry has undergone a sea change after the first phase of economic liberalization in 1991 and on aspects like credit management, interest rate deregulation, reduction in reserve requirements; barriers to entry, prudential norms and risks based supervision. But progress on structural institutional aspects has been much slower and is a cause for concern. The sheltering of weak institutions while liberalizing operational rules of the game is making implementation of operational changes difficult and ineffective. Changes required to tackle the NPA problem would have to span the entire gamut of judiciary, polity and the bureaucracy to be truly effective.

Today the Net NPAs of State Bank of India (which account for around three-fourths of the total assets of Public Sector Banks) are as low as 0.72 percent and gross NPAs are at 2.5 percent. However, Nitsure (2007) contends that once there is a slowdown in private expenditure and corporate earnings growth, companies on these banks' books will not be in a position to service their debts on time and there is a strong likelihood of generation of new NPAs. Moreover, he also suggests that with rising interest rates in the government bond market, the banks' treasury incomes have declined considerably. So banks will not have enough profits to make provisions for NPAs. Under these circumstances, management of NPAs is a difficult task. Therefore, my study focused on the problem of NPAs being faced by the State Bank of India and its management with a reference to the Nagpur District.

ASSET CLASSIFICATION

With a view to moving towards international best practices and to ensure greater transparency, it has been decided that 90 days overdue norms for identification of NPA's from the year ending 31st March 2004 should be adopted. NPA's classified into three categories:

(i) Sub-standard assets: - A loan asset that has remained non- performing for a period less than or equal to 12 months.

(ii) Doubtful assets :- A loan asset that has remained sub- standard category for a period less than or equal to 12 months

(iii) Loss assets: - A loan asset where loss has been identified but the amount has not been identified.

Earlier as mentioned above we had only four categories of assets but now as another step towards mitigating NPA account, another category of account has been introduced, the details about which is discussed below.

- **OVERDUE**

Any amount due to the bank under any credit facility is 'overdue' if it is not paid on the due date fixed by the bank.

- **'Out of order' status:** An account should be treated as 'out of order' if:

a) The outstanding balance remains continuously in excess of the sanctioned Limit / Drawing Power, or

b) If the outstanding balance in the principal operating account is less than the sanctioned Limit / Drawing Power, but there are no credits continuously for 90 days as on the date of Balance Sheet, or

c) Credits are not enough to cover the interest debited during the same period.

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Banks should classify an account as NPA only if the interest charged during any quarter is not serviced fully within 90 days from the end of the quarter.

OBSERVATION AND ANALYSIS

Expansion of credit is a must for a region like Nagpur, but as mentioned above, high credit growth may lead to high NPAs. Policymakers, therefore, face the dilemma as to how to minimize such risks that arise from dilution in credit quality, while still allowing bank lending to contribute to higher growth and efficiency. There is no gainsaying in the fact that every commercial organization exists with a motive to earn profit and banks are no exception. The objective function is therefore to maximize profit or the Net Interest Margin. Commercial banks use the deposits to extend loans and advances. The figure1 shows that how a bank can maximize profit (assuming existence of Pure Competition Market):

FIG. 1
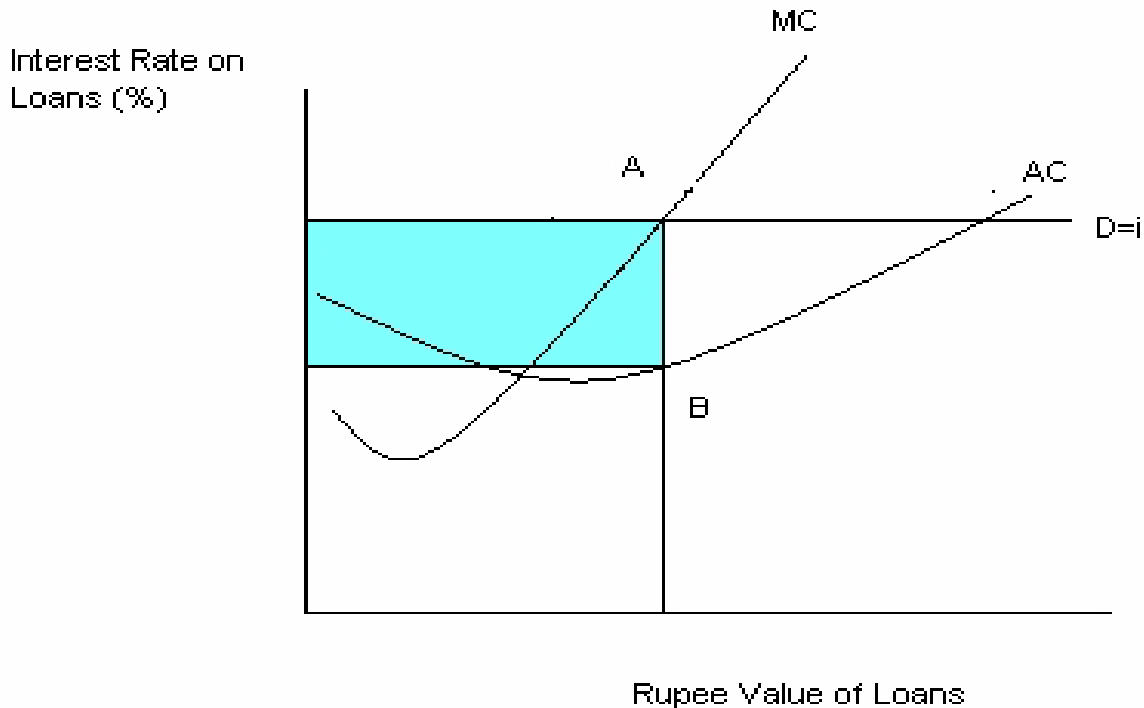
In **Figure 1**, MC is the Marginal Cost to the banks, AC is the Average Cost, i is the interest rates on loans, point B represents the cost of funds and the shaded portion is the profit. To maximize profits, a purely competitive bank issues loans such that the marginal cost of an additional loan equals the marginal revenue from such loans. The marginal revenue from an additional loan is simply the market determined interest rate. Profits are maximized when MC equals interest rate. Therefore, it is evident that profits can be maximized if more and more loans are extended at a given rate of interest. This may result in poor assessment of the borrower leading to fresh generation of NPAs.

TABLE-1: OVER ALL NPA POSITION - NAGPUR REGION STATE BANK OF INDIA

S.No.	Particulars (Rs. in Crores)	MARCH 2006	MARCH 2007	MARCH 2008
1.	Op. Level	242.72	237.67	194.80
2.	Less: Redn.	88.83	123.92	75.43
3.	Add: New NPAs	83.78	81.05	114.94
4.	Net Inc.(3-2)	- 5.05	- 42.87	39.51
5.	Cl. Level	237.67	194.80	234.31

It is observed that, as on 30 March 2008 block wise bad loans and number of defaulting companies in the sample blocks of Kamti, Narkhed, Saoner, Kalmeshwar, Nagpur and Katol are the worst sufferers as far as quantum of bad loans is concerned. As on 30 March 2008, the total quantity of bad loans was Rs 152 Cr in Nagpur and Rs 93 Cr in the Katol blockwise. If all the districts are taken then this figure stood at Rs 407 Cr as on the same date. Therefore, the bad loans in Nagpur was about 37.3% of total such loans in all the sample blocks and the same figure is about 23% in the Katol block and together they constitute about 60% of total bad loans. This figure may be taken as the representation of Nagpur district as a whole as these blocks combined have the highest concentration of industries. Moreover, these figures reveal that about 94% of total such loans is concentrated in Nagpur city and Katol.

We can see the gross reduction in quantity of NPA on opening balance on YoY basis, from 242.72Cr in March 2006 to 194.80Cr. March 2008, net decrease of 42.92 cr. due to the various contributing factors in bringing down the NPAs of State Bank of India's targeted approach the following was being one of their action plan.

As per the NBG Policy Guidelines 2007-08, target set for the year 2007-08. The NPA should be brought down to the following levels.

1. Fresh NPA slippages (to total advances as on 31.03.2007).   < 1%
2. Reduction in Gross NPAs (Net of fresh slippages)   > 10%
3. Gross NPA Ratio (reduction by).   1%
4. Recovery from AUCA & Non AUCA Accounts to increase over 2006-07 recoveries by.   25%
5. Gross NPA in Personal loans Segment should come down from March '07 level) by at least. 10%
6. Gross NPA in SME Segment should be brought down to.   1%
7. Gross NPA in AGL Segment should be brought down to.   3%

The above target has contributed greatly on surge in Reduction of NPA from Rs.88.83 cr in March 2006 to Rs. 123.92 cr. March 2007. Then again we can see reduction activity loosing grip and significant surge in New NPAs on March 2008 as evident in **Table-1.** There by plotting net increase of 39.51 % over –ve growth of March 2007. The reason for addition of New NPA accounts is discussed chapters to follow.

In the year 2005, the State Bank of India had around 50% of their NPA profile in the 5 to 10 % category which has been totally eliminated by 2007 wherein about 75% of their total NPA is below 2% mark. The performance has steadily improved over the period after the enactment of the Securitization Act, 2002. However, available data point to the fact that majority of the loans are recovered through the Debt Recovery Tribunals.

The figure reveals that as far as recovery is concerned, Debt Recovery Tribunals are the most effective means of loan recovery. From 2003-04 to 2005-06 though the number of cases referred to the DRTs have reduced as compared to that under the Securitization Act the percentage of recovery is almost double as compared to the Securitization Act. The percentage recovery through the DRTs has increased from 17.2% to about 77% as compared to the recoveries through the Securitization Act where it increased from 14.7% to about 35%. This can be attributed to the absence of any structured market for selling the distressed assets which are securitized under the SARFAESI Act. Moreover, selling sticky assets is a problem due to differences between the seller and the buyer in the valuation of such loans. Apart from this any dissatisfied borrower against whom the Securitization Act has been initiated can take recourse to court of law and file a suit against the lender thereby making the lender to fall in what is termed as 'legal trap'. On the other hand recovery through the DRTs is much speedier. Though there is a provision of filing a suit against the lender as under the Securitization Act, but here the borrower filing the suit has to deposit 25% of the amount involved for further processing and hearing of the case. This provision ensures that only the genuine cases are taken up by the DRTs.

NON-PERFORMING ASSETS IN THE PRIORITY SECTOR

Priority sector was regarded as a "People Sector" by policymakers, regulators and banks till 1990. As one of the prime objectives of nationalization of banks was radical development of the society in general and 'certain sectors' in particular, credit flow to these sectors was ensured. This directed lending did not come without a cost. While granting credit to these sectors, institutional viability was neglected, low interest rates were charged. This resulted in huge over dues from priority sector. The recommendations of the Narsimham Committee were not accepted in-toto especially to reduce the mandatory 40% lending norm to the priority sector to 10% level. **TABLE- 4** shows Sector wise NPAs in the State Bank of India. Regarding Farm loans, all the commercial, Co-operative and Rural banks have mandate of loan conversion. State Bank of India is strictly adhering to the mandate; farmers can get conversion up to 3 times.

The Credit-Deposit Ratio in Nagpur District is almost half that as compared to the ratio on Maharashtra State basis and there has been a stagnation in the figure. This is despite the fact that there has been a tremendous appetite for bank credit from all sectors due to the various social- economic reasons.

It is observed from figure 7 that maximum credit was sanctioned to the Personal Segment and second largest in Small and Medium Enterprise sector.. In the year 2007-08, the total credit sanctioned to these sectors was Rs 115.33 Cr and Rs.90.55 Cr. for SBI which registers an increase of 16.51% in personal loans from the year 2005's Rs. 85.91 cr. and SME segment registers an increase of 07.14% over 2005's Rs 84.62 Cr in 2006.

CAUSES OF NPA
IMMEDIATE CAUSES
1. **Repayment Risk:** There was a sudden spurt in disbursal of Personal/ Retail Loan segment like Car loan, Home loan, Consumer loans etc. most of borrowers were having repayment schedule through post dated cheques, which leading to spurt in cheque bouncing cases, although bankers have clear protection against such cases under Section 138 of Negotiable Instruments Act 2002, since the number of case are enormous and slow and tedious legal system adding to the plight. However, it takes at least 2-3 years to settle a single case of cheque bouncing in such case banker have no option but to declare the account NPA.
2. **Low Credit Quality:** The low credit quality in State Bank of India's portfolio particularly in the dominant Sub-Sectors of the Nagpur region. The high incidence of NPAs in State Bank of India is result of many factors, including poor credit analysis, lending skills and lending decisions, external shocks e.g. unexpected slowdown in economic activities, credit crunch), and shortcomings in the legal and judicial system that prevent the timely exercise of creditor rights.
3. **Lack of Effective Executive Mechanism:** The State Bank of India in the regions lacks the strong supporting legal and regulatory environment, effective leadership, operational independence, appropriately structured incentives and commercial orientation.
4. **Delay in One Time Settlement policy announcement:** The last time Reserve Bank of India has come up with One Time Settlement Scheme is in 2004, since then it has not come out with scheme of any such resolution scheme, this again is one of the main reason for accumulation of NPA in various segments.
5. **Various Government Schemes:** Agriculture is having huge chunk of NPA because of various Government scheme, with the mere announcement of such schemes the farmers stop repaying their installments on presumption of their loans were being waived. However, such government schemes increases the burden of NPAs at bankers part, same is the case of cause and effect happened recently with debt relief package.
6. **Poor State of Asset Reconstruction Companies**: The Asset Reconstruction Companies in Nagpur district are almost absent and whatever exists, just in nascent state. Otherwise It could have helped greatly to resolve NPAs in the area of study, as it has huge potential to contain the bad assets and easy way out in their resolution, such vehicles provides an effective mechanism of pooling together the scarce skill of managing and disposing off of impaired assets.
7. **Understatements:** State Bank of India has been plagued by a large stock of NPAs. Where NPAs/ Credit ratio before provisioning was 12.5% of gross credit. This ratio was brought down sharply from the peak of 25% in 2004, mainly on account of a rapid growth in the volume of credit (i.e. the denominator) rather than a decrease in the level of NPAs (numerator). Net of provisions, NPAs still accounts for a sizeable 6.66% of net credit.
8. **Slow Legal Procedure:** Slow legal procedures adding up to the problem of NPA resolution at banker's part. The Courts are not reliable enforcement vehicles, 90% of State Bank of India's NPA cases are pending with the civil court, yet to pass the decree. The reported NPA numbers are also believed to understate the true magnitude of impaired assets. The private sector analyst believe that NPA levels for PSBs especially (State Bank of India in the region) are significantly higher at 20 to 25 percent of the total loans rather than the reported 12.5 % , even further picture would be little gloomy, if more conservative classifications standards are adopted more of ever- greened loans would be identified as impaired assets.
9. **Poor Human Resource Management:** The state of affairs in Human Resource Management is still poor, most of the front end staff is not computer literate, those who are having not willing to work. The age profile of the staff is the cause of poor human resource. At the same time frequency training sessions are also low.
10. **Poor Infrastructure:** In terms of providing basic infrastructure like power, roads housing etc. The poor infrastructure facilities like power, adding to the huge chunk of bad assets- as the production get hampered with long hour of power cuts, corporate are not able to repay installments of loans in scheduled time. Likewise, other infrastructural problems adding up to the bad loans in the region.

ACTION TAKEN REPORT BY STATE BANK OF INDIA- NAGPUR

State Bank of India is initiating various types of strategy to bring down NPAs which include not only account specific action but also framing policy frequent meetings with the borrowers to provide support in their efforts to upgrade accounts and/or recover the dues. The bank have realized that the only to check slippage is to strengthen their follows up systems of loans and taking expeditious corrective actions in accounts where some deteriorations are observed. Some of the tools discussed below:

S. No.	Particulars	No.	Amt. In cr.	Action Plan devised on 15.05.2008
1	Writing off-100% provision accounts	5335	40.13	Writing off exercise to be completed by 31st May, 2008.
2	a. Housing Loans	2555	60.21	Housing Loans : 1) Photo Notices to be issued in all cases. Notices under SARFAESI Act to be issued in all cases.2) Action u/s 13(4) to be initiated after expiry of 60 days. Services of Enforcement Agents to be engaged and auction of properties to be arranged the Salary disbursing authorities to be notified regarding defaulting borrowers.
	b. Car Loans	880	8.66	
	c. Education Loans	576	9.04	2) Car / Education / Personal/ Consumer Loans :
	d. Personal Loans	6702	31.05	5) Photo Notices to be issued in all cases. Services of Seizure Agents to be engaged and auction of vehicles to be arranged Salary disbursing authority to be notified regarding defaulting borrowers.
	e. Consumer Loans	174	0.60	
3	SME Accounts	9298	90.52	1) Photo Notices to be issued in all cases. Where immovable properties are available, action under SARFAESI Act to be initiated. Action u/s 13(4) to be initiated after expiry of 60 days. Services of Enforcement Agents to be engaged and auction of properties to be arranged.
4	Agriculture Accounts	6905	24.72	To ensure Restructure of dues/ Compromise settlements
5	Bank Adalat	-	-	To hold Bank Adalats–each Region every month.
6	Compromise Settlements	-	-	To settle at least 25 cases per Region per month
7	Outsourcing Recovery	-	-	Monthly targets to be given to Recovery Agents

CONCLUSIONS AND SUGGESTIONS

A. Recommendations for reducing NPAs of State Bank of India in Nagpur Dist.

1. Effective and regular follow-up of the end use of the funds sanctioned is required to ascertain any embezzlement or diversion of funds. This process can be undertaken every quarter so that any account converting to NPA can be properly accounted for.
2. Combining traditional wisdom with modern statistical tools like Value-at-risk analysis and Markov Chain Analysis (as detailed below) should be employed to assess the borrowers.
3. This is to be supplemented by information sharing among the bankers about the credit history of the borrower. In case of new borrowers, especially corporate borrowers, proper analysis of the cash flow statement of last five years is to be done carefully.
4. A healthy Banker-Borrower relationship should be developed. Many instances have been reported about forceful recovery by the banks, which is against corporate ethics. Debt recovery will be much easier in a congenial environment.
5. A well functioning Asset Reconstruction/ Recovery mechanism wherein the bad assets are sold to an Asset Reconstruction Company (ARC) at an agreed upon price. There is an absence of strong of hold of such mechanism in Vidarbh region, However whatever exists in Nagpur district still is in nascent stage. One problem that can be accorded is the pricing of such loans. Therefore, there is a need to develop a common prescription for pricing of distressed assets so that they can be easily and quickly disposed. The ARCs should have clear 'financial acquisition policy' and guidelines relating to proper diligence and valuation of NPA portfolio.
6. Some tax incentives like capital gain tax exemption, carry forward the losses to set off the same with other income of the Qualified Institutional Borrowers (QIBs) should be granted so as to ensure their active participation by way of investing sizeable amount in distressed assets of banks and financial institutions.
7. So far the Public Sector Banks have done well as far as lending to the priority sector is concerned. However, it is not enough to make lending to this sector mandatory; it must be made profitable by sharply reducing the transaction costs. This entails faster embracing of technology and minimizing documentation.
8. The Bank should be allowed to come up with their own measures to address the problem of NPAs. This may include waiving and reducing the principal and interest on such loans, or extending the loans, or settling the loan accounts. They should be fully authorized and they should be able to apply all the preferential policies granted to the asset management companies.
9. Another way to manage the NPAs by the SBI is Compromise Settlement Schemes or One Time Settlement Schemes Reserve Bank of India can come up frequently with such schemes. However, under such schemes the banks keep the actual amount recovered secret. In such circumstances, it is necessary to bring more transparency in dealings and procedures to be followed, so that all sorts of shortcomings and flaws could be checked and resolved immediately.

B. Markov Transition Matrix and Loan Tracking

Markov Transition theory deals with the probability of variable at a given state at any given time to move to another state at a time t+1. We can, therefore, define a transition matrix, P = [pij], as a matrix of probability showing the likelihood of credit quality staying unchanged or moving into R-1 category over a given time horizon, where R is a set off discrete categories into which all observations can be ordered.

Let me frame a matrix:

$$Pij = \begin{matrix} P11 & P12 & P13 ....P1R \\ P21 & P22 & P23 ....P2R \\ .... \\ .... \\ PR1 & PR2 & PR3 ....PRR \end{matrix}$$

Where Pij are the state at any given time.

The above matrix can be used by credit officers to monitor the loan assets and take preventive steps to control the slippage of a loan asset to any lower category.

Based on the asset classification viz. Standard Assets (STD), Sub-standard Assets (SUB), Doubtful Assets (DOUB) and Loss Assets (LOSS), a matrix can be formed with a given probability (Das & Bose, 2005):

Time t+1

	STD	SUB	DOUB	LOSS
STD	P11	P12	P13	P14
SUB	P21	P22	P23	P24
DOUB	P31	P32	P33	P34
LOSS	P41=0	P42=0	P43=0	P44=1

Since the probability of a loss asset being converted to any higher asset category is zero, p41 = p42 = p43 = 0 and thus p44 = 1.

This transition matrix can be used to assess the loan quality of a firm level borrower by evaluating the financial position. However, this matrix will be difficult to apply to assess individual borrowers because unlike a firm level borrower, financial data of an individual is not available. Therefore, this matrix can be better applied for a firm level or corporate level borrower.

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ANNEXURE

FIG.- 1: OVER ALL NPA POSITION - NAGPUR REGION STATE BANK OF INDIA
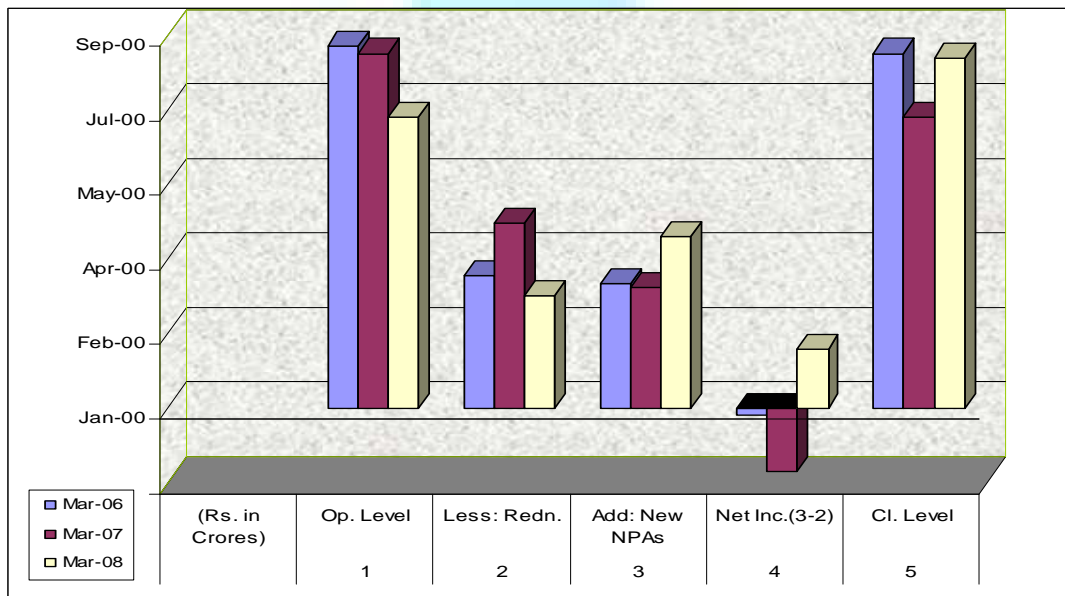
TABLE-2: ASSET WISE NPA

S.No.	Particulars	MAR 2005		MAR 2006		MAR 2007		MARCH 2008	
(Rs. in Crores)		Amt	(%)	Amt	(%)	Amt	(%)	Amt	(%)
1.	STD.	2022.29	89.21	2698.98	91.91	3725.19	95.03	4837.98	95.39
2.	SUB STD.	104.35	4.60	82.33	2.80	70.15	1.79	117.18	2.31
3.	Doubtful	118.64	5.23	130.50	4.44	107.03	2.73	96.85	1.90
4.	LOSS	21.48	0.95	24.85	0.85	17.62	0.45	20.28	0.40
5.	TOT. NPA	244.47	10.79	237.67	8.09	194.80	4.97	234.31	4.61
6.	TOT. ADV	2266.77	100.00	2936.66	100.00	3919.99	100.00	5072.29	100.00

CHART-2: ASSET WISE NPA
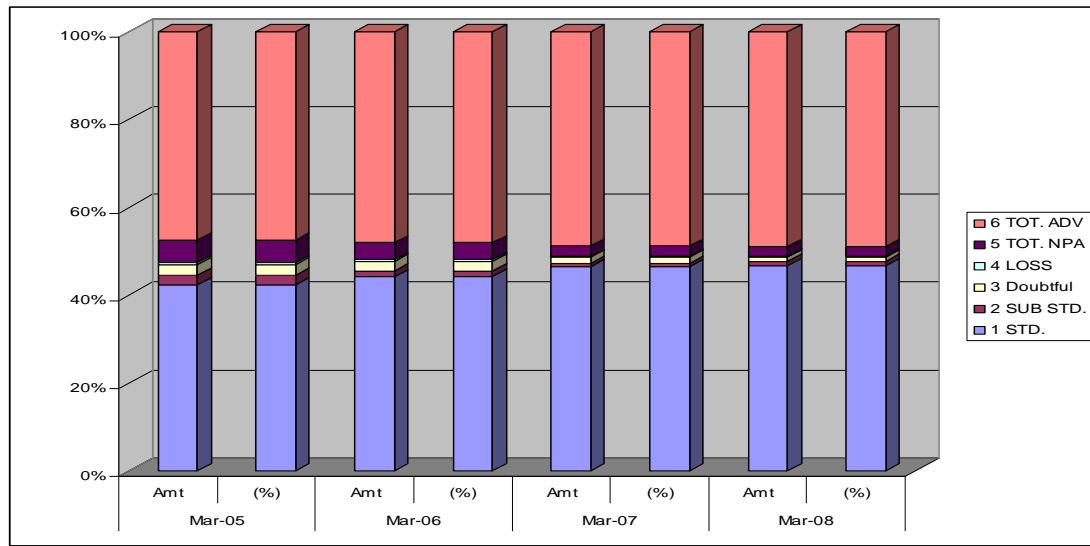
TABLE NO- 3: ACTUAL / BUDGETED NPA

S.No.	Particulars	MAR 2005		MAR 2006		MAR 2007		MAR 2008
(Rs. in Crores)		Amt	(%)	Amt	(%)	Amt	(%)	Amt
1.	SME	84.62	6.31	83.89	6.21	73.57	4.20	90.52
2.	AGR	73.42	7.22	59.49	6.05	21.19	3.34	24.72
3.	PER	85.91	6.01	93.36	5.59	97.43	6.69	115.33
4.	MISC	0.53	1.32	0.94	1.42	2.62	3.33	3.74
5.	TOTAL	244.47	10.79	237.67	8.09	194.80	4.97	234.31

CHART- 3: ACTUAL / BUDGETED NPA
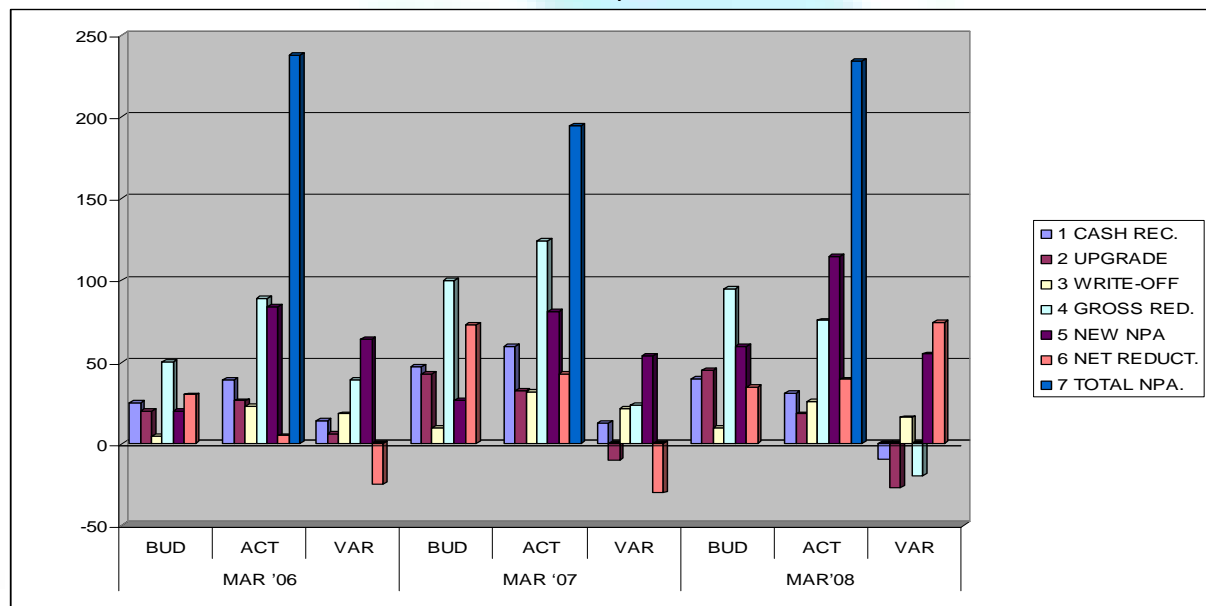
TABLE NO. 4: SEGMENT WISE NPA

(Rs. in Crores)		MAR '06			MAR '07			MAR'08		
S.No.	Components	BUD	ACT	VAR	BUD	ACT	VAR	BUD	ACT	VAR
1.	CASH REC.	25.00	39.25	14.25	47.00	59.44	+12.44	40.00	31.07	-8.93
2.	UPGRADE	20.00	26.34	6.34	43.00	32.73	-10.27	45.00	18.28	-26.72
3.	WRITE-OFF	5.00	23.24	18.24	10.00	31.74	+21.74	10.00	26.08	16.08
4.	GROSS RED.	50.00	88.83	38.83	100.00	123.91	+23.91	95.00	75.43	-19.57
5.	NEW NPA	20.00	83.78	63.78	27.00	81.05	+54.05	60.00	114.94	54.94
6.	NET REDUCT.	30.00	5.05	- 24.95	73.00	42.86	-30.14	35.00	39.51	74.51
7.	TOTAL NPA.		237.67			194.81			234.31	

CHART- 4: SEGMENT WISE NPA (Rs. in Crores)

SEGMENT WISE NPA
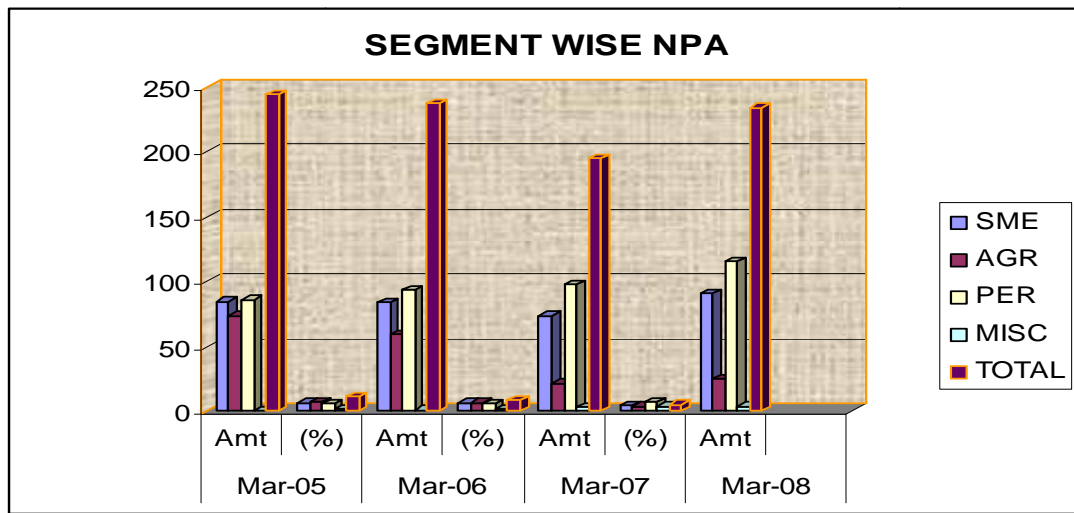
Source: Primary data

TABLE-5: NPA DENSITY IN BRANCHES

S.No.	Particulars	MAR 2005		MAR 2006		MAR 2007		MAR 2008	
(Rs. in Crores)		No. of Brs.	Amt	No. of Brs.	Amt	No. of Brs.	Amt	No. of Brs.	Amt
1.	>20%	84	107.39	51	68.57	03	10.97	02	5.84
2.	15-20%	38	34.20	27	32.78	11	11.86	10	31.08
3.	10-15%	42	41.85	54	46.28	32	52.45	21	27.58
4.	5-10%	46	43.53	68	61.61	82	67.99	73	92.12
5.	<5%	27	17.50	38	28.43	108	51.54	131	77.69
6.	0%	02	0.00	01	0.00	03	0.00	25	0.00
7.	TOTAL	239	244.47	239	237.67	239	194.81	262	234.31

Source: Primary data

TABLE- 6: CREDIT- DEPOSIT RATIO

Column1	Column2	Column3	Column4
	CREDIT- DEPOSIT RATIO.		
%	All India	Eastern Region	Nagpur
2002	58	38	25
2003	59	40	25
2004	58	42	26
2005	65	46	30
2006	72	50	33
2007	75	51	35

CHART- 5: CREDIT- DEPOSIT RATIO
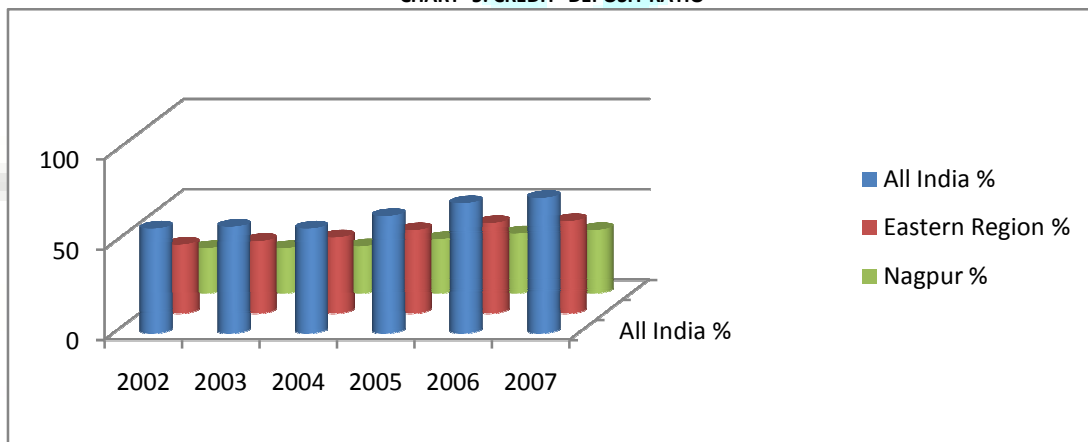
TABLE-7: SPURT IN NPAs DURING MARCH 2008 COMPARISON OVER FEBRUARY'08 LEVEL

REG	SME			AGR			PER			MIS			TOTAL		
	FEB 2008	MAR 2008	INCR	FEB 2008	MAR 2008	INCR	FEB 2008	MAR 2008	INCR	FEB 2008	MAR 2008	INCR	FEB 2008	MAR 2008	INCR
1	9.53	13.38	3.85	2.47	3.71	1.24	20.38	26.56	6.18	2.22	2.61	0.39	46.26	34.60	11.66
2	5.92	9.31	3.39	3.96	4.09	0.13	8.29	13.80	5.51	0.86	0.28	1.14	27.48	17.31	10.17
3	5.91	9.03	3.12	1.45	2.79	1.34	5.20	11.73	6.53	0.60	0.11	0.49	23.67	13.16	10.51
4	11.31	11.31	0.00	0.68	0.48	0.20	10.87	15.09	4.22	2.39	0.35	2.05	27.23	25.25	1.98
5	5.67	9.99	4.32	2.35	4.48	2.13	11.52	24.60	13.08	0.22	0.06	0.16	39.13	19.76	19.37
6	14.07	14.58	0.51	5.87	9.17	3.30	16.48	22.45	5.97	1.18	0.21	0.97	46.41	37.60	8.81
9	23.68	22.92	0.76	0.00	0.00	0.00	1.15	1.10	0.05	1.37	0.12	1.25	24.14	26.20	2.06

Source: Primary data

TABLE-8 : FARMER'S DEBT WAIVER SCHEME DATA

STATE BANK OF INDIA, ADMINISTRATIVE OFFICE, NAGPUR		
Position Of Debits raised as on 31.8.08		
Region/ District	**Waiver**	**OTS**
Nagpur City	637617.05	
Bhandara	27463211.00	1103507.12
Gondia	14904630.44	180766.39
Region-1	**43005458.49**	**1284273.51**
Nagpur Rural	25303393.24	2130565.54
Chandrapur	16144519.33	4327353.68
Gadchiroli	10138982.34	1199657.45
Region-2	**51586894.91**	**7657576.67**
Buldana	167157295.05	27162625.79
Region-3	**167157295.05**	**27162625.79**
Akola	78363748.34	6470052.49
Washim	100092055.53	6007984.21
Region-4	**178455803.87**	**12478036.70**
Amravati	146914119.43	15051024.97
Region-5	**146914119.43**	**15051024.97**
Yavatmal	153206111.63	26448661.47
Wardha	140601374.52	12422996.39
Region-6	**293807486.15**	**38871657.86**
Module	**880927057.90**	**102505195.50**

TABLE – 9: SHARE HOLDING PATTERN OF STATE BANK OF INDIA

S.No.	Name of the Holder	Equity held (%)
1.	The President of India	**59.73**
2.	The Bank of New York (GDRs)	**6.68**
3.	Life Insurance Corp. of India	**4.21**
4.	CLSA Merchant Bankers Ltd. A/c CLCA Mauritius	**2.65**
5	Euro pacific Growth Fund	**1.31**
6.	Orient Global Tamarind (Mauritius)	**0.97**
7.	CITI Group Global Markets Mauritius (P) Ltd.	**0.91**
8	Fidelity Management& Research Co. A/c DID Investment Trust Fidelity diversified Intl. Fund	**0.76**
9.	ICICI Prudential Life Insurance Co.	**0.73**
10.	LIC of India Money Plus	**0.73**

TABLE – 10: REPORT ON BANK ADALATS HELD TILL MAR 2008 MODULE SUMMARY

Particulars (*Rs in lacs*)	R-1	R-2	R-3	R-4	R-5	R-6	SARC	TOTAL
Adalats held	07	17	02	06	04	04	25	**65**
Cases settled	28	711	38	68	32	02	256	**1135**
Total Dues	11.36	377.62	16.74	47.88	31.65	1.39	494.96	**981.60**
Compromise approved	7.86	247.00	11.02	38.14	24.79	0.50	356.65	**685.96**
Waiver approved	3.50	130.62	5.72	9.74	6.86	0.89	138.31	**295.64**
Cash Recovery	1.66	30.25	7.40	27.86	0.00	0.41	31.86	**99.44**

CHART-6: BANK ADALATS HELD TILL MARCH 2008 MODULE SUMMERY (*Rs in lacs*)

BANK ADALAT SETTLEMENT

Legend:
- Cash Recovery
- Waiver approved
- Compromise approved
- Total Dues
- Cases settled
- Adalats held
- Rs in lacs
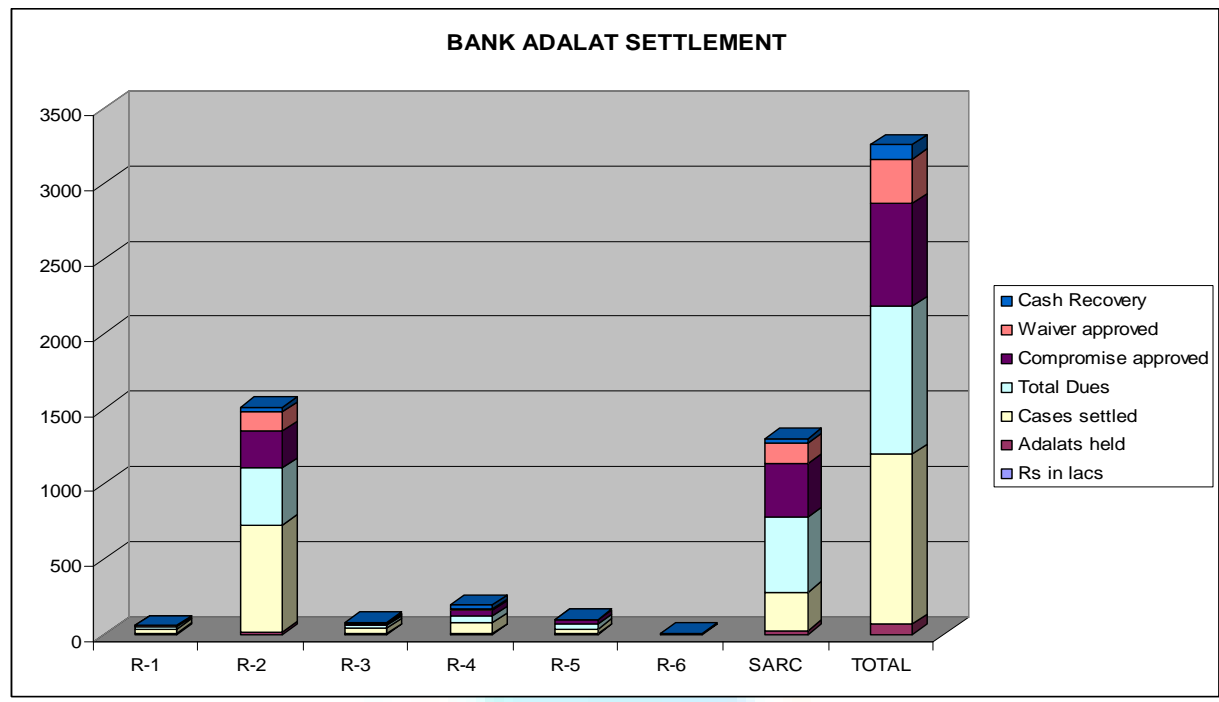
FIGURE- 2: HIREARCHY OF DEBT RECOVERY TRIBUNAL- NAGPUR
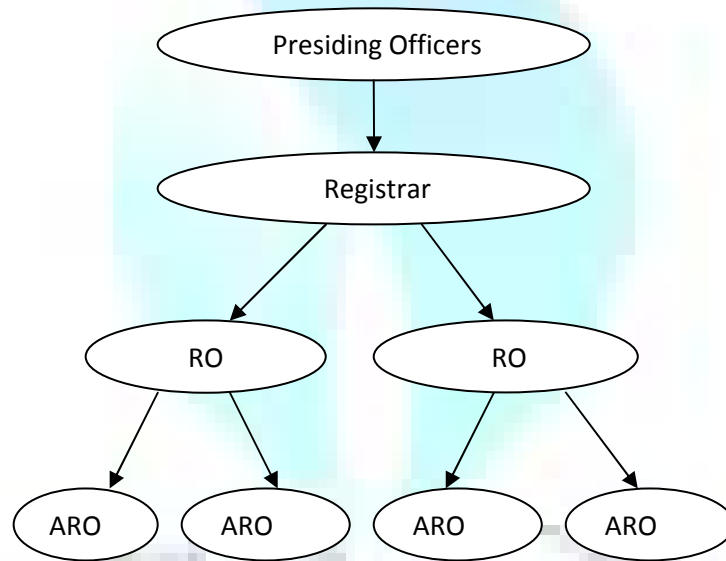
INVESTMENT STRATEGY OF LIC OF INDIA AND ITS IMPACT ON PROFITABILITY

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ABSTRACT

In this research paper attempt has been made to study the overall performance of LIC of India and to study the investment strategy of LIC of India and its impact on profitability during the period 1998 to 2010-11.Exploratory Research design is used and required data is collected from annual reports of LIC and IRDA. The analyzed data reveals that the performance of LIC has improved as excess of income over outgo is in increasing trend .Private sector performance in terms of total premium earned, number of polices issued and market share is in increasing trend where as market share of LIC is in declining trend and net profit has been fluctuating during the study and except in total premium earned, total polices issued and claim settlement ratio. The investment of LIC is increased from 77.5 % in 1998 to 95.81 % in 2010-11 due to effective regulation of SEBI and increasing transparency and performance of Indian corporate securities. The multiple Regression analysis revealed that investment strategy of LIC has positive impact on its Profitability as R multiple Correlation Coefficients in case of sector wise investment (0.99) and instrument wise investment (0.98) is high. The Correlation between investment strategy of LIC and its profitability is significantly positive and also the impact of investment strategy of LIC has significantly positive on its profit earned. The Regression model is valid and best fit to the data as adjusted R^2 value being close to R^2 value.

KEYWORDS

Insurance, Investment strategy, Multiple Correlations, Multiple Regression, and Profitability.

INTRODUCTION

The nationalization of insurance business in the country resulted in the establishment of Life Insurance Corporation of India (LIC) in 1956 as a wholly – owned corporation of the government of India. India's life insurance market has grown rapidly over the past six years, with new business premiums growing at over 40% per year. The premium income of India's life insurance market is set to double by 2012 on better penetration and an higher incomes. Insurance penetration in India is currently about 4% of its GDP, much lower than the developed market level of 6-9%. The insurance sector is a colossal one and is growing at a speedy rate of 15-20%. Together with banking services, insurance services add about 7% to the country's GDP. A well-developed and evolved insurance sector is a boon for economic development as it provides long- term funds for infrastructure development at the same time strengthening the risk taking ability of the country.

India has 25 life insurers and the state owned Life Insurance Corp. of India dominates the Industry with over 70% market share, though private players have been growing aggressively. Considering the world's largest population and an annual growth rate of nearly 7 percent, India offers great opportunities for insurers.US based online insurance company ebix.com plans to enter to the Indian market following deregulation of its insurance sector. Indian life insurance Industry has recorded impressive progress after liberalization which not only creates the employment opportunities but also enhances the business activities in the economy. Financial statistics reported that the Indian life insurance industry is growing at rate of 15 to 20 % annually and new business premiums are growing over 40 % annually from the last six years, but its penetration is 4 % of India's GDP which is much lower than developed economies of 6 - 9 %. Therefore, studying the performance of life insurance industry of India is an important discussion for the regulators and policy makers to support the sector in achieving the excellence so that desirable economic fruits could be reaped from the help of the life insurance sector of India.

REVIEW OF LITERATURE

In the present section an attempt has been made to examine the review of literature related to the study.

Arora (2002) highlighted that LIC was likely to face tough competition from private insurers having large established network and their trained intermediaries throughout India. Verma (2003) analyzed the various types of products offered by public sector giant and the new global players in the private sector. Sinha, Ram Pratap (2007) revealed that the public sector insurers dominates the private sector insurers in terms Of mean technical efficiency in constant returns to scale, while the private sector insurers have a slightly higher mean technical efficiency than the public sector insurers in variable returns to scale. Goswami (2007) examined that prior to privatization of insurance sector; Life Insurance Corporation (LIC) of India was the monopoly in the life insurance industry in India. In six years since the entry of private players in the insurance market, LIC has lost 29% market share to the private players, although both, market size and the insurance premium being collected, are on the rise.

Ray, Subhasis and Pathak (2006) opined that ever since the privatization of the insurance sector in India in 2000, the industries has been witnessing the birth of numerous private players, mostly joint ventures between foreign insurance giants and Indian diversified conglomerates and each one is trying to make an inroad into the huge untapped market. Bhattacharya (2005) advocated that banc assurance provided the best opportunities to tap the large potential in rural and semi urban areas as banks have a strong network of more than 40000 branches in these areas. He suggested that the insurers should focus on single premium policies, Unit Linked Insurance, Pension Market and Health Insurance.

Kumar and Taneja (2004) highlighted the opportunities and challenges before the insurance industry in India due to liberalization, globalization and privatization. Jain (2004) revealed that waves of liberalization have done wonders to proper the insurance occupation to the status of a career with a bright future. The

average mindset, particularly of younger generation in India was very amenable to the changes to changes in insurance as an avenue where exhilarating opportunities are opened up in changed environment.

Goyal (2004)reviewed that private insurance companies had reason to celebrate with the lifting of the scrotal cap in the insurance sector to 49 percent in the Union Budget 2004-05, as against 26 % earlier. Rao (The Indian Insurance Industry The Road Ahead, 2000) analyzed that India is still an under developed insurance market, it has a huge catch-up potential. According to him even though there is strong potential for expansion of insurance into rural areas, Growth has so far remained slow. Considering that the bulk of the Indian population still resides in rural areas, it is imperative that the insurance industry's development should not miss this vast sector of the population.

INVESTMENT POLICY/STRATEGY OF LIC OF INDIA

Life insurance premiums are received in advance by the life insurance companies. These premiums should be judiciously invested until they are needed to pay claims and expenses. The income received from investment is paid in the form of dividends to policyholders, which reduces the cost of life insurance. Moreover, these premiums, if invested in infrastructure and social sectors, lead to higher economic growth of the country. In view of the above, IRDA has mandated the pattern of investments to be followed by the life insurance companies. It has also specified that every insurer carrying on the business of life insurance shall invest and at all times keep invested his controlled fund (other than funds relating to pension and general annuity business and unit linked life insurance business) in the following manner.

PATTERN INVESTMENTS SPECIFIED BY IRDA – LIFE INSURANCE

Type Of Investment	Percentage
(i) Government Securities	25 %
(ii) Government Securities or Other Approved Securities (including (i) above)	Not less than 50 %
(iii) Approved investments as specified in schedule I (a) Infrastructure and social sector (b) Others to be governed by exposure norms (Investments in "Other than in Approved Investments" in no case can exceed 15 % of the fund)	 Not less than 15 % Not exceeding 35 %

APPROVED INVESTMENTS FOR LIFE BUSINESS

"Approved Investments" for the purposes of Section 27- A the Act shall be as follows.

(a) All approved investments specified in section 27A of the Act except

(i) Clause (b) of sub-section (1) section 27A of the Act.

(ii)first mortgages on immovable property situated in other country as situated in other country as stated in clause (m) of sub- section (1)of section 27 A of the Act.

(iii) Immovable property situated in other country as stated in clause (n) of sub-section (1) of section 27A of the Act.

In addition the IRDA has declared the following investments as approved under vide clause (s) of (1) 27A of the Act.

(b) All secured loans, deposits, debentures, bonds, other debt instruments, shares and preference shares rated as 'very strong' or more by a reputed and independent rating agency.(e.g. AA of Standard and Poor).

(c) Deposits with banks (e.g., in current account, call deposits, notice deposits, term deposits, and certificates of deposits,etc.) and with Primary Dealers recognized by RBI included for the time being in the Second Schedule to the Reserve Bank of India Act,1934(2 of 1934).

(d) Commercial papers issued by a company having a 'very strong' or more rating by a reputed and independent rating agency (e.g. AA of standard and Poor).

(e) Investments in Venture Capital Funds of such companies / organizations which have a proven track record and have been rated very strong or more by a reputed and independent rating agency (e.g. AA of Standard Poor).

OBJECTIVES OF THE STUDY

1. To study the overall performance of LIC of India during the 2001-02 to 2010-11.
2. To measure the impact of the investment strategy of LIC on its Net Profit earned during the period 1998 to 2011.

HYPOTHESES

H_{01}: There is no significant correlation between the Investment strategy of LIC of India and its Net Profit.

H_{02}: There is no significant impact of the investment strategy of LIC on its Net Profit earned during the period 1998-2011.

RESEARCH METHODOLOGY

The research article is based upon exploratory research. Secondary sources of data have been collected for the study. The relevant and required data are collected from the IRDA reports, text books, national and international articles, RBI Bulletin (various issues) as well as annual reports of LIC.

STATISTICAL TECHNIQUES APPLIED

The statistical tools like Correlation, Multiple Regression Analysis & ANOVA are employed in this research for studying the overall performance of LIC of India and to measure the impact of the investment strategy of LIC of India on its Net Profit earned during the period 2003 to 2011. For the processing the data and estimating the results SPSS -17 and Excel have been used.

ANALYSIS OF THE STUDY

COEFFICIENT OF VARIATION

The consistency and reliability of the total life insurance premium underwritten by the LIC of India and Private Life Insurers is analyzed by the coefficient of variation.

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TABLE 1: C.V FOR THE TOTAL LIFE INSURANCE PREMIUM (RS.IN CRORE)

Year	Insurer		Total	Growth over the Previous Year (%)
	LIC	Private Total		
2001-02	49,821.91	272.55	50,094.46	43.54
2002-03	54,628.49	119.06	55,747.55	11.28
2003-04	63,533.43	3,120.33	66,653.75	19.56
2004-05	75,127.29	7,727.51	82,854.80	24.31
2005-06	90,792.22	15,083.54	1,05,875.76	27.78
2006-07	1,27,822.84	28,253.00	1,56,075.84	47.38
2007-08	1,49,789.99	51,561.42	2,01,351.41	29.01
2008-09	1,57,288.04	64,503.22	2,21,791.26	10.15
2009-10	1,86,077.31	79,373.06	2,65,450.37	19.69
2010-11	2,03,473.40	88,131.60	2,91,605.00	9.85
Total	1158354.92	339145.29	1497500.2	-------
Average	115835.4920	33914.5290	-------	24.25
S.D	56522.51574	34125.71018	-------	------
C.V	48.80	100.62	------	------

Source: Computed data

The above analysis indicates that LIC of India is more consistent than Private life insurers as it is inferred that total life insurance premium underwritten by private life insurance companies during the period 2001 to 2011 experienced considerable variations of 100.62 % and only 48.80 % by LIC of India. The mean growth rate of life insurance industry over the study was 24.25 %.

GROWTH OF PREMIUM INCOME IN INDIAN LIFE INSURANCE INDUSTRY

Premium income is the second major source of income of life insurance industry. The table no 2 below reveals that total premium earned.

TABLE 2: MARKET SHARE OF LIFE INSURANCE COMPANIES IN TERMS OF TOTAL PREMIUM UNDERWRITTEN (%)

Year	Insurers				Total	
	LIC of India		Private Insurers			
Year	Total Premium(Rs.in crore)	Market Share (%)	Total Premium (Rs.In crore)	Market Share (%)	Total Premium (Rs In crore)	Total market share
2000-01	34890.02	99.98	6.45	0.02	34898.47	100
2001-02	49,821.91	99.46	272.55	0.54	50,094.46	100
2002-03	54,628.49	97.99	119.06	2.01	55,747.55	100
2003-04	63,533.43	95.29	3,120.33	4.71	66,653.75	100
2004-05	75,127.29	90.67	7,727.51	9.33	82,854.80	100
2005-06	90,792.22	85.75	15,083.54	14.25	1,05,875.76	100
2006-07	1,27,822.84	81.92	28,253.00	18.08	1,56,075.84	100
2007-08	1,49,789.99	74.39	51,561.42	25.61	2,01,351.41	100
2008-09	1,57,288.04	70.92	64,503.22	29.08	2,21,791.26	100
2009-10	1,86,077.31	70.10	79,373.06	29.90	2,65,450.37	100
2010-11	2,03,473.40	69.78	88,131.60	30.22	2,91,605.00	100

Source: Compiled from various Annual Reports of IRDA from 2000-01 to 2010-11.

The above table reveals that Even though the LIC of India is the industry leader but its market share is in decreasing trend during the study period from 2000 to 2011 .The share of LIC premium and Private sector premium as well as market share is in increasing trend during the study period.

NEW POLICES UNDERWRITTEN BY LIFE INSURANCE COMPANIES

Under writing is the process through which insurers select what risks to insure and decide how much premium to charge for accepting those risks. In order to measure the consistency and reliability of the new policies underwritten by the LIC of India and Private Life Insurance companies, it is evaluated through coefficient of variation (C.V).During 2010-11, life insurers issued 482 lakh polices (76.91% of total policies issued) and the private life insurers issued 111 lakh policies (23.09 %).While L IC suffered a decline of 4.70% in the number of new policies issued against the previous year, the private sector insurers reported a significant decline of 22.61% in the number of new policies issued. Overall, the industry witnessed a 9.53% decline in the number of new policies issued.

TABLE 3: COEFFICIENT OF VARIATION (C.V) FOR THE NO. OF POLICIES UNDER WRITTEN BY LIFE INSURERS

Year	LIC of India	Private Insurers total	Total Policies	Growth over the Previous Year (%)
2002-03	24545580	825094	25370674	------
2003-04	26968069	1658847	28626916	12.83
2004-05	23978123	2233075	26211198	-08.44
2005-06	31590707	3871410	35462117	35.29
2006-07	38229292	7922274	46151566	30.14
2007-08	37612599	13261558	50874157	10.23
2008-09	35912667	15010710	50923377	0.10
2009-10	38862567	14362000	53224667	4.52
2010-11	37038000	11114000	48152000	-9.53
Total(lacs)	2947.39	702.59	3649.97	----
Average(lacs)	327.4878	78.07	-----	----
S.D(lacs)	61.08	57.95	------	-----
C.V	18.65	74.23	-----	------

Source: Computed Data from various IRDA Annual Reports

The above table indicates the fact that the new policies underwritten by Private Life Insurers during the period 2002 -2011 experienced considerable variations of 74.23 % and only 18.65 % by LIC of India. The coefficient of variation percent for LIC of India is less than the coefficient of variation percent for Private life insurers. Hence it is concluded that LIC of India is more consistent than private life insurance companies.

TABLE 4: **NET PROFIT AND GROWTH TREND OF NET PROFIT EARNED BY LIC OF INDIA**

Year	Net Profit (Rs.in Cr.)	Growth Trend (%)	Annual Growth Rate (%)
2002-03	496.97	100.00	---
2003-04	551.81	111.03	11.03
2004-05	708.37	142.54	28.37
2005-06	631.58	127.09	-10.84
2006-07	773.62	155.67	22.49
2007-08	844.63	169.96	9.18
2008-09	957.35	192.64	13.35
2009-10	1060.72	213.44	10.79
2010-11	1,172.0	235.83	10.49

Source: For calculating trend 2002-03 is taken as base year.

The above indicates that Net Profit has been in increasing from 2005-06 to 2010-11. The growth trend in Net Profit from 2002-03 to 2010-11 except in 2006-07 where as the annual growth rate in net profit has been in fluctuating trend from 2003 to 2010-11.

TABLE 5: OVERALL EXPENSES RATIO AND INTEREST REALIZED RATIO OF LIC OF INDIA

Year	Commission ratio	Overall expenses Ratio	Ratio of interest earned on mean life insurance fund (Yield on Investment in %)
2002-03	7.95	13.90	6.21
2003-04	6.12	12.06	7.13
2004-05	8.32	16.30	9.93
2005-06	7.82	14.48	8.72
2006-07	7.18	12.72	8.21
2007-08	6.42	11.94	7.83
2008-09	6.39	12.45	7.71
2009-10	6.52	13.10	7.59
2010-11	6.56	14.89	7.39

Source: Calculated from the annual reports of LIC of India.

The success of any organization to a large extent depends upon reducing expenditure and LIC is no exception. Table above represents the Expense ratio and Interest earned on Mean life fund of LIC during the period under the study. The overall expense ratio has in increasing trend from 2007-08 to 2010-11.The commission ratio was in decreasing trend from 2004-05 to 2008-09 and from 2008-09 on words is in increasing trend.

The rate of interest realized on mean life fund has declined continuously from 9.93 percent in 2004-05 to 2010-11.In short, the expense ratio has increased while the rate of interest realized on mean life fund has declined, which is alarming. In this regard, it is suggested to the LIC management to control the unproductive expenditure. It is also suggested to the LIC to change its investment portfolio in such a way that the rate of interest on mean life fund is increased.

TABLE 6: INVESTMENT MADE BY LIC OF INDIA (Rs. In Crore)

Year (march end)	Sector –wise				Instrument wise of which		Total (2 to 5) Or (6 to 7)
	Public	Private	Joint	Co-operative	Stock exchange Securities	Loans	
1	2	3	4	5	6	7	8
2003	219596.7	29406.8	684.5	2082.3	222449.3	27539.8	251770.3
2004	271778.5	51923.6	959.6	2079.5	297566	31800.4	326741.2
2005	322021.8	68484.5	1270.2	1408.2	355634.7	37529.5	393184.6
2006	378807.2	105148.1	1915.5	1356.5	450557.2	37135.3	487227.2
2007	433810.3	84294	75.2	3555.1	480426.8	41307.8	521734.6
2008	503388.4	128467.8	73.7	3817.6	590466.6	45281	635747.5
2009	572050.3	187140.8	71.7	3628.9	715710.4	47181.4	762891.7
2010	678374.5	236134.7	70.9	3336.5	872061.7	45854.9	917916.5
2011	775992.5	265798.3	82.1	3666.6	1001755	43784.2	1045539

Source: Life Insurance Corporation of India.

INVESTMENT STRATEGY OF LIC

TABLE NO 7: CORRELATION MATRIX FOR SECTOR SPECIFIC INVESTMENT STRATEGY

Particulars	PS	PVS	JS	COS	NPr
PS	1				
PVS	0.983**	1			
JS	-0.622	-0.535	1		
COS	0.733**	0.638	-0.946**	1	
NPr	0.986**	0.963**	-0.656	0.735*	1

Source: SPSS & ** Correlation is significant at 0.01 level of significance (2-tailed) & * Correlation is significant at 0.05 level of significant (two-tailed).

The above table is the result of spss which indicates that there exists correlation between Net Profit of LIC(NPr) and its investment towards PS (Public Sector),NPr and PVS (Private Sector), NPr and COS(Cooperative Sector) is positive and significant at 1 percent and 5 percent level of significance except negative and not significant correlation between NPr and JS (Joint Sector) .

TABLE NO 8 : CORRELATION MATRIX FOR INVESTMENT STRATEGY(LOANS & STOCKEXCHANGE SECURITIES)

Particulars	St	L	NPr
St	1		
L	0.827**	1	
NPr	0.981**	0.866**	1

Source: SPSS & ** Correlation is significant at 0.01 level of significance (2-tailed).

The above table indicates that there exists correlation ship between Net Profit of LIC (NPr) and its investment policy towards St (Stock exchange securities) and L (Loans) is positive and significant at 1percent level of significance.

MULTIPLE REGRESSION ANALYSIS

IMPACT OF INVESTMENT STRATEGY (SECTOR SPECIFIC) OF LIC ON ITS PROFITABILITY

TABLE NO 9 : MODEL SUMMARY

model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.993[a]	.985	.970	39.57336

Source : SPSS & a. Predictors: (Constant), Cos, PVS, JS, PS.

TABLE NO 9.1 : ANOVA

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	417727.322	4	104431.831	66.685	0.001a
Residual	6264.203	4	1566.051		
Total	423991.526	8			

a) Predictors : (Constant),Cos ,PVS,JS,PS, b) Dependent Variable : Npr

F table value for $\upsilon_1=4$, $\upsilon_2=4$ degrees of freedom at 0.05 & 0.01level of significance =6.38 & 15.97, F-cal value = 66.68 > F-table value (6.38) at 5 percent level of significance and F-cal =66.68 > F-table of 15.97 at 0.01 level of significance.

We can reject null hypothesis .we have to accept Ha (alternative) .Therefore, There is significant evidence of statistical correlation as well as the impact of investment strategy of LIC (Sector Specific) on its Profitability is positive and significant.

TABLE NO 9.2 : COEFFICIENTS

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	451.804	160.672		2.812	.048
PS	.002	.001	1.489	2.819	.048
PVS	-.001	.001	-.417	-.909	.415
JS	-.126	.070	-.371	-1.806	.145
Cos	-.099	.060	-.442	-1.649	.175

Source: SPSS.

Table no 6 reveals the investment strategy of LIC. The above tables 9, 9.1 and 9.2 are results of multiple regression analysis. The regression model used in this analysis is as follows. NP= β0 + β1PS + β2PVS + β3JS + β4COS, where = β0, β1, β2, β3 and β4 are the parameters of NP line to be estimated. The pooled regression results of the model used to find out the impact of investment made in various sectors by LIC on NP .In the pooled regression NP (Net Profit earned by LIC) is used as dependent variable and selected sectorial investment made by LIC (Public Sector (PS), Private Sector (PVS), Joint Sector (JS) and Cooperative Sector (COS) are all the independent variables taken together and the impact of these independent variables on the Net Profit of the company. The correlation coefficient for all independent variables are PS (0.98[**]), PVS (0.96[**]), JS (-0.656) & COS (0.735[*]) from these figures it is found that Public, Private Sector and Cooperative Sector are positively correlated and significant statistically with Net Profit earned of the LIC and remaining Joint Sector has statistically in significant negative correlation with Net Profit earned of LIC. The multiple correlation co-efficient of NP on PS, PVS, JS, and Cos is 0.993, it reveals that Net Profit earning of LIC is highly influenced by its sectorial investment It is also evident from the R^2 value that the independent variables (various sectors investment) contribute to 98.5 percent of the variation in the Net Profit (dependent variable).Hence, it is inferred that sectorial investment of LIC have significant impact on its Net Profit earned. Also, Adjusted R squared attempts to correct R squared to more closely reflect the goodness of fit of the model in the population. Both R squared and Adjusted R squared must be close each other high for better model fit. In our study, it has been found that we have R square value more than 0.5 and adjusted R square value being close to R square value. This proves that data is fit to be used and the model that has been chosen for it is equally fit.

IMPACT OF INVESTMENT STRATEGY (IN TERMS OF STOCK EXCHANGE SECURITIES AND LOANS) OF LIC ON ITS NET PROFIT

TABLE 10: MODEL SUMMARY

Model	R	R^2	Adj.R^2	Std. Error of the Estimate
1	0.986[a]	0.972	0.963	44.328

Source: SPSS & a. Predictors. (Constant) L, St.

TABLE 10.1: ANOVA

Model 1	Sum of Squares	df	Mean Square	F	Sig.
Regression	412201.327	2	206100.663	104.884	.000[a]
Residual	11790.199	6	1965.033		
Total	423991.526	8			

a): Predictors : (Constant), L, St. b) Dependent Variable: NPr.

F table value for $\upsilon_1=2$, $\upsilon_2=6$ degrees of freedom at 0.05 & 0.01level of significance =5.14 & 10.92, F-cal value = 104.88 > F-table value at 5 percent level of significance and F-cal =104.88 > F-table of 10.92 at 0.01 level of significance.

We can reject null hypothesis .we have to accept Ha (alternative) .Therefore, There is significant evidence of statistical correlation as well as the impact of investment strategy of LIC (stock exchange securities and loan instrument) on its Profitability is positive and significant.

TABLE NO 10.2: COEFFICIENTS

Model	Un Standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
1 Constant	161.641	120.841		1.338	0.229
St	.001	.000	0.838	6.927	0.000
L	0.006	0.004	0.173	1.431	0.202

Source: SPSS.

Table no 6 indicate the investment strategy of LIC. Tables 10, 10.1 and 10.2 are results of multiple regression analysis. The regression model used in this analysis is as follows. NP= β0 + β1St + β2L where = β0, β1 & β2 are the parameters of NP line to be estimated. The pooled regression results of the model used to find out the impact of investment made in various instruments by LIC on NP .In the pooled regression NP (Net Profit earned by LIC) is used as dependent variable and

selected sectorial investment made by LIC (Public Sector (PS), Private Sector (PVS), Joint Sector (JS) and Cooperative Sector (COS) are all the independent variables taken together and the impact of these independent variables on the Net Profit of the company. The correlation coefficient for all independent variables are PS (0.98**), PVS (0.96**), JS (-0.656) & COS (0.735*) from these figures it is found that Public, Private Sector and Cooperative Sector are positively correlated with Net Profit earned of the LIC and remaining Joint Sector has negative correlation with Net Profit earned of LIC . The multiple correlation co-efficient of Stock Exchange Securities and Loan is 0.986, it reveals that Net Profit is highly influenced by investible instruments of LIC. It is also evident from the R2 value that the independent variables (investible instruments) contribute to 97.2 percent of the variation in the Net Profit .Hence, it is inferred that investible instruments of LIC have significant impact on its Net Profit earned. Also, Adjusted R squared attempts to correct R squared to more closely reflect the goodness of fit of the model in the population. Both R squared and Adjusted R squared must be close each other high for better model fit. In our study, it has been found that we have R square value more than 0.5 and adjusted R square value being close to R square value. This proves that data is fit to be used and the model that has been chosen for it is equally fit.

CONCLUSIONS AND SUGGESTIONS

The study reveals that the operating efficiency of LIC has improved as excess of income over outgo is in increasing trend. There is huge change in the investment strategy of LIC .Private sector performance in terms of total premium earned, number of polices issued and market share is in increasing trend where as LIC market share is in declining trend, net profit has been fluctuating during the study and except in total premium earned, total polices issued and claim settlement ratio. The investment of LIC is increased from 77.5 % in 1998 to 95.81 % in 2010-11 due to effective regulation of SEBI and increasing transparency and performance of Indian corporate securities. The multiple Regression analysis revealed that investment strategy of LIC has significantly positive impact on its Profitability as R multiple Correlation Coefficients in case of sector wise investment (0.99) and instrument wise investment (0.98) is high. The Regression model is valid and best fit to the data as adjusted R^2 value being close to R^2 value.

It was analyzed that the total business of LIC is an increasing trend. Total investment of LIC enhanced from Rs.93600crore in 1998 to Rs.1045539 crore in 2011.Proportion of premium collected by LIC out of total premium collected by life insurance industry is declined from 99.46 % in 2001-02 to 69.78 % in 2010-11.It indicates the enhancing competition from private sector insurers .ICICI Prudential is becoming leader in private sector insurers by taking over a lot of business of LIC due to aggressive strategies, innovative product range a, strong branch network and efficient work force. The claim settlement ratio of LIC is very high and it is more than private sector .Private sector claim settlement ratio is in increasing trend. Indian insurance industry density and penetration is low when compared with emerging markets in the world. India is the second most populous country in the world. The rural market in India has vast potential .Therefore; there is a lot of scope for development in the life insurance industry where private sector will be a challenge in the front of LIC.

Even though the investment strategy of LIC has significantly positive impact on its Net Profit earned at same time it average investment yield is fluctuating. Therefore, we can suggest to the LIC to modify its investment strategy so that to optimize its average yield of investment without violating regulatory norms. This research results are useful to the policy makers, researchers, insurers, consultants, bankers, policy holders, corporate agents and other agents who connected with the insurance industry in comprehensively analyzing the impact of investment strategy or portfolio strategy of insurers on their profitability.

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PREDICTION OF DHAKA TEMPERATURE BASED ON SOFT COMPUTING APPROACHES

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ABSTRACT

Soft computing forecasting tools play an important role to forecast many complicated systems. In this paper, an effort has been made to use soft computing approaches to predict Dhaka daily temperatures for the period of 28 February 1945 to 27 August 2006. We have selected the fuzzy neuro model, the neuro genetic algorithm model as soft computing techniques. To compare results, a popular time series statistical technique, namely autoregressive integrated moving average model is selected and based on error analysis, a suitable model to predict temperature for the Dhaka city is proposed. The performance comparisons of different models due to root mean square error, correlation coefficient and coefficient of determination between observed and predicted temperatures indicate that the neuro genetic algorithm model predicts temperatures with maximum accuracy, followed by the fuzzy neuro model. Our believe findings of this paper will be useful for those who are interested about Bangladeshi important atmospheric parameter, namely temperature.

JEL CODES
C22, C24, C45, C53

KEYWORDS
Artificial neural network, Genetic algorithm, Prediction, Soft computing**,** Statistical error measures.

1. INTRODUCTION

Forecasting is a technique of knowing what may happen to a system when certain conditions continue (or continue to change). In recent years, soft computing techniques are being increasingly used for forecasting systems. For examples, see Mandal et.al (2008), Zhang and Knoll (2001), Chaudhuri and Chattopadhyay (2005) and others. These techniques have opened up new avenues to the forecasters of complex systems. The basic philosophy of these techniques is that they build prediction systems from input-output patterns directly without using any prior information. Soft computing models composed of fuzzy logic, neural network, genetic algorithm etc. Over the years, the application of neural network in various areas (Cook and Wolfe (1991), Dawson and Wilby (1998) and others) has been growing in acceptance. Given sufficient input-output data, this network is able to approximate any function to arbitrary accuracy. Fuzzy logic is another area that has been applied successfully in recent years (Nayak et al. (2005), Singh (2007) and others). Another area of soft computing is genetic algorithm (GA) (Maritza (2009), Sen and Oztopal (2001) and others), is a global search algorithm based on the principle of 'survival of the fittest'. Most of times, these three components are combined in different ways to form models like fuzzy-neuro model, neuro-GA model etc. In literature, all of these combinations are widely used in prediction of systems. For example, neural network and fuzzy logic models are proven to be effective when used on their owns, the individual strengths of each approach have been integrated to construct a powerful intelligent system called neuro fuzzy system. Many researchers have (Nayak et al (2004), Dounis et al. (1997) and others) applied an adaptive neuro fuzzy inference system (ANFIS) for many systems modeling. The results were highly promising and a comparative analysis suggests that ANFIS outperforms than the independent neural network and the fuzzy logic models in terms of computational speed, forecast errors, efficiency etc. On the other hand, merging of GA and neural network will lead to significantly better intelligent systems than relying on neural network or GA alone (Khan et al. (2008), Lin (2004) and others). This means, find first a neural network model and then update the model using GA. The purpose of this paper is to forecast important meteorological parameter namely temperature using soft computing methodologies. It is well known that prediction of meteorological variable temperature is very important because it affects our daily lives in many ways. For example, forecasts based on temperature is important for agricultural planning, water resources management and also forecasting other important meteorological variables like rainfall, humidity wind speed etc. Temperature forecasts are used by utility companies to estimate their demands over coming days. Forecasting with 100% accuracy may be impossible, but we can do our best to reduce forecasting errors. To solve forecasting problems, many researchers (Chaudhuri and Chattopadhyay (2005), Nayak et al (2005), Maritza (2009) and others) have proposed soft computing models. This paper presents a comparative study of soft computing models, namely neuro-fuzzy model, neuro-GA model and a statistical model to forecast temperature of Dhaka city. Other meteorological variables are left for future research. We have chosen the autoregressive integrated moving average model as a statistical model. The reason is to choose this model for small forecasting errors and efficiency than other time series statistical models. Mounting empirical works (Chaudhuri and Chattopadhyay (2005), Maritza (2009), Denis et al (1997) and many others) have been carried out to forecast temperatures using various forecasting models in context of various countries. Although studies (Mondal and Shahid (2004) and others) have been conducted to predict temperature for other cities of Bangladesh, to our knowledge, no comparative work is available to predict temperature under the soft computing models for the Dhaka city. We have considered this issue in this paper, which is planned as follows: The next section explains data series and data properties. The methods used to forecast temperature for Dhaka city is described in section 3. We provide evaluation criteria and our experimental results in section 4. Finally, conclusions and some suggested future works are given in Section 5.

2. DATA

Data under investigation are the daily minimum (MinTem) and maximum (MaxTem) temperatures of the Dhaka city (collected from: ftp://ftp.ncdc.noaa.gov/pub/data/ghcn/v2), over the period of 28 February 1945 to 27 August 2006 for a total of 6469 observations. The data sets are shown in Figure 1. To understand behaviors of the MinTem and MaxTem variables, summary statistics are reported in Table 1. For example, mean and SD for MinTem shows us minimum temperatures are ranging 16.8^0C to 27^0C. Skewed and kurtosis measures indicate that temperatures pattern do not follow the normal distribution.

FIGURE 1: TIME PLOTS OF MINIMUM AND MAXIMUM DHAKA CITY TEMPERATURES
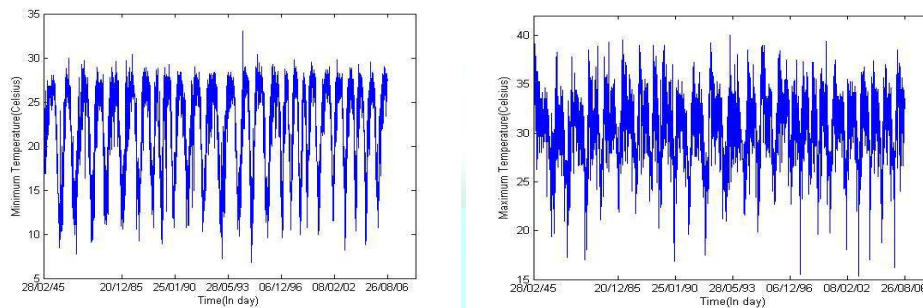
TABLE 1: SUMMARY STATISTICS OF DHAKA CITY TEMPERATURE

Statistics	MinTem (^{0}C)	MaxTem(^{0}C)
Mean	21.9	30.6
Standard deviation	5.1	3.4
Skewness	-0.66	-0.53
Kurtosis	2.21	3.28

Various methods for forecasting when series is linear or non-linear are available in literature. The method, a forecaster chooses depends upon the experience of the forecaster, the amount of information available to the forecaster and the degree of accuracy or confidence needed in the forecast. To select appropriate forecasting method, first we have selected statistical diagnostic tests to 'diagnose' problems with the model (see the next section) that we are using for forecasting. These tests are based on the ordinary least square method residuals. The statistical test proposed by Engle (1982) is used to test the presence of non-linear dependence. In addition, normality test proposed by Jarque-Bera (1980) and serial correlation test proposed by Ljung-Box (1978) are applied to

TABLE 2: DIAGNOSTIC TESTS RESULTS AT THE 5% SIGNIFICANCE LEVEL

Statistics	MinTem (^{0}C)	MaxTem(^{0}C)
Jarque and Bera Statistic	50.7079	31.2763
p-value	0.0000	0.0000
Ljung and Box Statistic	56.57	43.56
p-value	0.0000	0.0000
Engle statistic	59.79	45.09
p-value	0.0000	0.0000

see whether other important noises (peculiarities) such as non-normality and series correlation are present in the series or not. Details of the diagnostic test procedures see Thomas (1997). Diagnostic test results are tabulated in Table 2. We found that the Engle test exhibits nonlinearities in temperatures. The Jarque-Bera test rejects the null hypothesis of normality. According to the Ljung-Box statistic, there is no relevant autocorrelation for temperatures.

3. TECHNIQUES USED TO PREDICT TEMPERATURE

Since Table 2 tests results show us that the chosen variables are non-linear, we have selected non-linear forecasting techniques to forecast minimum and maximum temperatures for the Dhaka city station. The following most popular soft computing techniques are chosen, which composed of fuzzy logic, neural network and genetic algorithm:

(a) Fuzzy neuro model
(b) Neuro genetic algorithm model

All of this combination is widely used in prediction of time series data (Nayak et al. (2004), Dounis et al. (1997), Khan et al. (2008), Lin (2004)). To compare results, beside these techniques, we have selected a popular statistical technique, namely autoregressive integrated moving average time series technique.

A brief description of the above popular selected models is described below:

3.1 FUZZY NEURO MODEL

The basic concept comprises the neural approach, fuzzy theory such as fuzzy set, membership functions and fuzzy if-then inference rules. That means it is a combination of two intelligence systems: (i) fuzzy inference system and (ii) neural network system, where neural network learning algorithm is used to determine parameters of fuzzy inference system. It is the first integrated hybrid neuro-fuzzy model, introduced by Jang (1993) and is referred to literature as adaptive network based fuzzy inference system (ANFIS). This system has 5 layers: (i) 1 input layer (ii) 3 hidden layers that represents mfs and fuzzy rules and (iii) 1 output layer. See Jang (1993) for its architecture. First, it uses the training data set to build the fuzzy system in which membership functions are adjusted using the back-propagation algorithm, allowing that the system learns with the data that it is modeling. The membership function patterns used for the input series are of triangular shape, trapezoidal shape, Gaussian shape, sigmoidal shape and others. The fuzzy inputs with their associated membership functions form inputs to the neural network, which processed through a transfer functions (such as hard limit, linear, pureline, transig, logsigmoid, sigmoid) at the nodes of different layers of the network to obtain output. The learning algorithm of ANFIS is a hybrid algorithm, which combines the gradient descent (GD) method and the least square estimation (LSE) for an effective search of parameters. ANFIS uses a two pass of learning algorithm to reduce error: (i) forward pass and (ii) backward pass. The hidden layer is computed by the GD method of the feedback structure and the final output is estimated by the LSE method (details, see Jang (1993)).

3.2 NEURO GENETIC ALGORITHM MODEL

We used GA based neural network model. The steps are as follows:

(i) Construct first artificial neural network architecture by error and trial method.
(ii) Extract weights for the above network by implementing genetic algorithm i.e. construct a back-propagation network with GA (ANN-GA).
(iii) Train the ANN-GA network with different parameter values of population.
(iv) Find the best parameter value from the selected population parameters values to forecast temperatures.

A brief description of ANN and GA methodologies is given below.

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 66

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3.2.1 ARTIFICIAL NEURAL NETWORK MODEL

It is introduced by Culloch (1943) consists the following processing functions: (i) Receiving inputs (ii) Assigning appropriate weight coefficients of inputs (iii) Calculating weighted sum of inputs (iv) Comparing this sum with some threshold and finally (v) Determining an appropriate output value. An ANN structure has 1 input layer, two hidden layers (with sufficient no. of neurons) and 1 output layer. See Culloch (1943) for its architecture. The training algorithm is the standard back-propagation, which uses the GD technique to minimize error. During training, each estimated temperature is compared with the actual temperature and calculates error at the output layer. The backward pass is the error back-propagation and adjustments of weights. Thus, the network is adjusted based on a comparison of output and the target until the network output matches the target. When the training process is completed, then the network with adjusted estimated parameters is used to test a set of data, which is different from the training set of data. For details, see Culloch (1943) and Banik et al. (2012).

3.2.2 GENETIC ALGORITHM MODEL

This technique is proposed by Holland (1975). It is a computerized search and optimization algorithm based on the mechanics of natural genetics and natural selection. It operates on a population of individuals which represent solution for a given problem.

3.2.2.1 GENETIC TERMS

It involves the following terms:

Chromosomes – Population characteristics.

Population- A set of solutions represented by chromosomes.

Fitness function - It measures the performance of the system. The fitness function to be evolved is problem dependent. For prediction and estimation problem, the function will be root mean square error, coefficient of determination etc.

3.2.2.2 GENETIC OPERATORS

It consists of three operators:

Reproduction – It is also known as selection operator is used to select the best chromosomes for parents from population.

Crossover - Basic operator for producing new (improved) chromosomes is known as crossover (a version of artificial mating). It produces offspring that have some parts of both parents genetic material. Offspring are produced using the intermediate crossover method, because this is a method proposed to recombine of parents with real valued chromosomes.

Mutation - Offspring are mutated after being produced crossover offspring and this GA operator increases the chance that the algorithm will generate better fittest MSE (for example) than the GA crossover operator. For details of the GA procedures, see Holland (1975) and Banik et al. (2009).

Thus, we developed a GA based ANN system, which is a neuro-genetic hybrid approach, where GA is used to determine the weights of a multilayer network with the back propagation learning.

3.3 AUTOREGRESSIVE INTEGRATED MOVING AVERAGE MODEL

In statistics, traditionally, a time series forecasting problem is tackled using the technique Autoregressive Integrated Moving Average (ARIMA) model introduced by Box and Jenkins (1976). We have chosen this method, because it is a very popular statistical method, which is widely used to forecast time series data in time series literature. General form of an ARIMA(p,d,q) can be written as follows, where p is the autoregressive order, d is the integration order and q is the moving average order:

$$Temp_t = \text{cons} \tan t + \sum_{i=1}^{p} a_i Temp_{t-i} + \sum_{j=1}^{q} b_j e_{t-j} + e_t$$
, t = 1,2,…, n

where $Temp_t$ is the observed temperatures, a_i denotes autoregressive coefficients, b_j denotes moving average coefficients and e_t is a white noise disturbances term.

In this paper, an effort has been made to predict temperatures for the Dhaka city applying methods (3.1)-(3.3). Finally, based on the error analysis, suitable models have been recommended to predict temperatures for the Dhaka city.

The functional patterns for forecasting models of MinTem and MaxTem variables are as follows:

$$MinTem_t = f(\text{lag values of } MinTem_{t-i})$$, i = 1,2,…p

$$MaxTem_t = f(\text{lag values of } MaxTem_{t-i})$$, i = 1,2,…p

where p is the lag order chosen by the selected forecasting models. Our target is to estimate the above models parameters using the techniques of ANFIS, GA-ANN and ARIMA.

4. EVALUATION CRITERIA AND EXPERIMENTAL RESULTS

4.1 EVALUATION CRITERIA

The comparison and the evaluation of the selected models are done according to their predictions using the following statistical estimators:

(i)   Root mean square error (RMSE)

(ii)   Coefficient of correlation (ρ)

(iii)   Coefficient of determination (R^2)

These are defined as follows:

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n}(O_i - P_i)^2}{n}},$$

$$\rho = \frac{\sum_{i=1}^{n}(O_i - O_{AVG})(P_i - P_{AVG})}{\sqrt{\sum_{i=1}^{n}(O_i - O_{AVG})^2}\sqrt{\sum_{i=1}^{n}(P_i - P_{AVG})^2}}$$

$$R^2 = \left[\frac{\sum_{i=1}^{n}(O_i - O_{AVG})(P_i - P_{AVG})}{\sqrt{\sum_{i=1}^{n}(O_i - O_{AVG})^2}\sqrt{\sum_{i=1}^{n}(P_i - P_{AVG})^2}}\right]^2$$

where n = Total no of observations, O_i = observed temperature, P_i = predicted temperature, O_{AVG} = average observed temperature and P_{AVG} = average predicted temperature. RMSE are used to measure the accuracy of prediction through representing the degree of scatter and a smallest value of RMSE indicates higher accuracy in forecasting. Correlation coefficient ρ represents the strength of relation (match between observed and predicted temperatures). R^2 is a measure of the accuracy of prediction of the trained network models. Higher ρ and R^2 values indicate better prediction.

4.2. RESULT ANALYSIS

For development of all models for forecasting Dhaka temperatures, MATLAB programming codes are used. The first 50% data are used as the training period and the rest 50% as the testing period. To reduce error, an error and trial approach for MinTem and MaxTem variables is used to find the computational settings for each of selected techniques, which are reported in Table 3. Initially an ANN model is developed and then it is integrated with fuzzy logic to develop an ANFIS model. Further the ANN weights are optimized by genetic algorithm to develop a GA-ANN model. For the accuracy of the ARIMA models, autocorrelation function and partial autocorrelation correlograms are examined (figures are available on request) and the model is obtained is ARIMA(3,1,2) for both MinTem and MaxTem variables. The estimated equations obtained by ARIMA(3,1,2) are as follows:

$$MinTem_t = 0.3693 + 0.1190\,MinTem_{t-1} - 0.8429\,MinTem_{t-2} + 0.1186\,MinTem_{t-3} + 0.1197\,e_{t-1} - 0.6040\,e_{t-2}, t = 1,2,\ldots,n$$

$$MaxTem_t = 3.2759 + 0.1168\,MaxTem_{t-1} + 0.0589\,MaxTem_{t-2} - 0.1210\,MaxTem_{t-3} - 0.5961\,e_{t-1} + 0.1139\,e_{t-2}, t = 1,2,\ldots,n$$

The performance measures used to evaluate the models are RMSE, ρ and R^2. Results are tabulated in Tables 4-5. The graphical comparison between observed and 3 models predicted temperatures are shown in Figures 2 to 3.

It has been observed that for the MinTem series and for the training data, RMSE obtained from various models lie in the range of 1.8333-2.8300 with the GA-ANN model performing the best with RMSE 1.8333 (i.e. good match between actual and predicted temperatures), followed by ANFIS with RMSE 2.7773. Similarly, it is observed that the GA-ANN predicted temperature matches well with the observed temperature showing a high value of 0.9633 followed by the ANFIS and the ARIMA with R^2 values of 0.9337 and 0.8933 respectively.

For testing data, the RMSE obtained from various model lie in the range of 1.7237-3.8229 with the GA-ANN model performing the best with RMSE 1.7237, followed by ANFIS with RMSE 3.7800. Similarly, we observed that the GA-ANN predicted temperature matches well with the observed temperature showing a high value of 0.9943 followed by the ANFIS and the ARIMA with R^2 values of 0.9454 and 0.9071 respectively.

TABLE 3: ANFIS, GA-ANN AND ARIMA ARCHITECTURE PARAMETERS FOR TEMPERATURE FORECASTING MODELS

ANFIS		GA-ANN		ARIMA	
No. of Inputs	6	No. of input neurons	10	No. of AR coefficients	3
No. of MF	3	No. of Hidden neurons	6	Integration order	1
MF type	Gaussian	No.of hidden layers	2	No. of MA coefficients	2
Transfer function of hidden layer	Sigmoid	Learning rate	0.01		
Transfer function of output layer	Linear	Tansfer function of hidden layer	Sigmoid		
Training algorithm	Hybrid	Transfer function of output layer	Linear		
Training goal	0.01	Momentum factor	0.30		
		Training algorithm	Back-propagation		
		Training goal	0.01		
		Population	1000		
		Generation	200		
		Selection function	Roulette		
		Crossover rate	0.90		
		Mutation rate	Gaussian		

TABLE 4: PERFORMANCE MEASURES OF SELECTED MODELS FOR TRAINING DATA

Performance Measures	ANFIS	GA-ANN	ARIMA	ANFIS	GA-ANN	ARIMA
	MinTem			MaxTem		
RMSE	2.7773	1.8333	2.8300	1.89	1.5945	1.9200
ρ	0.9662	0.9814	0.9451	0.9930	0.9964	0.9778
R^2	0.9337	0.9633	0.8933	0.9862	0.9929	0.9561

TABLE 5: PERFORMANCE MEASURES OF SELECTED MODELS FOR TESTING DATA

Performance Measures	ANFIS	GA-ANN	ARIMA	ANFIS	GA-ANN	ARIMA
	MinTem			MaxTem		
RMSE	3.7800	1.7237	3.8229	5.3200	4.4514	5.8900
ρ	0.9723	0.9971	0.9524	0.9241	0.9461	0.9193
R^2	0.9454	0.9943	0.9071	0.8541	0.8952	0.8452

FIGURE 2: ACTUAL AND PREDICTED MINIMUM TEMPERATURES

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 68

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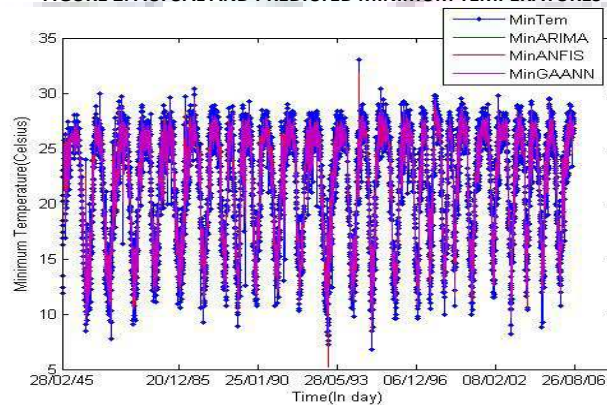
FIGURE 2A: ACTUAL AND PREDICTED MINIMUM TEMPERATURES FOR SOME PERIODS
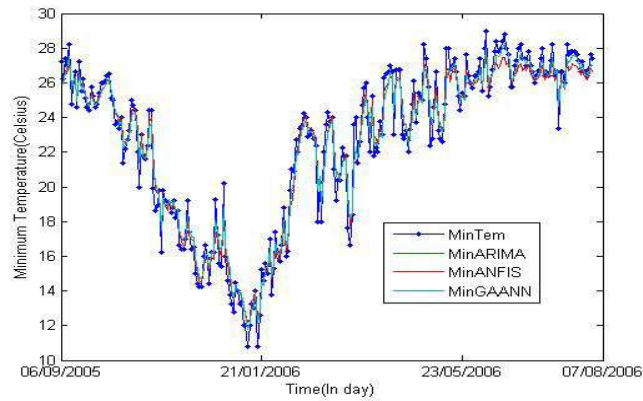
FIGURE 3: ACTUAL AND PREDICTED MAXIMUM TEMPERATURES
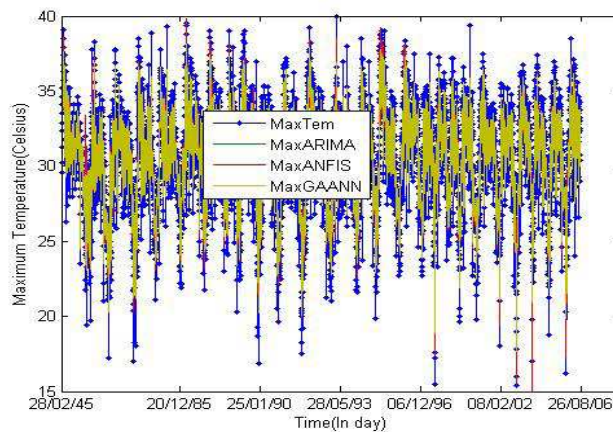
FIGURE 3A: ACTUAL AND PREDICTED MAXIMUM TEMPERATURES FOR SOME PERIODS
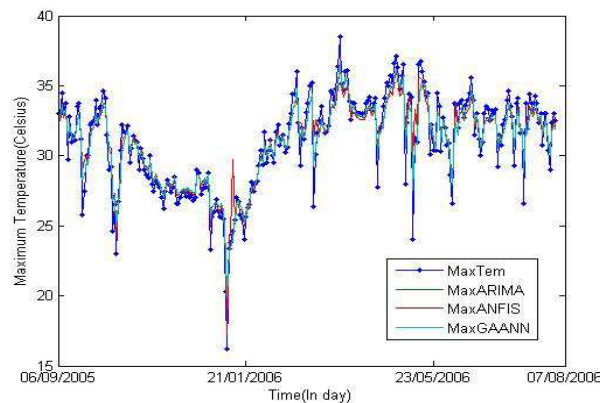
As also can be understood from Tables IV-V, compared to the ARIMA and ANFIS, the GA-ANN for the MaxTem series due to RMSE, ρ and R^2 values, can more efficiently capture dynamic behavior of the weather temperature.

In order to see how well our considered models fitted to the actual MinTem and MaxTem, Figure 2 and Figure 3 added, where three selected forecasting models performances are shown with observed temperatures. To avoid the clumsiness of the figures that means for better understanding, we have added Figure 2a and Figure 3a. The graphical comparison between the observed and considered predicted models temperatures follow the trend of the observed graph. However, it is observed that GA-ANN predicted graph matches well as compare to the ANFIS and ARIMA predicted graphs.

5. CONCLUSION

Using soft computing methodologies, this paper modeled important meteorological parameter namely minimum and maximum temperatures for the Dhaka city, which affects our daily lives and decisions in many ways. We developed an adaptive neural fuzzy inference model and a genetic algorithm based neural network model to predict Dhaka city temperatures. To compare performances of the above two soft computing methodologies, a popular statistical forecasting technique namely autoregressive moving average time series model is used. Initially an artificial neural network model is developed and it is then integrated with fuzzy logic to develop an adaptive neural fuzzy inference model. Further the artificial neural network weights are optimized by genetic algorithm to develop a genetic algorithm based on neural network model. The comparison and evaluation for the considered systems are done according to their predictions using several statistical estimators, namely root mean square error, correlation coefficient and coefficient of determination. Our findings suggest that genetic algorithm based neural network model predicts temperature with maximum accuracy as compared to the adaptive neural fuzzy inference model and the selected time series model. The adaptive neural fuzzy inference model and the autoregressive moving average model performances are not same, but the adaptive neural fuzzy inference model predicts temperature better than the autoregressive moving average model. The proposed models in this paper could

also be used to predict other important meteorological variables namely humidity, wind speed etc. which is also very important for many reasons. This is left for future research.

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SET THEORETIC APPROACH TO FUNDS FLOW STATEMENTS – A STUDY WITH REFERENCE TO STATE BANK OF INDIA

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ABSTRACT

Two most popular as well as basic financial statements are INCOME STATEMENTS and BALANCE SHEET. These two statements serve a very important purpose. They enlighten us about the economic goals of a business entity through the figure of net income and the presentation of the financial position of the enterprise as represented by its assets and liabilities. Nevertheless, these two statements fail to enlighten us about the other important financial aspects of a business entity. They do not give us any information regarding the financing of business operations. i.e. the manner in which the funds have been generated by the enterprise and the pattern of their utilization in such operations. This missing link in these financial statements is provided by the preparation of a additional statement called 'Statement Of Changes In Financial Position'. The statement is also known as 'Fund Flow Statement' or 'Statement of Sources and Applications of Fund'. A statement of sources and application of funds, is a technical advice designed to highlight the changes in financial position of business enterprise between two dates. It is a statement showing flow or movement of funds during a given accounting period. It is basically an inflow-outflow of funds statement. This statement has two parts : resources provided(sources of funds) and resources applied (uses of funds). The difference between the totals of the two sections indicates the net change in funds during the period. Under the above backdrop, let me present before you an interesting discourse for your cerebral exercise. It will spot on some key-issues on how funds-flow analysis can be formulated in terms of set theory. The approach presented here provides an introduction to some basic set-theory concepts in the context of a familiar accounting problem; accordingly, definitions and explanations of these concepts are included.

KEYWORDS
Fund Flow Statement, Financial Position, Set Theory, Analysis.

1.0. BACKDROP

Two most popular as well as basic financial statements are INCOME STATEMENTS and BALANCE SHEET. These two statements serve a very important purpose. They enlighten us about the economic goals of a business entity through the figure of net income and the presentation of the financial position of the enterprise as represented by its assets and liabilities. Nevertheless, these two statements fail to enlighten us about the other important financial aspects of a business entity. They do not give us any information regarding the financing of business operations. i.e. the manner in which the funds have been generated by the enterprise and the pattern of their utilization in such operations. This missing link in these financial statements is provided by the preparation of a additional statement called 'Statement Of Changes In Financial Position'. The statement is also known as 'Fund Flow Statement' or 'Statement of Sources and Applications of Fund'. A statement of sources and application of funds, is a technical advice designed to highlight the changes in financial position of business enterprise between two dates.

Funds Flow Statement is a statement showing flow or movement of funds during a given accounting period. It is basically an inflow-outflow of funds statement. This statement has two parts :

1. *Resources provided(sources of funds) and*
2. *Resources applied (uses of funds).*

The difference between the totals of the two sections indicates the net change in funds during the period.

The present study demonstrates how funds-flow analysis can be formulated in terms of set theory. The approach presented here provides an introduction to some basic set-theory concepts in the context of a familiar accounting problem; accordingly, definitions and explanations of these concepts are included. *The Statement of Sources and Uses of Working Capital* Regardless of the definition of "funds" adopted, the usual first step in preparing a funds statement is the computation of the net change in funds.

This requires a separation of balance sheet accounts into fund (which enter directly into the computation of funds) and non-fund accounts (which do not). For convenience, "funds" are defined as "working capital" unless otherwise stated. Thus, current assets and current liabilities are the fund accounts and all other non-current accounts are the non-fund accounts which we refer to as non-current.

We cover but a few of the basic concepts because of space limitations. No use, for instance, is made of the set ordering brackets in this article. But were it necessary to refer to a set of current assets and were it desired to list accounts in the order of liquidity, we could stipulate this by introducing angular brackets:

Current assets = (Cash, Marketable Securities, Accounts Receivable, . . . , Prepaid Expenses).

2.0. BRIEF REVIEW OF THE AVAILABLE LITERATURE

While finding the pin-pointed research gap and appropriate research questions on the aforesaid topic, we had to jump into a glimpse of available literature, presented underneath :

Most introductory textbooks on mathematics now include a discussion of set theory concepts. For the interested reader, the following introductory material is noted:

Samuel Goldberg, Probability: An Introduction (Englewood Cliffs: Prentice-Hall, 1960), Chap. 1, pp. 1-44;

W. Allen Spivey, "Basic Mathematical Concepts," in Linear Programming and the Theory of the Firm, K. E. Boulding and W. A. Spivey, eds. (New York: Macmillan, 1960), pp. lS-24; F. Mosteller.

R. E. K. Rourke, and G. B. Thomas, Probability with Statistical Applications (Reading, Mass.: .A.ddison-Wesley, 1961). pp. 403-16.

More advanced treatment may be found in Mathematical Association of America, Committee on the Undergraduate Program,

Elementary Mathematics of Sets with Applications fNew Orleans: Tulane University, 1958); Patrick Suppes, Axiomatic Set Theory (Princeton, N. J.: Van Nostrand, 1960).

For a discussion of the mathematical logic underlying funds-flow analyses without the use of set theory concepts, see Ching-wen Kwang and Albert Slavin, "The Mathematical Unity of Funds-Flow Analyses," *NAA Bulletin,* Jan. 1965, pp. 49-56.

3.0. FINDING THE ULTIMATE RESEARCH VACUUM

After a minute study of the above available literatures, we found that no such study has yet been made in the analysis of financial statements of the corporates, especially, belonging to those in the Banking Sector.

4.0. OBJECTIVES OF THE PRESENT STUDY

In view of the above available literatures, we find the following objectives pertinent to our study :

1. To Analyse the Funds Flow Statements in a new approach
2. To make the analysis and interpretation of the Funds Flow and Cash Flow Statements more interesting and attractive to the non-commerce background people.
3. To use more mathematics for managerial decision making, depending on the financial statements.
4. To throw some light on the new approaches used by financial analysts.

5.0. INTRODUCTION TO SET THEORY

A set is a well defined collection of distinct objects. Since accounts are defined in accounting, and since each is distinct from the others, the totality of all balance sheet accounts constitutes a **set**. When a set consists of all objects under discussion in a given context it is called the universe of discourse or the universal set, which we denote by the symbol U. The set of balance sheet accounts is one such universal set. The individual objects which collectively comprise a given set are called its members or elements. The membership relation is denoted by the inclusion symbol €. For example, the cash account Ls an element of U, and we write "cash account € U." An exclusion symbol € is used to indicate that an object does not belong to a given set. In general, capital letters are used to designate sets while lower case letters are used to indicate elements of sets. A set can be specified by listing its members.

5.1. SET INCLUSION – CONCEPTUAL ASPECTS

Set inclusion refers to the relationship that one set is a subset o." another set.

Suppose A ⊆ B and B⊆C, then it follows that A⊆C. We say tiiat set inclusion ia a transitive relation. In set notation the transitivity relation may be wT-itten;

$\{R, B\} \subseteq RE$ & $RE \subseteq NC$ $\{R, E] \subseteq NC.$

The set of the sets of revenues *iind* expenses being a subset of retained earnings and retained earnings being a subset of the non-current set implies that the set of the sets of revenues and expenses is a subset of the non-current set. Henceforth, to avoid the cumbersome statement, "is a subset of the non-current set," the more compact expression, "non-current subset,'' or simply a non-current set, will be used.

5.2. APPLICATION OF SET THEORY IN FINANCIAL STATEMENT ANALYSIS

For our present work, in universal set U, we write

U = {Cash. Accounts Receivable, . . . , Plant and Equipment, . . . , Bonds Payable,

. . . , Capital Stock, Retained Earnings}.

This notation is read "the set U is the set whose members are the accounts Cash, . . . , Capital Stock, Retained Earnings." Alternately, a set may be defined by specifying some property (or properties) that tells us which things are members and which are not. "The universal set" can be shown (by introduction of a paradox attributed to Bertrand Russell) to be non-existent. The correct expression would be "universe of discourse"; however, "universal set" is a more compact term and will be used in this paper as a synonym for "universe of discourse.''

For logical reasons, the universal set U is a subset of itself; the empty set Ø which contains no elements is considered a subset of every set.
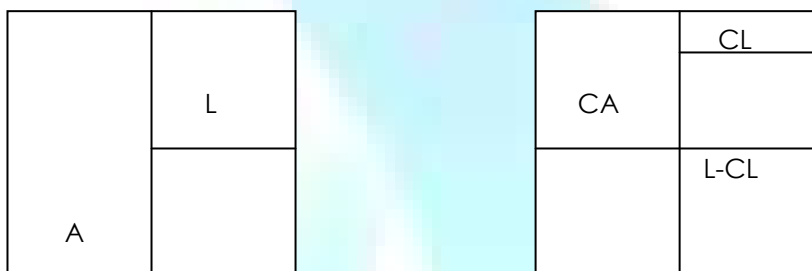
Thus we might wish to describe an asset as follows:

X € A $p, f\{x\}.$ ←→

Something, X, is an asset (strictly translated—is a member of the set of assets. *A)* if and only if it is possessed, *p,* by a business and is expected to yield beneficial services in the future, *f.*

From the elements of the universal set 'U', we can form new sets which are called subsets of 'U'. For any two sets *A* and *B*, the set *A* is said to be a subset of *B* if, and only if, every element *of A is* also an element of *B*. This is indicated by *A⊆B.* The three major categories of balance sheet accounts, assets, liabilities, and owners' equity are subsets of the set of all balance sheet accounts. This relationship is shown (by means of a Venn diagram) in Figure 1 and 2 as above. The large rectangle represents U; the areas labeled A, *L,* and *OE* represent the three major classifications. For purposes of analyzing changes in working capital, the balance sheet accounts must be further subdivided. Figure 2 shows these relationships in terms of the subsets pertinent to the preparation of the statement oi' sources and uses of working capital, where –

A = **assets;**

CA = **current assets;**

*A — CA == A = **non-current assets;**

L = **liabilities;**

CL = **current liabilities;**

L — *CL = L = **non-current liabilities;

OE = **owners' equity.**

This graphical method of representing sets is named after the English logician John Venn and hence called Venn diagrams. The type we used here is a special kind attributed to Lewis Carroll (Charles Dodgson). For further discussions, see Kenneth O. May, *Elements* of *Modern Mathematics* (Reading, Mass.: Addison-Wesley, 1959), pp. 152-156.

More technically, a partition of a set S is a set of subsets of *S* which are (1) disjoint, i.e., no two subsets have any elements in common; and (2) exhaustive, i.e., the elements *in* all the subsets taken together constitute the original set S.

5.3. SET THEORETICAL DEFINITIONS OF CURRENT ACCOUNTS AND NON-CURRENT ACCOUNTS

We refer to the current accounts as the current set and the non-current accounts as the non-current set. The subdivision of a set into subsets in such a way that every element belongs to one, and only one, of the subsets is called a partition of the set. In other words, every member of the original set must be contained in one of the subsets and no member must belong to more than one subset. It is sometimes convenient to be able to refer to a single account as "a current set" instead of "a member of the current set" or ''*a* subset of the current set.'" To insure against ambiguity in these terms, we designate the universal set as :

Current Set

U = {Cash, Accounts Receivable, ……, Prepaid Expenses, Accounts Payable, ….., Current Maturities of Long Term Debt}

Non-Current Set

U = {Property, Plant & Equipment (net), ….., Cash Surrender Value of Life Insrance, Bonds Payable, ….., Retained Earnings}

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 72

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Each element (e.g.. Cash) of a subset (e.g.. Current Set) of the universal set can be viewed as a set in itself. When thus conceived, each, account is a set and has its own elements, we may use the expression "*cash is a current set*" as well as "*cash is a subset of the current set*" because:

1. The former expression is less cumbersome, as well as less precise.

2. The characteristic which determines membership in the current set is the condition of being considered current; therefore, it is perfectly proper to refer to a set by mentioning its identifying characteristic - in this instance, the adjective "current."

Before proceeding further, we define additional symbols as follows;

CC = contributed capital;

DIV = dividends paid;

R = revenues;

E = expenses;

Δ = the set of changes in account balances between the two balance sheet dates obtained by subtracting the beginning account balances from the ending balances. Where the distinction between a debit change and a credit change is to be made, the notation Δ_d (debit change) and Δ_c (credit change) will be used;

NC = the set of non current accounts;

S = the set of sources of funds;

U = the set of uses of funds;

T = the set containing transfers between non-current accounts, defined as transactions involving reciprocal changes in non-current accounts only. Such a transaction has no effect on funds.

↑ = increase in an account balance;

↓ = decrease in an account balance;

↔ = if and only if;

→ = implies,

Debit change or credit change in an account balance is used here as defined in standard accounting terminology. For a single transaction, Δ_d will be used to indicate debit parts of the transaction and Δ_c will be used to indicate credit parts.

5.4. SET THEORETICAL EXPLANATION TO FUNDS FLOW STATEMENTS

The net change in working capital for a given accounting period may be calculated as follows:

$$\Delta CA - \Delta CL - \Delta L + \Delta OE - \Delta \underline{A} \qquad \text{………………………….. (1)}$$

Equation (1) expresses the fact that the net change in funds must be equal to the algebraic sum of the changes in non-current accounts and can, therefore, be "explained" in terms of these changes; with some exceptions discussed below, debit changes in non-current accounts are uses of funds while credit changes are sources of funds. The mere listing of the changes in non-current account balances generally will not provide sufficiently detailed information for managerial purposes. Hence, in funds-flow analysis the terms on the right-hand side of equation (1) must be decomposed and/or regrouped into explanatory accounting classifications, each designated as either a source (or use) of funds or as having no effect on funds.

Therefore, we take the *set of changes in all account balances* as the *universal set* in the preparation of the fu*nds statement.* The universal set is first partitioned (as in Figure 2) into (1) changes in current account balances and (2) changes in non-current account balances. To explain the net change in funds we further form the partition *{S, U, T}* of the set of all changes in non current account balances. The set *T* has already been defined as transfers between non current accounts. The sets *S* and *IJ* are defined as follows:

For sources

$$x \in S \leftrightarrow x \in \Delta_c \text{ and } x \in \{ \downarrow\underline{A}, \uparrow L, \uparrow CC, \uparrow R \} \text{ and } x \notin T,$$

where *x* stands for the credit change in any account balance or one of the component credit items in the net change in an account balance.

For uses

$$[y \in U] \leftrightarrow y \in \Delta_d \text{ and } y \in \{ \underline{A}, \underline{L}, CC, E, DIV \} \text{ and } y \in T,$$

Where *y* stands for the debit change in any account balance or one of the component debit items in the net change in an account balance.

The above definitions serve to identify the sources and uses of funds. For example, a stock dividend declared is a transfer between non-current accounts and, hence, is neither a source nor a use of funds. Bad debts expense, on the other hand, involves a non current account (retained earnings) and a current asset valuation account; and it is, therefore, a use of funds within the definitions employed here. In general, the net change in each of two accounts—fixed assets and retained earnings—is effected by more than a single source or a single use of funds. Consequently, further analysis of these accounts is necessary in order to isolate all the sources and uses involved. For fixed assets (net of ' accumulated depreciation), the following equation will serve (observe that the symbols below-are not intended to be sets but merely labels for the variables in an equation):

$B_e = B_o + A - D - BVD,$

where

B_e = ending balance,

B_o = opening balance,

A = acquisitions,

D = depreciation,   + Loss or – Gain.

BVD = book value of disposals = proceeds

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 73

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Acquisitions are, of course, uses of funds; the current depreciation charges and the disposition of fixed assets, however, must be considered in relation to the retained earnings account. Since all revenue and expense accounts are subsets of retained earnings and since retained earnings is a subset of the non-current set, by transitivity of set inclusion, all revenue and expense accounts are also subsets of the non-current set. Consequently the provision for depreciation is a transfer between non-current accounts and does not, therefore, affect the funds position. The decrease in fixed assets upon disposal is combined with any gain or loss reflected in the retained earnings account to obtain the total funds from disposal. The decomposition of the net change in an account balance and the regrouping of terms are guided by the accounting meaning of the subtotals thus derived and the objectives of the analysis.

The analysis of the retained earnings account is also directed toward the segregation of transactions which affect the account balance. The net income for the period and dividends are generally the major items affecting the ending balance of retained earnings. While dividends are uses of funds, the net income figure customarily enters into the computation of "funds provided by operations" as a source of working capital. In determining the funds provided by operations, the conventional approach is to begin with the net income per income statement and make all necessary adjustments to it until the amount of funds provided by operations is obtained. An alternate approach is to list separately as sources all revenues which increase working capital, and as uses all expenses which decrease working capital. The definitions of sources and uses of funds given above are designed to implement this alternate method. Therefore, individual items of revenue and expense must be identified and classified as sources of funds, uses of funds, or as transfers between non-current accounts.

That is to say, retained earnings contains the effects of all revenue and expense accounts as a result of the closing process; hence, revenue and expense accounts may be considered subsets of retained earnings, that is, $\{R, E\} \subseteq RE$.

There are unusual situations where it is considered desirable to show a transfer between non-current accounts as both a source and a use of funds. For example, suppose real estate is exchanged for capital stock. Although this transaction will neither increase nor decrease the amount of funds, it might be deemed advisable to show the details of the transaction on the funds statement by assuming hypothetical intermediate cash exchanges. Such a situation could thereby be made to conform to the general definitions of sources and uses of funds that have been presented.

Finally, it might be mentioned that in some instances aggregation of accounts will lead to the destruction of subset information. For instance, there may be no net change in long-term, notes payable although those on the beginning balance sheet may have been refinanced. Had these accounts been disaggregated showing two different issues of notes, then both a source and a use would have resulted from the application of the definitions.

5.5. SET THEORETICAL EXPLANATIONS TO CASH FLOW STATEMENTS

The basic logic of the preparation of the cash-flow statement is the same as that in the construction of the statement of sources and uses of working capital. While the term "cash-flow" has been used to refer to a variety of different concepts, we shall adopt here the common textbook definition of "cash" as the cash account balance. Let C = cash account, and A — C = G = non-cash assets. We can then rewrite equation (1) as

$$\Delta C = \Delta L + \Delta OE - \Delta C. \quad \text{............ (2)}$$

In terms of set theory, the universal set is here partitioned into:

$$[\{\Delta C\}, \{\Delta L, \Delta OE, \Delta C\}].$$

The sources and uses of cash are elements of the set $\{\Delta L, \Delta OE, \Delta C\}$ and are defined as follows :

$$[x \in S] \longleftrightarrow x \in \Delta_C \text{ and } x \in \{ C, L, CC, R \} \text{ and x is not merely a transfer between non-cash accounts :}$$

$$[y \in U] \wedge y \in \Delta_d \text{ and } y \in \{ C, L, CC, E, DIV \} \text{ and y is not merely a transfer between non-cash accounts.}$$

The similarities between these definitions and the previous ones are readily apparent; note especially the restriction on transfers. In general, depending on the definition of funds, this restriction might be worded, "w is not merely a transfer between NON-FUKD accounts." The same qualifications that were mentioned in our discussion of sources and uses of working capital apply to these definitions also.

It is easily seen that analysis of cash balance changes consists in the decomposition and/or regrouping of terms on the right-hand side of equation (2). The major step in this analysis is the derivation of the "net cash receipts from operations" which is the difference of "cash receipts from operations" and "cash disbursements for operations." For convenience, we will also refer to these terms as the "net profit or income on cash basis," "sales on cash basis," and "operating expenses on cash basis." The procedure followed is to make adjustments to the profit and loss items reported on an accrual basis." The following symbols will be used:

S_i = sales on basis i where i = a (accrual), c (cash);

AR = accounts receivable net of allowance for bad debts;

BD = bad debts expense;

E_i = operating expenses on basis i, i = a (accrual), c (cash);

INV = merchandise inventory;

AP = accounts payable;

CS_i = cost of sales on basis i, i = a (accrual), c (cash);

D = depreciation expense;

AE = accrued expenses;

PE = prepaid expenses.

The cash receipts from operations is computed as follows:

$$S_c = (S_a - BD) \sim \Delta AR \quad \text{.......................... (3)}$$

There are two major components of "cash disbursements for operations," namely, "cash payments for purchases" (CS_c) and "cash operating expenses" (E_c). These are defined by the following formulae:

$$CS_c = CS_a + \Delta INV - \Delta AP, \quad \text{...................................(4)}$$

$$E_c = E_a - (BD + D) + (\Delta PE - \Delta AE)\} \quad \text{........................ (5)}$$

The "net cash receipts from operations" is then determined by

$$S_c - \{CS_c + E_c).$$

The "net cash receipts from operations" is also referred to as the "cash increase from operations."'

If there exist other non-cash expenses, these will also have to be subtracted from the operating expenses on accrual basis $\{E^\wedge)$. The notation that has been employed in equations 3, 4, and 5 takes advantage of the sign of each change and is, therefore, compact.

Any remaining changes in current assets and in current liabilities will be treated in the same way as changes in non-current accounts, since the primary partition of the universal set is based on the dichotomy of "cash" and "non-cash" accounts. For example, an increase or a decrease in marketable securities will be listed as a separate use or source of cash. It is easy to see that, after the amount of net cash receipts from operations has been determined and any remaining changes in current accounts properly classified, all other changes in non-current accounts are treated exactly as under the funds (working capital) statement.

5.6. AN ILLUSTRATION TO THE ABOVE EXPLANATIONS

A simple example illustrates the previous discussion. The comparative balance sheets and the profit and loss statement *of* a fictitious company are shown in Exhibit A. Assume that reconstruction of the property and retained earnings accounts of the company shown:

PROPERTY ITEMS (NET)

Opening balance	80,000	Depreciation	12,000
Equipment purchases	87,000	Book value of equip, sold—	5,000 (A)
		Closing balance	150,000
	1,67,000		**1,67,000**

(A) Book value of disposals = $5,000 = Cost ($25,000) — accumulated depreciation ($20,000) - Loss on sale of equipment ($3,000) + proceeds from sale ($2,000)

RETAINED EARNINGS

Dividends	30,000	Opening Balance	80,000
Closing balance	115,000	Net income	65,000
	1,45,000		**1,45,000**

Increasing and decreasing changes, the equations could be rewritten as follows:

$$S_c = S_a \pm \uparrow AR - \downarrow BD \quad \dots\dots\dots\dots\dots \quad (3')$$

$$CS_c = CS_a \pm \uparrow INV \pm \downarrow AP \quad \dots\dots\dots\dots\dots \quad (4')$$

$$E_c = E_a \pm \uparrow PE \pm \downarrow AE - BD - D \dots\dots\dots \quad (5')$$

This numerical illustration is adapted from A. Wayne Corcoran, "A Simplified Worksheet for the Funds and Cash-Flow Statements,'" *NAA Bulletin,* Sept. 1964, pp. 35-40.

6.1. METHODOLOGY OF THE PRESENT STUDY

For the present research work, we used simple set theoretical approach in explaining the Funds Flow and Cash Flow Statements of State Bank of India, our selected company, for the study.

6.1.1. PERIOD OF STUDY

We used the financial statements, i.e., Profit & Loss Account and Balance Sheet of SBI for the current two financial years, i.e. 2011-12 and 2010-11 (as available from the website www.moneycontrol.com), in order to prepare the funds flow and cash flow statements of the same, for the current year.

6.1.2. NATURE OF DATA

We used secondary data, i.e., the financial statements like Profit & Loss Account and Balance Sheet of SBI for the current two financial years, i.e. 2011-12 and 2010-11 (as available from the website www.moneycontrol.com),

6.1.3. TOOLS FOR ANALYSIS

We used simple mathematical tool like set theory, to analyse and interpret the funds flow statements of the selected company under study and also venn diagram to interpret the results. We also used simple mathematical equations for the said purpose.

6.2. DATA ANALYSIS

From the above-mentioned financial statements, we prepared the Statement of Funds from operations, Statement of Changes in Working Capital and Funds Flow Statements of State Bank of India, which are presented in Table 5.1., 5.2. and 5.3. as follows :

TABLE 1 : STATEMENT FOR THE CALCULATIONS OF FUNDS FROM OPERATIONS FOR THE YEAR ENDED 31ST MARCH 2012

Particulars	Amount in crores
Fund from Operations	
Net profit as per P/L account	11713.34
Adjustments for	
Add: Provision for Taxation	6776.02
Net Profit before Tax	**18,483.36**
Add: Depreciation Debited to p/l account	1007.16
Add: Provision for Depreciation in Investment	663.70
Add: Provision for Standard Asset	978.81
Add: Provision for NPA	11545.85
Add: Interest on capital Paid	3592.20
Add: Other Provision Written off	(98.13)
Less: Dividend from Subsidiaries / joint venture	767.35
Add: Loss on sale of Fixed Asset	44.15
Add: Loss on sale of Investment	919.74
Net Fund Flow from Operations	**36369.49**

TABLE 2 : CHANGES AS PER CASH FLOW STATEMENT

CHANGES AS PER CURRENT ASSETES:	RS.('000)	RS.('000)
CASH & BALANCE WITH RBI	-403195634	
BALANCE WITH BANK & CALL MONEY	146085806	-257109828
INVESTMENTS		173120378
ADVANCES		1221480724
OTHER ASSETS		78972360
SUB-TOTAL (A)		**1216463634**
CHANGES AS PER CURRENT LIABILITIES:		
DEPOSITS		1092347620
BORROWINGS		70442726
OTHER LIABILITIES		-250509748
SUB TOTAL-(B)		**912280598**
NET CHANGES IN WORKING CAPITAL=(A-B) [ΔCA - ΔCL]		**304183036**

Increasing and decreasing changes, the equations could be rewritten as follows:

$$S_c = S_a \pm \begin{array}{c} \uparrow AR \\ \downarrow AR \end{array} - BD \qquad \ldots\ldots\ldots\ldots\ldots\ldots \qquad (1)$$

$$CS_c = CS_a \pm \begin{array}{c} \uparrow INV \\ \downarrow INV \end{array} \pm \begin{array}{c} \downarrow AP \\ \uparrow AP \end{array} \qquad \ldots\ldots\ldots\ldots\ldots\ldots \qquad (2)$$

$$E_c = E_a \pm \begin{array}{c} \uparrow PE \\ \downarrow PE \end{array} \pm \begin{array}{c} \downarrow AE \\ \uparrow AE \end{array} - BD - D \ldots\ldots\ldots\ldots \qquad (3)$$

TABLE 3 : FUNDS FLOW STATEMENT AS ON 31.03.2012

SOURCES OF FUND	RS.('000)	APPLICATION OF FUND	RS.('000)
FUND FROM OPERATION	363694532	CHANGE IN WORKING CAPITAL	304183036
ISSUE OF EQUITY SHARES	78913087	INTEREST PAID ON CAPITAL INSTRUMENTS	35922091
INCOME ON INVESTMENT	7673515	TAX PAID	87087529
EFFECT OF EXCHANGE FLUCTUATION ON TRANSLATION RESERVE	22170951	INCREASE IN FIXED ASSETS	17103468
NET CASH AND CASH EQUIVALENTS TAKEN OVER FROM ERSTWHILE SBICI BANK LIMITED ON AMALGAMETION	414122	INCREASE IN INVESTMENT IN SUBSIDIARIES ,JV, ASSOCIATES	7055695
		DIVIDEND PAID INCLUDING TAX	21514388
	472866207		**472866207**

6.3. SET THEORETIC EXPLANATIONS TO THE ABOVE STATEMENTS
Let us use the following Notations :
For Sources of Funds
FO = Funds from Operations
ES = Issue of Equity Shares
II = Income on Investments
TR= Effect of Exchange Fluctuation on Translation Revenue
CE=Net Cash and Cash Equivalent taken over from erstwhile State Bank of India Limited on Amalgamation.
S= Sources of Funds
For Uses or Applications of Funds
CWC = Changes in Working Capital
ICI = Interest paid on Capital Investments
TP = Tax Paid
IFA = Increase in Fixed Assets
IIS = Increase in Investments in Subsidiaries, Joint Ventures, Association etc.
DPT = Dividends paid including Tax
A= Applications of Funds

From the above notations, we draw the following Venn Diagrams 1 & 2. In Venn Diagram 1, S denotes the Sources of Funds as Universal Set and in Venn Diagram 2, A denotes the Applications of Funds as Universal Set.
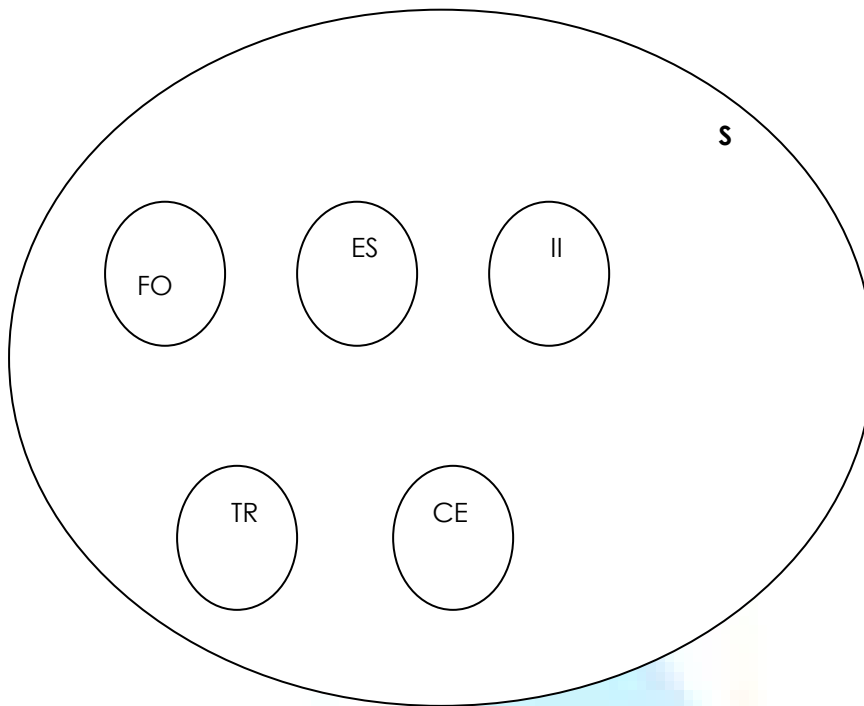
Therefore, $S = FO \cup ES \cup II \cup TR \cup CE$ …………………………. (1)
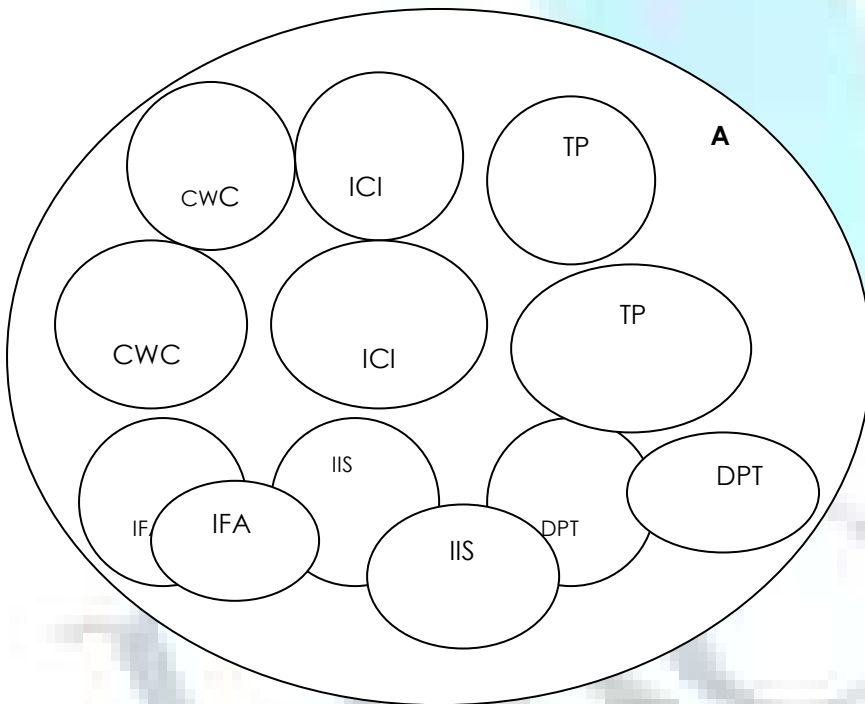
Therefore, $CWC \cup ICI \cup TP \cup IFA \cup IIS \cup DPT$ ……………………..(2)
As, S = A,
Therefore, Eq. (1) = Eq. (2),
i.e., $(FO \cup ES \cup II \cup TR \cup CE) = (CWC \cup ICI \cup TP \cup IFA \cup IIS \cup DPT)$.

For Net Changes in Working capital:
ΔCA= Changes in Current Assets
C= Cash

┤──► CB= Cash Balance with RBI
      BB= Balance with Bank and Call money
Ad= Advances (increase)
Inv= Investments (Other than investments in subsidiaries/JV/associates)
OA= Other Assets

From the above notations, we draw the following Venn Diagram
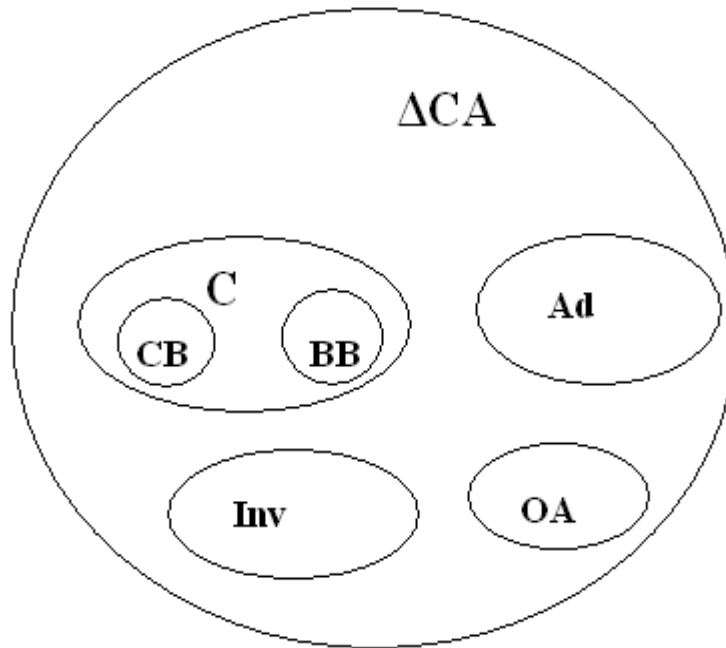
And again,
ΔCL= Changes in Current Liabilities
D= Deposits
B= Borrowings
OLP= Other Liabilities & Provisions
From the above notations, we draw the following Venn Diagram
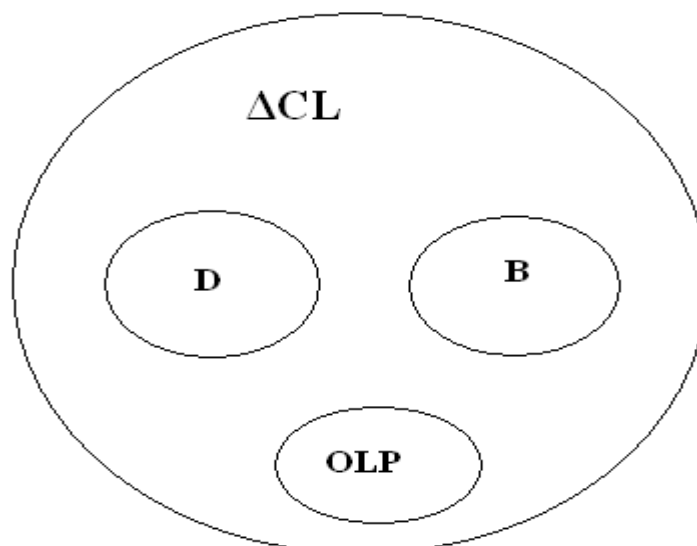
Therefore, Net Changes in Working Capital =ΔCA – ΔCL

5.4. FINDINGS FROM THE ABOVE STUDY

From the above analysis, we see that the sources and applications of funds are the universal sets S and A respectively and their different sources and sub-sources are denoted as different subsets, which may be equal or equivalent, depending on their nature of explanation. Therefore, the portion of NPA or Standard Asset etc. could be easily measured as a subset of the total sources of funds or its applications, for example, and their changes should be equated or derivated to find the net **pie**, instead or traditional accounting calculations. This may show us some new ways to the analysts as how to explain the financial statements and their changes.

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STRATEGIES FOR THE SUCCESS OF BRAND EXTENDED PRODUCT : AN ANALYTICAL STUDY OF DEHRADUN DISTRICT WITH SPECIAL REFERENCE TO FMCG

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ABSTRACT

The most distinctive skill of professional marketers is their ability to create, maintain, protect and enhance brands. Branding is the art and cornerstone of marketing which is essential for product and planning. Brand plays an important role in brand extension. The ever-changing market characteristics have huge impact on the corporate decisions. The global environment also poses several complexities to the marketer in understanding the market. The companies constantly innovate newer marketing strategies to stay ahead in the market and reap more benefits for its stakeholders. More number of companies is relying on launching new products in the market to meet the changing consumer needs and preferences. The development and market introduction of new products and brands is an important activity for firms seeking to maintain their competitive advantage in the market. Accelerated product life cycles, increased competition, and increasing diversity in customer needs have further enhanced the role of new product introduction .In recent times the increased rate of new product introduction has led to a marketplace characterized by an average of 2000 new production introductions per year in some industries.. The costs of such ventures are typically high, often ranging between $50 and $100 million. Given the high cost of new product failure, marketing academics and practitioners have focused efforts on developing methods and product introducing strategies that will happenchance the likelihood of new product success . An Increasingly popular approach in order to achieve this end is the use of a brand extension strategy .Brand extension energy involves the use of a brand name initially established in one product category to enter a product market in a new category. For example, the Honda brand name, historically associated with motorcycles and automobiles, has been extended to new products categories such as lawnmowers and snowmobiles. The Sony brand name has been extended to Sony Corp's new product introductions in diverse product categories. It has been estimated that almost 70% of new products are introduced under existing brand names. This research paper seeks to provide answers as to which brands are more likely to succeed as brand extensions into new categories within the Indian packaged consumer goods environment. The research is an in-depth descriptive study aimed at finding out the various facts regarding the brand extension. The study is based on both Primary and Secondary data. The secondary data consists of information collected from journals, magazines, books and internet. The primary data has been collected through a questionnaire. Two separate questionnaires have been prepared for two different classes: Retailers and Consumers. The sample size for retailers was 30 and for consumers was 300. The area of study was Dehradun District. Equal weight age has been given to different regions, groups and segments. Segmentation has been based on (subject to way): Income, Age, Consumption habits, Geographical factors. The data has been analyzed with the help of desired analytical tools.

KEYWORDS
brand extended product, Dehradun.

INTRODUCTION

Modern market evolve in a turbulent environment, characterized by five important environmental pressures. The first of them is the rapid change of consumer tastes. Nowadays, consumers ask for high quality price ratios and have very heterogeneous needs. The second factor is competitive activity, which is becoming more and more global, weakening not only local brands but also big international brands to a certain extent. Third, rapidly changing technology shortens product life cycle. Fourth, change is emanating from the empowerment of distribution partners reaching their private labels against national and international brands. So, increasing their control in distribution channels. The fifth and last source of pressure comes from investors asking for quick and steady cash flows. In these substances, instead of venturing into a new market with a costly and uncertain brand name, it is more interesting for firms to exploit new market opportunities, companies prefer brand names that have already succeeded in existing markets. Thus, brand extensions present many advantages; the most important of them being the lessening of perceived risk by consumers in their buying-decision process, efficiency promotional expenditures, increased probability to gain distribution space as well as positive feedback on the company's brand equity in case of extension success.

Many companies in India have adopted this brand extension strategy for more mileage in gaining mind and market share. Some of the companies have extended their brands into different product categories like TATA, HLL, Godrej, BPL, Videocon, etc. Brand extension has become a very popular strategy in many firms manufacturing consumer goods and FMCG. Now the phenomenon has extended to service sector also. Since the risk involved is high in many service companies as the absence of tangible cues and tangibility forces, companies opt brand extension strategy to reduce the consumers' perceived risk. Reliance and Birla have extended their brand into the insurance sector. Especially, in FMCG Industry in India all corporate giants have used brand extension strategy (TATA, Reliance).

The topic of brand extensions has been chosen as it is a dynamic and evolving area of branding which is not very well understood. Brand extensions are becoming more common as companies attempt to leverage their brands in order to achieve growth. An established brand name tends to already be well known by consumers so the risks and costs often associated with launching a new brand are minimized. An established brand is more likely to receive trial in a new category, with initial sales off-take likely. In an FMCG environment this is critical as the trade requirement is one of immediate performance or the product is removed.

LITERATURE REVIEW

The last two decades have seen a proliferation of brand extensions. To keep in track with the emerging trends in market (Roy and Lahiri 2001),every company needs to explore new markets to compete and survive. The financial implications of entering new markets have become formidable for many manufacturers. The cost implications are huge and the failure rate of the newly launched brands is also alarmingly high. Crawford (1977) suggests that only two out of ten launches succeed. A strong brand is an asset of the organization (Aaker 1996) and the rationale behind endowing a new product with a well-known brand name is to provide customers and the trade with the advantage of instant brand name recognition. They make favorable associations with the parent brand and can be differentiated from competing brands (Keller 1993). The beliefs associated with the existing brand may transfer to the extended one when the consumers perceive the extension as fitting with the brand category (Sujan 1985), Cohen and Basu 1987, Levy and Tybout 1989). They can also decrease the costs of distribution and increase the efficiency of promotional expenditures. Though negative impacts may occur (John et. al., 1998), but managers have to keep in mind that brand extensions allow brand to remain up-to-date and demonstrate an increasing urge to detect and respond to the profound change in customer tastes and expectations.

Though, brand extension strategies tasted success in the past, still brand extension success is uncertain. Research carried out by Ernest and Young and Nielsen (1999) in the field of FMCG brand extensions in European countries, reveal that there is a failure rate of around 80%. Moreover, unsuccessful brand extensions can harm the parent brand, which can result in substantial losses of brand equity (Gurhan- Canli and Maheswaran, 1998; Swaminathan et. al., 2001).

ROLE OF PARENT BRAND EVALUATION AND THE RELATIONSHIP BETWEEN EXTENSION CATEGORY AND PARENT BRAND CATEGORY

Much of extension research has focused on factors that determine the likelihood that the consumer's evaluation of a parent brand will affect their evaluation of its extension **(Boush et. Al 1987, Aaker and Keller 1990).** The common notion underlying this research is that a brand extension's evaluation is affected by transfer of affected by transfer of affect from parent to extension and consequently, parent brand characteristics will have an impact on extensions evaluation. This research suggests that in order for a brand name in one product category to be successfully extended to a new category. (a) Consumers should have a positive attitude toward the parent brand and (b) the original product class and the extension product class should be perceived as being similar in some respect **(Aaker and Keller 1990).** This reasoning is consistent with categorization theories which suggest that affect transfer from a familiar category to a new object is facilitated when the new object is perceived as having characteristics that are similar to those associated with the category **(Fiske and Pavelchak 1986, Boush et. Al 1987).**

Categorizations theories in social cognition research **(Brewer 1988, Fiske and Pavelchak, 1986)** have established that an individual's experience over time leads to the formation of distinct categories in memory. In the context of objects such as products, an individual is expected to form categories that consist of objects that share common features. When a new object is encountered, categorization theories propose alternative routes to impression formation **(Fiske and Neuberg 1990).** They suggest that rather than evaluate the specific attributes of the new object which is cognitively effortful process, an individual will first attempt to evaluate the object through categorization. Here, the individual will first attempt to classify the object into any of the known categories that are stored in memory. This is relatively quick and effortless process and membership is determined by the new product's silent attributes.

If the product is determined to fit into a known category, then the affect attached to the category is transferred to the new product. If an adequate fit to a known category is not perceived, then the attributes of the product are evaluated and an overall evaluation is generated as a result of a computational method (Piecemeal processing). In general, individuals tend to prefer a process of category based affect transfer in evaluating an object given its lower information processing demands compared to the more elaborate "piecemeal" process **(Fiske and Neuberg 1990).**

Categorization research was also used by **Aaker and Keller (1990),** to hypothesize that there will be a greater likelihood of transfer of attitude from a parent brand in one category to an extension product in another category to an extension product in another category as the fit between two product categories increases **(Cohen and Basu 1987). Fiske and Pavelchak 1986).** Categorization research suggests that if a consumer perceives a good fit between the brand extension class and the parent brand class, then attitude toward the parent brand will transfer to the extension following a category-based process, without a detailed assessment of the attributes of the extension. Under such conditions, extensions have an advantage over individual brands given the prior positive attitude toward the parent brand held by consumers. Based on these ideas, **Aaker and Keller 1990** hypothesize that when a consumer encounters a brand extension, he will attempt to evaluate the product using knowledge of the parent brand class. If the consumer perceives a fit between the brand extension class and the parent brand class, then attitude toward the brand will transfer to the extension following a category-based process. If an inadequate fit is perceived, the extension will be evaluated based on its attributes alone, in a piece-meal fashion. Thus inadequate perception of fit would minimize the role of parent brand affect. Three measures of fit were developed by the authors, including the extent to which consumers view two product classes as complements, the extent to which consumers view the two products as substitutes, and the ability of the firm operating in the first product class to make a product in the extension product class.

The basis for judgment of fit (e.g. substitutability) in the **Aaker and Keller (1990)** study do not have a theoretical rational but were based on the author's intuition. While high on face validity, intuitive measures may be deficient in their ability to describe the actual factors that consumers consider in extension evaluation. Additionally, fit was conceptualized as a function of parent category and extension category relationships. The critical role of parent brand associations, which play a role in extension judgment is ignored when fit is conceptualized at the general product category level.

In a second study, **Keller and Aaker (1992)** examined the affect of fit and success of past extensions on the transfer of attitude from the parent brand to the extension. Fit is again conceptualized in terms of similarity between the original and the extension product categories. Consistent with this definition the authors manipulate fit based on a pretest where subjects were asked to provide their perceived similarity between several pairs of product classes, one being the parent brand class and the other the extension class to generate extensions at three levels of perceived fit. Hypothetical brand names were used and brand quality was manipulated through the favorability of information provided in the description of the brand's sales and history. Subjects were asked to provide evaluations of the extension concept and evaluate fit along three scales: good fit-bat fit, logical-not logical, appropriate-not appropriate.

Results showed that when the parent brand was of average quality, close extensions were rated more highly than distant extensions. However, when the parent brand had very high quality ratings, extensions evaluations were unaffected by similarity between the parent and the extension category. Extensions were evaluated positively regardless of similarity. The authors speculate that this result implies that a parent brand with very high quality perceptions may be extended to more distant categories than average quality brands. The authors suggest that a second reason for this finding could be that even the similar extension in this study was within the parent brand's general product class (snacks), and consequently may be perceived as more similar than the authors had

expected. In a follow-up to this study, where the brands were extended to more dissimilar categories, the predicted interaction between parent brand attitude and fit was obtained, supporting the author's argument.

The use of hypothetical brands limits this research in that the impacts of parent category associations were studied. It may be argued that brand extension success will be influenced more by relevance of parent brand associations in the extension category than parent category associations. Leverage of the brand is based on its ability to provide a benefit in the extension category that is not provided by other brands currently in the category.

This research paper seeks to study the relationship between the parent brand and the extended product and the relevance of parent brand associations in the extension category than parent category associations, within the Indian packaged consumer goods environment. For instance can certain established Indian FMCG brands be extended into other FMCG categories that they do not currently compete in more successfully than newer emerging brands?

OBJECTIVES OF THE STUDY
PRIMARY OBJECTIVE
To study the relationship between the parent brand and the extended product
SECONDARY OBJECTIVE
To find the factors responsible for successful brand extensions.
To bring forth some suggestions for the effective brand extension
HYPOTHESIS
1)   A brand extends more easily when the category is similar to the original category.
2)   Consumer Perception is favorable when the category is similar.

METHODOLOGY

The research is an in-depth descriptive study aimed at finding out the various facts regarding the brand extension. The study is based on both Primary and Secondary data. The secondary data consists of information collected from journals, magazines, books and internet.

The primary data has been collected through a questionnaire. Two separate questionnaires have been prepared for two different classes: Retailers and Consumers. The sample size for retailers was 30 and for consumers was 300. The area of study was Dehradun District. In case of consumers, the questionnaires were equally distributed among three different areas under Dehradun district i.e. Mussoorie, Dehradun and Rishikesh. In case of retailers, questionnaires were distributed only in Dehradun because the number of big retailers keeping established brands and their extensions is more in this area.The sampling was convenience sampling.

The two questionnaires for consumers and retailers have been designed in order to gather information from consumers and retailers and study their role in success of brands and their brand extensions. The questionnaire for retailers deals with questions seeking information regarding purchase and consumption of FMCG goods and influence of shopkeepers on buying behavior of consumers. The purpose for designing two different questionnaires is to study brand extensions from two different angles i.e. retailers and consumers. Both the studies have been assembled to come to conclusions regarding brand extension, its criteria for success and consumer perception for brand extension. Equal weightage has been given to different regions, groups and segments. Segmentation has been based on (subject to way): Income, Age, Consumption habits, Geographical factors. The data has been analyzed with the help of desired analytical tools.

TESTING OF HYPOTHESIS
MAIN HYPOTHESIS 1-A (FOR EDIBLES)
H_0 (Null): Similarity with the original brand has nothing to do with the success of extended brand.
H_1 (Alternative): A brand extends more easily when the category is similar to the original category.

USAGE PATTERN OF AMUL ICECREAM (EXTENDED BRAND OF AMUL BUTTER) * COMPANY'S GOODWILL IS THE PROMINENET FACTOR FOR THE SELECTION OF EXTENDED BRAND.

		COMPANY'S GOODWILL IS THE PROMINENET FACTOR FOR THE SELECTION OF EXTENDED BRAND					Total
		strongly disagree	disagree	neutral	agree	strongly agree	
USAGE PATTERN OF AMUL ICECREAM(EXTENDED PRODUCT OF AMUL BUTTER)	yes	9	45	3	103	35	195
	no	23	11	30	13	28	105
Total		32	56	33	116	63	300

CHI-SQUARE TESTS			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	101.609[a]	4	.000
Likelihood Ratio	106.904	4	.000
Linear-by-Linear Association	8.219	1	.004
N of Valid Cases	300		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.20.			

The critical value of chi square at α=0.05 level from table is 9.488, which is much below the above-calculated value. Hence, the null hypothesis is rejected and alternative is accepted .i.e. A brand extends more easily when the category is similar to the original category (for edibles).

MAIN HYPOTHESIS 1-B (FOR COSMETICS & TOILETRIES)
H_0 (Null): Similarity with the original brand has nothing to do with the success of extended brand.
H_1 (Alternative): A brand extends more easily when the category is similar to the original category.

USAGE PATTERN OF DETTOL SOAP (EXTENDED BRAND OF DETTOL LIQUID) * SIMILARITY BETWEEN EXTENDED PRODUCT AND PARENT PRODUCT IS FAVORABLE FACTOR TO GAIN ACCEPTANCE.

	SIMILARITY BETWEEN THE EXTENDED PRODUCT AND PARENT PRODUCT IS FAVORABLE FACTOR TO GAIN ACCEPTANCE					Total
	strongly disagree	disagree	neutral	agree	strongly agree	
USAGE PATTERN OF DETTOL SOAP (EXTENDED PRODUCT OF DETTOL LIQUID) yes	33	42	10	49	28	162
no	9	26	13	42	48	138
Total	42	68	23	91	76	300

CHI-SQUARE TESTS

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.892[a]	4	.000
Likelihood Ratio	22.715	4	.000
Linear-by-Linear Association	18.077	1	.000
N of Valid Cases	300		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.58.

The critical value of chi square at α=0.05 level from table is 9.488, which is much below the above-calculated value. Hence, the null hypothesis is rejected and alternative is accepted .i.e. A brand extends more easily when the category is similar to the original category (for cosmetics and toiletries).

MAIN HYPOTHESIS 2-A (FOR EDIBLES)

H_0 (Null): Consumer remains indifferent whether the extended category is similar or dissimilar to the original category.

H_1 (Alternative): Consumer's perception is favorable when the extended category is similar to the original category.

USAGE PATTERN OF MAGGI CUPPAMANIA(EXTENDED BRAND OF MAGGI NOODLES) * SHARING THE KEY ATTRIBUTES OF PARENT BRAND BY THE EXTENDED BRAND ENSURES ITS SUCCESS

	* SHARING THE KEY ATTRIBUTES OF PARENT BRAND BY THE EXTENDED BRAND ENSURES ITS SUCCESS					Total
	strongly disagree	disagree	neutral	agree	strongly agree	
USAGE PATTERN OF MAGGI CUPPAMANIA (EXTENDED BRAND OF MAGGI NOODLES) yes	16	46	7	108	39	216
no	2	5	11	38	28	84
Total	18	51	18	146	67	300

CHI-SQUARE TESTS

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.314[a]	4	.000
Likelihood Ratio	27.956	4	.000
Linear-by-Linear Association	11.478	1	.001
N of Valid Cases	300		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.04.

The critical value of chi square at α=0.05 level from table is 9.488, which is much below the above-calculated value. Hence, the null hypothesis is rejected and alternative is accepted .i.e. Consumer's perception is favorable when the extended category is similar to the original category (for edibles).

MAIN HYPOTHESIS 2-B (FOR COSMETICS &TOILETRIES)

H_0 (Null): Consumer remains indifferent whether the extended category is similar or dissimilar to the original category.

H_1 (Alternative): Consumer's perception is favorable when the extended category is similar to the original category.

USAGE PATTERN OF LIFEBUOY HANDWASH LIQUID(EXTENDED BRAND OF LIFEBUOY SOAP) * IN ORDER TO BE SUCCESSFUL THE EXTENSION SHOULD BE THE FIRST IN ITS PRODUCT CATEGORY

	IN ORDER TO BE SUCCESSFUL THE EXTENSION SHOULD BE THE FIRST IN ITS PRODUCT CATEGORY					
	strongly disagree	disagree	neutral	agree	strongly agree	Total
USAGE PATTERN OF LIFEBUOY HANDWASH LIQUID(yes EXTENDED BRAND OF LIFEBUOY SOAP)	31	54	5	56	35	181
no	13	23	35	11	37	119
Total	44	77	40	67	72	300

CHI-SQUARE TESTS

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	62.479[a]	4	.000
Likelihood Ratio	65.931	4	.000
Linear-by-Linear Association	2.184	1	.139
N of Valid Cases	300		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.87.

The critical value of chi square at α=0.05 level from table is 9.488, which is much below the above-calculated value. Hence, the null hypothesis is rejected and alternative is accepted .i.e. Consumer's perception is favorable when the extended category is similar to the original category (for cosmetics and toiletries).

CONCLUSIONS

A brand extension strategy relies on the notion that the strength of the positive brand image developed through the firm's past marketing efforts will assist in creating favorable consumer perceptions of the extension. Brand image refers to the composite of salient association that are linked to the brand name in memory. These associations may include tangible elements such as product attributes and related functional benefits and intangible element such as experimental and symbolic aspects of the product and related intangible benefits. These associations may be developed through experience with product bearing the brand name or on the basis of marketing communications and may have positive or negative evaluations attached to them. The consumer's summary brand attitude is linked to the brand name. Attitude represents consumer's overall evaluation of the brand and may be generated through integration of the relevant associations linked to the brand name). In sum a favorable brand image is said to exist when a consumer has salient positive associations and positive attitude linked to the brand name. In order for a brand name in one product category to be successfully extended to a new category, consumers should have a positive attitude toward the parent brand and the original product class and the extension product class should be perceived as being similar in some respect.

When consumers evaluate a brand extension, the overall evaluation of the brand is expected to influence the evaluation of the extension. The extent to which the parent brand influences the extension's evaluation is expected to be moderated by the perceived similarity between the parent product category and the extension product category. High fit between the brand and the extension is expected to engender attitudes held with higher confidence compared to low fit extensions. The higher confidence is expected to have a positive effect on consumers' purchase intentions toward the extension. An extension should be evaluated positively when the parent brand has positive, confidently held attitudes associated with it, and consumers perceive a fit between the brand and the extension product.

SUGGESTIONS

The company should launch brand extensions in the related category so that consumers can correlate the concept and properties. There should be similarity between parent and extended brand for successful acceptance. If the level of similarity is higher between the core and extended brand category then the extended brands would have more chances of inheriting the positive aspects of the core brand. The company should try to build, enhance and maintain a consistent good image and goodwill in order to win trust and confidence of consumers for parent and extended brands. The key attributes of the parent brand should be shared by the extended brand. A strong brand image should be created because people are educated and aware and associate brand extensions with a strong brand image. The consumers tend to evaluate those brands more favorably that have higher perceived quality as compared to low perceived quality brands. In order to be successful, the extension should be the first in its category. Indiscriminately brand extension into unrelated product, even if the quality of the core brand is high, is not advisable. Therefore the first extension should be into moderated categories and then to unrelated category. This stepwise extension form one category to moderated unrelated category would help the consumer in maintaining the perception of relatedness. Consumer evaluation would only be positive for those brand extensions that have consistency in the brand concept.

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VALUE ADDED TAX AND ECONOMIC GROWTH: THE NIGERIA EXPERIENCE (1994 -2010)

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ABSTRACT

The study empirically examines the effect of value added tax (VAT) on Nigeria economy, in line with the objectives of this study, secondary data were obtained from central bank of Nigeria statistical bulletin covering the period of 1994 to 2010. In concluding the analysis, multiple regressions were employed to analyze data on such variables Gross Domestic Product (GDP), value added tax, inflation, interest rate, exchange rate and export were all found to have significant effects on the Economics Growth with the Adjusted R² of 96.7%. Following the outcome of this study, it is therefore concluded that the income effect on the aggregate consumption is clearly negative because the rise in the VAT rate decreases people's dispensable income. In addition to income effects, a change in the VAT rate has a substitution effect, which means even if the government reduces the income tax rate in order to offset the decrease in people's income due to the rise of the VAT rate, aggregate consumption will change. To uphold VAT's revenue role in the government's finance, it is recommended that the government should supervise the collection of VAT to ensure orderly, fair and equitable dealings in collecting VAT revenue and to forestall illegal deals by privilege insiders in order to raise the revenue generated by this tax as effectively and efficiently as possible.

KEYWORDS
Value added tax (VAT), Economy growth, Export, Exchange rate.

BACKGROUND OF THE STUDY

It is the expectation of the public to see that government provides basic infrastructure such as good road, network, bridges, airports, seaports, e.t.c. and other social services like education, electricity supply, pipe-borne water, housing and other services that cannot be executed by private hands. These expectations cannot be actualized except there is an enabling financial resource. It is therefore demanded that Government should search for the required substantial amount of funds to meet these obligations. Government usually raise funds from various source such as issuing of public debt, levying of taxes, fees, fines and specific charges, among the various sources from which Governments can raise finance, taxes are the most important and reliable. Emerging economies are nations that have large territories and populations, and they are undertaking extraordinary development projects that call for new infrastructure, such as power-generating plants and telecommunications systems. These countries

have pursued economic policies leading to faster growth and expanding trade and investment with the rest of the world. These infrastructural developments demand a lot of resources and funding.

Nigeria is a developing country and emerging economy whose exports are mainly crude oil. Her other natural resources asserted include: Natural gas, tin, iron ore, coal, limestone, lead, zinc and Arable land (Angus and David 2011). Value added tax (VAT) is one of the ways of funding infrastructural developments.

VAT is a tax on consumption of goods and services. VAT was first introduced in Nigeria in 1994 to replace the sales tax. The decision to replace the sales tax with VAT was influenced by the fact that VAT is applied on a broader range of goods and services (including those that were exempted from sales tax), so it was meant to broaden government's tax revenue base. Currently, VAT is charged at a rate of 5% on all goods and services. Goods that are subject to VAT include among others food, household appliances, electricity, water, land and buildings, computers, stationery etc. Services subject to VAT include commercial services, electricians, plumbers, builders and professional services such as lawyers, doctors, accountants. VAT is a consumption tax levied at each stage of the consumption chain and borne by the final consumer of the product or service. Where the VAT collected on behalf of the government (output VAT) in a particular month is more than the VAT paid to other persons (input VAT) in the same month, the difference is required to be remitted to the government, on a monthly basis, by the taxable person (Oserogho and Associates, 2008).

This impressive performance of VAT in virtually all countries where it has been introduced clearly influenced the decision to introduce VAT in Nigeria in January 1994 (Ajakaiye 2000). VAT is a consumption tax that is relatively easy to administer and difficult to evade and it has been embraced by many countries world-wide (Federal Inland Revenue Service, 1993). Evidence so far supports the view that VAT revenue is already a significant source of revenue in Nigeria. For example, actual VAT revenue for 1994 was N8.189 billion, which is 36.5% higher than the projected N6 billion for the year. Similarly, actual VAT revenue for 1995 was N21 billion compared with the projected N12 billion. In terms of contributions to total federally collected revenue, VAT accounted for about 4.06 % in 1994 and 5.93% in 1995. As much as N404.5 billion was collected on VAT (5.1% of total revenue) in 2008 (Adereti, Sanni & Adesina 2011).

Value-Added Tax (VAT) is a type of consumption tax that is placed on a product whenever value is added at a stage of production and at final sale. Value-added tax (vat) is most often used in the european union. The Amount of value-added tax that the user pays is the cost of the product, less any of the costs of materials used in The product that have already been taxed. Many VAT systems can be described as having a basic rate, special rates for some goods and services, and Exemption status for certain economic activities or specific goods and services. These features influence the Nation's aggregate effective tax base.

STATEMENT OF THE PROBLEM

An increase in the VAT rate of a country often arouses public interest and sometimes becomes an important factor for elections. Many people believe that a rise in the VAT rate will have a bad effect on aggregate consumption and will weaken economic growth. VAT is feasible only as a self assessed tax that substitutes for effective risk-based approaches within a self assessment environment cannot be expected to provide sustainable solutions to compliance problems related to VAT refunds. There is no literary work assessing the relationship between VAT, export, interest rate, exchange rate and GDP (national expenditure), and whether that is significant or not in Nigerian. The study based on empirical data, by this means assesses VAT's reliability as an effective revenue generation device for the nation's public use.

OBJECTIVES OF THE STUDY

The main objective of this study is to examine the impact of value added tax (VAT) on economic growth in Nigeria. Other specific objectives are:

1.   To examine the effect of VAT on exchange rate
2.   To examine the effect of VAT on the export.

LITERATURE REVIEWS

VALUE ADDED TAX IN NIGERIA

VAT is a consumption tax levied at each stage of the consumption chain and borne by the final consumer of the product or service. Each person is required to charge and collect VAT at a flat rate of 5% on all invoiced amounts, on all goods and services not exempted from paying VAT, under the Value Added Tax Act 1993 as amended (Adereti, Sanni & Adesina 2011).

Value Added Tax is a consumption tax that has been embraced by many countries worldwide. Because it is a consumption tax, it is relatively easy to administer and difficult to evade. The yield from VAT is a fairly accurate measurement of the growth of an economy since purchasing power (which determines yield) increases with economic growth. VAT is a self-assessment tax that is paid when returns are being rendered. In-built in the new tax is the refund or credit mechanism which eliminates the cascading effect that is a feature of the retail sales tax. The input-output tax mechanism in VAT also makes it self-policing because of the need to obtain receipts at each stage of the transaction. In essence, it is the output tax less input tax that constitutes the VAT payable. It is the equivalent of the VAT paid by the final consumer of the product that will be collect by the government. Although VAT is a multiple stage tax, it has a single effect and does not add more than the specified rate to the consumer price no matter the number of stages at which the tax is paid (Ofe, Onyemachi and Caroline 2008).

Value added tax replaced the sales tax which had been in existence since 1986. Value added tax was introduced in Nigeria on 1st December, 1993, its effective take off date however, was 1st January, 1994.The value added tax presently application in Nigeria is at a flat rate of 5% levied on all vat able goods and services.

Keen and Lockwood (2006) confirmed that VAT is a money machine, particularly in OECD member nations on which the study was based. Money machine suggests that VAT effectively generates revenue. Relationships that were considered in the study referred to included VAT and GDP, so also was Lin (2007), on evaluating the VAT in china suggested a relationship between VAT and GDP exists.

Eltony (2002) used time-series and cross-sectional country data for the period 1994-2000 for 16 Arab countries to examine the determinants of tax effort. The results showed that the main determinants of tax revenue share in GDP where per capita income, agricultural output-GDP ratio and mining-GDP ratio. The share of exports, imports and outstanding foreign debts were other variables found to be important. Also, country-specific factors such as the political system, attitudes toward government, the quality of tax administration and other institutions of government appeared to be important determinants of tax-GDP ratio.

Ofe et al (2008), the value added tax scheme is administered by the Federal Inland Service (FIRS) through its VAT Directorate. There is a network of zonal and local VAT office all over the country. The VAT Directorate works in close co operation with the Nigeria Customs Services and the state internal revenue service's suppliers of goods and Service under the VAT scheme who may disagree with the assessment of a VAT office may appeal to the local VAT office. If still not Satisfied they can appeal further to the VAT zonal office and from there to the VAT Directorate at Abuja. If still not Satisfied with these administrative review panels, they could still appeal further to the federal high court. All business organizations that are registered with the Federal Board if Inland Revenue (VAT directorate) for VAT purpose are classified as registered persons. Such registration is carried out not later than six months from the date of commencement of the VAT decree whichever is earlier. Each registered person is issued a registration certificate which is displaced in the principal place of business.

The registered person also referred to as a VAT able person will pay 5% VAT on all goods and Services purchased by the business. The tax paid is known as input tax. On selling such goods and services, The registered person will charge 5% VAT , which the registered person includes in the selling prices of such goods and Services is known as output tax where the output tax exceeds the input tax, the difference is known as net VAT payable, which should be paid to the federal board if inland, if the input tax exceed the output tax, the difference will be refunded to the registered person is a claim is put up and it is accepted as valid by the federal board of inland revenue. Every VAT able person is expected to make returns including remittance of net VAT payable to the local VAT office on or before the end of the month next following that in which the supplies were made.

Okezie (2003) brought out that Value added tax (VAT) is a tax introduced in Nigeria in 1993. It is imposed on goods and services at the rate of 5%. The main aim of this tax is to raise revenue to government and its incidence is borne by the final consumer. VAT is collectible from both imported and locally manufactured goods and services. Soyode and Kajola (2006) defined VAT as a consumption tax, charged at 5% on all vatable goods and services. They went further to state the attributes of VAT as:

1. VAT is a consumption tax;
2. VAT is a multi-stage tax, and
3. The incidence of VAT is on the final consumer.

According to Ofe et al 2008), the following are the main reasons for the replacement of sales tax with value added tax in Nigeria:

➢   The sales tax had a very narrow base as it covered only nine categories of goods. It negated the basic principle of consumption tax, which should cut across all consumable goods and services.

➢   The sales tax concentrated on locally manufactured goods only, thus placing these locally manufactured goods at a disadvantage in relation to foreign imported goods. The value added tax on the other hand covers both locally manufactured goods as well as foreign goods.

➢   The value added tax is based on the general consumption pattern of the populace. Thus, it is expected to yield huge revenue to the government.

Ofe et al (2008) brought out further that Federal Inland Revenue Service administers VAT system in Nigeria. While the VAT Directorate is based in the Federal Territory – Abuja, there are zonal and Local VAT offices all over the country. Even though VAT is administered by the Federal Government, the proceeds are shared by the Local, State and Federal Governments. The Federal Inland Revenue Service Board is empowered to provide direction, impose condition and specify records to be kept by traders. In Nigeria, there is a Value Added Tax Technical Committee which comprises

•   a Chairman, who shall be the Chairman of the Federal Board of Inland Revenue;
•   all Directors in the Federal Inland Revenue Service;
•   a Director in the Nigeria Customs Service, and
•   three representatives of the State Governments shall be members of the Joint Tax Board.

The functions of this Technical Committee include:

•   to consider all the tax matters that require professional and technical expertise and make recommendation as appropriate;
•   to advise the Board on the administration and management of VAT; and
•   to attend to such other matters as the Board, may from time to time refer to it.

THE EFFECT OF VALUE ADDED TAX ON NIGERIA ECONOMY

The purpose of taxation is to raise money for activities which cannot be pursued without government action. These include the public contribution to economic investment, as well as enabling people to meet their basic needs and enjoy wider opportunities. Without taxation, government cannot create a better society. VAT is a multi-level tax that is obtained in different steps   of the production-distribution cycle based on percentage of the value added to the products or services. In fact, this tax is a kind of a multi-level tax on sales that exempts the indirect purchase of goods and services from tax. The countries that performed VAT have a more per capita GDP level and are less dependent on the international trade (Ahmad, Mehrnoosh and Abedini 2012*).* Owolabi and Okwu (2011) empirically evaluated the contribution of VAT to the development of Lagos State economy. Development aspects considered included infrastructural development, environmental management, education sector development, youth and social development, agricultural sector development, health sector

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 86

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development and transportation sector development. VAT revenue contributed positively to the development of the respective sectors. The purpose of replacing trade taxes with domestic consumption taxes that is value added tax (VAT) was mainly to improve macroeconomic stability, and to introduce the benefits of free trade to developing economies. Export taxes are seen as inefficient, because they put the local producers who export their goods at a disadvantage compared with foreign producers. VAT was viewed as more efficient than import taxes, as it does not discriminate between domestic and imported goods. By eliminating import taxes, local consumers benefit from lower prices in the competition created between domestic and foreign producers, and it forces the local producers to become more efficient and concentrate their efforts on their comparative advantage (Mohammad 2012). According to Nigerian institute of advanced legal studies Lagos, the government of Nigeria, like others in different parts of the world has legislative powers to impose on its citizens any form of tax and at whatever rate it deems appropriate. Such taxes when collected, are used to execute government functions like provision of infrastructure, maintenance of law and order, health and education of the citizens and as well as a fiscal tools for controlling the economy. According to them, the objectives of the Nigerian Tax System include:

• To promote fiscal responsibility and accountability.
• To facilitate economic growth and development.
• To provide the government with stable resources for the provision of public goods and services.
• To provide economic stabilization.
• To pursue fairness and equity.
• To address inequalities in income/wealth distribution.

VAT revenue is generated for distribution to the state and local government in Nigeria, unlike the oil revenues whose market government has no control over. This helps to reduce overdependence on oil revenue; this assures a sustainable economic growth and development (Denis 2010). Ghafoor (2005) as stated in Sekwati and Malema (2011) brought out that VAT, in addition to being a money machine for government, helps businesses to compete internationally since it does not affect export prices and encourages saving that could lead to capital formation in the long run. They further argue that since VAT has great potential to generate a tremendous amount of revenue with very low rate, it could help in addressing the budget deficit and balance of payment problems. In addition, VAT can be considered as a tool for reducing the amount of unregistered economy in a country. VAT emphasizes employment more than consumption and ensures neutral treatment of imported and domestic goods by taxing imports and domestic goods going into domestic consumption at the same rate (Mohammad 2012).

According to Bumpei (2011), the effect of the change of the VAT rate on aggregate consumption and economic growth is easily understood theoretically, but it is difficult to grasp the significance of this effect in practice. It goes without saying that aggregate consumption and economic growth are not determined only by the change in the VAT rate. There are many papers on the determinants of the change of aggregate consumption and economic growth.

In other word, VAT is regarded as money making machine that could possibly lead to increase in public spending and consequently large public sector (ibid). They further argue that VAT is a hidden tax therefore its rate could be raised more easily than other taxes, which would raise consumer prices immediately and consequently higher inflation. The inflationary impact of VAT could appear in the form of slow economic growth or even a recession and a lower real value of existing savings. A good VAT administration is critical in fully implementing the design attributes of the tax and reducing gaps between the effective taxation and what it is purported to be in the legislation. More broadly, a good tax administration, VAT administration in this case, is important to achieve the policy objectives of a government (Wollela 2006).

METHODOLOGY

This chapter describes the methodology employed in this study. Methodology consists of the procedures to be used for collecting data, summarizing and analyzing the data gathered in other to answer the research questions. It is intended to applying the chosen methods in the research to minimize the costs of obtaining the data and analyzing them while maximizing the expected values of resultant information as well as association level of accuracy. For the purpose, issues addressed include; research design, study population sample and sampling technique, data collection and research instrument validation. Economic growth is one of the substantial problems in the developing countries. There are many models to analyze the impact value added tax on Nigeria economic growth.

METHOD OF DATA COLLECTION

Method employed in Carrying out this research work was by secondary data. Secondary data is the name given to data that has been used for some purpose other than that for which they were originally collected. Secondary data generally used when the term manpower resources necessary for survey are not available and of course the relevant information required. Secondary data were gotten from different sources e.g. CBN Statistical Bulletin and Federal Inland Revenue service Bulletin.

SAMPLE SIZE

The duration of my research was basically from 1994-2010 which is in the range of 17yrs. This duration was used because it is detailed enough to give a good result and analysis. This study employs annual data on the rate of value added tax (VAT), inflation, exchange rate, interest rate and economic growth (proxied by Gross domestic products) for Nigeria over the period 1994 to 2010. Data were obtained from the CBN Statistical Bulletin.

DATA ANALYSIS TECHNIQUES

The analysis was carried out in two forms and they are regression analysis and correlation. Regression analysis includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables.

Regression models in the following variables:

The unknown parameters denoted as α: this may be a scalar or a vector.

The independent variable M

The dependent variable P

In various fields of application, different terminologies are used in place of dependent and independent variables

A regression model relates P to a function of M and α

$P = U (M_1, M_2, M_3, M_4 .... M_n, \alpha)$

Where $M_1 - M_N$ are the independent variables.

MODEL SPECIFICATION

$vat = a_0 + a_1 GDP + a_2 infl + a_3 exch + a_4 itr + a_5 expt + \mu$ **1**

$logvat = a_0 + a_1 logGDP + a_2 loginfl + a_3 logexch + a_4 logitr + a_5 log expot + \mu$ **2**

$log\ GDP$ —   *log of Gross Domestic Product*
$logvat$ —   *log of value added tax*
$loginfl$ —   *log of Inflation*
$logexch$ —   *log of Exchange rate*
$logexpt$ —   *log of Export rate*

PRESENTATION AND ANALYSIS OF DATA

This chapter will be used in analyzing and presentation of data collected from different reliable source like CBN Statistics Bulletin 2010. This was done so as to determine the effect of value added tax on Nigeria economy from the period of 1994 to 2010.

According to the research question, to what extent does the value added tax affects the economic growth in Nigeria? The following tables below are actually gotten from different sources but they are answers to these research questions.

TABLE 1: THE EFFECTS OF VAT ON ECONOMIC GROWTH

Dependent Variable	Independent Variables	Coefficient.	Standard Error	t	P>|t	[95%Conf. nterval]	
vat	*GDP*	.584318	.1931032	3.03	0.023	.1118115	1.056825
	infl	-1.28e+08	2.32e+08	-0.55	0.601	-6.95e+08	4.39e+08
	exch	3.39e+08	2.54e+08	1.33	0.231	-2.83e+08	9.60e+08
	itr	1.60e+09	3.18e+09	0.50	0.633	-6.18e+09	9.38e+09
	expt	-302617	332824.2	-0.91	0.398	-1117008	511774.4
	constant	-1.90e+11	9.60e+10	-1.98	0.095	-4.25e+11	4.46e+10

R-square= 0.9831	Adj R-square = 0.9691	Root MSE = 1.2e+10	Prob > F = 0.0000	F(5, 6) = 69.95

The above table is represented by regression plots below:

FIG. 1
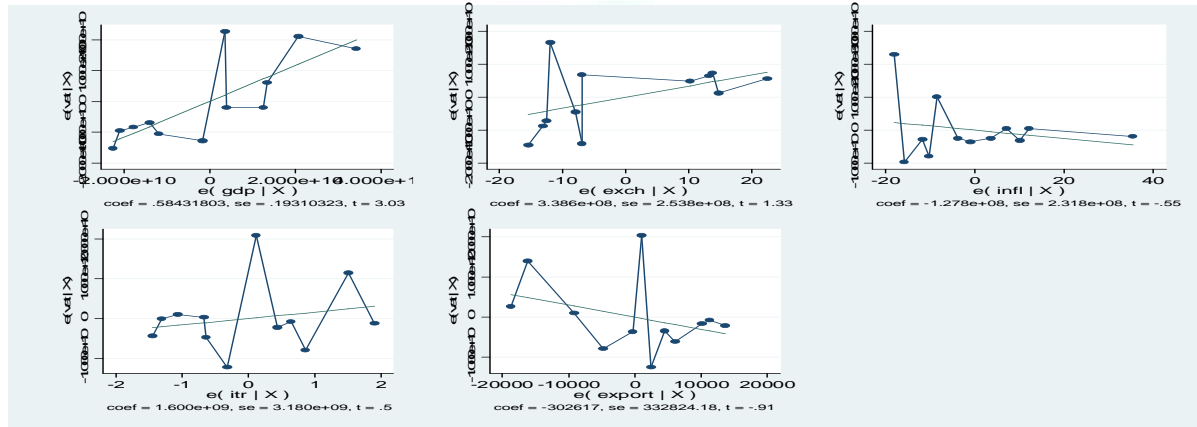
TABLE I shows the result of the output effects of VAT policy in Nigeria in the short run. A 1% increase in the value added tax (VAT) increases economic growth (GDP) by 0.58percent. This suggests a positive relationship between the rate of VAT and the GDP in Nigeria. The result is also significant. 1% increase in the value added tax increases exchange rate (EXCH) by 3.39%.This means that the relationship between VAT and EXCH is also positive suggesting that if VAT increases EXCH increases. The relationship between VAT and inflation (INFL) is negative suggesting that if VAT in Nigeria increases, the inflation reduces that is 1% increases in VAT reduces INFL by 1.28%. Also the relationship between VAT and interest rate (ITR) is positive, this means that 1% increases in VAT brings over 1.6% increases in ITR. Also the relationship between VAT and export (EXPT) is negative suggesting that if VAT in Nigeria increases, the export reduces that is 1% increases in VAT reduces EXPT by 1.28%.

Given the adjusted R^2 significant 96%, it presages the independence variables incorporated into this model have been able to determine variation of VAT to 96%.The F and probability statistics also confirmed the significance of this model.

TABLE 2

Dependent Variable	Independent Variables	Coefficient.	Standard Error	T	P>|t	[95%Conf. nterval]	
log vat	*logGDP*	.2879729	.9827592	0.04	0.971	-18.44571	19.02166
	loginfl	-1.078672	.0429721	-1.10	0.314	-3.483397	1.326053
	logitr	.1678882	7.885634	0.02	0.984	-19.12756	19.46334
	logexch	2.085545	1.795288	1.16	0.289	-2.307367	6.478458
	logexport	.7805699	.0420063	3.55	0.584	-2.52111	4.08225
	constant	1.396501	1.349325	0.58	0.995	-491.0543	493.8473

R-square= 0.8717	Adj R-square = 0.7647	Root MSE = 1.4852	Prob > F = 0.0119	F(5, 6) = 8.15

The above table is represented by regression plots below:

FIG. 2

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 88

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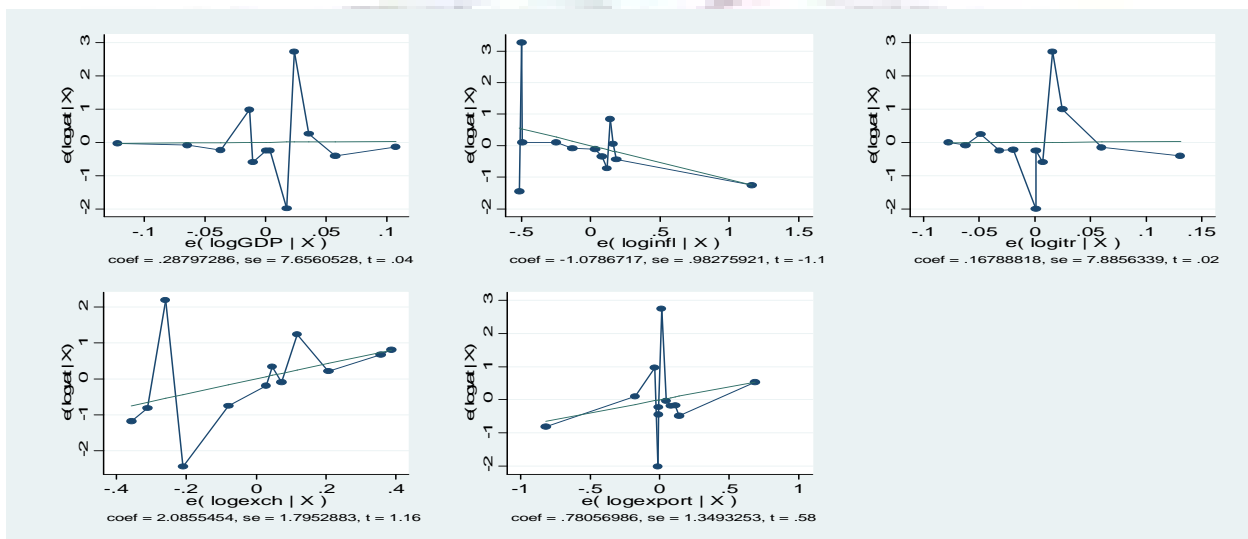
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Table 2 also shows the result effects of VAT on export, inflation, exchange rate, interest rate, and gross domestic product (GDP) on Nigeria economy in the long run by finding the log of VAT compared with logarithms of on the independent variables.1% of increase in VAT brings about 0.28 % increase in GDP. An increase in the VAT has a positive impact on output. This also suggests a positive relationship between VAT   and economic growth in Nigeria in the long run decision planning. The result is also significant. The relationship between log of VAT   and log of interest rate is also positive suggesting that if VAT increases in the long run, the interest rate will also increase. The relationship between log of VAT and log of exchange rate is also positive.1% increase in VAT in the long run reduces log of inflation rate by 1.07%, suggesting that there is inverse relationship between VAT and inflation rate in the long run. The relationship between VAT and export is also positive.

Given the coefficient of determination (R^2) to tune of 87% and Adj R-squared to be 0.7647 (76%), it connotes the independence variables incorporated into this model have been able to determine variation of VAT to 87%.The F and probability statistics also confirmed the significance of this model. The results indicate that the coefficient of VAT is statistically significant and the constant is statistically significant.

SUMMARY AND CONCLUSIONS

This study has reviewed the effects of VAT on Nigeria economy. The links between VAT and economy growth has assessed. VAT has a positive impact on growth after a considerable lag. All the variables are statistically significant. The countries that performed VAT have a more per capita GDP level and are less dependent on the international trade. Estimated results suggest that VAT impacts strongly upon inflation, exchange rate, interest rate, export and gross domestic product. The second is that VAT and inflation are closely related, such that VAT is viewed as one of the policies available for the control of inflation.

The income effect on the aggregate consumption is clearly negative because the rise in the VAT rate decreases people's dispensable income. In addition to income effects, a change in the VAT rate has a substitution effect, which means even if the government reduces the income tax rate in order to offset the decrease in people's income due to the rise of the VAT rate, aggregate consumption will change. It was found that an increase in VAT reduces the volume of export. Result showed that VAT revenue contributed positively to the development of the respective sector. The study also reviewed that there is a negative relationship between VAT and inflation returns as supporting economic theory suggestion that VAT are a good hedge against inflation.

POLICY RECOMMENDATIONS

Based on the findings made in the course of this study, the following recommendations are hereby suggested

1. To uphold VAT's revenue role in the government's finance, the government should supervise the collection of VAT to ensure orderly, fair and equitable dealings in collection of VAT revenue and to forestall illegal deals by privilege insiders in order to raise the revenue generated by this tax as effectively and efficiently as possible.
2. Nigeria government should use its tax system to minimize the negative impacts of volatile booms and recessions in the economy and also to help complement the efforts of monetary policy in order to achieve economic stability.
3. To ensure effective control in the system, it would be better for government to ensure that one agency is responsible for collecting a tax and ensuring the validity of claims for exemption or refund especially when the horizontal flow of information between different agencies is difficult.
4. Government should transparently and judiciously account for the revenue it generates through VAT by investing in the provision of infrastructure and public goods and services. It is expected that the more effectively and efficiently revenue is utilized by Government to create growth, employment opportunities and wealth in the economy, the more willing taxpayers would be to meet their obligations to the Government and discharge their duties in the overriding goal of achieving National Development.

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CORPORATE SOCIAL RESPONSIBILITY INITIATIVES BY POWER GRID CORPORATION OF INDIA LIMITED: A STUDY

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ABSTRACT

Power Grid Corporation of India Limited (PGCIL) is one of the companies in which CSR is one of the important extension activities. The company has been conducting different community activities in its neighbour-hood such as providing Education, Health Care, Infrastructure Development, Ecology and Environment Conservation, Development Program in Tribal and disaster affected areas, etc with the budget allocation of one per cent of its profit after tax of preceding year. But how far these facilities are useful to the beneficiaries and maintained properly is a billion dollar question? Hence, this attempt is made to analyse the CSR activities with the objectives of usefulness and maintenance of these facilities provided by the PGCIL in Kadapa sub-station.

KEYWORDS
Corporate Social Responsibility, Awareness, Usefulness, Quality of the Scheme, Beneficiaries maintenance.

INTRODUCTION

The Corporate social responsibility (CSR) concept has evolved due to a variety of social, environmental and economic pressures faced by human population world wide. CSR is a concept wherein an organisation undertakes responsibility in the interest of society. The corporate take up activities that have positive impact on communities, environment and its employees at large. The social responsibilities contribute to economic development and improve the quality of life of its work force and their families and society. According to The World Business Council for Sustainable Development "Corporate Social Responsibility is the continuing commitment by business community to behave ethically and contribute to economic development and improving the quality of life of the workforce and their families as well as of the local community and society at large". Over the last few years an increasing number of companies globally started promoting their CSR strategies according to the expectations of the customers, the public and the investors who want them to be sustainable as well as responsible.

Power Grid Corporation of India Limited (PGCIL) is one of the companies in which CSR is one of the important extension activity. PGCIL was incorporated on 23rd October 1989 as a public limited company and since 1998 is a notified Central Transmission utility. The Corporation is a transmission system for evacuation of power within and across the region and is responsible for establishment and operation of Regional and National Power Grids. The company has carved a niche for itself among the largest transmission utilities in the world with its strong in-house expertise in all specialised areas of power transmission. The company decided to conduct different community activities in its neighbour-hood such as providing Education, Health Care, Infrastructure Development, Ecology and Environment Conservation, Development Program in Tribal and disaster affected areas, etc. The company gave preference to undertake developmental activities in socially backward and under-developed areas instead of giving donations to charitable organisations. The company concentrated on schemes where the government / local administration / panchayat provides matching grant of 50 per cent of the expenses. For this purpose the company is allocating budget of one per cent of its profit after tax of preceding year[1].

REVIEW OF LITERATURE

There are various studies on CSR activities of companies, some of them are reviewed as follows: The study "Employee Perception of Corporate Social Responsibility and Job Satisfaction in Large Scale Units", by Vyas and Reshma Srivastava (2011)[2], made an exploratory investigation of the relationship between CSR and employees' job satisfaction based on four major sectors of Chattisgarh. The researchers took seven dimensions to measure CSR activities at an Employee satisfaction level. Those are (1) CSR awareness among employees, (2) employees involvement in CSR activities, (3) satisfaction by initiative taken up by the organization, (4) encouragement of employees to undertake community work, (5) implementation of incentives for Social Projects done by Employees, (6) welfare programmes of the firm and (7) occupational safety for employees. Among the above parameters the results indicated that employees' involvement and encouragement for CSR activities played very important role in encouraging the relationship between CSR and employee satisfaction and providing employees more satisfaction.

The study of "Corporate Social Responsibility Indicators" by Grigoris Giannarakis[3] (2010), aims to investigate a number of characteristics of CSR indicators that should be adopted by CSR assessment methodologies. A survey has been conducted among Greek companies that belong to FTSE 20 in Athens Exchange (FTSE/Athex-20), as these companies are expected to be a pioneer in the field of CSR. The results showed a consensus as regards to the characteristics of indicators such as the need for the adoption of general and specific sector indicators, financial and non-financial indicators, the origin and the weight rate. Finally, the company's sector is a more important dimension of CSR than the size and the country where the company operates. An another study "Corporate Social Responsibility by Mineral Foundation of Goa – A Study" by Achut P. Pednekar[4] (2011), has discussed the CSR activities which have been undertaken by Mineral Foundation of Goa towards the betterment, development and welfare of the society. The author mentioned that the whole concept of CSR needs to be recast and let corporations also make green and philanthropic efforts.

The paper "A Study on CSR Initiatives in Indian Textile Industry" by Kavitha Shanmugam and Shaik Mohamed[5] (2011), have studied the CSR activities relating to five stakeholders namely, customer, employee, environment, community and corporate governance in the Indian textile industry. It is found that the most significant stakeholder which determines the CSR of textile units was 'employee CSR' and 'environment CSR'. CSR of the textile units have been effective due to the positive influence of their activities towards employee and environment.

NEED FOR THE STUDY

The company, PGCIL, has earmarked a budget of one per cent of its profit in the preceding year for CSR development activities such as providing education, infrastructure for educational institutions, water facilities, constructing community halls etc. But how far these facilities are useful to the beneficiaries and

maintained properly is a billion dollar question? Hence, this attempt is made to analyse the usefulness and maintenance of these facilities provided by the PGCIL. The Kadapa sub-station was selected as a sample sub-station for the study.

OBJECTIVES OF THE STUDY

The study has been conducted with the following objectives:
1.	To study the awareness levels of beneficiaries about the contributor
2.	To evaluate the suitability of facilities provided in the society.
3.	To examine the working conditions of the schemes provided by the PGCIL.
4.	To analyse the benefits attributed to the public by the schemes.
5.	To study how these facilities are maintained after its establishment.

METHODOLOGY

The Kadapa sub-station of PGCIL is located beside the N.H-18 connecting Hyderabad - Kadapa - Bangalore and 13 km from the district head quarter Kadapa .The unit was constructed in the year 1984 and come into operation since 1985. Presently 4 nos. of 400 kV lines and 2nos of 220kV lines are connected with the sub-station along with 2nos of 315 MVA Transformers. Kadapa sub-station has been implementing various schemes such as construction of community hall, compound walls, toilets for schools, water tanks, laying street lights, roads and providing electricity, training facilities to backward class people etc., as a part CSR in surrounding 10 villages. Out of which, the study was conducted on major five schemes in which huge amount of funds were spent. The five schemes are as follows:
1.	Community hall, which was constructed in the village Bodeddulapalli with the cost of Rs. 20 lakhs.
2.	In the village Jamalpalli Kottapalli, Compound wall including toilets for upper primary school was constructed with an amount of Rs. 9.00 lakhs.
3.	Street lights were provided in Kolumulapalli village from main road up to the village with an amount of Rs.0.80 lakhs.
4.	Water tank-1 and pipe line was constructed in MM Sugali bidiki with the cost of Rs. 4 lakh.
5.	Water tank-2 was constructed in the ST colony of Venkatrampalli village with an amount of Rs. 0.80 lakh.
The data was collected through primary and secondary sources. The primary data was collected and analysed with fifty samples, 10 samples from each village by using well structured questionnaire.   The data was analysed by using simple percentages.

AWARENESS OF THE BENEFICIARIES

The table-1 shows the awareness of the beneficiaries about sponsorers of the various schemes. It was found that regarding community hall and compound wall 100 per cent respondents know about the sponsorers. About Street lights 60 per cent of the villagers not known about the sponsorers and about Tank-1 and Tank-2, 90 per cent and 50 per cent of the respondents know about the sponsorers.

TABLE-1: AWARENESS ON PGCIL'S CONTRIBUTION					
Activity	Yes	%	No	%	Total
Community Hall	10	100	0	0	10
Compound Wall	10	100	0	0	10
Street Light	04	40	06	60	10
Water Tank-1	09	90	01	10	10
Water Tank-2	05	50	05	50	10
Total	38	--	12	--	50

SERVING THE PURPOSE OF THE PEOPLE

The table-2 displays matching of the scheme with the needs of the people. It exhibits that 80 per cent of the people opined that the community hall is partly matching or fulfilling and 20 per cent said that it is fully matching or fulfilling the needs of the villagers. The compound wall and street lights are 100 per cent fulfilling the needs as the compound wall prevents the tresspassers movement along with the well functioning of street lights. But there was a negative opinion that the water tank-1 and water tank-2 were not satisfying or fulfilling the needs of people as expressed by 100 per cent of the respondents from respective villages.

TABLE-2: SERVING THE PURPOSE OF THE PEOPLE							
Activity	Fully Matching	%	Partly Matching	%	Not Matching	%	Total
Community Hall	02	20	08	80	00	0	10
Compound Wall	10	10	0	0	0	0	10
Street Light	10	10	0	0	0	0	10
Water Tank-1	0	0	0	0	10	100	10
Water Tank-2	0	0	0	0	10	100	10
Total	22	--	8	--	20	--	50

REGULAR UTILIZATION OF THE SCHEME

Regular utilization of the scheme is exhibited in the table-3. The table reveals 70 per cent of the villagers said that it is fully utilized and rest mentioned that it was partly utilized. The compound wall and street lights were fully utilized as expressed by 100 per cent respondents. Whereas the water tank-1 and water tank-2 were not at all used by them because, the water tank-1 functioned only on inauguration day and the water tank-2 functioned for a few weeks from the inauguration day. Further there was a poor maintenance of the water tanks such as lack of repair of the fixed pipes which was broken and hanging leading to water seepage which prevented the villages using this facility.

TABLE-3: REGULAR UTILISATION OF THE SCHEME							
Activity	Regular	%	Occasional	%	Not at all	%	Total
Community Hall	07	70	03	30	0	0	10
Compound Wall	10	10	0	0	0	0	10
Street Light	10	10	0	0	0	0	10
Water Tank-1	0	0	0	0	10	100	10
Water Tank-2	0	0	0	0	10	100	10
Total	22	--	8	--	20	--	50

QUALITY OF THE SCHEMES

The quality of the various schemes is presented in the table-4. The quality of community hall and compound wall was very good as stated by 100 per cent respondents. Whereas 80 per cent of the respondents expressed that the quality of street lights was very good. Regarding water tank-1 at Sugali Bidiki, 80 per

cent of the respondents opined that the quality was good and 20 per cent said that the quality was very good. But the opinion on the quality of water tank-2 was bad expressed by 100 per cent respondents.

TABLE-4: OPINION ON THE QUALITY OF THE SCHEME							
Activity	Very Good	%	Good	%	Bad	%	Total
Community Hall	10	100	0	0	0	0	10
Compound Wall	10	100	0	0	0	0	10
Street Light	8	80	2	20	0	0	10
Water Tank-1	2	20	8	80	0	0	10
Water Tank-2	0	0	0	0	10	100	10
Total	30	--	10	--	10	--	50

MAINTENANCE OF THE SCHEME

The table-5 presents the opinion on the maintenance of the schemes. 60 per cent of the respondents said that the maintenance of community hall is good and 40 per cent of the respondents felt that it was very good. The respondents opinion regarding Compound wall maintenance was 100 per cent and they felt very good. The maintenance of the street lights was also good as mentioned by 100 per cent respondents. The water tanks maintenance was bad as expressed by 100 per cent respondents.

TABLE-5: OPINION ON THE MAINTENANCE OF THE SCHEME							
Activity	Very Good	%	Good	%	Bad	%	Total
Community Hall	4	40	6	60	0	0	10
Compound Wall	10	100	0	0	0	0	10
Street Light	0	0	10	100	0	0	10
Water Tank-1	0	0	0	0	10	100	10
Water Tank-2	0	0	0	0	10	100	10
Total	14	--	16	--	20	--	50

FINDINGS

➢ The data analysis showed that the beneficiaries of community hall, compound wall and water tank-1 know about the sponsorer, but majority of beneficiaries of street lights and water tank-2 did not know about the contribution of PGCIL.

➢ The needs of the villagers were not fulfilled with the community hall due to lack of facilities such as no proper dais, no easy approach for utilization of roof and compactness of community hall. Compound wall and street light schemes matched and fulfilled the needs of the villagers. Because of compound wall and well functioning of street lights tress passers movement was restricted. Whereas both the water tank schemes did not match or fulfill the needs of the villagers. The water tank-1 functioned only on inauguration day and the water tank-2 functioned for a few weeks from the inauguration day. Further there was a poor maintenance of the water tanks such as lack of repair of the fixed pipes which was broken and hanging leading to water seepage which prevented the villages using this facility.

➢ Regarding maintenance of the schemes excepting the non-functioning of water tank-1 and Water tank-2 rest of the schemes are well-maintained and are in good condition.

SUGGESTIONS

• Based of the findings of the study it can be suggested that the company can bring out 100 per cent awareness of its activities by placing big banners or sign boards with contact numbers at places most often visited by the local people.

• Formation of an in-house maintenance team which is responsible for scrutiny of the established facilities by monthly visits and submitting a report to the higher authorities.

• Regular interaction of the CSR committee with the local people where these facilities are established regarding their opinions and feedbacks about these facilities.

CONCLUSION

CSR is a concept wherein an organisation takes up responsibility in the interest of society. Corporate Social Responsibility is a continuing commitment of organisation to behave fairly and responsibly contributing to economic development while improving the quality of life of its workforce and their families as well as the local community and society at large. For this the company is spending huge funds. But the purpose of it is not fulfilled due to lack of maintenance of these facilities. Based on the study it can be suggested that full utilization of the various facilities provided by the PGCIL can be brought about by creating more awareness monitoring the maintenance and taking a regular feedback from the place where these are provided.

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METADATA MANAGEMENT IN DATA WAREHOUSING AND BUSINESS INTELLIGENCE

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ABSTRACT

Business intelligence (BI) is a widespread, complete category of applications and technologies for gathering, storing, analyzing, and providing access to data to help enterprise users make better business decisions. A metadata is nucleus for data warehouses and business intelligence. Metadata has been identified as a key success factor in data warehouse projects and business intelligence. It captures all kinds of information necessary to extract, transform and load data from source systems into the data warehouse, and afterwards to use and interpret the data warehouse contents. Metadata provides a large range of benefits. It is used to build productivity, enhancing data quality, and cost saving on business activities and reduces the redundancies. This paper gives an overview of types of metadata, benefits and reasons for metadata management in business intelligence.

KEYWORDS

Metadata, Business Intelligence, Data Warehouse.

I. INTRODUCTION

The term Metadata is defined as "data about data". It describes the content, quality, condition, and other characteristics about data. Metadata helps a person to locate and understand data. Metadata provides data history. It describes the Who, What, Where, Why and How of the data.

II. CREATION OF METADATA

Metadata is created everyday in a real world to set metadata such as food labels, map legends, recipes, library records, information on a CD or DVD, grant proposals, data dictionaries, project reports, 'how-to' guides, and the like. Each of these types of metadata has the same format.

III. TYPES OF METADATA

There are different types of well accepted models to specify types of metadata.

A .   Bretheron & Singley (1994) distinguish between two distinct classes: structural/control metadata and guide metadata.

A.1 Structural metadata is used to describe the structure of computer systems such as tables, columns and indexes.

A.2   **Guide metadata** is used to help humans find specific items and is usually expressed as a set of keywords in a natural language.

B.   According to Ralph Kimball metadata can be divided into 2 similar categories

B.1 Technical metadata correspond to
internal metadata

B..2 Business metadata to external metadata.

B.3 Process metadata.

C.   NISO distinguishes between three types of metadata:

C.1   **Descriptive metadata** is the information used to search and locate an object such as title, author, subjects, keywords, publisher;

C.2 Structural metadata gives a description of how the components of the object are organized.

C.3 Administrative metadata refers to the technical information including file type. Two sub-types of administrative metadata are rights management metadata and preservation metadata.

Types of Meta Data and Semantic Annotations
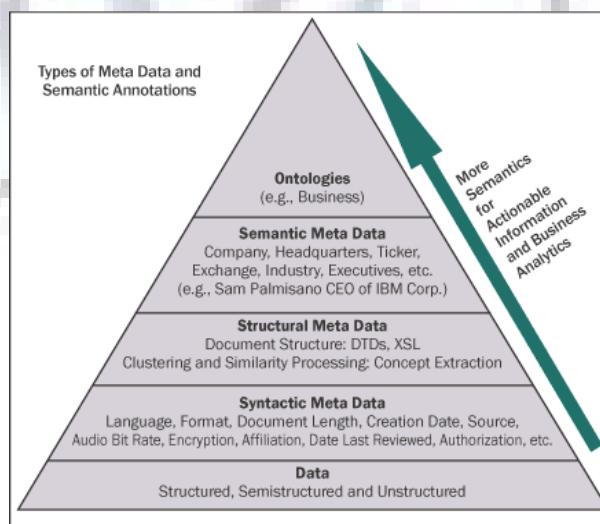
IV. METADATA USERS

Data developers, data managers, data users, and organizations can use the metadata. To avoid data duplication and to search in existing data, data developers and users are allowed to search in standardized metadata documentation. Parameters of the dataset will be given to data users to evaluate data. It allows searching for data acquisition and transfer in specific geographic locations and gives information. In an organization, metadata secures the value of its investment in data. Metadata manages data productions and planned acquisition in a very efficient manner. Finally, metadata documentation excel people and time. Staff

V. METADATA BENEFITS

Metadata provides value at all levels, data developers, data users and organizations.

A.   VALUE TO DATA DEVELOPERS

It avoids duplication, Shares reliable information, Publicizes efforts,-Reduces workload,-Documenting data is critical to preserving its usefulness over time; without proper documentation, no data set is complete.

B.   VALUE TO DATA USERS

Makes it possible for data users to search, retrieve, and evaluate data set information both inside and outside organizations, Finding data: determine which data exist for a geographic location and/or topic, Applicability: determine if a dataset meets your needs, Access and Transfer: acquire the dataset you identified,-Data use-how data can be used; if it has restricted use, etc.

C.   VALUE TO ORGANIZATIONS

Organizes and maintains an organization's investment in data, Provides for the documentation of data processing steps, quality control, definitions, data uses and restrictions, etc.,Transcends people and time; offers data permanence and creates institutional memory, Saves time, money, frustration.

VI. METADATA , DATA WAREHOUSE AND BUSINESS INTELLIGENCE

Metadata Management is not a pure BI subject, though it has many applications around BI components like Data Warehouse and OLAP. Metadata Management serves every possible stakeholder within an organization. It can be used even by people who have never seen a computer. ERP systems are as much a stakeholder for Meta-data project as a data Warehouse.

Data warehouse (DW) is a repository of an organization's electronically stored data. Data warehouses are designed to manage and store the data whereas the Business Intelligence (BI) focuses on the usage of data to facilitate reporting and analysis.

The purpose of a data warehouse is to house standardized, structured, consistent, integrated, correct, cleansed and timely data, extracted from various operational systems in an organization. The extracted data is integrated in the data warehouse environment in order to provide an enterprise wide perspective, one version of the truth. Data is structured in a way to specifically address the reporting and analytic requirements.

An essential component of a data warehouse/business intelligence system is the metadata and tools to manage and retrieve metadata. Ralph Kimball describes metadata as the DNA of the data warehouse as metadata defines the elements of the data warehouse and how they work together.

Kimball defines three main categories of metadata: Technical metadata, business metadata and process metadata. Technical metadata is intially definitional while business metadata and process metadata are primarily descriptive.

Technical metadata defines the objects and processes in a DW/BI system. The technical metadata includes the system metadata such as: Tables, fields, data types, indexes and partitions in the relational engine, databases, dimensions, measures, and data mining models in its data structure. Technical metadata also defines the data model. It also gives reports, schedules, distribution lists and user security rights to the users.

Business metadata is content from the data warehouse. The business metadata describes about the the data from where it comes, what is the content of data in the data warehouse. Business metadata may also serves as documentation for the DW/BI system. Users who browse the data warehouse are primarily viewing the business metadata.

Process metadata is used to describe the results of various operations in the data warehouse. Within the ETL process all key data from tasks are logged on execution. This includes start time, end time, CPU seconds used, disk reads, disk writes and rows processed. When troubleshooting the ETL or query process, this sort of data becomes valuable. Process metadata is the fact measurement when building and using a DW/BI system. Some organizations make a living out of collecting and selling this sort of data to companies - in that case the process metadata becomes the business metadata for the fact and dimension tables. Process metadata is in interest of business people who can use the data to identify the users of their products, which products they are using and what level of service they are receiving.

VII. REASONS FOR METADATA MANAGEMENT

A.   DATA QUALITY

Data quality is driven by a common set (and common understanding) of data standards, domain standards, business rules etc. If the systems follow the common standards (creating same checks, controls, table structure) there can be a big gain on data quality. Metadata repository:

- Provides the details on the data standards to follow
- Enforces the adherence to the standards as defined in the repository.

B.   IT SYSTEMS PRODUCTIVITY

On the basis of data standards, business rules, and models etc. exist in the metadata, one builds productivity on following counts:

- Automatic creation of the tables and models: Systems can pick-up the details from the metadata repository and build the components. This will save time and effort to firstly creating the models and then build them.
- Avoid cost of mistakes and iteration: One may not have to go through the pains of change controls, if your design is built from common standards

C.   AVOIDING INFORMATION CONFLICT ISSUES

By using metadata repositories and enforcing common standards and calculation formulae, the reports and dashboards will have a greater probability of reflecting same figures. This will avoid board room time waste on find which are the correct figures.

D.   REGULATORY COMPLIANCE

With all the above benefits, one can expect that business will be able to produce correct reports faster and cheaper.

E.   BUSINESS PROCESS MANAGEMENT AND ITS CASCADING IMPACTS

With every change in business processes, one can find the cascading impact on various components like policies, business process documentation, business rules, configuration and set-up changes in IT systems. For example if a new business process allows a sales manager to manage more than one outlet, it will have a cascading impact on the set-ups, software changes, ETL and dimensional models..

F.   HANDLING ANY KIND OF CHANGE MANAGEMENT

Whenever anything changes with-in an organization environment, metadata repository helps you to understand the impact. For example, if you want to change 'maker checker' control policy, Metadata repository will be able to tell you on which all systems, database, business processes you have to change.

G.   BETTER ESTIMATIONS AND BUSINESS CASE MANAGEMENT

With metadata repository telling you the impact of a requirement and also providing some efficiency gains, one can do a better estimate of the cost of making a change.

H.   MAKING SCALABLE AND EXTENSIBLE MODELS

This is not a direct benefit of Metadata repository, but it supports it. Smart modelers (with solid business knowledge), can help create models (for example Foundation Dimensions and Facts in Dimensional Model of a data warehouse) which can quickly respond to the changes. A metadata helps you to manage this modeling.

I.   REDUCE REDUNDANCY

With all the data elements maps stored in the metadata repository, one can identify the redundant data and processes, and work on their reduction OR elimination.

VIII. METADATA MANAGEMENT

Metadata management is the set of tools and processes by which we maintain a unified reference to the details on all data, information and knowledge existing within an organization. A metadata repository contains this information at various levels of details (from contextual to implementation), and aspects (function, timing, location, history of changes…) of the data existing in all forms (automated and non-automated...) within an organization.

A.   Metadata Detail Level

Metadata is recorded at different level of details and also from different perspectives. The level of detail ranges from the contextual level to implementation level. The type of metadata includes functional, timing, location, ownership etc..

A.1   Level of Detail

- **Contextual:** This provides the back-ground to the meta-data object and its various aspects. It provides a general ground setting and the 'unstructured' knowledge one needs to have as one goes into the next level of details.
- **Conceptual:** This provides the description and high-level detail about the object. For example detailed description of the business process OR Data structure
- **Logical:** This provides logical level details on the metadata object. For example detailed business process diagram OR Detailed Data model
- **Physical:** This provides the physical level details of the metadata object. For example detailed business process, like the person responsible for a process, the location at which the business process is executed.
- **Implementation:** This provides the execution and implementation details of the metadata object. For example, the implementation details of a business process- Who carries out the process..?

A.2   Aspect of Meta-Data

- **Function:** The functional details of the metadata object.
- **Timing:** When a particular metadata object is executed.
- **Location:** Where the metadata object is executed from OR where it is stored OR maintained?
- **History and version change:** What has been the history OR creation OR changes?
- **Ownership:** Who owns the various activities done with the meta-data object?
- **Security:** Security matrix around the metadata object

A.3   Examples of combinations of Level + Type

A.3.1   Contextual Metadata Level

Contextual + Functional: Purpose of the business process, How it fits into the overall business process framework? What is the importance and criticality of the business process to the business?

Contextual + Timing: Why the timing is important for various operations on the data? What happens, if the data is not processed as per the given timing?

Contextual + Location: Why the location is important for storing the business process?

Contextual + History and version Change: What is back-ground of the changes done to this structure? Why those changes were needed and what was their criticality?

Contextual + Ownership: What is the strategy behind defining the ownership the way it is?

Contextual + Security: Why we have defined the security in a given way? What happens, if the security is not followed?

A.3.2   Conceptual Metadata Level

Conceptual + Function: The high level description and detail of the business process. For example a level 1 and 0 of the business process documentation. More focus on commentary than the diagram.

Conceptual + Timing: What is the high level timing of various operations done on the data (online operation vs. batch-operations, prior to certain set of operations, key linkages with other operations...)

Conceptual + Location: High level description of the location of the data structure. Is the data stored in different locations (data table partitioned and stored in different locations)?

Conceptual+ History and Version Change: High Level detail on the changes done to the data structure and associated business rules? When were the major changes done? What was the purpose behind each change? Did that change include a large migration?

Conceptual+ Ownership: Who is the owner of the business process? Why is he the owner of the business process? Who are the owners of the sub-processes, and why? What are the rights and responsibilities of the owners?

Conceptual+ Security: What are principles followed for defining the security matrix for the given data table OR data group?

A.3.3   Logical Metadata Level

Logical + Function: Functional specs of the business process to the last level of detail.

Logical + Timing: Business specs on the various timings on operations done on the data. For example, when will the commission calculations on the commissions table to be applied? The business specs should also cover the reasoning behind these timings.

Logical + Location: Details on business location of the business process documentation. This includes the paper copies of the process, the copies on the website, image scans etc.

Logical + Ownership: The details on business and IT ownership of the data, and the purpose and reasoning behind the ownership.

Logical + Security: The details on the business and IT security matrix, and the reasoning.

A. 3.4   Physical Metadata Level

Physical + Function: Program specs for the automated business process.

Physical + Timing: Timing of execution of each component of the data. For example, the timings and the triggers which lead to access, updation and addition to the data.

Physical + Location: The drawers, the website servers, the network drivers where the master copies of the business process are lying.

Physical + History and version: The history of the migration and changes done to the data table.

Physical+ ownership: The ownership of the data in terms of business owner, where does he sit OR located, the contact details. Same information should be available about the IT owner. Also define the back-up and the other stakeholders.

Physical+ Security: The access security matrix at the server, column, row and table level, for different operations (accessing, updating, adding...)

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A.3..5   Implementation Metadata Level

Implementation + function: Actual program specs for creating the data.

Implementation + Timing: Implementation process for executing the business process.

Implementation + Location: The place where the table creation will be run.

Implementation + History: The history of changes done to the table structure.

Implementation + Ownership: Who will do the table creation?

Implementation + Security: Who has the access to create and test the table structure once a change is done?

IX. BUSINESS INTELLIGENCE

BI is a set of tools and processes to generate intelligent and actionable information to the audience. It starts from retrieving data from the source transactional systems and data repositories, transforming and integrating the data, and finally loads it in the form so that BI end-user tools can generate the information. Business intelligence applications can be:

- Mission-critical and integral to an enterprise's operations or occasional to meet a special requirement

- Enterprise-wide or local to one division, department, or project

- Centrally initiated or driven by user demand

X. CONCLUSION

Metadata management is core to building intelligent and high-performing enterprises. It benefits all facets of an organization including business process management, BI, IT management, performance management and so on. There is a cascading impact on better business performance, employee satisfaction and customer satisfaction.

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QUALITY OF WORK LIFE - A CRITICAL STUDY ON INDIAN HOSPITALS

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HYDERABAD

ABSTRACT

Quality of work life (QWL) programs can improve employee morale and organizational effectiveness. But implementing a successful QWL effort in a healthcare setting is not easy because of the unique administrative structure and inherent complexities of modern hospitals. In India, 80% of all the healthcare expenditure is borne by the patients. Expenditure borne by the state is 12%. The expenditure covered by insurance claims is 3%. As a result the price sensitivity is quite high. India faces a huge need gap in terms of availability of number of hospital beds per 1000 population. With a world average of 3.96 hospital beds per 1000 population India stands just a little over 1.2 hospital beds per 1000 population. Moreover, India faces a shortage of doctors, nurses and paramedics that are needed to propel the growing healthcare industry. India is now looking at establishing academic medical centers (AMCs) for the delivery of higher quality care with leading examples of The Manipal Group & All India Institute of Medical Sciences (AIIMS) already in place. This article describes a joint union-management quality of work life program that was carried out in a large urban medical center. The study involves employees of all the departments in selected hospitals in order to understand their point of view with respect to Quality of Work Life. Primary data was collected by administered a structured questionnaire to 690 employees of selected hospitals in the vicinity of Hyderabad & Secunderabad on the factors that have impact of the quality of work life. The questionnaire was monitored to some selected employees in different departments of the hospitals in a random order. The secondary data available in the form of organization and industry literature like record books, manual annual reports and journals Despite employee enthusiasm for the program and a major commitment of financial and human resources over its three-and-a-half-year course, the program failed to achieve long-term changes in the hospital. The shortcomings of the QWL program are analyzed and recommendations for future practice are described. Considering all the above facts and the massive growth in the healthcare industry, huge investments would offer several opportunities for Indian companies to create 'win-win' situations and there would be emerging opportunities for professionals as well in the near future.

KEYWORDS
Hospitals, Quality, work, Life, satisfaction, Healthcare

I INTRODUCTION

High quality of work life exists when democratic management practices are used, employee's jobs are enriched, employees are treated with dignity and safe working conditions exist. Companies interested in enhancing employees Quality of Work Life generally try to instill in employees the feelings of security, equity, pride, internal democracy, ownership, autonomy, responsibility and flexibility. Employee Productivity is what every organization is looking at while promoting or demoting an employee.

Productive employees are assets for an organization. However, it is a give and take relation. In simple terms, an employee would be productive if his working conditions are ergonomically good and his life trouble free, which has now been a responsibility of employers. We are talking about a term called "Quality of work Life", in short, QWL.

In the earlier years, working environment of the organizations was given least considerations. Employees used to work under adverse working conditions. But with the passage of time, research evidence indicated that even very small variations in temperature, noise, and lighting can considerably affect the employee performance. Today's aspirations for an improved work life, however goes well beyond salary benefits and working conditions. The QWL in its broader sense seeks to achieve integration among the employee and organizational demands, which are often contradictory and conflicting. QWL is not a theory and it doesn't advocate for particular technique for application. It is more concerned with the overall work culture and its impact on organizational productivity. Some people consider Q.W.L as the existence of a certain set of original conditions and practices. They agree that high Q.W.L exists when

1. Democratic management practices are prevalent in the organization
2. When employees' jobs are enriching
3. They are treated with dignity and safe working conditions are present

DEFINITIONS

Q.W.L is any conscious effort for improving working conditions, work content, and its safety, security, wages and benefits, etc. Q.W.L can be said to be all the original inputs which aim at improving the employees' satisfaction and enhancing organizational effectiveness In simpler terms, it's about having a work environment where an employee's activities become more important. This means implementing procedures or policies that make the work less routine and more rewarding for the employee. These procedures or policies include autonomy, recognition, belongingness, development and external rewards. Indicators of QWL are Job satisfaction, Job involvement, Work role ambiguity, Work role conflict, Work role overload, Job stress, Organizational commitment and Turn-over intentions.

Thus, Quality of work Life is the sum total of physical (working conditions), psychological and economic factors which affect the job.

A. HEALTH CARE INDUSTRY IN INDIA

The health care industry involves providing health care services to those who need medical care. This industry can take many forms, including pharmaceutical companies, health care real estate investment trusts (REIT's), for profit hospitals, medical device makers, home health aides, and over-the-counter drugs. These industries are often heavily regulated and require compliance with a number of different agencies.

The Indian healthcare industry, unlike other industries, stands untouched by recession. There had been a steady growth in this sector, revenues from the healthcare sector accounts for 5.2% of the GDP, making it the third largest growing sector in India, and further the healthcare sector is projected to grow to nearly 180,000 crores by year 2012 and a compounded annual growth rate (CAGR) of 15-17 percent for at least the next 7-10 years.

B. INDIAN HEALTHCARE SECTOR STRUCTURE / MARKET SIZE

The sector comprises hospital and allied sectors that include:

1. Medical care providers that includes physicians, Specialists, Clinics, Nursing homes and Hospitals.

2. Diagnostic service centers and pathology laboratories.

3. Medical research organizations and pharmaceutical manufacturers.

4. Medical equipment manufacturers

5. Third party support service providers. In India, 80% of all the healthcare expenditure is borne by the patients.   Expenditure borne by the state is 12%. The expenditure covered by insurance claims is 3%. As a result the price sensitivity is quite high. The high level healthcare facilities are out of reach for the patients. Among the top five therapeutic segments, gastro-intestinal and cardiac are experiencing both high volume and value growth. Opthologicals, cardiovascular, anti-diabetic and neurological drugs continue to top the growth list. The anti-infective, neurology, cardiovascular and anti-diabetic segments have witnessed a high number of new product launches in recent years.

India faces a huge need gap in terms of availability of number of hospital beds per 1000 population. With a world average of 3.96 hospital beds per 1000 population India stands just a little over 1.2 hospital beds per 1000 population. Moreover, India faces a shortage of doctors, nurses and paramedics that are needed to propel the growing healthcare industry. India is now looking at establishing academic medical centers (AMCs) for the delivery of higher quality care with leading examples of The Manipal Group & All India Institute of Medical Sciences (AIIMS) already in place.

A recent survey conducted by HarNeedi.com, gives an outlook on the roles that are in great demand, Specialist doctors such as, Cardiologists, Cardiothoracic surgeons, Interventional Cardiologists, Orthopedics, Emergency Medicine Specialists, Oncologists, Radiologists, Ophthalmologists, Neurologists, Neuro-surgeons, Gynecologists, Urologists, Duty doctors etc… are in great demand.

Some of the other profiles that are in great demand are that of experienced nurses and technicians who can handle various specialties such as ICU's, Cath labs, Operation Theaters, Emergency Departments etc. Technicians, like Radiographers, CT Technician, Radiotherapy technicians, emergency medical technicians etc. are also in great demand.   Considering all the above facts and the massive growth in the healthcare industry, huge investments would offer several opportunities for Indian companies to create 'win-win' situations and there would be emerging opportunities for professionals as well in the near future.

II OBJECTIVES OF THE STUDY

1.   To find out the quality of work life of the employees in Hospitals.

2.   To help the organization know the level of satisfaction of the workers and employees at all hierarchical levels.

3.   To find out employee's view of their work culture in the organization.

4.   To review the total environment, including working conditions to bring in positive change for betterment of QWL of employees.

5.   To analyze the satisfaction levels among employees.

III SCOPE OF THE STUDY

The Scope of the study covers employees of all the departments in selected hospitals in order to understand their point of view with respect to Quality of Work Life. The scope also includes the response of the employees to the various measures taken by the management of different hospitals to make the employees comfortable at the work place. The scope is also widened to find out the expectations of the employees from the management with respect to the above concept.

IV METHODOLOGY OF THE STUDY

For the study undertaken on quality of work life the sample size has been taken at 690 members. Sample methodology used for the study is random method. Sampling was done as follows:

S.No	Category	No. of Respondents
1	Managerial level (DMO,PRO, Sr. Manager,doctors)	120
2	Nursing staff	170
3	Lab technicians	090
4	Housekeeping Staff	050
5	Intensive care unit staff	030
6	Radiology Staff	050
7	Front office executives	040
8	Pharmacists	030
9	Miscellaneous (Admin, Ins, IP-OP,Office boy,Typist, Hospitality, Lift boy)	100
10	TOTAL	690

Primary data was collected by administered a structured questionnaire to 690 employees of selected hospitals in the vicinity of Hyderabad & Secunderabad on the factors that have impact of the quality of work life. The questionnaire was monitored to some selected employees in different departments of the hospitals in a random order. The secondary data available in the form of organization and industry literature like record books, manual annual reports and journals is used for the purpose of understanding the standards prevailing in the organization

V LIMITATIONS OF THE STUDY

The data collected by me through primary source is constrained by the sample size which is only 690 employees. Report is subject to change with fast changing scenario. As the respondents were chosen at random, we cannot take it for granted that the data obtained are a representation of all the employees. Certain type of information which is deemed to be confidential was not given to me.

VI REVIEW OF LITERATURE

The term "quality of work life" (QWL) was first introduced in 1972 during an international labour relations conference. Quality of Work Life (QWL) received more attention after United Auto Workers and General Motors initiated a Quality of Work Life (QWL) program for work reforms.

Robbins (1989) defined Quality of Work Life (QWL) as "a process by which an organization responds to employees needs by developing mechanisms to allow them to share fully in making the decisions their design their lives at work"

Richard and J. Loy define Quality of Work Life means "the degree to much the members of the working organization are able to satisfy important personnel needs through their experience in the organization." Jerome M. Rosow defined QWL "When organization have addressed the issue of quality of working life, they have always achieved great productivity breakthroughs ".Quality of Work Life is a process in organizations, which enables its members at all levels to participate actively and effectively in shaping the organization environment, methods and outcomes. Quality of Work Life is also defined as "an environment in the organization which motivates the employees to enhance their abilities on continuous basis and which facilities them to have social co-operation among them." The defining of quality of work life involves three major parts: occupational health care, suitable working time and appropriate salary.

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98

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According to Walton (1975) proposed eight conceptual categories. They are as follows: Adequate and fair compensation ; Safe and healthy working conditions ; Immediate opportunity to use and develop human capacities ; Opportunity for continued growth and security Social integration in the work organization Work and the total life span The social relevance of work life .Taylor (1979) more pragmatically identified the essential components of Quality of working life He suggested that a number of other aspects could be added, including; individual power, Employee participation in the management, Fairness and equity, Social support, Use of one's present skills and Self-development. Warr and colleagues (1979), in an investigation of Quality of working life, considered a range of apparently relevant factors, including In particular, Warr et al. found evidence for a moderate association between total job satisfaction and total life satisfaction and happiness, with a less strong, but significant association with self-rated anxiety. Thus, whilst some authors have emphasized the workplace aspects in Quality of working life, others have identified the relevance of personality factors, psychological well being, and broader concepts of happiness and life satisfaction. Baba and Jamal explored routinisation of job content, suggesting that this facet should be investigated as part of the concept of quality of working life. More recently, work-related stress and the relationship between work and non-work life domains (Loscocco & Roschelle, 1991) have also been identified as factors that should conceptually be included in Quality of Working Life.Bearfield, (2003)used 16 questions to examine quality of working life, and distinguished between causes of dissatisfaction in professionals, intermediate clerical, sales and service workers, indicating that different.

Worrall and Cooper (2006) recently reported that a low level of well-being at work is estimated to cost about 5-10% of Gross National Product per annum, yet Quality of Working Life as a theoretical construct remains relatively unexplored and unexplained. Some of the factors used to measure quality of working life pick up on things that don't actually make people feel good, but which seem to make people feel bad about work if those things are absent. For example, noise – if the place where someone works is too noisy, they might get frequent headaches, or find they cannot concentrate, and so feel dissatisfied. But when it is quiet enough they don't feel pleased or happy - they just don't feel bad. This can apply to a range of factors that affect someone's working conditions.

VII DATA ANALYSIS & INTERPRETATION

Data analysis has multiple facets and approaches, encompassing diverse techniques. In this chapter, information collected through questionnaire is inspected and appropriate statistical methods are used to transform data for easy comprehension.

1. How do you feel working with Hospitals?
 (a) Excellent   (b) Good   (c) Satisfactory   (d) Poor

TABLE 4.1: WORKING WITH HOSPITALS

Category	Respondents	Percentage
Excellent	140	20.29
Good	350	50.72
Satisfactory	140	20.29
Poor	060	8.70
Total	690	100

INTERPRETATION

The survey depicts that 50.72%of the employees feel good working in Hospitals and 20.29%of the employees feel excellent and 20.29%feel satisfactory about working in Hospitals. The survey depicts that most of the employees (50.72%) feel good about working with hospitals. So the company should ensure that this percentage increases by providing promising environment. Hence should show a little more care and concern.

2. What do you like the most about your job in the hospital?
(a) Job Profile (b) Work environment (c) Growth Opportunities (d) Compensation & Benefits

TABLE 4.2: LIKE MOST ABOUT HOSPITALS

Category	Respondents	Percentage
Job Profile	220	31.88
Work environment	300	43.47
Growth Opportunities	150	21.73
Compensation Benefits	020	2.89
Total	690	100

INTERPRETATION

The survey depicts that 43.47% of the employees like their work environment and 31.88%of the employees are happy about their Job profile.21.73%feel that there is growth opportunities and only 2.89% are satisfied by the compensation. So hospitals should try to amend its current compensation policy so that it satisfies more number of employees.

3. How do you rate the work culture?
(a) Excellent   (b) Very good   (c) Good   (d) Satisfactory   (e) Bad

TABLE 4.3: WORK CULTURE

Category	Respondents	Percentage
Excellent	110	15.94
Very good	140	20.29
Good	290	42.03
Satisfactory	130	18.84
Bad	20	02.90
Total	690	100

INTERPRETATION

The survey depicts that 42.03% of the employees feel that the work culture is good at Hospitals. 15.94% and 20.29% feel the work culture to be Excellent and very good respectively. Only a meager portion of employees are not happy with the work culture. This shows that most of the employees at Hospitals feel that they have good work culture and are confident about it.

4. Your main satisfaction in life comes from your work.
(a) Strongly agree   (b) Agree   (c) Disagree   (d) strongly Disagree

TABLE 4.4: WORK SATISFACTION

Category	Respondents	Percentage
Strongly agree	200	28.99
Agree	430	62.32
Disagree	40	5.80
strongly Disagree	20	2.90
Total	690	100

INTERPRETATION

The survey depicts that 62.32%of the employees feel that their main satisfaction in life comes from work and 28.99%strongly agree with the same. Only 5.80% and 2.90% of the respondents disagree and strongly disagree with the fact that their main satisfaction in life is derived from work. This concludes that most of the employees at Hospitals are highly satisfied with their work.

5. How hard is it to take time off during your work to take care of personal or family matters?
(a) Not at all hard   (b) Not too hard   (c) Somewhat hard   (d) Very hard

TABLE 4.5: TIME FOR FAMILY

Category	Respondents	Percentage
Not at all hard	170	24.63
Not too hard	200	28.99
Somewhat hard	230	33.33
Very Hard	090	13.04
Total	690	100

INTERPRETATION

The survey depicts that 24.64%of the employees feel that it is not at all hard to take care of family matters and 28.22% feel that it is not too hard whereas 33.33% find it somewhat hard to take time for personal and family matters. 13.04% of the employees find it very difficult to manage work and family as they come from far off places. Survey depicts that most of the employees are able to manage both work and family matters efficiently.

6. In general, how would you describe relations in your work place between management and employees?
(a) Very good   (b) Quite good c) Neither good nor bad   (d) Quite bad (e) Very bad

TABLE 4.6: RELATIONS BETWEEN MANAGEMENT AND EMPLOYEES

Category	Respondents	Percentage
Very good	200	28.98
Quite good	370	53.62
Neither good nor bad	100	14.49
Quite bad	10	1.45
Very bad	10	1.45
Total	690	100

INTERPRETATION

The survey depicts that 53.62% of the employees feel that relation between management and employee is good and 28.99% feel it to be very good. 14.49% are indifferent and 2.90% feel the relation between management and employees to be bad.

This depicts that majority of employees are of the opinion that there is a good relation between management and employees which is a very healthy sign of a good organization.

7. How are the career development activities in your organization?
(a) Excellent   (b) Very good   (c) Average (d) Satisfactory   (e) Poor

TABLE 4.7: CAREER DEVELOPMENT ACTIVITIES

Category	Respondents	Percentage
Excellent	90	13.04
Very good	140	20.29
Average	210	30.43
Satisfactory	100	14.49
Poor	50	7.25
Total	690	100

INTERPRETATION

The survey depicts that 30.43% of the employees feel that career development activities are of average nature. 13.04% & 20.29% of the employees rate career development activities as Excellent and very good respectively. 14.49% feel it to be satisfactory and 7.25% are very unhappy about the career development activities.

This shows that most of the employees feel the career development activities to be good but Hospitals should try to focus on the same to ensure more satisfied & motivated employees. New recruiters should be imparted proper training.

8. Do you feel that there is job security in your organization?
(a) Strongly agree   (b) Agree   (c) Satisfactory   (d) Disagree   (e) Strongly disagree

TABLE 4.8: JOB SECURITY

Category	Respondents	Percentage
Strongly agree	07	10.14
Agree	37	53.62
Satisfactory	14	20.28
Disagree	08	11.59
Strongly disagree	03	4.34
Total	69	100

INTERPRETATION

The survey depicts that 53.62% of the employees agree that there is job security in most of hospitals. 10.14% strongly agree whereas 20.29% feel the job security to be satisfactory. 11.59% and 4.35% disagree & strongly disagree when asked about job security in the hospitals. Most of the employees feel secure working in Hospitals.

9. Is your performance being monitored periodically?
(a) Yes   (b) Could be   (c) Don't know

TABLE 4.9: MONITORING OF PERFORMANCE

Category	Respondents	Percentage
Yes	48	69.56
Could be	12	17.39
Don't know	09	13.04
Total	69	100

INTERPRETATION

The survey depicts that 69.57% of the employees say that their performance is being monitored periodically. 17.39% are not sure about their performance being monitored and 13.04% don't know if their performance is at all monitored. Most of the employees say that their performance is being regularly monitored. This shows that the organization is keen on appraising employees on a regular basis.

10. What could improve the quality of your work life?

(a) More suitable working hours

(b) Better pay and conditions

(c) Better development/promotional activities

(d) Better management

TABLE 4.10: IMPROVEMENTS IN QWL

Category	Respondents	Percentage
More suitable working hours	11	15.94
Better pay and conditions	19	27.53
Better development/promotional activities	31	44.92
Better management	08	11.59
Total	69	100

INTERPRETATION

The survey depicts that 15.94% of employees feels that more suitable working hours could improve their quality of work life. 27.54% feel t better pay & 44.93% are of the opinion that better development activities will improve quality of work life. 11.59% feel that better management will improve their quality of work life. From the above information, most of the employees feel that better development and promotional activities improve quality of work life. Hence hospitals should concentrate on promoting employees while appraising them.

11. How do you feel about the work load?

(a) Relaxed   (b) Normal   (c) Over burden   (d) Satisfactory

TABLE 4.11: WORK LOAD

Category	Respondents	Percentage
Relaxed	06	8.70
Normal	31	44.93
Over burden	18	26.09
Satisfactory	14	20.29
Total	69	100

INTERPRETATION

The survey depicts that 44.93% of employees feels the work l.oad to be normal and only 8.70% of employees say that work is relaxing. 26.09% feel over burdened and 20.29% feel the work load to be satisfactory. This shows that most of the employees feel the work load to be normal but hospitals should try to reduce the work load by proper distribution of work so that most of the employees are happy at their work place.

12. Do you think Communication and information flow between the departments is satisfactory?

(a)Yes   (b) No

TABLE 4.12: COMMUNICATIONS AND INFORMATION FLOW

Category	Respondents	Percentage
Yes	540	78.26
No	150	21.73
Total	690	100

INTERPRETATION

The survey depicts that 78.26% of employees feels that the communication and information flow between departments is satisfactory whereas 21.73% feel the contrary. Majority of the employees are satisfied with the communication and Information flow in hospital.

13. Does the top management involve employees in the management decisions?

(a)Yes   (b) No

TABLE 4.13: EMPLOYEE PARTICIPATION IN DECISION MAKING

Category	Respondents	Percentage
Yes	490	71
No	200	29
Total	690	100

INTERPRETATION

The survey depicts that 71% of employees feels that management involves employees in decision making whereas 29 % that they have no say in management decisions. As per above, majority of the employees feel that they are involved in decision making by management.

14. Which factor motivates you the most?

(a) Salary increase   (b) Promotion   (c) Leave (d) Motivational talk (e) Recognition

TABLE 4.14: EMPLOYEE MOTIVATIONS

Category	Respondents	Percentage
Salary increase	250	36.23
Promotion	140	20.28
Leave	10	1.44
Motivational talk	130	18.84
Recognition	160	23.18
Total	690	100

INTERPRETATION

The survey depicts that 36.23% of employees feels that salary increase motivates them whereas 20.28% feel that promotion is the important factor for motivation. 18.84% support motivational talk and 23.18% vouch for recognition.1.44% feel proper leaves motivate them in better performance.

Organization should consider various options to keep the employees motivated, especially considering proper compensation.

15. How do you rate the leave policy of the company?

(a) Fair   (b) Satisfactory   (c) Dissatisfactory

TABLE 4.15: LEAVE POLICY OF COMPANY

Category	Respondents	Percentage
Fair	160	23.18
Satisfactory	470	68.11
Dissatisfactory	060	8.69
Total	690	100

INTERPRETATION

The survey depicts that 68.11% of employees feels that leave policy of the company to be satisfactory and 23.18% feel it to be fair enough. 8.69% of the employees are dissatisfied with the company's leave policy. Majority of the employees are satisfied with the existing leave policy in the organization.

16. Please rate your overall satisfaction level with the current work life management policy of the organization?

(a)   Highly satisfactory   (b) Satisfactory   (c) Average   (d) Poor

TABLE 4.16: SATISFACTION LEVEL AMONG EMPLOYEES

Category	Respondents	Percentage
Highly satisfactory	020	2.89
Satisfactory	440	63.76
Average	190	27.53
Poor	040	05.79
Total	690	100

INTERPRETATION

The survey depicts that 63.76% of employees are satisfied with the current work life management policy of the organization and 2.89% are highly satisfied. 27.53% feel the management policy to be average and 5.79% find the policies to be poor. As per above, Majority of the employees are satisfied with the existing management policy of the hospitals but hospitals should try to improve and revise the policies to cater to the needs of dissatisfied employees.

17. Does the company take care of employees working in night shifts?

(a) Yes   (b) No

TABLE 4.17: CARE FOR EMPLOYEES IN SHIFTS

Category	Respondents	Percentage
Yes	530	76.81
No	160	23.18
Total	690	100

INTERPRETATION

The survey depicts that 76.81% of employees feel that the employees working in night shifts are taken care of. 23.18 % feel that company does not take care of employees working in night shifts.   Though majority says that hospitals take care of employees working in night shift, they should still make an effort to provide proper motivation to overcome with the feeling they have regarding working in night shifts.

18. Do the employees share experience to help each other?

(a) Yes   (b) No

TABLE 4.18: EXPERIENCES SHARING AMONG EMPLOYEES

Category	Respondents	Percentage
Yes	640	92.75
No	050	7.24
Total	690	100

INTERPRETATION

The survey depicts that 92.75 % of employees feel that the employees share experiences to help each other. Only 7.24% feel that there is no experience sharing. Majority of the employees are satisfied by the way employees share experiences while at work in Hospitals. Sharing of experience not only relaxes employees but also gives them a sense of belongingness and should be encouraged.

19. Does the company provide training for enriching the skills of employees?

(a) Yes   (b) No

TABLE 4.19: TRAINING OPPORTUNITIES FOR SKILLS IMPROVEMENT

Category	Respondents	Percentage
Yes	600	86.95
No	090	13.04
Total	690	100

INTERPRETATION

The survey depicts that 86.95 % of employees feel that company provide training for enriching the skills of employees whereas 13.04% feel that sufficient training is not provided. The organization should focus on training needs of employees at all levels as properly trained employees are an asset to the organization and plays an important role in value addition of Hospitals.

20. Do you have more pressure of work in the organization or it is equally distributed?

(a) Have Pressure   (b) Work is equally distributed

TABLE 4.20: WORK PRESSURE

Category	Respondents	Percentage
Have Pressure	25	36.23
Work is equally distributed	44	63.76
Total	69	100

INTERPRETATION

The survey depicts that 36.23% of employees feel that they have more work pressure and 63.76% of the employees say that the work is equally distributed among the employees. Majority of Employees feel that the work is equally distributed among employees.

21. Do you feel free to offer comments and suggestions?
(a)   Yes   (b) No

TABLE 4.21: EMPLOYEE SUGGESTIONS

Category	Respondents	Percentage
Yes	56	81.15
No	13	18.84
Total	69	100

INTERPRETATION

The survey depicts that 81.15 % of employees feel that they are free to offer comments and suggestions whereas 18.84% of the employees feel that they are not free to offer any suggestions. It has been observed that employees at hospitals have participative kind of environment and are confident that their suggestions are considered.

22. I am satisfied with the working conditions provided by Hospitals?
(a)   Strongly agree   (b) Agree   (c) Disagree   (d) Strongly Disagree

TABLE 4.22: WORKING CONDITIONS

Category	Respondents	Percentage
Strongly agree	05	7.24
Agree	57	82.60
Disagree	03	4.34
Strongly Disagree	04	5.79
Total	69	100

INTERPRETATION

The survey depicts that 82.6 % of employees are satisfied with the working conditions provided by hospitals. 7.24% are extremely satisfied with working condition and 4.34% employees are not very happy with the working condition. 5.79% of employees are extremely disappointed by the working conditions. As per above, most of the employees at hospitals are confident that working condition is satisfactory however, they should try to make the working conditions more conducive for better productivity of employees.

23. How do you rate the employee welfare programs in your organization?
(a) Excellent (b) Very good (c) Good (d) Average (e) Poor

TABLE 4.23: EMPLOYEE WELFARE PROGRAMMES

Category	Respondents	Percentage
Excellent	06	8.69
Very good	19	27.53
Good	25	36.23
Average	12	17.39
Poor	07	10.14
Total	69	100

INTERPRETATION

The survey depicts that 8.69% of employees feel the employee welfare programs to be excellent and 27.53% of them feel it to be very good. 36.235 say that the welfare programs are good, 17.39% average and 10.14% find it to be poor. It implies to continue the same and improve it if there is any scope.

VIII FINDINGS & SUGGESTIONS

1.   Most of the employees covered under my study are found to be feeling content working with its leave policy and also the working conditions.
2.   Employees are not satisfied when it comes to compensation and Welfare programmes.
3.   Majority of employees are happy with work culture and they have work satisfaction.
4.   The relation between employees and management is appreciable.
5.   Employees, however, find it hard to balance their work life and family/ personal matters and also find the work load to be high.
6.   Most of the respondents feel that there is job security, Proper information flow between departments and they are involved in decision making by the management.
7.   As per the responses, an increase in salary is one factor which employees feel will help them in motivating them further.
8.   Equal and fair work distribution of work will contribute to the betterment of their work life.

It is better to keep employees aware of the company goals, vision, and mission and keep them informed of all the changes taking place in the company then it would definitely go a long way in the efficiency of the employees. There should be no communication gap between the Head of the departments and members. The communication flow must be smooth to maintain cordial relations in the organization. It is better to take timely preventive measures that the work would not be overloaded and maintain better Quality of Work Life. The efforts to further improve the work culture in the organization should be continued. The training and development programs can also be more effectively planned and implemented.

IX CONCLUSION

From the study conducted, following conclusion can be made.

Overall satisfaction levels and work culture is really good in most of the hospitals. HR dept is playing an important role for the successful development of the organization. At the same time the practices which are followed by the private hospitals are really good. Quality of Work Life was not considered as important factor in India until recently as there were important impending factors like resource deficiency, environmental threats and some services of financial problems.

Quality of Work Life programme has become important in work place for the following reasons:
1.   Increase demands at work
2.   Loss of long term employee guarantees
3.   The need for enhanced work place skills
4.   Greater competition for talent
5.   Increased women in work fore

Good quality of Work Life leads to an atmosphere of good impersonal relations and highly motivated employees who strive for their development. Though monetary benefits still occupy the first place in the cost of elements like physical working conditions, job restructuring and job re-designing, career development, promotional opportunities etc. are gaining importance rapidly. If provided with good Quality of Work Life, employees concentrate more on both individual as well as group development which in turn leads to overall development.

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BUSINESS ETHICS: WAY FOR SUSTAINABLE DEVELOPMENT OF ORGANISATION

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ABSTRACT

Ethical consciousness is perhaps one of the most important non-economic factors shaping human attitudes and values. Ideas of business ethics influence the sustainable development of economic spirit and the ethos of an economic system. The dominant values of business ethics are both economically productive and conductive to moral capital accumulation and sustainable development. This paper analyses effectively the influence of ethical sentiments on economic behaviour and sustainable development. The objective of this study is to support individual, social and economic development through business ethics.

KEYWORDS
Sustainable Development, Business Ethics, attitude, organisation.

INTRODUCTION

Ethics refers to a system of moral principles – A code of conduct that guides an individual in dealing with others. Morality is wholly based upon organisation. How one individual should conduct himself towards another, constitutes morality. The old word for this was 'Character'. The word, morality (*Naitikta* in Hindi) has come to replace 'Character' during the past few centuries. '*Naitikta*' is derived from the word '*Niti*' which means Morality or Ethics. It is a reuse of right and wrong, goodness and badness of actions and the motives and consequences of these actions. Morality relates to organisation, it is therefore, necessary to understand the fundamental basis of organisation. Organisation / Business / Society are related with each other. Business ethics does not differ from each other. As applied to business organisations, "ethics is the study of good and evil, right and wrong and just and unjust actions of business people."

Business ethics does not differ from generally accepted norm of good and bad practices. If dishonesty is considered to be unethical and immoral in the organisation, then any business person who is dishonest with his or her employees, customers, shareholders or competitors is an unethical and immoral person. If protecting others from any harm is considered to be ethical, then a company which recalls a defective or harmful product from the market is an ethical company. To be considered ethical, business persons must draw their ideas about 'what is desirable behaviour' from the same sources as any body else would draw. Business-persons should not try to evolve their own principles to justify 'what is right and what is wrong'. Employers and employees may be tempted to apply special or weaker ethical rules for business situations. But the organisation does not condone such exceptions. People who are in business are bound by the same ethical principles that apply to others. To know 'what is desirable behaviour, it is necessary to understand the fundamental basis of organisation. The fundamental basis of organisation is relativity. Relativity plays vital role for sustainable development of organisations. Desirable or undesirable, right or wrong, good or bad, all are relative terms. What is right in one place may be wrong in another place. So the only ethical standard for judging an action or behaviour – is the moral system of the organisation in which the act occurs or the situation in which it has taken place.

Any effort to understand sustainable development should take into consideration the economic factors and ethical factors both. There is greater consensus now that both economic and ethical factors freely interact in the course of sustainable development. Both the factors are mutually causative. Sustainable development represents social development, environmental development and economic development. By integrated development of these factors, we can ensure peace and prosperity, safety and security of the entire world and achieve sustainable development.

HYPOTHESES
Researcher views Business Ethics as means of sustainable development.

METHODOLOGY
The method of study is descriptive. The study surveys from textbooks, reports, journals and from self-knowledge.

IMPORTANCE OF THE STUDY
Ethics is very important in today's work environment. Everyone is running after profits but that ruins the growth of any organisation. In short term it may look like an attractive to earn higher profits by exploitation of different segments society. But in long term one can not grow with this approach. For steady and enduring growth one has to follow certain ethics by developing all sections of society. So business ethics is an imperative need for escalation in long run. The study ensures that ethics is very much needed for enduring and sustainable growth.

OBJECTIVES
1. To understand the meaning of Business Ethics
2. To find importance of ethics
3. To understand the need of Business Ethics for the sustainable development of business
4. To understand the use of ethical principles for enduring development

RESULTS & DISCUSSION
IMPORTANCE OF ETHICS FOR SUSTAINABLE DEVELOPMENT OF ORGANISATION
Ethics is important not only in organisation / society / business but in all aspect of life because it is the vital part and the foundation on which the organisation is build. An organisation that lacks ethical principles is bound to fail sooner or later. According to International Ethical Business Registry, "there has been a

dramatic increase in the ethical expectation of business and professionals over the past ten years. Increasingly, customers, clients and employees are deliberately seeking out those who define the basic ground, rules of their operations on a day to day.....”

Ethics refers to a code of conduct that guides an individual in dealing with others. Business ethics is a form of the art of applied ethics that examines ethical principles and moral or ethical problems that can arise in business environment. It deals with issues regarding the moral and ethical rights, duties and corporate governance between a company and its shareholders, employees, customers, media, government, suppliers and dealers. Henry Ford said, “Business that makes nothing but money is a poor kind of business.”

Ethics is related to all disciplines of management like Accounting Information, Human Resource Management, Sales and Marketing, Production, Intellectual Property Knowledge and Skill, International Business and Economic System. Ethics advocates the principles that organisational actions should be judged by the general ethical standards of the organisation. Ethics creates credibility with the public. Unethical practices can ruin the organisation. As said by Joe Paterno once that success without honour is an unseasoned dish. It will satisfy your hunger, but would not taste good. In business world the organisation’s culture sets standards for determining the difference between good or bad, right or wrong, fair or unfair. A company perceived by the public to be ethically and socially responsive will be honoured and respected even by those who have no intimate knowledge of its actual working. There will be an instinctive prejudice in favour of its products, since people believe that the company offers value for money. Its public issues will attract an immediate response.

“It is perfectly possible to make a decent living without compromising the integrity of organisation or the individual”, wrote business executive R. Holland, “quite apart from the issues of rightness and wrongness, the fact is that ethical behaviour in business serves the individual and the enterprise much better in long run” he added.

Some management guru emphasised that ethical organisation have an advantage over their competitors. The management guru Cohen and Greenfield said, “Consumers are used to buying products despite how they feel about the company that sells them. But a valued company earned a kind of customer loyalty, most corporations only dream of, because it appeals to its customers more than a product.” The ethical issues in business have become more complicated because of the global and diversified nature of many large corporations and because of complexity of economic, social, global, natural, political, legal and government regulations and environment, hence the company must decide whether to adhere to constant ethical principles or to adjust to domestic standards and culture.

The effectiveness at work is tied to exercising intrinsic ethical or moral values. The human values support established business values such as service, communication, excellence, credibility, innovation and coordination. The human values help good interpersonal interactions and reduce conflicts and disputes. There is growing realisation all over the world that ethics is vitally important for business and society both. Ethics alone can help to protect society which government or the laws can not help. Ethics play a key role in business. Ethics help in smooth operating of economy, because ethical activity is valuable in itself, it enhances the quality of work we do. Moreover, ethics and profit also go together. A company which is inspired by ethical conduct is also profitable. Value-driven companies are always to be successful in long run.

Management, be it of a family, a war or a business enterprise has to be based on a value system. Most business schools in the world teach courses in business ethics. The Harward University, the Wharton School of Business, the University of Pennsylvania, etc. made business ethics as compulsory subject of their graduates. Most of corporations now have codes of ethics and ethics programmes. A manager should treat his employees, customers, shareholders, government, media and society in an honest and fair way by knowing the difference between right and wrong and choosing what is right, this is the foundation of ethical decision making. Management with ethics generates fair profits through fair business.

Ethics is good in itself. It is described for its own sake. The memorable words of *Gita* “*You have the right to work, but you have no right to get the fruits of the work.*” Hence, do not waste the precious present in useless dreams of future hopes and fears of present actions. Do your duty without expecting fruits of work (*Nishkama Karma*). Do your best and actively, live every moment of the present with the firm believe that future shall take care of itself. Jainism emphasis in this context that Renunciation should be carried on for the general welfare of the organisation and as worship of Divine.

Ethics makes business responsible towards society. In present scenario, society is expecting much more from business than the past. As productivity catalyst, managers have to take into account both economic and social inputs (costs) and the economic and social output (benefits) while planning, formulating and evaluating any business project. The success of business depends on a vision, skill and ability of managers. So, managers should consider the effects of their business decisions on all shareholders interested in the enterprise directly or indirectly. Ethics or values are important because the government, law and lawyers can not do everything to protect the society, where as vision, skill, values or ethics can do so. Technology develops faster than the government can regulate. People in an industry know the dangers in a particular technology better than regulatory agencies. Further, the government can not always regulate all activities which are harmful to the society. Thus, where law fails, ethics can succeed.

FUNDAMENTAL ETHICAL PRINCIPLES FOR SUSTAINABLE DEVELOPMENT OF ORGANISATION

Freedom, equality, cooperation, compassion and tolerance are the five fundamental principles for sustainable development of organisation. An analysis of these elements in the light of ‘Relativity’ creates moral system of organisation which judges whether an action or behaviour is right or wrong for the organisation.

FREEDOM

Freedom is pronounced as the sound basis of an organisation. Where many people come together, it is natural that the freedom of individual is hindered. Along with freedom, there should be control too. Control is necessary so as to preserve the freedom. Without control, freedom will not be enduring. So, the maintenance of equilibrium between freedom and control is the fundamental basis for sustainable development of an organisation.

EQUALITY

Equality is also one of the important basis of organisation. Sustainable Development of any organisation requires equal opportunity, equal distribution and equal treatment. The feeling of inequality is the root cause of dispute, disorder, confusion and even depression. Where there is the merit of equality is recognised and appreciated, sustainable development is achieved. The phrase, ‘equal rights’ or ‘equal treatment’ sounds very pleasant, but there can be nothing absolute about it. Lord *Mahavira* said “No one is inferior; No one is superior.” This may be transcendental truth; it can not be an empirical rule. In the sphere of conduct or ethics, inferiority and uniqueness pertain to the law of nature. Equality and inequality both have their value in organisation. The principle of equality is not applicable to all situations without distinction. The basic needs of life are the same for all individuals and these should be fulfilled on the basis of equality. Where, however, it is matter of organisational ability, of what is equitable, of intellect and efficiency, conditions vary from one individual to another and the principle of equality is not applicable here.

COOPERATION

Cooperation is the third principle of organisation. If two or more people live together, they must cooperate. That is the fundamental basis of an organisation. But it can be nothing absolute about it. For sustainable development of organisation, non-cooperation is as important as cooperation. Mahatma Gandhi said “Do not co-operate offer polite non-cooperation wherever necessary.” Not to cooperate with evils is an important maxim of an organisation.

COMPASSION

Compassion is also an important ethical principle for sustainable development of any organisation. Compassion means trying to solve the problems of others. Compassion is the basis of morality. Man has two instincts – the instinct of cruelty and the instinct of compassion. Compassion is allied with sensitivity. The more sensitive a person is, the more does compassion awaken in him. In fact cruelty is the real problem for sustainable development of organisation. The only way of resolving it is the development of the spirit of compassion.

TOLERANCE

Tolerance is the fifth and most important basis of an organisation. There are all kind of people in an organisation with different interests and temperaments. Under these conditions, organisation can not run without tolerance. Organisation is like the earth which endures all. Although the tolerance is important for the organisation but it is not absolute about it. Organisation does function on the basis of tolerance and intolerance both. People often say, “There is a limit of endurance! I shall not tolerate such non-sense any more!” This feeling of intolerance also forms a principal element of an organisation.

CONCLUSIONS AND RECOMMENDATIONS

Above brief analysis reveals that sustainable development of organisation is a continuing, cumulative and complex process which includes both economic and ethical factors and their mutual causation. Business ethics is one of the important sources of sustainable development. The dominant valued of business ethics are both economically productive and conducive to moral capital accumulation and technical progress.

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USE OF ICT TOOLS IN HIGHER EDUCATION

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ABSTRACT

Today with advancement in technology teachers have been conscious about the quality of their teaching. To enhance the teaching Information Communication Technology (ICT) tools are widely used in education system for better understanding of the subject. This paper aims to discuss the objective, benefit and role of Information Communication Technology (ICT) in learning and teaching process for both teachers and students in higher education. Various ICT tools such as blogs, social networking websites, Web 2.0, virtual learning technologies, Learning Management System (LMS) etc. are used to make the subject more interactive, interesting and productive.

KEYWORDS
ICT tools, Information Communication Technology, higher education.

1 INTRODUCTION

tudents cannot be effective in tomorrow's world, if they are trained in yesterday's skills." Tony Blair.
Education is a process by which a person's body mind and character are formed and strengthened, which enables a person's holistic development of personality through knowledge [1]. This knowledge can be improved by the students through their learning environments. Nowadays Information communication technology (ICT) tools are widely used to interact in digital environments. ICT brings more rich material in the classrooms for the teachers and students. **With the help of ICT, students can easily browse via sample examination papers, e-books, assignments, videos etc. and can also have an easy access to, mentors, experts, resource persons, researchers, professionals all over the world.**

Today sequential learning becomes adaptive learning, role of teacher is changing **Student and learners can now use online course study material, anytime-anywhere. ICT-based educational delivery (Internet, projector and television,radio) also provide service with the need for all learners and the instructor to be in one physical location.**

ICT tools can be used by students through links to useful online resources, discussion forums and online interactive classrooms .However an, e-class is not a substitute for a regular classroom .The experience simply elevates learning and makes the process fun for both teachers and students.

Therefore in the absence of real classroom , the use of ICT tools provide a platform to student's to answer their doubts, whatever the subject ,be it computers, commerce, science. It also takes away the nerves experienced in a classroom and one can learn via X-Box, plugging their pen-drive, into a laptop at their convenience or logging to their college servers. There is a treasure trove of information just waiting to be discovered.

Also, if one has been ill and missed classes , ICT tools are a great way to catch up on missed lessons .All classroom notes can be accessed in a single click in an online session . One can download the study material required.

ICT has emerged as a perfect tool as it includes usage of multimedia , graphic displays videos, television and computer software that combine sound, pictures, text and audio-visual features through which students get more interseted and engaged in the learning process.

This paper examines the use of ICT in higher education and how integration of ICT tools helped the students as well as teachers in the teaching and learning process.

2 METHODOLOGY
This is a research base paper describing
1. *The trends occuring in ICT in education.*
2. *The use of ICT in Transorming teaching and learning*
3. ICT applications for formal and non formal education
4. Challenges and solutions for applying ICT for learning

Now we will see in coming subsections how we can use different ICT tools to make teaching and learning process more interesting and effective.

3 PROPOSED APPROACH
The use of ICT in education lends itself to more student-centered learning settings and often this creates some tensions for some teachers and students. But with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow[2].

Although the traditional approaches may not be appropriate for all type of courses, there should also be a corresponding emphasis on specific ICT tools. For example, teachers can be encouraged to engage their students through generating learning activities on virtual learning environment accessible 24 X 7 using various ICT tools such as blogs, podcasts, social networking websites, Web 2.0, wikis. The investigation presented in the subsection could be useful for enriching their teaching and learning experiences.

3.1 ICT TRENDS
Various ICT trends are prevailing on Internet which can be used to discover useful information within seconds. For example Google, Yahoo, Google Scholar, Wikipedia, academic index etc. has lead to quick and easy information retrieval on almost any topic and with relevant and accurate information can be gained.
In addition, there have been a number of education packages released on the market that has influenced the take up of ICT in education. These packages may include learning and content management systems, web conferencing, slide sharing, student report cards, virtual classrooms, virtual worlds and online collaborative work spaces [3].

3.1.1 MOBILE DEVICES
Five to ten years ago, 'going mobile' still held novelty value, even though the mobile movement was gaining momentum with the dropping prices of laptops and mobile phones. The evolution of mobile Internet aided the expansion of the mobile device's role in consumers' lives.

Nowadays, mobile is so pervasive that the word itself is in danger of becoming redundant, much like the 'personal' in 'personal computers' has been dropped from common parlance.

With tablets and smart phones filling yet another niche in a young, gadget-crazed market, and with more and more powerful technology occupying smaller and smaller devices, communications and computing on the go are not set to slow down.

3.1.2 SOCIAL LEARNING SITES

In the field of education, social-networking sites offer a student the opportunity to connect with other students, educators, administrators, alumni, both within and outside his current institution. Scholars praise social-networking tools for their capability to attract, motivate and engage students in meaningful communicative practice, content exchange, and collaboration [4].

Social networking has become one of the most important communication tools among people nowadays. However, social networks exist on the Internet websites where millions of people share interests on certain disciplines, and make available to members of these networks various shared files and photos and videos, create blogs and send messages, and conduct real-time conversations. These networks are described as social, because they allow communication with friends and colleagues study and strengthen the ties between members of these networks in the space of the Internet. The most famous in the world of social networks are Facebook (Facebook.com) and Twitter (Twitter.com) and MySpace (myspace.com) and others.

Wikispaces : Share lessons, media, and other materials online with your students, or let them collaborate to build their own educational wiki on Wikispaces.

EduBlogs : EduBlogs offers a safe and secure place to set up blogs for yourself or your classroom.

Skype : Skype can be a great tool for keeping in touch with other educators or even attending meetings

3.1.3 OPEN SOURCE

Software (both operating and application) plays a major role in education, with most of the academic institutions offering on line courses to their local and remote students by means of new teaching methods.

Open source is defined as the production and development philosophy of allowing end users and developers to not only see the source code of software, but modify it as well at free of cost.

A number of open source software's are available in the market, namely Linux, Apache, Perl, and Sendmail, which can be customized to fulfill specific educational needs.

3.1.4 SMART BOARD

Smart boards are becoming increasingly popular. Students love to interact with these technology based educational tools. A smart board takes the place of a traditional chalk board or white board. It is essentially a white board with technological capabilities that allow you and your students to interact in ways they had previously not been able too. Teachers can create engaging, active lessons using the many tools that a smart board provides. They can transpose diagrams, charts, and templates, have students come up and actively participate in the lesson, and then print anything such as notes that were done on a particular day and give them to students as a handout. Learning to use a smart board correctly does require some training, but teachers who use them regularly say that notice their students are enthusiastic when they create a lesson that implements the smart board.

4. THE USE OF ICT IN TRANSFORMING TEACHING AND LEARNING

Today ICTs—including laptops wirelessly connected to the Internet, personal digital assistants, low cost video cameras, and cell phones have become affordable, accessible and integrated in large sections of the society throughout the world. It can restructure organizations, promote collaboration, increase democratic participation of citizens, improve the transparency and responsiveness of governmental agencies, make education and health care more widely available, foster cultural creativity, and enhance the development in social integration [4].

There are some reasons why e-classroom can transform education

- Technology engages students and improves learning
- It enables students to learn independently. On their own at their pace, without relying solely on the teacher.
- Students learn digital behavior skills and are acquainted with issues such as plagiarism, cyber safety etc., which will help tem in future.
- It also encourages them to take more interest in classroom lectures and approach learning in a fresh manner.
- Students from economically weaker background also have the chance to increase their levels of knowledge.
- Preparing students for jobs that require skills in technology.
- Utility of technology to improve performance and effectiveness in teaching management and many other social activities

In view of students and teachers by incorporating ICT in education, the benefits are:-

To summarize, below are the main benefits of using ICT in education to the students and teachers.

Students are aided with:

- Increased access,
- Flexibility of content and delivery,
- Combination of work and education,
- Learner-centered approach,
- Higher quality of education and new ways of interaction

Teachers have following benefits:

- High quality, cost effective professional development in the workplace,
- Upgrading of employee skills, increased productivity,
- Development of a new learning culture,
- Sharing of costs and of training time with the employees,
- Increased portability of training.

Source: (UNESCO, 2002)[5]

5. ICT APPLICATIONS FOR FORMAL AND NON-FORMAL EDUCATION

ICT can be utilized for better teaching learning process and improving quality of education. Using multimedia in education results in the increasing productivity and retention rates, because people remember 20% of what they see, 40% of what they see and hear, but about 75% of what they see and hear and do simultaneously.

Lectures by distinguished scholars stored in computers or other ICT tools can easily be shown to the students anywhere, anytime. In colleges subjects like Commerce, History, Geography, Political science, Computer, Physics, Chemistry, Biology, etc are taught. Lessons in these subjects can easily be taught by showing small movie related with the subject to create interest among the students. Such type of movies and related multimedia material is easily available at academic repositories and from various related sites with the help of Internet. Various facilities like Computers, Edusat are started by various state Governments, LCD projector and other peripheral devices related with teaching learning process are easily available. Easy availability of "Aakash" tablet will help in providing and getting more education for both teachers and students [6].

Various seminars and quizzes can be shown to the institutes with the help of Edusat. Edusat can be used for providing training to teachers on the latest subjects and technologies and can save lot of time and money of governments.

In Non-formal learning, includes open and distance learning education programs in higher education and learners can access information and learning materials from anywhere and at any time. There are various functions to be performed with the enrolment of students in any course of distance education in any University or institute.

In the distance education ICT can be used for better management of records by making a complete database of all the students in various courses. The students can get access to any kind of information like registration to course, fee deposition, study material, exam schedule, roll numbers, result etc. online and saves time, paper work and also brings transparency to whole system. All these come under non-formal education.

6.   CHALLENGES AND SOLUTIONS FOR APPLYING ICT FOR LEARNING

Traditional thinking has always been that technology-facilitated learning would provide economies and efficiencies that would see significant reductions in the costs associated with the delivery of educational programs. The costs would come from the ability to create courses with fixed establishment costs, for example technology-based courses, and for which there would be savings in delivery through large scale uptake. We have already seen a number of virtual universities built around technology delivery alone (eg. Jones International University, www.jiu.edu). The reality is that few institutions have been able to realize these aims for economy [7]. There appear to have been many underestimated costs in such areas as course development and course delivery.

7.   CONCLUSION

This paper has sought to explore the role of ICT in education as we progress into the 21st century. Taking the trends discussed in this paper into account it can clearly be seen that the education system should change to adapt to modern requirements and to incorporate new technologies. By incorporating these technological trends into the educational system a higher quality education can be provided at a cheaper cost and spread over a larger segment of the population. Children are required to apply their ICT know-how in other lessons, but little emphasis has been placed on how they are taught ICT. This paper discusses the current teaching practices and techniques used in teaching and learning process

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CONSTRUCTING CONFIDENCE INTERVALS FOR DIFFERENT TEST PROCEDURES FROM RIGHT FAILURE CENSORED NORMAL DATA

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ABSTRACT
We propose some small sample tests from a failure censored normal sample and compare the relative performances of the tests. The small sample tests analogous to one sample student t-test for testing the mean from a failure right censored normal sample. Since censoring greatly complicates the distribution theory, the exact sampling distributions of the tests are not tractable mathematically. Therefore, we simulate the sampling distribution the sampling distributions for each of the tests using some random samples with different sizes generated from normal. In order to compare the relative performance of the tests, the powers of the tests are compared by Monte Carlo simulation. Based on the conclusion of the simulated results, we testable the critical values for only recommended tests at the selected levels of significance or various sample sizes. The critical values can be used for testing the null hypothesis as well as for constructing (1-α) confidence interval for the parameter µ based on failured right censored normal sample. In this article, presenting hypothetical example on constructing of confidence intervals for some proposed tests.

KEYWORD
Censored normal data.

INTRODUCTION

In case of failure censored normal data the exact sampling distribution of the one sample student t-statistic to test H_0: µ = μ_0 (σ unknown) is not tractable because the individual observations of the censored sample are no longer independently identically distributed (i.i.d) so, the observation are not i.i.d in any censored sample, the sampling distributions of the estimations of the parameters are not tractable mathematically. Consequently there is no suitable test is available to carry out H_0: µ = μ_0 from failure right censored normal data. Through there are some tests based on asymptotic theory methods available but their performance is not known in samples.

Hence we propose some small sample tests analogous to one sample student t- statistic to carry out H_0: µ = μ_0 against various alternative hypotheses from failure right censored normal data. We construct the sampling distributions using Monte Carlo simulation. From constructed simulated sampling distribution of the tests to be tested the critical values 1%, 5% and 10% level of significance. We obtained some important characters of the simulated sampling distributions of the proposed tests.

Suppose we have generated 10,000 random samples each of size n (10, 15, and 20) from the standard normal population with random number generator called RAND NORM using MINITAB package. Each sample is then sorted in the ascending order and censored r = 1,2,…………,4n/10 observations on the right side of the sample called failure right censored sample. Based on this sample the proposed test statistics are computed. For given 'n' and 'r', corresponding to each test statistic we get 10.000 values because there 10,000 samples. These values are then sorted in ascending order to give a simulated sampling distribution of the corresponding test statistic at specified values of 'n' and 'r'. .in order to study the behavior of the simulated sampling distributions of the tests. From the simulate sampling distributions of the proposed tests the critical values are constructed at 1%, 5% and 10% levels of significance in left-tail, right-tail and two-tail cases . The critical (percentile) value at α level of significance may be obtained in left-tail (Right-tail) cases by finding 100000α/100th (10000(1-α)/100th) value from the simulated sampling distribution of the test statistic. Similarly, the pair of critical values in two-tail case may be obtained by finding the pair or points given by 10000(α/2)/100th value and 10000(1-α/2)/100th value on the simulated sampling distribution of the statistic. With that critical values we can construct 1-α confidence intervals for some specified test statistics censored T (T^*), T_{BLUE} and T_{MLE} .

METHODS OF SOME PROPOSED TESTS
1. STUDENT – t APPLIED TO FAILURE RIGHT CENSORED DATA

Suppose $\overline{X}$ and S^{*2} are the sample mean and sample variance are obtained from right censored sample, student – t statistic applied to the sample X_1, X_2, …., X_{n-r} is denoted by

T^* and is given by $T^* = \sqrt{n-r}$ $(\overline{x^*} - \mu_0) / S^*$ ……………………………(i)

$$\overline{X^*} = \frac{1}{n-r}\sum_{i=1}^{n-r} X_i \quad \text{and} \quad S^{*2} = \frac{1}{n-r-1}\sum_{i=1}^{n-r}(X_i - \overline{X})^2$$

It may be noted that the form of the distributing T^* doesn't as the observations are not independently identically distributed.

2. TEST BASED ON BLUEs

If μ^* and σ* are the BLUEs of µ and σ respectively obtained from the failure right censored sample using the BLUE coefficients in Sarhan and Greenberg (1962), then test statistic based on BLUEs. Which is analogous to student t-statistic denoted by T_{BLUE} and is given by A. Dattatrearao V.L.Narasimham in 1989.

T_{BLUE} = $\sqrt{n-r}$ $(\mu^*$ - $\mu_0) / σ*$………………………(ii)

3. TEST BASED ON MLEs

If $\hat{\mu}$ and $\hat{\sigma^2}$ are the maximum likelihood estimates (MLES) of µ and σ^2 computed from X_1, X_2, ….. ,X_{n-r} then the statistic, based on MLEs for testing H_0:

$\mu = \mu_0$, denoted by T_{MLE} and is given by

$T_{MLE} = \sqrt{n-r} (\hat{\mu} - \mu_0) / \hat{\sigma}$ ....(iii)

Here $\hat{\mu}$ and $\hat{\sigma}$ will be calculated using the method suggested by Cohen (1961) and the method is as follows:

Suppose that $S^{*2} = \dfrac{1}{n-r} \sum_{i=1}^{n-r} (X_i - \overline{X}^*)^2 = (n-r-1) S^{*2} / (n-r)$,

$h = \dfrac{r}{n}$ and $\hat{r} = S^{*2} / (\overline{X}^* - X_{n-r})^2$, then $\hat{\mu} = (\overline{X}^* - X_{n-r})$,

and $\hat{\sigma}^2 = S^{*2} + \hat{\lambda} (\overline{X}^* - X_{n-r})^2$, where $\hat{\lambda}$ is an auxiliary function and depends on two variables h and $\hat{r}$. The values of the auxiliary estimation

function λ (h, $\hat{r}$) for singly censored sample from a normal population are tabulated in Cohen (1961) are reproduced in David (1981, PP.142-143) for h

=.01(.01).1(.05).9 and $\hat{r}$ =0(.05)1.

USE OF CRITICAL VALUES

The critical and percentile values (percentile values for two tail case given in *Table.1*) can be used for testing $H_{0:}$ $\mu = \mu_0$ as well as for constructing $1-\alpha$ confidence interval for the parameter μ based on a given failure right censored normal sample.

FOR TESTING

The test statistics can be tested against alternative hypothesis may be one-tail case

(i.e. $H_1:\mu < \mu_0$ or $H_1: \mu > \mu_0$)or two tail case (i.e. $H_1:\mu \neq \mu_0$). After calculating the test statistic value based on the given censored sample using the test $T^* /$

T_{BLUE}/ T_{MLE} we reject the null hypothesis $H_{0:}$ $\mu = \mu_0$ (at given level of significance α = 1% or 5% or 10%) against

$H_1:\mu < \mu_0$ (left-tail)or $H_1: \mu > \mu_0$ (Right-tail) or i.e. $H_1:\mu \neq \mu_0$ (two tail case) for a specified values of *n* and *r*.

For construction of $1-\alpha$ confidence intervals

The critical values can be used for constructing $1-\alpha$ confidence interval for μ just similar as in testing in the left-tail, right-tail case and two-tail cases. In constructing one side confidence interval, the right limit of the interval is μ_0 in the left-tail case while the left limit of the interval is μ_0 in the right-tail case.

Construction of left-sided $1-\alpha$ confidence Interval based on T^* -statistic

As we know that in the left-tail case T^* is the better test than the remaining tests under study, we given below the left-side confidence interval for μ based on

T^* under alternative hypothesis is $H_1:\mu < \mu_0$.

$[\overline{X} - T^* (\alpha ; n , r) S^* / \sqrt{n-r} , \mu_0]$

where $T^* (\alpha ; n , r)$ denotes the critical value corresponding to T^* test at α l. o. s. for the given 'n' and 'r' values.

Construction of left-sided $1-\alpha$ confidence Interval based on T_{BLUE} and T_{MLE}

As we know that in the right-tail case T_{BLUE} or T_{MLE} are better tests than the remaining tests under study, we give below the right side confidence intervals for μ based on T_{BLUE} or T_{MLE} statistics respectively under alternative hypothesis is $H_1:\mu > \mu_0$.

$[\mu_0, \mu^* - T_{BLUE} (\alpha ; n , r) \sigma^* / \sqrt{n-r}]$

$[\mu_0, \hat{\mu} - T_{MLE} (\alpha ; n , r) \hat{\sigma} / \sqrt{n-r-1}]$

where $T_{BLUE} (\alpha ; n , r)$, $T_{MLE} (\alpha ; n , r)$ are the critical values corresponding to T_{BLUE} and T_{MLE} statistics respectively at α l. o. s. for the given n and r values.

Construction of two-sided $1-\alpha$ confidence Interval based on T_{BLUE} and T_{MLE}

We give below the two-side confidence intervals for μ based on T_{BLUE} and T_{MLE} under alternative is $H_1:\mu \neq \mu_0$.

$[\mu^* - T^U_{BLUE}(\alpha ; n , r) \sigma^* / \sqrt{n-r} , \mu^* - T^L_{BLUE}(\alpha ; n , r) \sigma^* / \sqrt{n-r}]$

$[\hat{\mu} - T^U_{MLE} (\alpha ; n , r) \hat{\sigma} / \sqrt{n-r-1} , \hat{\mu} - T^L_{MLE} (\alpha ; n , r) \hat{\sigma} / \sqrt{n-r-1}]$

Where $T^L_{BLUE}(\alpha ; n , r)$ $[T^U_{MLE} (\alpha ; n , r)]$ and $T^U_{BLUE}(\alpha ; n , r)$

$[T^U_{MLE} (\alpha ; n , r)]$ denotes the lower and upper critical values respectively and can be obtained for *Table.1* corresponding to T_{BLUE} $[T_{MLE}]$ statistic at α l. o. s. for the given n and r values.

EXAMPLE

The Hypothetical example gives the days on which the first 7 of a sample of 10 generators are defective after being overhauled. The times of defects were 41, 44, 46, 54, 55, 58, 60 days after overhauled. Assuming lognormal distributions of the survived time (non-defective time) we take the likelihood of μ and σ are given by (Schneider, 1986, p.69)

$\hat{\mu}$ =1.742 and $\hat{\sigma}$ =0.07943

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In this example as we have neither priori knowledge about population nor the data is a complete sample (to compare conclusions obtained is censored sample with those obtained using t– test in complete sample). So this example is not used for testing and used for the construction of confidence intervals using the tests T^*, T_{BLUE} and T_{MLE}.

Here n = 10 and r = 3 . Now, the lower and upper critical values for T_{MLE} from *Table 1* at α =0.05 level of significance are

$$T^L{}_{MLE}(\alpha_{;\,n\,,\,r)=\text{-}3.006}, \quad T^U{}_{MLE}(\alpha_{;\,n\,,\,r)\,=\,1.986}$$

using the Formula (iii), the 95% confidence interval based on T_{MLE} is [1.678 , 1.840]

Similarly, the BLUEs of μ and σ are μ^* = 1.7459, and σ^* =0.0915

The lower and upper critical values from *Table 1* for T_{BLUE} at α =0.05 level of significance are

$$T^L{}_{BLUE}(\alpha_{;\,n\,,\,r)}\,\text{-}2.006, \quad T^U{}_{BLUE}(\alpha_{;\,n\,,\,r)\,=\,1.\,848}$$

Formula (ii), the 95% confidence interval based on T_{BLUE} is [1.678 , 1.840]

From the above confidence intervals, we may observe that the confidence intervals based on T_{BLUE} is closer than that based on T_{MLE}, which indicate that T_{BLUE} test is better than T_{MLE}.

Also, the 95% confidence intervals based on T^* is [1.682 , 1.841] and still T_{BLUE} has closer interval than T^*. Hence, T_{BLUE} is better test than T^*.

CONCLUSIONS

From the above example, we may conclude that the test based on BLUEs(T_{BLUE}) can be used for testing and constructing confidence intervals for mean (μ) in failure right censored samples from normal population in two-tail case.

Hence, we conclude that theory has been proved that the BLUEs (T_{BLUE}) perform better than other test procedures.

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TABLES

TABLE 1 : SIMULATED CRITICAL (PERCENTILE) VALUES OF T-blue AND T-mle STATISTICS FOR MEAN
FROM A FAILURE RIGHT CENSORED NORMAL SAMPLE IN TWO-TAIL CASE
(FOR ALL SAMPLE SIZES BETWEEN 10 AND 20)

		T-blue			T-mle		
		Level of significance			Level of significance		
N	R	1%	5%	10%	1%	5%	10%
10	1	(-3.345, 3.185)	(-2.234, 2.090)	(-1.771, 1.716)	(-3.673, 3.454)	(-2.478, 2.261)	(-1.968, 1.862)
	2	(-3.564, 3.015)	(-2.344, 1.973)	(-1.837, 1.619)	(-3.968, 3.308)	(-2.664, 2.128)	(-2.109, 1.749)
	3	(-4.131, 2.806)	(-2.514, 1.848)	(-1.957, 1.528)	(-4.866, 3.124)	(-3.006, 1.986)	(-2.354, 1.631)
	4	(-5.005, 2.603)	(-2.893, 1.718)	(-2.178, 1.412)	(-6.019, 2.911)	(-3.526, 1.833)	(-2.723, 1.482)
11	1	(-3.239, 2.987)	(-2.207, 2.104)	(-1.763, 1.719)	(-3.514, 3.200)	(-2.407, 2.262)	(-1.936, 1.840)
	2	(-3.427, 2.869)	(-2.272, 1.996)	(-1.784, 1.631)	(-3.801, 3.087)	(-2.534, 2.148)	(-2.009, 1.746)
	3	(-3.651, 2.710)	(-2.375, 1.884)	(-1.852, 1.541)	(-4.184, 2.964)	(-2.757, 2.027)	(-2.154, 1.628)
	4	(-4.492, 2.523)	(-2.681, 1.761)	(-2.000, 1.434)	(-5.202, 2.751)	(-3.193, 1.876)	(-2.422, 1.501)
	5	(-5.167, 2.345)	(-2.970, 1.656)	(-2.221, 1.350)	(-6.251, 2.534)	(-3.655, 1.741)	(-2.900, 1.380)
12	1	(-3.120, 2.960)	(-2.198, 2.125)	(-1.761, 1.720)	(-3.354, 3.167)	(-2.398, 2.262)	(-1.916, 1.834)
	2	(-3.286, 2.821)	(-2.234, 2.030)	(-1.788, 1.643)	(-3.583, 3.026)	(-2.467, 2.160)	(-1.986, 1.740)
	3	(-3.441, 2.664)	(-2.325, 1.928)	(-1.807, 1.565)	(-3.867, 2.869)	(-2.625, 2.054)	(-2.066, 1.644)
	4	(-3.828, 2.518)	(-2.448, 1.813)	(-1.885, 1.478)	(-4.314, 2.708)	(-2.857, 1.918)	(-2.234, 1.536)
	5	(-4.448, 2.347)	(-2.713, 1.703)	(-2.080, 1.396)	(-5.271, 2.531)	(-3.290, 1.778)	(-2.534, 1.432)
13	1	(-3.073, 2.930)	(-2.154, 2.089)	(-1.743, 1.710)	(-3.295, 3.087)	(-2.335, 2.221)	(-1.882, 1.814)
	2	(-3.167, 2.843)	(-2.178, 1.999)	(-1.768, 1.632)	(-3.424, 3.024)	(-2.388, 2.125)	(-1.940, 1.727)
	3	(-3.275, 2.706)	(-2.251, 1.902)	(-1.773, 1.564)	(-3.663, 2.887)	(-2.526, 2.021)	(-1.984, 1.640)
	4	(-3.484, 2.557)	(-2.382, 1.809)	(-1.870, 1.489)	(-3.977, 2.742)	(-2.703, 1.911)	(-2.152, 1.551)
	5	(-3.958, 2.409)	(-2.484, 1.698)	(-1.959, 1.406)	(-4.550, 2.568)	(-2.912, 1.773)	(-2.326, 1.441)
14	1	(-2.988, 2.984)	(-2.096, 2.084)	(-1.751, 1.714)	(-3.182, 3.185)	(-2.242, 2.207)	(-1.878, 1.807)
	2	(-5.381, 4.676)	(-3.855, 3.248)	(-3.192, 2.634)	(-3.380, 3.079)	(-2.329, 2.119)	(-1.897, 1.737)
	3	(-3.166, 2.779)	(-2.168, 1.923)	(-1.746, 1.574)	(-3.495, 2.935)	(-2.408, 2.027)	(-1.929, 1.651)
	4	(-3.366, 2.646)	(-2.270, 1.836)	(-1.757, 1.503)	(-3.709, 2.790)	(-2.551, 1.927)	(-2.008, 1.563)
	5	(-3.554, 2.504)	(-2.405, 1.755)	(-1.850, 1.441)	(-4.041, 2.645)	(-2.773, 1.833)	(-2.146, 1.477)
15	1	(-2.911, 3.006)	(-2.106, 2.074)	(-1.722, 1.709)	(-3.088, 3.185)	(-2.247, 2.179)	(-1.838, 1.794)
	2	(-2.832, 2.916)	(-2.101, 1.999)	(-1.689, 1.640)	(-3.018, 3.087)	(-2.283, 2.102)	(-1.834, 1.728)
	3	(-2.966, 2.821)	(-2.146, 1.915)	(-1.716, 1.586)	(-3.235, 2.976)	(-2.350, 2.008)	(-1.880, 1.654)
	4	(-3.241, 2.707)	(-2.173, 1.828)	(-1.756, 1.524)	(-3.576, 2.868)	(-2.433, 1.915)	(-1.968, 1.573)
	5	(-3.403, 2.5830	(-2.267, 1.757)	(-1.800, 1.450)	(-3.758, 2.72)	(-2.568, 1.826)	(-2.053, 1.490)
	6	(-3.542, 2.428)	(-2.412, 1.667)	(-1.907, 1.401)	(-4.045, 2.574)	(-2.787, 1.711)	(-2.254, 1.414)
16	1	(-2.894, 2.762)	(-2.115, 2.029)	(-1.720, 1.685)	(-3.064, 2.918)	(-2.242, 2.119)	(-1.829, 1.766)
	2	(-2.930, 2.652)	(-2.108, 1.954)	(-1.721, 1.632)	(-3.110, 2.807)	(-2.269, 2.043)	(-1.855, 1.705)
	3	(-2.932, 2.559)	(-2.094, 1.891)	(-1.713, 1.568)	(-3.200, 2.697)	(-2.284, 1.971)	(-1.860, 1.628)
	4	(-3.967, 1.639)	(-2.462, 1.288)	(-1.853, 1.091)	(-3.370, 2.578)	(-2.427, 1.879)	(-1.944, 1.548)
	5	(-3.322, 2.351)	(-2.197, 1.726)	(-1.762, 1.444)	(-3.700, 2.481)	(-2.475, 1.787)	(-1.989, 1.481)
	6	(-3.446, 2.240)	(-2.373, 1.666)	(-1.823, 1.385)	(-3.843, 2.357)	(-2.705, 1.705)	(-2.108, 1.405)

TABLE 1 (CONTINUED)

| | | T-blue | | | T-mle | | |
| | | Level of significance | | | Level of significance | | |
N	R	1%	5%	10%	1%	5%	10%
17	1	(-2.844, 2.747)	(-2.091, 2.030)	(-1.723, 1.682)	(-3.005, 2.878)	(-2.195, 2.123)	(-1.811, 1.754)
	2	(-2.823, 2.659)	(-2.101, 1.973)	(-1.729, 1.624)	(-3.003, 2.786)	(-2.244, 2.053)	(-1.847, 1.690)
	3	(-4.687, 3.195)	(-3.320, 2.401)	(-2.608, 1.993)	(-3.058, 2.687)	(-2.270, 1.978)	(-1.846, 1.625)
	4	(-5.345, 7.537)	(-3.310, 5.924)	(-2.324, 5.267)	(-3.288, 2.589)	(-2.361, 1.902)	(-1.928, 1.562)
	5	(-4.241, 2.595)	(-2.762, 1.967)	(-2.230, 1.642)	(-3.520, 2.468)	(-2.385, 1.827)	(-1.964, 1.503)
	6	(-3.317, 2.280)	(-2.228, 1.701)	(-1.799, 1.424)	(-3.691, 2.379)	(-2.523, 1.736)	(-2.058, 1.445)
18	1	(-2.844, 2.768)	(-2.078, 2.049)	(-1.726, 1.700)	(-2.997, 2.885)	(-2.185, 2.131)	(-1.807, 1.774)
	2	(-2.818, 2.680)	(-2.096, 1.987)	(-1.720, 1.657)	(-3.000, 2.805)	(-2.228, 2.062)	(-1.835, 1.721)
	3	(-2.900, 2.599)	(-2.067, 1.913)	(-1.728, 1.592)	(-3.079, 2.715)	(-2.208, 1.994)	(-1.858, 1.646)
	4	(-2.878, 5.274)	(-2.195, 3.346)	(-1.866, 2.627)	(-3.198, 2.614)	(-2.280, 1.929)	(-1.877, 1.585)
	5	(-3.066, 2.426)	(-2.133, 1.791)	(-1.738, 1.496)	(-3.311, 2.526)	(-2.364, 1.853)	(-1.919, 1.532)
	6	(-3.286, 2.345)	(-2.202, 1.701)	(-1.764, 1.442)	(-3.625, 2.446)	(-2.455, 1.747)	(-1.985, 1.465)
	7	(-3.453, 2.251)	(-2.308, 1.667)	(-1.820, 1.396)	(-3.865, 2.342)	(-2.613, 1.696)	(-2.099, 1.401)
19	1	(-2.820, 2.690)	(-2.075, 2.027)	(-1.725, 1.722)	(-2.970, 2.815)	(-2.176, 2.108)	(-1.812, 1.787)
	2	(-2.742, 2.619)	(-2.100, 1.968)	(-1.740, 1.672)	(-2.907, 2.733)	(-2.219, 2.044)	(-1.841, 1.734)
	3	(-2.845, 2.542)	(-2.082, 1.911)	(-1.722, 1.610)	(-3.028, 2.644)	(-2.222, 1.975)	(-1.835, 1.670)
	4	(-2.936, 2.459)	(-2.084, 1.845)	(-1.734, 1.564)	(-3.124, 2.565)	(-2.248, 1.911)	(-1.869, 1.615)
	5	(-3.004, 2.379)	(-2.135, 1.790)	(-1.729, 1.513)	(-3.244, 2.470)	(-2.313, 1.844)	(-1.902, 1.551)
	6	(-3.162, 2.275)	(-2.152, 1.744)	(-1.742, 1.473)	(-3.444, 2.358)	(-2.398, 1.785)	(-1.942, 1.499)
	7	(-3.265, 2.184)	(-2.206, 1.673)	(-1.795, 1.412)	(-3.618, 2.250)	(-2.508, 1.709)	(-2.040, 1.426)
20	1	(-2.766, 2.724)	(-2.095, 2.054)	(-1.718, 1.730)	(-2.915, 2.832)	(-2.184, 2.139)	(-1.793, 1.792)
	2	(-2.742, 2.642)	(-2.096, 2.000)	(-1.711, 1.675)	(-2.893, 2.755)	(-2.203, 2.064)	(-1.809, 1.734)
	3	(-2.798, 2.569)	(-2.064, 1.946)	(-1.703, 1.627)	(-2.983, 2.683)	(-2.191, 2.013)	(-1.813, 1.677)
	4	(-2.887, 2.496)	(-2.052, 1.878)	(-1.690, 1.584)	(-3.075, 2.598)	(-2.196, 1.942)	(-1.821, 1.630)
	5	(-2.962, 2.421)	(-2.068, 1.843)	(-1.689, 1.526)	(-3.194, 2.529)	(-2.231, 1.899)	(-1.842, 1.564)
	6	(-3.050, 2.331)	(-2.083, 1.790)	(-1.726, 1.490)	(-3.306, 2.412)	(-2.295, 1.834)	(-1.902, 1.516)
	7	(-3.276, 2.256)	(-2.183, 1.725)	(-1.757, 1.434)	(-3.567, 2.340)	(-2.419, 1.754)	(-1.965, 1.447)
	8	(-3.438, 2.179)	(-2.268, 1.672)	(-1.803, 1.378)	(-3.782, 2.241)	(-2.562, 1.689)	(-2.055, 1.375)

RECOGNISING CUSTOMER COMPLAINT BEHAVIOUR IN RESTAURANT

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ABSTRACT

Customer complaining behavior (CCB) which deals with analysis of all the aspects involved in the customers reactions towards a product or a service failure. Customer satisfaction,dissatisfaction and complaint behavior are highly correlated and obvious subjects which are investigated by customer studies and marketing.Now a days,at the origin of these studies we can considered the real marketing problems.The purpose of this paper is to determine the effect of attitude,loyalty and politeness on customer complaining behavior in a resturent.A questionnaire was designed by using scales to see the reactions of defendants.One hundred and fifty questionnaire was filled by adults and regression was used to scrutinize the relation between attitude, loyalty,politeness and their complaining behavior.The results shows that complaint and complaining behavior has a positive correlation and customer loyalty is meaningfully allied with customer complaining behavior.Customer complaining behavior is directly effected by attitude. Moreover,the use of voice and thirdparty action as complaining behavior decreases as the drift of politeness increases and the use of private action uncorrelated with the drift to be polite.according to the results managers should focus on customer's attitude and positive politeness through which complaining behavior can be decreased.

KEYWORDS

Attitude, Loyalty, Negative word of mouth, Politeness, Voice response.

INTRODUCTION

Though in the 1970s the study of complaining behaviour begins but it is still applicable in business & academic research. This helps to initiate a marketing philosophy in management and complaint handling of satisfaction as well as to dissatisfaction. Some learning measured that the response submits to the various way of the experiencing criticism (West brook 1987).The most delegate role to hypothesis is from Singh (1988), who explain complaining behaviour is a collection of behavioural and non behavioural response resultant from differentiates displeasure in a shopping or expenditure event.

Consumption evaluation process can be defined as the paradigm of conformation or disconfirmation (Churchill and Suprenant, 1982). The conformation which contributes to satisfaction, realize in situation where the product meets the expiation the customer. While disconfirmation realizes in situations where there is a negative deference between the previous expectation and performance of product (Donoghue and Deklerk, 2006). Dissatisfaction arising from the evaluation of

the purchase expectation may result in complaint (Snellmamann and vihtkari, 2003;kau and serene,1995). In other words the more complaints the lesser the satisfaction would be (ali et.al.2010). Complaint as one of the method used in ordered to express customer dissatisfaction makes up the starting point of complaint behaviours. (Singh, 1988)Customer complaint behaviours is combination Of different responses a few or all of which are trigger by the displeasure. New investigate shows that dissatisfied consumer show direct behaviour such as negative opinion and quit rather than complaint straight to the organization (tschol et al., 1994). They may analyze the cause of this satisfaction and identify opportunity for progress. Past research has assessed complaining behaviour with regard to the extent of consumer engagement in the negative word of mouth and voicing, particularly as related to various individual traits and severity of services failure (day and bodur, 1978 villarreal-camacho, 1983 bolfing 1989, blodget and tax, 1993) complaints to third parties come from customers who have not found to know the problem to the more severe, bearing in mind that their displeasure is not an isolated case and may involve other customer (Hogarth et al, 2001). This refers indirect behaviour adjust at avoid status of dissatisfaction for the customer to other. Complaints usually been regard as negative response displeased people and the organization had planned to stop or cut them to minimum extent. But new concept conceder negative responses as helpful advice and it is not necessary indicator of poor performance" (Phau and Sari, 2004. 407) the complaint unable firm to turn into alert of problem in services and become able to recover their act wisely. The wise response "Can increase customer loyalty and satisfy the customer". (Oh 2006 P60).When customer don't transfer complaint to firm, not only the chance of determining and solving problem is lost, but also same negative result occurs for both company and customer like changing firm, applying legal action, compiling to public and private bodies etc. (Davidow and dacin 1997). Therefore understanding the factor that effect customer propensity to complain to firm is necessary for this success of firm.

From the point of customer it is asserted that no complain propensity to firm resulted from not knowing to complain to whom, the idea of not taking into consideration of problem by firm appropriately, rude, accusatory behaviour of employs and pervious negative experience etc. In addition to these, customer compiling more difficult then leaving the firm and the think response of complaint is given to late if return complain is perform (Whitely, 1995). Pervious study investigates the propensity to complain in term of customer. Present study argues the effect of situational factor of complain tendency namely perceived dissatisfaction, customer loyalty, expiation from compiling process and attribute about source of problem. The general purposes of current study in explore the factor that effect the complain behaviour in different situation. More specifically the study will try to achieve the following objectives.

• To understand the relationship between complaint and complaining behaviour.
• To understand the role of loyalty in the complaining behaviour.
• The effect of attitude on the complaining behaviour.
• To find out whether or not politeness would affect the complaining behaviour.

Research questions a developed to obtain appropriate information that is require fulfilling the research objective. This research study attempts to answer the following questions.

• Is there any relationship between complain and compiling behaviour?
• How loyalties help to understand the complaining behaviour?
• How these variables influence the complaining behaviour?
• Did the politeness affect the complaining behaviour?

LITERATURE REVIEW
Below is the abstract border for complaining behaviour use to define the build and identify the most relevant variable purposed in literature to explain its origin.
CUSTOMER COMPLAINING BEHAVIOUR
In 1988 According to Singh complaining behaviour of the Customer is a place of multiple responses. It also show that customer complaining attitude effect the complaining behaviour (grace et.al 2006) and that culture difference effect attitude the complaining behaviour (coates et al.,2010). Mcdougall et al.,(2000) recommended that all consumer would remain loyal to the service provide even when a services crash is not solve. customer decide to do nothing because the complain will not result in favourable outcome or the cost of complaining are to high (Blodgett et.al,2006).The consumer choose to do nothing and forget about the dissatisfying experience (kim et al.,2010). Singh (1990) call these customer passive and (panther22004) identified as "upset no action" yuksel et.al (2006 chose to follow Hischman 1970) and conceptualized "no action" as loyalty.

Hirschman (1970) conceptualized voice can help out to change any type of un pleasant behaviour. Conceptualized general protest addressed to anyone who care to listen (panther22004 naus at al 2007). The most voice that's we use is direct complain. This type of complaining behaviour help out to increase the efficiency of the services that is provided and the complaining will decrease and helpful in service recovery. Third party complaining includes complaining to industry bodies, regularity bodies, government agency and consumer group (Singh 1988). Negative opinion in public and taking action outside. Relationship is growing in importance as consumer have become empowered with now tool to cost effectively communicate with a wider audience and potentially inform other or damage a brand (Blodgedd et al 2006 ward 2006 gregoire et al 2009). Private response include word of mouth comments and change behaviour with the recent addition of web site communication (Blodget 2et al 2006) complaining behaviour is a driven by the type and level of service failure the effectiveness of recovery process the strength of the relationship and other factor related to the dissatisfactory situation (Mittal et al 2008)

CUSTOMER LOYALTY
The concept of loyalty is usually expressed by such words like dedication, commitment, reliability, stability, patience and it is used in subject like sport team, family member, faith etc. furthermore using income that earned in difficult conditions, for purchasing certain products or by purchasing certain company is called as customer loyalty Brooks, 2010. Loyalty is a passive response, that indicates the member care about the relationship with the service provider and therefore tries to find reason to the remain in the service relationship (Evanschitzky et al, 2011). The loyal customer concept is that 2dissatisfaction from the service failure in the hope that things will improve in the future. Loyalty is psychological barriers to exit that may give the service organization a chance to retain their best customers despite service failure (panther and Farquhar,2004). In marketing literature the role of effective complain management on customer loyalty is a current subject. In this context yapping, shoaling and Xing (2009) researcher affects of service recovery (explaining, communication, feedback and redress) on perceived justice and customer loyalty. In the other hand the effect of customer loyalty on complaint behaviour is not taken similar attention fornell and Werner felt (1988). Asset that loyal customer who experienced dissatisfaction tend to complain of more often then non loyal (fornell and Werner, 1988). It can b claimed that loyal customer prefer to solve their problems with firm instead of leaving firm immediately (oztopcu, 2006). Forman 6research by blogett and grandois (1992) introduces the construct from hirschman (1970) suggested that loyal customer should be more likely to complain less likely to exit to do negative word of mouth when they satisfied with a product. Another research also revealed that public library user "who think themselves loyal to the library are less likely to complain to third party, (oh 2004). Based in this it is hypothesize that

H1. Complaining behaviour is meaningful related with customer loyalty.

ATTITUDE
Can be termed as subjective belief in authority of a dissatisfied customers' obtaining compensation from the company (Richins, 1987).In the time of intense competition, not only service firms but also destination try to reach and hold a pool of loyal and advantageous visitors by providing 'socks Knocking' service (Anderson et al., 2007). However, mistakes are normal occurrence in service businesses, above all tourism and hospitality settings (Avci et al., 2003). Thus, firms need to be set to offer useful and capable solution. For this reason, first they need to know how members of their goal market think and behave, in other words, what are their attitude towards complaining (Oh, et al., 2006).a number of researchers have postulate that attitudes toward complaining (personal Norms and/or societal benefits) influence complaint responses with voices and negative word-of-mouth (Richins et al., 1982). "consumers who have a more caring manner towards complaining maybe because they are confident of success, or because they would not think mostly painful in making a complaint are more likely to complain than those who have a harmful attitude towards register their dissatisfaction" (Bodey and Grace, 2007, p. 187). Likewise, Cho and Joung, (1999) interpret feelings towards complaining as attitude towards right seeking where they found a strong relationship between attitudes and actual right seeking. Similarly, Richins (1982) support the relationship between 'Attitude toward right seeking' and 'right seeking intention'. Blodgett et al. (1995) put

forward that consumers who are averse to right seeking will just silently leave and or connect in negative word-of-mouth behaviour. On the other hand, attitude to complaining was linked to one's intention or behaviour to complain in other words, normally, consumers with a more positive attitude towards complaining have a greater tendency to complain (grace et al., 2007)

H2: attitude has a direct effect on complaining behaviour.

CUSTOMER POLITENESS

Several acts are essentially intimidating to look and so need softening. Politeness make out as a variable style to maintain the listener face. The positive social value a person effectively claims for himself is face Brown and Levinson (1987) there are two kinds of faces. Positive face concern that have a self image and hope that others people see us as we see ourselves. Negative face concern the desire to be us impede in one action, both positive and negative face are" emotionally invested" (brown positive and Levinson 1987).Based on an empirically tested categorization, it is identified by the Singh (1988) that there are three types of complaining private action, third party action, behaviour voice, and for the most part refer to the complain behaviour directed toward the offending party. A customer who deal with a retailer or manufacture, whether in writing of the consumer or by telephone would be exhibiting voice third party action, on the other hand refer to complain express to party outside not directly involve with the wrong service provider. Customers who contact consumer protection agencies, lawyers, or newspaper as a result of dissatisfying experience with a retailer/dealers or service suppliers a taking third party action. Private action refers to behaviour in which customer friends and family not to use that service provider and deciding not to purchase from them again (Singh, 1988). Many experiences to the proclivity to engage in these complaining behaviours have been identified including industry, culture demographics such as age and gender (liu et al.,1996), prior on consumer expectation and experience (Huppert's et al., 2003), the cause for product or service failure (Folkes et al., 1987). In addition, richens (1983) done a study that at the same time considering associations ways and complaining behaviour. It was conducted with its interest in and examined what can be considered the boom to voice complaints before that development of the Singh taxonomy. Also this research measured relationship between all three ways of complaining behaviour and a particular interaction style. The choice of politeness is measure according to the complaining behaviour. Complaining intimidating act to the degree that a consumer does not want to insult another, he will not engage in complaining behaviour. There and huge reasons that's are responsible for the insult of any person that given experiences was dissatisfied and he would be defending his on face by complaining. A customer will not go for the further complains with the fear of having further insult if he believes that retailer will not take his complains serious or may refuse to take the appropriate actions to correct it. As such it is hypothesizing.

H3. Complaining behaviour decreases as a tendency to be polite increase.

A customer seeking to minimize face damage unless or un till the complain is not directly record direct confirmation with the service that is provided.

H4.As the propensity of politeness increases the use of voice as complaining behaviour decrease.

Although third party actions are less direct than voice complaint. There a customer does not directly communicate with the service provider this type of complaining behaviour in some sort of public condom nation (e.g. lawsuit, bad press etc). Such third party action damages the following hypothesis in this position.

H5. As a propensity to polite increase, the use of third party action as the complaining behaviour decrease.

Unlike voice compliant and third party action, private action and internally oriented through private action a customer can expressed his/her dissatisfaction without directly confronting to the service provider. It is expected that consumer will take private action independent of the prosperity to be polite.

H6. The use of the private actions uncorrelated with the propensity to be polite

As it has been advised that the least threatening of the three complaining behaviour is the private action because without facing public humiliated a customer can expressed disenchantment to the service provider and the voice should be threatening since it direct conflict b/w customer and service provider. Even if the third party action may have several upshot for a service provider then voice complaint a customer does not engaged in direct confrontation will recall from politeness theory that people define their face when threaten by offending the face of other party within the retailer setting for example a manager listening to a customer complaint about the product may tell the customer that he fails to see problems.

H7. The customer will do private action must often followed by third party action and then voice as the tendency to be polite increase.
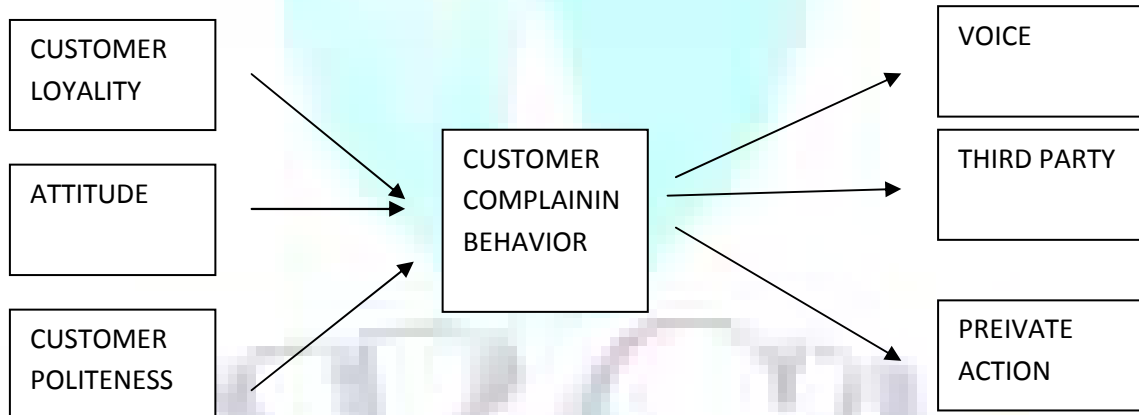
METHODOLOGY

SAMPLE/DATA

In order to collect data for understanding the situation about customer complaining behaviour, a sample of 150 respondents will ask to participate in a self-administered questionnaire. The population for the current research is customer of almaida in (bwp) Pakistan. the current study utilizes a non-probability sampling technique that is convenience sampling. Convenience sampling is a sampling technique that obtains and collects the relevant information from the sample or the unit of the study that are conveniently available (zikmund,1997).convenience sampling is normally used for collecting a large number of completed surveys speedily and with economy(lym et al.,2010) It has ensured that the sample members posses two main qualification to participates in the self-administered survey. First, the sample member should be almaida customer and having enough knowledge about almaida. second, they never buy any deal other than almaida because in the case of experience regarding almaida , it definitely influences the attitude and behaviour of the respondent. We select these sample members from (iub)Pakistan. The main target group to collect the sample data are university students. The selection of students is based on the previous results of the studies on customer complaining behaviour.

MEASURES AND SCALES

The survey instrument of the current study address two major purposes, first is to analyze the relationship of different variables with ccb .second, to collect information about the different characteristics of the respondents that can be used to understand the variations in different categories. The survey instrument contains two sections. Section 1 includes different personal and demographic variables. This section will obtain the respondent's information about gender, age ,income ,education ,status, frequency of ccb and possible product to be purchased in the future. Section 2 includes the latent variables that are important

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current study. These variables includes politeness, attitude, loyalty towards ccb. This section of the is developed based on past literature and already used questionnaires. The scales of study were adopted from the previous literature and published studies.

no	variable	Items	reference
1	Customer loyalty	1.I would definitely recommend Almaida to someone who seeks my advice. 2.I encourage relatives and friends to do business with Almaida. 3.I intend to do more business with Almaida in the next few years.	
2	attitude	.I feel uncomfortable, if not complain directly about dissatisfactory product or service. 2.I feel obliged to complain directly about dissatisfactory product or service. 3.People should complain that much for it happens . 4.It is necessary to ask for change or return, Even the product/service are not very expensive.	Blodgett et al.(1993,p.141, 1997.p.195)
3	politeness	1.When making a request, I am as direct as possible. 2.It's OK for people to be forceful in order to get their way. 3.I am comfortable asking people whom I barely know personal questions. 4.I feel free to express my opinion when I disagree with someone. 5.I am forceful in order to get my way. 6.If asked whether or not I like something, I will frankly say if I do not like it.	Brown and levinson(1987)
4	Voice	1.I inform my complaint to Almaida manager. 2. i Inform my complaint to hotel management. 3. I complaint the restaurant to the media.	
5	Third party	1.I claim my legal rights in consumer court. 2.I inform my complaint to customer rights union. 3.I spread my complaint in the electronic environment.	
6	Private action	1.I do not eat at Almaida in future. 2.I do not come to Almaida again. 3.I insist my family and friends not to come to Almaida. 4.I defame Almaida to people around me.	

PROCEDURE

The questionnaire was distributed among 150 respondents in BAHAWALPUR. These respondents are selected based on the criteria above mentioned. Before giving the questionnaire. The purpose of study and questions were explained to the respondents so they can easily fill the questionnaire with relevant responses. A total of 141 questionnaires were selected and rest 0f the questionnaires was not included in the further analysis due incomplete or invalid responses. After collecting the completed questionnaires, these questionnaires were coded and entered into SPSS sheet.

RELIABILITY ANALYSIS

Overall cronbach's alpha of the variables or more then acceptable and recommended value 0.50 by nunnally (1970) and 0.60 by moss et al.(1998). This shows that all the 23 items were reliable and valid to measure the opinions of consumers towards customer complaining behaviour.

RELIABILITY STATISTICS		
	Cronbach's Alpha	N of Items
VOICE RESPONSE	.492	3
PRIVATE RESPONSE	.859	4
THIRD PARTY RESPONSE	.717	3
LOYALITY	.587	3
ATTITUDE TOWARDS COMPLAINTS	.569	4
POLITENESS	.552	6

RESULT AND ANALYSIS

Profile of the respondents Personal and demographic information such as gender, age, income, education, level, status, frequency of internet use and potential purchase over the internet are presented in the following table(table)

variable	Category	frequency	percentage
gender	MALE	61	43.3
	FEMALE	80	56.7
Age	15-20 years	23	16.3
	20-25 years	105	74.5
	30-35 years	10	7.1
	35-40 years	3	2.1
education	Bachelor	31	22.0
	Master	81	57,4
	Ms/M.phill	26	18.4
	PHD	3	2.1
income	Below 15000	96	68.1
	15000-25000	14	9.9
	25000-35000	11	7.8
	35000-45000	20	14.2
status	Student	126	89.4
	Employed	9	6.4
	Businessman	6	4.3

HYPOTHESIS TESTING

1. CUSTOMER LOYALTY

According to the result of the study, non.significant relationship between loyalty and ccb with (B=-0.10)and(p<0.05) according to these results, loyalty -10% in ccb. These result supports H1.

2. ATTITUDE

Significant relationship between attitude and ccb with (B=.308)and (P>0.05) results suggest that attitude contribute more than 30% to ccb. these result of the study validate H2.

3. POLITENESS

Significant relationship between polite and ccb with (B=.276) and (P>0.05) results suggest that polite contribute more than 27% to ccb this result of the study support H3.

POLITENESS AND VOICE RESPONSE

Significant relationship between politeness and voice response with (B=0.321) and (p<0.05) voice response contributes more than 32% In politeness. The results support H4.

POLITENESS AND THIRD PARTY RESPONSE

Significant relationship between politeness and third party response with (B=0.210)and (p<0.05) third party response contributes 21% In politeness. The results of the study support H5.

POLITENESS PRIVATE RESPONSE

No significant relationship between private response and politeness with (B=0.113) and (p<0.05) according to these results, private response contribute more than 11% in politeness. The result of the study support H6.

POLITENESS, VOICE, PRIVATE ACTION AND 3RD PARTY RESPONSE

There is a significant relationship between politeness with voice and private action but the 3rd party response show non significant relationship with politeness. These results support H7.

HYPOTHESIS	MODEL VARIABLES	Unstandardized Coefficients		Standardized Coefficients	Critical Region	p	P
		B	Std. Error	Beta	t	Sig.	Results
H1	customer Loyalty ⟶ CCB	-.008	.072	-.010	-.112	.911	NON.SIGNIFICANT
H2	Attitude ⟶ CCB	.308	.081	.308	3.820	.000	SIGNIFICANT
H3	politeness ⟶ CCB	.335	.099	.276	3.383	.001	SIGNIFICANT
H4	Voice Response ⟶ CCB	.213	.053	.321	3.996	.000	SIGNIFICANT
H5	Private Response ⟶ CCB	.062	.046	.113	1.346	.181	NON.SIGNIFICANT
H6	3rd party response ⟶ CCB	.123	.048	.210	2.534	.012	SIGNIFICANT
H7	Voice ⟶ Politeness 3rd Party ⟶ Politeness Private Action ⟶ Politeness						
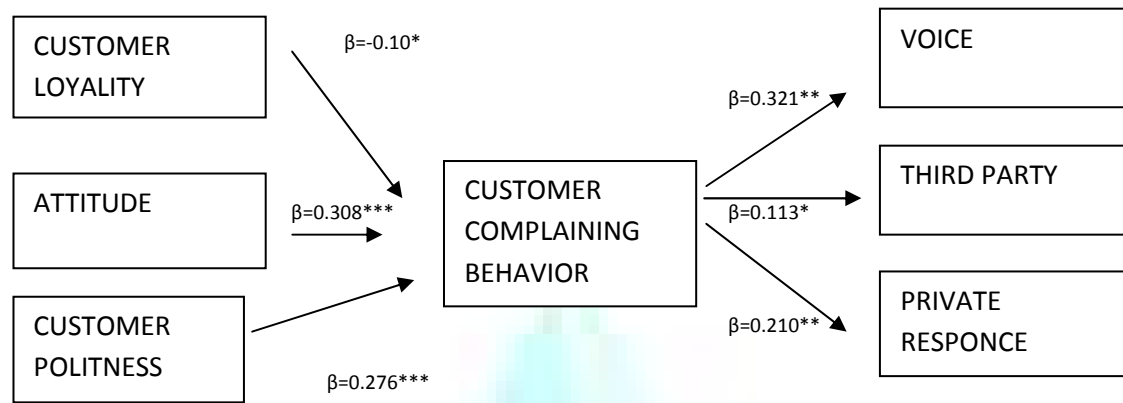
DISCUSSION

The complaining behaviour choice depends, on the consumer's politeness. Impolite customers use voice more likely than polite consumers. The impolite customers having equal chances to use third-party actions. Some survey's design have satisfaction may also lacking for hopeful voice. Some questions may more successfully bring out customer complaints than generalized questions; above all customers do not want to be unfair. Managers may probably consider positive politeness a way to seek complaints. Positive politeness express a support of the other person's wants and conveys a sense of similarity and unity. A service provider makes a point to identify the chance of displeasure, or a less perfect skill, and a wish to diminish such incidence. The managers will have to work hard to identify those customers voiced complaints with potential to act accordingly.

In marketing literature the role of effective complaint management on customer loyalty is a current subject. researches effect of the service recovery (explaining, communication, feedback, and redress) on perceived justice and customer loyalty. On the other hand the effect of customer loyalty on complaint behaviour is not taken similar attention. Assert that loyal customers who experienced dissatisfaction tend to complain more often than non-loyal .It can be claimed that loyal customers prefer to solve their problems with firm instead of leaving firm immediately .So customer loyalty is researched under the scope of this study. In 1970 it is documented by Hirschman that the significance of attitude to complaining for accommodating complaint and exit behaviour. It is found that attitude toward complaining is a essential variable in the prediction of complaint behaviour that a positive attitude to complaining increased the possibility that the students would complain to other.

In 1982 Richins study attitude to complaining and recommended that the attitude involve individual's personal norms about complaining, the net benefit of complaining and the perceptions of community benefits that will result as of complaining. Grace et al. (2006) when making a complaint there is an unwillingness to complain with a lack of confidence, perceptions of risk in regard to public complaining and feeling rough. It ought to be highlighted that even though polite customers have fewer voice complaints than impolite customers, it does not mean that they not at all do so. Moreover; it is expected that investigate the conditions under which polite customers do and do not use voice complaints. The advance researchers may also attempt to discover to tackle some of the methodological and abstract boundaries of the in progress study. To develop the definition of politeness A try was made which consist of non-verbal as well as verbal behaviour, All the items which are in the politeness scale related to the indirect nature of expression .The researcher may further seek to build up this scale by adding more items to this feature of verbal behaviour.

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122

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SOCIO-CULTURAL EFFECTS OF ALCOHOL CONSUMPTION BEHAVIOUR OF YOUNG COMMERCIAL DRIVERS IN SOUTH WEST NIGERIA

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ABSTRACT

The negative consequences of the hazardous use of alcohol are well established. Thus the emphasis of this study is on the socio-cultural consequences of alcohol consumption, particularly, in the family related context such domestic violence, divorce, inhibiting sexual intercourse, pregnancy and others such as alcohol induced high-risk behaviours like unsafe sex. A survey design was adopted in this study. Questionnaire was used to collect data. 1884 commercial drivers responded to questionnaire but the responses of 1,432 participants were analysed. The survey covered six states in Nigeria. The participants were between 21 and 35 years with mean age of 24.6years. The majority of these participants or 84% reported to have engaged in the use of alcoholic beverages at least twice a day while 16% engaged in the use of alcoholic beverages once daily. All these participants are male. Their marital status distribution revealed that 76% of them were married and only 24% of them were single. The findings revealed significant relationship between rate of domestic violence, divorce rate, rate of extramarital affairs, unprotected sex behaviour and alcohol consumption among commercial drivers in Nigeria. There are indications that heavy alcohol use at a young age is predictive of a range of social and cultural problems. Protracted and continuous abuse of alcohol may be predictive of more severe health problems in general for young male individuals. It was recommended that government should enforce policy that will reduce alcohol consumption especially in both workplaces whether public or private.

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KEYWORDS
Alcohol Consumption, Divorce, Domestic violence, Socio-Cultural Effects.

BACKGROUND TO THE STUDY

The services rendered by commercial drivers have significant impact on the socio economic activities of Nigeria. This is because a large fraction of the working population travels on commercial vehicles daily to and from work. People equally engaged on journeys for recreation, shopping and other social activities through the same medium. Also both raw materials and finished goods are also transported over a long distance either for production or consumers.

This has underscored the importance of road transportation mostly powered by commercial drivers as an integral part of the functioning of Nigeria like other developing economies of the world. Apart from this positive impact, there are other undesirable effects of commercial drivers' activities. The road accident majorly traceable most times to their negligence constitutes a major cause of morbidity, mortality, disability and socio-economic loss (WHO, 2009). One important factor that is likely responsible for the undesirable outcomes is alcohol use among commercial drivers. Alcohol consumption is common among commercial drivers because it is readily available in motor parks. Makanjuola, Oyeleke and Akande (2007) reported that the use of psychoactive substances, especially alcohol, was very common among long-distance vehicle drivers in Ilorin, Nigeria. Abiona, Aloba and Fatoye (2006) found that all their respondents (commercial drivers) were engaged in the use of commonly available alcoholic beverages in the vicinity of their various motor parks.

The negative consequences of the hazardous use of alcohol are well established (Enekwechi, 1984; Ewhrudjakpor, 1995; 2001; W.H.O. 2002; Hammarstrom and Janlert, 2002; Olley, 2009). Thus the emphasis of this study is on the socio-cultural consequences of alcohol consumption, particularly, in the family related context such domestic violence, divorce, inhibiting sexual intercourse, pregnancy and others such as alcohol induced high-risk behaviours like unsafe sex.

Domestic violence is a devastating social problem that affects every segment of the population. It is a social problem because it affects so many more people than just the intended victim. Domestic violence affects all social groups and can consist of physical, sexual and psychological abuse. Although men can also be affected by domestic violence, women suffer disproportionately. On a daily basis, Nigerian women are beaten, raped and even murdered by members of their family on seemingly provocation. In Nigeria, Section 55 (d) of the Penal Code permits a husband to physically abuse to correct his wife as long as they are married according to the native/custom law in which such correction is recognised as lawful (Suleiman, 2001). Up to a third of women in Nigeria report that they have been subjected to some form of violence, including battering and verbal abuse, emotional and psychological abuse, marital rape, sexual exploitation, or harassment. Domestic violence is one of socio-cultural factors which causes vary widely in Nigeria. Studies have reported a high correlation between alcohol or other substance abuse, and battering. There is no agreement on the fact the alcohol use directly causes violence. But is a known fact that alcohol does affect the user's ability to perceive, integrate and process information. Alcoholic households are less cohesive and have more conflicts, and their members are less independent and expressive than households with nonalcoholic or recovering alcoholic parents. This distortion in the user's thinking may increase the risk that the user will misinterpret his partner or another's behaviour. Batterers can also use drinking as one of many excuses for their violence and as a way to place the responsibility for their violence elsewhere. The consequences of spousal violence can be severe, for example, abused women are statistically more likely to have an unintended pregnancy, report a history of abortion, miscarriage, or stillbirth than those who had never experienced violence.

Divorce is another growing social problem. It has caused so many discomforts in the family life. Divorce has made couples to pass through a period of strong emotional trauma. There are those who fall into deep depression, others come down with some illness, due to the involvement in divorce (Melgosa and Melgosa. 2012). Also, loneliness is equally a widespread condition both spouses feel tremendously occasioned by divorce. Oneke (2004), observed that divorce is painfully destructive and nothing good comes out of it. Children from divorced families face the problem of academic performance, juvenile problems, food and clothing. Children who grow up in divorced families often have more difficulties getting along with siblings, pears, and their parents. Furthermore, adolescents who experience divorce are likely to engage in delinquent activities to get involved in early sexual activity, and to experiment with illegal drugs. Alcohol abuse has torn apart countless marriages and ruined countless lives. When alcohol abuse is involved, there are always serious trust issues, and a marriage cannot survive without trust. The alcoholic has lied often, made and broken too many promises, and generally not done his/her part of the work in the relationship.

Alcohol use has been found as an independent risk factor for intentions to engage in unprotected sex, and as risky sex intentions have been shown to be linked to actual risk behaviour. Some previous studies suggest an association between alcohol abuse and unsafe sexual behaviour, such as multiple concurrent sexual partnerships and inconsistent condom use in sex with non-spousal non-cohabiting partners (Kongnyuy & Wiysonge, 2007; Mitsunaga, Powell, Heard, & Larsen, 2005; Oyediran, Isiugo-Abanihe, Feyisetan & Ishola, 2010).

STATEMENT OF PROBLEM

A review of the empirical literature indicates that little attention has been paid to important social and cultural effects of hazardous drinking habits of commercial drivers in Nigeria.

OBJECTIVES

1. To determine the prevalence of alcohol consumption among commercial drivers in Nigeria
2. To investigate the socio-cultural effects of alcohol consumption among commercial drivers in Nigeria.

HYPOTHESES

1. There is no significant relationship between rate of domestic violence and alcohol consumption among commercial drivers in Nigeria
2. There is no significant relationship between divorce rate and alcohol consumption among commercial drivers in Nigeria
3. There is no significant relationship between rate of extramarital affairs and alcohol consumption among commercial drivers in Nigeria.
4. There is no significant relationship between unprotected sex behaviour and alcohol consumption among commercial drivers in Nigeria.

METHODOLOGY

A survey design was adopted in this study. Questionnaire and interview methods were used to collect data. 1,884 commercial drivers responded to questionnaire. The survey covered six states, Oyo, Ogun, kwara, Kogi, Ekiti and Lagos states. The participants were between 21 and 35 years with mean age of 24.6years. 32% had spent between 2-4years while 64% had spent between 5-8years while only 4% had spent above 8years driving commercial vehicles. The majority of these participants or 84% reported to have engaged in the use of alcoholic beverages at least twice a day while 16% engaged in the use of alcoholic beverages once daily. All these participants are male. Their marital status distribution revealed that 76% of them were married and only 24% of them were single. The responses of 1,432 participants that were married were analysed.

INSTRUMENTS

Five scales were developed to obtain data for this study. Alcohol consumption was measured using 4 items which include "I take *sepe* (alcoholic herbal concoctions) to be alive when driving" and "I prefer to take beer instead of *sepe"*. 5-point rating scale, Not at all, slightly true, moderately true, Very true and completely true was used for all subscales. Domestic violence was measured using 4 items which include "I slap my wife only when she annoys me" and "I prefer to warn my wife severally before beating*".* The divorce was measured using 4 items which include "I divorced my wife before my happiness returned" and "My in-laws were to be blamed for divorcing my wife" Extra-marital affairs was measured with 4 items which include ?I satisfied my sexual urge outside my marital home a times" and "My wife may reject my sexual advances which indicates that I should look elsewhere", Unprotected sex was measured with 4 items which include ?Condom a tines steal enjoyment of sex then I don't use it" and "My sex partner hates condom or any form of protection", The psychometric properties of the all subscales were ensured with test-retest reliability after two weeks ranging from 0,78 to 0.84 and validity of 0.68 to 0,72.

RESULTS

HYPOTHESIS 1

There is no significant relationship between rate of domestic violence and alcohol consumption among commercial drivers in Nigeria.

TABLE 1: RELATIONSHIP BETWEEN DOMESTIC VIOLENCE AND ALCOHOL CONSUMPTION

Variations	Freq	Mean	r-observed
Domestic violence	1,432	18.2	0.73*
Alcohol consumption	1,432	14.6	

*Significant at 0.01

The findings revealed a significant relationship between rate of domestic violence and alcohol consumption among commercial drivers at r=0.73, 1,431 degree of freedom and 0.05 significant level.

HYPOTHESIS 2

There is no significant relationship between divorce rate and alcohol consumption among commercial drivers in Nigeria

TABLE 2: RELATIONSHIP BETWEEN DIVORCE AND ALCOHOL CONSUMPTION

Variations	Freq	Mean	r-observed
Divorce	1,432	8.4	0.67*
Alcohol consumption	1,432	14.6	

*Significant at 0.01

The findings revealed a significant relationship between divorce rate and alcohol consumption among commercial drivers at r=0.67, 1,431 degree of freedom and 0.05 significant level.

HYPOTHESIS 3

There is no significant relationship between rate of extramarital affairs and alcohol consumption among commercial drivers in Nigeria.

TABLE 3: RELATIONSHIP BETWEEN EXTRAMARITAL AFFAIRS AND ALCOHOL CONSUMPTION

Variations	Freq	Mean	r-observed
extramarital affairs	1,432	6.2	0.72*
Alcohol consumption	1,432	14.6	

*Significant at 0.01

The findings revealed a significant relationship between extramarital affairs and alcohol consumption among commercial drivers at r=0.72, 1,431 degree of freedom and 0.05 significant level.

HYPOTHESIS 4

There is no significant relationship between unprotected sex behaviour and alcohol consumption among commercial drivers in Nigeria.

TABLE 4: RELATIONSHIP BETWEEN UNPROTECTED SEX BEHAVIOUR AND ALCOHOL CONSUMPTION

Variations	Freq	Mean	r-observed
unprotected sex behaviour	1,432	6.2	0.77*
Alcohol consumption	1,432	14.6	

*Significant at 0.01

The findings revealed a significant relationship between unprotected sex behaviour and alcohol consumption among commercial drivers at r=0.77, 1,431 degree of freedom and 0.05 significant level.

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DISCUSSION

It was found that among commercial drinkers who are alcohol users there exist an association between domestic violence and alcholic consumption. These findings are in agreement with earlier studies (Karaoglu, Celbis, Ercan, Ilgar, Pehlivan, Gunes, Genc, Egri 2006; Okemgbo, Omideyi, Odimegwu, 2002; Iliyasu, Abubakar, Babashani, Galadanci, 2011). Alcoholic spouses tend to use more negative and damaging communication (e.g., criticizing, blaming, contempt), express more anger and show lower levels of warmth when trying to solve a problem than do nonalcoholic spouses. This kind of negative communication discourages the use of positive problem solving skills such as open discussion and encouragement. This may lead to escalated aggression and husband overpowering the wife which may be resulted to battering or other forms of violence at home.

The findings revealed an association between extramarital sex among commercial drivers and alcohol consumption. This relationship has been documented by other studies (Hall, Fals-Stewart, & Fincham, 2008; Kongnyuy & Wiysonge, 2007; Oyediran, Isiugo-Abanihe, Feyisetan & Ishola, 2010) and therefore supports the theory that alcohol consumption influences men to engage in higher risk. It was equally found that sex under the influence of alcohol is more likely to be unprotected. This supported the earlier study of Hall, et al., (2008). The relationship between marital instability and alcohol consumption is far complex. An alcoholic spouse may neglect or abuse his or her family, deplete financial resources, and increase the level of poverty. Alcoholics like all abusers and addicts, lie (bold faced lies, lies of omission, cover-ups), make excuses, blame others for their drinking, and continue to use alcohol regardless of consequences. This may be at risk factor for family instability or eventual divorce.

CONCLUSION

Alcoholic beverage consumption patterns in Nigeria vary considerably among ethnic groups and even among different professions. These variations in drinking patterns include, for example, the types of beverages consumed preferentially, occasions on which consumption typically occurs, drinking levels that are considered normal, and population subgroups for whom drinking is considered acceptable. There are indications that heavy alcohol use at a young age is predictive of a range of social and cultural problems. Protracted and continuous abuse of alcohol may be predictive of more severe health problems in general for young male individuals.

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MEAN-SHIFT FILTERING AND SEGMENTATION IN ULTRA SOUND THYROID IMAGES

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ABSTRACT

In medical imaging, image removal of noise has become a very necessary matter all through the diagnosis. In medical images there must be a compromise between noise reduction and the preservation of useful diagnostic information. The goals of an imaging modality is to provide the clinician with the necessary information needed for an accurate diagnosis .Speckle noise is an intrinsic artifact found in Ultrasound images. In this project, the Mean shift filter (MS) has been applied for speckle filtering and segmentation of medical images. The mean shift with uniform kernels was compared with the Lee filter in, proving that the mean shift can outperform the Lee filter in texture and edge preservation. To complete this study, Gaussian kernels have been used in this paper. As expected, the results are better, because it reduce the complexity of image and improve segmentation accuracy, with no significant increase in the average number of iterations, for a given lower bound of the magnitude of the Mean shift vector. A segmentation approach based mean shift has been applied, but some modifications have been introduced to adapt it to the characteristics of the considered medical images. As in the filtering case, the power of the Mean shift is related to the use of a combined spatial-range processing and the corresponding bandwidths. Both bandwidths combined with the clustering algorithm allow smoothing image areas, losing texture information, and maintaining edges.

KEYWORDS

Clustering, mean shift, Segmentation, Speckle noise, Ultrasound images.

INTRODUCTION

In the medical field ultrasound imaging systems is currently available medical equipment, which is portable, reliable, low cost and safe to the human body and does not affect human tissues. These features (and the last one in particular) make the ultrasound imaging be the most prevalent diagnostic tool in hospitals around the world, the quality of ultrasound images is limited due to various factor, which can be from image acquisition and due to image system design imperfection

Due to the growth of Thyroid cells, Thyroid nodules appear in the Thyroid gland or a thing walled abnormal sac containing fluid known as cyst. It become large enough to press on nearby structures in the neck, they can overproduce thyroid hormone (hyperthyroidism) or they may be indicative of thyroid cancer The use of high-resolution diagnostic ultra sonography (US) for clinical evaluation of thyroid nodules has proved to be a useful clinical diagnostic method. Ultrasound is one of the non-invasive low cost imaging techniques for thyroid scanning.

It can follow anatomical deformations in real time during biopsy and treatment and it is non-invasive and does not require ionizing radiation consists of resolution enhancement, contrast enhancement to suppress speckles and imaging of spectral parameters Contrast enhancement is a technique that able to suppress speckle in thyroid ultrasound image. One of the popular methods in contrast enhancement is histogram equalization.

Histogram Equalization is a technique for recovering some of apparently lost contrast in an image by remapping the brightness values in such a way as to equalize and distribute its brightness values Segmentation is a collection of methods allowing interpreting spatially close parts of the image as objects. Active contour is one of the methods in image segmentation and used in the domain of image processing to locate the contour of an image and allow a contour to deform so as to minimize a given energy functional in order to produce the desired segmentation Traditionally different image filtering techniques, such as mean and median filtering, other adaptive filtering techniques, like the Kuna, Lee, or Frost techniques, and new versions of these filters have been proposed to reduce speckle noise. Most of them use a defined filter window to estimate the local noise variance (NV) of a speckled image and perform individual filtering process. The result is generally a high reduction of speckle noise in areas that are homogeneous, but the image is over-smoothed due to losses in details and edges in heterogeneous areas.

The Lee in filter is often used as a reference because it combines an efficient noise reduction while maintaining the sharpness of the image. Disadvantage in Conventional image filtering is that provide Low segmentation accuracy and High complexity Note that the applicability of the wavelet de-noising to the problem of speckle noise reduction had been initially demonstrated in the field of SAR imaging, where the first work on this subject Since then, many of the wavelet de-speckling methods have simply migrated from this field to the field of medical ultrasound imaging utilizing the similarity between the processes of producing the SAR and ultrasound images.

RELATED WORKS

Ultrasound image are widely used tool for clinical diagnosis. Ultrasound is also used as a popular research tool for capturing raw data, that can be made available through an Ultra Sound research interface, with the intension of tissue characterization and contrivance of new image processing procedures. Ultrasound is operated mainly on sound waves transmission and receipt of sound waves which is mainly differs from other medical imaging pattern. Based on the composition of the different tissues the high frequency sound waves are sent; the signal will be attenuated and advent at discreet intervals, multilayered structure is found in the part of reflected sound waves. Which can be described by input acoustic impedance and the relatives structures of reflection and transmission co-efficient. It does not cost any harmful effects and save to use. It is cheaper and rapid to perform

Various speckle noise removal technique are available in the literature[1][18][24][25][27].Linear filtering techniques like spatial averaging have blurring effect. Adaptive filtering technique based on local statistics is good for preserving boundaries but suffers from speckle noise. The median filter is used to remove speckle noise[24].The lee filter is used to remove speckle noise based on mean and variance of the pixel of the interest is equal to local mean and variance of all pixels with in the moving[24.].Wavelet de-noising procedure is also used to remove speckle noise present in the signal by preserving the signal character regardless of frequency contents.

Speckle noise is a phenomenon that degrades the ultra sound image quality and arises because the relative phase of individual scatterers within a resolution cell is strongly dependent upon the viewing angle the resulting fluctuations generate ultra sound images with grainy appearance, which makes detection and classification tasks difficult. Speckle noise is a multiplicative noise

MEAN SHIFT ALGORITHM

Preprocessing is a very simple implementation of a mean shift filter that can be used for edge-preserving smoothing or for segmentation. Using mean shift filtering Important edges of an image can be easier detected. The circular flat kernel is used and the color distance is calculated in the YIQ-color space. In computer vision and image proc essing the Mean shift filtering algorithm is used. For each pixel of an image is having a spatial location and a distinct color, for each pixel, the set of neighboring pixels is intented.The new spatial center and the new color mean value are calculated For the set of neighbor pixels. for the next iteration, The calculated mean values will aid as new centre. The method will be repeated until the spatial and the mean stops adapting. At the end of the interaction, the final mean color will be of the iteration, the final mean assigned to the starting position of that iteration.

Mean shift is also known as mode seeking algorithm and non-parametric feature space technique. It is used clustering in computer vision and image processing It is a procedure for locating the maxima of a density function given discrete data sampled from that function. It is useful for detecting the modes of this density.

It is an Repetitive method, and we start with an initial estimate a. Let a kernel function $K_1(a_i - a)$ be given. For the re-estimation of the mean, This method intents the weight of near by points. Particularly, we use the Gaussian kernel on the distance to the current estimate, $K_1(a_i - a) = e^{d\|a_i - a\|^2}$.

The weighted mean of the density in the window is intented by K_1 is

$$M(a) = \frac{\Sigma a_{i \varepsilon N(a) K_1(a_i - a) a_i}}{\Sigma a_{i \varepsilon N(a) K_1(a_i - a)}} \quad (1)$$

where $N(a)$ is the neighborhood of a, a set of points for which $K\ a \neq 0$. The mean-shift algorithm now sets $a \leftarrow M(a)$, and repeats the estimation until $M(a)$ converges.

Mode estimation is of utmost importance in many domains, and particularly in image processing. This field have a great place in our every day life, as widely used devices in multimedia, entertainment and professional applications in medicine, geography, or security use advanced signal processing and image de noising techniques. One of the most striking use of mode estimation methods is image de noising. Noise in pictures can arise because of poor light condition, short exposure and low photon detection, among others. The origin of this noise determines its statistical properties; it can be either additive or multiplicative, Gaussian, Poisoning, or follow a more complex model.

Image clustering and categorization is a means for high-level description of image content. The aim is to find a mapping of the sequential images into clusters. The generated cluster provides a summarization and visualization of the image content that can be used for distinct works related to image database management. Mean shift is a non-parametric feature – space analysis technique, a so-called mode seeking algorithm. Application domains include clustering in computer vision and image processing. Mean shift is a method mainly used for determining the maxima of a density function given for different data samples

and used for finding the modes of this density. It is a repetitive function .Suppose we begin the initial estimate a. The kernel function $K_1(a_i - a)$ be given. This method identifies the weight of nearby points for mean re-estimation. Particularly, the Gaussian kernel is used on the distance to the current estimate, $K_1(a_i - a) = e^{d\|a_i - a\|^2}$. The window weighted mean of the density is intented by K_1 is

$$M(a) = \frac{\Sigma a_{i \varepsilon N(a) K_1(a_i - a) a_i}}{\Sigma a_{i \varepsilon N(a) K_1(a_i - a)}}$$

(2)

where $N(a)$ is the neighborhood of a, a set of points for which $k(a) = \neq 0$.

The mean-shift algorithm Now sets $a \leftarrow M(a)$, as mean shift algorithm and repeats the computation until $M(a)$ coincides.

A nonparametric clustering technique is mean shift filtering algorithm, which does not require shape of cluster and knowledge of the number of clusters.

let n data points a_i, i = 1, …, n be on a d-dimensional space Rd, with kernel $K_1(a)$ and window radius h , the multivariate kernel density estimate obtained

$$f(a) = \frac{1}{nh^e} \sum_{i=1}^{n} K_1(\frac{a - a_i}{h})$$

(3)

For symmetric kernels, it is adequate define the profile of the kernel $k_1(a)$ content as

$$K_1(a) = e_{k,e} k(\| a \|^2)$$

(4)

Here ck, d is a normalization constant which assures K1(a) integrates to 1. The modes of the density function are located at the zeros of the gradient function rf (a) = 0. The gradient of the density estimator (1) is

Where g(s) = –k0(s). The first term is proportional to the density estimate at a computed with kernel G(a) = cg, dg (kak2) and the second term

$$M_h(a) = \frac{\sum_{i=1}^{n} a_{ig}(\| \frac{a - a_i}{h} \|^2)}{\sum_{i=1}^{n} g(\| \frac{a - a_i}{h} \|^2)} - a$$

(5)

is the mean shift. The mean shift vector intended towards the maximum density. The mean shift method, acquired by continuous

• calculation of the mean shift vector $mh(at)$

• the window Translation by $a_t + 1 = a_t + mh(at)$

Until all point converge when the gradient of density n is zero. The process of finding Mean shift mode is demonstrated Figure 3.1.

The application of the mode finding method mean shift clustering algorithm.

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT   127

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FIG. 3.1: MEAN SHIFT PROCEDURE
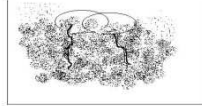
1. Begin on data points
2 Use mean shift method until a standstill points of the density function
3 Sort these points by maintaining the local maxima The points which belongs to same group is related to same cluster

SYSTEM ARCHITECTURE

The development of software in this project is to overcome the problem occur due to the detection of thyroid region and problem in ultrasound image. Then literature reviews need to know the anatomy physiology and pathology of thyroid to identify the position and shape of the thyroid region. After that the suitable method of segmentation and image enhancement is identified for the software development for automatic segmentation of ultrasound. Some step is needed to be done to develop the software system that able to segment and enhance the thyroid ultrasound image. Problem detection related to the topic is important before any system can be developed. In this work focused on technique to improve the quality and information of content of ultrasonic image of the thyroid, where the methods chosen are contrast enhancement to suppress speckles Ultrasound image

FIG. 4.1: SYSTEM ARCHITECTURE

READ ULTRASOUND IMAGE

CHANGE RGB TO GREY SCALE IMAGE

MEAN SHIFT FILTERING

MODE ESTIMATION

MEAN SHIFT CLUSTURING

SEGMENTED IMAGE
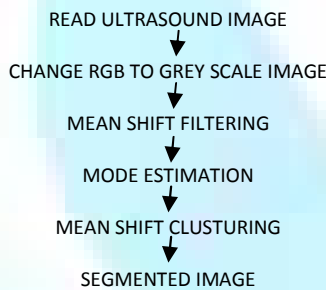
The ultrasound image is in RGB type which is an additive color of red, green, and blue. The image is converted into gray scale image for further processing.

FIG. 4.2: ORIGINAL THYROID IMAGE

FIG. 4.3: AFTER PROCESSING THYROID IMAGE

For the clustered method, the thyroid region will be segmented into different size. Resizing the image pixels into only the region of interest using initialization mask is significant for efficient image processing.

FIG. 4.4: AFTER REMOVING NOISE

After the image is inverted, removing black spot on white area by converting black spot into white color in the thyroid region. Then, the small pixel of region will be removed as we assume it is the noise. In this case, the black color is filled if the spot.

FIG. 4.5 FINAL RESULT IMAGE
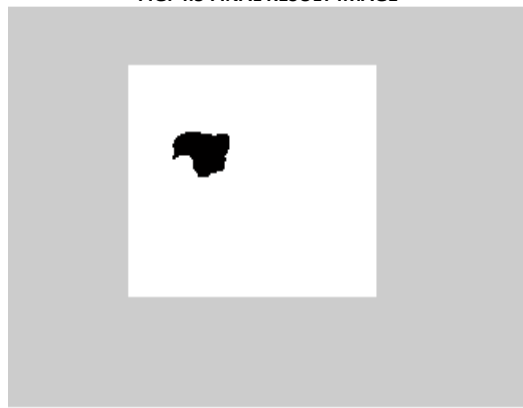
EXPERIEMENTAL RESULT

These results prove the efficient using MS filtering stage, which allows us to reduce speckle noise and preserving edges.

FIG. 5.1 PERFORMANCE GRAPH
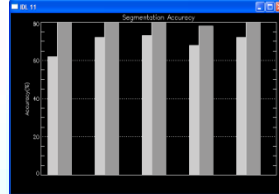
FIG. 5.2: PERFORMANCE ANALYSIS
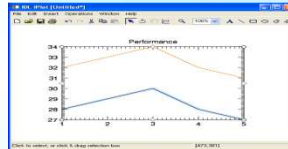
In this project, the MS has been applied for speckle filtering and segmentation of medical images. The MS with uniform kernels was compared with the Lee filter in, proving that the MS can outperform the Lee filter in texture and edge preservation. As expected, the results are better, with no significant increase in the average number of iterations, for a given lower bound of the magnitude of the MS vector (this value is reduced in some cases). A segmentation approach based mean shift clustering on has been applied, but some modifications have been introduced to adapt it to the characteristics of the considered medical images. As in the filtering case, the power of the MS is related to the use of a combined spatial-range processing and the corresponding bandwidths. Both bandwidths combined with the clustering algorithm allow smoothing image areas, losing texture information, and maintaining edges.

This section deals with the results that are obtained from the system. Fig 5.3 shows the processed image.fig 5.4 shows noised image .Fig 5.5 shows that mean shift filter is applied and noise is reduced. Fig 5.6 Resultant image shows the whole clustered image is obtained.

FIG. 5.3

FIG. 5.4

FIG. 5.5

FIG. 5.6

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 129

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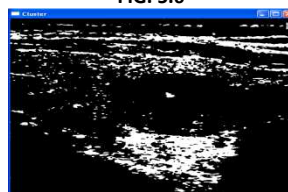
CONCLUSION

As a conclusion, In this works, the MS has been applied for speckle filtering and segmentation of ultra sound images The MS with uniform kernels was compared with the Lee filter in, proving that the MS can outperform the Lee filter in texture and edge preservation. The advantage of MS is that provide high segmentation accuracy of the image and also have low complexity in our future work, the proposed work would be an essential structure which could be enhanced by speeding up the training phase, which will contribute to the possibility of training with multiple ultrasound images. Moreover, it could be embedded within an integrated system that will combine heterogeneous information to support thyroid nodule diagnosis. . In future this system can be extended using different techniques to make this available more useful in different areas.

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E-TAILING, ONLINE RETAILING ITS FACTORS AND RELATIONS WITH CUSTOMER PERSPECTIVE

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ABSTRACT

Online retailing is the new business sector which has its origins due to the development of IT services and the growth in Telecommunication (internet). As modern days business change to the ever changing and increasing needs of customers the Business of today have to be proactive in understanding the needs of the customer, Such a need is served by the E-tailing sector as many existing and new businesses realized that there is a demand for virtual shops, Hence the birth of E-tailing. "E-tailing is therefore a sector of business which deals with retailing using electronic media".In this study I have tried to highlight the essentials factors necessary for E-tailing Business on basis of customer perspective. The study tries to find the business model most suitable for the E-tailing using a sample survey, which highlights six most essential factors to be, included in any business model for E-tailing in contemporary markets.

KEYWORDS

E-tailing, Five force model, E-commerce, E-business, Information, telecommunication, Marketing.

INTRODUCTION

The Online retailing has become the most attractive sector in current business environment were opportunities await to be exploited, however the challenges and features of this sector are different to traditional brick and mortar business as its segment of customers are having varied needs. The IAMAI report 2011 states E-tailing to be the second next contributor to E-commerce after online travel leading with 81 percent, Hence the future for E-tailing is bright.

Since last decade the growth of telecommunication sector has fuelled many changes in Indian Economy, one among them being E-Tailing (online retail). The major contributors to this growth are

- Internet and PC penetration
- India's middle-class is mushrooming, with growing purchasing power and limited personal time.
- Increasing usage of credit and debit cards coupled with a growing young population who spend significant time online. Convenience of online product research, comparison shopping and competitive pricing are driving consumers to make online purchases.

THE E-TAILING BUSINESS CAN BE MAJORLY CLASSIFIED INTO TWO

1. Independent Firms: These are the firms which have their focus towards online retailing business alone, which explains their success and growth like **flipkart.**
2. Combo Firms: These are the firms whose primary focus is not online retailing, it's just an extension of their existing traditional model like **dell, hp**.

The E-tailing sector could be better understood using five force model given by Michael porter which provides a descriptive view towards this Industry

THREAT FROM NEW COMPETITION/ENTRANTS

It is easy for new competitors to enter the market due to the low barriers to entry. The attractiveness of this industry is very high as there are many existing players who have well established retail channels and many big players have entered this industry as forming it as a part of traditional business. The cost of setting up online presence is very less due to advancements in Technology. The cost of entry is low and the industry is not well protected by regulations or patents. New entrants can open stores when they have enough capital.

THREAT FROM EXISTING PLAYERS

The competitive rivalry is very high and intense. In India, there are numerous discount stores which sell similar kinds of products. There are many existing players in industry who want to occupy a sizeable portion of market. The FDI's are also fueling competition as India is seen as one of the destination for Economic growth to due to GDP of India.

THREAT FROM BARGAINING POWER OF SUPPLIER

The bargaining power of supplier is quite strong. Although there is room to capture a certain portion of supplier's business, the existence of numerous discount department stores and specialty stores in the market lets supplier have negotiating power to control prices. Besides the sudden growth in E-tailing has provided a new channel to reach to customers which adds to advantage on suppliers.

THREAT FROM BARGAINING POWER OF BUYERS

Buyers have a moderate level of bargaining power. Due to the high amount of discount retail stores in the market, customers have high mobility and low loyalty. Many of these stores sell the same or similar products. Buyers switch from one online store to another to purchase products in order to reduce costs. On the other hand, shoppers are not concentrated and powerful enough to take total control of the price. In India there is a huge chunk of middle class population who are well educated and are well worse with the online technology hence they search for their requirements is high which increases the competition in market.

THREAT FROM SUBSTITUTE PRODUCTS OR SERVICES

The market has numerous players following same kind of strategy to attract customers like cash-on-delivery option which has created in many substitute service providers in online retail market. Due to the presence of many online services the customers can easily find alternatives and substitutes for their purchases. The presence of huge offline market also adds to this competition.

SAMPLE SURVEY

The sample survey conducted had the following factors to gain insight to buying behavior of customers.

Factors: "Preference of number of category of products, Necessity of Cash-on-delivery, Preference on Number of Ads and Advertisement on the webpage, Assumption of risk by customer, Repeat usage of service if deliver delayed, whether respondents believe price at offline stores is less in comparison online stores, Warranty for products online, Availability of Help-Line Service, Ads on Webpage, Timely delivery, Discounts"

The sample was collected based on above factors (likert scale questionnaire) which resulted into following for 32 respondents. Background of respondents include students, working professionals basically the sample population consists of people above Plus 2 level of Education.

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

131

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MEAN AND STD. DEVIATION OF FACTORS OF 32 RESPONDENTS

TABLE 1.1: DESCRIPTIVE STATISTICS

	Mean	Std. Deviation	Analysis N
Online comparison offline price	.4063	1.18755	32
Time on	-.0313	1.06208	32
If product not available in residence	-.4063	1.13192	32
Warranty online	-.5625	1.21649	32
Helpline service	1.0938	1.02735	32
Well Known Brands	.3438	1.18074	32
Discounts	.7500	.84242	32
Preferences on Category	.9375	.24593	32
Risk online	.2813	.45680	32
Pay on Delivery	.9688	.17678	32
If Delivery delayed	.5000	.50800	32
Many Ads	.5625	.50402	32

The above explains that the first six factors are major contributors for building an effective business model

- *The online comparison with offline price* - Out of 32 respondents approximately 82% of the respondents believe the price of products online is less in comparison to offline (which creates an advantage and challenge too to firms who want to venture in to E-tailing).
- *Whether customers spent enough time browsing for products online* - Out of 32 respondents approximately 71% of the respondents believe they spend enough time browsing for products, however only 3% of them believe they are absolutely sure, therefore to attract customers it is essential to provide enough information about the products.
- *Preference of using online service if products not available near residence of customer* - Out of 32 respondents approximately 57% of the respondents believe they would buy products online if product unavailable in there locality, however the 43% of them either buy a substitute or similar product offline. This raises a challenge; firms therefore have to utilize marketing techniques to attract these customers.
- *Warranty provided online is better than offline products* - Out of 32 respondents Out of 32 respondents more than 50% (1:1 ratio) of the respondents do not believe that warranty provided online is better in comparison to offline. This clearly indicates that online retailers have to develop strategy to change the attitude of the customers about warranty of the products.
- *Whether respondents believe that good helpline service is important* - Out of the 32 respondents more than 93% of them believe that Customer support is important (50% of them are absolutely sure).This makes as the most important section of Business model to be built in by retailers.
- *Preference of respondents to buy well-known/branded products online* - In 32 respondents more than 81% of them believe the like to buy products which are well known or branded from online retail stores, hence the business personnel have to make sure they concentrate on providing more branded product lines. This forms one more essential part of Business model and also reflects on the belief of customers.

All the above six parameters form the basis for building an effective business model based on customer; hence the webpage must be designed with all the above factors incorporated along with added features.

In survey the respondents were asked to give their opinion on following factors

TABLE 1.2: FREQUENCY TABLE WITH MEAN AND DEVIATION: STATISTICS

		Preferences on Category	Risk online	Pay on Delivery	If Delivery delayed	Many Ads
No.	Valid	32	32	32	32	32
	Missing	0	0	0	0	0
Mean		.9375	.2813	.9688	.5000	.5625
Std. Deviation		.24593	.45680	.17678	.50800	.50402
Variance		.060	.209	.031	.258	.254
Minimum		.00	.00	.00	.00	.00
Maximum		1.00	1.00	1.00	1.00	1.00

- **Category of products** - In 32 Respondents 93% of them believe that online retail stores must have many *categories of products* which signifies that in order to have an effective E-business model Businessmen have to add many varied product lines.
- **Risk factor** - Out of 32 respondents 23 (71%) believe there is no much risk in buying online. This belief in customers may be driven by to increased awareness and availability of credit and cash-on-delivery option.
- **Cash-on-delivery -** This factor cash-on-delivery is highly significantly chiefly because it has the highest mean as 97% of respondents prefer *cash-on-delivery* option hence the above *risk factor* is highly related to this factor as it influences the behavior and the Business model.
- **If the delivery is delayed -** The factor would any buyer would prefer to use the service again *if the delivery is delayed* gives 50% of the respondents say they will repurchase or use the service, however this clearly signifies that if the customer is not happy then his switching rate is 50% (1:1 ratio) which mean business players have to be highly careful in maintaining their delivery times (retention rate).
- **Many sponsor ads and Advertisements -** As many online retailers have *many sponsor ads and Advertisements* 57% of the respondents believe that this is better however 43% do not like too many ads, hence the Business model designers must make sure that they do not have exhaustive ads.

When Respondents were asked to list the **reasons for purchasing products online**, the following were the major reasons Faster - *"Cheaper, Easy, Convenience, Comfortable, Saves time, Non-availability of products in there region/area, Home delivery, Cash on delivery, Discounts"*. This shows the behavioral pattern of customers on which new business firms may exploit.

SUGGESTIONS

Any business model must be based on a key factor like the key selling factors of fashionandyou which is based on discount-sale which acts as a USP for it too. Hence based on the survey, I can highlight the key factors along which a business model must be based.

1. The E-Business model must have a discount which adds to say that the price must not be high in fact it must be less in comparison to offline. This may be achieved by better inventory management techniques like Just-In-Time which will reduce costs and can incorporate ERP Package as it can reduce the labor cost too, also built relationship with suppliers and buyers alike.
2. It seems the only way any online retail can built trust only by having cash-on-delivery option which is clearly indicated by the success of flipkart whose net worth was accounted to be at 1 billion U.S dollars in 2012. Hence in order to build better customer relation this is absolutely necessary.
3. Helpline services like customer care are highly necessary as many respondents in the survey indicated its importance, however it involves huge investment in Human Resource and technology, hence they have to make sure it is done efficiently or they can also outsource to well establish service providers.
4. The online retailer must provide many categories of product line in its store as it surely attracts many customers. Though the business personnel must be cautious and introduce only those product lines which are highly successful as in the above data analysis (4.3) it can be clearly understood.

5.   The online retailer must concentrate on providing those brands which are well established and are reputed in Indian markets this will surely increase the success rate.
6.   The online retailers must make sure of maintaining its service level and quality levels as in the respondents suggested a 1:1 ratio of using the service again if the delivery is delayed
7.   In the case of warranty on products the online retailers have to really work on increase the confidence of customers either collectively or by collaborating with various manufacturers and distributors.
8.   The online retailers may lastly concentrate on reducing the number of ads on their store and increase the promotional activities.

The above highlights are given in sequential order of importance in designing an effective E-business model for online retailers with a customer view, It servers the purpose of the objectives of this study. The above is based on the age range from 18-39 years old which clearly indicates the major chunk of the Indian population and as all of them are literate which is a part of the population of Internet users in India.

CONCLUSION

The above provides a descriptive analysis of customer view on purchasing online. The business firms therefore must focus on the six factors to build a effective model - "*The online comparison with offline price, whether customers spent enough time browsing for products online, Preference of using online service if products not available near residence of customer, Warranty provided online is better than offline products, Whether respondents believe that good helpline service is important, Preference of respondents to buy well-known/branded products online*".
Along with the above six factors the additional features like – "*Risk factors, Category of products, Risk factor, Cash-on-delivery, If the delivery is delayed, Many sponsor ads and Advertisements*" must be considered to build an effective model.

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THE KNOWLEDGE MANAGEMENT AND THE PARAMETERS OF THE TECHNOLOGICAL INNOVATION PROCESS: APPLICATION IN THE TUNISIAN CASE

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ABSTRACT

The theme of Knowledge Management is very clear in the information society. This shows the crucial role of knowledge and more specifically the interaction between tacit-explicit, systemic -autonomous and simple-complex knowledge in the emergence of organizational knowledge. The internal nature of innovations is more expensive to implement and more effective. We test the hypotheses using the knowledge management and innovation in the Tunisian companies operating in different sectors. The data on knowledge management, the cost of implementation, the effectiveness and the source of innovation were collected from a sample of 70 Tunisian companies. The method used in this research is the questionnaire. The results showed that knowledge management has a significant effect on the parameters of the innovation process.

KEYWORDS

explicit knowledge, autonomous knowledge, complex knowledge, source of innovation, cost of implementation and innovation effectiveness.

INTRODUCTION

Faced with strong competition of the market, organizations are forced to remain profitable. They recognize they can increase their productivity and reduce the internal costs to be more competitive on their core business (Srivastava et al, 2006). In this context, as knowledge is considered to be a lever for a sustainable competitive advantage, it is primarily associated with new technologies of information and communication (ICT).

Chemitte (2008) has shown that the knowledge management is presented today as a major issue in the operation of organizations to develop innovation capabilities considered as sources of competitive advantage in more and more competitive markets.

These two interacting variables, namely knowledge management and innovation are closely correlated. They take a preponderant place in organizations because of their strategic implications (Cantner et al, 2009).

The objective of this research is to explain the influence of knowledge management on the parameters of the innovation process and t to describe a conceptual model that illustrates the relationships between these two variables already set and tests it in the context of the Tunisian companies.

REVIEW OF LITERATURE

THE KNOWLEDGE MANAGEMENT

The Knowledge management is not a new concept. As soon as the early 1990s, the term "knowledge management" emerged in literature as business leaders and researchers began to examine the role of knowledge in organizations and how to manage (Pesqueux, 2004).

In an attempt to better understand the typology of this concept, we use the work of Nonaka and Takeuchi (1995). According to this theory, there are two types of knowledge: tacit and explicit.

Concerning the tacit knowledge, Nonaka and Von Krogh (2009) define it as «knowledge disarticulated and embodied in experience. It concerns the unwritten knowledge transmitted by word of mouth and which remains in the heads of employees».

Indeed, explicit knowledge can be defined as the one that can be formulated in sentences (Nonaka and Von Krogh, 2009). It is codified and easily transferable by the information systems since it is easily captured and shared (Nonaka and Takeuchi, 1995).

The literature review shows that the majority of studies have used both dimensions of knowledge (tacit and explicit knowledge). However, Whetten (1989, p.110, cited by Gopalakrishnan et Bierly, 2001)[1] advice «*two other types which are essentially: systemic / autonomous and simple/ complex*».

First, Chesbrough and Teece (1996, p.112, cited by Gopalakrishnan et Bierly, 2001)[2] define «*that autonomous knowledge can be developed and implemented independently of other knowledge and organizational processes*».

Second, Das and Teng (1998) consider that «*systemic knowledge requires a comprehensive exchange of information to facilitate the integration of different fields of knowledge*».

Finally, the complex knowledge has been defined as «the extent to which knowledge is difficult to understand and use. It is associated with sophisticated knowledge» (Pelz, 1985).

THE PARAMETERS OF THE TECHNOLOGICAL INNOVATION PROCESS

Innovation is defined as a complex development process of new knowledge by the collective learning that involves and future success. It is an interactive learning process in which participants increase their knowledge and know-how through the exchange and experimentation (Nonaka and Takeuchi, 1995; Tidd et al, 2004).

In literature, we have identified three key decision parameters in the innovation adoption process as the source of innovation, the cost of implementation and overall effectiveness.

It represents the sources of adoption whether internally and externally. For the internal mode, it refers to the adoption of developed knowledge mainly within the company which leads to develop the basic skills of the company enabling to gain more profits (Gopalakrishnan and Bierly, 2001).

Second, «internal sourcing of innovation helps with the development of the firm's core competencies and capabilities and allow the firm to appropriate more of the profits» (Bierly and Chakrabarti, 1996a). «External sourcing of innovations saves the firm the cost of development and may increase the speed of implementing innovations » (Kessler and Chakrabarti, 1996; Gold, 1987).

The cost of innovation implementation has a strategic importance for several reasons:

- «An efficient product development process is a key element of a firm's cost leadership strategy » (Porter, 1985).
- «Lower costs allow the firm more flexibility in pursuing a broader array of projects » (Cooper and Kleinschmidt, 1987).

- «An efficient process is a critical success factor for product innovation » « (Cooper and Kleinschmidt, 1987).

The cost of implementing innovation is reduced if knowledge is transferred effectively in the various groups within the organization. Innovations are more effective in creating a sustainable competitive advantage (Grant, 1996).

HYPOTHESES

Our research aims to diagnose the effect of knowledge management on the three parameters of the innovation process. As it was illustrated in the research model, we propose that the type of knowledge should have an effect on one of the parameters of the innovation process.

THE TACIT KNOWLEDGE AND THE SOURCE OF INNOVATION

Grant (1996) found that explicit knowledge can be difficult to be seen from the outside of another organization. He added that the domestic supply of this type of knowledge helps the company to create a better basis of skills.

Moreover, Ermine (2002) found that the process that is often put forward (collections of external information followed by process of decisions or actions), justifies the preponderance of external resources and neglects some internal ones.

In fact, organizations were more effective if they could be transformed with the knowledge already contained in the memory of all the employees and business partners (Jacob and Pariat, 2000).

In literature, it is recognized that the boundaries of an organization are endless through networks it can establish. Networks are extremely important today when we know that an organization can no longer rely on internal resources to remain efficient and competitive.

The replications of internal knowledge are necessary for the preservation and development of the competitiveness of the company. They showed that the firm can improve efficiency by facilitating the dissemination of internal knowledge (Gopalakrishnan and Bierly, 2001).

Gopalakrishnan and Bierly (2001) indicated that the more explicit knowledge associated with innovation is , the less it will be an internal source of innovation.
It shows that we can advance the following hypothesis.

H (1): The more explicit the knowledge associated with an innovation is , the less likely it will be internally sourced.

THE EXPLICIT KNOWLEDGE AND THE COST OF IMPLEMENTATION OF INNOVATION

The process of adoption of innovations based on more tacit knowledge is a challenging process because of the lack of codifiability and the difficult to transfer learning from one innovation decision situation to another. Therefore, «the implementation process of tacit knowledge raises many problems. It is more expensive than explicit knowledge (Brown and Duguid, 1991, p.112, cited by Gopalakrishnan et Bierly, 2001)[3], and it is difficult to incorporate innovations in other areas of knowledge implied due to the difficulty of transferring knowledge through "communities of practice" within the company».

H (2): The explicit knowledge has an impact on the cost of implementation of innovation.

THE EXPLICIT KNOWLEDGE AND INNOVATION EFFECTIVENESS

Teece (1986) found that «*when explicit knowledge is successfully implemented, it is more effective in creating a sustainable competitive advantage than innovations based on explicit knowledge, because it is more difficult for competitors to imitate*». However, it is difficult for competitors to imitate because of the difficulties of development and implementation or exploitation. They require personal experience. Therefore, we can deduce that explicit knowledge is more effective than the tacit one the effectiveness of innovation.

H (3): The explicit knowledge has a positive influence on the effectiveness of innovation.

THE AUTONOMOUS KNOWLEDGE AND SOURCE OF INNOVATION

Chesbrough and Teece (1996) indicated that «*autonomous knowledge can be developed and implemented independently from other innovations and organizational processes*». «Unaffiliated companies linked through arm's-length contacts often cannot achieve sufficient coordination because each company wants to gain more from innovation and, therefore, is unwilling to share information freely »(Gopalakrishnan et Bierly, 2001, p.113). Every organization, due the lack of complete trust, believes the other will act in potentially opportunistic ways beyond its own ends (Das and Teng, 1998, p.113, cited by Gopalakrishnan et Bierly, 2001). There are internal and external sources of innovation.

H (4): The autonomous knowledge has a positive and significant impact on the source of innovation.

THE AUTONOMOUS KNOWLEDGE AND THE COST OF IMPLEMENTATION OF INNOVATION

Mintzberg (1979, p.113, cited by Gopalkrishnan et Bierly, 2001)[4] considered that «*the coordination costs associated with systemic innovations are higher than those of autonomous innovations because the types of structural configurations and control mechanisms required for systemic innovations are more sophisticated and more expensive to put in place than those for autonomous innovations*». «*Systemic innovations require greater integration of diverse knowledge areas through liaison personnel*». (Galbraith, 1973 and Mintzberg, 1979, p.113, cited by Gopalkrishnan et Bierly, 2001)[5].
Successful implementation of a systemic innovation requires that many experts work together by combining their knowledge base.

H (5): The more autonomous the knowledge associated with an innovation, the lower the cost of implementation will be.

THE AUTONOMOUS KNOWLEDGE AND EFFECTIVENESS OF INNOVATION

Lippman and Rumelt (1982) identified that« "causal ambiguity" can sustain a competitive advantage; i.e. if the components of a system are linked together in an intricate manner; it will be difficult for others to determine and imitate the source of the competitive advantage. Since systemic innovations have more causal ambiguity than autonomous ones, greater effort is required to implement them successfully. However, when their adoption is completed, employees are likely to perceive greater benefits to be derived from them. On the contrary, more autonomous innovations are easier to implement and employees perceive them as conferring fewer benefits».

H (6): The autonomous knowledge influence on the effectiveness of innovation

THE COMPLEX KNOWLEDGE AND SOURCE OF INNOVATION

Rogers (1983, p.114, cited by Gopalakrishnan et Bierly, 2001)[6] argued that complex knowledge is difficult to understand and use. Original innovations will be perceived as more complex by organizational members because of the uncertainty associated with something new. In the same way, Kogut and Zander (1993) considered that if the technologies become more complex, companies tend to transfer them to their own subsidiaries.

THE COMPLEX KNOWLEDGE AND THE COST OF IMPLEMENTATION OF INNOVATION

Kline (1985) considers that the adoption of complex knowledge is more difficult and more costly than the simple one. Generally speaking, the implementation of complex innovations tend to be messy with multiple, cumulative and convergent, parallel and divergent streams of activity commonly termed as a 'multiple sequence pattern of adoption' (Schroeder et al., 1989; Poole, 1981, 1983, p.114-115, cited by Gopalakrishnan et Bierly, 2001)[7].

Indeed, the processes of implementation of innovation tend to see more overlap between the steps, making the process more ambiguous the process of implementation of simple innovation tends to be more orderly, and follow what has been described as "unitary sequence model" (Gopalakrishnan and Damanpour, 1994).

The implementation of simple innovation tends to be more orderly, and follow what has been described as "unitary sequence model" (Gopalakrishnan and Damanpour, 1994).

H (8): The complex knowledge has an impact on the cost of implementing of innovation.

THE COMPLEX KNOWLEDGE AND EFFECTIVENESS OF INNOVATION

The complex knowledge« *is more difficult to imitate by competitors. We can surmise that innovations, like resources, are more likely to confer competitive advantage to an organization when they are perceived by customers as rare, valuable and imperfectly inimitable*» (Hall, 1996).

Hall (1996) argued that customers perceive complex knowledge as more valuable than simple knowledge because they are more creative and sophisticated. Therefore, complex knowledge is more likely to be a source of competitive advantage.

H (9): Complex knowledge has an influence on the effectiveness of innovation.

RESEARCH METHODOLOGY

THE SAMPLE

Out of the 86 companies that were contacted, only 70 returned the questionnaires, of which 16 proved actually usable (ie a response rate of 63.3%). Our final sample consists of 70 companies

OPERATIONALIZATION OF VARIABLES

In order to deal with this variable, we used different researches such as those of Anderson and Gerbing (1991), King (1992) and Gopalakrishnan and Bierly (2001). The respondents were asked to indicate their level of perception on each item for each variable.

- **AUTONOMOUS KNOWLEDGE**

Literature is rich in studies that have used empirical measures of autonomous knowledge. Three items are used to measure the independent variable. They were inspired by the study of Gopalakrishnan and Bierly (2001) in which the respondents were asked to respond to statements on a 5-point Likert scale where 1 isequivalent to "very low" and 5 to "very high."

- **COMPLEX KNOWLEDGE**

Complex knowledge is an independent variable measured by a Likert scale where 1 is equivalent to "very low" and 5 to "very high."
They were inspired by the study of Gopalakrishnan and Bierly (2001).

- **SOURCE OF INNOVATION**

It is a dependent variable measured by a dichotomous nominal scale. The respondents should indicate whether the source of innovation within their business is external (coded 0) or internal (coded 1). This scale is used in previous studies (Gopalakrishnan and Bierly, 2001).

- **COST OF IMPLEMENTATION OF INNOVATION**

The cost of implementation is a variable measured by a Likert scale where 1 is equivalent to "very low" and 5 to "very high."

- **EFFECTIVENESS OF INNOVATION**

The effectiveness of innovation is a dependent variable. These were inspired by the study of Gopalakrishnan and Bierly (2001). Therefore, it is measured by a Likert scale where 1 is equivalent to "very low" and 5 to "very high."

DATA ANALYSIS AND INTERPRETATION OF RESULTS

DATA ANALYSIS

The information about knowledge management, the source of innovation, the cost of implementation and effectiveness of innovation have been collected from the questionnaire survey. In this research, two methods have already been used, namely the linear regression and the discriminant analysis.

- **EXPLICIT KNOWLEDGE AND SOURCE OF INNOVATION**

Explicit knowledge has a significant effect on the source of innovation due to its weight (1.541) in the study of the discriminant function between the two groups (hypothesis 1).Therefore, Tunisian firms tend to explain the effect of this knowledge and to consider it as the most important factor in making the nature of the source of innovation. The Chi 2 test is 1. The Statistics Fisher T attributed to this variable is 0.193. The value of Wilk's Lambda is 0.968. This hypothesis was confirmed (Table 1 and 2).

TABLE 1 : COEFFICIENTS DES FONCTIONS DISCRIMINANTES CANONIQUES STANDARDISEES

	Fonction 1
Connaissances explicites	1,541
Connaissances autonomes	,252
Connaissances complexes	-1,048

- **AUTONOMOUS KNOWLEDGE AND SOURCE OF INNOVATION**

The variable "autonomous knowledge" has a significant effect on the source of innovation due to its weight (, 252) in discriminating between the two groups. The Chi 2 test is 1. The value 0.984 is the proportion of the total variance in the discriminant scores not explained by the differences between the groups. The T Fisher is 0.351. The value of Wilk's lambda is high (0.984), the variable is less discriminating. Hypothesis 4 was confirmed (Table 1 and 2).

- **COMPLEX KNOWLEDGE AND SOURCE OF INNOVATION**

According to tables 1 and 2, "complex knowledge" has a significant effect on the source of innovation due to its weight (-1.048) in discriminating between the two groups. The T Fisher attributed to this variable is high (0.482) and more discriminating. In contrast, most of Wilk's lambda is high (0.991) and the variable is less discriminating. The Chi 2 test is 1. Hypothesis 7 was confirmed.

TABLE 2 : TEST D'EGALITE DES MOYENNES DES GROUPES

	Lambda de Wilk's	F	ddl1	ddl2	Signification
Connaissances explicites	,968	1,737	1	53	,193
Connaissances autonomes	,984	,885	1	53	,351
Connaissances complexes	,991	,501	1	53	,482

The linear regression shows the influence of the independent variables on the dependent ones, to measure the quality of the adjustment and to deduct the interpretation and the significant character of the estimated parameters. In this research, hypotheses H2, H3, H5, H6, H8 and H9 were analyzed by the method of the linear regression.

- **EXPLICIT KNOWLEDGE AND THE COST OF IMPLEMENTATION OF INNOVATION**

Hypothesis H2 tries to establish the influence of the explicit knowledge about the cost of implementation. The percentage of the variance explained is 19.74%. The estimated regression coefficient is significant (β = 0.474, p <0.05, Table 3). In other words, explicit knowledge has a significant influence on the cost of implementation of innovation. H2 hypothesis is confirmed.

TABLE 3 : MATRICE DES CORRELATIONS DE PEARSON

Etude des variables	Coût de mise en œuvre	Efficacité	Connaissances explicites	Connaissances autonomes	Connaissances complexes
Coût de mise en œuvre	1				
Efficacité	0,340	1			
Connaissances explicites	0,474	0,286	1		
Connaissances autonomes	0,506	0,340	0,805	1	
Connaissances complexes	0,423	0,403	0,843	0,849	1

**. La corrélation est significative au niveau 0.01 (bilatéral).

*. La corrélation est significative au niveau 0.05 (bilatéral).

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT   136

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- **AUTONOMOUS KNOWLEDGE AND COST OF IMPLEMENTATION OF INNOVATION**

Our research showed that Hypothesis 5 proposed that the more autonomous knowledge associated with innovation is, the lower the cost of implementation is. The regression of the variable cost of implementation of innovation explains (23.41%) of variations of the variable autonomous knowledge. The coefficient β is significant (Table 3, β = 0.506, p <0.05). For this variable, the standardized model takes the following form: $Y = 0.506 X_1 + \varepsilon$. Hypothesis H5 is confirmed.

- **COMPLEX KNOWLEDGE AND COST OF IMPLEMENTATION OF INNOVATION**

The tables below indicate the regression of the variable cost of implementation of innovation that explains the rate of (14.829%) the variable complex knowledge. The estimated coefficient of regression is significant (β = 0.423, p <0.05). In other words, autonomous knowledge has a significant influence on the cost of implementation of innovation. Hypothesis H8 is confirmed.

The model is presented as follows:

$Y = 0.423 X_2 + \varepsilon$.   (1)

- **EXPLICIT KNOWLEDGE AND EFFECTIVENESS OF INNOVATION**

Hypothesis H3 predicts the existence of a relationship between the dependent variable (the effectiveness of innovation) and the independent variable (explicit knowledge). This is not consistent with the results of a regression between these variables as the percentage of the explained variance is very low (8.2%). The estimated coefficient of regression is significant (β = 0.286, p <0.01). In other words, explicit knowledge has a significant impact on the effectiveness of innovation. Hypothesis H3 is confirmed. In fact, the model is:

$Y = 0.286 + \varepsilon X_3$.   (2)

- **AUTONOMOUS KNOWLEDGE AND EFFECTIVENESS OF INNOVATION**

Hypothesis 6 predicted that autonomous knowledge has an influence on the effectiveness of innovation. Autonomous Knowledge explains 11.6% of the effectiveness of innovation. The estimated coefficient of regression β is positive and significant at the 0.05 level's (β = 0.340, p <0.05, Table 3).The model of this variable is shown as follows:

$Y = 0.340 + \varepsilon X_4$.   (3)

Hypothesis H6 is confirmed.

- **COMPLEX KNOWLEDGE AND EFFECTIVENESS OF INNOVATION**

Our research shows that hypothesis 9 is confirmed by the analysis of the linear regression. The percentage of the explained variance is 14.829%. The complex knowledge has a significant influence on the effectiveness of innovation ((β = 0.403, p <0.05, Table 3). The standardized model takes the following shape:

$Y = 0.403 + \varepsilon X_5$.   (4)

Generally, the standard model is presented as follows:

$Y = 0.506 X_1\ 0.423\ 0.286 X_2 + 0.403 X_3\ 0.340 X_4\ X_5 + \varepsilon$.   (5)

RESULTS AND DISCUSSION

The main contribution of this paper is that we introduced and supplied a partial development of the concept of knowledge management, the source of innovation, the cost of implementation and the effectiveness of innovation.

The purpose of this exploratory study is to a develop research in the areas of knowledge management and innovation.

- **EXPLICIT KNOWLEDGE**

According to the results, explicit knowledge affects the nature of the source, the cost of implementation and the effectiveness of innovation. This relationship is confirmed in previous studies that have shown the link between knowledge management and innovation process. These results converge with the work of Gopalakrishnan and Bierly (2001) and that of Czarnitzki and Wastyn (2009).

- **AUTONOMOUS KNOWLEDGE**

The results concerning the hypothesis define the relationship between autonomous knowledge and the innovation process, regarding the nature of the source, the cost of implementation and the effectiveness of innovation, confirm very clearly the significant relation. The same result was found by Gopalakrishnan and Bierly (2001).

- **COMPLEX KNOWLEDGE**

The validation of the hypothesis associated with the complex relationship between knowledge and the innovation process, regarding the nature of the source, the cost of implementation and the effectiveness of innovation, shows the importance of knowledge management in improving the innovation process within the Tunisian company. This observation is coherent with that of Gopalakrishnan and Bierly (2001).

CONCLUSION

In the context of globalization of competition, accelerating of innovation, increasingly enhanced, this work examines the role of knowledge management in enterprises.

The combination of different types of knowledge aims to improve the process of technological innovation through the creation of new knowledge that will lead, eventually, to the creation of a new product or service, etc. In an environment that is constantly changing. Knowledge and innovation remains an economic major stake to assure the sustainability of companies. The literature review showed that there is a relationship between knowledge management and the technological innovation process. In this perspective, Villacicencio (2000) explains that tacit knowledge increasingly interested the researchers as far as they support a part of the creative and innovative activity of firms. The review of the literature allowed to highlight the different factors of knowledge management that influence the process of technological innovation. It is important to consider the contribution of each factor on the process of innovation.

Through the main conclusions resulting from this research, it is likely to make a real contribution at two levels:

Firstly, at the theoretical level, this research comes to enrich the literature on the subject of knowledge management in relation to the innovation process in the Tunisian companies.

Secondly, at the practical level, this study could lead managers of companies to dedicate more resources to systems of knowledge management (KM) susceptible to improve the process of technological innovation However, it is advisable to underline that the present research contains certain number of temporal limits and sampling.

On the other hand, the fact that this research is largely based on the perception of different responsible businesses, we confront a subjectivity that may generalize the results. In the end, we intend to suggest some future avenues of research. It would be interesting to study the effect of the variables including that of tacit knowledge in the presence of other control variables.

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THE RELATIONSHIP BETWEEN CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE FINANCIAL PERFORMANCE: META-ANALYSIS

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ABSTRACT

The connection between corporate social responsibility and corporate financial performance has always been a topic of debate for the researchers and scholars. Massive studies have been conducted to explore the relationship between corporate social responsibility and corporate financial performance and to know the impact of social responsibilities on firms' performance. However, there have been variations in the consensus of many researchers regarding the relation between these variables either positive or negative. Also few studies have pointed out this relationship to be mixed or even neutral. Objective of this study is to explore the bidirectional relationship between corporate social responsibility and firms' financial performance and to know whether corporate social responsibility has an impact on corporate financial performance or not. Meta-analysis of secondary data i.e. previous studies conducted by different researchers and scholars has been done. As per the findings of content analysis, there exists a bidirectional relationship between corporate social responsibility and corporate financial performance. Varying impact of corporate social responsibility on corporate financial performance is found as some studies have indicated positive impact whereas some studies have pointed out this relationship and impact to be negative. The difference in the consensus about the impact of CSR on CFP is due to different CSR metrics, statistical and methodological artifacts used and the existence of mediator variables (R&D costs and companies' size). Moreover, CSR impact varies depending upon the economy and industry structure where these are implemented.

KEYWORDS

Corporate Social Responsibility, Corporate Financial Performance, Measuring Indicators and Bidirectional Causality.

INTRODUCTION

In today's competitive world, organizations are subject to put extraordrinary efforts to maintain profitability both in the short as well as in the long run. This required working not only on financial aspects of the firm but also on sustaining firm-stakeholders' relationship. As industries are growing, the fear of loosing stakeholders such as customers due to lower switching costs and readily available subsitutes, shareholders due to better investment and dividends opportunities and employees due to comparative employement opportunities is an area of major apprehension for the organizations.

This emerged the need of looking at firm-stakeholders' relationship from a broad perspective i.e. not only from monetary aspect but from the responsibility it owe towards the stakeholders, society and to the economy at large. This is what is known as "Corporate Social Responsibility".

The area of corporate social responsibility (hereafter CSR) has been a center of attention for business communities from the last decade. Now it is required as an integral part of companies' strategic as well as financial management policies by shareholders, analysts, employees, regulators, mass media, labor unions, etc (Tsoutsoura, 2004). CSR practices include building employee relations, ensuring provision of quality products, measures to protect environment, following ethical standards, investing in health and welfare scheme, protection of women & minorities rights, keeping relations with military, involvement in nuclear power programs and contribution towards the economy (Waddock & Graves, 1997).

This study aims to explore the relationship between CSR practices and firms' financial performance. Financial performance means how a company performs with respect to profitability. If a company earns profits, it is perceived to have strong financial health and good financial performance. On the other hand if it fails to earn profits, the financial condition of this company is understood as deteriorating and financial performance as weak.

The aim of this study is to explore the relationship between CSR and corporate financial performance (hereafter CFP) through content analysis. Meta-analysis on both empirical as well as conceptual studies is done in order to excogitate the causal relationship between CSR and CFP, to ascertain the bidirectional causality between CSR and CFP, to explore the positive/negative relationship between CSR and CFP and to compare the various measures used by researchers for the operationalization of CSR and CFP.

CORPORATE SOCIAL RESPONSIBILITY (CSR): DEFINITION

Massive content studies have been conducted to define what CSR is and what elements it contains. Enormous definitions of CSR have been given by researchers, scholars, institutions and businessmen. This abundance of definitions has resulted in variations about CSR being defined. Some of these definitions are found to be biased due to the specific context under which these were studied. However, the point that needs to be considered is that there are no conceptual differences. Meaning by they are based on the similar concept i.e. the responsibility an organization owe towards its stakeholders (Dahlsrud, 2006).

Corporate Social Responsibility is defined an effort on the part of the company to voluntariuly participate in practicies that are expected to have a positive effect on society and economy with a view to maintaining and improving firm-stakeholders relations in the long run.

Baker (2004) has defined corporate social responsibility as *"CSR is about how companies manage the business processes to produce an overall positive impact on society."*

In the words of Khoury et al., (1999), "*Corporate social responsibility is the overall relationship of the corporation with all of its stakeholders. These include customers, employees, communities, owners/investors, government, suppliers and competitors. Elements of social responsibility include investment in community outreach, employee relations, creation and maintenance of employment, environmental stewardship and financial performance.*"

As per European Commission (2001), CSR is defined as "*A concept whereby companies decide voluntarily to contribute to a better society and a cleaner environment. A concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.*"

As per Business for Social Responsibility, 2003b, "*Corporate social responsibility is achieving commercial success in ways that honor ethical values and respect people, communities and the natural environment.*"

An overview of the definitions cited above signifies that the embedded concept begind CSR is similar. CSR definitions are congruent. In other words, CSR includes organizations/corporations being voluntary involved in activities/resposibilities that has (or are expected to have) a positive influence on its stakeholders such as shareholders, management, lenders, suppliers, employees, society, environment and to the economy at large.

DIMENSIONS OF CORPORATE SOCIAL RESPONSIBILITY (CSR)

CSR has been defined on the basis of five dictinct dimensions and responsibilities of corporations are dispersed among these five areas/dimensions. These include stakeholder, social, economic, voluntariness and environmental dimensions (Dahlsrud, 2006).

1) **STAKEHOLDERS DIMENSION**

   Responsibility towards stakeholders includes working on building stakeholders-organization relationship through interaction with stakeholders, ensuring protection of their interests, providing monetary as well as non monetary benefits, etc.

2) **SOCIAL DIMENSION**

   Social responsibility require organizations to particpate in activities for the benefit of the society. Scope of activities an organization should owe towards the society is gigantic However, major activities include working on the provision of quality products, protecting the rights of majorities as well as minorities, provison of employment opportunities, contributing for strengthening the weaker sections of the society and refraining from contributing anti-society practices.

3) **ECONOMIC DIMENSION**

   Responsibilities of corporations towards the economy are to participate in activities inclined for economic development, to ensure best utilization of national resources and to work in accordance with the national legal statutes through acting on rules defined.

4) **VOLUNTARINESS DIMENSION**

   This includes companies being voluntarily involved in activities in which they are not obliged by law i.e. beyond the legal obligations such as following the ethical values of society in consitution of strategic goals, particpiation in programs designed to uplift economy in financial depression stage of economy and assisting in the rehabiliation of disasters victims.

5) **ENVIRONMENTAL DIMENSION**

   This includes working on keeping health environment such as establishing industries and factories in far away areas to prevent people from reactions that can occur as an aftermyth of disposal of wastage and to control noise.

MEASURING INDICATORS FOR CSR AND CFP

Different accounting and marketing variables are used by the researchers as an oscillator of financial performance of companies (CFP) such as Return on Assets (ROA), Return on Sales (ROS) and Return on Equity (ROE) by Waddock and Graves (1997), Earnings per Share (EPS) by Blackburn (1994), Stock returns, Tobin's Q by Akpinar et al. (2008), etc.

Similarly, different indicators have been used by the researchers to measure the magnitude of CSR such as KLD index by Waddock and Graves (1997), Voluntary Disclosure Index by Uadiale and Fagbemi (2012), Domini 400 Social Index by Tsoutsoura (2004), number of sentences, documents, pages, proportion of total disclosure and number of words used for CSR by Manasseh (2004).

The reason of disparity in measuring indicators of CFP and CSR used in different researchers is due to the availability of required information as per the economy, industry and companies under study.

THEORETICAL FRAMEWORK

FIGURE 01: VARIABLES AND THEIR MEASURING INDICATORS
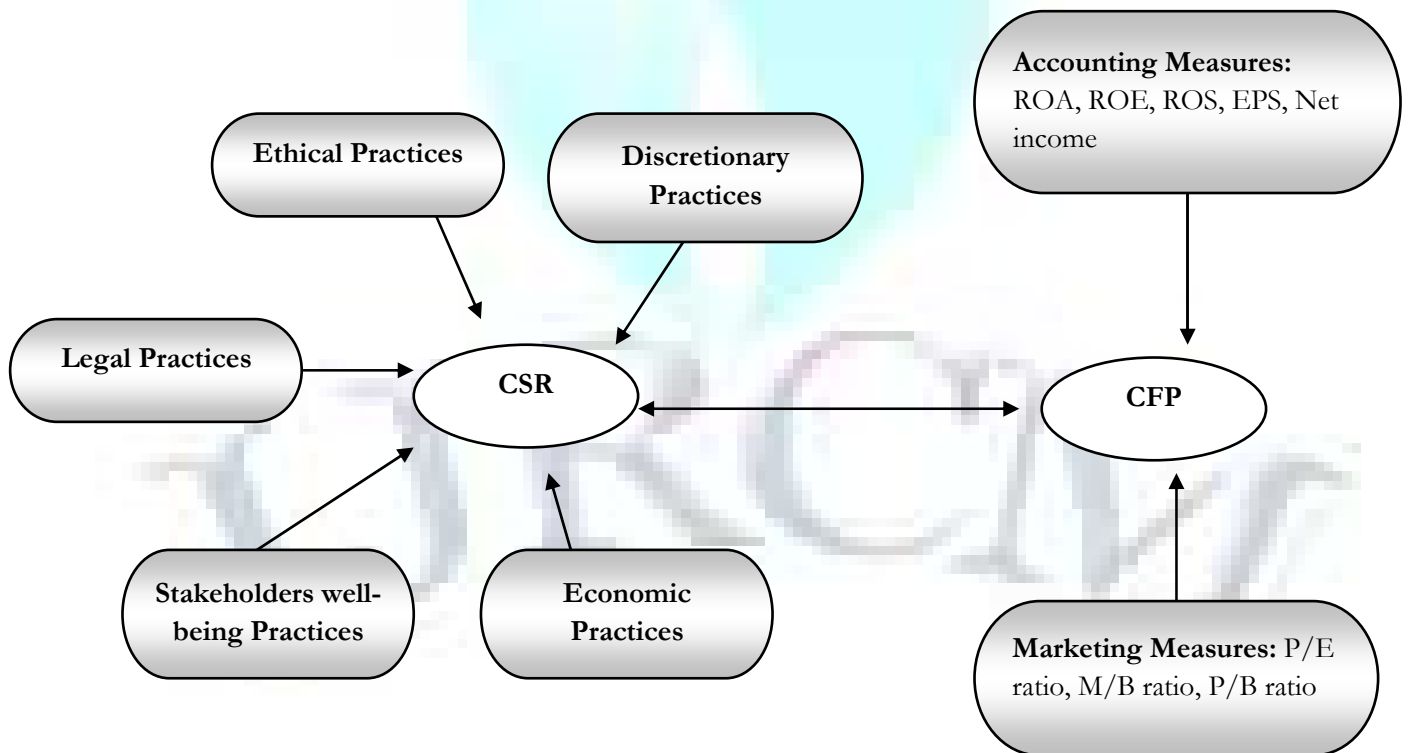
FIGURE 02: LIAISON BETWEEN CSR AND CFP
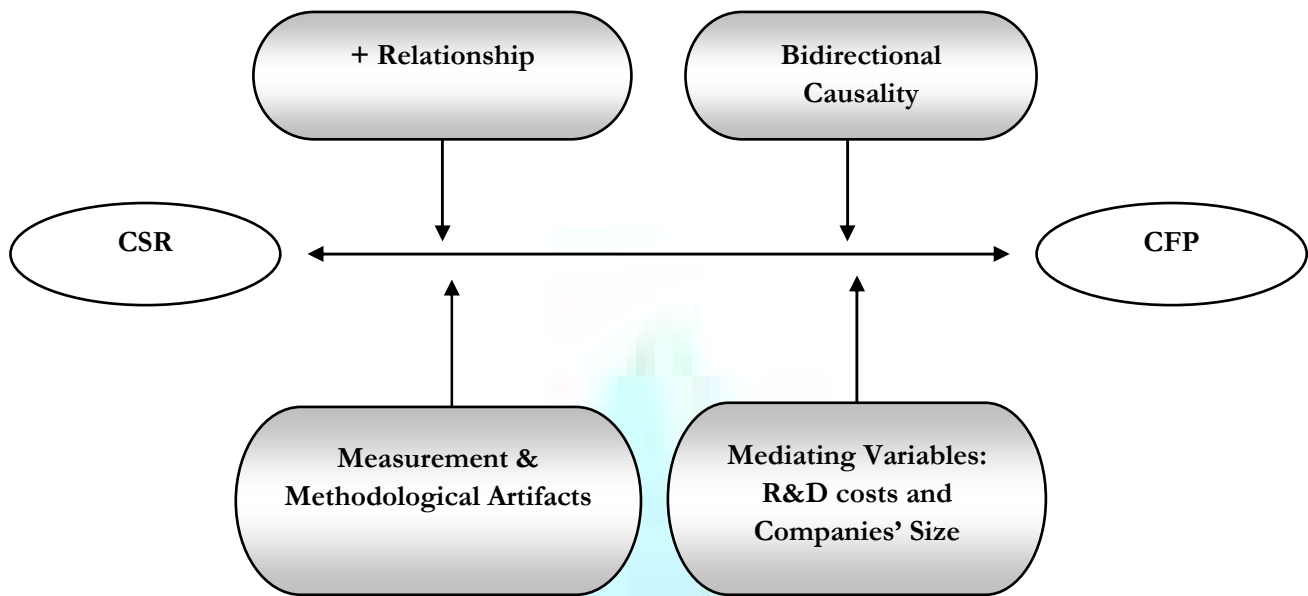
META-ANALYSIS

CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE FINANCIAL PERFORMANCE (CSR–CFP) RELATIONSHIP

Massive theoretical and empirical studies have been conducted to excogitate the impact of corporate social responsibility (CSR) on corporate financial performance (CFP). Different methodologies and techniques have been used by different researchers and there have been variation in the consensus of the researchers' opinions regarding the impact of CSR and FP. Some studies shows positive impact of CSR on FP whereas some have pointed out this relationship and impact to be negative or neutral (See table 01 for details).

CSR and CFP are found to have a positive relationship as indicated by the prior researches conducted by Uadiale and Fagbemi (2012), Weshah et al. (2012), Tsoutsoura (2004) and Waddock and Graves (1997), Pava and Krausz (1996), Spicer (1978) and Rosen et al. (1991). Meaning by firms who employ CSR practices in their corporate strategies and decisions tend to be socially responsible. This furnishes positive impression about the company not only to the stakeholders concerned but also to the economy at large. Employing CSR practices enhances reputation of the companies among employees, banks, lenders, suppliers, general public and all affiliated with the companies both directly and indirectly. This consequently helps improving companies' financial performance and so lead the companies towards financial prosperity.

However, Yang Lin and Chang (2010), McGuire et al. (1988) pointed out the impact of CSR on CFP to be negative. Meaning by that the utilization of slack resources on CSR practices does not have a positive impact. Rather the implementation of these CSR practices requires companies to put additional costs which can otherwise be utilized in productive projects. Firms that engage their resources in CSR practices such "making extensive charitable contributions, promoting community development plans, maintaining plants in economically depressed locations and establishing environmental protection procedures" moves towards financial distress as compared to those firms who pay little attention towards these social responsiveness affairs. As per the companies' objectives, they are bound to work for the benefit of the stakeholders and not for the society at large so they should not invest their slack resources in social and moral practices. Also for companies' not in sound financial health, employing CSR practices in their corporate decisions act like an acid i.e. it further deteriorates the financial position of companies.

On the other hand, this relationship was found to be neutral by Khanifar et al. (2012) and Orlitzky et al. (2003). It is interested to note that this neutral relationship was pointed out as a result of meta-analysis carried out on past empirical researches. This conclusion was a result of clubbing different researches i.e. those who have pointed out the impact between CSR and CFP to be positive along with the studies that have showed the impact between the said variables as being negative.

The variation in annotations and results of different studies is due to many reasons such as lack of a generalized and precise definition of CSR, different CSR metrics used and the existence of many related factors.

IMPACT OF MEDIATOR VARIABLES: R&D COSTS AND COMPANIES' SIZE ON CSR-CFP RELATIONSHIP

The linkage between CSR and CFP was found to be negative in a study conducted by Yang Lin and Chang (2010) when control variables of R&D costs and companies' size were included into the analysis for consideration. Before the inclusion of control variables being R&D and companies' size into the analysis, results indicated that there exists a high correlation between CSR practices employed by companies' in previous year and their impact on current year CFP. However, it is interesting to ponder that this correlation was found to be negative when R&D and firms' size were indulged in to the analysis.

Increasing R&D cost reduces financial performance of the companies through cost burden and it affects the profitability of the companies. Moreover, companies' size also matters to a great deal. Companies that are either in growth stage of their life cycle or have small size of capital should pay due care while investing their resources (even slack resources) in CSR activities. This is primarily because it alarms the companies that they may be caught into a financial saddle in case of if it will utilize its resources into CSR practices instead of putting these resources idol to meet the contingencies of the future.

BIDIRECTIONAL CAUSALITY BETWEEN CSR AND CFP: TWO WAY RELATIONSHIP

Meta-analysis indicated that bidirectional causality exits between CFP and CSR. It was pointed out by Khanifar et al. (2012) and Waddock and Graves (1997) meaning by there is a two way relationship between CFP and CSR.

Strong financial condition enables a company to invest its resources in CSR practices with a view to have long term gains through the implementation of these practices. A company who is on the verge of financial distress and deterioration should not invest its financial resources into CSR practices otherwise it gets trapped into a vicious cycle of financial distress.

On the other hand, implementation of CSR practices such as building employee relations, ensuring provision of quality products, measures to protect environment, following ethical standards, investing in health and welfare scheme, protection of women & minorities rights, keeping relations with military, involvement in nuclear power programs and contribution towards the economy (Waddock & Graves, 1997) tend to have a positive collision on a company's financial position and consequently its financial performance. The justification behind this is that a company (who employs CSR practices) is perceived being working not only for the benefit of its stakeholders but also for the society and economy on the loose. This impression built the image/reputation of that company among domestic as well as international investors and urges them to invest in that company. Resultantly, more investments lead to increased profitability of the company. Summing up, bidirectional causality exits CFP and CSR.

DIFFERENCES IN STATISTICAL RESULTS: METHODOLOGICAL AND MEASURING INDICATORS ARTIFACTS

Different indicators were used in different studies for the measurement of both CFP and CSR such as CFP was measured by Return on Assets (ROA), Return on Equity (ROE), Return on Sales (ROS) by Waddock and Graves (1997), Earnings per Share (EPS) by Blackburn (1994), Stock return, Tobin's Q by Akpinar et al. (2008), etc. Similarly, different indicators have been used to measure the magnitude of CSR such as KLD index by Waddock and Graves (1997), Voluntary Disclosure Index by Uadiale and Fagbemi (2012), Domini 400 Social Index by Tsoutsoura (2004), etc.

Also varying statistical analysis techniques were used for determining the relationship between CSR and CFP such as AReSE method by Yang Lin and Chang (2010), rating method by Uadiale and Fagbemi (2012), cross-sectional time series regression analysis by Tsoutsoura (2004) individual-link & fit analysis by Khanifar et al. (2012) and Orlitzky et al. (2003). Meta-analysis shows that the variations in results of different studies (between CSR and CSP being positive or negative) are due to methodological and measuring indicators artifacts Orlitzky, Schmidt and Rynes (2003).

CONCLUSION

This study is conducted to determine the relationship that exists between CSR and CFP. As per the meta-analysis of past researches, CSR is found to have a positive impact on CFP but this positive relationship between CSR and CFP cannot be generalized to all industries and economies. There have been variations in CSR's impact on CFP for developing and developed countries. On one side corporations in the developing countries have the potential to avail unique opportunities for investments and making powerful contributions for the uplifting of economy whereas on the other side the dark aspect involves risk of companies' continuity to participate in these activities on the long term bases. Also companies in growth stage of their industry life cycle hesitate in employing their financial resources in CSR activities.

Moreover, a strong bidirectional relationship exists between CSR and CFP. Implementation of CSR practices enhances the reputation of a company among shareholders, analysts, employees, regulators, mass media, labor unions and domestic as well as international investors. This increases the profitability of company due to the availability of new investment horizons, financial resources and diversified investments in domestic and global markets. Conversely, company needs to be financially firm/strong in order to implement CSR practices. It should have sufficient resources to empower them in CSR practices otherwise investing capital in CSR traps the company into a vicious cycle of financial distress. Investment in CSR should be opted only if company has slack resources and it keeps sufficient resources aside in the form of reserves to meet the future contingencies.

Summing up, the impact of CSR on CFP varies as per the economy, industry and company under study/analysis. Financial and economic sustainability of organizations must be ensured by the organizations' personnel before investing their financial resources in CSR practices as this will boost up the profitability of the organizations.

RECOMMENDATIONS

This is an era of increased competition and advancement. It requires business entities to retain their existing dominant positions by formulating their strategic and financial policies not only from the profitability perspective but also from the perspective of providing benefit to all stakeholders, society, environment and economy by diversifying investment in another broad area i.e. Corporate Social Responsibility (CSR).

Funding costs for CSR should be based by keeping in view the future need of financial capital as well as the availability of slack resources. Companies should invest in CSR activities only after getting sustainable financial position which requires companies to have sufficient slack resources each year and maintaining a reserve fund (out of those slack resources) to meet the upcoming investments projects and future contingencies.

To connect stakeholder's interest with organizations' long term strategic goals, companies should initiate a structured CSR dialogue with stakeholders. It will help not only in identifying the expectations of the stakeholders towards companies but also to incorporate those expectations in companies' strategic and financial policies.

Moreover, in order to continue companies' participation in social responsibility activities on a long term basis, social accounting should be embedded in companies' financial reporting practices. This will help companies to continue CSR practices by means of awards and improvement in their investment ratings for the implementation of CSR practices and penalties in case of non compliance. Resultantly, this will boost up the profitability of companies.

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ANNEXURE

TAXONOMY OF STUDIES				
Sr. #	**Type of Study (Empirical/Conceptual)**	**Author Name(s)**	**Sign of Relationship**	**CSR Indicator (used in study)**	**Firm Performance Indicator (used in study)**
1	Empirical Study	Uadiale and Fagbemi (2012)	Positive (+)	Voluntary Disclosure Index	ROA & ROE
2	Meta/Conceptual Study	Khanifar et al. (2012)	Mixed/Nuetral	KLD index, Voluntary Disclosure Index, Domini 400 Social Index, etc	P/E ratio, ROE, ROA, ROS, P/B ratio and EPS
3	Empirical Study	Yang et al. (2010)	Negative (-)	AReSE Method	ROA, ROE and ROS
4	Empirical Study	Weshah et al. (2012)	Positive (+)	Ratio of the amount of donations revealed/disclosed to interest revenue plus ratio of training expenses to interest revenue	ROA
5	Empirical Study	Tsoutsoura (2004)	Positive (+)	KLD index & Domini 400 Social Index	ROA, ROE and ROS
6	Meta/Conceptual Study	Orlitzky et al. (2003)	Mixed/Nuetral	KLD index, Voluntary Disclosure Index, Domini 400 Social Index, etc	P/E ratio, ROE, ROA
7	Empirical Study	McWilliams and Siegel (2000)	n Mixed/Nuetral	KLD index	ROA
8	Empirical Study	Waddock and Graves (1997)	Positive (+)	KLD index	ROA, ROE and ROS
9	Empirical Study	Blackburn et al. (1994)	(Positive (+)	CEP index	ROA, abnormal return, EPS
10	Empirical Study	Aupperle et al. (1985)	Negative (-)	Carroll's CSR construct (1979)	ROA

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AN EMPIRICAL STUDY ON STRESS SYMPTOMS OF ARTS, ENGINEERING AND MANAGEMENT STUDENTS IN TIRUCHIRAPALLI DISTRICT, TAMIL NADU

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ABSTRACT

The purpose of this empirical study is to throw light on different types of stress factors, stress symptom and their impacts on the College students from three different major disciplines namely Arts, Engineering and Management from some of the reputed Colleges in Tiruchirapalli District, Tamil Nadu- India.

KEYWORDS
Stress Symptoms, Stresses of College Students, Students' Stress.

INTRODUCTION

Transition of students from school environment to College environment could cause a psychological, academic and social shock to them, since this educational system has huge differences: the student will face new methods of teaching, new academic requirements, new type of relations between students and faculties and even new relations among students themselves. Due to these changes, students can potentially experience different types of stress that can affect their mental and social health and their academic achievement. Stress is one of the main aspects of our modern life, resulted from the rapid changes in human life, so this age is called the age of stress. In this Study three colleges from each discipline in Tiruchirapalli District were identified and a questionnaire survey was conducted among those College students. The questionnaire feedback data collected from students were then organized, compiled, tabulated, analyzed discipline wise and suitable suggestions were given for those findings in this report.

REVIEW OF RELATED LITERATURES
Several studies have been undertaken to analyze the stress among the college students. The following are some of the studies conducted by the analysts in the past.

✓ **Tara Smith** and **Kimberly Renk** researched on Predictors of Academic-Related Stress in College Students: An Examination of Coping, Social Support, Parenting, and Anxiety. This study examined potential predictors of the academic related stress experienced by college students.

✓ **Uma A. Shenoy** conducted a comparative study on College-Stress and Symptom-expression in International Students. This investigation examines the differences in symptom expression between Caucasians and Asians in response to college stress.

✓ **Beth Loeper** conducted a Qualitative Study of Nontraditional Student at St. Mary's College of Maryland. In this research the Researcher says that, there is a dramatic rise in the number of nontraditional students, over 24 years of age, entering colleges and universities.

✓ **Denise Pfeiffer** studied on Academic and Environmental Stress among Undergraduate and Graduate College Students. This study is a review of literature and a critical analysis of stress among undergraduate and graduate college students.

✓ **Purna Prabhakar Nandamuri** and **Gowthami** researched the Sources of Academic Stress on Management Students; they have researched on the components of academic stress and have identified different stressors among the post graduate management student from various management institutes spread across the Warangal district of Andhra Pradesh in India

✓ **Laura P. Womble** made a study on Impact of Stress Factors on College Students Academic Performance. The Researcher states that, Stress can have an impact on a student's academic performance.

✓ **Dr. Ahmad M Thawabieh** and **Dr. Lama M Qaisy** made an assessment on Stress among University Students. In this study the researches aimed to assess the levels of stress experienced by university students. A quantitative approach has been undertaken to assess students' stress. The sample consisted of 471 students from Tafila Technical University. The results indicate that the students experienced a moderate level of stress.

STATEMENT OF THE PROBLEM
In this modern scenario human beings are living in midst of various events and they should adapt to the various environmental factors for the purpose of life existence. Before several decades, people living in the world were stress free, because they were not much influenced by the environmental factors such as technology, politics, economy and other social interactions. But today it is not like that, every man and woman living in any culture or in any society; they are bounded by the major problem called stress. This should be curtailed when we study the reason for stress which influences a person in the student level. The study of students stress is the most important and inevitable for this modern society. This research is an attempt to study the Students stress in college level based on three major disciplines such as Arts, Engineering and Management respectively. Moreover a scientific enquiry about the reasons for students stresses was done, How the Students are affected by stress? What are the factors influencing students stress? And how we have to eradicate stress in the minds of college students? These issues motivated to investigate and conduct in-depth inquiry about the students stress in Tiruchirapalli District.

OBJECTIVES OF THE STUDY
1) To know the profile of the college students in Tiruchirapalli District.
2) To study the theoretical frame work of the college students stress.
3) To analyze the academic, non-academic and students stress symptoms based on the discipline of the college students.
4) To scrutinize the impact of academic and non-academic factors on the students stress symptoms.
5) To propose a multi-dimensional and structural model of evaluating the college students stress in Tiruchirapalli District.
6) To give suitable suggestions and recommendations to mould the college students to free from the evils of stress.

HYPOTHESIS OF THE STUDY
1) The academic, non-academic and stress symptoms are same irrespective of the discipline of the students.
2) The academic and non-academic factors does not simultaneously influences the students stress symptoms.

RESEARCH METHODOLOGY
PILOT STUDY
A Draft Questionnaire was prepared by the researcher to evaluate the college students' stress and it comprises of four different set of questions. They are Personal demographic profile (6), Academic Factors (11), Non-academic factors (9) and Stress Symptoms (7) respectively, which are anchored at five point likert

scale. 90 students were randomly selected under the disciplines namely Arts, Engineering and Management and the Draft Questionnaire was issued to these students for the purpose of collecting the preliminary information about the stress symptoms of the students. After the Data collection is over, the researcher used some data managing techniques. At first the multivariate outlet detection was applied and we found that out of 90 college students 12 students are found to be out layers and we removed the 12 observations and retained the remaining for further analysis, moreover the researcher checked the reliability and the equivalence of the 20 conceptual items under 2 dimensions namely Academic factors (10) and Non-academic factors (10) to evaluate the effects of three dimension on the stress symptoms of college students. The result of the Cronbach's Alpha for the 20 items is 63.5% and it shows the items under the two dimensions achieved the internal consistency and it is more reliable. Similarly Hotel ling's T-squared Test was also applied to find the mean equivalence among the items and the test results shows that the 20 items under academic factors and non-academic factors are different and it conveys the actual meaning of the statements raised in the questionnaire at 5% level. Beside this logically and rationally modified the semantic meaning of the conceptual questions raised in the questionnaire.

SAMPLING FRAME WORK

The research is a sample survey to elevate the impacts of academic and non-academic factors of college students on the stress symptoms. For this the researcher adapted a Purposive sampling method which comes under the non-parabolic sampling technique. Moreover under the three disciplines namely Arts, Engineering and Management, the researcher has selected three Engineering Colleges namely PABCET, Saranathan and JJ Engineering College respectively for the purpose of evaluating the College students stress symptoms in engineering discipline. Similarly, for the purpose of analyzing the College students stress symptoms in arts discipline we selected Indira Gandhi, Bishop Heber and St. Joseph College respectively. In the same manner, in order to study the stress symptoms of the Management students the researcher selected three famous colleges in Tiruchirapalli District and they are Bishop Heber, St. Joseph and JJ College respectively. The calculations of sample size under the disciplines are as follows:

DISCIPLINE	SAMPLE SIZE (n)
Arts	209
Engineering	76
Management	116
TOTAL	**401**

DETERMINATION OF SAMPLE SIZE

In order to determine the sample size for this research study the following formula is used:

$$n = \left(\frac{zs}{e}\right)^2$$

Where,

n = the sample size,
Z = the standard normal variate value (1.645) at 95% confidence level,
e = the allowable sampling error at 5% and
s = the standard deviation of the raw stress symptom score.

Based on the Pilot study, the standard deviation of the raw stress symptoms score of the college students based on the disciplines namely Arts (0.04394), Engineering (0.265) and Management (0.3274) are calculated. Now by substituting the above said values in the formula, we get the required sample size of the college students and each discipline are derived and it is the lower limit of the sample size used to analyze the stress symptoms of the college students in Tiruchirapalli District and it is given as follows.

DATA COLLECTION AND INSTRUMENTATION

A well structured Questionnaire was prepared by the researcher after the pilot study is completed by rectifying the short comings faced in the pilot study results. The finalized Questionnaire is divided into three parts, in which the first part includes the questions regarding personal demographic profile of the college students; Part 2 elucidates the conceptual questions under two dimensions namely academic factors (11) and non-academic factors (9). Similarly Part 3 exhibits the questions regarding the stress symptoms of the students which compressed (7) items. All these items were anchored at five point likert scale (from 1 to 5). Finally secondary information regarding the profile of the college students and related reviews are also collected by the researcher through the internet source. The researcher also visited all the aforementioned colleges in Tiruchirapalli District for the purpose of conducting some formal discussion with the faculties and the students.

SCOPE OF THE STUDY

This research made an attempt to identify the different stress factors that influence the college students, stress symptoms and impacts. At first, the variables of the stressors were identified and used in the study. The study categorized the stress of students of arts, engineering and management disciplines.

PROFILE OF THE COLLEGES

For this study on Stress among College Students of Arts, Engineering and Management students in Tiruchirapalli District, some of the well reputed College Institutions in Tiruchirapalli District are identified and an opinion survey is conducted by getting Questionnaire feedback from those college students discipline wise as shown below:

1. Arts Colleges	2. Engineering Colleges	3. Management Colleges
✓ Shrimati Indira Gandhi College	✓ Pavendar Bharathidasan College of Engineering & Technology	✓ J.J. College of Engineering & Technology (Management)
✓ Bishop Heber College	✓ J.J. College of Engineering & Technology	✓ Bishop Heber College
✓ St. Joseph's College	✓ Saranathan College of Engineering	✓ St. Joseph's College

CAUSES FOR STRESS IN COLLEGE STUDENTS

For College Students, irrespective of their disciplines the stress is caused mainly due to two set of factors namely,

1. Academic Factors	2. Non-academic factors
✓ Improper teaching	✓ Inconvenient accommodation
✓ Lack of information to be learnt	✓ Difficulty in mingling with same age group
✓ Competition for scoring marks	✓ Insufficient time for recreation
✓ Continuous or frequent examinations	✓ Lack of health
✓ Long hours of academic work	✓ Poor infrastructure
✓ Barriers in communication	✓ Feeling home sick
✓ Heavy work load	✓ Financial problems
✓ Inadequate resources	✓ Uncertainty about getting job after graduation
✓ Irregular attendance	✓ High expectations from parents
✓ Dilemma in choosing the Discipline	
✓ Insufficient library facilities	

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 145

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WHAT IS STRESS? STRESS - DEFINITION

The term "Stress" is borrowed from the discipline of physics. Stress actually means pressure. This inner pressure is a psychological and physiological response to events that upset our personal balance. Stress is simply defined as the body's non-specific response to any demand placed upon it. The responses may be physical like head ache, emotional such as fear or sadness and behavioural such as increased anxiety. If a person experiences a continuous state of depression due to stress over a prolonged period of time and cannot return to a relaxed state, then the stress becomes negative and risky. Some destructive strategies to reduce these stresses include using tobacco, drinking alcohol, taking illegal drugs and overusing of prescribed medications. All of these strategies can only bring a short term relief but at a high cost of damage to both body and mind. Is all the stresses are negative or bad? Should everyone strive to stamp stress out of our life completely? The answer is definitely no! Positive stress serves some useful purposes in our lives. A positive stress sometimes drives a person towards his success. For example, stress is essential for learning because a research study says that learning takes place only under a moderate condition of stress levels. So our goal must be to keep our stress at a moderate level, neither too low or stress free that we may feel bored nor so high that we are overwhelmed.

STRESS SYMPTOMS OF COLLEGE STUDENTS

Symptoms are the some of the reactions and changes due to stress. Every one reacts to stress differently. Some symptoms will only have impact on the individual who is directly experiencing the stress, while the other symptoms of stress may have an impact over their relationship with others. Perhaps some experiences both when their stress levels are elevated. The three main stress symptoms of college students are

1. Physical symptoms	2. Emotional symptoms	3. Behavioural symptoms
✓ Headaches	✓ Moody and hypersensitive	✓ Eating more or less
✓ Digestive problem	✓ Restlessness and anxiety	✓ Sleeplessness
✓ Sleep disturbance	✓ Depression	✓ Isolation
✓ Fatigue	✓ Anger and resentment	✓ Neglecting responsibilities
✓ High Blood pressure	✓ Irritation	✓ Increased alcohol and drug use
✓ Weight gain or loss	✓ Lack of confidence	✓ Nervous habits
✓ Asthma or shortness of breath	✓ Apathy	✓ Teeth grinding or jaw
	✓ Urge to laugh or cry at inappropriate times	✓ Clenching
		✓ Overdoing activities such as exercising or shopping
		✓ Losing temper
		✓ Overreacting to unexpected problem

DATA ANALYSIS

After the final data collections were completed, the researcher then conducted computerized data with the help of famous statistics software namely IBM SPSS 20 and SPSS AMOS Version 20. At first the collected data were organized and logically tabulated. Cross tabulations were prepared according to the subject discipline of the students; with this one Wayanova is also used to find the mean equivalence of the perception regarding the items under academic and non-academic factors according to the discipline. Secondly, Multivariate Regression Analysis is utilized to find the impact of academic and non-academic factors on the stress symptoms of the college students. Finally Structural Equation Modeling is applied to propose a multi-dimensional model of evaluating stress symptoms of college students in Tiruchirapalli District.

TABLE-1: STRUCTURAL MODEL OF STUDENTS STRESS MANAGEMENT AND MULTI DIMENSIONAL EFFECT OF ACADEMIC AND NON ACADEMIC FACTORS ON STRESS SYMPTOMS OF ARTS STUDENTS

Independent	Dependent	Constructs name	Un-standardised coefficient	Standard error	Standardised coefficient	Critical ratio	P-value
Indicators	Improper teaching	Academic	1.623	.224	.678	7.235	0.00
	Lack of information		1.499	.198	.730	7.563	0.00
	Scoring marks		.814	.139	.500	5.867	0.00
	Frequent examinations		1.170	.192	.526	6.091	0.00
	More academic work		.731	.152	.389	4.805	0.00
	Communication Barriers		1.683	.223	.725	7.532	0.00
	Heavy Workload		1.058	.186	.481	5.695	0.00
	Inadequate Resources		1.276	.169	.731	7.567	0.00
	Poor attendance		.946	.150	.550	6.298	0.00
	Inappropriate specialisation		1.070	.185	.491	5.786	0.00
	Inadequate library facilities		1.000	-	.556	-	-
	Inconvenient accommodation	Non Academic	1.000	-	.586	-	-
	Introversion		.199	.164	.094	1.211	.226
	Insufficient time for Recreation		.647	.130	.420	4.994	0.00
	Poor health		.451	.127	.285	3.551	0.00
	Inadequate infrastructure		1.104	.168	.602	6.590	0.00
	Home sick		.465	.149	.247	3.116	.002
	Financial problems		1.858	.248	.744	7.499	0.00
	Job		1.427	.198	.689	7.196	0.00
	High expectation from parents		.800	.204	.318	3.921	0.00
Constructs	Physical stress	Academic	.883	.261	.619	3.384	0.00
		Non Academic	-.662	.252	-.481	-2.632	.008
	Emotional stress	Academic	-.050	.101	-.080	-.498	.619
		Non Academic	.096	.104	.160	.928	.353
	Behavioural stress	Academic	-.290	.179	-.499	-1.621	.105
		Non Academic	.111	.144	.199	.773	.440
Indicators	Nervous Indigestion	Physical stress	1.000		.628		
	Breathing problem		.103	.153	.069	.672	.501
	Feeling and anxiety	Emotional stress	1.000	-	.335	-	-
	Continuous thinking		.591	.438	.151	1.350	.177
	Trouble in concentration		2.331	.732	.638	3.186	.001
	Drinking and smoking	Behavioural stress	1.000		.312		
	Counter Medications for relax		-1.683	1.105	-.360	-1.523	.128

RMR=.213 GFI=.530   AGFI=.447 PGFI=.450 RMSEA=.207   LL (RMSEA) =.201   UL(RMSEA) 90=.214   PCLOSE=.000

Table-1: Describes the structural model of students stress symptoms and multidimensional influence of Academic and Non Academic factors for Arts students. The result of the confirmatory factor analysis and measurement model of analyzing the students stress symptoms reveals that the academic factors influenced the physical stress of Arts students with the un-standardized coefficient of 0.883 followed by the non-academic factors with the positive co-efficient of 0.096 and 0.11 which also positively increase the emotional stress and behavioural stress of the students. More over if the physical stress increases less than the Arts students are suffered from breathing problem followed by the emotional stress which leads and disturbs the students' concentration. Similarly the above said factors and its influence are also statistically significant at 1% level based on the critical ratio test. As far as model fitness is concern, the RMR (0.213), GFI is more than fifty percent, RMSEA is also close to 0 and p-close of the estimated RMSEA is also significant at 1% level which are the additional evidence which leads the researcher to finalize the proposed multidimensional and structural model of students stress symptoms is a valid model for evaluating and measuring the students stress for Arts students in Tiruchirapalli.

TABLE-2: STRUCTURAL MODEL OF STUDENTS STRESS MANAGEMENT AND MULTI DIMENSIONAL EFFECT OF ACADEMIC AND NON ACADEMIC FACTORS ON STRESS SYMPTOMS OF ENGINEERING STUDENTS

Independent	Dependent	Constructs name	Un-standardised coefficient	Standard error	Standardised coefficient	Critical ratio	P-value
Indicators	Improper teaching	Academic	5.930	9.458	.406	.627	.531
	Lack of information		4.473	7.218	.322	.620	.535
	Scoring marks		-1.047	2.204	-.092	-.475	.635
	Frequent examinations		1.705	3.163	.130	.539	.590
	More academic work		7.123	11.294	.481	.631	.528
	Communication Barriers		5.412	8.630	.407	.627	.531
	Heavy Workload		7.955	12.613	.482	.631	.528
	Inadequate Resources		11.462	18.023	.783	.636	.525
	Poor attendance		8.045	12.686	.611	.634	.526
	Inappropriate specialisation		4.698	7.595	.313	.619	.536
	Inadequate library facilities		1.000	-	.083	-	-
	Inconvenient accommodation	Non Academic	1.000	-	.538	-	-
	Introversion		7.794	.327	.342	2.430	.015
	Insufficient time for Recreation		.230	.263	.113	.873	.383
	Poor health		.775	.278	.405	2.792	.005
	Inadequate infrastructure		.716	.299	.336	2.394	.017
	Home sick		2.050	.518	.853	3.956	0.00
	Financial problems		.923	.374	.348	2.466	.014
	Job		.309	.359	.112	.862	.389
	High expectation from parents		-.831	.347	-.335	-2.393	.017
Constructs	Physical stress	Academic	-1.042	3.089	-.076	-.337	.736
		Non Academic	-.385	.415	-.177	-.928	.353
	Emotional stress	Academic	-3.567	6.021	-.331	-.592	.554
		Non Academic	-.664	.375	-.391	-1.772	.076
	Behavioural stress	Academic	.308	1.039	.077	.297	.767
		Non Academic	-.333	.306	-.528	-1.090	.276
Indicators	Nervous Indigestion	Physical stress	1.000	-	.748	-	-
	Breathing problem		.063	.169	.057	.373	.709
	Feeling and anxiety	Emotional stress	1.000	-	.624	-	-
	Continuous thinking		-.131	.246	-.084	-.531	.597
	Trouble in concentration		.445	.261	.286	1.707	.088
	Drinking and smoking	Behavioural stress	1.000	-	.288	-	-
	Counter Medications for relax		-2.652	2.449	-.599	-1.083	.279

RMR = .190   GFI=.565   AGFI=.484   PGFI=.476   RMSEA=.168   LL(RMSEA)=.=.156   UL(RMSEA)=.=.180   PCLOSE=.000

Table-2: Describes the structural model of students stress symptoms and multidimensional influence of Academic and Non Academic factors for Engineering students. The result of the confirmatory factor analysis and measurement model of analysing the students stress symptoms reveals that the academic factors influenced the physical stress of engineering students with the un-standardized coefficient of 0.308 increases the behavioural stress of the students. More over if the physical stress increases for engineering students are suffered from breathing problem. Similarly the above said factors and its influence are also statistically significant at 1% level based on the critical ratio test. As far as model fitness is concern, the RMR (0.190), GFI is more than fifty percent, RMSEA is also close to 0 and p-close of the estimated RMSEA is also significant at 1% level which are the additional evidence which leads the researcher to finalize the proposed multidimensional and structural model of students stress symptoms is a valid model for evaluating and measuring the students stress for engineering students in Tiruchirapalli.

TABLE-3: STRUCTURAL MODEL OF STUDENTS STRESS MANAGEMENT AND MULTI DIMENSIONAL EFFECT OF ACADEMIC AND NON ACADEMIC FACTORS ON STRESS SYMPTOMS OF MANAGEMENT STUDENTS

Independent	Dependent	Constructs name	Un-standardised coefficient	Standard error	Standardised coefficient	Critical ratio	P-value
Indicators	Improper teaching	Academic	7.099	6.822	.658	1.041	.298
	Lack of information		6.067	5.837	.628	1.039	.299
	Scoring marks		2.330	2.382	.271	.978	.328
	Frequent examinations		3.824	3.763	.391	1.016	.310
	More academic work		4.717	4.593	.466	1.027	.304
	Communication Barriers		5.828	5.628	.560	1.035	.300
	Heavy Workload		6.794	6.548	.595	1.038	.299
	Inadequate Resources		6.086	5.853	.637	1.040	.298
	Poor attendance		4.776	4.648	.470	1.028	.304
	Inappropriate specialisation		1.780	2.023	.166	.880	.379
	Inadequate library facilities		1.000	-	.108	-	-
	Inconvenient accommodation	Non Academic	1.000	-	.114	-	-
	Introversion		2.326	2.468	.225	.943	.346
	Insufficient time for Recreation		2.438	2.463	.303	.990	.322
	Poor health		1.824	1.908	.241	.956	.339
	Inadequate infrastructure		3.540	3.546	.325	.998	.318
	Home sick		3.859	3.826	.361	1.009	.313
	Financial problems		8.551	8.197	.743	1.043	.297
	Job		7.502	7.207	.639	1.041	.298
	High expectation from parents		1.585	2.006	.129	.790	.429
Constructs	Physical stress	Academic	1.313	1.918	.175	.684	.494
		Non Academic	-3.675	3.800	-.492	-.967	.333
	Emotional stress	Academic	.913	1.826	.095	.500	.617
		Non Academic	-3.875	4.033	-.407	-.961	.337
	Behavioural stress	Academic	-.030	1.467	-.003	-.020	.984
		Non Academic	-.022	1.520	-.002	-.014	.989
Indicators	Nervous Indigestion	Physical stress	1.000	-	.642	-	-
	Breathing problem		.156	.197	.109	.790	.430
	Feeling and anxiety	Emotional stress	1.000	-	.733	-	-
	Continuous thinking		-.037	.159	-.029	-.236	.814
	Trouble in concentration		.365	.154	.290	2.366	.018
	Drinking and smoking	Behavioural stress	1.000	-	.707	-	-
	Counter Medications for relax		-.871	.187	-.563	-4.654	-

RMR=.208 GFI=8.609 AGFI=.541 PGFI=.518 RMSEA=.144 LL(RMSEA)=.135 UL(RMSEA)=.153 PCLOSE=.000

Table-3: Describes the structural model of students stress symptoms and multidimensional influence of Academic and Non Academic factors for Management students. The result of the confirmatory factor analysis and measurement model of analysis the students stress symptoms reveals that the Non Academic factors influenced the physical stress of management students with the un-standardized coefficient of 1.313 followed by which also increases emotional stress of the academic factor with the positive co efficient 0.913.Moreover the physical stress increases for management students are suffered from breathing problem. Similarly the above said factors and its influence are also statistically significant at 1% level based on the critical ratio level. As far as model fitness is concern, the RMR (0.208), GFI is more than fifty percent, RMSEA is also close to 0 and p-close of the estimated RMSEA is also significant at 1% level which are the additional evidence which leads the researcher to finalize the proposed multidimensional and structural model of students stress symptoms is a valid model for evaluating and measuring the students stress for management students in Tiruchirapalli.

TABLE-4: STRUCTURAL MODEL OF STUDENTS STRESS MANAGEMENT AND MULTI DIMENSIONAL EFFECT OF ACADEMIC AND NON ACADEMIC FACTORS ON STRESS SYMPTOMS OF POOLED STUDENTS

Independent	Dependent	Constructs name	Un-standardised coefficient	Standard error	Standardised coefficient	Critical ratio	P-value
Indicators	Improper teaching	Academic	2.405	.363	.710	6.621	0.00
	Lack of information		2.087	.316	.701	6.601	0.00
	Scoring marks		.827	.171	.333	4.844	0.00
	Frequent examinations		1.398	.247	.447	5.654	0.00
	More academic work		1.073	.211	.363	5.096	0.00
	Communication Barriers		2.162	.331	.671	6.530	0.00
	Heavy Workload		1.473	.261	.446	5.651	0.00
	Inadequate Resources		1.623	.261	.571	6.226	0.00
	Poor attendance		1.773	.215	.414	5.458	0.00
	Inappropriate specialisation		1.392	.264	.386	5.267	0.00
	Inadequate library facilities		1.000	-	.356	-	-
	Inconvenient accommodation	Non Academic	1.000	-	.367	-	-
	Introversion		.627	.194	.203	3.239	.001
	Insufficient time for Recreation		.532	.154	.221	3.467	0.00
	Poor health		.609	.156	.259	3.899	0.00
	Inadequate infrastructure		1.548	.265	.543	5.833	0.00
	Home sick		1.036	.223	.336	4.638	0.00
	Financial problems		2.295	.374	.639	6.128	0.00
	Job		2.220	.359	.669	6.191	0.00
	High expectation from parents		.859	.240	.230	3.573	0.00
Constructs	Physical stress	Academic	.924	-	.326	-	-
		Non Academic	-.855	-	-.317	-	-
	Emotional stress	Academic	1.109	-	.761	-	-
		Non Academic	.495	-	.565	-	-
	Behavioural stress	Academic	-.097	-	-.532	-	-
		Non Academic	1.000	-	1.151	-	-
Indicators	Nervous Indigestion	Physical stress	.026	.031	.034	.822	.411
	Breathing problem		1.000	-	.860	-	-
	Feeling and anxiety	Emotional stress	.104	.086	.071	1.203	.229
	Continuous thinking		.377	.130	.269	2.905	.004
	Trouble in concentration		1.000	-	.200	-	-
	Drinking and smoking	Behavioural stress	-6.332	3.218	-.827	-1.968	.049
	Counter Medications for relax						

RMR=.174 GFI=.665 AGFI=.603 PGFI=.561 RMSEA=.141 LL(RMSEA)=.136 UL(RMSEA)=.145 PCLOSE=.000

Table-4: Describes the structural model of students stress symptoms and multidimensional influence of Academic and Non Academic factors for Pooled students. The result of the confirmatory factors analysis and measurement model of analysing the students stress symptoms reveals that the academic factors influenced the physical stress of pooled students with the un-standardized co-efficient of 0.924 and emotional stress is 0.435 co-efficient of the students. Moreover if the emotional stress is more than the physical stress of the pooled students, the students are suffered and disturbed from concentration and continuous thinking followed by the physical stress which leads to breathing problem for the pooled students. Similarly the above said factors and its influence are also statistically significant at 1% level based on the critical ratio test. As far as model fitness is concern, the RMR (0.174), GFI is more than fifty percent, RMSEA is also close to 0 and p-close of the estimated RMSEA is also significant at 1% level which are the additional evidence which leads the researcher to finalize the proposed multidimensional and structural model of students stress symptoms is a valid model for evaluating and measuring the students stress for pooled students in Tiruchirapalli.

FINDINGS AND SUGGESSIONS
SUGGESTIONS FOR ACADEMIC FACTORS
- ✓ The categorized items under the academic factors, which are responsible for stress among the students, are Scoring marks, Inadequate resources, Poor attendance, Inappropriate specialization and Inadequate library facilities.
- ✓ Out of which, the problem of Scoring marks is the major concern found among both the Engineering and the Management Students. This can be eliminated by prior, periodical and planned preparation for exams and by enhancing a better understanding of the subjects.
- ✓ Inadequate resources is the stress factor that largely prevails among the Arts and the Pooled students which can be rectified by providing proper resources like adequate Internet access Facilities, exposure to latest technology developments, articles and magazines related to their subjects that are necessary to complete their assignments, academic tasks and project works.
- ✓ Poor attendance is the vital stress item identified among Arts, Engineering and Pooled students. This can be minimized by giving personal care, guidance and counseling to those students who are in short of attendance due to some personal reasons. This can also be overcome by the positive attitude of the faculties like creating interest in studies by applying appreciable communication skills thereby eliminating bore, tiresome and prolonged lectures.
- ✓ Dilemma in choosing the discipline i.e. inappropriate specialization is common stress item among the Arts and Pooled students. This can be eradicated by motivating the morale of the students by emphasizing the merits of the specialization, their career opportunities after graduation and insisting them the current demand for the specialists in those subjects.
- ✓ Inadequate library facilities among the Arts students can be tackled by providing a well-equipped library with all required technical books, latest articles and magazines related to their subjects, should also have furnished proper space, lighting and optimum ambience for reading.

SUGGESTIONS FOR NON-ACADEMIC FACTORS
- ✓ The categorized items under the non-academic factors, which are responsible for stress among the students, are inconvenient accommodation, insufficient time for recreation, inadequate infrastructure, Homesick, Fear about future and high expectations from parents.

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT   149

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- ✓ The Arts students are mostly affected by the inadequate infrastructure which can be solved by maintaining a good environment and infrastructure like providing safe drinking water, tidy hostel and sanitary facilities.
- ✓ The fear about future is commonly found among Arts, Management and Pooled students. This can be significantly decreased by motivating the students psychologically to cultivate their self-esteem, by exploring and encouraging the entrepreneur abilities of the students and creating awareness about their wide spread opportunities after their graduation.
- ✓ The stress evolved due to high expectations from parents is evident among Engineering, Management and Pooled students. The parents must understand the ability and adaptability of the students. Parents should encourage the interests, choice of career and ambitions of their wards rather compelling the students to fulfill parents' expectations.

SUGGESTIONS FOR IMPACT OF ACADEMIC AND NON-ACADEMIC FACTORS ON STRESS SYMPTOMS

- ✓ Lack of information causes physical and emotional stress to the arts students, whereas it causes emotional stress to engineering students and it causes emotional and behavioural stress to management students and it causes emotional stress to pooled students. This stress is due to the inability of the faculties to complete the syllabus within the stipulated time. This shall be successfully handled by the faculties by adhering time management principles to cover the syllabus within the specific time.
- ✓ Difficulty in scoring marks creates a behavioural stress among the arts students. As discussed earlier, this can be eliminated by prior, periodical and planned preparation for exams and by enhancing a better understanding of the subjects.
- ✓ Frequent examinations causes physical stress among arts and pooled students and also causes behavioural stress among engineering and management students. This can be minimized by providing sufficient time interval between the examinations for the students to prepare for the same.
- ✓ Improper teaching results in physical and emotional stress among engineering and pooled students and also results in physical, emotional and behavioural stress among management students. This stress is due to inexperience and casual attitude of the faculties. Faculties shall overcome this by conveying the subjects to the students in a crisp, lucid and in a perceiving manner.
- ✓ Communication barrier induces physical and emotional stress to arts students, and induces physical and behavioural stress to engineering and management students and also induces behavioural stress to pooled students. This miscommunication with staffs is due to hesitation and fear of the students which can be remarkably reduced by friendly approach of the faculties.
- ✓ More academic works and heavy work load like assignments, project works and case studies are common among engineering and management students which provoke them emotional and behavioural stresses. This is due to lack of involvement of some students and wrong perception in realizing the importance of those academic works and so it makes them feel as a burden. This shall be rectified by making them to involve and realize the importance of these academic works.
- ✓ Inappropriate specialization creates physical and emotional stress for arts, engineering and pooled students and creates only physical stress for management students. As aforementioned, this can be eradicated by motivating the morale of the students by emphasizing the merits of the specialization, their career opportunities after graduation and insisting them the current demand for the specialists in those subjects.
- ✓ Inadequate resources produce physical and behavioural stress to the engineering students. As dealt earlier, which can be rectified by providing proper resources like adequate Internet access Facilities, exposure to latest technology developments, articles and magazines related to their subjects that are necessary to complete their assignments, academic tasks and project works.
- ✓ Poor attendance is extensively found among engineering students which stimulates them both physical and emotional stress. As suggested previously, this can be minimized by giving personal care, guidance and counseling to those students who are in short of attendance due to some personal reasons. This can also be overcome by the positive attitude of the faculties like creating interest in studies by applying appreciable communication skills thereby eliminating bore, tiresome and prolonged lectures.
- ✓ Inconvenient accommodation causes physical and behavioural stress among arts students and emotional stress among engineering students. This can be corrected by ensuring the cleanliness of the hostels, providing sufficient ventilation, lighting and enough space.
- ✓ Introversion is an introvert feeling of mental absence causing emotional stress in arts and pooled students and causing physical and emotional stress in engineering and management students. This can be rectified by improving the concentration of the students over their studies and paying attention in the class room by turning blind eye towards other distractions. Also faculties must attract the mental presence of the students by passionate and spirited lectures.
- ✓ Insufficient time for recreation results in physical stress among engineering students and results in emotional stress among management students. These mental blocks can be diluted by making the students to participate in brainstorming sessions, quizzes, debates and group discussions to envisage them at ease.
- ✓ Poor health causes emotional stress in arts students, physical stress in engineering students and behavioural stress in management students. Every student must have a concern over their fitness and body health. Parents must also monitor and ensure the wellbeing of their wards. This can be emphasized by practicing regular exercising, meditation and yoga.
- ✓ Inadequate infrastructure affects the arts and management students physically, affects the engineering students emotionally and affects the behaviour of pooled students. This can be solved by maintaining a good environment and infrastructure like providing safe drinking water, tidy hostel, and canteen, laboratory and sanitary facilities.
- ✓ Home sick is found in engineering students causing physical, emotional and behavioral stress and in management students causing physical stress. This can be completely solved by the students by feeling confident enough to mingle with staffs, classmates and hostel mates and by creating a friendly atmosphere making them feel at home in the college.
- ✓ High expectations from parents are evident among arts students causing behavioural stress, causing physical stress among engineering students and behavioural stress among management students. As suggested earlier, the parents must understand the ability and adaptability of the students. Parents should encourage the interests, choice of career and ambitions of their wards rather compelling the students to fulfill parents' expectations.

CONCLUSION

From this empirical study it is evident that irrespective of their disciplines either arts or engineering or management, all the college students are experiencing stress but their levels may differ. To get rid of this stress, not only the students but also the parents, faculties and the College Management do have their part to play. Through proper education, students shall be able to identify stressors, manage them to an optimal level, and seek support. Parents must be aware of their wards problems and should not force their high hopes on the students. The Faculties should pay attention to students' troubles with learning and apply appropriate strategies to enhance their learning effectiveness to relieve from their academic stresses. In addition, Management of the College Institutions/Universities should also provide courses on life stress coping on a regular basis to consolidate students' psychology and teach them how to relax themselves along with stress management skills to deprive from their non-academic stresses. The main strength of this comparative study is the point-of-view of the researcher. Being a college student myself and dealing with these stresses on a daily basis gave me a great deal of insight on the subject researched. I am completely aware of the impact of stress can have on a students' academic performance and also their personal life. I would feel glad that if this survey, factors and suggestions reviewed in this study contribute to a students' academic performance and their life after graduation to an appreciable extent.

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ANNEXURE

QUESTIONNAIRE

AN EMPIRICAL STUDY ON STRESS SYMPTOMS OF ARTS, ENGINEERING AND MANAGEMENT STUDENTS IN TIRUCHIRAPALLI DISTRICT, TAMIL NADU – INDIA

1) Gender   ☐ Male   ☐ Female
2) Age   ☐ Below 21   ☐ Above 21
3) No of Family Members   ☐ Below 5   ☐ Above 5
4) Discipline   ☐ Arts   ☐ Engineering   ☐ Management
5) Degree   ☐ UG   ☐ PG
6) Tick whether you are frequently suffering from any one of the following problems:
     a)   Headache   ☐
     b)   Muscular Tension (or) Pain   ☐
     c)   Chest Pain   ☐
     d)   Fatigue   ☐

Strongly disagree(SDA), Disagree(DA), Neutral(N), Agree(A), Strongly agree(SA)	SDA	DA	N	A	SA
7) Improper Teaching (or) unable to understand language					
8) Lack of Information to be learnt					
9) Competition for Scoring Marks					
10) Continuous (or) Frequent Examinations					
11) Long hours of Academic Work					
12) Barriers in Communication / Approaching the Staffs					
13) Heavy Work load					
14) Inadequate Resources to do assignments					
15) Irregular to attend the lectures					
16) Dilemma in choosing Discipline (or) Subject					
17) Inadequate library facilities					
18) Inconvenient Accommodation/Domestic Atmosphere					
19) Difficulty in mingling with same age group					
20) Insufficient time for entertainment (or) Recreation					
21) Lack of Health					
22) Poor sanitary condition (or) infrastructure					
23) Feeling home sick					
24) Financial problems (or) poor economic status					
25) Uncertainty about getting job after graduation					
26) High expectation from parents					
27) Experience, anxiety or nervousness, indigestion					
28) People at home or college make me feel anxious					
29) I eat, drink, or smoke in response to anxiety producing situations					
30) I suffer from migraine headaches, feel tense, experience pain in the neck or shoulders or have difficulty in breathing					
31) I can't stop thinking about my concerns at night or on weekends long enough to feel relaxed and refreshed the next day					
32) I have trouble concentrating on what I'm doing, because I'm worrying about other things					
33) I take over the counter medications or prescription drugs to relax					

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT   151

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PURCHASE INTENTION TOWARDS COUNTERFEIT PRODUCT

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ABSTRACT

Despite of several anti counterfeiting strategies, the product counterfeiting is increasing. The process of product counterfeiting damage the original brands so it is important to understand the factors influencing the consumer's attention towards counterfeit purchasing so that these factors may be forbidden. The purpose of this study is to understand the relationship between these factors so that the rights of original branded producers may be protected. To collect the data for understanding the situation, a sample of 150 respondents asked to participate in self-administrated questionnaires. The population for the current research is counterfeit users in Pakistan. Regression analysis technique was adopted to explore results. The results of the study revealed the past experience, product knowledge, previous experience and risk affects the purchase intention of counterfeit products. While price does not show any participating for the purchase intention of such items. Finally the study recommends to stop counterfeit purchasing, those polices should be consider important that increase consumer's self perception for original brands. So the real branded producers may attain safe corner for their investments and production.

KEYWORDS
Price, Past experience, Product knowledge, Risk, Social influence.

1. INTRODUCTION

There is tendency that illegality has more attractiveness so that people make it legal by making their own arguments. The most trivial and increasing problem of the world are counterfeiting. This is disturbing all urbanized and low growth countries. Counterfeiting contains to having a brand name that is matching form the trademark registered by someone else (Kapferer, 1995; Grossman and Shapiro 1988). The society argues that counterfeiting is a victimless offense and just buying a cheap alternative. Counterfeiting is a deep rooted business on the globe, containing hundreds of billions dollars of cost each period. The economy is affected by product counterfeiting in a couple of ways including customer believe that they are involve in purchasing original brand, manufacturers who believes that there investment is in quality products and the retailers who supposed that they are providing safe and consisting branded products. In the same sense counterfeiting is playing an active role with its different names as knock-off, bogus brands, copycat, copy, imitated products. There is little bit difference in meaning but causes same troubles in the economy (Wilke and Zaichkowsky 1999). Early researches demonstrate that product counterfeiting is growing widely in contrast of this fact that customers know the moral issues related to purchasing counterfeit products. Here the reason of this study is to explore those factors which change the consumer's observations and force them to purchase these items.

The product counterfeiting business is anticipated to increase six percent of total world's operations. The economy is also damaging by such industry as well as its affects on investments and businesses. Past researches revealed that between the era of 1984 and 1994 counterfeit product markets has grown by 1100 percent regardless of its illegalness (Carty, 1994; Blatt, 1993). Different countries are involved at different level of counterfeiting. Many countries may provide little trade for such products while some countries are producing heavy quantities and tarnished for this activity. Hong Kong (China), Korea, China, Philippines and Chinese Taipei are the on the peak of world in counterfeit production. In early the counterfeiting was limited up to the luxury brands but it is also moved towards the consumer goods. Now it also contains wearing apparels and electronic media as well. In this sense counterfeiting effects worse to the industry of

real brand and also the consumers of such brand. In some situations counterfeiting may really cause damaging safety and even lead to serious mishaps. For instance a major source of plane crashes was due to counterfeit airplane parts that were recycled from downed airplanes (Maloo and Darrow 2001). In medicine industry the product counterfeiting injury for human health five percent of the whole (Wechsler 2002). In order to discourage the product counterfeiting the researchers introduced many steps and procedures in order to shelter the original brand producers. In order to act against the counterfeiting different tagging and casing methods are applied. Strict control through advertising drive, government consultations and through manufacturers can be followed (Chaudhury and Walsh 1996; Collins-Dodd and Zaichkowsky 1999). The definite sufferers of counterfeiting are final consumers. Government lose out owing taxes incur heavy amount of cost in enforcing intellectual property rights. Counterfeiting may also cause other unlawful activities including intimidation etc.

According to research, the part of five percent of total trade is now based on product counterfeiting. This increased rate may be caused by these factors:

- Upgrade in knowledge and expertise
- Growing global trade and markets
- Increased number of those branded products which are imitated including wearing apparels etc

However our concern is to study all those factors (price, past experience, product knowledge, social influence and risk) which caused intention to purchase counterfeit products. Product counterfeiting may categorized as blur counterfeiting (Bian, 2006), deceptive and non deceptive (Grossman and Shapiro, 1988a). The user may be not aware or unconfident that either he is using counterfeit brand or original in case of blur and deceptive counterfeiting. In this sense he cannot blame the examiner for his activity. However the most concern is about the circumstances which force the user to purchase counterfeit products with his awareness to purchase such items and that is named non deceptive counterfeiting.

In product counterfeiting both producers and users argues accordingly. Consumers explains that some time the original brands are not available or those are very costly so that it is difficult to buy. Similarly producers argue that they sell such counterfeits because of its demand in market. Moreover they make sure the accessibility of near to original brands with cheaper prices. So that status laden people may also get such items to retain their projection in society.

Loss of brand image, loss of good will and lose of brand reputation and loyalty is also face by the genuine brand producers as well as loss in revenues due to product counterfeiting.

The main objectives of our study are to find the reasons for these:

Why counterfeiting is increasing?

Why consumers prefer such counterfeit products?

Which factors are involved to increase counterfeiting?

2. LITRATURE REWIEW

2.1. THE PURCHASE INTENTION OFCOUNTERFEIT PRODUCTS

In order to allocate their resources properly, consumers bought those things and choose those alternatives which are less expensive, so that they get maximum benefit in limited income, according to the theory of consumer choice. The advantage attained by distribution of these limited income is to create intention by the consumer to purchase it. The main advantage on which the user shows particular intention in favors or against of particular brand is Price. "Purchase intention is defined as a plan to purchase any particular product, service or benefit in future. "This study focuses on Intention rather than behavior because intention has wider implications and will often have a positive impact on individual actions (ajzen and driver, 1992). It is a general experience that people want to maximize their status so that they can achieve better satisfaction of luxuries. That's why some times high priced luxury products may be a hurdle for them. That's the reason consumers purchase counterfeit products. A copy or fake product that is planned to be used as real and genuine in order to mislead another. Severe economic and social damage to both producers and to society due to counterfeiting. Despite of the damages caused by counterfeit products the anti-counterfeiting group study found consumer's remove the negative effects of counterfeiting. The study reveals that, about one third customers would intentionally buy counterfeit brands (Phau et al, 2001; Tom et al, 1998). It is expected that the rate of counterfeits in international market has been developed by 1100 percent and the international chamber of commerce states that counterfeits products accounts for 8 percent of total world trade (Freedman, 1999).The most observable issue inspiring consumer purchase of counterfeit products is their comparatively low price but it is normally appreciated that such products will be of inferior quality than real products. On the other hand, some research has found that people who have earlier bought counterfeit goods consider that they are as good as actual products no doubt that will support them to do their actions again. At this time we concern about purchases of counterfeit of those, non-descriptive consumer who purchases those brands which internationally and knowingly. Here those factors are discussed which are causing them to make such illegal brands. Several factor that cause to create intention to purchase of counterfeits. The primary factor may Price (Bloch et al, 1993; Albers Millers, 1999), moreover product quality useful life, knowledge, social influences and fashion influenced. Users of counterfeited products have significant uniqueness and they want to achieve the position in the society without sacrificing the major part of the money for it. Hence, buyers of luxury branded counterfeits commonly known as "snobs" but without the financial resources to afford the genuine product.

THE FACTORS AFFECTING PURCHASE INTENTION OF COUNTERFEITPRODUCTS:

2.2. PRICE

Price is defined as "A value that will purchase a defined quantity, weight or other measures of goods or services."

Price forms the vital source of commercial transaction as the consideration given in exchange or transfers of ownership. It may be decided by the contract, left to the strong-minded by agreed upon formulate a future date or negotiated during the course of dealing between the parties involved. In Mostly situations, price is dogged the buyer is willing to pay, the seller is willing to accept and the competitors allow to charge.

Price is the main cause of advantage of counterfeit product (Bloch et al, 1996; Albers Millers, 1999). Because user have a ease to purchase status-laden product at convention very reduced price that may help greatly to egg on the illegal activity of producing these counterfeits as the demand increases and producers manufacture in gluttony to achieve profits by meeting such demand. Counterfeit brand success can recognized to the price compensation it offers over the valid products. The consumers are unwilling to spent heavy amount of money when the product life cycle is squat but more fashionable, because after a squat period of time such product will out dated in such case the purchase of counterfeits will be increases. Therefore, we can say that the purchase intention of counterfeit affected by price.

H1: Price negatively affects the purchase intention of counterfeits.

2.3. PAST EXPERIENCE

Mostly decision based on experience, cultural background and beliefs make by people. A person has experience gone through, important or not, will play a role in how a person makes a decision today, in present time. It depends upon your approach; this concept may used either in your favor or against you. Have you ever read something once and then decided to read it a few more times, because you were so compelled to take action (AJ Kumar). The experience indicates the benefits, which the consumers think the product can do for them (Keller 1993). A consumer wishes to achieve or not the benefit on the bases on experience these benefits lead to a certain end values. Previous research shows that consumers who intentionally buy the counterfeit brands had experienced that they are getting the esteem and quality of branded products for the fraction of its prices (Grossman 1988, tom 1998). Previous research shows that experience may also add fantasies and feelings in favor or against the counterfeit product. All discussion shows counterfeit buyer are dissimilar from non-buyer. Therefore, it can say that a consumer with already experienced to purchase counterfeits shows their intention in favor or against favor or counterfeit brands.

H2: Past experience influence the purchase intention of counterfeits.

2.4. PRODUCT KNOWLADGE

Product knowledge is defined as "Knowledge of a product or service that might contain having acquired information about its purpose, function, features and use and support requirements." It may also define as "Product knowledge is information about the product´s features and benefits." Consumer product knowledge has been known as an attribute that influences all phases of the decision process (Bettman, 1980). Consumers with different level of knowledge differs the perceptions of the counterfeits. Research reveals that better developed and advanced level of product knowledge have more understanding to assess

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 153

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alternatives. In this way consumer considers such counterfeit brands as low graded products but if the consumer can efficiently evaluates the various counterfeit and select it against the real ones, the purchase intention will be positive. So there may be fewer chances to purchase counterfeits in case of low knowledge about product.

H3: Relationship exists between product knowledge and purchase intention of counterfeits.

2.5. SOCIAL INFLUENCE

Social influence indicates Information and Pressures from Individuals, groups and the mass media that affect how a person behaves. Social influence can be recognized as pride of consumers which develops after consuming of counterfeit products. This is because it connects between an individual's self and its desired external world through sensory and symbolic achievement. They further claims that vanity is prominently connected with the usage of luxury fashion brands. By studding the affiliation between individuals who are prone to vanity and their spending on high status products they accomplished these consumers will keep demanding such counterfeits brands including fashion products to satisfy their voracious desire and self-respect far away having concern either product is fake or original.

H4: There is direct relation between purchase intention of counterfeits and social influences.

2.6. RISK

Risk is the chance that a danger will turn into a ruin. In other words risk is the possibility of ambiguity. However, risks can be reduced or managed. If we are cautious about how we treat the environment, and if we are conscious of our weaknesses and vulnerabilities to existing hazards, then we can take measures to make sure that dangers do not turn into disasters.

It is possible that a chosen action or movement (including the choice of inaction) will direct to a loss (an unwanted outcome). The concept implies that a choice having an influence on the result exists (or existed). Possible losses themselves may also be called "risks".

Risk may also greatly influence the purchase intention of counterfeits because the consumers believe that counterfeits are sold with less prices and inferior guarantees. It defines risk in term of consumer's perceptions of the hesitation and unfavorable consequences of purchasing a product and services. Risk may include many things such as performance, financial, safety, social and psychology. Risk basically biased component between consumers and non-users of counterfeit brands. The more risk indicates less intention to purchase counterfeits that shows a negative relationship.

H5: There is an inverse relation between purchase intention of counterfeits and risk.

3. PROPOSED MODEL
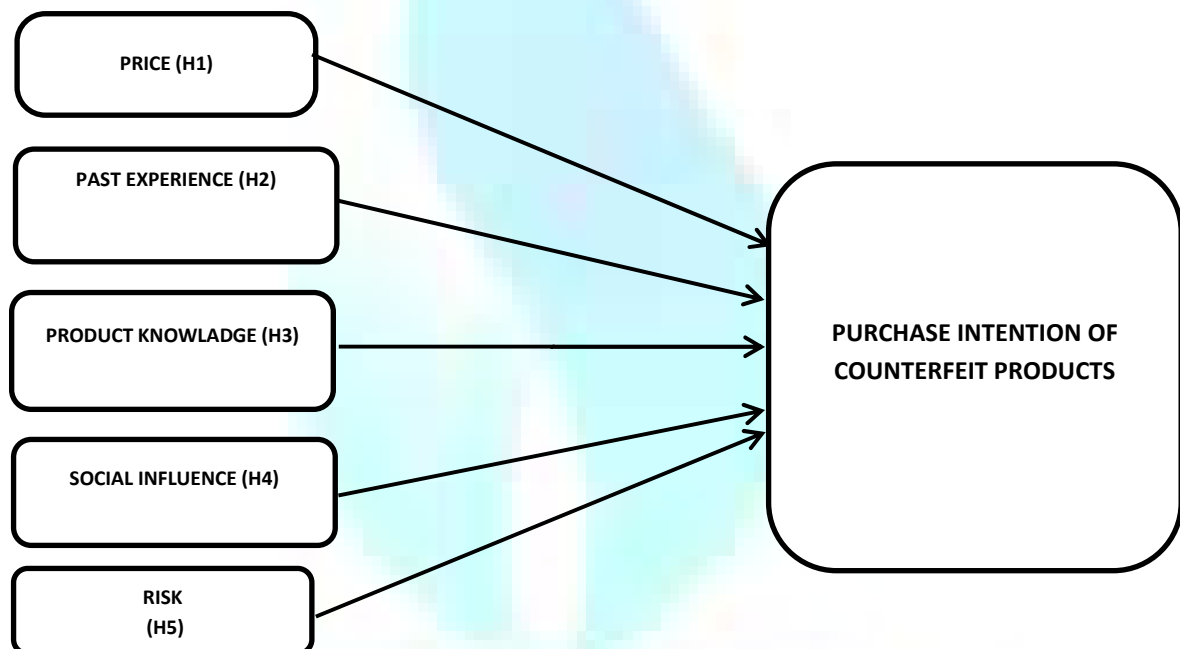
4. RESEARCH METHODOLOGY

The nature of current research is descriptive. Descriptive research can be explained as describing about some phenomena, any particular situation or something. Descriptive types of researchers are those researchers that describe the current situation instead of understanding and constructing findings (Creswell, 1994). The main purpose of the descriptive is authentication of the established hypotheses which reflect the existing state of affairs. This type of research provides information about the contemporary state and focus on past or present for example worth of life in a community or consumer attitude towards any sort of marketing activity (Kumar, 2005).

4.1. SAMPLE/ DATA

In order to collect the data for understanding the situation about the adoption of counterfeit products, a sample of 150 respondents will ask to participate in a self-administrated questionnaire. The population for the current research is counterfeit users in Pakistan.

Non-probability sampling techniques exploits for the current study is convenience sampling. Convenience sampling is that sampling technique that obtains and collects the significant information from the sample or the unit of the study that are conveniently available (Zukmud, 1997). Convenience sampling is normally used for collecting a large number of finalized surveys promptly and with economy (Lym et al., 2010).

It has ensured that the sample members possess two main qualifications to participate in the self-administrated survey. First, the sample member should be using counterfeit products and having enough knowledge about counterfeit. Second, they never purchase any item over the counterfeit products because in the case of experience regarding counterfeit purchasing, it definitely influences the attitude and behavior of the respondent.

These sample members are selected from different metropolitan cities of Pakistan. University students and working professionals are two main clusters that will target to collect the sample data. The selection of the university students and working professionals are based on the prior outcomes of the studies about the counterfeit products.

4.2. INSTRUMENTS AND MEASUREMENTS

The questionnaire is used to address two different purposes. First is to analyze the effect of different variables on purchase intention of counterfeit product. Second is to understand the different categories of the respondents. There were two sections in survey instrument. Introductory section included gender, age,

education, income and status. Next section involves relevant variables that were used in study about counterfeit products. These variables included price, past experience, product knowledge, social influence and risk. This section was developed based on past literature and previous developed scales.

On the literature basis, the scales used are already defined in previous researches. Moreover different items used in the scale are developed are taken from the work of Smith and Park's (1992), Spears and Singh (2004), Xuemei Bian. Some items are selected from exploratory factor analysis as well.

TABLE 1: SCALES OF STUDY

No.	Variable	Items
1	Purchase Intention	1.I would intend to buy counterfeit products 2.My willingness to buy counterfeit products is high 3.I am likely to purchase any counterfeit product 4.I have a high intention to buy counterfeit product
2	Price	1. Generally it is said "Higher the Price, Higher the Quality" 2.Counterfeit are not expensive 3.Price is a good indicator to measure the quality of counterfeit products 4.You always have to pay more for the best
3	Past Experience	1.Counterfeit products have the style, I like 2.Counterfeit products perform same function as original 3.Counterfeit products made me excited as original 4.Counterfeit products was precious for me 5.Counterfeit products was attracted to me 6.I am satisfied with the performance of counterfeit products
4	Product Knowledge	1.The material used in counterfeit products is good in quality 2.Counterfeit products are practical in performance as original 3.Counterfeit products are more user friendly 4.Counterfeit products are secure in usage 5.I am fully confident about counterfeit products as original
5	Social Influence	1.Before purchasing counterfeit products, it is important to know for me either it will make good impression to others 2.Before purchasing counterfeit products, it is importance for me to know that what other people think about such products 3. I feel discomfort if people around me and I am not looking good 4.I would like to be rich enough to buy anything that I want 5.I would be happier if I buy more counterfeit products within fewer prices and near to same quality as original 6.People pay much attention on materialism
6	Risk	1.Before buying counterfeit product, I like to be sure that it is good in quality 2.Whenever I buy counterfeit products, I prefer not to take risk 3.I don't like to feel uncertainty related to counterfeit products 4.There is high risk when I buy counterfeit products 5.There is high probability that counterfeit products will not perform well 6.Spending money with a counterfeit product might be a bad decision

4.3. PROCEDURES

The questionnaire was distributed among 200 respondents in different areas of Bahawalpur. These respondents are selected based on the standards overhead stated. Before giving the questionnaire, the objective of the study and questions were explained to the respondents so they can easily fill the questionnaires with relevant replies. A total of 165 questionnaires were selected and rest of the questionnaires was not included in the further analysis due to incomplete or invalid responses. After collecting the completed questionnaires, these questionnaires were coded and entered into SPSS sheet for further regression analysis.

4.4. RELIABILITY ANALYSIS

In our research overall Cronbach's alphas of all variables are additional than reasonable and proposed value 0.50 by Nunnally (1970) and 0.60 by Moss et al. (1998). This shows that all the 31 items were reliable and valid to measure the opinions of consumers towards Counterfeit Products.

TABLE 2: RELAIBILITY OF MEASUREMENT INSTRUMENTS

Scales	Items	Cronbach Alpha
Purchase Intention	4	0.910
Price	4	0.681
Past Experience	6	0.846
Product Knowledge	5	0.827
Social Influence	6	0.703
Risk	6	0.652

5. RESULTS AND ANALYSIS

5.1. PROFILE OF RESPONDENTS

Demographic and delicate material such as gender, age, education, income and status are obtainable in the subsequent table (Table 3).

TABLE 3: PROFILE OF RESPONDENTS

Variable	Category	Frequency	Percentage
Gender	Male	88	58.7
	Female	62	41.3
Age (In Years)	Below 25	133	88.7
	25---35	13	8.7
	35---45	01	0.7
	45---55	01	0.7
	Above 55	02	1.3
Education	Matriculation	5	3.3
	Intermediate	17	11.3
	Graduation	75	50.0
	M.S/ PHD	38	25.3
	Master	15	10.0
Income (In Rupees)	Below 20,000	90	60.0
	20,000---30,000	21	14.0
	30,000---40,000	11	7.3
	40,000---50,000	07	4.7
	Above 50,000	21	14.0
Status	Student	126	84.0
	Employed	11	7.3
	Unemployed	03	2.0
	Businessperson	07	4.7
	Housewife	03	2.0

5.2. HYPOTHESIS TESTING

5.2.1. PRICE AND PURCHASE INTENTION OF COUNTERFEIT PRODUCTS

According to hypotheses there is negative relation between price and the purchase intention of counterfeit products. As per the results of this study there is no significance relationship between these two variables with (beta= -0.370) and (p>0.05). On the basis of following results we reject the H1.

5.2.2. PAST EXPERIENCE AND PURCHASE INTENTION OF COUNTERFEIT PRODUCTS

According to the study the hypotheses indicated the relationship between past experience and the purchase intention of counterfeit products. On the bases of results there is significant relationship between these two variables with (beta=0.457) and (p<0.01). It means that more than 45% change in purchase intention of counterfeits is due to the past experience of buyers. So the results of the study support H2.

5.2.3. PRODUCT KNOWLADGE AND PURCHASE INTENTION OF COUNTERFEIT PRODUCTS

According the study the hypotheses indicates the relationship between product knowledge and the purchase intention of counterfeit products. On the basis of results there is a significant relationship between these variables with (beta=0.294) and (p<0.01). It means that more than 29% change in purchase intention of counterfeit product is due to product knowledge of buyers. So the results of this study support H3.

5.2.4. SOCIAL INFLUENCE AND PURCHASE INTENTION OF COUNTERFEIT PRODUCDTS

According to the study the hypothesis shows the positive relationship between social influence and the purchase intention of counterfeit products. On the basis of results there is a significant relationship between these variables with (beta=0.115) and (p<0.01). This shows more than 11% change in purchase intention of counterfeit products is due to social influence. So the results support the H4.
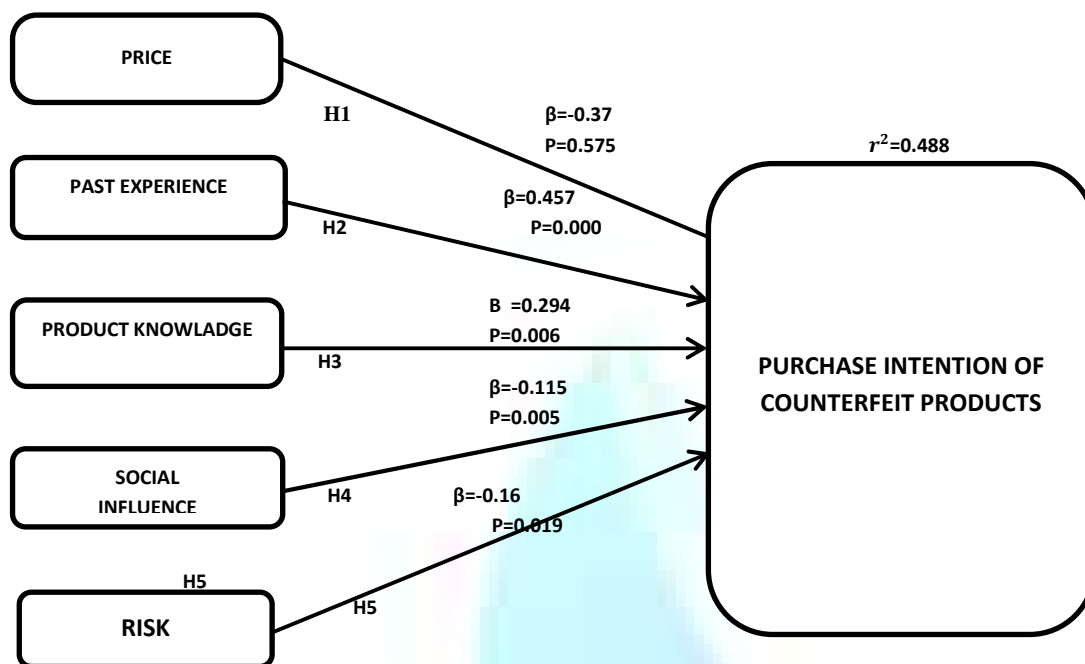
5.2.5. RISK AND PURCHASE INTENTION OF COUNTERFEIT PRODUCTS

According to the study there is negative relationship between risk and the purchase intention of counterfeit products. On the basis of results there is significant relationship between these two variables with (beta= -0.160) and (p<0.05). This shows the 16% change in the purchase intention of counterfeit products is due to the risk. So the results support H5.The regression analysis was conducted to show that how much purchase intention of counterfeit products is affected by the different factors. The results of regression analysis shows overall relationship between the purchase intention of counterfeit products and its variables with (adjusted R square=0.488) shows that more than 48% change in purchase intention of counterfeit products is due to these variables.

TABLE 4: REGRESSION RESULTS

Hypothesis	Model Variables		Estimate	S.E.	C.R.	P	Results
H1	Price	Purchase Intention	-0.370	0.104	-0.563	0.575	Not Supported
H2	Past Experience	Purchase Intention	0.457	0.143	4.328	0.000	Supported
H3	Produce Knowledge	Purchase Intention	0.294	0.136	2.810	0.006	Supported
H4	Social Influence	Purchase Intention	0.115	0.127	3.068	0.005	Supported
H5	Risk	Purchase Intention	-0.160	0.124	-3.229	0.019	Supported

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT 156

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FIGURE 1: STRUCTURAL MODEL RESULTS

6. DISCUSSION

The primary purpose was to know the purchase intention towards counterfeit products among consumers. It is of the worth to know that young and vibrant users are always ready to learn and know new things. Since marketers can take advantage of this fact, a major part of this research sample (more than 88%) comprises of respondents falling in age bracket below 25 years. This paper aimed to investigate the key indicators of consumer towards purchase intention towards counterfeit products. As the previous study and literature the consumer purchases counterfeit products to take price advantage over the high priced branded products. Here the results of the current study do not support. The reason may behind may be the availability of alternatives in markets which may stop the purchasing of counterfeits. The consumer may be brand and quality conscious that's why they consider low priced goods as low quality so that they may not in favor to purchase these counterfeit products.

The important point is that those consumers who already bought counterfeit product may sure more favorable intention when compare to those who don't have. This can be a real threat for the branded product because once the consumer experiment those counterfeit their favorable intention may lead to positive behavioral intention to purchase more counterfeit brands. Thus, the results of current study also supports that the past experience effects on consumer's purchase intention of counterfeit products. The results of the study provide support to the hypotheses that product knowledge positively influenced the purchase intention of counterfeit products. The evidence may be supported that the consumer with more knowledge about product may also know that they can achieve near to same quality as original in less price so that they show favorable intention to purchase counterfeit products. The positive relation of social influence on purchase intention of counterfeit products also supported by the results. According to Homburg et al. (2010) an individual's personality can be explained by outside environment. And if the environment promotes such consumption, the people living inside such environment show a favorable intention to purchase these counterfeit products. The negative relation between risk and the purchase intention of counterfeit products can be supported by the reason that there may be chances of defective performance of those products and consumers do not want to take such trial against the prices they have paid for purchasing such counterfeit products.

7. SUGGESTION

The current work may have some limitations which may provide a new path to future work. As it is sampled in a city which may not representative of general population. The sample size may also be increased for more valid results. More over different variables can be add for future study by searching. The moderators may also perform to construct consumer purchase intention towards counterfeit products. For instance if the consumer is more attached to the brand then he should be more worried about the purchase decision of brand.

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