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PROCEEDINGS

OF
5TH INTERNATIONAL CONFERENCE ON
STATISTICAL SCIENCES
MATHEMATICS, STATISTICS AND APPLICATIONS
ON
JANUARY 23-25, 2009
AT
NATIONAL COLLEGE OF BUSINESS ADMINISTRATION AND ECONOMICS
LAHORE



Editor:
Dr. Munir Ahmad

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**ISLAMIC COUNTRIES SOCIETY
OF STATISTICAL SCIENCES**

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Address By
Dr. Munir Ahmad, Founding President and Patron ISOSS

- Hon. Dr. Atta-ur-Rehman,
Former Chairman, Higher Education Commission
- Mian Shamim Haider,
Chairman, NCBA&E and former Federal Minister
- Respected delegates from Iran, Germany, Libya, USA
- My Colleagues, Students, Ladies and Gentlemen:

I, on my behalf and on behalf of National College of Business Administration and Economics (NCBA&E) and the Islamic Countries Society of Statistical Sciences (ISOSS) take this opportunity to thank you for sparing your precious time from your busy schedule. You have kindly shortcut your visit to Austria for gracing Society's Conference. Pakistan was fortunate to have your leadership is steering Higher Education through turbulent period. You have rendered meritorious services for building an infrastructure of Higher Education from scratch. I congratulate you for making strenuous efforts to develop Higher Education Commission bringing it at par with any international sister institution. Your proven track record showed your capabilities, competence, commitment, determination and will to work for the Pakistan. This is not merely an opinion rather a fact. Towering personalities like you are always known for the charisma of their dynamism. The present era of research and widening its scope exponentially in Pakistan can very rightly be in your name. In fact, NCBA&E, realizing your status in research, has produced an M.Phil. thesis on your accomplishments as a researcher.

Sir, it is your cherished desire that we must make intensive and sustained struggle to expand the horizons of research in general and particularly Statistics in the disciplines of Management and Computer Sciences. Your efforts in higher education have facilitated building a system free of exploitation, inequality and repression and helped formulate plans and policies to eliminate poverty from the Society and to improve standards of living of the people. I am sure, this is possible with accelerated and innovative research. Research has taken roots in Pakistan and no one will be able to divert its direction.

Through your dedicated efforts, students are coming back to Pakistan after completing their Ph.D. programs and start managing various departments. I hope recent World Bank efforts to finance HEC programs, certainly we have the capacity to plan and finance the higher education, if we so desire. It is the national will that is needed and the money starts flowing from all directions in addition to our own resources.

Sir you will be glad to hear our story of research at NCBA&E. Following your footsteps and directives, we have so far produced 11 Ph.Ds. and 26 M.Phils in Business, Computer Science, Applied Statistics, Applied Mathematics and Applied Economics. You will be glad to know that our students and supervisors have so far produced more than 95 research papers published mostly in international journals of repute with impact factors. This is all due to your stress on quality education. We are all proud of your presence amongst us.

I thank you for your presence on this occasion.

I also want to thank Mian Shamim Haider, Chairman, NCBA&E and former Federal Minister for his presence on this occasion, who for the love of education, has dedicated himself to the spreading of knowledge. I deeply appreciate his efforts for NCBA&E programs by creating alliances amongst statisticians and encouraging us in organizing this conference for exchange of knowledge and experiences for better understanding and advancement of progressive areas of engineering, health, industrial, computer and telecom technology. I also appreciate the presence of Mr. Azhar Hussain Shamin Secretary Education, Govt. of the Punjab and his intimate association with educationists, It is of great value to NCBA&E that you as the custodian of higher education have taken some time of your busy schedule to take part in this international gathering of scientists from all disciplines. I thank you for your presence on this occasion.

Statistical scientists of academia by sharing their scientific potential and expanding their databases will help Pakistan by bringing technology to their door-steps which, of course, could be utilized for the betterment of the Muslim Ummah.

The society, which would be celebrating its 20 years journey, was established way back in 1988, during the first Islamic Countries Conference on Statistical Sciences held at Lahore with the objectives to:

1. bring together research workers and practitioners in statistical sciences from Islamic Countries through mutual exchange program,
2. organize and strengthen a central information system by establishing data banks and centres of information.
3. associate statistically developed countries to help in developing and transferring statistical technology to Islamic Countries.
4. organize conferences, seminars, colloquia, workshops, short courses, and any other means of communication helpful in exchanging scientific ideas.

I feel really proud of its existence, as the Society had held nine Islamic Countries Conferences on Statistical Sciences at Lahore, Morocco, Malaysia, and Indonesia, and numerous national conferences, seminars and workshops. The 10th Conference will be held in Egypt on December 21-24, 2009. At each conference more than 30 countries had taken active part. This time our foreign participants has reduced to only four countries.

The Society had the honor of organizing Fourth Meeting of Heads of National Statistical Organizations of the OIC Member Countries at Lahore on behalf of Statistics Division, Government of Pakistan and Statistical, Economic & Social Research and Training Centre (SESRIC-OIC), Ankara, Turkey.

Another landmark in the achievement of the Society is the Pakistan Journal of Statistics (PJS) which is an internationally recognized journal and is also recognized by Higher Education Commission, Government of Pakistan on the basis of its citations. The Pakistan Journal of Statistics has been graded "B" by FIDES Journal Rating 2002 among 2000 journals issued in all disciplines.

There are 57 Muslim countries with more than one billion population, which account for more than 25% of the World population. Everywhere the physical and human resources remain under-utilized. We need collective self-reliance in the Islamic Community, mutual cooperation and extensive exchange of scientists. The current state

of Muslim world under-development is due to decline in the knowledge of science and technology where Muslims had played a leading role in the past.

As I mentioned earlier, statistics and information are the basic ingredients of any development plan. I propose that a Council of Statisticians be set up to formulate National Statistical Policy in order to access and investigate into various requirement in to various aspects of economic, technological, scientific and agriculture development of Pakistan. I believe that the basic information, accurately collected and scientifically analyzed are the imperatives of planning in the countries.

I foresee ISOSS would develop into as a World Forum that can be managed on a collective vision of its active members. Dignity of top statisticians working both in public and private sectors is a pre-requisite to Society's strategy and action plans.

In the past, I proposed to institute a number of awards for young statisticians which could not be implemented for want of responses from statisticians, students, teachers and professionals. I am going to propose ISOSS Awards and hope that this time support will be received from all over.

In the end, I thank my team of volunteers, mostly students and professors from National College of Business Administration and Economics, especially Mian Shahid Ali Haider, Prof. Shumas-ur-Rehman, Major Ehsan, Dr. Muhammad Hanif, Prof. Akhlaq Ahmad, Dr. Suleman Aziz Lodhi, Dr. Khalid Ahmad, Dr. Ghulam Mustafa Habibullah, Dr. A.R. Chaudhary and ISOSS Secretariat staff Mr. Muhammad Iftikhar, Mr. Muhammad Imtiaz, Saif-ur-Rehman and Mr. Farhan Ali and others for their untiring work. There is a long list of students who made this conference a success.

I am again grateful to Prof. Dr. Atta-ur-Rehman, Mian Shamim Haider, for sparing their precious time for the inauguration ceremony of the conference.

Thank you.

**PARTICIPATION OF EMPLOYEES IN THEIR ORGANIZATION
AND ITS IMPACT ON SATISFACTION:
A STUDY OF THE BANKING SECTOR OF PAKISTAN**

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ABSTRACT

The purpose of this research is to examine to extend the employees participate directly and indirectly in their organization. The data was gathered from various organizations which including banks, private businesses and multinational organizations. The information was collected through questionnaires, distributed among 700 employees in different branches of the organizations. The results highlighted that approximately 60% employees showed a positive response. The recommendations to solve the above mentioned problem are that the organization should conduct workshops, trainings, and motivated lectures, along with other measures so that employees are satisfied from their job and eventually the productivity of the organization will also increase.

INTRODUCTION

Employee participation is a concern of Human Resource Management. Employees are the major part of an organization. The whole organizations wellbeing depends upon the efforts put up by the employees in order to reach the business goals keeping the organization's vision in mind. Now a day's employees are encouraged to make their own decisions and ways of materializing them in the organizations. Employee participation and involvement are two ways to make the employees work harder for the employers benefit and hence for the benefit of the organization. The best thing about employee participation and employee involvement is; it makes employees feel a real sense their worth in the organization and it gives more power to them within the enterprise. This is why the importance and scope of employee participation and involvement at work place are crucial to the success of an organization.

Employee's participation is a process whereby employees are involved in decision making processes rather than acting on orders, the terms employee participation and employee involvement first began to appear in management literature in the late 1970's. (Farnham, 1993, p.361)

Variables discussed in the study are employee participation and employee satisfaction .relationship between satisfaction and employee participation is positively related. Findings of this study will help the managers of various companies working in Pakistan in particular and South East Asia in general to increase the activity of employee participation by managing their staff better and tackling major problems that de motivate or hinder active employee participation and decision making while improving business out put.

LITERATURE REVIEW

Agencies shall not discriminate against employees on the basis of religion, require religious participation or non-participation as a condition of employment, or permit religious harassment. The white house office of the press secretary **Guidelines on Religious Exercise and Religious Expression in the Federal Workplace, (Aug 14, 1997)**.

Employees may urge a colleague to participate or not to participate in religious activities to the same extent that, consistent with concerns of workplace efficiency, they may urge their colleagues to engage in or refrain from other personal endeavors. But employees must refrain from such expression when a fellow employee asks that it stop or otherwise demonstrates that it is unwelcome. (Such expression by supervisors is subject to special consideration The white house office of the press secretary **Guidelines On Religious Exercise An Religious Expression In The Federal Workplace, (Aug 14, 1997)**). A person holding supervisory authority over an employee may not, explicitly or implicitly, insist that the employee participate in religious activities as a condition of continued employment, promotion, salary increases, preferred job assignments, or any other incidents of employment. Nor may a supervisor insist that an employee refrain from participating in religious activities outside the workplace except pursuant to otherwise legal, neutral restrictions that apply to employees' off-duty conduct and expression in general. The white house office of the press secretary **Guidelines on Religious Exercise and Religious Expression in the Federal Workplace, (Aug14, 1997)**. Coercion of Employees' Participation or Nonparticipation in Religious Activities. The ban on religious discrimination is broader than simply

Guaranteeing nondiscriminatory treatment in formal employment decisions such as hiring and promotion. It applies to all terms and conditions of employment. It follows that the Federal Government may not require or coerce its employees to engage in religious activities or to refrain from engaging in religious activity. For example, a supervisor may not demand attendance at (or refusal to attend) religious services as a condition of continued employment or promotion, or as a criterion affecting assignment of job duties. The white house office of the press secretary **Guidelines On Religious Exercise An Religious Expression In The Federal Workplace,(Aug14,1997)**.The best thing about employee participation and employee involvement is; it makes employees to feel a real sense of worth in the organization and it gives more power to them within the enterprise. That's why the importance and scope of employee participation and involvement are crucial to the success of the enterprise. many employers in both nonunion and unionized have made employee communications and employee relations a priority. They are establishing employee committees under many names, such as employee advisory committees, quality circles, communication committees, employee involvement teams. These groups meet regularly to address workplace issues and provide a forum for two-way dialog between management and workforce. For example; people in a company's employee participation complain about some issues, such as working conditions, pay etc., and executives discuss the issues with the group and decide to make changes that will satisfy employee concerns. the annual report is an ideal place for bringing together all the information provided to employees over the year, in an up-to-date form. Internal equity reveals that employees are more satisfied when they perceive their fixed pay as fair in

relation to their contributions to their firms, compared to other employees in the organization that are used as a reference.

Employee Participation -----> Job Satisfaction

Hypothesis:

H1: participation of employees in an organization is directly and positively correlated to employee satisfaction.

H0: employee participation is inversely related to employee satisfaction

DEMOGRAPHICS		
		Percentages
Age	Under 20	0%
	20-24	24%
	25-29	18%
	30-34	24%
	35-39	14%
	40-44	10%
	45 and above	10%
Gender	Males	72%
	Females	28%
Job nature\Post	Self employee	0%
	Govt. employee	0%
	Private employee	100%
	Student	0%
Specialization	Above masters	6%
	Masters	52%
	Bachelor	22%
	Intermediate	14%
	Metric	6%
Tenure of job	Less than 1 Year	22%
	1 Year	78%
	More than year	0%
Marital status	Married	64%
	Unmarried	36%

DISCUSSION

In this part of our research we will see that how some demographic and other major reasons will leads to some specific and typical responses by the respondents. In the questionnaire there were two variables first was employee participation and the second was job satisfaction under which there 10 and 13 elements or questions were there. The 5 scale model was used 1,2,3,4,5, for very satisfied , satisfied , neutral, dissatisfied and very dissatisfied.

There were two variables in questionnaire under which 10 and 13 elements or questions in the first part they were asked highlighting the major components of

employees involvement .like e.g. participation in decision making opportunities to suggest changes, suggest changes in job structure environment conditions etc.All the mean answers were ranging from 1 to 3.9 and only one extreme value of 4 and the over all mean of first variable is **2.386** is there which shows that none of the respondent encircled 5 which stands for very dissatisfied means the major weight and tilt ness is visibly towards satisfied and neutral answers .Which clearly discloses that employees are satisfied and neutral also because our demographic table shows that all employees are private individuals there are only 24% employees who have a tenure of less then one year, and in countries like Pakistan there are opportunities for employees for career advancement since the strategies for selecting and recruiting are completely modernized and changed also because 27 individuals i.e. almost 50% employees are having master degree which is infect in Pakistan a respectable and reasonable education

CONCLUSION & RECOMMENDATIONS

At the end our research paper concludes that employees involvement and its contribution towards its organization is not purely judged by viewing their job duties and responsibilities, an employee who fully committed to his or her job structure and function might not have sense of having a participative actor in an organization so to improve and encourage them some training workshops, social meetings and projects should be held with in the organization to promote healthy and active participation A healthy and friendly working conditions can also make the difference as it could make the females more comfortable and relax so they can also contribute and can make active participation in some important issues or in decision making process.

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COMPARING METHODS OF ESTIMATION IN NON-NORMAL SAMPLES

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ABSTRACT

Most of the literature in Statistics hinges on the normality assumption of the parent distribution. In practice, however, non-normal distributions are more prevalent. When the distribution is not normal, extreme order statistics, which represents the tails, affect the variance of the estimators. Therefore, those estimators must be chosen which are robust in nature and perform well under a variety of underlying conditions. The aim of this paper is to show the dramatic lack of robustness of the classical estimators and to compare the efficiencies of some well-known robust estimators and the power values for test of hypothesis when underlying distribution has longer tails than the normal distribution.

1. INTRODUCTION

The aim of this study is to show the dramatic lack of robustness of the classical estimators, and to compare the efficiencies of some well-known robust estimators and the power values for the test of hypothesis when underlying distribution has longer tails than the normal. Consider the following distributions, called p -family of distributions (Tiku and Suresh 1992),

$$f(x; p) = \frac{1}{\sigma\sqrt{k}\beta(1/2, p-1/2)} \left[1 + \frac{(x-\mu)^2}{k\sigma^2} \right]^{-p},$$
$$-\infty < x < \infty, k = 2p - 3, (p \geq 2),$$

with mean μ and variance σ^2 . The kurtosis of the distribution is greater than 3.0 for $p > 2.5$.

In this study we consider the following well-known robust estimators.

- Trimmed Sample Estimators (Dixon and Tukey, 1968),
- Huber Estimators (Huber, 1964),
- Modified Maximum Likelihood Estimators for Complete Sample (Tiku, 1967)
- Modified Maximum Likelihood Estimators for Type II Censored Sample (Tiku, 1967).

2. ROBUST ESTIMATORS

Trimmed Estimators

Let $x_{(i)}$ be the i th order statistic in a random sample of size n . The r -trimmed estimates $\hat{\mu}_T$ and $\hat{\sigma}^2$ of μ and σ^2 , respectively, are given by (Dixon and Tukey, 1968),

$$\hat{\mu}_T = \sum_{i=r+1}^{n-r} x_{(i)} / (n-2r), \quad \hat{\sigma}_T^2 = \frac{\sum_{i=r+1}^{n-r} (x_{(i)} - \hat{\mu}_T)^2 + r(x_{(r+1)} - \hat{\mu}_T)^2 + r(x_{(n-r)} - \hat{\mu}_T)^2}{n-2r-1}.$$

The test-statistic for testing $H_0 : \mu = 0$ against $H_1 : \mu > 0$ is given by $T_{trim} = \frac{\hat{\mu}_T \sqrt{n-2r}}{\hat{\sigma}_T}$

Huber Estimators

Let x_1, \dots, x_n be a random sample from a distribution $\frac{1}{\sigma} f\left(\frac{x-\mu}{\sigma}\right)$. For this family of distributions, Huber (1964) proposed a class of estimators called M -estimators. They are,

$$\hat{\mu}_H = \sum_{i=1}^n w_i x_i / \sum_{i=1}^n w_i \quad \text{and} \quad \hat{\sigma}_H = \left\{ n \tilde{\sigma}_0^2 \left[\frac{\sum_{i=1}^n \Psi^2\left(\frac{x_i - \hat{\mu}_H}{\tilde{\sigma}_0}\right)}{\left[\sum_{i=1}^n \Psi'\left(\frac{x_i - \hat{\mu}_H}{\tilde{\sigma}_0}\right) \right]^2} \right] \right\}^{1/2},$$

where

$$w_i = w_i(z) = \Psi(z_i) / z_i, \quad \Psi(z_i) = f'(z_i) / f(z_i), \quad \tilde{\sigma}_0 = \text{median} |x_i - \text{median}(x_i)| / 0.6745.$$

Two of these descending $\Psi(z)$ functions, which give, on the whole, most efficient estimators of location and scale parameters are;

1. Wave function (Andrews, 1972) W24:

$$\Psi(z) = \begin{cases} \sin(z) & \text{if } |z| \leq \pi \\ 0 & \text{if } |z| > \pi \end{cases}, \quad \hat{\mu}_W = T_0 + (hS_0) \tan^{-1} \left[\frac{\sum \sin(z_i)}{\sum \cos(z_i)} \right],$$

$$\hat{\sigma}_W = (hS_0) \left[n \frac{\sum \sin^2(z_i)}{\left[\sum \cos(z_i) \right]^2} \right]^{1/2},$$

where, $T_0 = \text{median}\{x_i\}$ and $S_0 = \text{median}\{|x_i - T_0|\}$, $i=1, \dots, n$, and $h = 2.4$ and summation include only those i for which; $|z_i| > \pi$, $z_i = \frac{x_i - T_0}{hS_0}$. The Studentized

t-statistics is $T_w = \frac{\sqrt{n_w} \hat{\mu}_w}{\hat{\sigma}_w}$. Since censoring proportion is random, we do not know the values of n_w .

2. Bisquare Function (Beaton and Tukey, 1974) BS82:

$$\Psi(z) = \begin{cases} z(1-z)^2 & \text{if } |z| \leq 1 \\ 0 & \text{if } |z| > 1 \end{cases}, \hat{\mu}_B = T_0 + (hS_0) \left[\frac{\sum \Psi(z_i)}{\sum \Psi'(z_i)} \right],$$

$$\hat{\sigma}_B = (hS_0) \left[n \frac{\sum \Psi^2(Z_i)}{[\sum \Psi'(Z_i)]^2} \right]^{1/2},$$

where, $h = 8.2$, $Z_i = \frac{X_i - T_0}{hS_0}$. The Studentized t-statistics is $T_B = \frac{\sqrt{n_B} \hat{\mu}_B}{\hat{\sigma}_B}$. Since censoring proportion is random, we do not know the values of n_B .

Modified Maximum Likelihood Estimators

Let x_1, \dots, x_n be a random sample from this family. Assuming p is known, the likelihood function is $L = \prod_{i=1}^n f(z_i, \mu, \sigma) = \prod_{i=1}^n (1 + z_i^2/k)^{-p}$, $z_i = (x_i - \mu)/\sigma$. Therefore, the likelihood equations are

$$\frac{\partial \ln L}{\partial \mu} = \frac{2p}{k\sigma} \sum_{i=1}^n g(z_i) = 0, \text{ and } \frac{\partial \ln L}{\partial \sigma} = \frac{-n}{\sigma} + \frac{2p}{k\sigma} \sum_{i=1}^n z_i g(z_i) = 0;$$

where, $g(z_i) = z_i / (1 + \frac{1}{k} z_i^2)$.

Let $z_{(i)} = (x_{(i)} - \mu)/\sigma$ be the ordered variates, $x_{(i)}$ ($1 \leq i \leq n$) being the i th order statistic in a random sample of size n . As complete sums are invariate to ordering, the above ML equations can be expressed in terms of $z_{(i)}$, i.e., $\frac{\partial \ln L}{\partial \mu} = \frac{2p}{k\sigma} \sum_{i=1}^n g(z_{(i)}) = 0$,

$\frac{\partial \ln L}{\partial \sigma} = \frac{-n}{\sigma} + \frac{2p}{k\sigma} \sum_{i=1}^n z_{(i)} g(z_{(i)}) = 0$. These equations have no explicit solutions. We

modify the maximum likelihood equations by using the first two terms of a Taylor Series expansion around expected values of the standardized order statistics

$$t_{(i)} = E\{z_{(i)}\} \text{ to get. } g(z_{(i)}) \cong g(t_{(i)}) + [z_{(i)} - t_{(i)}] \left\{ \frac{dg(z)}{dz} \right\}_{z=t_{(i)}} = \alpha_i + \beta_i z_{(i)}, 1 \leq i \leq n;$$

$\alpha_i = (2t_{(i)}^3/k) / (1 + t_{(i)}^2/k)^2$, $\beta_i = (1 - t_{(i)}^2/k) / (1 + t_{(i)}^2/k)^2$, $1 \leq i \leq n$. The values of $t_{(i)}$, $1 \leq i \leq n$, are given in Tiku and Kumra (1981). The MML Equations are taken as;

$$\frac{\partial \ln L}{\partial \mu} \cong \frac{\partial \ln L^*}{\partial \mu} = \frac{2p}{k\sigma} \sum_{i=1}^n \{\alpha_i + \beta_i z_{(i)}\} = 0, \quad \frac{\partial \ln L}{\partial \sigma} \cong \frac{\partial \ln L^*}{\partial \sigma} = \frac{2p}{k\sigma} \sum_{i=1}^n \{\alpha_i + \beta_i z_{(i)}\} z_{(i)} = 0.$$

These equations have explicit solutions as given below:

$$\hat{\mu} = \frac{\sum_{i=1}^n \beta_i x_{(i)}}{\sum_{i=1}^n \beta_i} \text{ and } \hat{\sigma} = \left(B + \sqrt{B^2 + 4nC} \right) / 2\sqrt{\{n(n-1)\}} ;$$

$$m = \sum_{i=1}^n \beta_i, B = \frac{2p}{k} \left[\sum_{i=1}^n \alpha_i x_{(i)} \right], C = 2p \left(\sum_{i=1}^n \beta_i x_{(i)}^2 - m\hat{\mu}^2 \right) / k .$$

We define Student's t statistic as $T = \frac{\sqrt{np(p-1/2)} \hat{\mu}}{\sqrt{(p-3/2)(p+1)} \hat{\sigma}}$. The asymptotic distribution of T is normal. For small n (≤ 30), the null distribution of T is referred to Student's t distribution with n-1 degrees of freedom.

Modified Maximum Likelihood Estimator (Type II Censored)

Let x_1, \dots, x_n be a random sample from a distribution. We censor the r smallest and r largest observations.

$$\hat{\mu}_C = K = \left(\sum_{i=r_1+1}^{n-r_2} x_{(i)} + r\beta(x_{(r+1)} + x_{(n-r)}) \right) / m, \hat{\sigma}_C = \left(B + (B^2 + 4AC)^{1/2} \right) / 2\sqrt{A(A-1)},$$

where,

$$m = n - 2r + 2r\beta, A = n - 2r, B = r\alpha(X_{(n-r)} - X_{(r+1)}), C = \sum_{i=r_1+1}^{n-r_2} x_{(i)}^2 + r\beta(x_{(r+1)}^2 + x_{(n-r)}^2) - m\hat{\mu}^2.$$

We take the statistic $T_C = \sqrt{m}\hat{\mu}_C / \hat{\sigma}_C$.

3. COMPARING METHODS OF ESTIMATION

We compare the efficiencies and powers of the well-known robust estimation methods mentioned in previous section. A computer simulation study is constructed which is based on 10000 Monte Carlo runs, in order to compare the estimation methods: Classical estimators (\bar{x}, s) , MMLE for complete sample $(\hat{\mu}, \hat{\sigma})$, MMLE for Type II censored sample $(\hat{\mu}_C, \hat{\sigma}_C)$, Wave 24 $(\hat{\mu}_W, \hat{\sigma}_W)$, and BS82 $(\hat{\mu}_B, \hat{\sigma}_B)$. We define efficiency as $\text{Deff}(\hat{\mu}, \hat{\sigma}) = \text{MSE}(\hat{\mu}) + \text{MSE}(\hat{\sigma})$ and give its values in Table 1; where $\text{MSE}(\hat{\theta}) = \text{Var}(\hat{\theta}) + (E(\hat{\theta}) - \theta)^2$ for any parameter θ and its estimator $\hat{\theta}$.

Table 1:
Simulated values of Deff / σ^2 for symmetric p-family of distributions,
 $p=2.5(0.5)3.5$ and 5.0 , $n=20$ and $r/n=0.1$.

Methods of Estimation	Distribution			
	p			
	2.5	3.0	3.5	5.0
Classical	0.138	0.107	0.100	0.088
MML	0.124	0.101	0.086	0.083
W24	0.102	0.093	0.090	0.086
BS82	0.103	0.094	0.091	0.087
Trimmed	0.127	0.114	0.107	0.100
<i>Censored</i>	0.109	0.099	0.095	0.092

We observe that W24 and BS82 matching pairs are jointly more efficient overall than the other pairs, and MMLE pair for the censored sample is jointly as efficient as W24 and BS82. As p tends to infinity, we also see that MMLE pair for the complete sample, has jointly higher efficiency than the other pairs.

We also test $H_0 : \mu = 0$ against the alternative $H_1 : \mu > 0$ and give the simulated power values in Table 2, 3, and 4 for various values for p and n .

Table 2
Simulated Power values for symmetric p-family of distributions when p=2.5 and n=20

μ	Classical	MML	W24	BS82	Trimmed	Censored
0.0	0.05	0.05	0.06	0.06	0.05	0.05
0.2	0.25	0.26	0.29	0.29	0.27	0.28
0.4	0.58	0.62	0.66	0.66	0.63	0.64
0.6	0.85	0.88	0.91	0.91	0.90	0.91
0.8	0.95	0.97	0.99	0.99	0.98	0.98
1.0	0.98	0.99	1.00	1.00	1.00	1.00

Table 3
Simulated Power values for symmetric p-family of distributions when p=3.5 and n=20

μ	Classical	MML	W24	BS82	Trimmed	Censored
0.0	0.05	0.05	0.06	0.06	0.05	0.05
0.2	0.22	0.22	0.25	0.25	0.23	0.24
0.4	0.56	0.58	0.60	0.61	0.58	0.59
0.6	0.83	0.86	0.87	0.87	0.86	0.87
0.8	0.95	0.97	0.98	0.98	0.97	0.97
1.0	0.99	1.00	1.00	1.00	1.00	1.00

Table 4
Simulated Power values for symmetric p-family of distributions when p=5.0 and n=20

μ	Classical	MML	W24	BS82	Trimmed	Censored
0.0	0.05	0.05	0.06	0.06	0.05	0.05
0.2	0.23	0.23	0.24	0.24	0.23	0.24
0.4	0.55	0.55	0.57	0.57	0.55	0.56
0.6	0.83	0.84	0.85	0.85	0.84	0.84
0.8	0.96	0.97	0.97	0.97	0.96	0.96
1.0	0.99	1.00	1.00	1.00	0.99	0.99

It can be seen that W24 and BS82 pairs have high Type I Errors. The MMLE for complete sample, Trimmed estimators and MMLE for Type II censored sample are competing with each other as Power values hardly differ.

4. ROBUSTNESS

In practice the sample might contain spurious observations (outliers, mixtures etc). Huber (1981) stated that the occurrence of 5 to 10 % outliers in a sample is a rule not an exception. From a practical point of view, therefore, it is very important for an estimator to have efficiency robustness and criterion robustness. If Type I Error

Table 8
Simulated Power values for Contamination Model when $p=3.0$ and $n=20$

μ	Classical	MML	W24	BS82	Trimmed	Censored
0.0	0.05	0.05	0.06	0.06	0.05	0.06
0.2	0.21	0.21	0.23	0.24	0.21	0.23
0.4	0.5	0.51	0.55	0.55	0.53	0.54
0.6	0.78	0.81	0.84	0.84	0.82	0.83
0.8	0.93	0.94	0.96	0.96	0.95	0.95
1.0	0.98	0.99	0.99	0.99	0.99	0.99

It can be seen that W24 and BS82, and MML for symmetric censored samples have high Type I Errors. The other methods compete with each other.

5. COMMENTS AND CONCLUSION

As an interpretation of our study, we can conclude the following. The adaptive estimators W24 and BS82 are jointly more efficient overall than the other pairs. However since censoring proportion is random, we do not know the values of n_W and n_B . It is believed that n_W and n_B should both be less than n but their exact values are hard to determine when the sample size is finite (Tiku et al., 1986). For the tests based on sample mean and variance of a single sample W24 and BS82 estimators give misleading Type I Errors. Therefore these methods should not be used for the small sample sizes. They are defined only for the symmetric distributions, particularly long-tailed symmetric distributions. These methods should be avoided for short-tailed symmetric distributions (Dunnett, 1982). They are computationally difficult then the other matching pairs of estimators and it is almost impossible to evaluate the variances of the estimators analytically, since they are complex functions of the sample observations.

The MML based on the Type II censored sample has high efficiency. For the tests based on the sample means and variances of a single sample and tests based on linear contrasts of means, it has high power. It is computationally easy. MML for complete samples also high efficiency, especially for the Outlier and Mixture models. MML estimators have in a way the very desirable feature of adaptability in the Sprott (1982) and Hogg (1982) sense; that is a knowledge about the Type of underlying distribution the proportion of outliers to be expected, or the information provided by the sample to that end, can be utilized in choosing the appropriate level of censoring for constructing the "optimal" MML estimators (Tiku, 1986). MML for Type II censored samples and Trimmed matching pairs are good only for the the long-tailed symmetric distribution. MML for complete sample's methodology can be extended to the short-tailed symmetric distribution and skewed distributions.

The MML for complete sample is also easy to compute. In our study the amount of trimming or censoring is 10%. For the other censoring proportions, see Tiku (1986) for details. MML estimators are more powerful than the well-known nonparametric tests (Wilcoxon, normal-score, Kolmogorov- Simirnov). See Tiku (1982) for the results.

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**A SURVEY STUDY OF FACTORS AFFECTING THE
STUDENTS' PERFORMANCE AT LCWU, LAHORE**

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ABSTRACT

This research work consists of the empirical study to examine the factors affecting the student's academic performance of M.A./M.Sc. students at LCWU, Lahore. The data were collected from 274 students Stepwise multiple linear regression has been used as methodology to analyze the data. Results from the study indicate that student's performance can be enhanced by an increase in weekly study hours, combined study and good health condition while time spent on transport, on watching TV and in cafeteria have negative effect on student's result.

INTRODUCTION

The importance of education cannot be neglected by any nation. And in today's world, the role of education has become even more vital. It is an absolute necessity for economic and social development of any nation. Education plays a very important role in our lives. There is a rapidly growing demand for a higher education in the world today. Although a higher education is difficult to receive, the rewards of self-improvement, job insurance, a development of character, and social improvements are quite satisfying. With a higher education one is sure to have a better paying job. Pakistan's record on the education front has not been impressive. No-doubt some progress has been made, but it has been rather slow. This study focuses on investigating the factors affecting performance of students of graduation and above levels. Keeping in view all of the variables discussed by different researchers we have chosen only those variables that are recognizable in Pakistani society. These are Library, Extra Coaching, Internet, Tutorial and Assignments, Text Books & Recommended Books, Class Lectures, Combine Study & Group Study, Career Guidance & Motivation, Teaching Methods, Role of Teacher.

REVIEW OF LITERATURE

Many empirical studies have been carried out to explore the factors that affect the performance of the students at college as well as school level.

Sail et al. (2006) gave the some factors which effected on student performance in study such as academic competence, test competence, time competence, time management, strategic studying, and test anxiety and identified that these factors could distinguish among students, based on academic performance and enrollment in experimental program. **Javed (2002)** worked on the research titled as Infrastructure of education upto college level in Pakistan. This study revealed that there are certain factors which cause the level of education such as No. of school and colleges, enrollment ratio,

student versus teachers ratio and student versus school ratio. Further more the study showed that girls are more inclined towards education however the facilities provided to female colleges are less than the male colleges. **Brooks and Rebata (1991)** found that female students tend to sit in the front of the classroom, attend lectures regularly and obtain higher grades than male students. Hence the females have better education performance than males. **Swell and Shaw (1968)** found that the higher the parent's education level, the greater the success and graduation rate of their children who attend the college. The parent's level of education has positive effect on their children's grades especially for female students.

METHODOLOGY

In this study the objective is to explore the factors which may affect the academic performance of M.A./M.Sc. students at LCWU, Lahore. The study is based on the information collected through a questioner. Stepwise Multiple Regression is used as methodology for analyzing the data. Size of this population is 867. By proportion allocation we select a sample of 274 students. As a pre testing only the sample of 20 students is selected to check the reliability. By using the Cronbach's alpha, the result of the reliability coefficient is $\alpha = 0.78$. Appropriate sample size is decided by using the following formula given by Yamme (1967).

$$n = \frac{N}{1 + Ne^2} = \frac{876}{1 + 867(0.05)^2} = 274$$

Population consists of students from different departments. All departments need to be represented in the sample, so stratified random sampling is used and since the number of students enrolled at different departments is not same, sample size for different strata is decided by proportional allocation

$$n_h = \frac{N_h}{N} \times n$$

Regression analysis is concerned with the study of the dependence of one variable, the dependent variable one or more other variables, and the explanatory variables, with a view to estimating and/or predicting the (population) mean or average value of the former in terms of the known a fixed (in repeated sampling values of the later)". Linear regression is a form of regression analysis in which observational data are modeled by a least squares function which is a linear combination of the model parameters and depends on one or more independent variables. Multiple linear regression is the name given to a generalization of the theory and techniques of simple linear regression for situations where there are at least two explanatory variables. In this analysis, the Stepwise Regression is used being the best subset of all possible regression. A good model should fulfill the following assumptions are Normality, Linearity, Autocorrelation, Heteroscedasticity, Multicollinearity, Outlier, Leverage observations, Influential Observations, Covariance Ratio.

ANALYSIS

Multiple linear regression is applied as a model building tool, and also the assumptions are verified. The normality of the dependent variable which is the

percentage of marks of students is checked by the normal probability plot which shows that all the points are lying on or near the straight line drawn through the middle half of the points. This pattern indicates that the residuals are normal.

To check the linearity a matrix plot is constructed. The matrix plot indicates that there is a positive linear relationship between percentage of marks and weekly study hours and there is a negative linear relationship between percentage of marks with time spent in café for watching TV and transport.

Covariance ratio is a tool to improve the performance of the model and the role of the i th observation on the precision of estimate. A value is discarded from the data whose covariance ratio is less than 0.9. Here are five such cases whose covariance ratios are less than 0.9, by dropping these values we are left with 269 cases.

The assumption of autocorrelation is checked by using Durbin Watson test statistics. The value of the d -statistic is 1.806 which lies between 1.5 and 2.5 indicating that there is no autocorrelation in the data and the residuals are independent.

In order to see the stability of error variance, the residual plot is used. If the residual plot does not show any trend or systematic pattern the residuals have stable variances so therefore there is no Heteroscedasticity in the data.

For detection of multicollinearity, the variance inflation factor (VIF) is used. It is observed that all the VIF are less than 10, so there is no multicollinearity in the data and the regressors are independent.

In order to investigate the influential observation the Cook's distance is measured. Since the values of cook's distance are less than one i.e., $cook's < 1$, this indicates that there is no influential point. In order to investigate the leverage values $2p/n$ is used as criteria where n is the total sample size and p is the number of factors used in the study. From results no value increases from 0.28996 indicating that there is no leverage point. A stepwise regression techniques is used to fit the model. The final model is

$$SP = 49.88 + 0.456WSH - 0.256TIMECAFE - 0.04552TIMETV - 0.04317TIMETRAN + 1.084 HEALTH + 1.707 COM_STUD$$

The value of R (Multiple correlation coefficient) is 0.88 which indicates that there is a high positive relationship between percentage of, marks and weekly study hours, time café, time TV, time transport, health condition and combine study.

The value of R^2 (Coefficient of determination) is 0.775 means that 77.5% of the variation in percentage of marks is explained by its linear relationship with the weekly study hours, time café, time TV, time transport, health condition and combine study and 22.5% of the variation is explained by other factors which are not included in the model.

The model is significant having $F=150.520$ and p value 0.000 at 5% level of significance and MSE is 26.642. So our multiple linear regression model of percentage of marks on weekly study hours, time café, time TV, time transport, health condition and combine study is significant.

The expected value of percentage of marks is 49.88 when weekly study hours, time café, time TV, time transport, health condition and combine study are assumed to be zero which is meaningless.

When weekly study hours is increased by one hour then percentage of marks is increased by 0.4560 percent keeping time café, time TV, time transport, health condition and combine study constant.

When time spend on café ,on watching tv and on transport will increased by one hour then percentage marks of student will decreased by 0.256 ,0.04552 and 0.04317 percent respectively keeping other factors constant.

Since the higher code is assign to the student who do combine study and the coefficient is positive so the percentage of marks is increased by 17.07 percent when a student does combine study.

Since the higher code is assign to strongly agree and the coefficient is positive so the percentage of marks is increased by 10.84 percent when a student's health condition is good. A comparison in the R square, standard errors and MSE is presented before and after deleting the five cases from the data using the stepwise regression model. All the results after deleting 5 cases show better indication of a good model.

MSE		R		R Square	
Before	After	Before	After	Before	After
30.108	26.642	0.866	0.880	0.750	0.775

CONCLUSION

The main conclusion of this empirical study is that the students academic performance at LCWU, Lahore at M.Sc. level is influenced by 6 factors which are weekly study hours, time spent in café, time spent on watching TV, time spent on transport, student's health condition and combined study. From the model it is very much clear that 3 factors weekly study hours, students good health condition and combined study affect students academic performance positively and cause an improved level of education while time spent in café, on watching TV and on transport have a negative impact on the academic performance and an increase in the value of these factors lowers their achievements. So the students can improve their performance by spending less time in café, on Watching TV and on transport.

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**THE IMPACT OF ADVERTISING ON BRAND JUDGMENT AND
CONSUMER PREFERENCE IN PURCHASING DECISION IN PAKISTAN**

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ABSTRACT

Advertising is often seen as an efficient but sometimes ineffective external influence on buyer behavior in making the purchase decision and it distinguish from each brand. Marketers are therefore seeking ways to make advertising more effective. This paper provides a theoretical framework explaining how ads can influence attitude and purchase intentions by activating an identity with one's purchase decision in both gender groups. A gender group identity is an example of a social identity in which one sees oneself as a member of his or her gender group. This paper proposes that these favorable outcomes may be carried over to associated ad and brand judgments. This paper has also aligned social identity theory with the integrated tradition of understanding gender. The results showed that advertising has positive impact in Brand judgment and preferences among the various brands in purchase decision and behaviors consistent with group norms and an in-group bias. The readiness or ease with which a gender group identity becomes salient may depend on how strongly a person identifies with one's gender group. In this paper, we propose that ads that activate identification with one's gender group will have a more favorable impact on future brand and ad judgments than ads that do not activate this identity. A conceptual model is suggested for representing the proposed relationships between advertising and Brand judgment in different brand preferences in purchase decision that activate a gender group identity, gender group identity salience and strength, and ad and brand judgments. We draw from three areas of the literature to support our propositions and conceptual model: advertising effectiveness, Brand judgment, and consumer preferences in the research. It was revealed that advertising has positive impact on Brand judgment in regarding purchase decision in Pakistan.

KEY WORDS

Advertising, Brand, Judgment, Consumer, Preferences.

INTRODUCTION

Advertising is typically thought of as one of many external influences on buyer behavior. Some may argue that it does not always have as much impact on behavior as other external influences such as salespeople, culture, family, reference groups, and social and situational influences. Additionally, as consumers become bombarded with more and more advertisements, many claim that ads have little or no influence on their judgments or actions. In spite of these criticisms, advertising is considered an efficient way of reaching many consumers. Therefore, marketers continue to seek ways to increase

the influence of advertising on their audience. For instance, an ad could be linked to another source of external influence such as one's gender group. While most external influences have been well studied, the potentially powerful influence of gender group identity has received little attention. The question becomes, how can the activation of a gender group identity result in favorable ad and brand judgments? This paper provides a theoretical foundation and conceptual model explaining how ads may influence attitudes and purchase intentions by activating an identity with one's gender group. The model in Figure 1 depicts the process by which ads may activate a gender group identity and thereby influence ad and brand judgments. The discussion of the first box in the model addresses the question: Can an ad activate a gender group identity? A gender group identity is an example of a social identity in which one sees oneself as a member of the gender group. It is possible that such an identity could be activated through exposure to ads that pair a brand with members of one's gender group. The activation of a gender group identity is thought to result in that identity gaining salience over other existing identities. Given that individuals hold many social identities simultaneously, it is necessary that the context (ads) bring the desired social identity to the forefront. In other words, the ads must make a gender identity salient in order to have the desired effect. The second box focuses on the issue of salience and the internal consequences of a salient gender group identity. The third box indicates that salience may be influenced by how strongly one identifies with one's gender group. Finally, the discussion of the fourth box addresses the question of whether or not the internal consequences of a salient gender identity can influence ad and brand judgments. This paper proposes that ads which activate identification with one's gender group will have a more favorable impact on future brand and ad judgments than ads that do not activate this identity. The foundation for this proposed influence is based on social identity theory, ad processing, and gender research.

GENDER GROUP IDENTITY ACTIVATING ADS

We begin our discussion of the dynamics involved in using gender group identity to influence ad and brand judgments by providing a theoretical underpinning for the notion that ads can prime identification with a gender group and cause that identity to become salient. This requires an understanding of the concept of gender identity from a social identity perspective. A social identity approach to understanding gender influence on advertising results is also consistent with marketing literature on ad processing. Marketing literature identifies categorization, elaboration, and congruency as three important concepts in ad processing. Categorization theory holds that individuals automatically attempt to match new stimuli with an evoked category description. If a gender group identity is activated by an ad, then the product depicted in the ad may become linked to the gender category thereby triggering the use of category attributes in evaluating the product. Elaboration is thought to facilitate the categorization of stimuli. Gender group activating ads would require an advanced type of elaboration known as semantic analysis. A semantic analysis requires the spreading of an activated concept to other related concepts held in memory. It is anticipated that the expectancies generated by the gender group depicted in the ad would be used to create expectancies about the products depicted in the ad. A key factor in this process, however, is congruency.

Congruency refers to the match between the stimulus and the category prototype or exemplar. The closer the fit between the gender depicted in the ad and the prototype a person holds of his/her gender, the more likely that the appropriate gender schema will be activated and the more likely it is that those schema evaluations will be used to evaluate the targeted product.

Gender Group Identity Salience and Strength

We propose in this paper that ads which contain depictions of the gender group will prime gender salience. In social identity theory, salience is the psychological significance of the social category. In other words, it refers to the identity that is functioning psychologically to increase the influence of group membership on behavior. Salience is believed to be the result of accessibility and fit. Accessibility is the readiness of an individual to use a particular self-category, and fit is the degree to which the stimuli in the given context actually match the criteria which define the category. Gender is believed to rate high on both accessibility and fit. A strong identification with one's gender group may further enhance the accessibility of a gender group identity.

Ad and Brand Judgments

Social identity provides a fresh approach to understanding the influence of gender identity on ad processing. Identifying with a social group such as one's gender group has been shown to create an in-group bias favoring the norms and prototypes of the group, leading to attitudinal and behavior conformity. This paper proposes that these favorable outcomes may be carried over to associated ad and brand judgments. Employing the use of social identity activation in ads may increase the value of advertising dollars. Bem's Gender Schema Theory offers us some insights into these meanings in a gender category. This theory deals with sex typing, which is the process by which a society metamorphoses male and female into masculine and feminine (Bem 1981). A gender schema is a cognitive structure of what it means to be male and female. According to Bem's Gender Schema Theory, from early in life, individuals categorize people, objects, and behaviors as masculine or feminine, and usually have pre-set notions as to what is appropriate for each gender (Kolbe and Langefeld 1991). The sex-role stereotypes become internalized to varying degrees among individuals in a society and new or incoming information is processed in relation to the existing schemas. Appropriate gender stereotypes are learned from a variety of sources, including advertising. However, some researchers note that much of advertising contains idealized images and can create unattainable or aspirational perceptions of gender expectations that can have a negative impact on self image (Martin and Gentry 1997; Martin, Gentry and Hill 1999; Richins 1991). This appears to be especially detrimental for pre-adolescent and adolescent females.

Individuals concerned about sex typing regulate their behavior so that it conforms to the culture's definitions of gender appropriateness (Schmitt, Leclerc and Dubé-Rioux 1988). West and Zimmerman (1987) point out that we expect and want to know the sex category of those around us and we presume that others are displaying it for us, in as decisive a fashion as they can so that we can act accordingly. In their words, gender is

something “we do” in order to make life more manageable. Although Schmitt, Leclerc, and Dubé-Rioux did not find the support they expected for gender schema theory, as we will see later in this paper, the salience of one’s gender (a situational characteristic) may have a stronger influence on behavior than whether or not one is a sex-typed individual (a personality characteristic).

Ad Content

Ads designed according to the first box of the model in Figure 1 must convey or bring to mind membership in one’s gender group. This is accomplished through context, contrast of social groups, and identification. Context- One’s self-concept consists of numerous concurrent social group or category identities. Across time and different situations, different identities come to the forefront. Social identity, then, is situational or contextually based. “Different situations tend to ‘switch on’ different conceptions of self so that social stimuli are construed and social behavior controlled in the appropriately adaptive manner” (Turner 1982, p. 20). Turner (1994) further argued that self-categorizing is inherently variable, fluid, and context dependent, inasmuch as self-categories are socially comparative and are always relative to a frame of reference. Similarly, shifts in social identification are totally dependent on context, a result of the particular distribution of people and attributes in the environment (Deaux 1996).

Ad Processing

Marketing literature identifies categorization, elaboration, and congruency as three important concepts in ad processing. Categorization theory holds that people naturally divide their world into categories that enable them to efficiently understand and process information in the environment (Sujan 1985). When a new stimulus is encountered, the perceiver automatically attempts to match it with an evoked category description. The evoked category attributes, links and exemplars are then used to aid in the evaluation of the new stimulus (Goodstein 1993). A gender group identity can be an example of such a category. It may be that if a gender identity (a social category) is activated, then the product depicted in the ad may become linked to the category, thereby triggering the use of category attributes, etc. in the evaluation of the product. In this case, the perceiver would be responding to the category level rather than on the basis of the individual attributes of the product (see Sujan 1985).

DATA COLLECTION METHODOLOGY

The data were collected from the 200 respondents both rural and Urban areas by using the simple random technique. The response rate was 90% from urban areas and 70% from rural areas. A structured questionnaire has used to analyze the response of the consumers from different parts of Pakistan. Data were measured by the five scale likert scale.

RESULTS AND DISCUSSIONS

Table 1:
Response Analysis

Gender	Male/Urban	Female/Uran	Male/Rural	Female/Rural
Response to questionnaire	95	90	80	60
Brand awareness	90	80	70	40
Ad response	80	75	60	30
Purchase decision	80	70	50	40

Survey-2008

According to the response analysis the measurement has been taken by five points likert scale and results showed that in Urban areas where customers are more conscious about the Brand loyal and they are waiting for the availability of the brand when Brand is short in the market. The response rate in both genders in Urban areas are more effective and advertising has direct relation to the consumers. In rural areas of Pakistan people are not conscious about the Brand and they were not conscious about the brand because of the cost laid market in rural areas where people were more price conscious compare to the value of the Brand.

Strength of Gender Identity

Although self-identifying and defining oneself in terms of a group are thought to be indicative of high levels of group identification (Terry and Hogg 1996), several measures have been developed to gauge an individual's strength of identification with a group (e.g., Biernat, Green and Vescio 1996; Ethier and Deaux 1994; Terry and Hogg 1996). The lower box in the model depicted in Figure 1 is the strength of the social identity. How strongly one identifies with one's gender group is expected to impact salience. As stated in the following proposition, a strong identification with one's gender group should increase the likelihood of gender salience: A gender identity should be highly salient in women. As discussed earlier, social identity salience is believed to be the result of accessibility and fit. Gender rates high on both accounts. A gender identity is thought to be highly accessible (Deaux 1992) because it is a central part of one's self-definition. It is an identity with which the individual has a great deal of past experience, it has a high emotional and value significance and, along with age and race, it represents a higher hierarchical level. Gender also rates high on contextual fit. One of the key elements of contextual fit is comparative aspects between groups (Turner 1987). The greater the distinctions are between groups, the more likely one is to identify with one's social group rather than the out-group.

CONCLUSION

The advertising has a positive impact on the customers in purchasing decisions in Pakistan, and result showed that the Brand awareness in rural areas Pakistan is negatively response to the Brand as compare to the urban areas where people are more conscious about the Brand loyal and advertising is the effective tool in making brand awareness among customers in Pakistan. Social identification tends to lead to the perceived

similarity of members, mutual attraction between members or social cohesion, mutual esteem, emotional empathy, altruism and cooperation, and attitudinal and behavioral uniformity (Turner 1982). Therefore, according to social identity theory, a salient social identity should result in outcomes consistent with and favorable toward the activated social identity. Therefore, it is proposed that: Ads that activate a social identity (e.g., gender) are more likely to result in favorable judgments than ads that do not activate a social identity. In the proposed model, the outcome is favorable ad and brand judgments, and is represented in the last box in the model. Favorable ad and brand judgments could include such outcomes as brand inclusion in a consideration set, likelihood of purchase, attitude toward the ad and attitude toward the brand. The activation of a gender identity includes the identification of the prototype. This prototype would include both the members of the social category and group norms. The group norms would dictate that using the depicted brand was a normal or expected part of group members' behavior. One's gender identity is believed to be a very central (well learned and rehearsed) part of one's self-schema. Identities such as gender, for example, are thought to be very accessible, salient in more situations, and therefore more likely to influence behavior (Deaux 1992). This should facilitate the schema activations inherent in semantic elaboration and therefore increase the likelihood that the brand would be included in a consideration set.

It is possible that identification with one's gender group could result in a less than favorable judgment or negative impact. For example, a negative portrayal of femininity could activate a gender group identity but result in a negative brand judgment. However, advertisers are likely to prevent this by pretesting ads for a favorable response before placing the ad. Some might also argue that, for example, a woman might not view the gender identity manipulation positively, perhaps viewing the presentation as too traditional for a feminist. In this case, a female gender identity may not be activated, but rather, a subset of that gender identification

CONTRIBUTIONS AND DIRECTIONS FOR FURTHER RESEARCH

This conceptual paper has provided an alternative view of gender as a self-concept that is based upon defining oneself as a member of a gender group. Identifying with such a group has been shown to create an in-group bias favoring the norms and prototypes of the group, leading to attitudinal and behavioral conformity. This paper proposes that these favorable outcomes may be carried over to associated ad and brand judgments. This paper has also aligned social identity theory with the integrated tradition of understanding gender. It draws from the individualistic tradition by capitalizing on the differences between men and women in ad processing. It brings in the international tradition by showing how a social identity is socially constructed and aligns with Bem's Gender Schema Theory. This paper proposes gender as a potential ad content factor that would enhance ad processing, thereby increasing the influence the ad has on future judgments. Whereas previous studies indicated that an ad pairing a product with a relevant picture increased processing, this conceptual integration leads the way in investigating the value of activating a particular schema, one's gender identity. Brands depicted in ads designed to activate a gender identity are expected to show a greater likelihood of being included in a consideration set than brands in ads that do not activate such an identity, and they are

expected to be evaluated more favorably. Such findings would indicate that activating a social identity such as gender could more connections with related concepts. This paper uses social identity theory to offer an understanding of how activating a gender group identity in an ad can influence the outcome of viewing that ad and shows how a social identity perspective fits well within the integrated tradition of understanding gender.

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**GENDER PERCEPTION OF COMMITMENT TOWARDS SOCIAL CAUSE:
A CASE STUDY OF DOCTORS IN PUBLIC HEALTH SECTOR.**

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ABSTRACT

This study was conducted to describe the gender perception of commitment towards social cause. Social cause is defined as “dedication to serve the interest of patients”. For this purpose descriptive approach was used. The study was conducted on doctors of five public sector located in Islamabad, Rawalpindi and Wah Cantt. Data was collected through questionnaire consisting of 23 questions in total. Sampling was done by choosing equal strata’s of both the genders. The sample size was 144. The data was analyzed by using SPSS in which independent sample t-test and one way ANOVA tests were applied to explore the actual research queries. The results indicated that the gender differences in perception towards dedication to serve the interest of patient are not significant. However age and number of years in practice are affecting the level of social commitment of doctors. It was concluded that gender differences may become more obvious if we increase the sample size. This study presents that doctors agree with the commitments and standards of international charter of medicine which strictly bounds them to serve the interest of patient. It was recommended that there is need of actual implementation of these commitments in public sector hospital and in syllabus of medical students in order to avoid the careless medical errors and harsh attitude of doctors with patient. It will helpful to maintain the national status of health in Pakistan.

INTRODUCTION

This research is being conducted to know the difference in perception of commitment to social cause in male and female doctors along with age and number of years of service. Commitment towards social cause is defined as “*dedication to serve the interest of patients*”. The concept of commitment towards social cause is operationalized on the basis of international standards of commitments and principles of medical profession. This study basically explores the difference in commitment level of medical doctors towards medical ethics in different gender i.e. male and female. Medicine is a noble profession and requires more professional approach and deep value laden relationship between the service providers and customers i.e. doctors and patients. Webster (1990) noted that among the higher professions medicine has best reputation for Altruism. (Page 198). High work values are associated with this profession. This profession can never be taken on commercial basis. Medical ethics basically covers the whole dimension of relationship between doctors, patients & attendant. They are important part of medical professionalism (being included in international charter of physician) and can never be ignored in any case.

SIGNIFICANCE OF THE STUDY

The purpose of study is to explore the effect of personal & professional characteristics of medical doctors towards dedication & devotion to serve the interest of patient. Age, gender & number of years in practice are taken in consideration. This research has been conducted to understand the attitude of medical doctors and their perceptions towards their patients. It will help us to understand that to what extent medical professionalism are being practiced by medical doctors. In future, what should be included in training of medical doctors that they could understand patient's problems, and could deliver their services with more social commitment?

METHODOLOGY & RESEARCH INSTRUMENT

This cross sectional research is quantitative and descriptive study in nature conducted in natural environment of public sector hospitals. This is primary research based on structured questionnaire. The study is conducted on Five public sector Hospitals located in Islamabad, Rawalpindi and Wah Cantt. The names of hospitals are;

- 1) Pakistan Institute of Medical Sciences,
- 2) Poly Clinic Hospital,
- 3) Rawalpindi General Hospital,
- 4) Holy Family Hospital
- 5) P.O.F. hospital Wah Cantt.

SAMPLE AND DATA COLLECTION & ANALYSIS

Proportional stratified sampling technique was used for sampling. The sample size was 144. Total 72 male and 72 female doctors participated in study. The study was conducted on medical doctors belonging to different age groups and different fields of specialization. A part of standardized questionnaire with five point Likert's scale had been used for data collection. The overall reliability was 70%. The data was analyzed by using SPSS. Independent sample T-test and one way ANOVA test were used.

RESPONSE RATE

Total 200 questionnaires were dropped off and in research got 144 questionnaires in return.

DISCUSSIONS

The first objective was to know about the difference in gender perception of commitment towards social cause. The result confirmed that male has slightly high mean value but the difference is insignificant. It means that difference does not actually exist or may increase with sample size.

Variable	Gender	N	Mean
Gender	Male	72	79.96
	Female	72	79.33

Previous researches supported the argument that the gender differences existed. In 1992 Natalie Angier argued that Americans perceived female doctors better than male doctors in various respects. Debra L. Roter (2002) discussed that behavioral differences exist in male and female doctors. This research did not support the difference in gender perception of commitment. Finally in this respect researcher concluded that gender is not affecting the level of commitment in Pakistan among the personal and professional characteristics of medical doctors.

Secondly it was hypothesized that commitment level increased with the age. This hypothesis accepted but the results were insignificant. Mean values for male and female increased with age. It clearly established that doctors' become more sensitive towards ethics with the increase in age.

Gender	Age (In Years)	N	Mean
Male	less than 25	15	76.73
	25-35	45	79.73
	35-45	6	82.17
	45-55	4	85.25
	55-65	2	92.00
	Total	72	79.96
Female	less than 25	31	81.06
	25-35	33	77.61
	35-45	7	78.14
	45-55	1	91.00
	Total	72	79.33

The third objective of this research was to check the impact of number of years in practice on commitment level of employees. The research found that female doctors were highly committed in young age or when they were doing house jobs but later on their commitment level decreased. In male commitment increases but it falls between age group of 25-35 years. The results were insignificant.

Though overall commitment level of doctors does not seem to be affected by gender perception but gender differences present in different forms of commitment and principles. The study investigated that female doctors strongly perceived that commitment towards patient care was most important factor in delivering good service in comparison to male doctors. It meant that doctors were conscious of this fact that they need to be socially committed to the cause for which they were working.

CONCLUSION & RECOMMENDATIONS

The results revealed that gender was not affecting the commitment level of doctors since the mean difference was too low. Age and number of years in practice affect the commitment level as commitment increases with these characteristics. It is recommended that;

- 1) there is needed to implement the international standards of medical professionalism in Pakistan. Doctors shall be able to maintain national health status in Pakistan.

- 2) There is need to develop deep sense and understanding of all commitments and principles of international medical professionalism. It is recommended that medical students should be taught by creating an ethical environment around them. They should take patient as a case and diseases as normal human sufferings in order to take them as usual part of profession.

SUGGESTIONS FOR FUTURE RESEARCH

Further research should be conducted to explore the actual commitment of medical doctors and factors affecting the commitment level.

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**AN EMPIRICAL STUDY OF DIFFERENT RATIO-TYPE
 AND REGRESSION-TYPE ESTIMATORS**

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1. INTRODUCTION

In equal probability, selection does not depend on how large or small that unit is and the population units have equal probability of being included in the sample. The estimators which we used for study are:

1.1 Simple Random Sample

The common estimator which is used frequently is as follows

$$\hat{Y}_{SRS} = \frac{1}{n} \sum_{i=1}^n y_i \quad (1.1.1)$$

1.2 Ratio Estimator

The estimate of Y, in the ratio method will be

$$\hat{Y}_{RAT} = \frac{y}{x} (\bar{X}) \quad (1.2.1)$$

where y, x are sample totals of y_i and x_i respectively.

1.3 Regression Estimator

The linear regression estimate of y, the population mean of y_i is

$$\hat{Y}_{REG} = \bar{y} + b(\bar{X} - \bar{x}) \quad (1.3.1)$$

1.4 Hartley and Ross (1954) Unbiased Estimator

Hartley and Ross (1954) give the unbiased ratio type estimator as

$$\hat{Y}_{HR} = \bar{X} \left(\bar{r} + \left(\frac{n(N-1)}{N(n-1)} \right) \left(\frac{\bar{y} - \bar{r}\bar{x}}{\bar{X}} \right) \right) \quad (1.4.1)$$

1.5 Pascual's (1961) Ratio Estimator

An approximately unbiased estimator for the ratio of the variables X and Y is:

$$\hat{Y}_{PAS} = \bar{X} \left(r + \left(\frac{N-1}{N(n-1)} \right) \left(\frac{\bar{y} - r\bar{x}}{\bar{X}} \right) \right) \quad (1.5.1)$$

where $r = \frac{\bar{y}}{\bar{x}}$ And $\bar{r} = \frac{1}{n} \sum_{i=1}^n \frac{y_i}{x_i}$

1.6 Walsh's (1970) Estimator

This estimator was also independently considered by **Reddy** (1973, 74) as

$$\hat{Y}_{WAL} = \bar{y} \left(\frac{\bar{X}}{\bar{X} + b(\bar{x} - \bar{X})} \right) \quad (1.6.1)$$

1.7 Gupta's (1978) Estimator

Gupta suggested an estimator as

$$\hat{Y}_{GUP} = \bar{y} \left(1 - \left(\frac{1-w}{\bar{X}} \right) (\bar{x} - \bar{X}) \right) \frac{\bar{x}}{\bar{X}} \quad (1.7.1)$$

where $w = -\rho_{xy} \frac{C_y}{C_x}$ and $C_y = \frac{S_y}{\bar{y}}$, $C_x = \frac{S_x}{\bar{x}}$

1.8 Srivenkataramana and Tracy (1979) Estimator

In 1979 these author give three estimators, one of which is as follows

$$\hat{Y}_{ST} = \bar{y} \left(1 + \left(\frac{1-f}{\bar{X}} \right) (\bar{x} - \bar{X}) \right) \quad (1.8.1)$$

where $f = 1 + \rho_{xy} \frac{C_y}{C_x}$

1.9 Sahai's (1979) Estimator

He suggested

$$\hat{Y}_{SAH} = \bar{y} \left(\frac{\alpha \bar{X} + (1-\alpha) \bar{x}}{\alpha \bar{x} + (1-\alpha) \bar{X}} \right) \quad (1.9.1)$$

where $\alpha = \frac{1}{2} \left(1 + \rho_{xy} \frac{C_y}{C_x} \right)$

2. ANALYSIS

For computing the Mean square errors of these estimators, the technique of "Simple Random Sampling" with out replacement has been used to select a sample of size 2. A multiple regression line is fitted by taking the ranks for mean square errors of estimators as "dependent" variable and ranks of coefficient of variation (study variable) and ranks of correlation coefficient as "independent" variables. The natural population has been taken from "Census of Private Education Institutions in Pakistan, 1999-2000". Data consists of four provinces of Pakistan and there respective districts. The bench mark variable "X" is under the heading of **enrolment** and the study variable "Y" is under the heading of **teacher**. Both variables have been categorized into three levels of education: Primary, Middle and High. The fitted multiple regression lines for all estimators at each level are as follows:

Table 1: AT PRIMARY LEVEL
Rank of estimator's Mean Square Error = $\beta_0 + \beta_1 t_1 + \beta_2 t_2$

ESTIMATORS	FITTED LINES
Simple random sampling	$R_{SRS} = 5.238 + 0.122t_1 - 0.317t_2$
Classical ratio	N.A
Classical regression	$R_{REG} = 9.333 - 0.444t_1 - 0.444t_2$
Hartley and Ross	N.A
Pascual	N.A
Walsh	N.A
Gupta	$R_{GUP} = 7 - 0.6667t_1 + 1.333t_2$
Srivenkataramana and Tracy	$R_{ST} = 5.333 - 0.111t_1 + 0.889t_2$
Sahai	$R_{SAH} = 8.333 + 1.222t_1 - 1.778t_2$

Table 2: AT MIDDLE LEVEL
Rank of estimator's Mean Square Error = $\beta_0 + \beta_1 t_1 + \beta_2 t_2$

ESTIMATORS	FITTED LINES
Simple random sampling	$R_{SRS} = 5.917 - t_1 + 0.333t_2$
Classical ratio	N.A
Classical regression	$R_{REG} = 8.139 + 1.12 \times 10^{-16} t_1 - 0.556t_2$
Hartley and Ross	$R_{HR} = 2.861 - 1.1 \times 10^{-16} t_1 + 0.556t_2$
Pascual	$R_{PAS} = 1.083 + t_1 - 0.333t_2$
Walsh	$R_{WAL} = 4.139 + 1.12 \times 10^{-16} t_1 - 0.555t_2$
Gupta	$R_{GUP} = 7.917 + 1.99 \times 10^{-16} t_1 + 0.333t_2$
Srivenkataramana and Tracy	$R_{ST} = 8.028 - 2.4 \times 10^{-16} t_1 + 0.111t_2$
Sahai	$R_{SAH} = 5.917 + 1.99 \times 10^{-16} t_1 + 0.333t_2$

Table 3: AT HIGH LEVEL
Rank of estimator's Mean Square Error = $\beta_0 + \beta_1 t_1 + \beta_2 t_2$

ESTIMATORS	FITTED LINES
Simple random sampling	$R_{SRS} = 3.667 + 0.5CV(Y) - 1.67\rho_{xy}$
Classical ratio	N.A
Classical regression	$R_{REG} = 5.833 + 0.5t_1 - 1.667t_2$
Hartley and Ross	$R_{HR} = 5 + 2t_1 - 2t_2$
Pascual	$R_{PAS} = 1.5 + 0.5t_1 - 2.4 \times 10^{-16} t_2$
Walsh	$R_{WAL} = 3.167 - t_1 + 0.833t_2$
Gupta	N.A
Srivenkataramana and Tracy	$R_{ST} = 6.667 + 0.5t_1 - 0.167t_2$
Sahai	$R_{SAH} = 9.167 - t_1 - 0.167t_2$

t_1 = Rank of population coefficient of variation for the study variable

t_2 = Rank of population correlation coefficient

3. CONCLUSION

By fitting multiple regression lines, we see that at Primary Level the rank of mean square error for the Gupta's (1978) and Srivenkataramana and Tracy's (1979) estimator increases by the increase in the rank of population correlation coefficient and decrease in the coefficient variation for the study variable. So the performance of the Gupta's (1978) and Srivenkataramana and Tracy's (1979) estimator declines by the increase in the population correlation coefficient and decrease in the population coefficient of variation for study variable. By the decrease in ranks of population correlation coefficient and increase in ranks of coefficient of variation for study variable, ranks of mean square error of Simple Random Sampling and Sahai (1979) estimator will increase. Therefore the performance of Simple Random Sampling and Sahai (1979) estimator improves by the increase in the population correlation coefficient and decrease in the coefficient of variation for study variable. The rank of mean square error of Classical Regression (1942) estimator decreases by the increase in ranks of both the population correlation coefficient and coefficient of variation for the study variable. The performance of Classical Regression (1942) improves by increasing both the population correlation coefficient and coefficient of variation for the study variable.

At Middle Level, we see that the ranks of mean square errors of Simple Random Sampling, Hartley and Ross (1954), Srivenkataramana and Tracy (1979) increases by the decrease in ranks of coefficient of variation of study variable and increase in ranks of population correlation coefficient. So the performance of Simple Random Sampling, Hartley and Ross (1954), Srivenkataramana and Tracy (1979) improves by the decrease in population correlation co-efficient and increase in population coefficient of variation for the study variable. By the increase in ranks of population correlation coefficient and coefficient of variation of study variable, the ranks of mean square error of Gupta (1978) and Sahai (1979) estimators will increase. Thus, the performance of Gupta (1978) and Sahai (1979) declines by increasing both the population correlation coefficient and

coefficient of variation for study variable. The ranks of mean square errors for Classical Regression (1942), Pascual (1961) and Walsh (1970) will increase by the decrease in ranks of population correlation coefficient and increase in ranks of coefficient of variation of study variable. Hence, the performance of Classical Regression (1942), Pascual (1961) and Walsh (1970) improves by the increase in population correlation coefficient and decrease in population coefficient of variation for study variable.

At High Level the ranks of mean square errors for Simple Random Sampling, Classical Regression (1942), Hartley and Ross (1954), Pascual (1961), Srivenkatramana and Tracy (1979) will increase by the increase in ranks of coefficient of variation for the study variable and decrease in ranks of population correlation coefficient. So, the performance of Simple Random Sampling, Classical Regression (1942), Hartley and Ross (1954), Pascual (1961), Srivenkatramana and Tracy (1979) improves by the increase in the population correlation coefficient and decrease in coefficient of variation for the study variable. By the decrease in rank of coefficient of variation for the study variable and increase in rank of population correlation coefficient, the rank of mean square error for Walsh's (1970) estimator will increase. Therefore, the performance of Walsh's (1970) estimator declines by the increase in population correlation coefficient and decrease in coefficient of variation for the study variable. The rank of mean square error for Sahai's (1979) estimator will increase by the decrease in ranks of both population coefficient of variation for the study variable and correlation coefficient. The performance of Sahai's (1979) estimator improves by increasing both the population coefficient of variation of the study variable and correlation coefficient.

For Classical ratio (1940) estimator at all the three levels it is not possible to fit a multiple regression line because of constant ranks. For Hartley and Ross (1954), Pascual (1961), Walsh (1970) at primary level and for Gupta (1978) at High Level it is also not possible to fit a multiple regression lines because we have constant ranks in dependent variable.

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**GENERALIZATION OF PRODUCT AND RATIO ESTIMATOR
 USING MULTI- AUXILIARY ATTRIBUTES.**

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ABSTRACT

In this paper we have suggested a new estimators and improved version of Naik and Gupta (1996) estimator by generalizing product and ratio type estimators using multi-auxiliary attributes.

KEY WORDS

Full, Partial, no information, Multi-Auxiliary attributes; Efficiency, Point bi-serial correlation coefficient.

1. INTRODUCTION

Naik and Gupta (1996) introduced qualitative auxiliary information in ratio, product and regression estimators. In this paper, we have developed product and chain ratio estimator for full, partial and no information, using “k” auxiliary attributes. For this consider a simple random sample of size n drawn without replacement from a population of size N. Let $(y_i, \tau_{i1}, \tau_{i2}, \dots, \tau_{ik})$ is point showing ith observation on main variable y_i and jth auxiliary attribute τ_j ($j=1,2,\dots,k$). The complete dichotomy is recorded with respect to each attributes τ_j , say $\tau_{ij} = 1$ if ith unit of population possesses jth attribute τ_j , and 0 otherwise. Let $A_j = \sum_{i=1}^N \tau_{ij}$, $a_j = \sum_{i=1}^n \tau_{ij}$ denote total number of units possessing attribute τ_j in population and sample respectively. Let $P_j = \frac{A_j}{N}$ and $p_j = \frac{a_j}{n}$ denote proportion of units possessing attributes τ_j in population and sample respectively. $\bar{e}_y = \bar{y} - \bar{Y}$, $\bar{e}_{\tau_j} = p_j - P_j$, $E(\bar{e}_y^2) = \theta S_y^2$ where $\theta = \frac{1}{n} - \frac{1}{N}$, $E(\bar{e}_y) = 0 = E(\bar{e}_{\tau_j})$, $E(\bar{e}_{\tau_j}^2) = \theta S_{\tau_j}^2$, $E(\bar{e}_y \bar{e}_{\tau_j}) = \theta S_y S_{\tau_j} \rho_{pb_j}$, $E(\bar{e}_{\tau_j} \bar{e}_{\tau_\psi}) = \theta S_{\tau_j} S_{\tau_\psi} Q_{j\psi}$ & $j \neq \psi$ and $S_{y\tau_j} = \frac{1}{N-1} \sum_{i=1}^N (y_i - \bar{Y})(\tau_{ij} - P_j)$, where $\rho_{pb_j} = \frac{S_{y\tau_j}}{S_y S_{\tau_j}}$, is a point bi-serial correlation coefficient and $Q_{j\psi}$ ($-1 \leq Q_{j\psi} \leq +1$) is coefficient of association. Let n_1 and n_2 be size of first-

phase sample and second-phase sample respectively ($n_2 < n_1$), $p_{j(1)}$, $p_{j(2)}$ are proportion of units possessing attribute τ_j in first-phase and second-phase sample respectively. \bar{y}_2 is mean of main variable in second-phase sample. Also $\bar{e}_{y_2} = \bar{y}_2 - \bar{Y}$, $\bar{e}_{\tau_{j(1)}} = p_{j(1)} - P_j$ ($j=1, 2, \dots, k$) $\bar{e}_{\tau_{j(2)}} = p_{j(2)} - P_j$, $\theta_3 = \theta_2 - \theta_1$

$$E(\bar{e}_{y_2}) = E(\bar{e}_{\tau_{j(1)}}) = E(\bar{e}_{\tau_{j(2)}}) = 0, E(\bar{e}_{y_2}^2) = \theta_2 S_y^2, E(\bar{e}_{\tau_{j(1)}} - \bar{e}_{\tau_{j(2)}})^2 = \theta_3 S_{\tau_j}^2$$

$$E(\bar{e}_{y_2} (\bar{e}_{\tau_{j(2)}} - \bar{e}_{\tau_{j(1)}})) = \theta_3 S_y S_{\tau_j} \rho_{P_{bj}}, E\left[\left(\bar{e}_{\tau_{j(2)}} - \bar{e}_{\tau_{j(1)}}\right)\left(\bar{e}_{\tau_{2(2)}} - \bar{e}_{\tau_{2(1)}}\right)\right] = \theta_3 S_{\tau_j} S_{\tau_\psi} Q_{j\psi} \text{ \& } j \neq \psi$$

2. SOME PREVIOUS ESTIMATORS BASED ON AUXILIARY ATTRIBUTES

i) Naik and Gupta (1996) developed ratio estimator only for full information, i.e.

$$t_{1(1)} = \bar{y} \frac{P_1}{p_1}, \quad (2.1)$$

The mean square error of $t_{1(1)}$ is

$$MSE(t_{1(1)}) = \theta \bar{Y}^2 \left[C_y^2 + C_{\tau_1}^2 - 2\rho_{P_{b1}} C_y C_{\tau_1} \right] \quad (2.2)$$

ii) Naik and Gupta developed product estimator only for full information, i.e.

$$t_{2(1)} = \bar{y} \frac{p_1}{P_1}, \quad (2.3)$$

The mean square error of $t_{2(1)}$ is

$$MSE(t_{2(1)}) = \theta \bar{Y}^2 \left[C_y^2 + C_{\tau_1}^2 + 2\rho_{P_{b1}} C_y C_{\tau_1} \right] \quad (2.4)$$

3. PROPOSED CHAIN RATIO ESTIMATOR

We have generalized Naik and Gupta (1996) estimators, for full information case (single-phase sampling), partial and no information case (two-phase sampling) using “k” auxiliary attributes.

3.1 Generalized Estimator using “k” Auxiliary Attributes for Full Information Case

For this let the population proportions P_1, P_2, \dots, P_k are known, say we have full information about all auxiliary attributes. We propose a generalized ratio estimator of Naik and Gupta (1996) by using “k” auxiliary attributes. i.e.

$$t_{3(1)} = \bar{y} \left(\frac{P_1}{p_1} \right) \left(\frac{P_2}{p_2} \right) \dots \left(\frac{P_k}{p_k} \right) \quad (3.1)$$

The mean square error of $t_{3(1)}$ is

$$\begin{aligned}
MSE(t_{3(1)}) &\approx E(t_{3(1)} - \bar{Y})^2 \approx E\left(\bar{e}_y - \frac{\bar{Y}}{P_1}\bar{e}_{\tau_1} - \frac{\bar{Y}}{P_2}\bar{e}_{\tau_2} - \dots - \frac{\bar{Y}}{P_k}\bar{e}_{\tau_k}\right)^2 \\
&\approx E\left(\bar{e}_y - \sum_{j=1}^k \frac{\bar{Y}}{P_j}\bar{e}_{\tau_j}\right)^2 \\
MSE(t_{3(1)}) &\approx \theta \bar{Y}^2 \left[C_y^2 + \sum_{j=1}^k C_{\tau_j}^2 - \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq \psi=1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right] \quad (3.2)
\end{aligned}$$

3.2 Generalized Estimator for “k” Auxiliary Attributes (With “m” known and “m<k”) for Partial Information case (Two-phase sampling).

Suppose that population proportion P_j are known for $j = (1, 2, \dots, m)$ and population proportion P_j of are unknown for $j = (m+1, m+2, \dots, k)$, Using such prior known partial information we generalize the estimator of Naik and Gupta (1996),

$$t_{4(2)} = \bar{y}_2 \left(\frac{P_1}{P_{1(2)}} \right) \left(\frac{P_2}{P_{2(2)}} \right) \dots \left(\frac{P_m}{P_{m(2)}} \right) \left(\frac{P_{(m+1)(1)}}{P_{(m+1)(2)}} \right) \dots \left(\frac{P_{k(1)}}{P_{k(2)}} \right) \quad (3.3)$$

The mean square error of $t_{4(2)}$ is

$$\begin{aligned}
MSE(t_{4(2)}) &\approx E(t_{4(2)} - \bar{Y})^2 \\
&\approx E\left(\bar{e}_y - \frac{\bar{Y}}{P_1}\bar{e}_{\tau_1(2)} \dots - \frac{\bar{Y}}{P_m}\bar{e}_{\tau_m(2)} - \frac{\bar{Y}}{P_{m+1}}(\bar{e}_{\tau_{(m+1)(2)}} - \bar{e}_{\tau_{(m+1)(1)}}) \dots - \frac{\bar{Y}}{P_k}(\bar{e}_{\tau_{k(2)}} - \bar{e}_{\tau_{k(1)}})\right)^2 \\
&\approx E\left(\bar{e}_y - \sum_{j=1}^m \frac{\bar{Y}}{P_j}\bar{e}_{\tau_j(2)} - \sum_{j=m+1}^k \frac{\bar{Y}}{P_j}(\bar{e}_{\tau_j(2)} - \bar{e}_{\tau_j(1)})\right)^2 \\
MSE(t_{4(2)}) &\approx \bar{Y}^2 \left[\theta_2 C_y^2 + \theta_2 \sum_{j=1}^m C_{\tau_j}^2 + \theta_3 \sum_{j=m+1}^k C_{\tau_j}^2 - \theta_2 \sum_{j=1}^m 2C_y C_{\tau_j} \rho_{Pb_j} \right. \\
&\quad \left. - \theta_3 \sum_{j=m+1}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2\theta_2 \sum_{j \neq \psi=1}^m C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right. \\
&\quad \left. + 2\theta_3 \sum_{\substack{j \neq \psi \\ 1 \leq j \leq m \\ \psi \geq m+1}} C_{\tau_j} C_{\tau_\psi} Q_{j\psi} + 2\theta_3 \sum_{j \neq \psi=m+1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right] \quad (3.4)
\end{aligned}$$

If P_2 were also known then $\theta_2 = \theta_3 = \theta$ for this we have,

$$MSE(t_{4(1)}) \approx \theta \bar{Y}^2 \left[C_y^2 + \sum_{j=1}^k C_{\tau_j}^2 - \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq \psi=1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right].$$

This is mean square error of full information case.

3.3 Generalized Estimator for “k” Auxiliary Attributes for No Information case (Two-Phase Sampling).

Suppose that population proportion P_j are unknown for $j = (1, 2, \dots, k)$, Using such prior known partial information we generalize the ratio estimator of Naik and Gupta (1996),

$$t_{5(2)} = \bar{y}_2 \left(\frac{P_{1(1)}}{P_{1(2)}} \right) \left(\frac{P_{2(1)}}{P_{2(2)}} \right) \dots \left(\frac{P_{k(1)}}{P_{k(2)}} \right) \quad (3.5)$$

The mean square error of $t_{5(2)}$ is

$$\begin{aligned} MSE(t_{5(2)}) &\approx E(t_{5(2)} - \bar{Y})^2 \approx \\ &E \left(\bar{e}_{y_2} - \frac{\bar{Y}}{P_1} (\bar{e}_{\tau_{1(2)}} - \bar{e}_{\tau_{1(1)}}) - \frac{\bar{Y}}{P_2} (\bar{e}_{\tau_{2(2)}} - \bar{e}_{\tau_{2(1)}}) \dots - \frac{\bar{Y}}{P_k} (\bar{e}_{\tau_{k(2)}} - \bar{e}_{\tau_{k(1)}}) \right)^2 \\ &E \left(\bar{e}_{y_2} - \sum_{j=1}^k \frac{\bar{Y}}{P_j} (\bar{e}_{\tau_{j(2)}} - \bar{e}_{\tau_{j(1)}}) \right)^2 \\ MSE(t_{5(2)}) &\approx \bar{Y}^2 \left[\theta_2 C_y^2 + \theta_3 \left\{ \sum_{j=1}^k C_{\tau_j}^2 - \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq \psi=1}^k C_{\tau_j} C_{\tau_\psi} \rho_{j\psi} \right\} \right] \end{aligned} \quad (3.6)$$

4. PROPOSED CHAIN PRODUCT ESTIMATOR

We have generalized Naik and Gupta (1996) estimators, for full information case (single-phase sampling), partial and no information case (two-phase sampling) using “k” auxiliary attributes.

4.1 Generalized Product Estimator using “k” Auxiliary Attributes for Full Information Case

For this let the population proportions P_1, P_2, \dots, P_k are known, say we have full information about all auxiliary attributes. We propose a generalized product estimator of Naik and Gupta (1996) by using “k” auxiliary attributes. i.e.

$$t_{6(1)} = \bar{y} \left(\frac{P_1}{P_1} \right) \left(\frac{P_2}{P_2} \right) \dots \left(\frac{P_k}{P_k} \right) \quad (4.1)$$

The mean square error of $t_{6(1)}$ is

$$\begin{aligned} MSE(t_{6(1)}) &\approx E(t_{6(1)} - \bar{Y})^2 \approx E \left(\bar{e}_y + \frac{\bar{Y}}{P_1} \bar{e}_{\tau_1} + \frac{\bar{Y}}{P_2} \bar{e}_{\tau_2} + \dots + \frac{\bar{Y}}{P_k} \bar{e}_{\tau_k} \right)^2 \\ &\approx E \left(\bar{e}_y + \sum_{j=1}^k \frac{\bar{Y}}{P_j} \bar{e}_{\tau_j} \right)^2 \end{aligned}$$

$$MSE(t_{6(1)}) \approx \theta \bar{Y}^2 \left[C_y^2 + \sum_{j=1}^k C_{\tau_j}^2 + \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq \psi=1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right] \quad (4.2)$$

4.2 Generalized Product Estimator for “k” Auxiliary Attributes (With “m” known and “m<k”) for Partial Information case (Two-phase sampling).

Suppose that population proportion p_j are known for $j = (1, 2, \dots, m)$ and population proportion p_j of are unknown for $j = (m+1, m+2, \dots, k)$, Using such prior known partial information we proposed generalize product estimator of Naik and Gupta (1996),

$$t_{7(2)} = \bar{y}_2 \left(\frac{P_{1(2)}}{P_1} \right) \left(\frac{P_{2(2)}}{P_2} \right) \dots \left(\frac{P_{m(2)}}{P_m} \right) \left(\frac{P_{(m+1)(2)}}{P_{(m+1)(1)}} \right) \dots \left(\frac{P_{k(2)}}{P_{k(1)}} \right) \quad (4.3)$$

The mean square error of $t_{7(2)}$ is

$$\begin{aligned} MSE(t_{7(2)}) &\approx E(t_{7(2)} - \bar{Y})^2 \\ &\approx E \left(\bar{e}_{y_2} + \frac{\bar{Y}}{P_1} \bar{e}_{\tau_{1(2)}} \dots + \frac{\bar{Y}}{P_m} \bar{e}_{\tau_{m(2)}} + \frac{\bar{Y}}{P_{m+1}} (\bar{e}_{\tau_{(m+1)(2)}} - \bar{e}_{\tau_{(m+1)(1)}}) \dots + \frac{\bar{Y}}{P_k} (\bar{e}_{\tau_{k(2)}} - \bar{e}_{\tau_{k(1)}}) \right)^2 \\ &\approx E \left(\bar{e}_{y_2} + \sum_{j=1}^m \frac{\bar{Y}}{P_j} \bar{e}_{\tau_{j(2)}} + \sum_{j=m+1}^k \frac{\bar{Y}}{P_j} (\bar{e}_{\tau_{j(2)}} - \bar{e}_{\tau_{j(1)}}) \right)^2 \\ MSE(t_{7(2)}) &\approx \bar{Y}^2 \left[\theta_2 C_y^2 + \theta_2 \sum_{j=1}^m C_{\tau_j}^2 + \theta_3 \sum_{j=m+1}^k C_{\tau_j}^2 \right. \\ &\quad \left. + \theta_2 \sum_{j=1}^m 2C_y C_{\tau_j} \rho_{Pb_j} + \theta_3 \sum_{j=m+1}^k 2C_y C_{\tau_j} \rho_{Pb_j} \right. \\ &\quad \left. + 2\theta_2 \sum_{j \neq \psi=1}^m C_{\tau_j} C_{\tau_\psi} Q_{j\psi} + 2\theta_3 \sum_{\substack{j \neq \psi \\ 1 \leq j \leq m \\ \psi \geq m+1}} C_{\tau_j} C_{\tau_\psi} Q_{j\psi} + 2\theta_3 \sum_{j \neq \psi=m+1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right] \quad (4.4) \end{aligned}$$

If P_2 were also known then $\theta_2 = \theta_3 = \theta$ for this we have,

$$MSE(t_{6(1)}) \approx \theta \bar{Y}^2 \left[C_y^2 + \sum_{j=1}^k C_{\tau_j}^2 + \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq \psi=1}^k C_{\tau_j} C_{\tau_\psi} Q_{j\psi} \right].$$

This is mean square error of full information case.

4.3 Generalized Product Estimator for “k” Auxiliary Attributes for No Information case (Two-Phase Sampling).

Suppose that population proportion p_j are unknown for $j = (1, 2, \dots, k)$, Using such prior known partial information we generalize the product estimator of Naik and Gupta (1996),

$$t_{5(2)} = \bar{y}_2 \left(\frac{P_{1(1)}}{P_{1(2)}} \right) \left(\frac{P_{2(1)}}{P_{2(2)}} \right) \dots \left(\frac{P_{k(1)}}{P_{k(2)}} \right) \quad (4.5)$$

The mean square error of $t_{5(2)}$ is

$$\begin{aligned} MSE(t_{5(2)}) &\approx E(t_{5(2)} - \bar{Y})^2 \approx \\ &E \left(\bar{e}_{y_2} - \frac{\bar{Y}}{P_1} (\bar{e}_{\tau_{1(2)}} - \bar{e}_{\tau_{1(1)}}) - \frac{\bar{Y}}{P_2} (\bar{e}_{\tau_{2(2)}} - \bar{e}_{\tau_{2(1)}}) \dots - \frac{\bar{Y}}{P_k} (\bar{e}_{\tau_{k(2)}} - \bar{e}_{\tau_{k(1)}}) \right)^2 \\ &E \left(\bar{e}_{y_2} - \sum_{j=1}^k \frac{\bar{Y}}{P_j} (\bar{e}_{\tau_{j(2)}} - \bar{e}_{\tau_{j(1)}}) \right)^2 \\ MSE(t_{5(2)}) &\approx \bar{Y}^2 \left[\theta_2 C_y^2 + \theta_3 \left\{ \sum_{j=1}^k C_{\tau_j}^2 - \sum_{j=i}^k 2C_y C_{\tau_j} \rho_{Pb_j} + 2 \sum_{j \neq q=1}^k C_{\tau_j} C_{\tau_q} \rho_{j\psi} \right\} \right] \quad (4.6) \end{aligned}$$

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WHAT INFLUENCES FASHION MORE-TV SHOWS OR FASHION SHOWS?

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ABSTRACT

The aim of this small study is to explore the source of fashion influence in our society. Pakistan is what is called the ‘Ascription Oriented Society’, where people love to follow modern trends. Globalization and revolution of TV channels in Pakistan have acted as a catalyst to fashion consumption. Multinationals have changed the working style of the world and the focus of the people is now on self-presentation and aesthetic sense. This phenomenon has made the professionals self-conscious about their wardrobe. On the other side, TV channels have also uplifted the consciousness of self-presentation. These, with all other factors, have made fashion a specific phenomenon. Currently, everyone loves to look to be unique, attractive and appealing not only in social gatherings but also in professional meetings. This phenomenon incorporated a new discussion as to which source influences fashion more? To testify, two prominent factors have been taken as source i.e. TV Shows and Fashion Shows. A questionnaire was carried out to fashion conscious people of Islamabad (Bahria University and F7 Markez) by asking various aspects of fashion influence. Majority of the respondents believed in fashion consumption. They also believed that fashion shows are glamorous by nature but unacceptable as our street culture. The study reveals that TV shows display everyday fashion which is acceptable to be carried out in our day-to-day life.

INTRODUCTION

Fashion is a very common phenomenon in today’s social life. Fashion is not a product or service of only a specific class or society, it’s a universal product. Every one in society dreams to be unique in dressing and style. Students go to their educational institutions, professionals attend their work, children, teenagers, young people, middle aged and older ones, all believe to advertise their personalities as unique, attractive, and colorful in social gatherings, and formal parties. Fashion in general is defined as “an expression of the time”. This broad interpretation fits well with the modern consumer society in which many aspects of people’s lifestyles are vehicles for reflecting social status and life achievements. Fashion trends also provide an insight in the style, color and direction to which the fashion products will take the society finally.

There are many factors, which are playing a role of catalyst to influence and generate new fashion ideas, resulting in a visible change in the lifestyle of people according to

time and season. Globalization, liberalization, media, fashion shows, fashion journalism, e-shopping, etc. are all contributing in this regard.

SIGNIFICANCE OF THE STUDY

The purpose of study is to find the source which makes people aspire and idealize to dress up stylishly and uniquely with in the cultural bounds. The study examines two mediums i.e. TV shows and fashion shows and tries to find out which of these two influences and projects the fashion more in Pakistani society. As it is, Pakistan is an Islamic society and there is a specific dressing code, which every Pakistani has to follow socially and morally. Style of TV shows has a modal value for our society and the style of fashion given by these shows is becoming the street culture day by day. However, that is not the case for Fashion shows.

METHODOLOGY & RESEARCH INSTRUMENT

The study is based on primary source of data. The instrument used to conduct the research includes a structured questionnaire, floated in the fashion conscious population of Islamabad (Bahria University, and F7 Markez) to determine the source of fashion i.e. which medium people consider influences fashion more in Pakistan. Statistical software SPSS has been used for statistical results. T-test has been applied with 95% confidence level.

SAMPLE AND DATA COLLECTION

The sample was chosen on random sampling basis. Population consists of those persons who are frequent consumers of fashion. Original sample size was 50 young fashionable people who were further categorized into two categories i.e. 25 young students of age 18-24 years from Bahria University and 25 young professionals of age 28-32 years working in different organizations of F7 Markez. The data was collected on a 10-point Likert scale.

RESPONSE RATE

Fifty respondents i.e. 25 young students and 25 young professionals was the target of the study. Of the fifty questionnaires, only 34 questionnaires were received completed, in which 4 questionnaires were not clearly responded. So the response rate was 60%.

DATA ANALYSIS & CONCLUSIONS

Table 1
Everyday Fashion

	Mean	N	T Test	Sig. Level
TV shows display	7.6	30		
Fashion shows display	6.0	30	2.7	0.01

Significant at $p < 0.05$

Two sources of fashion, TV Shows and Fashion Shows, have been analyzed for every day fashion and their results are given in Table 1 & Table 2. As the Table 1 shows, 7.6 is the mean which represents that TV Shows display very day fashion, as compared to the mean of Fashion Shows which is 6.0. T-test also indicates a difference between these two means which is statistically significant at the 5% level of significance. This leads one to interpret that majority of the respondents believes that TV Shows display everyday fashion in a better way than the Fashion Shows.

Table 2
Acceptable Fashion of Society

	Mean	N	T Test	Sig Level
TV shows fashion	8.1	30		
Fashion shows fashion	6.1	30	3.0	0.005

Significant at $p < 0.05$

In Table 2, the higher mean of 8.1 indicates that TV Shows are more acceptable by the society as sources of fashion in Pakistan as compared with the Fashion Shows that has a mean value of 6.1. The T-test also justifies this conclusion by providing a significant difference in the mean values at 5% level of significance. It can, therefore, be concluded that majority of the respondents believe that acceptability of TV Shows as source of fashion is more than that of Fashion Shows in Pakistan.

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THE EXPONENTIATED RAYLEIGH DISTRIBUTION: SOME PROPERTIES

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ABSTRACT

Surles and Padgett (2001) introduced the Scaled Burr Type X distribution, which was termed as the Generalized Rayleigh distribution by Kundu and Raqab (2005). The Generalized Rayleigh distribution was named the Exponentiated Rayleigh distribution by Raqab and Kundu (2006). In this paper, some mathematical properties of this distribution have been derived. A simulation study has also been conducted.

Keywords: Moments, simulation.

1. INTRODUCTION

Surles and Padgett (2001) introduced the Scaled Burr Type X distribution and dealt with the inference for reliability coefficient. They also suggested that Scaled Burr Type X distribution is useful for modeling lifetime data. Kundu and Raqab (2005) termed the Scaled Burr Type X distribution, the Generalized Rayleigh distribution. Raqab and Kundu (2006) proposed that Generalized Rayleigh distribution can easily be used as an alternative of the Weibull distribution when data relates to environment. They also suggested the name Exponentiated Rayleigh for this distribution.

The cumulative distribution function and density function of Exponentiated Rayleigh distribution is:

$$F(x) = \left\{ 1 - \exp\left(-\frac{x^2}{2\sigma^2}\right) \right\}^\alpha, \quad 0 < x < \infty \quad (1.1)$$

$$f(x) = \frac{\alpha x}{\sigma^2} \exp\left(-\frac{x^2}{2\sigma^2}\right) \left\{ 1 - \exp\left(-\frac{x^2}{2\sigma^2}\right) \right\}^{\alpha-1}, \quad 0 < x < \infty \quad (1.2)$$

(Raqab and Kundu; 2006)

2. CHARACTERISTIC FUNCTION

In this section we have derived the characteristic function for the Exponentiated Rayleigh random variable.

2.1 Theorem

Suppose the random variable 'X' has an Exponentiated Rayleigh distribution having the probability density function defined in (1.2), then its characteristic function is given as:

$$\varphi_x(t) = \sqrt{\alpha+1} \sum_{j=0}^{\infty} \frac{(-1)^j}{j! \sqrt{\alpha-j}} \sum_{s=0}^{\infty} \frac{(it\sigma\sqrt{2})^s}{s!} \frac{\left(\frac{s}{2}+1\right)}{(j+1)^{\frac{s}{2}+1}} \quad (2.1)$$

Proof:

Let 'X' be an Exponentiated Rayleigh random variable with parameters α and σ then

$$\varphi_x(t) = \int_0^{\infty} \left[\exp(itx) \frac{\alpha x}{\sigma^2} \exp\left(-\frac{x^2}{2\sigma^2}\right) \left\{1 - \exp\left(-\frac{x^2}{2\sigma^2}\right)\right\}^{\alpha-1} \right] dx \quad (2.2)$$

Substituting $\frac{x^2}{2\sigma^2} = u$ and using series expansion

$$(1+z)^\alpha = \sum_{j=0}^{\infty} \frac{\sqrt{\alpha+1}}{\sqrt{\alpha-j+1}} \frac{z^j}{j!}, \quad \alpha \text{ is not an integer.} \quad (2.3)$$

in (2.2), we obtain

$$\begin{aligned} \varphi_x(t) &= \sqrt{\alpha+1} \sum_{j=0}^{\infty} \frac{(-1)^j}{j! \sqrt{\alpha-j}} \sum_{s=0}^{\infty} \frac{(it\sigma\sqrt{2})^s}{s!} \int_0^{\infty} \left[\exp\{-u(j+1)\} u^{\frac{s}{2}} \right] du \\ &= \sqrt{\alpha+1} \sum_{j=0}^{\infty} \frac{(-1)^j}{j! \sqrt{\alpha-j}} \sum_{s=0}^{\infty} \frac{(it\sigma\sqrt{2})^s}{s!} \frac{\left(\frac{s}{2}+1\right)}{(j+1)^{\frac{s}{2}+1}} \end{aligned} \quad (2.4)$$

Corollary:

Suppose the random variable 'X' has an Exponentiated Rayleigh distribution having the probability density function defined in (1.2), then its nth moment is given as:

$$E(X^n) = \left(2\sigma^2\right)^{\frac{n}{2}} \sqrt{\alpha+1} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{n}{2}+1} \sqrt{\alpha-j}}, \quad \text{For } n > -2 \quad (2.5)$$

3. MEAN-DEVIATIONS

Mean-deviation about the mean and median have been derived using the expressions given by Nadarajah and Kotz (2006).

3.1 Mean-Deviation about Mean:

By definition: $M.D_{\bar{x}} = E|X - \mu|$

$$M.D_{\bar{x}} = 2 \left[\mu F(\mu) - \int_0^{\mu} xf(x) dx \right] \quad (3.1)$$

(Nadarajah and Kotz, 2006)

Using (1.2)

$$\int_0^{\mu} xf(x) dx = \frac{\alpha}{\sigma^2} \int_0^{\mu} \left[x^2 \exp\left(-\frac{x^2}{2\sigma^2}\right) \left\{ 1 - \exp\left(-\frac{x^2}{2\sigma^2}\right) \right\}^{\alpha-1} \right] dx \quad (3.2)$$

Using the series expansion defined in (2.3) and making the substitution $\frac{x^2}{2\sigma^2}(j+1) = t$ in (3.2), we obtain

$$\int_0^{\mu} xf(x) dx = \sqrt{2}\alpha + 1\sigma \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \alpha - j} \gamma\left(\frac{3}{2}, \frac{\mu^2}{2\sigma^2}(j+1)\right) \quad (3.3)$$

where $\gamma(a, x) = \int_0^x t^{a-1} e^{-t} dt$

On substituting (3.3) in (3.1), we obtain:

$$M.D_{\bar{X}} = 2\mu \left\{ 1 - \exp\left(-\frac{\mu^2}{2\sigma^2}\right) \right\}^{\alpha} - 2\sqrt{2}\alpha + 1\sigma \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \alpha - j} \gamma\left(\frac{3}{2}, \frac{\mu^2}{2\sigma^2}(j+1)\right) \quad (3.4)$$

where $\mu = \sqrt{\alpha + 1}\sigma \sqrt{\frac{\pi}{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{3}{2}} \alpha - j}$

3.2 Mean-Deviation about Median:

By definition: $M.D_{\bar{X}} = E|X - M|$ where 'M' denotes the median.

$$M.D_{\bar{X}} = E(X) + 2MF(M) - M - 2 \int_0^M xf(x) dx \quad (3.5)$$

(Nadarajah and Kotz, 2006)

Using (1.2)

$$\int_0^M xf(x) dx = \frac{\alpha}{\sigma^2} \int_0^M \left[x^2 \exp\left(-\frac{x^2}{2\sigma^2}\right) \left\{ 1 - \exp\left(-\frac{x^2}{2\sigma^2}\right) \right\}^{\alpha-1} \right] dx \quad (3.6)$$

Using the series expansion defined in (2.3) and making the substitution $\frac{x^2}{2\sigma^2}(j+1) = t$ in (3.6), we obtain:

$$\int_0^M xf(x) dx = \sqrt{2}\alpha + 1\sigma \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \alpha - j} \gamma\left(\frac{3}{2}, \frac{M^2}{2\sigma^2}(j+1)\right) \quad (3.7)$$

On substituting (3.7) in (3.5), we get:

$$\begin{aligned}
M.D_{\bar{X}} = & \sqrt{\alpha+1}\sigma\sqrt{\frac{\pi}{2}}\sum_{j=0}^{\infty}\frac{(-1)^j}{j!(j+1)^{\frac{3}{2}}}\sqrt{\alpha-j} + 2M\left\{1-\exp\left(-\frac{x^2}{2\sigma^2}\right)\right\}^{\alpha} - M \\
& -\sqrt{\alpha+1}\sigma 2\sqrt{2}\sum_{j=0}^{\infty}\frac{(-1)^j}{j!(j+1)^{\frac{3}{2}}}\sqrt{\alpha-j}\gamma\left(\frac{3}{2},\frac{M^2}{2\sigma^2}(j+1)\right) \quad (3.8)
\end{aligned}$$

4. SIMULATION STUDY

4.1 Introduction:

We have used inverse transformation method to generate random samples from the Exponentiated Rayleigh distribution. These samples have then been used to study the sampling distribution of the maximum likelihood estimator of the scale parameter i.e. $\hat{\sigma}^2$.

4.2 Estimation:

We can estimate the shape and scale parameters of Exponentiated Rayleigh distribution by using

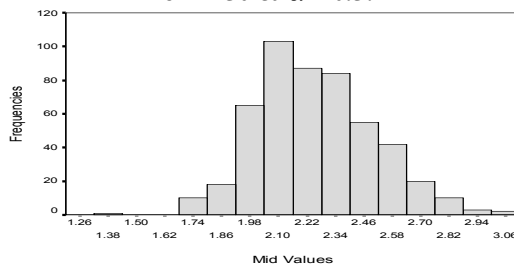
$$\hat{\alpha} = -\frac{n}{\sum_{i=1}^n \ln \left\{ 1 - \exp \left(-\frac{x_i^2}{2\hat{\sigma}^2} \right) \right\}} \quad (4.1)$$

$$-2n\hat{\sigma}^2 + \sum_{i=1}^n x_i^2 - (\hat{\alpha}-1) \sum_{i=1}^n \left\{ \frac{x_i^2 \exp \left(-\frac{x_i^2}{2\hat{\sigma}^2} \right)}{1 - \exp \left(-\frac{x_i^2}{2\hat{\sigma}^2} \right)} \right\} = 0 \quad (4.2)$$

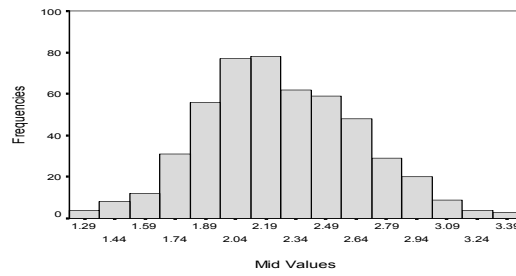
(Raqab and Kundu; 2006)

We have drawn 500 samples of size 50 each by using inverse transformation method and SPSS for different values of shape parameter 0.5, 1.5 and 2.0 keeping the scale parameter 1.5. The maximum likelihood estimator of the scale parameter was computed by putting values 0.5, 1.5 and 2.0 to α in (4.2) and frequency distributions were formed. Then we calculated the bias, variance and measures of skewness. We also repeated this procedure for 500 samples of size 100 each. The graphs are being given

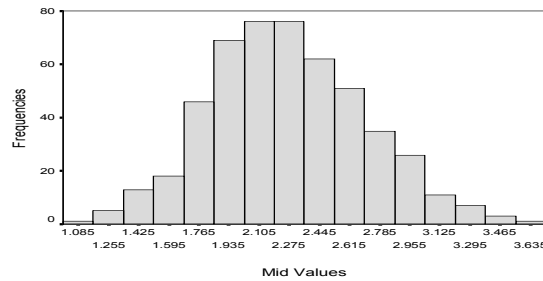
For n=50 & $\alpha = 0.5$:



For n=50 & α=1.5:



For n=50 & α=2.0:



		Bias	Variance	α ₃
n=50	α=0.5	0.005520	0.061992	0.338993
	α=1.5	0.010600	0.153081	0.208755
	α=2.0	0.015820	0.193528	0.200000
n=100	α=0.5	0.003760	0.02646	0.184015
	α=1.5	0.009400	0.068942	0.068393
	α=2.0	0.009860	0.087815	0.015173

By this simulation study we conclude that as the sample size increases, the skewness, variance and bias decrease and for small value of the shape parameter the maximum likelihood estimator of the scale parameter is close to the variance.

5. SOME GENERAL RESULTS

Here we present different values of the mean, median, mean-deviation about mean and median and nth non-central moment for different values of the shape parameter 0.5, 1.5 keeping the scale parameter constant.

Table 5.1

	α	Mean	Median
σ²=2.25	0.5	$\frac{3\pi}{4\sqrt{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{3}{2}} 0.5-j}$	0.368259
	1.5	$\frac{9\pi}{8\sqrt{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{3}{2}} 1.5-j}$	0.684576

Table 5.2:

	α	M.D about mean
$\sigma^2=2.25$	0.5	$2\mu \left\{ 1 - \exp\left(-\frac{2\mu^2}{9}\right) \right\}^{\frac{1}{2}} - 3\sqrt{\frac{\pi}{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \sqrt{0.5-j}} \gamma\left(\frac{3}{2}, \frac{2\mu^2}{9}(j+1)\right)$
	1.5	$2\mu \left\{ 1 - \exp\left(-\frac{2\mu^2}{9}\right) \right\}^{\frac{3}{2}} - \frac{9}{2}\sqrt{\frac{\pi}{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \sqrt{1.5-j}} \gamma\left(\frac{3}{2}, \frac{2\mu^2}{9}(j+1)\right)$

Table 5.3:

	α	M.D about median
$\sigma^2=2.25$	0.5	$\frac{3\pi}{4\sqrt{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{3}{2}} \sqrt{0.5-j}} + 0.736518 \left\{ 1 - \exp\left(-\frac{2x^2}{9}\right) \right\}^{\frac{1}{2}}$ $-0.368259 - 3\sqrt{\frac{\pi}{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \sqrt{0.5-j}} \gamma\left(\frac{3}{2}, 0.030137(j+1)\right)$
	1.5	$\frac{9\pi}{8\sqrt{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{3}{2}} \sqrt{1.5-j}} + 1.369152 \left\{ 1 - \exp\left(-\frac{2x^2}{9}\right) \right\}^{\frac{3}{2}}$ $-0.684576 - \frac{9}{2}\sqrt{\frac{\pi}{2}} \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{1}{2}} \sqrt{1.5-j}} \gamma\left(\frac{3}{2}, 0.104143(j+1)\right)$

Table 5.4:

	α	$E(X^n)$
$\sigma^2=2.25$	0.5	$(2\sigma)^n \sqrt{\frac{\pi}{2}} \frac{n}{2} + 1 \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{n}{2}+1} \sqrt{0.5-j}}$
	1.5	$(2\sigma)^n \frac{3}{2} \sqrt{\frac{\pi}{2}} \frac{n}{2} + 1 \sum_{j=0}^{\infty} \frac{(-1)^j}{j!(j+1)^{\frac{n}{2}+1} \sqrt{1.5-j}}$

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**THE RELATIONSHIP BETWEEN HEIGHT, WEIGHT
AND FEET-LENGTH OF THE HUMAN BODY**

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ABSTRACT

This research contains the data regarding the heights, weights and feet-lengths of the people of different age groups. This research provides the knowledge about the dependence of dependent factors i.e., weight and feet-length over the independent factor i.e., height of a person. The sample used in this research belonged to different areas of Karachi. The respondents are then divided into 2 groups, i.e., above and below 20 years of age, from both males and females.

This research also provides the average height, weight and feet-length of the people at different ages. From this research, we can also calculate the Height, Weight and Feet-length of ancient people (provided that 2 of such factors / variables are given).

The basic statistical analysis of survey respondents provides that among weight and feet-length, feet-length has stronger relationship with height as compared to weight, and the coefficient of feet-length is statistically significant.

1. INTRODUCTION

Human height, weight and feet-length varies according to both nature and nurture. The particular human genome that an individual inherits is a large part of the first variable (nature) and a combination of health and environmental factors present before adulthood (when growth stops) are a major part of the second determinant ("nurture"). Hereditary factors include both genes and chromosomes, and are inborn. Environmental factors are events that occur before adult height, weight and feet-length is reached, such as diet, exercise, and living conditions.

The average height, weight and feet-length for each sex within a population is significantly different, height, weight and feet-lengths of males are higher than that of females.

As far as height is concerned, the maximal height that an individual attains in adulthood is not maintained throughout life if that life is a very long one.

The average height is increasingly used as a measure of the health and wellness (standard of living and quality of life) of populations.

2. OBJECTIVES OF THE RESEARCH

- 1) To find out the average height, weight and feet-length of males and females at different stages of life.
- 2) To find out whether the height of a person is affected by weight and feet-length.

3. LITERATURE SURVEY

3.1. Human Height

Human height varies according to both nature and nurture. The particular human genome that an individual inherits is a large part of the first variable (nature) and a combination of health and environmental factors present before adulthood (when growth stops) are a major part of the second determinant ("nurture"). Hereditary factors include both genes and chromosomes, and are inborn. Environmental factors are events that occur before adult height is reached, such as diet, exercise, and living conditions.

The average height for each sex within a population is significantly different, with adult males being (on average) taller than adult females.

3.2. Human Weight

The term **body weight** is overwhelmingly used in daily English speech and in biological and medical science contexts to describe the mass of an organism's body. Body weight is measured in kilograms throughout the world, although in some countries people more often measure and describe body weight in pounds.

3.3. Human Foot

The human foot, the foundation for bipedal locomotion, is a complex adaptation that evolved through extensive remodelling of the hind appendage of our arboreal primate forebears (Susman 1983). For nearly a century, scholars have examined the anthropometry of the foot and its relationship with other aspects of the body. Within the last decade, these questions have received particular attention in the fields of ergonomics and forensic science, the former in the service of improvements in footwear design, the latter in order to guide forensic reconstructions derived from either footprints or limb fragments. Although sex differences in foot morphology have been studied by many of these investigators, one issue that is often touched on, yet rarely examined in depth, is the possibility of sex differences not in the conformation of the foot per se, but rather in the size of the foot proportionate to the size of the body. Notably, in this journal, Ashizawa et al. (1997) documented that, among urban Japanese, proportionate to stature, women have smaller feet than men. This result contrasts with the earlier findings of Baba (1975) who, examining employees of a Japanese shoe manufacturer concluded that, proportionate to stature, women have larger feet than men. The fact that two studies of the same relatively homogeneous population reached diametrically opposed conclusions regarding the direction of sexual dimorphism in foot length proportionate to stature is indicative of the extent to which this question is in need of further scrutiny. In this paper, we first review published reports that bear on the question of sex differences in foot length proportionate to stature. We then independently analyze three existing data sets, followed by an examination of previously unpublished archival material. Finding considerable evidence of patterned sexual dimorphism in proportionate foot length, we conclude by discussing the selection pressures that may have shaped this aspect of human bodies over the course of human evolution.

3.4. Hypothesis

- 1) The height of a person is independent of weight and feet-length.

4. RESEARCH METHODOLOGY

This study was conducted through an open and closed ended questionnaire, which contained about 6 questions, of which 3 were related to personal data, and the rest were related to the subject study.

The questionnaire was administered to the mature people, and they were asked to solve it for all their family members including children. The data about the people belonged to different age groups was collected. The reason for this is that the average height, weight and feet-length of adults and non-adults is different and this was calculated according to their response.

The population for the subject study is the people of Karachi. The researcher selected 150 respondents. These were drawn non-randomly.

5. DATA ANALYSIS METHOD

The data analysis was based on Simple ANOVA and Regression. The software Excel was used for generating the results.

6. HYPOTHESIS TESTING

Hypothesis

The height, weight and feet-lengths of a person are independent factors.

Statement

H_{10} : Sufficient evidence exists to conclude that no linear relationship exists between dependent variable “height” and independent variables such as weight and feet length.

H_{1A} : At least one of the predictor variables has a linear relationship with the dependent variable “height”.

Statistical representation

$$H_{10}: \beta_1 = \beta_2 = 0$$

$$H_{1A}: \beta_1 \neq \beta_2 \neq 0$$

FEMALES BELOW 20 YEARS OF AGE

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.54744374
R Square	0.29969465
Adjusted R Square	0.27168243
Standard Error	3.93918532
Observations	53

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	332.0277423	166	10.698713	0.00013558
Residual	50	775.8590502	15.52		
Total	52	1107.886792			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	45.2946887	3.659265713	12.38	37.944834	52.6445432
Feet-Length	0.38513679	0.152689714	2.522	0.0784503	0.69182323
Weight	0.17254472	0.05111524	3.376	0.0698767	0.27521274

R^2 for females below 20 years of age is 0.299, which indicates that about 29% of the variation on the dependent variable is explained by the predictor variable which is weak. Among both independent variables the slope for the feet length is high, this means that as compared to other independent variable, Feet length has stronger relationship with the dependent variable "Height". Regression coefficient for Feet length is 0.38. This means that an increase in one rating (on the scale of five to one) Feet length will cause Height to increase by 0.38.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

FEMALES ABOVE 20 YEARS OF AGE

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.480037
R Square	0.2304355
Adjusted R Square	0.1876819
Standard Error	1.8700331
Observations	39

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	37.6968828	18.848441	5.38985203	0.00896212
Residual	36	125.892861	3.4970239		
Total	38	163.589744			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	55.361063	2.17677154	25.432647	50.9463717	59.7757546
Feet-Length	0.231235	0.09985925	2.315609	0.0287113	0.43375866
Weight	0.0343784	0.0264465	1.2999219	-0.0192575	0.08801431

R^2 for females above 20 years of age is 0.23, which indicates that about 23% of the variation on the dependent variable is explained by the predictor variable which is weak. Among both independent variables the slope for the Feet length is high, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length is 0.23. This means

that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.23.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

ALL FEMALES (ABOVE AND BELOW 20 YEARS OF AGE)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.494803
R Square	0.24483
Adjusted R Square	0.22786
Standard Error	3.319287
Observations	92

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	317.9061	158.953	14.42711	3.74E-06
Residual	89	980.5722	11.01766		
Total	91	1298.478			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	50.27845	2.283159	22.02144	45.74186	54.81503
Feet-Length	0.316211	0.103852	3.044823	0.109859	0.522562
Weight	0.092423	0.027327	3.382089	0.038124	0.146721

R^2 for all females is 0.244, which indicates that about 24% of the variation on the dependent variable is explained by the predictor variable which is weak. Among both independent variables the slope for the feet length high, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length is 0.31. This means that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.31.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

MALES BELOW 20 YEARS OF AGE

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.90832752
R Square	0.82505889
Adjusted R Square	0.80173341
Standard Error	6.39292448
Observations	18

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2891.23553	1445.61776	35.371569	2.097E-06
Residual	15	613.042252	40.8694835		
Total	17	3504.27778			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	23.3857055	5.26276269	4.44361771	12.168385	34.603026
Feet-Length	0.94454262	0.43941	2.14957014	0.0079618	1.8811234
Weight	0.37009515	0.14894044	2.48485342	0.0526359	0.6875544

R^2 for males below 20 years of age is 0.82, which indicates that about 82% of the variation on the dependent variable is explained by the predictor variable which is significantly strong. Among both independent variables the slope for the feet length highest, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length is 0.94. This means that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.94.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

MALES ABOVE 20 YEARS OF AGE

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.13875335
R Square	0.01925249
Adjusted R Square	-0.0483853
Standard Error	2.95886168
Observations	32

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	4.983989162	2.4919946	0.2846412	0.75436162
Residual	29	253.8910108	8.7548624		
Total	31	258.875			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	68.5559792	4.440641424	15.438306	59.4738428	77.6381156
Feet-Length	0.06876494	0.122828129	0.5598468	-0.1824469	0.31997681
Weight	-0.0205982	0.044137807	-0.4666794	-0.1108702	0.06967379

R^2 for males above 20 years of age is 0.01, which indicates that about 1% of the variation on the dependent variable is explained by the predictor variable which is significantly weak. Among both independent variables the slope for the feet length is high, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length

is 0.06. This means that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.06.

ALL MALES (ABOVE AND BELOW 20 YEARS OF AGE)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.8359542
R Square	0.6988194
Adjusted R Square	0.6860032
Standard Error	5.9249231
Observations	50

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3828.25846	1914.1292	54.526274	5.655E-13
Residual	47	1649.92154	35.104714		
Total	49	5478.18			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	31.491398	3.5836041	8.7876332	24.282124	38.700673
Feet-Length	0.7487449	0.18239033	4.1051786	0.3818232	1.11566652
Weight	0.2731683	0.04833837	5.6511698	0.1759242	0.37041249

R^2 for all males is 0.68, which indicates that about 68% of the variation on the dependent variable is explained by the predictor variable which is significantly strong. Among both independent variables the slope for the feet length is high, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length is 0.74. This means that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.74.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

ALL DATA (MALES AND FEMALES)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.7360089
R Square	0.5417091
Adjusted R Square	0.535115
Standard Error	4.8035149
Observations	142

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	3791.03675	1895.518	82.150406	2.8139E-24
Residual	139	3207.25199	23.07376		
Total	141	6998.28873			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	38.407707	2.08566995	18.41505	34.283967	42.5314473
Feet-Length	0.6169133	0.1032857	5.972882	0.4126991	0.82112751
Weight	0.2007235	0.02741597	7.321408	0.1465173	0.25492975

R^2 for the whole data is 0.54, which indicates that about 54% of the variation on the dependent variable is explained by the predictor variable which is not significantly strong. Among both the independent variables the slope for the feet length high, this means that as compared to other independent variable, feet length has stronger relationship with the dependent variable "Height". Regression coefficient for feet length is 0.61. This means that an increase in one rating (on the scale of five to one) of feet length will cause height to increase by 0.61.

The F-value is high and falls in the critical region that means variations of independent variables are unequal; this indicates that the results are not biased. Except for the coefficient of feet length, other coefficient is not statistically significant.

7. CONCLUSION

The focus of the study was to determine "the relationship between height, weight and feet-length of the human body". In which the independent variables were "weight" and "feet-length", and the dependent variable was "height". The questionnaire administrated for the study was based on 6 items, of which 3 were related to personal data and the rest were related to the subject study "the relationship between height, weight and feet-length of the human body". The sample size of the study was 150. The questionnaire was administered to the mature people and was asked to solve it for all members of their family including children. The respondent's opinions indicate that feet-length of a person has comparatively higher influence on height, rather than weight. The hypothesis relating to "the independence of height from weight and feet-length" was rejected at 95% confidence interval. Therefore, the alternative hypothesis of relationship between height, weight and feet-length was accepted.

This research also helps in determining the height, weight and feet-length of ancient people. This research "the relationship between height, weight and feet-length of the human body" has vast applications in every field of life. Like, It is very useful in medical field to find out the health of the patient. It is useful for making shoes. Also it is useful in the field of carpentering, for making roofs, doors, etc. It is useful in making garments etc.

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ANNEXURE: A

QUESTIONNAIRE

- Q1- Gender?
 Male Female
- Q2- Age?
 10-20 years 21-30 years
 31-40 years Above 40 years
- Q3. Area of residence?
Ans. Nazimabad/F.B Area
 Gulshan/PECHS
 Defence/Clifton
 Others (please specify) _____
- Q4. What is your Height (in inches)?
Ans. _____
- Q5. What is your weight (in Kg.)?
Ans. _____
- Q6. What is the actual Length of your foot (in inches)?
Ans. _____

EXECUTIVE DIRECTORS REMUNERATIONS AND ITS IMPACT ON PERFORMANCE OF BANKING

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ABSTRACT

A case study technique was adopted to investigate the impact of Executive Directors remunerations in Northern Rock Bank with respect to their performance. In order to know the degree of relationship between Executive Directors remunerations with performance indicators such as total shareholder return (TSR), earnings per share (EPS), profit/loss before tax (PLBT) and return on equity (ROE). A Pearson coefficient of correlations was calculated.

It was observed that Executive Directors remunerations have insignificant relation with total shareholder return and earnings per share. It means increase of Executive Directors remunerations is not dependent on total shareholder return and earnings per share. But relationship between the variables total shareholder return and earnings per share are highly significant. They are Linear in their relationships. When value of variable total shareholder return increases then value of variable earnings per share also increases.

Relationship between variables Executive Directors remunerations and profit/loss before tax and return on equity was calculated. It was judged from results that Executive Directors remunerations are not dependent on said performance indicators. The variables profit before tax and return on equity were highly significant. Thus, it is concluded that variables profit before tax and return on equity were closely associated with each other that is as profit before tax increases the value of return on equity also increases in the same directions.

1. INTRODUCTION

Corporate governance and regulation of financial sector is equally important due to the fact that financial institutions and banks play vital roles in growth and stability of the economy. Corporate governance practices involved in banks are different from the non - bank financial institutions due to very distinctive nature of banks.

The area of executive pay in relation to performance is not studied most often, as researcher tends to find similar results. Executive pay packages in banks are new area to study as bank corporate governance is changing day by day. Weak corporate governance has affected financial markets around the world recently. The main purpose of the study is to examine the relationship between Executive Directors remunerations with annual bank performance.

2. RESEARCH METHODOLOGY

Research is focused on one major area of financial sector, the banks. There are 51 banks/financial institutions operating in United Kingdom. The research data are based on a case study of Northern Rock Bank only. The Northern Rock Bank (NRB) is listed on London stock exchange (LSE). Ten years data relating to Executive Directors remunerations of Northern Rock Bank are collected from annual reports of the bank.

3. MAIN HYPOTHESIS

Executive Directors remunerations relates with performance of the bank. So there is relationship between Executive Directors remunerations and performance of the bank.

Hypothesis H0: Higher the Executive Directors remunerations, higher will be performance of the bank.

Hypothesis H1: Lower the Executive Directors remunerations, lower will be performance of the bank.

4. ANALYSIS OF DATA

In order to test the above hypotheses secondary data of variables from Northern Rock Bank was collected form 1998 to 2007, which is given in the table-1.

Table 1: Secondary Data for Analysis

Year	TSR-NRB	FISE-100	FISE-350	EDR	NEDR	BODR	PLBT	EPS	ROE	RAR
1998	-3	17	15	.	.	.	216.70	.	19.50	12.80
1999	-28	21	23	.	.	.	215.10	.	19.10	13.90
2000	14	-8	-6	.	.	.	245.50	.	19.80	13.90
2001	51	-14	-13	.	.	.	276.50	46.50	20.80	13.20
2002	8	-22	-23	1886.00	324.00	2210.00	326.20	55.40	21.90	16.10
2003	12	18	20	2185.00	422.00	2607.00	386.80	66.60	21.30	14.30
2004	13	11	13	2213.00	410.00	2623.00	431.20	74.90	20.30	14.00
2005	25	21	22	3656.00	572.00	4228.00	494.20	72.50	20.80	12.30
2006	29	14	17	4623.00	721.00	5344.00	626.70	94.60	25.30	11.60
2007	-30	6	7	2441.00	623.00	3212.00	-167.70	-66.50	14.20	14.40

Source: Annual Reports Northern Rock Bank

Explanations:	Total Shareholders Return-Index Northern Rock Bank.	(TSR-NRB).
	First Stock Exchange-100 Companies Index.	(FISE-100).
	First Stock Exchange-350 Companies Index.	(FISE-350).
	Executive Directors' remuneration in £ 000	(EDR).
	Non-Executive Directors' remuneration in £ 000	(NEDR).
	Board of Directors' remuneration in £ 000	(BODR).
	Profit/Loss Before Tax in £ Million	(PLBT).
	Earnings per share in pennies	(EPS).
	Return on Equity in percent.	(ROE).
	Risk Asset Ratio in percent.	(RAR).

5. EXISTING REMUNERATION PACKAGE OF EXECUTIVE DIRECTORS

Like other banks the Northern Rock Bank's Board has also developed a remuneration policy for achieving the following objectives.

- i) To provide transparent, competitive packages to motivate, reward and retain Executive Directors.
- ii) To motivate for future achievement, a significant proportion of remuneration is based on operational and financial performance both in the short and long term together with the individual contribution made by the Executive Directors.

The existing remuneration package of Executive Directors in Northern Rock Bank comprises of basic salary, annual bonus, pension benefits and non-cash benefits like chauffeur driven car, furnished house with an objective that Executive Directors basic salaries should be paid at an appropriate level taking in account of both personal performance and of salaries within a comparator group of financial institutions. Non-Executive Directors receive only fixed fees.

Component-wise break up of Executive Directors remunerations of Northern Rock Bank is exhibited at table-2.

Table 2: Executive Directors and Non- Executive Director's remuneration.

Remuneration	Years					
	2002	2003	2004	2005	2006	2007
EDRS	£ (000)	£(000)	£ (000)	£(000)	£ (000)	£ (000)
Salaries and Fees	1,055	1,225	1,315	1,945	2,330	2,362
Bonus	791	920	856	1,647	2,228	0000
Total Remuneration	1,846	2,145	2,171	3,592	4,558	2,362
Non cash benefits	40	40	42	64	65	79
Total Emoluments	1,886	2,185	2,213	3,656	4,623	2,441
Percent change	0	16	17	94	145	29
NEDRS	324	422	410	572	721	623
Directors Emoluments	2210	2607	2623	4228	5344	3064
Percent change	0	15	16	48	59	28

Source: Annual Reports

Abbreviations: EDRS Executive Directors Remuneration,
NEDRS Non-Executive Directors remuneration

6. PERFORMANCE MEASURING VARIABLES

There are so many variables used to measure the performance in relation to executive pay or remuneration. From literature it was found that the most common market-related performance measuring variable is total shareholder return (TSR), although there is a considerable decrease in the use of total shareholder return as the single measure for performance. The most common non-market performance measuring variable is earnings per share (EPS). Other non-market performance measuring variables are net asset value (NAV), return on equity (ROE) and Profit/Loss before Tax (PLBT).

In this paper variables like total shareholder return, earnings per share, return on equity and profit/loss before tax are selected for measuring the performance of Executive Directors with respect to their remunerations.

7. TOTAL SHAREHOLDER RETURN PERFORMANCE OF NORTHERN ROCK BANK

Table-3 illustrates the Northern Rock Group's total shareholder return performance over the preceding six years, from 2002 to 2007, compared with that of the FTSE-100 Index of which Northern Rock has been a constituent since September 2001 and that of the FTSE-350 Index of which Northern Rock was a constituent prior to September 2001. The FTSE-350 Index has been included because members of this index comprise the comparator group for long-term incentive plan purposes for 2004 and prior.

Table-3: Year-wise changes in total shareholder return in Northern Rock Bank, FTSE 100 Index, FTSE 350 Index

Year	TSR Index	FISE 100 Index	FISE 350 Index
1999	-28	21	23
2000	14	-8	-6
2001	51	-14	-13
2002	8	-22	-23
2003	12	18	20
2004	13	11	13
2005	25	21	22
2006	29	14	17
2007	-30	20	22

Source: Annual reports of Northern Rock Bank.

The performance graph has been prepared using the M.S Excels graph construction utility.

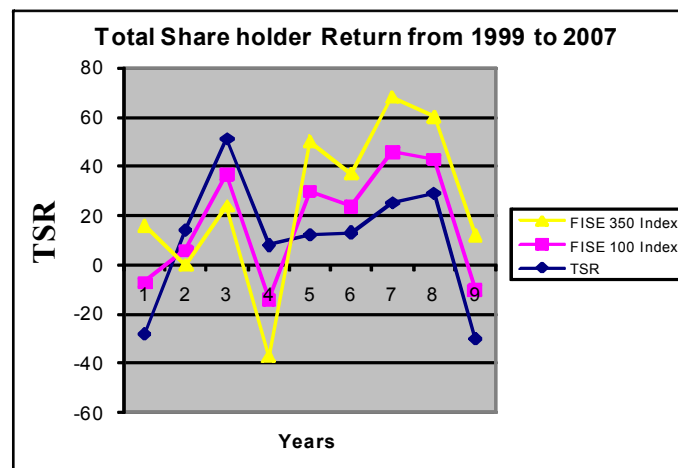


Figure-1: Showing the TSR performance of a Northern Rock Bank.

It is seen from the Figure-1 that relative total shareholder return of Northern Rock Bank was -28 in 2002 grew in consequent years and abruptly fallen in 2007. FISE-100 Index and FISE-350 Index were decreased during the years 2002, 2003, 2004 then increased. So there were fluctuations in total shareholder return growth of the Northern Rock Bank.

8. RELATIONSHIP BETWEEN EXECUTIVE DIRECTORS REMUNERATIONS, TOTAL SHAREHOLDER RETURN AND EARNINGS PER SHARE.

In order, to know the closeness between Executive Directors Remunerations, Total Shareholders Return and Earnings Per Share, of these variables coefficient of correlation was calculated by applying Pearson correlation. The results are given in the table- 4.

Table 3: Relationships between Executive Directors Remunerations, Total Shareholder Return and Earnings Per Share.

Variables	Correlation	EDRS	TSR	EPS
Executive Directors remunerations	Pearson	1.00	.54	.36
	Sig. (2-tailed)	.	.26	.48
	N	6	6	6
Total Shareholder Return (TSR).	Pearson	.54	1.00	.97**
	Sig. (2-tailed)	.26	.	.00
	N	6	6	6
Earnings Per Share (EPS).	Pearson	.36	.97**	1.00
	Sig. (2-tailed)	.48	.00	.
	N	6	6	6

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

Abbreviations: EDRS Executive Directors Remuneration,
 TSR Total Shareholders Return,
 EPS Earnings per share

It is seen from the above table-4 that at row one of the table variable Executive Directors remunerations has positive non-significant correlation with variables total shareholders return and earnings per share. Whereas, at row two of the table the variable total shareholders return has positive correlation with Executive Directors remunerations and highly significant at the 0.01 level with variable earnings per share, similarly variable earnings per share has positive correlation with Executive Directors remunerations and highly significant at the 0.01 level with variable total shareholders return.

It is concluded that variable Executive Directors remunerations has no significant relation with variables total shareholders return and earnings per share. But variables total shareholders return and earnings per share are highly significant and linear in their relationships.

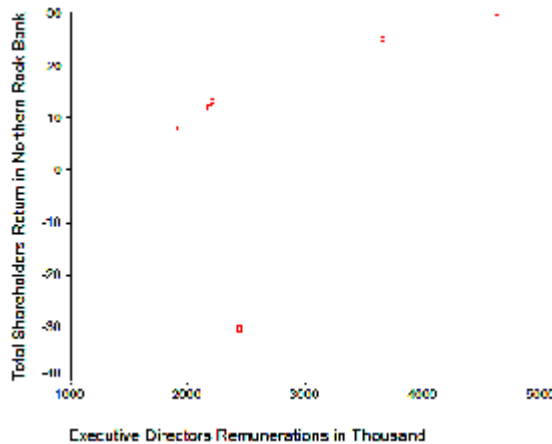


Figure-2: Showing Scatter diagram Executive Directors' remuneration and total Shareholder return from 2002 to 2007.

9. RELATIONSHIP BETWEEN EXECUTIVE DIRECTORS REMUNERATIONS AND PROFIT/LOSS BEFORE TAX AND RETURN ON EQUITY.

In order, to measure the relationship between Executive Directors remunerations, profit/loss before tax and return on equity, Pearson correlation analysis was performed the results of analysis is given at table-5.

Table 4: Relationships between Executive Directors remunerations and Profit/Loss Before Tax and Return on Equity from 2002 to 2007.

Variables	Correlation	EDRS	P/LBT	ROE
Executive Directors remunerations	Pearson	1.00	.52	.49
	Sig. (2-tailed)	.	.28	.31
	N	6	6	6
Profit/Loss Before Tax	Pearson	.52	1.00	.93**
	Sig. (2-tailed)	.28	.	.00
	N	6	6	6
Return on Equity	Pearson	.49	.93**	1.00
	Sig. (2-tailed)	.31	.00	.
	N	6	6	6

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

Abbreviations: EDRS Executive Directors Remuneration,
P/LBT Profit Loss before Tax,
ROE Return on Equity

It is observed from above table-5 that at row one of table Executive Directors remunerations were positively correlated with variables profit before tax and return on equity but not significant hence null hypotheses is accepted. Variables profit before tax and return on equity are highly correlated with each other and are highly significant at the 0.01 levels. Hence, null hypothesis is rejected and alternate hypothesis is accepted. Thus, it is concluded that variables profit before tax and return on equity are closely associated with each other and association is linear in nature.

10. CONCLUSION

A case study technique was adopted to investigate the impact of executive compensation. In order to observe the degree of relationship between Executive Directors remunerations with market performance indicator (total shareholder return) and non-market performance indicators (Earnings per share, Profit/loss Before Tax and Return on Equity), coefficient of correlations were calculated.

Executive Directors remunerations has positive non-significant correlation with variables total shareholder return and variable earnings per share. Whereas, variable total shareholder return is highly significant at the 0.01 levels with variable earnings per share. It is concluded that variable Executive Directors remunerations has no significant relation with variables total shareholder return and variable earnings per share. But variables total shareholder return and variable earnings per share are linear in their relationships.

It was observed that Executive Directors remunerations were positively correlated with variables profit before tax and return on equity but not significant. But variables profit before tax and return on equity were highly correlated with each other and are highly significant at the 0.01 levels. Thus, it is concluded that variables profit before tax and return on equity are closely associated with each other and their association was linear in nature.

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**COMPARISON OF INCOME AND EXPENDITURES OF NOMADS
PASTORALISTS IN IRRIGATED AREAS AND DESERT AREAS OF
CHOLISTAN UNDER VARYING ENVIRONMENTAL CONDITIONS**

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ABSTRACT

Economy of the nomad's pastoralists of Cholistan desert can be divided in to two parts, i) economy of the nomads when they stay in the desert and ii) economy of the nomads when they are at irrigated areas. The purpose of this study is to calculate income and expenditures separately in irrigated areas and in desert areas and find out reasons of migration towards desert areas where necessities of life are insufficient. Although after allotments of lands to nomad's pastoralists by government trend of this migration minimize but sample data is taken from the villages where people still adopted this practice of migration. The present study revealed that people earn more income in irrigated area as compared to desert areas as 71% people earn their income in the range of Rs. 1,00,100/- to 2,00,000/- where as in desert area they earn their income in the range of Rs.1000/- to 50,000/-. Number of livestock is greater in desert areas as compared to irrigated areas. Sixty eight percent people have their own lands but only 29% people cultivate crops on their lands because in some areas availability of water is unsatisfactory. While sixty eight percent population of sample area received financial support from government which helps to increase the income. The study was econometric and economy was measured by income and expenditures using Binary Logistic Regression Model applied on 200 sample data taken from ten different villages of Cholistan desert. First study was done on income of nomads in irrigated areas in May 2008 while in the present study a comparison is done on income and expenditure pattern of nomads in irrigated areas and in desert areas under varying environment conditions of Cholistan Desert.

INTRODUCTION

Based on topography, parent material, soil and vegetation, the whole Cholistan desert can be divided into two geomorphic regions i.e. Lesser Cholistan and Greater Cholistan. The Lesser Cholistan borders canal irrigated areas to the bed of abandoned river "Hakra" in the desert and covers an area about 7770 km². Greater Cholistan which borders with India in south covers an area of about 18130 km² (Akhter and Arshad 2006).

The Lesser Cholistan consists of large saline alluvial flats locally called "dahars" alternating with low sandy ridges. The clayey flats of lesser Cholistan are generally saline or saline-sodic, with pH ranging from 8.2 to 8.4 and from 8.8 to 9.6, respectively.

Homogenous to a depth ranging from 30 to 150 cm. These soils are classified as either The Greater Cholistan is a wind resorted sandy desert and comprised of river terraces, large sand dunes, and less depressions (Arshad et al., 2006).

The Climate of Cholistan desert is characterized by low and sporadic rainfall. The mean annual rainfall varies from less than 100 mm in the west to 200 mm in the east. Rain usually falls during monsoon (July through September) and in winter and spring (January through March). Monsoon rains occur mostly in heavy showers. Cholistan is one of the hottest regions in Pakistan. Temperatures are high in summer and mild in winter. The mean summer temperature (May, June) is 34°C with highs reaching more than 51°C. Aridity is the most striking feature of Cholistan desert with wet and dry years occurring in clusters. The annual rainfall may occur during as few as 11 days, although the spatial variation among the rainfall zones may be greater from year to year for entire area (Akhter and Arshad, 2006).

Pastoralism is an ancient way to use dry land areas, well adapted to the challenges of maintaining productive and sustainable livelihoods. Pastoralists, both nomadic and transhumant are a large and significant minority in the region. Because their cultures and land management systems are poorly understood, they are subject to myths and misconceptions.

The pastoral system is characterized by mass migration of animals and people throughout the year in search of water and forage. The onset of monsoon and distribution of rainfall mainly dictates the pattern of movement of nomadic herders. Around the month of March to April, nomadic household move towards surrounding irrigated areas faced there by rising temperature in the desert and depleted feed and water resources. The incentives for this movement include temporary employment opportunities with in the irrigated farming community, grazing of livestock on wheat stubbles, drinking water for human and livestock. Farmers in the irrigated areas in turn obtain sufficient labor for crop harvesting and other farming operations and animal manure to enhance soil fertility through camping of livestock on fallow fields.

Pastoral nomadism is not only an environmentally sustainable way of managing the Cholistan drylands, but it could extend support to national dairy and meat consumption requirements. The likelihood of an increase in the number of livestock, by making feed supplement more accessible and affordable in the dry seasons, could be reduced by increasing off take through marketing of animals for urban consumption. Support for the livestock sector will automatically increase herders' income and increased off take through marketing, reduces the likelihood of overgrazing. It reveals that sustainable use of resources with the promotion of indigenous technology will benefit the local people.

OBJECTIVES

The pastoral nomads of Cholistan desert keep large flocks of sheep, goats, camels and cows. Livestock produce meets their daily food needs and surplus livestock and livestock products are sold to get money for other domestic uses. Today these pastoral nomads are passing through a critical situation because of the economic and ecological changes that have been taking place in the region. Due to environmental stresses such as regular or prolonged droughts, the economy of the desert dwellers is severely affected. Therefore

keeping in view the sufferings of nomad desert dwellers of Cholistan desert the present study is being envisaged with the following objectives:

1. To evaluate economic analysis, including income and expenditure of nomadic pastoralists of Cholistan desert.
2. Compare income and expenditures of nomadic pastoralists in irrigated areas and desert areas separately.
3. To find out reasons of migration from irrigated areas towards desert areas and from desert areas towards irrigated areas.

LITERATURE REVIEW

Starr (1987) reported that the apparently reduced ability of the pastoral sector in central Niger to deal with environmental variability is considerably more complex than arguments emphasizing only exogenous forces would suggest. It is impossible to deny that increasing aridity, demographic pressure on a fragile resource base and colonial efforts to dismantle indigenous institutions have contributed to the increasing difficulties experienced by the pastoral sector in the past two decades. At the same time, as we have shown, analysis of the internal dynamics of the pastoral sector - particularly in terms of producers' differential abilities to bear risk, and flows of people and resources into and out of this sector - is equally important in understanding the nature and causes of the difficulties.

Goldstein and Beall (1988) evaluated the change and community in nomadic pastoralism on the Western Tibet Plateau. Nomadic pastoralism on the Tibet changtang flourishes. This paper gave an overview of the situation of Tibet's nomadic pastoralists and pays particular attention to ecology and traditional subsistence economy. Severe environmental conditions preclude farming. Livestock products earn substantial portions of the Tibetan foreign exchange. These are factors encouraging nomadic pastoralism. The impact of direct Chinese control in 1959 is also dealt with. Pastureland is not being expropriated from the pastoralists. In spite of ill thought-out development projects there has been no inducement for nomads to resettle. A net effect of the Chinese "reform" policies has been revitalization with increased economic independence since 1981 in spite of potential problems.

Arshad et al. (1999) described the pattern of nomadic migration in Cholistan desert. The authors elaborated the seasonal responses and graze able periods along with the migration of nomads of Cholistan desert during pre-monsoon (summer), post-monsoon (autumn), winter and spring with in the desert.

Roy (2006) reported lack of response and action to climate change in South Asian Region is limited by the availability of information about the balance between economic cost of damage and benefits of reduction of damages in the short run. It was direct assessment of climate variability prediction on income, human development and the environment in the context of countries in South Asia.

ECONOMIC INDICATORS OF NOMADS OF CHOLISTAN DESERT

Economy of nomads of Cholistan Desert is influenced by a large number of economic indicators. Fifteen indicators are taken in this paper.

1. Sex: Male-female ratio is taken there as independent variable, means who are the head of household.
2. Age: Age means number of years after born. Age of head of household is taken as independent variable.
3. Total Cultivated Land (TCL): Total cultivated land means total area used for cultivation of crops. This indicator is very important for the analysis of income because mostly nomads have land but all land is not cultivated due to unavailability of water and unfertile soil. This indicator is taken as independent variable.
4. Total Number of Livestock in Irrigated Areas (TLI): Total number of livestock means livestock holds by respondent in irrigated areas of Cholistan Desert. It is taken as independent variable.
5. Health Status (HS): Health status means health of respondent, it is measured as respondent have any disease or not. It is taken as independent variable.
6. Education Status (ES): Education status means education of respondent and it is measured as respondent can read and write or not. It is taken as independent variable.
7. Total number of Livestock in Desert Areas (TLD): Total number of livestock means livestock holds by respondent in desert areas of Cholistan. It is taken as independent variable.
8. Financial Support from Government (FSG): Financial support from government was taken as independent variables. It was the most important independent variable which affected the income of respondent during the drought period.
9. Cultivated Crops in Irrigated Areas (CCI): Crops cultivated in irrigated areas were considered as independent variable.
10. Total Land of respondent (TL): Total land of respondent was taken as independent variable. It was the total land owned by respondent in the irrigated areas.
11. Total months in Irrigated Areas (TLM): Total months stay of nomads in irrigated areas was considered as independent variable. Stay of nomads in irrigated area varied between six to eight months.
12. Income in Irrigated Areas (y1): Income in irrigated areas means annual income of respondent earned from different sources in irrigated areas of Cholistan Desert. It is taken as dependent variable.
13. Income in Desert Areas (y2): Total income in desert areas was taken as dependent variable.
14. Expenditures in Irrigated Areas (y3): Total Expenditures in irrigated areas was taken as dependent variable.
15. Expenditures in Desert Areas (y4): Total Expenditures in desert areas was taken as dependent variable.

MATERIALS AND METHODS

An overwhelmingly large part of study is based on the primary source of data. The present study is primary based on the household survey data as collected by the author during April-September 2008. The household survey was conducted and information recorded from two hundred household in a cluster sample of Cholistan consisting on ten villages (Chaks). A two-stage Area sampling was used, at first stage households was selected and at the second stage the male as a head of household was interviewed.

Primary data on economic conditions of nomad's pastorals of Cholistan desert was collected by interview technique by going door to door in Cholistan desert and the interview schedule was a set of Questions in a Questionnaire form which has been filled by the interviewer. In this study, major emphasis is on the analysis of economy of nomad pastorals by econometric analysis of income of nomads in irrigated areas of Cholistan Desert.

LOGISTIC REGRESSION ANALYSIS

The dependent variable in logistic regression is usually dichotomous, that is, the dependent variable can take the value 1 with a probability of success Θ or the value 0 with probability of failure $1-\Theta$. Consider a collection of k independent indicators, thus the general form of the Logistic regression is

$$\theta(x) = \frac{e^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}}{1 + e^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k)}} \quad (1)$$

where α = the constants of the equation and β = the coefficient of the predictor variables. The log odds has the linear relationship

$$\text{Logit} [\theta(x)] = \text{Log} [\theta(x) / (1-\theta(x))] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \quad (2)$$

Logistic regression calculates the probability of success over the probability of failure, therefore, the result of the analysis are in the form of an odds ratio.

RESULTS AND DISCUSSION

Economy of the nomads of Cholistan desert can be divided in to two parts economy of the nomads when they stay in the desert and economy of the nomads when they are at irrigated areas. In irrigated areas nomads have their own land and in desert they have their own "Tobas". Sources of income in irrigated areas are more like Crops production, livestock production, embroidery, job in different sector etc. But in desert areas the nomads have only two sources of income i.e. 'Khar' Production and livestock production. Livestock production is the same source of income by which the nomads benefits, either they are in irrigated areas or in desert areas. There all the income of nomads in irrigated areas is better than that of desert areas and expenditures are higher as shown in table 1. As main source of income in irrigated areas is livestock and for free grazing of livestock nomads move towards desert there livestock on highly nutritious grasses and shrubs. When these are at irrigated areas they fed fodder crop and become a bigger source of income and boost the economy of nomads staying at irrigated areas. Where as when they are in the desert area they just sell their livestock when they need money for their expenses. No doubt the income of nomads of Cholistan desert is less when they are in the desert but at the same time they have less expenditure for their household management.

Income in Irrigated areas is positively affected by better education and better health of respondent. It is notified that respondent have more area of cultivated land earn more income. Expenditures of respondents in irrigated areas are affected by types of crops cultivated, people cultivate different types of crops and it is observed that expenditures on wheat and cotton are more than any other type of crop. Expenditures in irrigated areas

also depend on total land holding by respondent, total number of months spends in irrigated areas and total number of livestock. Rather than income in desert areas is highly effected by the variables like sex, total number of livestock in desert and financial support given from government during drought years.

Expenditures in desert are affected by total number of livestock. Respondent holding more number of livestock bear higher expenditures as compared to others, who have less number of livestock.

Table 1: Income and Expenditures in Irrigated Areas and Desert Areas of Cholistan

Statistics	Economy of Irrigated Areas (12 Months)				Economy of Desert (Six Months)			
	Total Income	Total Exp.	Exp. on Livestock	Exp. on Household	Total Income	Total Exp.	Exp. on Livestock	Exp. on Household
Average	133600	45000	8035	28050	40000	3550	1500	1500
Minimum	600	4260	0	2180	0	150	0	100
Maximum	2751100	1551700	125150	800000	1100000	87600	62000	60000

ECONOMETRIC ANALYSIS

Table 2: Logistic Regression Model

Model	Variables	Co-efficient	S.E	P-Value	OR	C.I	
						Lower	Upper
Income in Irrigated Areas	TCA	0.069	0.034	0.042	1.072	1.002	1.146
	HS	-1.169	0.392	0.003	0.311	0.144	0.669
	ES	1.159	0.32	0	3.187	1.703	5.964
	Constant	-790	4.29	0.038	0.454		
Income in Desert Areas	SEX	-6.828	14.209	0.631	0.001	0	1.35E+09
	TLD	1.034	0.314	0.001	2.813	1.519	5.206
	FSG	1.018	0.328	0.002	2.769	1.455	5.269
	Constant	4.538	14.216	0.75	93.54		
Expenditures in Irrigated Areas	CCI	0.092	0.055	0.095	1.096	0.984	1.221
	TL	-0.101	0.043	0.019	0.904	0.831	0.983
	TMI	-0.269	0.148	0.069	0.764	0.572	1.021
	TLI	0.098	0.042	0.02	1.103	1.015	1.197
Expenditures in Desert Areas	Constant	1.273	1.035	0.219	3.57		
	TLD	.009	0.003	0.001	1.009	1.004	1.015
	Constant	-0.485	0.242	0.045	0.616		

OR : Odd Ratio, S.E : Standard Error C.I : Confidence interval

The results of the Logistic regression analysis showed that most significant predictors that influence economic status in Cholistan desert are health and education status of respondent followed by total cultivated land, total number of livestock and financial support from government. Income of educated people in irrigated areas is 3.0 times more than uneducated people. People have cultivated land endure 1.0 times more expenditures than those who have not cultivated land. In desert areas income of people who received financial support from government is 2.7 times more than those who do not receive financial support from government. People who have large number of livestock in desert

areas earned 2.8 times more income than those who have less number of livestock. People in irrigated areas have livestock endure 1.1 times more expenditures than those who have not livestock. People who cultivated different types of crops endure 1.0 times more expenditures than those who cultivated same type of crops. People who have large number of livestock endure 1.0 times more expenditures than those who have less number of livestock in desert areas.

CONCLUDING REMARKS

The results of present study indicated that majority of household in the surveyed area of Cholistan desert are saraiki speaking. There is the traditional extended family and clan system in areas. The area is lacking basic facilities such as no electricity, no basic rural health centers, no safe drinking water and no schools for boys and girls.

As Cholistan is considered as rural areas of Pakistan and similarly family size of household is also big as half of houses of sample population showed that household members were in the range between 6—10. As more members in a family higher their expenditures.

Seventy one percents nomads staying at cultivated lands, earn their income from cultivating crops along with livestock keeping which ranged between Rs. 1,00,100/- to 2,00,000/- and their expenditures are in the range of Rs20,100/- to 35,000/-.

During the stay of nomads in desert areas income is low as compared to irrigated areas where it ranged between Rs.1000/- to 50,000/-. Instead of this low rate of income nomads move towards desert due to their tradition, for better health of their livestock and for free grazing in desert.

Number and specification of livestock are different in both irrigated and desert areas. In irrigated areas buffaloes and goats are common and in desert areas camels and sheep are commonly holding by mostly people. In desert areas number of livestock is greater and there is no crop production. In desert area, number of camels is greater as compared to irrigated areas where population of buffaloes is high.

Crop production being the second major source of income of nomadic pastoralist after allotment of lands by government. Pastoral nomadism is not only an environmental sustainable way of managing Cholistan desert dry lands but it could support national dairy and meat consumption requirements.

Movement of people from desert areas towards irrigated areas and from irrigated areas towards desert areas take place two reasons.

- i. To earn more income
- ii. To save their own life and life of their livestock

People earn more income in irrigated areas as compared to desert areas of Cholistan. People endure more expenditure in irrigated areas as compared to desert areas of Cholistan desert.

RECOMMENDATIONS

It is recommended that different schemes should be initiated to improve the water supplies, to reduce water losses, to make more efficient use of available water and to

develop new water resources. Especially availability of water should be ensured to those villages where water is not enough for the cultivation of crops. With the availability of water supply and improvement of available water resources the income of the desert dwellers could be enhanced which ultimately will help in better household strategies.

Construction of water reservoirs in those villages where drinking water is not available and people bring their drinking water from far flung areas. In 95DNB local people are forced to drink unhygienic water and their health is at risk.

The grazing pressure should be reduced in the desert area, particularly during the growing seasons. The reduction in animal's number might be helpful in this regard, which seems not possible because there is a trend between the nomads of the area to enhance animal's population.

Existing health center and dispensaries for human population and livestock should be improved by providing medicines, equipments and other facilities.

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**PORTRAYAL OF WOMEN IN ELECTRONIC MEDIA:
A FEMINIST PERSPECTIVE**

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ABSTRACT

This research looks at the portrayal of women in media from a feminist perspective; hence it deconstructs the ways of femininity is constructed in the discourse of media. The Work arises from the day to day observation of electronic media which are shown on different private channels and the prior studies conducted on this issue. It aims to draw the concentration of academicians, Scholars and Experts as well as wider public to the issue of women exploitation in media advertisements which is patriarchal world where women are presented as sexual objects, commodity and *inter alia* in stereotypical roles. The study focuses on linguistic and semiotic analysis of electronic media advertisements in a feminist perspective. It also deconstructs the language in terms of ideal phrases that accompany stereotypes. Being a woman, the researcher interprets and analyzes these advertisements in our own social and cultural views which are different from the masculine perspective.

INTRODUCTION AND BACKGROUND

One of the most significant breakthroughs in the last century was the globalization of the feminist agenda. In this connection the event that caught the maximum world attention was the Fourth World Conference on Women held in Beijing, China in 1995. The conference established a strong international consensus to promote women and girls rights as the key to development everywhere. In many ways it forced several government leaders to re-visit their national landscape for women's concerns. The forum also recognized the critical role media plays in the portrayal of the images of women in society.

In this era, everywhere we turn, advertising is telling people, women especially, what it means to be desirable. Many of these messages share a common theme: Women must be "beautiful." Women have always been measured against cultural ideals of beauty, but electronic advertising often uses sexism to make images of "ideal beauty" more prevalent and increasingly unattainable. In a recent study by Dove (2007), the average model only weighed 8% less than the average woman, whereas the average model today weighs 23% less. Most models today are thinner than 95% of the population. The research founds that out of the survey respondents, only 2% considered themselves to be "beautiful." It shows that unrealistic portrayal of women in the media can be detrimental to viewer's perception.

For example, "*in the PEPSI advertisement, the advertisement show the model which is belong to film industry, when the boy drinks PEPSI, she comes in his imagination,*

when PEPSI finished, his images change in to fat lady, he got frightened. It shows that ideal beauty figure is smartness."

There is no doubt, that these advertisements agencies have their own marketing strategies. But they portray women as a sexual and saleable commodity.

Paul Trowler (1988) sites a study of women in advertisements, which found that women were seven times more likely to appear in personal hygiene product adverts than to not appear; 75% of all adverts using females were for products used in the bathroom or kitchen, 56% of women in adverts were shown as domestic housewives and only eighteen different occupations were shown for women, in comparison to forty three for men (Trowler, 1988: 96). Behind these figures then, we can see how advertising is prescribing the role of a woman in stereotypical roles as being very much family and home orientated one.

Portrayal of women in electronic media is discriminating in Pakistan; generally, a patriarchal order is portrayed where the male is dominant both in sex- class system and a symbolic order based on male- supremacist social arguments. A survey of male and female image sin TV dramas during the period of 1996 to 1997 revealed the trend of the society towards women. This was conducted by Pacific Asian women's forum.

In January 1986, Government directive was sent to broadcasting stations, press and recommending a positive approach towards women's issue. This directive is based on the Pakistan commission on the status of women, since then there has been a slight thought uneven change in the quality and focus of the portrayal of women telecast by these.

Furthermore, electronic media advertisements circulate a set of social values, transmit a normative standard against which behaviour can be judged and portray goal and ideal to be pursued. Erving Goffman (1987) has turned his attention to the ways in which women and men specifically women are pictured in advertisements. He believes that advertisements depict for us not necessarily how we actually behave as men and women but how we think men and women should behave. This depiction serves the social purpose of convincing us that this is how women and men are or want to be or should be not in relation to themselves but in relation to each other.

The structure of the paper will be based on the following headings. In the first, Researcher try to explain what is feminist Research Method? The second part will narrates the Data Analysis in three sub- headings, such as Masculine perspective, Women in stereotypical roles and women as sexual commodity. In the next step research will discuss the issues and at the end conclusion and Recommendations will be present.

FEMINIST RESEARCH METHOD

Most feminist hold a belief that women as a group are treated oppressively and differently from men and that they are subjected to personal and institutional discrimination . Feminist also believe that society is organized in a way that it works, in general, to the benefit of men rather than women, i.e. it is patriarchal.

Feminism implies commitment to changing the social structure to make it less oppressive to women and for that matter, to men. For Burton (1998) it is essential to

distinguish between work which supports and oppressive dominant ideology and work which challenges and to state clearly which it is that you are doing.

Feminism sets itself in opposition to mystify the uninitiated and to keep out all but a select few. Feminist research is not merely research by women with men. For example, it reflects a more widespread move away from asserting the commonality of women's experience alone to theorizing the differences between women and build alliances with each other and with men.

Beverly Skeggs (1994) has discussed power relationship in a feminist research process. According to her feminist research process emphasis on power relations. Feminist sociologist like Harding (1987) and Reinharz (1995) have stressed that there is no intrinsically feminist method or methodology. Feminist research has emerged from a dynamic relation of theory , practice, action and reaction.

Feminist research has been evolved in reaction to andocentric and gender biases which are reflected in research being conducted in social sciences. Feminist research is always based on theories, although these theories can be challenges and are not static in nature.

Feminist research is particularly concerned with the social construction of gender and conditions of women. Their work attempts to uncover and challenges male dominance and patriarchal structure and advocates gender equality. For example, feminist like Millet (1970) Lerner (1987) have argued that women's social roles in patriarchal societies are defined by men. Moreover, Moi (1985) has also argued that they way women are represented in literature and mass media has an impact on the way they define themselves as subject in their own lives.

Finally, feminist action research is fundamentally committed to effecting change in what it perceives effecting change in what it perceives as the most universal oppression. The condition of women world-wide (Gallagher, Houston: 1992, 1998).

DATA ANALYSIS

In the remaining part of this research paper, we analyze the linguistic and codes in electronic advertisements inn the light of the foregoing discussion on advertisements and feminist research. We will examine the advertisements under three headings, Masculine perspective, Women in stereotypical roles and women as sexual commodity.

MASCULINE PERSPECTIVE

As we already discussed that media is creating the perception of the viewer's. For example, in the advertisements of Brook Bond tea, the grand parent's of the girls asked, you must know that the boy is used to take twenty times tea in the whole day. The lady said now in this era, boys have such habits, it is not anything special. It shows that there is a justification for their every act, whatever they like or dislike.

In addition to that, they are portraying as hero or brave as per their socialization. For example, in recreational activity, they usually say, girls do not play football, and to play with boys is very difficult and strange. She requests from the boy's class fellows, may I

play with you. It shows only they have right to play. It reinforces that the girls have different recreational activity, they have separate domain like public and private. They cannot compete with each other.

They always portray men in the dominant ideology. For example, “in the advertisement of the PANTEEN shampoo the model says, I cope with dandruff like men, I am not fearful from dandruff”. It reflects that the men are brave and courageous; they have to face the situation. It is common phenomena, women are considered as a weaker portion in the society. It is again domination of the men perspective. They unconsciously reproduce a traditional masculine perspective. Both linguistic and semiotic messages are projecting the same thing here. This kind of projection reinforces the male domination that has been placed in this world for the subordination of the women. Electronic media presents its audience with a very masculine perspective. The media images help to neutralize further the male stare in real life. The contradictions in the text and its reading position reflect the contradictions inherent in the attempt to assert feminine values within and against a patriarchal society. (Dines, Humez, 1995).

The advertisements still perpetuates dominant social values. In reflecting them TV also reinforces them by presenting them as natural. Many narratives on electronic media are still implicitly designed to be interpreted from a masculine perspective. Viewers are frequently invited to identify with male characters and to objectify females.

The theorist distinguish between styles of advertisements which are broadly masculine or feminine. They portray men in typical masculine include action/ adventure. The action and adventure advertisements define men in relation to power, authority, aggression and technology. Modleski argues that pleasure in masculine narrative forms focused on closure, whilst soaps delay resolution and make anticipation an end in itself. She also argues that masculine narratives, inscribe in the text an implied male readers who becomes increasingly omnipotent whilst the advertisements have the ideal mother as inscribed viewers a **sympathic** listeners to all sides. The feminine are always projecting in the adds of soaps, sitcoms, romantic and melodrama etc.

WOMEN IN STEREOTYPICAL ROLES

Gunter argues that televisions sex stereotyping occurs in relation to various roles in which men and women are portrayed and which have connection with the personality attributes they typically display. He therefore, divided stereotypes in to sex role stereotyping and sex **trait** stereotyping.

Sex role stereotyping reflects the changes in beliefs about the value of family, child care, the role of women in marriage and the possibility of self fulfillment through work. In the world of soap and beauty products, one may be inclined to feel that women are represented more fairly as this is a genre of television. **For example**, in the advertisements of Fair& Lovely. The mother of the girl said, “Few days are left in your exams, do not waste your time, You must concentrate on your studies, the girl was watching the television, she said one month is left for addition of News reporter, then they show the fair& lovely that makes her beautiful within the four weeks.” She qualifies for the post. It shows that there is less requirement of abilities and capacities. The beautiful girls can

mark the achievement in the career. These stereotypes reinforces the image of beauty what is he future for those who have abilities and skills but do not have beauty.

Similarly, the girls who uses the herbal cream, she becomes beautiful and found a good match for partnership. It means the beauty is ideal image for girl marriage. It shows that marriage is only concern for girls, for that purpose she can do every thing. In one advertisements she said that” every woman ha swish to get praise from men”. Moreover, in the advertisements of cooking oil, they portray that woman only has wish to cleaning, cooking and care taker. Its only pleasure for her to serve the family and fulfill their needs.

The majority of soap operas are set in a domestic situation, because the home is a place where women’s expertise is supposedly values and is also a place of comfort. Often, the central characters are female, and the ultimate advertisements for these women in soaps is to be get married and have children. It also shown that a women is either intelligent or beautiful, but rarely both.

Meehan (1989) said that in TV “good” women are presented as submissive, sensitive and domesticated, “bad” women are rebellious, independent and selfish. Jean **kilbourne** narrates in his essay “beauty and Beast of Advertising” that a number of studies have reached the same conclusion that a large number of advertisements portray women as housewives or sex objects. The housewife is married, usually with childrens. The housewife life is shown to revolve around products which will make her house dust-free, germ-free, knowing that cleanliness of the house is her job, she usually does it with a **smile**. Providing that she has latest product to give her a helping hand.

Women in Pakistan are particularly a population at high risk because of their lower status in society and the continuing lack of serious treatment of crimes such as rape and battering. The research tries to shown through the analysis that these unrealistic and unattainable ideals restrict and constraint women in their bodies. Moreover, the images of beautiful women used in fashion and beauty products wearing the latest style in clothes also imply that women are idle, vain and primarily concerned with their looks and appearance only.

WOMEN AS SEXUAL COMMODITY

The media in Pakistan has no problems while exposing physical and sexual features of women but is reluctant to bring forward issues of HIV/AIDS, sexual harassment, sex and flesh trade, trafficking on the pretext of obscenity. This is regardless the fact that each one of these issues is directly linked with poverty, women’s inferior position in the society and denial of basic human rights.

We must look at the question of male-sexuality and advertisements in the newspapers and analyze the linkages between these advertisements and acts of violence and unhealthy male/female stereotypes in the society (Ahmer, 2004).

Woman’s physical attributes continue to be commercially exploited. In advertising, women are again presented as sex objects or an attraction to boost up saleable commodities. Whether a car commercial, or the introduction of a new tea brand, cooking oil, shampoos or other consumer goods, women remain the sale attraction. They use their

body images even for the sale of the products. In the advertisements of the cars, it can be sell only by showing the man, why they put the feminine images every where.

Sexual objectification of woman is perhaps the most serious and recurring charge presented against advertising. Semiotic analyses of the ways in which the exposed parts of the female anatomy are displayed; through provocative body movements, enticing facial expression, finger movements, self- caressing, as well as extensive use of lingual and para- lingual expressions, strengthen the claim that advertising of women in advertisements even finds expression in how extensively they are used as objects. They are presented as objects, rather than conscious subjects with an autonomous existence. As such, Women are represented as available for use, exploitation, mistreatment and abandonment (Lemish, 1997).

There is no doubt that they have their marketing strategy, but they should not portray women as tool for the marketing purposes. For examples, in removing creams, they portray their fragmentation of the female body i.e. presenting in very degrading manners.

Feminists have developed analyses of sexual violence which have underlined the ways in which it serves as a mechanism of social control, keeping women in their places (Jackson& Scott, 1996).

CONCLUSION

The mass media act as important agents of socialization, together with the family and peers, contributing to the shaping of gender roles. Certainly, we learn to be male or female- it does not come naturally and the mass media contribute to making such roles seem natural. There is nor doubt, that TV presents powerful, attention-grabbing images of gender. But it is true fact that television is not sole responsible for shaping people's gender stereotypes, there are plenty of examples of gender- typed behaviour around in the social World.

It can be concluded that adverts create a climate in which sexual sell and dismemberment teamed with impossible body images is seen as acceptable. It seems to portray them in a light of approval or disapproval, positive or negative according to the roles that patriarchy favours.

These electronic advertisements can also lead to serious psychological problems and illness such as bulimia and anorexia nervosa. They are perpetuating through subtle ideological formation present certain distortion regarding women's bodies and their social roles which woman as a group need to contest.

RECOMMENDATIONS

- Increase the participation and access of women to expression and decision making at all levels and achieve the gender balance in the appointment of women in all form of the media.
- Promote and portrayed the diversified positive role played by the women in media
- Adopt or develop further codes of conduct, professional guidelines and other self-regulatory guidelines to remove gender stereotypes and promote balanced portrayals

of women and men and to develop programmes that support women's ability to create access and promote networking.

- Develop policies and programmes on changing stereotypical attitudes and behaviors concerning gender roles and responsibilities to promote gender equality and positive attitudes and behaviors.

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COMPARISON OF X-12 ARIMA & TRAMO-SEATS IN PAKISTANS' ECONOMIC INDICATORS

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ABSTRACT

Econometrician and time series practitioners are using both model-based approach and empirical approach for seasonal adjustment. But from theoretical as well as empirical point of view which approach is better than other approach has been disputed. The choice of seasonal adjustment method remains the most important decision among the practitioners. This paper attempts to evaluate the performance of both methods on various data series in Pakistani economy. We have analyzed 6 Pakistani economic time series both with model-based approach (TRAMO/SEATS) and ad-hoc methods (X-12-ARIMA of Census Bureau). There were significant differences in detecting seasonality, identifying difficult time series, testing significance of Moving holidays effect, among others. After comparing these two procedures, we may conclude that TRAMO/SEATS is better in modeling difficult Pakistani time series.

1. INTRODUCTION

Monthly and quarterly economic data series are often influenced by seasonal fluctuations, which can mask relevant short and long-term movements of the series and obstruct a clear understanding of economic phenomena. Econometrician and time series practitioners are using both model-based approach and empirical approach for seasonal adjustment. But from theoretical as well as empirical point of view which approach is better than other approach has been disputed.

This paper is an attempt to compare two seasonal adjustment procedures, X-12 ARIMA the most comprehensive version of adhoc X-11 variant and model based TRAMO-SEATS. Former is based on empirical rules for applying moving average filters is widely used method, later has gained attention of academia because of its statistical foundation. Basic Features of both methods have been compared and empirical criteria for assessing the quality of seasonal adjustment such as idempotency and stability diagnostics are explained.

The paper is organized as follows section. In Section 2 main features, procedure for decomposition and diagnostics available with each of these two methods have been discussed. Section 3 compares two methods and describes empirical criteria for evaluation of adjustment procedures. Section 4 presents the findings on seasonal adjustment methods with Pakistani economic indicators.

2. SEASONAL ADJUSTMENT METHODS

Seasonal adjustment is based on the assumption that an observed time series Y_t composed of trend-cycle component (T_t), Seasonal component (S_t) and Irregular component (I_t). Seasonal adjustment procedures can be classified into two broader

categories X-11 family that uses ad-hoc filter and moving average to estimate components model based assumed components are orthogonal ARIMA process. X-12 ARIMA is the most refined method of former group and TRAMO-SEATS belongs to the later one.

2.1 X-12-ARIMA

The X-12-ARIMA is the most recent software package in the X-11 family developed by Findley (1998) at US Census Bureau. It now merges the moving average technique with time series modeling. The steps followed for seasonal adjustment in the X-12-ARIMA procedure are illustrated in the Figure-1.

RegARIMA models are used to preadjust a series before seasonal adjustment by removing calendar effects such as trading-day, moving holidays and outliers. The series adjusted for such effects is extended for forecasts and backcasts with ARIMA models to avoid end point problems in X-11 filters.

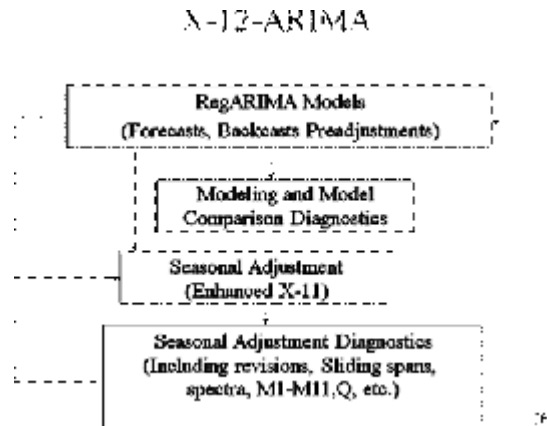


Figure-1: Flow Chart for Seasonal Adjustment with X-12-ARIMA

The actual seasonal adjustment is carried out using the outcome of the ARIMA modeling as input, X-12-ARIMA uses an iterative approach to estimate the seasonal, trend and irregular components. Initial estimates of trend are produced using a centered 12-term moving average. Removing trend from preadjusted series initial seasonal component is estimated with 3x3 term moving average of same seasons. Preliminary seasonally adjusted series is obtained by removing preliminary seasonal factors. This followed by iterative procedure obtaining estimates of trend and seasonal components using appropriate symmetric Henderson Filters and seasonal filters of appropriate length. X-12-ARIMA incorporates a set of statistical tests (Test of Seasonality) and diagnostics (M1-M11 & Q Statistic) to evaluate the quality of the seasonal adjustment.

2.2 TRAMO SEATS

TRAMO-SEATS is an ARIMA model based approach developed by Gomez and Maravall (1996) at Bank of Spain. It consists of two programs first the TRAMO (stand for Time Series Regression with ARIMA errors Missing observations and Outlier) which perform preadjustments for the series under analysis and SEATS (stand for Signal Extraction in ARIMA Time Series) to decompose the preadjusted series. Steps followed in this method illustrated in Figure 2.

In first part TRAMO identifies an ARIMA model, outliers are automatically detected, missing observations are interpolated and regression variables like callender\working day effects are also eliminated. TRAMO passes a linearise series to SEATS. SEATS program extract seasonal component from linearized time series using model based approach. First the spectral density of the estimated model is decomposed into the spectral density function of the unobserved components. SEATS adopt Wiener-

Kolmogorow filter which are arrived by the ratio of spectrum of seasonal component to the original series.

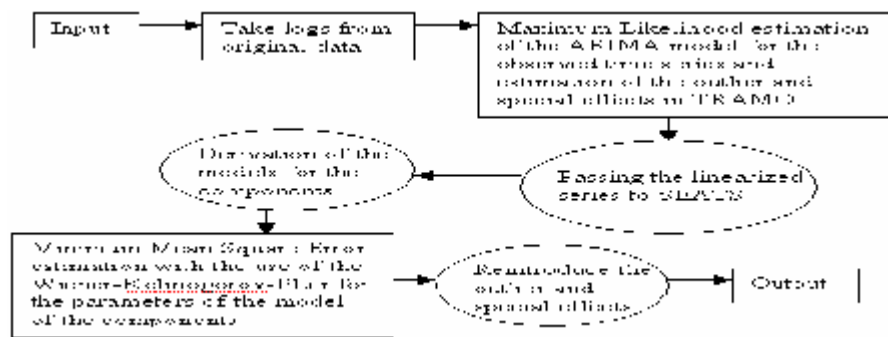


Figure-2: Flow Chart for Seasonal Adjustment with TRAMO-SEATS

SEATS offers many analytical tools which give the basis of statistical inference including errors of the component estimators, forecast errors, Ljung Box and Box Pierce test for adequacy of the ARIMA modeling.

3. COMPARISONS OF SEASONAL ADJUSTMENT PROCEDURES

Using recent research results on seasonality analysis, this section compares the key features of X-12-ARIMA and TRAMO-SEATS methods, based on both theoretical and practical aspects of seasonal adjustment. We also discuss empirical criteria for assessing the seasonal adjustment procedures used in this paper, and present previous results on evaluation and comparison of the two approaches.

3.1 Preadjustments TRAMO & Reg-ARIMA

REGARIMA and TRAMO are programs for estimating regression models for time series with ARIMA errors, outlier detection and correction, interpolating missing observations, and for testing and correcting for calendar effects.

Automatic identification model in TRAMO first identified the order of seasonal and non-seasonal integration (differences) then ARMA with seasonal and non-seasonal part is selected, final choice depends on BIC criteria. The most complicated model examine by TRAMO is of order (3 2 3) (1 1 1). Reg-ARIMA procedure is more likely a model selection criteria, model is selected from a set of predetermined models available in ARIMA specification on the criteria of AIC, mean absolute percentage year of last three year forecast, Ljung-Box statistics. The most complicated model examine by Reg-ARIMA is of order (2 1 2) (0 1 1).

Two sets of program although use different criteria for model selection however used same method for estimation of model and tend toward the same result. TRAMO is more flexible in model identification and is faster than Reg-ARIMA.

3.2 X-11 Filters and SEATS

In second phase pre-adjusted series is passed to X-11 part of software which applies a series of moving average filter to estimate Trend, Seasonal and Irregular components. X-11 chooses moving average filters on certain empirical approach moving seasonality ratios. On the other hand model based SEATS extract unobserved components on the assumptions that unobserved component are orthogonal and described by ARIMA

process and estimated under UCARIMA (Unobserved Component ARIMA) framework. SEATS chooses the decomposition which optimize the variance of irregular component.

SEATS uses the so-called Wiener-Kolmogorov filter to compute MMSE (minimum mean squared errors) estimates of component factors, which is given by the ratio of the spectrum (or autocorrelation generating function) of seasonal component S_t to that of the original series are adopted for decomposition.

The most important difference to the ad-hoc methods is the basis of statistical inference and the adaptive filters of SEATS, which adapts to the modelled characteristics of the time series. WK filter adapts itself to the stochastic properties of the series under analysis, whereas the X-11 filter does not. These advantages of model based method SEAT are of course only valid if it is possible to model the time series and components with ARIMA methodology adequately.

3.3 Empirical Methods

3.3.1 Idempotency Diagnostics

If seasonal adjustment is appropriate no further seasonality should remained in the adjusted series. Idempotency criteria assess quality of seasonal adjustment by measuring difference in seasonally adjusted series when same filters are applied to adjusted series for second time. A relative measure based on mean absolute percentage difference (MAPD) can be used as a consistent measure of Idempotency.

$$r(\%) = \frac{1}{T} \sum_{t=1}^T \left| \frac{Y_{t,SA1} - Y_{t,SA2}}{Y_{t,SA1}} \right| * 100 \tag{3.3.1.1}$$

where $Y_{T,SA1}$ & $Y_{T,SA2}$ denotes seasonally adjusted series for Y_T and $Y_{T,SA1}$ respectively.

3.3.2 Sliding Span Diagnostics

These criteria concerned with the variability of seasonal adjustment outcomes seasonally adjusted series, trend, and seasonal factors which are obtained by applying seasonal adjustment procedures to K overlapping spans of original data. Initial span is selected whose length depends on the filters used, second span is selected by removing earlier years data and appending the new data in this way the last span contains most recent observation. Each of the k spans are adjusted though they are complete series. In this way k estimates of components correspond to months common in all spans are obtained. Several sliding span diagnostics are suggested by Findley et al (1990).

A stability measure on seasonal factors suggest maximum percentage difference among k seasonal factors

$$SP_t = \frac{Max(S_{t,k}) - Min(S_{t,k})}{Min(S_{t,k})} \tag{3.3.2.1}$$

where $S_{t,k}$ denotes the seasonal factor of Y_t in the K th span, smaller the value of S_{P_t} the more reliable the seasonal adjustment procedure. To evaluate the stability Findley suggest the month with SP_t greater than a threshold value (0.03% suggested by Findley) is tagged unreliable than percentage of these months $S\%$ is obtained, adequacy of procedures is than assessed through table 1.

Table 1: Criteria for Sliding-Spans Diagnostics	
S%	Evaluation
$S\% < 15$	Satisfactory
$15 < S\% < 25$	Less satisfactory
$S\% > 25$	unsatisfactory

Maximum percent difference among seasonal factors is soft criteria better stability criteria suggest month to month change in seasonally adjusted series in each span

$$MM_{t,k} = \frac{Y_{t,k} - Y_{t-1,k}}{Y_{t-1,k}} \tag{3.3.2.2}$$

than a month is tagged unreliable if $Max(MM_{t,k}) - Min(MM_{t,k})$ is greater than threshold value and percentage of unreliable month Q% is obtained, adjustment procedure is than satisfactory if Q% is less than 40 percent.

4. EMPIRICAL ANALYSIS

To evaluate the empirical comparison of two methods in Pakistani economic data series, both methods were applied to monthly data series (Jan 2000-Sep 2008) of Price Indices comprising Consumer Price Index (CPI), Wholesale Price Index (WPI), Monetary Aggregates Currency in Circulation (CIC), Reserve Money (RM0), Broad Money (BM2), KSE 100 Index (KSE), with the DEMETRA a windows based interface developed by EUROSTAT. All selected series were passed all the diagnostics available in the respective methods.

Table 4.1 shows the ARIMA specification for each series selected by both programs. Table shows that X-12 ARIMA choose more complicated model as compared to TRAMO-SEATS. The Reg-ARIMA used AIC criteria for selection of models where TRAMO used BIC criteria which come to more parsimonious models.

**Table 4.1:
ARIMA Model Specifications**

Series	X-12 ARIMA	TRAMO-SEATS
CIC	(0 1 1) (0 1 1)	(0 1 1) (0 1 0)
RM0	(0 1 1) (0 1 1)	(0 1 1) (0 1 1)
BM2	(2 1 2) (0 1 1)	(0 1 1) (0 1 1)
CPI	(2 1 2) (0 1 1)	(3 1 0) (0 1 1)
WPI	(2 1 0) (0 1 1)	(0 1 1) (0 1 1)
KSE	(0 1 1) (0 1 1)	(0 1 0) (0 1 1)

**Table 4.2: Mean & Std. Dev of
MOM % in SA Series**

Series	X-12 ARIMA		TRAMO-SEATS	
	Mean	Std Dev.	Mean	Std Dev.
CIC	1.20	2.10	1.16	1.40
RM0	1.25	2.84	1.22	2.43
BM2	1.24	0.81	1.24	0.60
CPI	0.65	0.70	0.65	0.61
WPI	0.80	1.11	0.80	1.12
KSE	1.96	7.85	1.99	7.81

Many researcher use seasonally adjusted series to mainly get seasonally adjusted value of month-to month change. For adequate adjustment procedure mean and variation of month-to-month changes should be lesser than original series. Table 4.2 shows mean and standard deviation of mom percent change in seasonally adjusted series from both methods. TRAMO-SEATS look slightly better than X-12 ARIMA in all series except KSE 100 index (KSE).

Table 4.3. presents Idempotency diagnostic MAPD r% of all series with both procedures. Again TRAMO-SEATS outperform the empirical X-12 ARIMA in all series. Idempotency measures in Price Indices and Monetary Aggregates are low as they portray more stable seasonal properties. High Idempotency measure is witnessed in volatile series of KSE 100 index from both methods.

For sliding span diagnostics on stability of seasonal factors and month-to-month change is

**Table 4.3: Estimate of Idempotent
Diagnostics (r%)**

Series	X-12 ARIMA	TRAMO-SEATS
CIC	0.27	0.08
RM0	0.23	0.11
BM2	0.10	0.03
CPI	0.04	0.06
WPI	0.14	0.00
KSE	1.11	0.63

seasonally adjusted series, original data divided into four spans of equal length. Table 4.4 represent sliding span diagnostics S% on variation seasonal factors, owing the fact the soft criteria all the series found satisfactory with this criteria.

Table 4.5 present sliding span diagnostic Q% on month-to-month change in seasonally adjusted series. Its is evident that both procedures produce satisfactory adjustments and diagnostic measure Q% is smaller with TRAMO-SEATS procedure in all series.

CIC	0.0	0.0
RM0	0.0	0.0
BM2	0.0	0.0
CPI	0.0	0.0
WPI	0.0	0.0
KSE	0.0	0.0

Series	X-12 ARIMA	TRAMO-SEATS
CIC	18.8	3.1
RM0	12.5	0.0
BM2	0.0	0.0
CPI	0.0	0.0
WPI	0.0	0.0
KSE	59.4	43.8

5. CONCLUSIONS

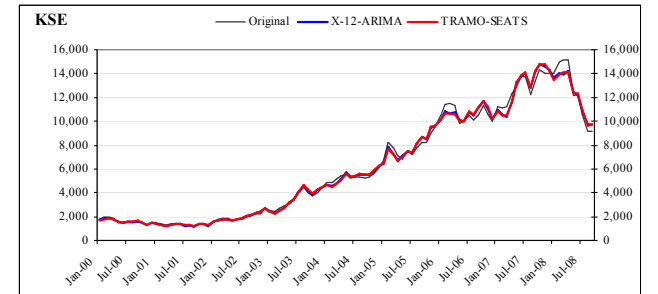
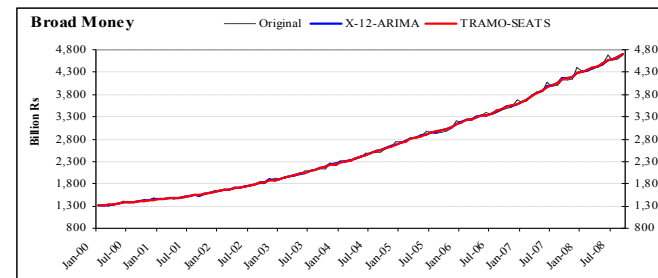
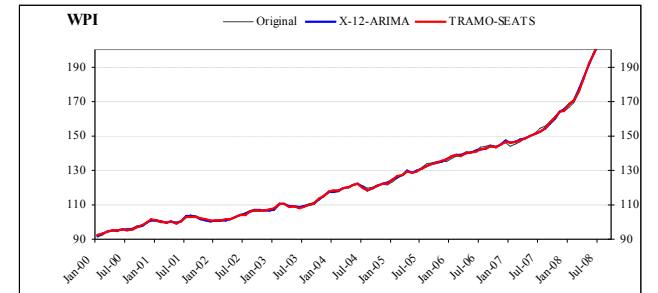
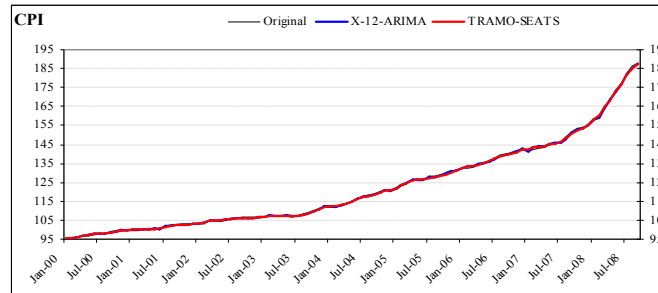
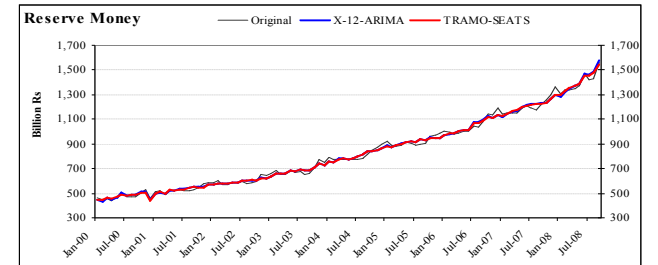
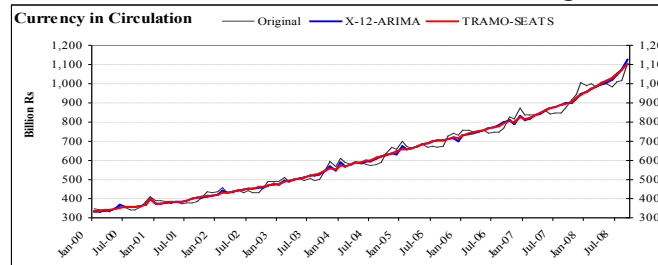
We have analyzed 06 Pakistani economic time series both with model-based approach (TRAMO/SEATS) and ad-hoc methods (X-12-ARIMA of Census Bureau). Both methods were found adequate and passes all the quality checks. Empirical criteria such as Idempotency and sliding span criterion is better fulfilled with TRAMO/SEATS. Overall conclusion, after testing 06 time series is that TRAMO/SEATS methods is better suited for seasonal adjustment of Pakistani time series, both theoretically and empirically, despite the fact that empirical tests didn't show great advantage of model-based approach.

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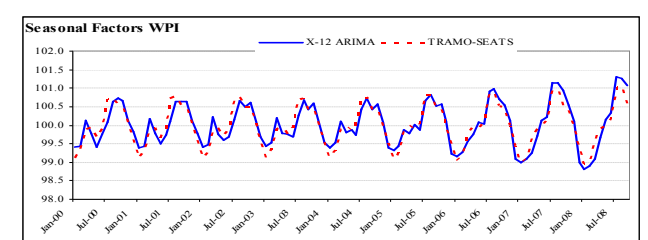
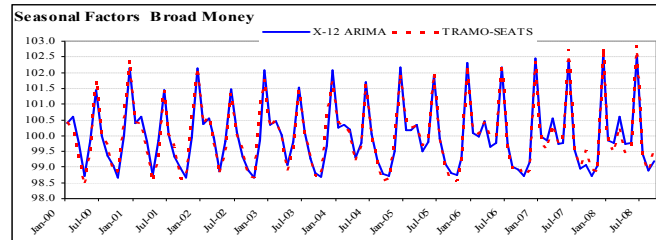
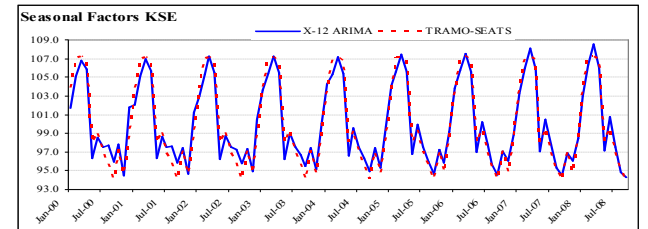
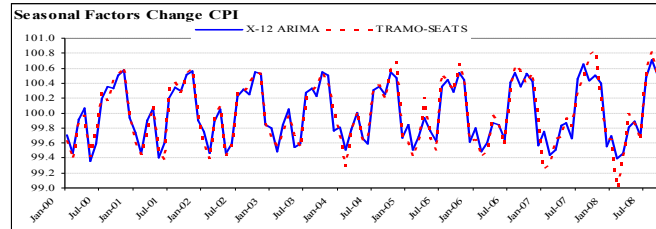
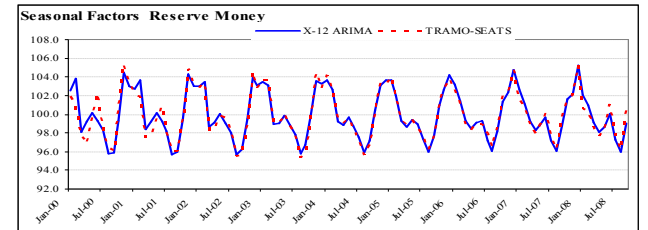
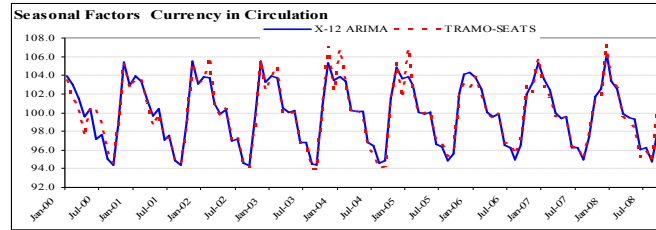
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ANNEXURE

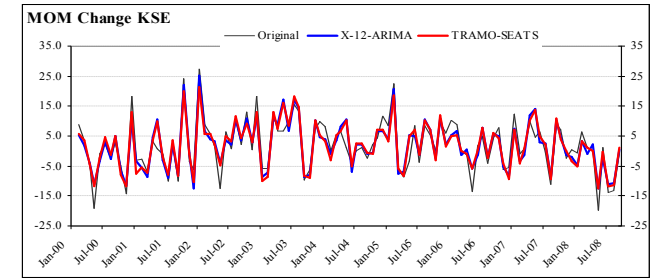
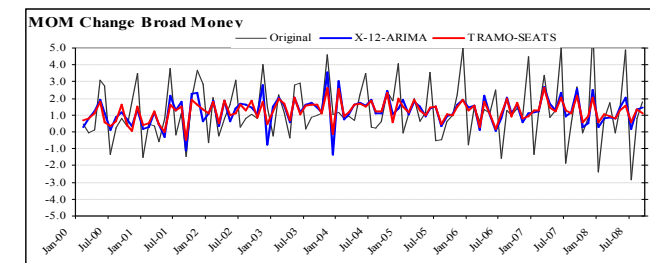
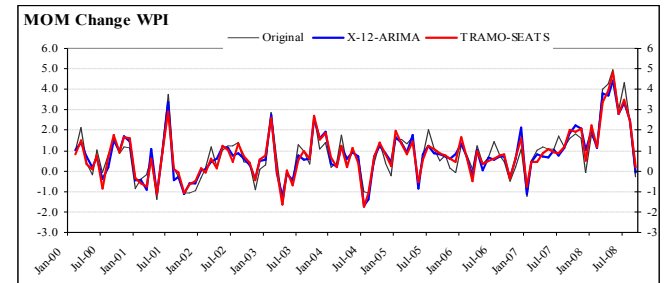
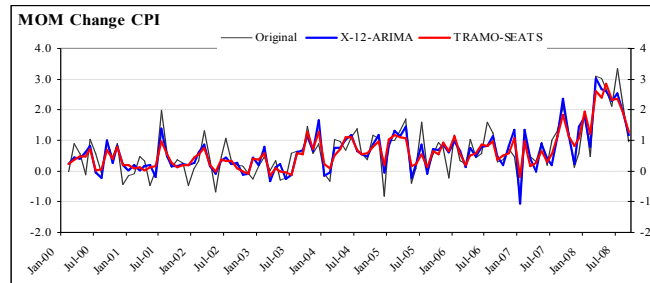
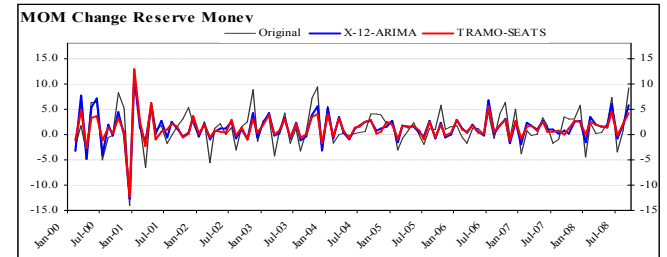
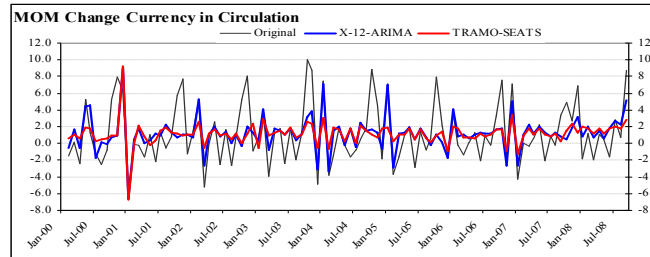
Original & Adjusted Series



Seasonal Factors



Month to Month Change



**A STUDY OF BASNAT FESTIVALS IN PAKISTAN
(AN EXPLORATORY STUDY)**

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ABSTRACT

The present study was conducted to investigate the problems of kite flying because Pakistan is Islamic country and Basnat celebrations could not thrill them by any means. Basnat was merely an occasion of Hinduism society who pragmatic it as part of their religious ceremonies. Our forefathers of Pakistani Muslims had never taken part in Basnat festivities, though they also considered it a part of their society. On one side it has been hijacked by multinational companies who want to promote free society culture in Pakistan. And the top hotels reported in full booking during this event. On the other side such a joyous festivals has a dark side, as hospital invariably are packed with kite flyers who full off roofs and children who were hit by cars as they run down the streets, their face turned towards the sky to watch the kites. And killing lots of people generally motorcyclists, by glass-coated or metal-reinforced kite strings. Quarters of the city are plunged into darkness, when razor-sharp kite cords rolled in powdered glass or made of steel cut electricity wires. Aerial firing and use of firecrackers was an additional issue of disturbance for patients, students and the aged people, and lot of people death toll taking place each year on a Basnat day. Our government was spending millions of rupees to entertain foreign visitors on Basnat, rather than spending it to develop literacy rate, insufficient medical facilities and the provision of basic facilities to ordinary people.

1. INTRODUCTION

Kite flying is a traditional sports game widely popular among the Chinese people. The kite, dubbed the earliest flying object of man kind, originated from China over 2,000 years ago. Kites were used for measurement and sending messages (Han Hsin). About 300 years ago a thief used a large kite to carry himself to the top of Nagoya Castle in order to steal a golden statue from the roof. Kite flying were used to learn about the wind and weather (Benjamin Franklin and Alexander Wilson, 1749). Kites are contributed to the development of the airplane (George Caley, Samuel Langley, Lawrence Hargrave, Alexander Graham Bell, and Wright Brothers). Kite flying are also used during the period 1890-1930 for check weather and raise meteorological instruments and cameras (William Eddy and Lawrence Hargraves). Armies use it for enemy observation and signaling in World War I & II (British, French, Italian, and Russian). In 1901, Guglielmo Marconi used a kite to help transmit the first trans-Atlantic wireless telegraph message. It is used to create a fun and exciting environment to the public (Michael Weingand). Kite

Buggy is exciting fun about all elements of the sport (Dave Sabilino, Christoph Riddle). We entertain festivals not only with the expert flying skills, but also with their costumed, choreographed routines (Penny Lingenfelter, Ron Despojado, and Amy Doran). Haquiqat Rai was charged with blaspheming Islam and sentenced to death in the mid-18th century. The Qazi, or Muslim magistrate, offered to spare Rai's life if he converted to Islam. Rai refused and was executed. To honor Rai and protest his killing, Hindus in Lahore flew kites across the city (Tahir Kamran). Basnat is from the Indian culture and has nothing to do with us. (Laqman Qazi). Traditionally during this festival Kamadeva is worshipped; and most educational institutions organize special prayer for Saraswati. The fortified line frequently injures people or animals. Sometimes the cuts are serious and on occasion, lives have been lost due to the severity of the cut (e.g. a two year old girl died in Lahore in 2005).

In Basnat Festival of 2005, 19 people died and more than 200 were injured in Lahore 25,000 circuits tripped in the major sector of city and estimate damage are 30 million rupees (LESCO). At least 19 people died and 200 were injured before and during Basnat festivals of Lahore in 2006 and 1,100 people are arrested since March 5 for selling or manufacturing glass and chemical-coated kite string (Associated Press, March 11, 2006). At least 11 people died and more than 100 people were injured at an annual spring festival 2007 in Lahore celebrated with the Kite flying. (News, 26/02/2007). More than 700 people arrested for using sharpened kite strings or firing guns and seized 282 illegally held weapons during the Basnat festivals 2007 (Police officer Aftab Cheema, 2007). A young girl's throat was slit by a stray metal kite string stretched across a road and more than two people fell from roofs during the spring festival. Two men were also reportedly killed when they were hit by cars while trying to catch stray kites. Despite a ban on firing guns, several people were injured by stray bullets. Officials at a Lahore hospital said 42 children and 60 adults had been treated for kite-related injuries (BBC News, 15 Feb, 2004). Five people died on Basnat festivals were hit by stray bullets, including a 6-year-school boy who was struck in the head near his home in the city's Mazang area and a 16-year-old girl and a school boy, 12, died after their throats were slashed by metal kite strings in separate incidents. Two people were electrocuted while they tried to recover kites tangled in overhead power cables (Raquia Bano, February 26, 2007). A 13-year-old boy fell to his death from the roof of his home as he tried to catch a stray kite, and a 35-year-old woman fell off the roof of her home trying to stop her son from running after a stray kite, (Raquia Bano, February 26, 2007). 48,173 powers tripping caused because of kite flying were recorded in the first quarter of current fiscal year. (Pakistan Times News, November 8, 2004).

Hundred and thousands of people from other countries are also arriving in Lahore to participate in this spring gala. Laborites are all set to fly colorful kites and light up the skies here Saturday evening and Sunday to celebrate the seasonal festival of Basnat. Basnat shopping generates a lot of rush in Anarkali bazaars and at other business centers (Sheikh Muhammad Asif, February 5, 2005). It's not a social or cultural activity only. It is now a festival with strong economic dimensions. The sale of kites brings phenomenal gains to the kite-makers, manufacturers of twine and other accessories (Time News, February 5, 2005).

This study was designed keeping in view the following objectives:

- ✓ To study the level of satisfaction of kite flyer.
- ✓ To, investigate the nature of activities should be danger or not?
- ✓ To study the attitude of family members, in laws, injured people towards the basnat festivals.
- ✓ To suggest measures to solve the problems of basnat festivals.

KMO and Bartlett's Test the Bartlett's test of Sphericity:

Table below shows KMO and Bartlett's Test and the Bartlett's test of sphericity is significant at the level of .833 and the significant level is .000.

KMO and Bartlett's Test			Reliability Statistics	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833	Cronbach's Alpha	No of Items
Bartlett's Test of Sphericity	Approx. Chi-Square	229.59	.783	26
	df	98	Reliability analysis table above shows the reliability statistics which is significant at the alpha level of .783.	
	Sig.	.000		

2. METHODOLOGY

The sample of this study consist of three major cities Gujranwala, Lahore, Sialkot and other area (Kamoki, More Aminabad, Wizerabad, Gujrat, Gukkar etc) and 400 questionnaire were responded. Principal Component analysis method for factor extraction using Statistical Program for Social Sciences. Total variance explained with eigenvalues greater than one, Component matrix, Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity is reported in this paper.

3. ANALYSIS OF THE STUDY

Table 1, indicates the relation of kite flyer with kite flying that is 10.41% regular user (RU) and 46.52% non regular user (NRU) said that it is always dangerous activity, 6.94% RU and 32.63% NRU assumed it is dangerous but some time, while 2.08% RU and 2.08% NRU declared its all time secure, 62.96% RU think that it should not bane and 44.45% NRU think it should bane for the whole year, 55.56% RU while 48.70% NRU said it give us a happy mode of life, 41.89% NRU and 40.74% RU assumed they don't bother other people. While 51.85% RU and 72.65% NRU follows government rule and regulation towards kite flying. The relation of kite flyer and cotton line use is dominating with 32.60% use of powdered glass cotton line for NRU and 50% in RU. The value of correlation in accepting an alternative for this activity is dominate with 48.14% in RU and 49.12% NRU.

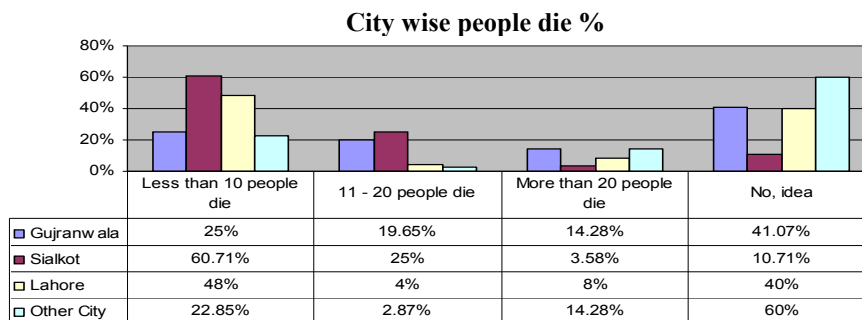
Table 1:
Correlation between Kite flyer and other Factor

	Factor Relation	Option	Regular User (%)	Non Regular User (%)
Kite Flyer	Dangerous activity	Yes, always	10.41	46.52
		Yes, some time	6.94	32.63
		Never	2.08	2.08
	Kite flying is bane	Yes, spring only	4.16	21.52
		Yes, whole year	2.77	36.11
		Never	11.80	23.61
	Kite Flying in Basnat Festivals	Enjoyment	10.41	42.36
		Friend Company	5.55	20.13
		Environment	2.77	18.75
		Other reason	-	2.77
	Other People Complain about kite flying	Yes, always	6.25	26.39
		Yes, some time	4.86	20.83
		Never	7.63	34.02
	Govt. rule and regulation about kite flying	Follow rules	9.72	59.02
		Don't care any law	2.08	9.03
		Don't know	6.99	12.82
		Other	-	0.34
	Type of Cotton line use for kite flying	Powdered glass	18.05	20.83
		Filament wire	6.94	18.05
		Chemical mixed	9.72	20.83
Others		-	40.16	
Kite flying and alternative of kite flying	Yes	9.21	37.58	
	Yes, but I don't know	4.25	19.14	
	No	5.67	24.11	

Table 2, indicates the relation of age with kite flying , people having age group 22-27 and 28 & above year are dominate in powdered glass with 56.25%, 83.33% receptively. While below 18 and 18-22 year are dominate in Chemical mixed with 43.75%, 41.17%. When we check the relation of age with kite flying bane then, the age group below 18, 18-22, and 28 & above suggests that is bane whole year with 47.91%, 37.03% and 50%. While 28.77% people of age 22-27 recommend that is bane only in spring. Favorite time for kite flying is dominating evening with age group below 18, 18-22 and 28 & above with 52.94%, 44.11% and 33.33 respectively. The dominating time in age group 22-27 is weekend with 31.25%. The first three age groups are NRU with 56.25%, 68% and 66.12% respectively, while 28 & above age fellow are dominate in RU with 55.56%. The age group below 18, 22-27 and 28 & above articulates it's always dangerous with 64.45%, 53.58% and 57.15%, while an age group 18-22 year dominate 55.55% that it's dangerous but sometime.

Table 2:
Correlation between kite flying trend and age

Factor Relation	Option	Below 18 year	18–22 year	22–27 year	28 & above
Relation of age and Cotton line used during kite flying	Powdered glass	18.75 %	32.35 %	56.25 %	83.33 %
	Chemical mixed	43.75 %	41.17 %	6.25 %	-
	Filament wire	25.00 %	23.52 %	31.25 %	16.67 %
	Others	12.50 %	-	6.25 %	-
Relation of age with kite flying bane	Yes, spring only	27.08 %	27.77 %	28.77 %	7.14 %
	Yes, whole year	47.91 %	37.03 %	21.42 %	50.00 %
	Never	25.00 %	35.18 %	50.00%	42.85 %
Relation of age with regular user	Regular user	34.75 %	32.00 %	33.88 %	55.56 %
	Non Regular User	56.25 %	68.00 %	66.12 %	44.44 %
Relation of age with dangerous activity	Yes, always	64.45 %	40.75 %	53.58 %	57.15 %
	Yes, some time	31.25 %	55.55 %	46.42 %	28.57 %
	Never	4.16 %	3.70 %	-	14.28 %



Above figure, shows the result of die people due to the festivals. Gujranwala 25% people agreed that average less than 10 people die in every Basnat festivals and 41.07% people presumes that they have no idea about how much people die annually in Gujranwala.

4. DISCUSSION

Our results indicate that very strong relation between kite flyer (RU & NRU) and kite flying ban, 62.96% RU said that it should not ban and 44.45% NRU think its ban for the whole year. On one side kite flying has no link to Muslim customs, and therefore has no place in the Islamic republic, where 165 million people are Muslims. So, banned metal string that is deadly cutting the throats of motorcyclists and bicyclists. 48.14% RU and 49.12% NRU agreed that it's a dangerous activity, and mostly people doing it for enjoyment purpose. And almost 50% kite Flyer (48.14% RU, 49.12% NRU) agreed that there is an alternative for this activity. There is also significant relation between kite flyer (RU & NRU) and enjoyment with 55.56%, 48.70% respectively. It means that mostly people doing it for fun purpose, if our Govt increase the awareness among people

then why not they move to alternative games e.g. table tennis, tennis ball, carm board, and cards etc.

The study also analyzes the use of powdered glass, filament wire and chemical mixed cotton and particular type of line for kite flying create a lot of problem like, Children are being wounded or destroyed following fallen kites. People regaining fallen kites from cables, then the lost their lives. And metal wires are being electrocuted and reasoning millions of dollars of damage to the country's power authority, the break up of electric circuit, road accident, transport problem, people injured, and death occur in particular cases, Our government spending millions of rupees to entertain foreign visitors on Basnat, rather than spending it to develop literacy rate, insufficient medical facilities and the provision of basic facilities to ordinary people. No drought, mostly people follows government rule and regulation against kite flying. But it is not possible to bane the usage of such type of line in this particular environment of Pakistan.

CONCLUSION

In closing this discussion of kite flying in Pakistan. We suggest that, it should be bane for the whole year because it is not possible to control, but we can modify to another activities.

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**A STUDY OF MOST EFFECTIVE MEDIA FOR ADVERTISEMENT
IN GOLDEN TRIANGLE OF PAKISTAN**

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ABSTRACT

As media is the backbone of advertisement and the scope of advertisement depends on the amount of money that you can afford it. In today's competition advertising atmosphere, Advertisements though an effective media that has a word to the mind of the consumers and detains the concentration, heart and intuition of the person. Effective media hit a nerve are the ones that turn around little businesses into big businesses. An effective advertisement requires a fuse of innovation, role of media, and consumer's involvement. Most business proprietors move toward advertising with the purpose of simply getting their reputation. Where only some people are familiar with how to write such an ads, and publicize through an appropriate media.

1. INTRODUCTION

As media is a backbone of advertisement. Advertising is an investment necessary for many value-added agriculture businesses with proper choices of media types, placement and design, advertising can be an effective component of an enterprise's overall marketing plan. (Megan L. Bruch). Advertising is communication of information intended to persuade buyers, influence our customers to buy our product/services maximizing net profit. (Dr. Partha Pratim Sharm). Make an overview of your production with up-to-date information (Microsoft Dynamics NAV). One-week advertisement that allows free access to certain material (Byron Calame). The main economic drive of ambient intelligence is to provide the customer with a valued experience and not just a simple service (Keith Baker). Advertising effectiveness depends on good media selection. Media decisions are typically based upon consummator, or usage, measures. Though perceived usefulness is generally not a consideration, consumers' perceptions of media types as useful have definite implications for advertising and promotional decisions (Paula J. Haynes 1991). Evans and Wurster (1997) and Smith (2002) argue that the availability of information about products and services greatly influence the purchasing decisions made by consumers at all levels, and as access to this information becomes universal, businesses will be forced to change their strategic plans. Strategic assets give firms the sustainable competitive advantage (Michalisin et al. 1997, 2000). Evans and Wurster (1997) do not take into account the indirect costs associated with the acquisition and use of information by consumers.

While there is significant research on the nature and dynamics of small businesses (Brush, 1992; Brush and Vanderwerf, 1992; Callahan and Cassar, 1995, Carrier, 1994; d'Amboise and Muldowney, 1988; Jennings and Beaver 1997), as well as scholarship

that contrasts small firms with large firms (Chen and Hambrick, 1995; Katz, 1970; Tellis, 1989), no relevant research has appeared on the use of new media technologies for small firms and their potential for altering the competitive advantage of large firms. This research attempts to bridge two streams of scholarship: small firms and their attributes, and new media technology. Small firms are positioned to move quickly to try new approaches because their processes and structures are simpler than large firms. Small firms are more flexible and more adaptable to change (Carrier, 1994; d'Amboise and Muldowney, 1988), can act faster (Katz, 1970) and are more receptive to new ideas and techniques (Hitt *et al.*, 1991; Woo, 1987). However, small firms lack the human and financial resources of large firms (Ettlie, 1983; March, 1981), thereby facing limitations in purchasing and implementing new systems. Jennings and Beaver (1997) found that competitive advantage in the small firm arises from short-term operating circumstances and that strategic management is an adaptive process concerned with manipulating limited resources to gain maximum, immediate advantage. Courtney and Van Doren (1996) observe that information technologies allow small companies to act big by quickly deploying resources; resources that the customer perceives as "big" company behavior and conclude that winners of the new technologies "will use technology and act big, but will also be nimble, innovative and responsive". Chen and Hambrick (1995) found that by employing effective strategies, resource-strapped small firms in an industry can be as successful as their larger rivals; but different strategies including the use of processes and technologies, may be required by small firms to compete effectively and gain competitive advantage. The use of new media technologies, which are readily available and within the reach of small firms, may be one of the effective strategies used to alter the competitive advantage over larger firms.

Hoffman and Novak (1996) found that the Web provides an efficient channel for advertising, marketing and distributing goods and information services. Verity and Hof (1994) suggest that it may be nearly one-fourth less costly to conduct direct marketing through the Internet than through conventional channels. Fann and Smeltzer (1989) in their study of market information in small firms concluded that as data become more abundant and less costly, small firms will begin to use this information in more sophisticated ways. The use of the www certainly increases the availability and reduces the cost of market information; a clear benefit to the small firm. In an exploratory field study, Gogan (1997) examined www commerce opportunities and issues in small entrepreneurial start-ups as well as larger established firms. She notes that the Web's global reach and extremely low variable costs are significant attributes of the new media and, consequently, small vendors can reach dispersed markets without the expense of mass media.

Newspaper potentially has large coverage, low cost, specific audience, and short lead time. Television has large coverage, repeat exposure, specific audience and use both visual and auditory stimulants. Radio has specific (demographics), multiple exposures, content flexibility and use of a human voice. Magazine can target a specific audience, flexibility in size, cost, secondary exposure and visibility of the product (Megan L. Bruch, February, 2005).

Newspaper has one-day exposure and lack of movement and sound. While Television is costly to produce, time limitations, restrict message, short, and clutter (can be lost among other ads). Radio has certain limitation, time, restrict message, clutter, and short

exposure. Magazine has clutter, lack of movement and sound, publication may be weekly/monthly (Megan L. Bruch, February, 2005).

This study was designed keeping in view the following objectives:

- ✓ To analyze, which media channels used in Golden Triangle of Pakistan (GTP).
- ✓ To determine the most effective media for advertisement in GTP.
- ✓ Businessman can make their marketing campaign efficient with the proper utilization of media channels.

KMO and Bartlett’s Test of Sphericity:

Table below shows KMO and Bartlett’s Test and the Bartlett’s test of sphericity is significant at the level of .627 and the significant level is .000.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.627
Bartlett's Test of Sphericity	Approx. Chi-Square df	281.64 105 .000

Reliability Statistics	
Cronbach's Alpha	No of Items
.717	37

Reliability analysis table above shows the reliability statistics which is significant at the alpha level of .717.

2. METHODOLOGY

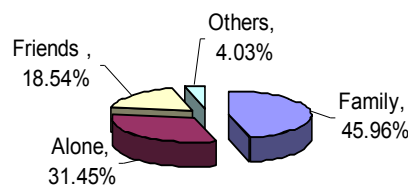
Responses are collected from Community through structured questionnaires and 150 questionnaires are responded in this research. This observation and surveys are conducted among Variety of Professional; businessman, Student, Housework, Retired, Unemployed both male and female from Public and Private sector surveyed in the research. Principal Component Analysis Method for Factor Extraction using Statistical Programme for Social Science is used to identify the effective media for advertisement. Projective and correlation techniques used to find out the alliance and strength of relationship between the media and consumers attitude.

3. RESULTS

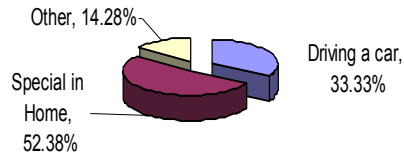
Media usage in Golden Triangle of Pakistan

Media	Yes, always		Yes, some time		No	
	Frequency	%	Frequency	%	Frequency	%
Television	80	61.53	34	26.17	16	12.30
Radio	24	18.46	55	42.31	51	39.23
Newspaper	32	24.61	75	57.69	23	17.69
Magazine	14	10.76	65	50	51	39.23
E-Mail	94		72.3 %		36	27.7

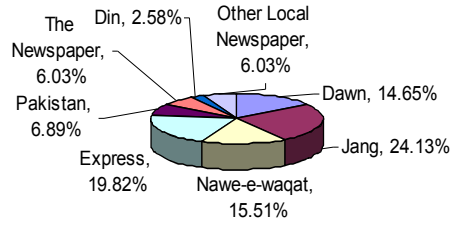
The above table explains the result of important media channel in Golden Triangle of Pakistan (GTP). The importances of television across the living people are 61.53% daily watching, while 26.17% watch some time and 12.30% doesn't watch.



The pie chart of TV user show the relation of user and uses like, 45.96% people prefer to watch TV with there family, 18.54% with there friends, 31.45% alone and 4.03% with other. The study analyze the most preferable time for TV are 8:00-10:00 P.M with 62.90% user and 58.87% people spent less than 60 minute for TV activities. While 29.83% spent 60-90 minute, 18.54% spent two hour for TV and the remaining for other time.

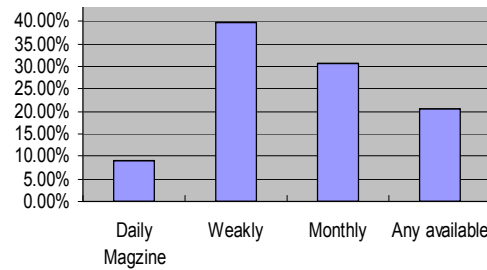
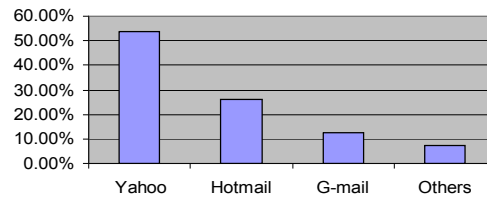


Secondly, 52.38% radio listeners are household, 33.33% listen radio during driving their car and 14.28% are other listeners.



Thirdly, the most reading newspaper in the golden triangle are Jang, express and Nawe-e-waqat. Study also analyzes the habitually reading trend of newspaper across the living people in this area. Our 32.72% community read newspaper thoroughly, 29.82% focus on headline, 21.92% front page only, 1.75% advertising page and 14.03% read business page. In which 43.96% are read at home, 21.55% at office, 23.27% read at college/university library, 2.58% other places and the remaining 8.62% people read newspaper at public library.

E-mail user Chart



The user of weakly magazine is dominated with 39.74%, then monthly user 30.76%, 8.97% read daily magazine and 20.51% user read any magazine that is available.

As study analyses that 72.30% literate people of GTP are user of internet. And 53.68% of that is use Yahoo, 26.31% hotmail, 12.63% G-mail and 7.3% are those who don't rely on single e-mail or use other e-mail.

Option	Gujranwala		Sialkot		Gujrat	
	Frequency	%	Frequency	%	Frequency	%
Daily user	17	42.5	11	37.93	12	46.15
1 time in a weak	3	7.5	7	24.13	4	15.38
2 time in a weak	7	17.5	3	10.34	1	3.84
3 time in a weak	4	10	4	13.79	1	3.84
4 time in a weak	6	15	3	10.34	7	26.73
Other time	3	7.5	1	3.5	1	3.84

The above table illustrates the access of e-mail in a city separately, but daily user in GTP are 42.10%, 16.84% access the e-mail 4 times in a weak, 14.73% only one time, 11.57% 2 times, 9.47% 3 time, while 5.27% give emerging result of email access.

We also apply an importance of scale to check the effectiveness of media channel in our local area. The number of that channel are Television, Newspaper, Magazine, Radio, Billboards, Broachers, Internet, Friends, Poster, Cable, Wall painting, Cinema, Mobile Advertisement and other tool for advertisement. The total variance explained that 5 variable (media channel) are those that cover 60% importance of total variable. Those are Television, Radio, Broachers, Poster, Cable and new technology change Mobile Advertisement, so we can't ignore these channels for effective media in GTP.

4. DISCUSSION

As we know media is more important in the selection of ad for marketing activity and that is not possible to access potential customer, supplier and buyer without awareness of customer about our product. The scope of advertisement depends on the amount of money that you can afford. The study illustrate 61.53% regular user of TV and they prefer to watch at 8:00-10:00 P.M with family, the most useful newspaper are Jang and mostly people read it at there home. While weakly magazine are more preferable as compare to other. Mostly, we consider TV, Radio, Newspaper and magazine are the major useful source for effective ad but cannot consider the cost of that (may be our time of add are not effective). Some of business proprietors move toward advertising with the purpose of simply getting their name. But the importance of scale of our study determined, if we consider Cable, Poster, Broachers and Radio only, then its cover a 50% importance of the media in GTP for ad.

5. CONCLUSION

TV and Newspaper are the most famous media among targeted audience. Any product related to household can be marketed through Radio channel (72% household). Further research can be done as which TV channel has the highest view ship among youth and what might be the reason for all that by exploring different major cities of great Pakistan.

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A MESH FREE METHOD FOR 1D KLEIN – GORDON EQUATION

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ABSTRACT

A Mesh Free Method in Pseudospectral Mode is used to find out the numerical solutions of one-dimensional (1D) Klein-Gordon (KG) equation using collocation points and approximating the solution using Multiquadric (MQ), as a radial basis function (RBF).

KEYWORDS

Collocation, Pseudospectral Method, Klein-Gordon (KG) equation, Radial basis function (RBF); Multiquadric (MQ).

1. INTRODUCTION

The Klein-Gordon (KG) equation is basically a quantum wave equation, that was first considered by Schrödinger in 1925 when he was searching a differential equation for de-Broglie Wave on the idea of Debye. It was used as a field equation for a long time but then becomes a relativistic wave equation for Spin less particles with frame work of a many-particle theory. Its non-linear form used to model different non-linear phenomena such as non-linear optics, plasma physics and fluid mechanics, etc.

Numerical as well as exact solutions of KG equation have been proposed by several researchers. To find the numerical solution of KG equation they use different numerical techniques such as decomposition method [Evas, Inc. and Ergut (2006)], the method of lines [Jerome (1978) and Duncan (1997)], etc. Here, a mesh free method based on RBF-Collocation in Pseudospectral mode is used to find the accurate numerical results for KG equation.

The RBFs are probably best known for multivariate interpolation problems of scattered data. The most popular and commonly used RBFs are Gaussians $e^{-(cr)^2}$, Multiquadric (MQ) $\sqrt{1+(cr)^2}$, Duchon's Thin Plate Splines (TPS) $r^2 \log(r)$, and Wendland functions $(1-cr)^2_+$ (where $r = \sqrt{x_1^2 + \dots + x_m^2}$; $(x_1, x_2, \dots, x_m) \in R^m$ and 'c' is a free parameter, called Shape Parameter). Franke (1982) compared the results of 29 scattered data interpolation methods and showed that RBFs are much accurate than others especially Hardy's Multiquadric (MQ) and Duchon's Thin Plate Splines (TPS).

In the recent decade, RBFs are actively used to find out the numerical solution of partial differential equations. Usually RBFs are used in combination of mesh free collocation methods and make them truly mesh free methods. At very first, Kansa used RBFs (Multiquadric) for the numerical solution of partial differential equations and develop a method called Kansa's collocation approach or Kansa's method [Kansa (1990a), Kansa (1990b)]. Later on Fasshaure modified Kansa's method to a Hermite type collocation method and use RBF-collocation method in different modes for the numerical solution of partial differential equations [Fasshaure (2007)].

In the following discussion, an RBF-collocation method in Pseudospectral Mode is described for the numerical solution of KG equation in Section 2. An example to illustrate the method and its numerical solution is also presented in Section 3 and Section 4 respectively.

2. DESCRIPTION OF THE METHOD

To describe the method for the linear form of KG equation given as

$$\frac{\partial^2 u}{\partial t^2} = \frac{\partial^2 u}{\partial x^2} - au, \quad x \in \Omega = [a, b] \subset R, \quad t > 0 \quad (1)$$

subject to initial conditions

$$u(x, 0) = f(x) \quad \text{and} \quad u_t(x, 0) = g(x), \quad x \in \Omega \quad (2)$$

with Dirichlet boundary condition, where $f(x)$ and $g(x)$ are known functions, let us discretize equation (1) according to the following θ weighted scheme

$$\begin{aligned} u(x, t_{n+1}) = & (\delta t)^2 \theta \frac{\partial^2}{\partial x^2} u(x, t_{n+1}) + (\delta t)^2 (1 - \theta) \frac{\partial^2}{\partial x^2} u(x, t_n) \\ & + [2 - a(\delta t)^2] u(x, t_n) - u(x, t_{n-1}) \end{aligned} \quad (3)$$

at fix time $t = t_n$; $n = 0, 1, 2, \dots$, where $0 \leq \theta \leq 1$ and $\delta t = t_{n+1} - t_n$ is the time step. Now, approximating the solution $u(x, t)$ of equation (1) by $\tilde{u}(x, t)$ at $t = t_n$ that will be expressed as

$$\tilde{u}(x, t_n) = \sum_{j=1}^N \alpha_j^n \phi_j(x) \quad (4)$$

Because of linearity, equation (4) will be used to calculate the 2nd order derivative of $\tilde{u}(x, t)$ at $t = t_n$ as

$$\frac{\partial^2}{\partial x^2} \tilde{u}(x, t_n) = \sum_{j=1}^N \alpha_j^n \frac{\partial^2}{\partial x^2} \phi_j(x) \quad (5)$$

where $\{\alpha_j^n\}_{j=1}^N$ are unknown co-efficients, $\phi_j(x)$; $j = 1, 2, \dots, N$ are RBFs and $\tilde{u}(x, t_n)$ the value of approximate solution at $t = t_n$. On evaluating of (4,5) at collocation points $x_i, i = 1, 2, 3, \dots, N$ they become systems of linear equations, the matrix notations are

$$\tilde{u}_n = A\alpha_n, \quad \tilde{u}_n'' = A_{xx} \alpha_n \quad (6)$$

where α_n and \tilde{u}_n are the vectors of unknown co-efficient and the values approximate solution at $t = t_n$. The ij th entries of the matrices A and A_{xx} are

$$A_{ij} = \phi_j(x_i), \quad [A_{xx}]_{ij} = \left. \frac{\partial^2}{\partial x^2} \phi_j(x) \right|_{x=x_i}, \quad \text{for } i, j = 1, 2, 3, \dots, N \quad (7)$$

Now, from equation (6)

$$\alpha_n = A^{-1}\tilde{u}_n \quad (8)$$

and

$$\tilde{u}_n'' = A_{xx} A^{-1}\tilde{u}_n = D\tilde{u}_n \quad (9)$$

where $A_{xx} A^{-1} = D$ is the differentiation matrix. Now, on evaluating (3) at collocation points $x_i, i = 1, 2, 3, \dots, N$, and after using equations (5)-(9). Again a system of linear equations is formed whose matrix notation is

$$\tilde{u}_{n+1} = (\delta t)^2 \theta D \tilde{u}_{n+1} + (\delta t)^2 (1 - \theta) D \tilde{u}_n + [2 - (\delta t)^2 a] \tilde{u}_n - \tilde{u}_{n-1} \quad (10)$$

This gives the approximate solution \tilde{u} . From equation (10) it is clear that there is no need to calculate the unknown co-efficient α_j (s) for computing the approximate solution \tilde{u} .

3. EXAMPLE

To illustrate the discussed method in the section 2, we consider Eq. (1) in the region $0 \leq x \leq 1$. The initial conditions is given as

$$u(x, 0) = x + e^{-x}, \quad (11)$$

and

$$\frac{\partial}{\partial t} u(x, 0) = 0, \quad (12)$$

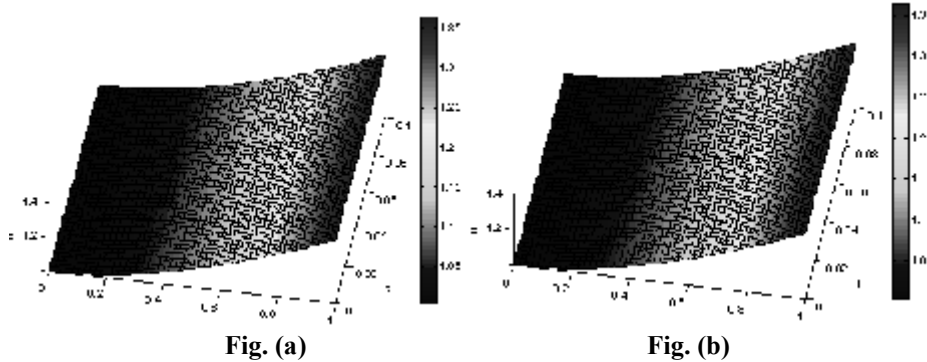
with boundary condition extracted from the exact solution. And this problem has the exact solution $u(x, t) = e^{-x} + x \cos t$.

4. NUMERICAL RESULTS

MQ - RBF is used for shape parameter $c = 0.935$ at $\delta t = 0.002$. Table shows the absolute error obtained form the example described in the above section. We also demonstrate the exact solution and the corresponding numerical solution of the above example in figure (a) and figure (b).

Table:
Absolute error obtained for Example

x_i	Exact Solution	Approximation solution	Error
0	1.000000000000	1.000000000000	0.0000000 E+00
0.2	1.018720753161	1.018720753186	0.2540900 E -10
0.4	1.070300046202	1.070300046193	0.9082956 E -11
0.6	1.148781636344	1.148781636319	0.2430033 E -10
0.8	1.249288964450	1.249288964420	0.2991606 E-10
1.0	1.367829441588	1.367829441588	0.0000000 E+00



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ROLE OF NON-FINANCIAL BENEFITS ON MOTIVATION OF EMPLOYEES

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ABSTRACT

Energy commitment and creativity displayed by a company's employees, as the yardstick of his motivation in jobs. Among the principles of management, the most important one is to keep discovering the ways and means of ensuring the high motivation level in the employees. Both financial and non-financial rewards for an employee play a pivotal role in this regards. The financial rewards, in the present age, unquestionably boost up the employees performance level in the sense that money makes the mere go. Non-financial rewards in the form of promotion, job security, training and pleasant work environment, also contribute to the enhancement of motivation. These measures result in employee's satisfaction and resultantly in an urge to work. Any dissatisfaction, on the other hand, can cause multifarious problems. An Organization should however keep in view that the incentives or rewards should harmonize with the employee's needs.

1. INTRODUCTION

People usually do what they want or are driven (motivated) to do, either by themselves or through external stimuli. So motivation is a drive that urges the people to perform well at their work. Hence performance is totally based on the ability and motivation of the people. Motivation directly relates to human nature, which can be very simple yet complex too. Abraham Maslow (Motivation and Personality, 1997), Fredrick Herzberg ("How do you motivate employees?" January 2003) and many other theorists presented the motivational theories keeping in view the employee attitudes at their jobs. According to these theorists, well motivated employees are more efficient and creative than unsatisfied employees. Financial and non-financial rewards are the key factors on which motivation depends. So times have changed today. The needs of employees are primary focus of the managers. Financial and non-financial incentives not only fulfill the needs of their employees but also motivate them to work hard for their organization. Douglas & Shepherd (2000) build a model of career choice where entrepreneurship, either internal or external, can in fact be a utility maximizing response. In particular, their model outlines how "incentive contracts, such as profit-sharing bonus schemes, may be designed to induce employee behavior" and "higher levels of work effort" (2000: 236). Motivation does not always depend on money therefore we have narrow downed our research to the non-financial benefits that relate to employee motivation. Companies with excellent motivation don't miss any opportunity to shower their employees with non-monetary rewards (Warner Books, 1982). The key non-financial benefits included in this

research are organizational goals and policies, promotions, acknowledgement and appraisals, working conditions, leadership, job security and training programs being provided to employees.

In this research, our target population is the employees at university of Gujrat, Hafiz Hayat Campus. It is an HEC recognized Public Sector University and was established by government of Punjab on February 23, 2004 to cater for the higher education needs of population of central Punjab. University is providing facility of higher education to its surrounding areas, particularly the golden triangle of Gujrat, Sialkot and Gujranwala. The non-financial benefits studied in accordance with the employee motivation will be generalized on other organizations working in the same cultural environment.

2. LITERATURE REVIEW

Jones and Butler (1992) took an agency theory approach and found that innovations in organizational structure and organizational controls and rewards can mitigate and solve agency problems. While they make a number of prescriptive suggestions regarding reward systems (outcome based contracts, promotions, large monetary premiums tied to individual and group performance, equity ownership and stock options for employees at all levels) and identify a number of areas of concern (linking performance to reward, equity in rewards and procedures, and the time dimension), their reasoning is limited by their economic-focused agency theory perspective. Even Jones and Butler (1992) admit that behavioral and social factors are missing from their model: "Exploring the interplay amongst economic and behavioral factors would be interesting empirically." (1992: 747). Following these thoughts, we feel that it is important to explore the interactions of factors that go beyond economic utility maximization and corresponding trade-offs made in real-world decision making processes.

The term non-financial rewards relate to non-direct payment to employees, but cover such matters as benefits extended to employees outside collective bargaining process/outcome. They are usually subject to management discretion or arising from In-House discussions with employee representatives. Non-financial rewards creates opportunities for the employer to respond to circumstances that are outside collective agreement and yet of immense importance to employee welfare. From the perspective of the employee, non-financial rewards create an opportunity to present a listing of welfare related items, which may not be subject to any form of negotiations. Rewards are based on equity as opposed to equality and therefore performance related rewards are encouraged. Accordingly, every organization will need to establish strategic channels of communications/engagement with employees so as to establish appropriate rewards strategy, which are supportive of employee welfare, (John Opute).

Feedback policies are pervasive in organizational settings. Citing a series of human resource studies, Murphy and Cleveland (1995) noted that between 74% and 89% of business organizations have a formal performance appraisal and feedback system. DeVries, Morrison, Shullman and Gerlach (1986) note that since the 1960s performance appraisals were increasingly used for employee development and feedback. In fact, in almost all organizations, at least some information is revealed to workers at regular intervals about how well they have performed in the past. Companies in which promotion decisions constitute a large part of rewards inform their workers about their previous

performance and prospects long before the actual promotion decisions are made (Shullman and Gerlach, 1986).

The job itself can be a motivator for an employee. First, jobs should be designed whenever possible to encourage employees to use a variety of skills. Standing in one place using only one or two skills doing the same thing over and over is not motivating for most people. One of the reasons that many people like varied work is that they get to use a variety of skills. Teamwork has the potential to be either a dissatisfier or a motivator. Some individuals have a high need for power. Some are “loners.” Some have had bad experiences in previous employment with cooperative effort. Some are reluctant to share honest assessments of coworkers. For each of these types of employees, teamwork, especially ineffective teamwork, may be a major dissatisfier. On the other hand, some people with a high need for interpersonal relations may see teamwork as a major motivator. Some may also see their own needs for achievement being satisfied best through close working relations with their coworkers. Employers need to emphasize team building if teamwork is to be more than a hollow slogan. Teams are built through four stages: forming, storming, norming and performing. In the forming stage, team members break the ice with each other, become oriented to the employer’s business goals and begin to exchange ideas. The forming stage is particularly important when integrating new employees with established employees, and family members with nonfamily members, (Bernard L. Erven).

Research Questions:

- What are the types of non-financial benefits offered to the employees?
- What is the motivation level of employees?

Results were deduced by developing relationship between non-financial benefits and employee motivation.

3. GENERAL HYPOTHESIS

The General hypothesis, after reviewing literature can be deduced. We can state that there is a relationship between the Non-Financial Benefits and Motivation of employees.

H₀: Non-Financial Benefits have positive impact on the Motivation of employees.

H₁: Non-Financial Benefits have negative impact on the Motivation of employees.

4. RESEARCH METHODOLOGY

According to Saunders (2004), the most suitable technique for such kind of research is survey based cross-sectional Research. The target population of this study included the employees at university of Gujrat Hafiz Hayat Campus. The size of the total population is 514 employees. To obtain a representative sample, 102 employees were sampled which is 20% of the total population. From sampling frame, two stage stratified random sampling technique was used, since our population was heterogeneous with respect to non-financial benefits. At first stage the strata’s were made as follows

- Faculty
- Administration
- Supporting Staff

At second stage, each designed stratum was further stratified on the basis of employee's Basic Pay Scale (BPS). This detail is shown as follows:

Employees Sampling Structure

Post Name of Faculty	Total working	Sample (20%)	Administration	Total working	Sample (20%)	Supporting Staff	Total working	Sample (20%)
Professor+ Associate Prof	7	1.4	Higher Management	32	6.4	Security Guards	42	8.4
Assistant professor	9	1.8	Middle Management	55	11	Drivers	41	8.2
Lecturer	112	22.4	Lower management	62	12.4	Attendants	70	14
Teaching Assistant	5	1	Lower ranked employees	58	11.6	Sanitary workers	21	4.2
Total	133	26.6		207	41.4		174	34.8

Questionnaire was developed to collect data for the study of non-financial benefits and motivation level of employees. It was divided into three parts. First part included the questions related to General Demographic Information. Questions in the second part were related to the Non-Financial Benefits and are categorized depending on eight factors such as Rules and regulations, working environment, promotions etc (mentioned earlier). In third part, the questions were based on personal motivation. Questionnaire was pilot tested with 5 employees and as a result of the pilot test, minor changes in the sequence of questions and word selection were made. Response rate was 97% since 99 respondents filled the questionnaire. SPSS and STATISTICA were the software's used for Data analysis.

5. Results and Discussion

Table 1 in the appendices shows the response in %age on the basis of general demographic information. Percentage response of each Question is shown in table 2. The result is clear for each question in Non-Financial Benefit and Employee Motivation e.g. if we are intended to know the response of employee Promotion benefit we would go to Question # 3 and 4 where the 13.1 and 12.1 % employees responded for strongly agree and majority responded for neutral. This shows that most of the employees are unaware of promotion policies since majority are newly recruited in last 1-1.5 year. Also there is 0% strongly disagreement for the peers cooperation in Q15 which shows that there is a very friendly and supportive working environment in this University. Later SEM (discussed ahead) also proves that in this university the working environment contributes a lot to the employee motivation in non-financial benefits.

Similarly Averages Table in Appendix 3 shows the overall Mean and Standard Deviation, as well as on the basis of Demographic Information.

The relationship between Non-Financial Benefits and the Motivation of Employees is determined by developing Structure Equation Model with the help of STATISTICA 7.0 software. Exogenous were the independent variables and Endogenous were dependent variables. Endogenous variables are determined through exogenous variables. Exogenous variable here include Job Security, Leadership, Peers Cooperation, Rules and

Regulations, Training and Appraisal. Also Endogenous variables are Working Environment, Promotion and Motivation.

Hypothesis

- H₁: Working Environment is effected by Job Security.
 H₂: Working Environment is effected by Leadership.
 H₃: Working Environment is effected by Peers Cooperation.
 H₄: Promotion is effected by Rules and Regulations.
 H₅: Promotion is effected by Training.
 H₆: Promotion is effected by Appraisal.
 H₇: Motivation is effected by Work Environment.
 H₈: Motivation is effected by Promotion.

The Goodness of Fit Index is 0.662 which shows that the SEM model is fit for data.

Table Parameter Estimation:

Factors Relations	(JS) ->(WE)	(LS) ->(WE)	(PC) ->(WE)	(RR) ->(PR)	(TR) ->(PR)	(AP) ->(PR)	(WE) ->(MO)	(PR) ->(MO)
Parameter Estimate	0.319	0.150	0.403	0.207	0.484	0.259	0.567	0.220
p-value	0.000	0.031	0.000	0.004	0.000	0.009	0.000	0.041

JS: Job Security **LS:** Leadership **PC:** Peers Cooperation
RR: Rules and Regulations **TR:** Training **AP:** Appraisals
WE: Working Environment **PR:** Promotions **MO:** Motivation

The shown model below in Fig.1 is the SEM (Structural Equation Model) used to compute the information available from the equations that make up a model. It provides the direct estimates of the relationships between the exogenous constructs which have implications in our interpretation of the results as well as directly influence our assessment of the validity of the exogenous constructs.

Path relationship procedure can provide estimates for each relationship (arrow) in the shown model. Paths in above model represent the research questions put by us to the employees. First we look at 6 basic relationships i.e. Job security, Leadership, peers Cooperation and Rules, Regulations and Goals, Training and Appraisals. From the table of parameter estimation, the estimated co-efficient are .319, .150, .403, .207, .484, .259 respectively. We can ascertain that Peers Cooperation has more impact after job security to the working Environment. Similarly Leadership, rules and regulations has somewhat less impact to the working environment and promotions respectively. So Motivation is more achieved from the working Environment since it has bigger estimated coefficient which is 0.567 than Promotions whose estimated coefficient is 0.220.

The p values are also shown in the above table. From there it is evident that the p-values for each correlation are less than .05 so we are confident enough that the relationships between variables are significant.

SEM MODEL

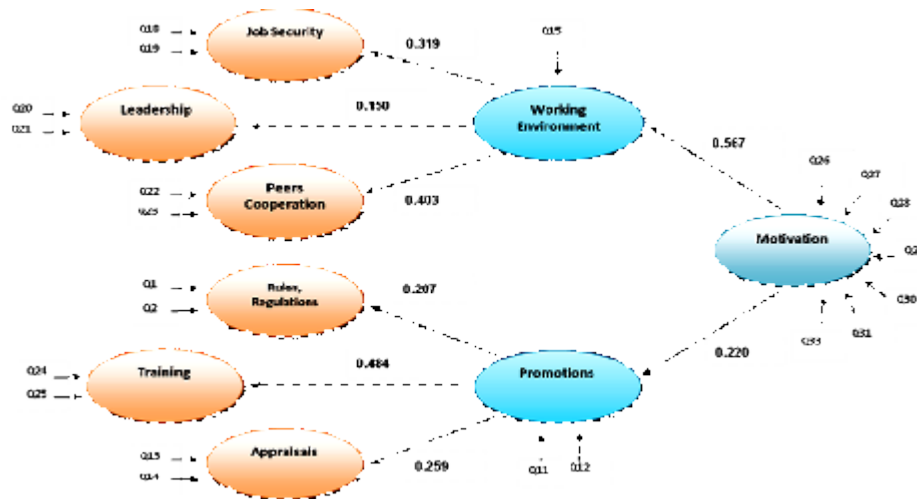


Figure 1

Motivation can also be determined on individual basis by putting value of the endogenous and exogenous variables in the following Equations. The responses value from 1-5 for employees strongly Agree to Strongly Disagree will lead to a Motivation value within 1-5 range. Therefore the motivation level of each employee can be found in numerical terms, by following Mathematical Correlations.

Estimated SEM Equations

$$\text{Motivation} = 0.567(\text{Working Environment}) + 0.22(\text{Promotion})$$

$$\text{Working Environment} = 0.319(\text{Job Security}) + 0.150(\text{Leadership}) + 0.403(\text{Peers Cooperation})$$

$$\text{Promotion} = 0.207(\text{Rules and Regulations}) + 0.484(\text{Training}) + 0.259(\text{Appraisal})$$

$$\text{Motivation} = 0.567 [0.319(\text{Job Security}) + 0.150(\text{Leadership}) + 0.319(\text{Job Security}) + 0.150(\text{Leadership})] + 0.22[0.207(\text{Rules and Regulations}) + 0.484(\text{Training}) + 0.259(\text{Appraisal})]$$

6. CONCLUSION AND IMPLICATIONS

To study the employee motivation dependence on the non-financial benefits is very significant for managers at high levels in any organization in making decisions at the time of recruitment and promotions. It will also help them analyze the key aspects on which employees are more motivated. The study will result in the benefit of the organization since they may recognize the key areas where they lack and with a little improvement can increase employees' loyalty with their organization.

Our Hypothesis is true for University of Gujrat, Hafiz Hayat Campus, since the Non-Financial Benefits do effect positively to the motivation of employees. From the above

results we can clearly depict that by focusing on the key areas we can get long term results. These key areas are those aspects, which due to some reasons might be neglected. The higher management can realize how to motivate its employees by non-monetary rewards. This would help them in making strategies for the retention of their employees and also attracting new ones. The Non-Financial Benefits studied in accordance with the employee motivation can be generalized on other organization's working in the same environment.

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Appendix-A

Table 1: Frequency distribution for General Information

Gender		Marital Status		Employee Status		Employee Groups acc to Job Position		
Male	Female	Single	Married	Contract	Permanent	Faculty	Administration	Supporting Staff
80.8%	19.2%	48.5%	51.5%	76.8%	23.2%	32.3%	59.6%	8.1%

Age Groups				Levels of Pay Scale					
20-25	26-30	31-35	35 above	Scale 2	4-8scale	Scale 9	11-17 Scale	Scale 18	Above18
36.4%	18.2%	19.2%	26.3%	12.1%	13.1%	13.1%	21.2%	31.3%	9.1%

Levels of Education						
Below Matric	Matric	Intermediate	Bachelor	Masters	M Phil	Doctorate
28.3%	6.1%	8.1%	11.1%	30.3%	13.1%	3.0%

Levels of Experience				
1-6 months	7-12 months	13-18 months	19-24 months	Above months
23.2%	12.1%	41.4%	17.2%	6.1%

Table 2:
Percentage Response for each Question in 2nd and 3rd section of Questionnaire

S. No.	Non-Financial Benefits	S.A%	A%	N%	DA%	S.D%	Total
1	Rules and Regulations	21.2	44.4	9.1	19.2	6.1	100.0
2.	Organizational Goals	21.2	51.5	19.2	7.1	1.0	100.0
3.	Performance based Promotion	13.1	23.2	42.4	14.1	7.1	100.0
4	Flexible structure helping Promotion	12.1	42.4	21.2	18.2	6.1	100.0
5	Appreciation and acknowledgement	28.3	43.4	16.2	8.1	4.0	100.0
6	Fair policy appraisal	14.1	40.4	25.3	14.1	6.1	100.0
7	Supportive working environment	34.3	37.4	10.1	14.1	4.0	100.0
8	Infrastructure of the university	27.3	47.5	10.1	10.1	5.1	100.0
9	Balance work family life	15.2	34.3	19.2	25.3	6.1	100.0
10	Future Job threat	19.2	38.4	16.2	16.2	10.1	100.0
11	Job security	28.3	48.5	19.2	4.0	0	100.0
12	Constructive leadership	24.2	42.4	16.2	16.2	1.0	100.0
13	Supportive leadership	19.2	52.5	19.2	8.1	1.0	100.0
14	Supportive and encouraging peers	39.4	41.4	16.2	2.0	1.0	100.0
15	Friendly working teams	50.5	33.3	14.1	2.0	0	100.0
16	Employee training Arrangements	9.1	25.3	37.4	22.2	6.1	100.0
17	Sufficient training for effective performance	10.1	29.3	35.4	21.2	4.0	100.0
	Motivation						
18	Hard work for Organization	56.6	36.4	5.1	2.0	100.0	100.0
19	More weight in my work	38.4	43.4	13.1	4.0	1.0	100.0
20	Challenging Tasks	22.2	42.4	17.2	14.1	4.0	100.0
21	Drive to work efficiently and effectively	27.3	47.5	22.2	3.0	0	100.0
22	Long lasting services	47.5	35.4	12.1	5.1	0	100.0
23	Put my feet in organizations shoes	26.3	56.6	17.2	0	0	100.0
24	Comfortable enough to achieve desired goals	22.2	37.4	27.3	12.1	1.0	100.0
25	Enlightened vision and Performance	18.2	33.3	42.4	5.1	1.0	100.0

SA = Strongly Agree

A = Agree

N = Neutral

DA = Disagree

SD = Strongly Disagree

Table 3: Mean (M) and Standard Deviation (SD)

S#	Non-Financial Benefits	Employee Groups						Working Experience (months)									
		Faculty		Admin		Supporting Staff		1-6		7-12		13-18		19-24		Above 24	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	Rules & Regulations	3.00	1.13	2.25	1.18	1.63	.518	2.26	1.13	2.08	1.08	2.66	1.27	2.47	1.23	2.33	1.03
2	Organizational Goals	2.47	.983	2.02	.820	1.88	.354	2.30	.974	1.92	.669	2.17	.892	2.12	.781	2.00	1.09
3	Performance based Promotion	2.63	.907	2.85	1.21	3.00	.000	2.83	.937	3.00	.853	2.66	1.06	3.06	1.19	2.33	1.63
4	Flexible structure helping Promotion	2.66	.971	2.64	1.18	2.50	1.06	2.65	1.07	2.50	1.38	2.71	1.10	2.59	.939	2.50	1.37
5	Appreciation and acknowledgement	2.25	.718	2.12	1.23	2.13	.835	2.13	.920	2.17	1.11	2.20	1.12	2.29	1.16	1.67	.816
6	Fair policy appraisal	2.84	.920	2.49	1.18	2.13	.835	2.74	1.13	2.25	1.05	2.76	1.13	2.24	.903	2.33	1.03
7	Supportive working environment	2.53	1.27	2.02	1.12	1.75	.707	2.43	1.27	1.75	.622	2.22	1.27	2.00	1.00	2.00	1.26
8	Infrastructure of the university	2.06	.878	1.97	.928	4.25	1.03	2.13	1.10	2.42	1.37	2.22	.962	2.18	1.23	1.67	1.21
9	Balance work family life	3.03	.999	2.58	1.16	2.63	1.76	3.00	1.38	2.17	.835	2.76	.969	2.94	1.43	2.00	1.09
10	Future Job threat	2.09	.777	2.73	1.33	3.63	1.40	2.91	1.04	3.00	1.27	2.20	1.22	2.94	1.29	2.33	1.50
11	Job security	2.13	.793	1.92	.857	2.00	.000	2.04	.825	1.92	.669	2.02	.908	1.94	.659	1.83	.753
12	Constructive leadership	2.28	.958	2.05	.955	3.88	.354	2.30	.974	2.50	1.08	2.10	.944	2.59	1.22	2.00	1.26
13	Supportive leadership	2.31	.780	2.15	.979	2.00	.000	2.22	.951	2.25	.622	2.24	.888	2.12	.928	1.83	.983
14	Supportive and encouraging peers	2.16	.884	1.78	.789	1.00	.000	1.91	.733	1.83	1.03	1.85	.792	1.71	1.04	1.83	.753
15	Friendly working teams	2.00	.950	1.59	.673	1.00	.000	1.74	.864	1.83	.937	1.68	.789	1.59	.712	1.33	.516
16	Employee training Arrangements	2.72	.958	3.00	1.14	3.00	.000	3.13	.869	2.83	1.03	2.78	1.10	3.18	.883	2.33	1.50
17	Sufficient training for effective performance	2.63	.942	2.86	1.12	3.00	.000	2.83	1.02	3.00	.603	2.61	1.02	3.18	1.01	2.50	1.51
	Motivation																
18	Hard work for Organization	1.63	.707	1.51	.679	1.25	.707	1.57	.662	1.83	.835	1.59	.741	1.24	.437	1.17	.408
19	More weight in my work	1.88	.751	1.93	.944	1.25	.463	1.87	.694	1.92	.900	2.00	1.02	1.59	.712	1.50	.548
20	Challenging Tasks	2.06	.801	2.24	1.02	4.38	.518	2.65	1.02	2.58	1.16	2.07	1.03	2.47	1.17	2.33	1.36
21	Drive to work efficiently and effectively	2.19	.859	2.00	.743	1.38	.518	1.91	.733	1.92	.793	2.10	.831	1.94	.659	2.17	1.16
22	Long lasting services	1.88	.793	1.71	.929	1.50	.535	1.65	.775	2.08	.900	1.76	.860	1.59	.939	1.83	.983
23	Put my feet in organizations shoes	2.06	.716	1.85	.638	1.75	.463	1.87	.626	2.08	.515	1.90	.735	1.88	.600	1.83	.753
24	Comfortable enough to achieve desired goals	2.59	1.01	2.34	.921	1.13	.354	2.26	.752	2.00	.953	2.56	1.07	2.18	.951	2.00	1.26
25	Enlightened vision and Performance	2.19	.738	2.39	.965	3.00	.000	2.48	.898	2.50	.798	2.37	.859	2.29	.849	2.00	1.26

Table 3 (continued)

S#	Non Financial Benefits	Over All		Gender				Marital Status				Employee Status			
				Male		Female		Single		Married		Contact		Permanent	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	Rules & Regulations	2.44	1.197	2.46	1.242	2.37	1.012	2.58	1.048	2.31	1.319	2.26	1.182	3.04	1.065
2	Organizational Goals	2.15	.873	2.06	.891	2.53	.697	2.25	.812	2.06	.925	2.13	.914	2.22	.736
3	Performance based Promotion	2.79	1.072	2.78	1.125	2.84	.834	2.67	1.078	2.90	1.063	2.86	1.140	2.57	.788
4	Flexible structure helping Promotion	2.64	1.102	2.60	1.154	2.79	.855	2.54	1.031	2.73	1.168	2.63	1.153	2.65	.935
5	Appreciation and acknowledgement	2.16	1.057	2.15	1.115	2.21	.787	2.15	.967	2.18	1.144	2.16	1.144	2.17	.717
6	Fair policy appraisal	2.58	1.089	2.51	1.136	2.84	.834	2.63	.981	2.53	1.189	2.53	1.125	2.74	.964
7	Supportive working environment	2.16	1.167	2.14	1.188	2.26	1.098	2.10	1.036	2.22	1.286	2.09	1.145	2.39	1.234
8	Infrastructure of the university	2.18	1.101	2.20	1.152	2.11	.875	2.08	.794	2.27	1.328	2.25	1.156	1.96	.878
9	Balance work family life	2.73	1.176	2.70	1.216	2.84	1.015	2.81	1.024	2.65	1.309	2.67	1.226	2.91	.996
10	Future Job threat	2.60	1.253	2.61	1.345	2.53	.772	2.63	1.160	2.57	1.345	2.78	1.323	2.00	.739
11	Job security	1.99	.802	1.96	.834	2.11	.658	2.13	.866	1.86	.722	1.97	.832	2.04	.706
12	Constructive leadership	2.27	1.038	2.25	1.061	2.37	.955	2.25	.978	2.29	1.101	2.29	1.081	2.22	.902
13	Supportive leadership	2.19	.877	2.10	.866	2.58	.838	2.35	.863	2.04	.871	2.16	.925	2.30	.703
14	Supportive and encouraging peers	1.84	.842	1.75	.834	2.21	.787	1.98	.758	1.71	.901	1.79	.838	2.00	.853
15	Friendly working teams	1.68	.793	1.63	.786	1.89	.809	1.71	.824	1.65	.770	1.66	.776	1.74	.864
16	Employee training Arrangements	2.91	1.041	2.94	1.060	2.79	.976	2.98	1.176	2.84	.903	2.92	1.093	2.87	.869
17	Sufficient training for effective performance	2.80	1.020	2.81	1.020	2.74	1.046	2.73	1.086	2.86	.960	2.89	1.027	2.48	.947
	Motivation														
18	Hard work for Organization	1.53	.690	1.50	.675	1.63	.761	1.65	.699	1.41	.669	1.55	.737	1.43	.507
19	More weight in my work	1.86	.869	1.83	.911	2.00	.667	1.96	.849	1.76	.885	1.87	.914	1.83	.717
20	Challenging Tasks	2.35	1.100	2.36	1.15	2.32	.885	2.23	.905	2.47	1.255	2.49	1.149	1.91	.793
21	Drive to work efficiently and effectively	2.01	.789	1.95	.778	2.26	.806	2.08	.739	1.94	.835	1.97	.783	2.13	.815
22	Long lasting services	1.75	.861	1.71	.903	1.89	.658	1.90	.881	1.61	.827	1.71	.861	1.87	.869
23	Put my feet in organizations shoes	1.91	.656	1.88	.644	2.05	.705	2.04	.683	1.78	.610	1.89	.645	1.96	.706
24	Comfortable enough to achieve desired goals	2.32	.988	2.24	.997	2.68	.885	2.42	.846	2.24	1.106	2.26	.957	2.52	1.082
25	Enlightened vision and Performance	2.37	.876	2.43	.911	2.16	.688	2.25	.934	2.49	.809	2.41	.912	2.26	.752

**OUTCOMES OF TRAINING AND DEVELOPMENT ON EMPLOYEE
PERFORMANCE IN CELLULAR COMPANIES OF PAKISTAN**

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ABSTRACT

The focus of this study was to determine the outcomes of training and development on employee performance in cellular companies of Pakistan. The data has been collected from approximately 300 employees within the cellular companies of Pakistan. Training and development have a positive effect employee performance in such a way that the more the employees are trained the more they become result oriented to the company. As the technology and workplace environment is changing day by day, the companies need to develop a training and development system which can help employee to adapt to these situations and make them skillful and efficient in this ever changing environment.

INTRODUCTION

Training which is intended to improve the quality of men (and women) in the organization through acquisition of knowledge, self awareness and interpersonal skills (Prahalad, 1972). Training can increase the ideational productivity of trainees particularly in respect of ideational originality (Kabanoff and bottger, 1991). The trainees consider the main impact of training as acceptable solutions to different kind of problems. That is, the main difference between trained and untrained employees is that the trained one's willingness and capacity to reschedule judgment and not to include odd, but original and potentially valuable ideas (Kabanoff and bottger, 1991). Similarly, employees who attend a training program because they want to, not because of external pressures, should profit more from the experience (Hicks and Klimoski, 1987).

The main focus of this research is to find out different aspects of this growing sector. Firstly, it has been learnt that very few research has been done in telecom sector. Secondly, due to the continuous change in the technology, this sector has to adapt to these changes through effective training and development process. So, more attention has to be given to this sector. And thirdly, telecommunication companies must focus on customer care and customer satisfaction. For this purpose, companies have to train their human resource to meet the satisfaction level of the customer. Now these three aspects will be discussed separately in details. A very few articles on the subject have appeared in academic publications. One of the objectives of this study is to enhance the scope of study in this sector with respect to training and development and its impact on the performance of the employees. In this aspect, the relationship between the training and development and the employee performance has been discussed in detail later on in this paper. Another aspect of this study is to measure the level of adaptability of the telecom companies with respect to the growing change in technology. For this purpose we will study, how the telecom companies train their employee in order to meet this change and

what impact this training has on the performance of the employee? The last aspect of this study is to measure the level of training of the employees needed so as to meet the customer satisfaction. The organizations train their employee in a way that they treat their customer professionally and productively which, in return, is beneficial for the organization.

LITERATURE REVIEW

Training:

“Training is the formal and systematic modification of behavior through learning which occurs as a result of education, instruction, development and planned experience” (Armstrong, 2001). Training is the acquisition of technology, which permits employees to perform their present job to standards. It improves human performance of the employee what ever task he/she has been assigned to do, enabling him to face the challenge of introduction of new technology at work place. Also, it is given when new technology is introduced into the workplace.

The aim of training is to help the organization achieve its purpose by adding value to its key resource – the people it employs. The purpose of training is to: to increase productivity and quality, to promote versatility and adaptability to new methods, to reduce the number of accidents, to reduce labor turnover, to increase job satisfaction displaying itself in lower labor turn-over and less absenteeism and to increase efficiency. As suggested by Legnick-Hall (2005), HR needs to undertake a role of a human capital steward which involve preserving, sustaining and increasing the knowledge of all individuals in organizations so it is accessible and used by all. Many organizations invest considerable resources in training and development but never really examine how training and development can most effectively promote organizational objectives, or how developmental activities should be altered in the light of business plans (Beardwell et al. 2001). Coaching takes place on a one-to-one basis and provides a more intense training and learning experience which is customized to the needs of each individual. Such evaluation of coaching as a development practice important on a very individual level was confirmed also by Kidd et al. (2003) and Newell (2004). A growing importance of training as the most significant way of development would signal changes in the nature of managerial jobs, where coaching becomes one of the major roles played by managers (Batt, 1996).

Development is any learning activity, which is directed towards progressive future, needs rather than focusing on present needs, and which is concerned more with career growth than immediate performance. Organizations providing the best development experiences only to managers and professionals are not prepared for challenges that lie ahead with an ageing and more diverse workforce. More skill is needed across the wider workforce and its various groups, who can also exercise creativity in order to add competitive value (Craig and Hall, 2005). Hamlin observed development as training of future jobs. According to Nadler development is concerned with providing learning experiences to employees so that they may be ready to move in new directions. Development is the need to enhance competencies beyond those required by the immediate job. Organizational development (OD) leads to positive employee performance is directly linked to training. It is an education-based process; it relies heavily on training so as to enhance the organization's awareness and knowledge required

for a successful change process. Organizational training and development programs help remove performance deficiencies in employees. There is greater stability, flexibility and capacity for growth in an organization.

Performance:

Performance is the evaluation of the tasks performed by the employees. It is normally done by the performance appraisal tests. Performance depends on several factors like: employee motivation level, employee satisfaction level, incentives and benefits by the employer, etc. Through an examination of performance evaluation systems, this research suggests that the duties of the eligibility workers in corporate offices may not have changed very much (Ricucci and Lurie, 2001). "Training and development has a direct impact on employee performance. As analyzed by Smith (1992), training and development has positive impact on the individual, the organization and the nation. If there is a need to train the employee, and that particular need is fulfilled, then its impact would definitely be observed in their performance. The return on the investment the organization gets is a boost in its performance as a whole.

HYPOTHESIS

Training & development is positively associated with the employee performance.

RESEARCH METHODOLOGY

Questionnaire:

The questionnaire was prepared by carrying out extensive research by the students itself. It contains 12 items and three sections.

Sample:

The data was collected from employee working in cellular sector of Pakistan. The sample was selected from various cities of Pakistan and total sample size was 120. The questionnaires were personally administered through HR department of concerned organization. A total of 300 questionnaires were distributed out of which 120 were received back making a satisfactory response rate.

FINDINGS

Co-relation Analysis:

	Employee Performance	Training & Development
Employee Performance	1	
Training & Development	0.702	1

Co-relation analysis indicates a relatively strong relationship between employee performance and training and development. It shows that the results are significant.

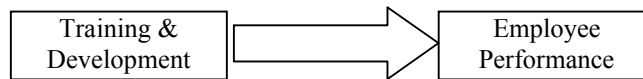
R square is our model fit and our result show that its value is 0.492. This shows that our model is fit. The value of adjusted R is 0.488.

Regression Analysis:

	Beta	t	Significance
Employee Performance	0.702	10.142	0.000

The regression analysis shows that there is a strong impact of independent variable that is training and development, on the dependent variable which is employee performance. “F” shows the entire model whose value is 102.86.

“Beta” shows the individual relationship of training and development with employee performance. The value of beta is 0.702.



DISCUSSION

The manipulation in this field experiment did influence and the outcomes of the training programs. Consistent with our prediction, the result showed that the training and development has a positive impact on the performance of the employees. According to results of our study, the value of R square is 0.492 which means that our result is significant. Which means the independent variable brings a significant change on the dependant variable. The co-relation analysis shows that the result of the study is also very much significant and it also indicates a relatively strong relationship between performance of the employees and training and development. Whereas the regression analysis also shows that there is a strong impact of the independent variable, i-e training and development, on the dependant variable, which is employee performance. This is because of the fact that the employees do learn from the training & development programs and it also has a positive impact on their performance. This can be identified by the performance the employees give after the training program and also by the positive change in the collective performance of the organization as a whole.

The training is important as it leads to improved profitability and/or more positive attitudes toward profits orientation, improves the job knowledge and skills at all levels of the organization, improves the morale of the workforce, helps people identify with organizational goals, helps create a better corporate image, fasters authentically, openness and trust, improves the relationship between boss and subordinate, aids in organizational development, learns from the trainee, helps prepare guidelines for work, aids in understanding and carrying out organizational policies, provides information for future needs in all areas of the organization, organization gets more effective decision-making and problem solving, aids in development for promotion from within, aids in developing leadership skill, motivation, loyalty, better attitudes, and other aspects that successful workers and mangers usually display, aids in increasing productivity and/or quality of work, helps keep costs down in many areas, e.g. production, personnel, administration etc, develops a sense of responsibility to the organization for being competent and knowledgeable, improves labor-management relations and reduces outside consulting costs by utilizing competent internal.

In Organization development, the related field of training and development (T & D) deals with the design and delivery of learning to improve performance within organizations. After hiring the employees by an organization, next step is determining the need of training and development for them. It is obvious that some new employees are not experienced to their work so they need special training to perform effectively and efficiently. Different organizations held different training and development programs according to their available resources and requirements.

On the other hand, the important aspect of training and development programs is that it helps to avoid the managerial obsolescence. Organizational problems either major or minor can be solved our by these programs. These programs also play an important role managing the changes in organizational structure caused by mergers, acquisitions, rapid growth, downsizing and outsourcing. Training and development programs are also important to cope up with the changes in technology and with diversity within the organization. Today because of number of changes in technological fields, these programs are increasingly emphasizing on converting the organization to learning organizations and human performance management.

Training improves skills, techniques, knowledge and attitude whatever an individual's role within an organization. Ongoing staff training and development is crucial if you want to improve business performance and meet your targets. Without a well-trained, skilled team your business won't grow and prosper. But there are a number of initiatives to ensure your staff has the right knowledge and experience required. When a company develops a learning culture, staff feels motivated to participate in it, resulting in an improvement in individual and collective performance. Morale will be raised, problems solved, efficiency improved and goals attained all because of the practical ability, confidence and motivation that effective training builds.

There is, however, a bewildering array of training events and self-taught training materials. Some of these events and materials may be inappropriate as they do not fulfill the skill and information needs of your staff. Some courses may be legally inaccurate, as they do not contain up-to date information on important relevant educational legislation of which staff needs to be aware. Ensuring that staff develops as educators, team members and individuals increase their sense of worth within your organization, reducing staff turnover rates. Providing appropriate and ongoing training assists in maintaining the high quality of their work and output. In order for an organization to produce professional career minded employees an investment has to be made.

IMPLICATIONS

The study is highly significant for the selected cellular sector of Pakistan. The cellular sector is one of those sectors which can use training & Development for its maximum success. It can train its employees to positively cope up with the changes in the environment and the technology for that reason. The technology in the cellular workplace environment is changing very rapidly and companies that can't keep up will drop out of competition. Using training in the cellular industry can be beneficial in two ways; One the employees can cope up with any change in the technology or environment and secondly the employees can improve their skill level. Both are in turn beneficial for the whole organization. Many companies in cellular sector provide some sort of introductory and on the job training or orientation for most of their employees. It may take the form of an older employee assigned to show the new employee "the ropes." Or it may be left to the HR department or the individual's new supervisor to show them where the coffee pot is and how to apply for time off. Many cellular organizations have created new employee training that is designed, exclusively or primarily, to provide mandated safety familiarization. Yet some companies in this highly competitive industry recognize the value in training their employees that goes much farther. They require several weeks or even months of training to familiarize with their job, the company, its products, its culture and policies, even its competition.

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**ASSESSING THE QUALITY OF EDUCATION
AT UNIVERSITIES OF PAKISTAN**

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ABSTRACT

The concept of quality is very elusive. The desire or enthusiasm to access school education in order to acquire knowledge, skills, and new tools of analysis, is one thing; to actually succeed in acquiring them and showing evidence in having acquired them in concrete terms is quite another. The quality of the products of an institution or a programme is often evidenced in the quality of performance of the products. (Gyekye, 2002). Traditionally, universities have emphasized self and collegial accountability and self improvement. They have trusted their staff, relying on the professionalism of academics to ensure their quality and standing in society. Some of the process of recruitment of teachers, selection of students, peer review of research and scholarship, and periodic scrutiny of curriculum and teaching (Trow, 1994). The main focus of this study is to highlight practical implementation of key internal assessment features for quality control such as improvement and accountability. Among the several typically available methods for assessing the quality, we opt in 'institution – wide surveys and monitoring' for this study. The basal study is survey based which used various monitoring tools (different evaluation Performa). Furthermore, this study aims to compare different monitoring tools such as students questionnaires surveys, monitoring internal cohorts, evaluation and monitoring systems etc.

KEYWORDS

Quality assessment, TQM, Higher education, monitoring tools for quality education, Quality control for higher education, QA & QC

INTRODUCTION

Education has an important role in the development of any nation. Someone once said, "If you want to destroy any nation, destroy its education." The secret of success of all world leader countries is the educational system. Education creates awareness; it opens new ways to learn. Pakistan is still far behind other developed countries in the education of its citizenry. Though our official literacy rate is 46%, it includes those who can only read a newspaper.

The main focus of this study is quality education at the level of universities. The concept of ameliorating quality at university level now getting significant attention by most of the countries. In this connection, Pakistan has also taken positive action.

Establishment of HEC is most important step that will be conducive for the betterment of education at university level. University level education basically produces such a quality graduate that can contribute more for the development of any nation. Though it contributes more that's why most of courtiers positively taking steps to ameliorate it.

LITERATURE REVIEW

“Much of literature on higher education emphasizes the autonomy of institutions and basic units within them and, in particular, the autonomy and power of tenured staff.”¹ “Culture has a content and membership and within higher education, both features have tended to be defined in terms of subject communities. The values and organization have been related to the epistemological properties of the subject/discipline.”² “One of the notable features of the impact of quality assessment has been within subject groups. In an institution where recent trends have been towards large programmes with modularity and a flexible approach to student choice, several participants in this study noted that working together within the subject group on quality assessment has emphasized the value of the ‘course team’ and of a collegiate culture, and that significant quality enhancement resulted from towards a common purpose.”³ “In terms of culture, the nature of the evaluation is a process during which the understanding of the university is created within discourse of assessment. The assessment discourse helped to define the functional problems of the university; it supported the creation of a managerial understanding of the university structure; it helped the faculty to see the problems in doctoral training more clearly than before; and finally, it promoted the use of concepts shared by the participants of the total evaluation process.”⁴ “It should be pointed out that the quality movement is only one of the number of developments affecting management and decision making process in Australian universities. There has been much talk in recent years of corporatization of these institutes. Critics see such corporatization as an attack on traditional collegiate values; proponents, as a necessary injection of hard headed business thinking into organizations that have been hamstrung in their responses to change by cumbersome and reactionary procedures. A major review of management of universities of has just been announced by commonwealth government and placed firmly in its broader agenda of a national strategy for enhancing competitiveness and efficiency.”⁵ “The accreditation, that is the first overall expert external evaluation, was a milestone in the life of the college. It was in fact a forced SWOT analysis of the quality of staff, courses, teaching, research, management, students and infrastructure.”⁶ “The concept of quality was not defined or discussed in any detail by the either ministry of education or by the university. In a rather vague way it assumed that quality means anything and everything good.”⁷ “Governments are looking at what other governments are doing in the evaluation of the higher education system, and through various networks are establishing contracts, arranging seminars for policy makers and adapting well or poorly the foreign evaluation policies which interest them.”⁸ “There was another subtle way in which the importance of disciplinary values could be lessened in the assessment process. This was apparent from the study that we undertook of the impact of the quality assessment process in England.”⁹ “Evaluation plays a vital role that goes well beyond its practical success in affecting research, teaching or administrative activities in the university. It reassures the broader social and institutional audience that the university is undertaking

an effort to be more rational, to make its output more transparent and to manage more efficiently its resources".¹⁰

HYPOTHESIS

H_0 : A strong performance measurement system helps us to achieve quality at university level.

RESEARCH METHODOLOGY

Enhancing and assuring quality is new to the Pakistani university level; therefore uncertainty is high concerning to understand the nature of the problem. An exhaustive research has been done through a market survey; furthermore other study materials have been considered. For this research, the primary data collection has been achieved by survey methodology in which a questionnaire was utilized containing both open end and close end questions. Different practices regarding quality in higher education and HEC guidelines/research for quality education served as secondary data sources.

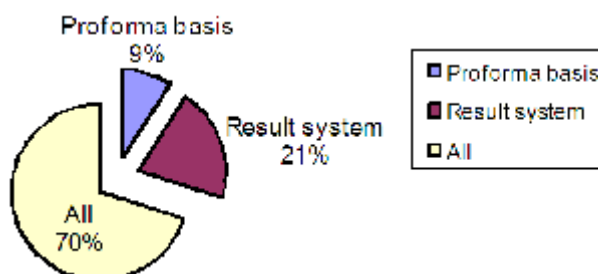
A structured questionnaire was designed to gather information regarding quality in university as well as on demographic and psychological aspects of behavior, trends, and the adaptability of the respondents to the culture of quality. The demographics included age, gender, educational level and field of study. The psychographics' variables included attitude towards adaptability of quality education cultures, tolerance for implementation of new systems and parameters, ethical and legal issues. In this study, 500 respondents were asked to participate; 445 questionnaires were received. Six were rejected as incomplete or fake and 439 questionnaires were ultimately analyzed. All the respondents belong to Karachi.

DATA ANALYSIS AND DISCUSSION

The parameters in this study were assessment tools, controlling system, the role of the Higher Education Commission in Pakistan (HEC), developing, maintaining and assessing a culture of quality, faculty qualifications and compensation, motivation factors, the role of top level management, and government expenditures on the education sector.

Assessment tools

The majority of respondents liked a Performa filled by students. Their second priority was that they wanted that teachers should be provided training. The survey showed about 9% preferred proforma system; 21%, result basis measurement; and 70% preferred both. More than 50% respondents considered an institute brilliant when it has good culture, qualified teachers and state of the art technology. Consider the following graphic depiction:



Controlling System

The role of top management is essential in the development of any institute because it is controlling authority if controlling authority performs its responsibilities vigilantly then there are more chances for the amelioration. About 46% respondent said that top level is wholly responsible for the improvement of developed education.

The Role of Higher Education Commission (HEC)

More than 60% respondents emphasized that the HEC continued to play a vital and significant role in contributing towards quality higher education. They emphasized that HEC should revise policies and curriculum for enhancing a culture of quality by regularly reviewing Pakistani higher education and by encouraging the adoption of international standards.

Faculty Qualifications and Compensation

47% of respondents suggested that at the level of higher education, faculty should have PhDs; 30% recommended the M Phil; more than 30% felt that having 5-10 years teaching as well as research and development experience was essential. Most of the respondents suggested that the starting salary package should be Rs. 30,000 to 40,000.

MASTER	20.23%
M. PHIL	29.94%
PHD	46.67%
POST DOCTORATE	3.16%

Motivation Factors

About 58% suggested that revising scales of teachers motivate them and it will have good impact in producing quality culture because teacher has major role in building the nation. More than 50% also suggested that they must be included in decision-making process because when teacher will himself select any goal he will try to achieve it. Furthermore, HEC's expenditure on Faculty development (FDP), research grants, grants for conferences and Seminars also enthusiast the quality education culture in truly competitive environment.

Government Expenditures on the Education Sector

In response to questions concerning government expenditure in education sector, about 41% suggested it should spend 5 to 10% of GDP in quality education promotion; about 31% suggested that government should spend more than 10% of GDP. This is substantially more than the 2.42% currently in 2007-2008 budget.

3%	3.1%
3%-5%	22.85%
5%-10%	41.45%
MORE THAN 10%	32.65%

CONCLUSION

This research confirms the acceptance of the hypothesis that a strong performance measurement system helps us to achieve quality at university level. In the development of a quality culture, the HEC, faculty and students play vital roles, but the strong measurement system is critical to support management in achieving quality in university level. HEC should continuously revise its policies, procedures and rules in accordance with Pakistani conditions and international educational standards. For improving education, qualified and experience faculty must be appointed. Recommended qualifications for faculty at the higher education level are a PhD and 5-10 years

experience both in teaching and research and development. Group decision-making is a key component and an effective tool in developing a quality culture. When faculty, staff and students are involved appropriately in setting goals, there will be less resistance in implementation of those goals. Students' and teachers' unions contribute nothing to quality culture development; they lead more to the destruction of education. The teacher/student ratio also has a significant effect in achieving good results of education. The ratio is recommended 1:30.

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**URBAN GROWTH AND ENVIRONMENT – CONTEMPORARY
CHALLENGES AND NEED FOR INTEGRATION**

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ABSTRACT

The highest urban growth rates in the world are found in East and Southeast Asia. The urban growth is often faster than what governments and city planners can manage. Consequently, the developments in the urban fringe are uncontrolled, resulting in chaotic patterns of land use. Spatial and agro-ecological motivations hardly play a role in decision-making about the form and the direction of urban expansion. Fertile agricultural land is often allocated to urban functions such as housing, industrial areas and infrastructure. Not only land, but also the local expertise on agricultural production and marketing get lost, a waste of human capital in particular in a knowledge intensive sector such as vegetable production. Such a process is, to a certain extent, inevitable but without a systematic assessment of different options, the overall result is a sub-optimal allocation of land to various functions. To improve this situation an integrated approach is needed which brings researchers, policymakers and other stakeholders in city planning, waste management, food production, food safety and marketing together. And these will be the key features of this study which is supported by facts and figures.

KEYWORDS

Urbanization, Population, environment, waste management, planning and development, industrial growth.

INTRODUCTION

This article examines some of the factors which have influenced the developments in the urban fringe are uncontrolled, resulting in chaotic patterns of land uses. In Asia the urban growth is often faster than what governments and city planners can manage, among them the industrialization strategies employed by countries in the different sub-regions, the roles governments have played in the industrialization process, and the 'philosophies', which influenced these strategies. Agricultural land is often allocated to urban functions such as housing, industrial areas and infrastructure. Not only land, but also the local expertise on agricultural production and marketing get lost, a waste of human capital in particular. These factors, different from some of the processes in the West, although many Asian countries were subject to considerable Western influences, including through occupation. The different historical and industrialization processes, coupled with significant cultural factors in Asia, make it difficult to adequately explain, understand or judge the development of industrial relations in Asia by reference to the mechanisms, to improve this situation an integrated approach is needed which brings researchers, policymakers and other stakeholders in city planning, waste management, food production, food safety and marketing together. And these will be the key features of this study which is supported by facts and figures.

The article also examines whether there is now a greater potential for 'convergence' as a result of the increasing influence of globalization and the application of information technology, which involve not only the internationalization of business but also the increasing globalization of values. South Asia includes the countries of **India, Pakistan, Bangladesh, Nepal, Burma, Sri Lanka, Bhutan and the Maldives**; people of South Asian origin trace their ancestry to one of these countries. During the last 200 years, due largely to the influence of the British Empire, South Asians migrated to many parts of the world. As a result of this migration, Over 300 languages are spoken in South Asian countries; these languages, including **Bangla, Burmese, Gujarati, Hindi, Nepali, Punjabi, Sinhalese, Tamil, and Urdu**. There is also tremendous diversity in religious practices, with Buddhism, Hinduism, Islam, ainism, Sikhism, Zoroastrianism, and Christianity being the most common religions.

The 1965 Immigration and Naturalization Act opened the doors to immigration for many people from around the world, allowing foreign-born professionals into the country in much higher numbers than ever before. The Immigration Reform and Control Act of 1986 made it easier for family members and low-skill laborers to enter the country.

Western industrial relations institutions such as collective bargaining and arbitration were taken over by developing countries. However, they were not transplanted but adapted to fit the fundamental premise that the State has a right to intervene to ensure that the two social partners act in a manner consistent with the government's development objectives. Therefore, industrial relations systems and techniques have developed in the West in this century in an industrialized environment quite different to that of many developing countries.

CULTURE AND VALUES

Any commentary on the Asian scene would not be complete without considering the controversial issue of the influence of cultural factors on industrial relations in general, and on human resource management policies and practices in particular, though this is not to imply that culture and value systems have not influenced industrial relations systems and practices in Western countries. While in some quarters it has been felt that culture is over-emphasized, yet until recently it has been under-played in attempts to understand the employment relationship in Asia. It is not suggested that there are cultural traits or values which apply to Asia as a whole. But there are some which apply to several countries (especially in a sub-region), while others are applicable to particular countries.

On the other hand labour costs and foreign investment were important factors in the policies of South-East and East Asian countries which depended on the manufacture and export of low cost goods. In some of these countries the industrialization strategy influenced the attitude towards unions, which included a refusal to allow them to intervene in the development strategies of the government. Different strategies were adopted in different countries (Malaysia, Indonesia, Republic of Korea, Japan, Singapore) to remove Communist or left-oriented influence from trade unions. By contrast Communist or left-oriented unions have had considerable influence in Sri Lanka and India ever since those countries gained independence, partly due to the pluralistic political system which they joined and partly due (initially) to their close association with the movement for independence. With the rapid economic development of several South-East and East Asian countries greater reliance is now placed on technology, skills, a flexible workforce, employee involvement and cooperation (all of which of course Japan

had achieved quite some time ago) necessary for competitive advantage based on productivity and quality. Labour costs, though still important in South East and East Asian countries, are being overshadowed by these other considerations. Indeed, industrial relations systems which hitherto provided little scope for unions to function as they do in market economies, may find it necessary to relax control over union activities in order to facilitate changes in enterprises with the least possible friction.

THE ROLE OF THE STATE

In several Asian countries the State - in some cases to the exclusion of unions - regarded itself as the protector of workers and their welfare. The State's plans for growth did not include the practice of pluralism, which was seen as being inimical to economic development. Rather than banning unions, they were made adjuncts of the government to ensure the non-emergence of independent unions, which could challenge the government's authority or economic plans. Some such governments paid only lip service to freedom of association and the right to bargain collectively. The State's control of industrial relations has been strongest in countries in which one party has succeeded in remaining in power for a long period of time, where there have been military regimes, where the government has assumed the primary role in economic development and has exercised a certain degree of authoritarianism, or in socialist countries now moving towards a market economy.

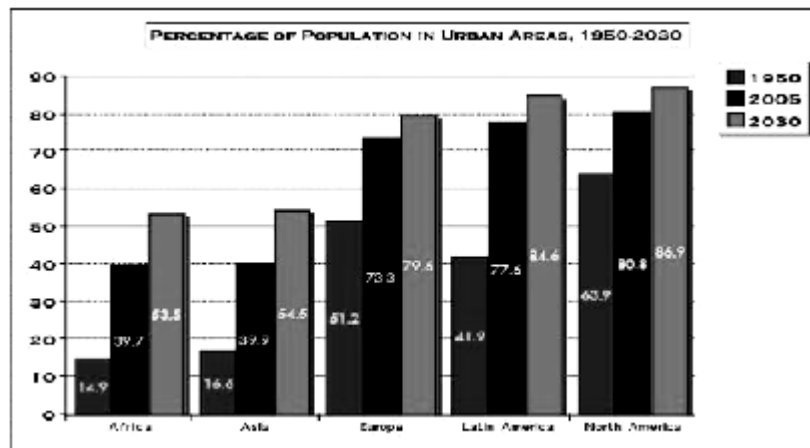
Governments' determination of the economic direction of developing countries was a critical factor in shaping the industrial relations systems, which emerged. A direct consequence of this was the emergence of the government as the largest employer - particularly in countries, which had some socialist orientation. The government as employer, like any other employer would wish to do, influenced the type of industrial relations institutions, which emerged. The shape of industrial relations was further refined by the particular industrialization and economic strategies adopted in each country, as we shall see. Socialist and import substitution strategies produced rather different models to ones which emerged in the business-friendly, outward looking, export-oriented countries. But whatever the economic and political orientations of the governments of Asian developing countries, the common element was that economic development and its imperatives were government, and not entrepreneurial, driven. As aptly remarked, the State's role was not "restricted to 'entrepreneurial assistance' only, but extended to 'entrepreneurial substitution'

URBANIZATION

The way industrialization and urbanization have dramatically changed the shape of families, including the gender roles. Actually, both industrialization and urbanization utterly transform family interaction. And I use the word "transform" in the present tense, because, despite how it seemed in history class, they are not just a historic period in the U.S. and Europe. Instead, industrialization and urbanization are revolutionary processes that continue today. Actually, out of all of our research, the articles on how families in developing nations are currently responding to rapid industrialization were some of the most intriguing works we read. Because they shed light on what is going on those nations, and they also helped us better understand the experience of families in the U.S. and Europe over the last century.

The following are effects migration to urban areas has had on South Asian families – both good and bad.

- Urbanized spouses have a greater possibility for egalitarian and intimate relationships between spouses, because the couple is away from the husband's mother-in-law.
- The family structure changes from one of an extended, multigenerational family system to a nuclear family of the parents and their children.
- Urban families are significantly smaller: the women have less children.
- Women have more opportunity to enter the work-force, which helps the family financially, while also increasing the women's independence.
- The urban families adopt a "fast food culture." These families seem to forget their traditional diet, and while there is usually more food available in urban areas – so there's less risk of starvation – the food they do eat is potentially more unhealthy than their traditional diet.
- The families suffer from increased stress arising out of the heightened conflict between the demands of family and work.
- They live in unhealthy housing: it's overcrowded, polluted. Often it's they're living in shanty or slum conditions.
- On the left is our chart illustrating the change in urbanization, by continent. The red column is the urbanized population in 1950, the blue is today's percentage, and the green is the United Nations's projected percentages by the year 2030.
- By this, you can see that the percentage of those living in urban environments has more than doubled in Africa and Asia in the past 50 years, and Latin America's is almost double.



Source: Population census.

MAIN INFLUENCES ON ASIAN INDUSTRIAL RELATIONS SYSTEMS

The industrial relations systems in Asian countries have emerged from circumstances similar to those which have influenced countries in other developing regions. They have not been mainly influenced by the circumstances and the values which underpin and which have shaped Western industrial relations systems. Western models of industrial relations do not adequately explain, and help us to understand, the shape that Asian (and developing country) industrial relations have assumed. This is so despite the fact that the labour laws of several developing countries (including Asian ones) have to a greater or lesser extent been

influenced by Western countries whether or not as a result of colonization. The main features of developing country industrial relations systems which distinguish them from those of the industrialized West have been well explained as follows:

"... a dualistic economic structure, where a pre-capitalist economic system mainly dominates the scene; a small industrial sector and the related small numerical size of the working class; a segmented labor market, where a sharp dualism both between modern and traditional manufacturing sectors and between small and large firms exists; the dominance of the state in the industrial sector; weak trade unions, and thus the absence of collective bargaining between employers and employees."

Governments' determination of the economic direction of developing countries was a critical factor in shaping the industrial relations systems which emerged. A direct consequence of this was the emergence of the government as the largest employer - particularly in countries which had some socialist orientation. The government as employer, like any other employer would wish to do, influenced the type of industrial relations institutions which emerged. The shape of industrial relations was further refined by the particular industrialization and economic strategies adopted in each country, as we shall see. Socialist and import substitution strategies produced rather different models to ones which emerged in the business-friendly, outward looking, export-oriented countries. But whatever the economic and political orientations of the governments of Asian developing countries, the common element was that economic development and its imperatives were government, and not entrepreneurial, driven. As aptly remarked, the State's role was not "restricted to 'entrepreneurial assistance' only, but extended to 'entrepreneurial substitution'"

POPULATION ASPECTS OF ENVIRONMENTAL ISSUES

To some extent, the environmental problems of the region can be ascribed to technological and economic factors (industrial production or mining methods, absence of controls on pollution, consumption patterns and living standards) rather than to population size or density as such. But population growth, and population concentration in the case of urban problems, certainly compounds all problems when they do not trigger them.

It is population growth--in a context of more or less stagnant agricultural technology--which creates the need for additional cultivated areas, leading to shifting cultivation and forest clearing, often with dwindling fallow periods and insufficient fertilization, and subsequent soil erosion. It is also population growth--in a context of fixed water resources--which brings about water scarcity and overexploitation of ground water reserves (at times with ensuing intrusion of saltwater in aquifers). The same applies to over fishing, over hunting, or disturbances caused to wildlife habitats by human settlements and economic activities.

In general the environmental policies described in the reports are highly sectoral and segmented. No or little overall vision of environmental issues and their linkages and synergies is detectable. Programmers are focused heavily on the development of legislation, establishment of natural reserves, bans on detrimental activities, issuance of technical standards, and the monitoring and enforcement of those technical measures. Environmental education also is a rather common feature of the ongoing and envisaged policies. At any rate, considering (a) the sometimes modest capacities for policy implementation, especially when it comes to rural territory management and monitoring, and (b) the delays inherently necessary for most of the measures described to have a clear impact, it is worth wondering

whether acting *inter alia* to slow down population growth might not be just a support measure, but a relatively efficient way of tackling environmental problems.

Finally, land mismanagement (column *agricultural activities*) has an unusually high impact in half of the countries reviewed here (Republic of Korea, Mongolia, Myanmar, Indonesia and Vietnam: compare with the world average of 28 percent). This factor includes e.g. the cultivation of fragile soils, undue reduction of fallow, unwise use of fire, irrigation of inadequate soils, or diversion of rivers for irrigation.

It is worth noting that such practices usually occur only under constraining circumstances, including population pressure which is often responsible for the saturation of good lands leading settlers to cultivate inadequate (shallow, sloped, infertile) soils, or ploughing fallow land again before it has recovered its fertility, or attempts to obtain multiple crops from unsuitable soils through irrigation, *etc.*

Rapid population growth at the country level certainly was an important factor in this process, enhanced by unequal land distribution, poverty, lack of non-agricultural income opportunities and poor development policies. The development of export crops also was determinant in the land extension that almost doubled the cultivated area between 1960 and 1980 and reduced the forest area almost by half (Cruz and Cruz, 1990). But those crops also responded to the growing population's need for cash. Currently one third of the total population live upland, where half the area presents slopes that would require exceptional conservation works to support any cultivation. Critical watersheds are damaged, disrupting and loading rivers with silt while there is a growing need for irrigation, hence for stable water regimes. In fact, agriculture increasingly suffers from water deficits.

Coastal areas are vital for this populous country with an extremely long coastline. They used to be highly productive, supporting at least one fourth of the population. But the development of coastal towns and industries, the destruction of mangroves, the degradation of water systems, have grossly depleted the fisheries.

The year 2008 marks a watershed in human history when, for the first time, more than half of humanity of about 3.3 billion people will come to live in towns and cities. This fact is particularly salient for South Asia, home to over 1.6 billion people or a quarter of humanity, of which a third live in urban areas. As the world becomes increasingly urban, the centre of gravity of this process is moving to South Asia which will account for five of the world's 10 biggest cities within seven years time, namely, Delhi, Dhaka, Karachi, Kolkata and Mumbai. By the same year, 2015, a total of about 700 million South Asians will live in towns and cities, a colossal number by any yardstick.

At the same time, South Asia is witnessing rapid economic growth and transformation, and its towns and cities are at the heart of this process. Growth is taking place in dynamic sectors such as manufacturing, information technology, high-end service industries, trade, retail, and banking, insurance and finance, all of which are urban-centric. By the year 2011, the urban share in India's national income is expected to go up to 65 percent even though only slightly more than 30 percent of the population will be urban by then. In Pakistan and Bangladesh, the hypertrophic cities of Karachi and Dhaka respectively dominate the economy. The mega-city of Karachi, for instance, not only accounts for about a tenth of the total population of the country's 165million people but it also generates 60 to 70 percent of national revenue and over 40 percent of the value added in manufacturing.

While the Indian success story is well known (it is at present the second fastest growing economy in the world), that of Pakistan is less well so. Despite the political turbulence, its economy too has been doing quite well. On 24 January 2008, The Economist newspaper spoke highly of the latter's economic growth (ranging at over 7 percent annually) and said it had the best performing stock-market in Asia: Pakistani companies had high dividends on average – 4 percent – and a low price/earnings valuation – under 15 times. Sri Lanka too had (and still has) the potential to become an Asian Tiger, if only the ruinous civil war would stop.

While, on one hand, towns and cities are “engines of growth” for the rapidly growing economies of South Asia, unplanned and unmanaged urbanisation poses a serious threat to the very same growth, in addition to generating social tensions. All urban areas in the region, big and small, face similar challenges of providing good governance, livelihood opportunities, adequate housing, water, sanitation, transport and other amenities to their residents. Thus, unless South Asia can make its towns and cities liveable where its citizens can pursue economic progress, the region will not be able to sustain and accelerate its growth trajectory.

Any visitor to South Asian cities comes away with an impression of stark contrast – incredible wealth and consumerism juxtaposed with abject poverty and squalor. While average incomes are relatively high in towns and cities, these averages conceal wide disparities in income. In India alone, urban poor account for at least a third of the urban population if not more. Given a total urban population of over 300 million, this translates into a staggering 100 million or more destitute people in India's towns and cities, living in slums, shanties and sleeping on the streets.

CONCLUSION & RECOMMENDATIONS

A key challenge in urban South Asia is to make local governments truly representative and accountable to the people. Here the experience of countries in the region has been varied. Ironically, local democracy has gone furthest in Pakistan and that too during the regime of General Musharraf. Following local government elections in 2001, a lot of administrative and expenditure responsibilities were devolved to district governments headed by an elected nazim (Mayor). Sri Lanka too has had some success in devolution. India, however, has lagged behind and its towns and cities are still effectively run by municipal commissioners (career civil servants) who are only accountable upwards (if at all) but certainly not to the people. It is again an irony that, in a country which (rightfully) takes pride in its democracy, urban residents have no say on issues that impinge on their daily life such as water supply, sanitation, garbage, streetlights, schools, health clinics, local libraries, and such like (what economists call local public goods). While all major cities of the world – New York, Paris, Tokyo (and Karachi) – are run by elected mayors who represent (and are answerable to) the people, this is not de facto the case in India. While democracy may not be sufficient, it is certainly necessary for better governance and to put people in charge of their own affairs.

The second key challenge is to improve urban governance. This in effect means making public servants accountable. All across South Asia, low paid but employed-for-life functionaries results in sloth and inefficiency. The latter arises partly due to the large degree of discretion these functionaries enjoy given extensive controls on economic activity that still prevail. Dozens of permits and clearances are required to set up even a small shop or trade and this encourages rent-seeking. Periodic pay hikes to unionized

government employees results in asymmetric incentives (carrots but no sticks) and city bureaucracies, instead of downsizing and becoming better paid, end up becoming fatter and more slothful. Indeed, the precarious state of municipal finances all across South Asia is a third key challenge – bloated payrolls and inadequate revenues make cash-starved city governments dependent on (and hence subservient to) handouts from state/provincial/federal governments. The main sources of wealth in a city, namely, land and property are inadequately taxed. Instead, many cities rely on antediluvian sources of revenue such as octroi (an entry tax on goods coming into the city!) as well as regressive indirect taxes such as sales tax. In a city like Mumbai with Manhattan like real estate prices, property tax is not the primary source of revenue for the city, it is octroi!

In sum, for South Asia to manage its urban transition and to ensure sustained economic growth, governments will have to get serious about making cities habitable. And for that to happen reforming these three Fs – functions, functionaries and funds – is vital.

Cities are engines of economic growth and cities in developing like Pakistan is in transformation stage. Not only Karachi is contributing towards national exchequer but Lahore, Faisalabad, Gujranwala, Gujrat and Rawalpindi do well. I also want to add one more point to local government which is quite important for urban governance i.e. financial decentralization. Towns and cities are not financially sustainable having low, inelastic and distorted base. Not meeting the expectations of growing urbanization. Another very rightly, integrated planning at all levels. I think urbanization in big cities needs to be curbing to lessen burden on cities infrastructure. For this, rural development is another solution.

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AN ANALYSIS OF ENGEL'S LAW: COMPARATIVE COUNTRIES STUDY

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ABSTRACT

A number of studies have explored the empirical relevance of the Engel's law by using household budget surveys in developed and developing countries. This article presents comparative empirical evidence on the applicability of the Engel's law in Pakistan, Tanzania, China, Italy, North Cyprus (Turkey), Texas, (USA), Amsterdam (Holland).

These studies focused on how household expenditure on different groups of commodities changes when there are changes in the income of households. The expenditure patterns were examined for food and non food items at home and away from home to test the veracity of Engel's law. The analysis employed several functional forms.

KEY WORDS

Engel's Law, developed and developing countries, household, budget, survey, income, expenditure.

INTRODUCTION: ENGEL'S LAW

Poorer households devote a higher share of income to food than richer households. It could be understood as that the proportion of income spent on food declines as income increases, implying that "food is a necessity whose consumption rises less rapid than does income.

METHODOLOGY

For this study secondary sources i.e. research papers, books and material from internet (list of all references are included in the end of paper) are used to explore the uses and applications of law in the world and reached at conclusions.

THE IMPLICATION OF ENGEL'S LAW IN DIFFERENT COUNTRIES

Many studies have been done on the Engel's law of family budget in various countries including Turkey, USA, Tanzania, China, Holland and Italy. When in 1857 French statistician Ernst Engel established this law of family budget in which the income and expenditure data of households are taken to reach at results and formulated the known law. He was criticized by his fellows and many tried to revisit this law to find out that how and which econometric functions he used to reach his results. In the 20th century empirical work in the economics of consumer behavior gained a sound theoretical base.

(Stringer) In 1957 when the occasion of 100 years was celebrated of the Engel's law, Houthakkar examined different international household surveys and all confirmed Engel's law.

Houthakkar commented that "of all empirical regularities observed in Economic data, Engel Law is probably the best established"

Because of data availability, pioneer and subsequent empirical tests of the Engel's law were limited to the economically advanced countries (Houthakkar, 1957)

Almost researchers and economists of every country of the world worked on the Engel's law of family budget but in this article It is explored and compared only few of them to assess the validity of the law, following are the names of the countries who worked on Engel's law of family budget:

1. Italy
2. Turkey
3. Tanzania
4. USA

Italy

Food expenditure as a measure of the Italian Standard of living written by Luca Tasciolti, university of Roma, "Tor Vergata", October 2006.

The study of Luca Tasciolti is based on the data of 8, 183 households on food and non food expenditures of the family budgets between 1890 and 1960. Data has been organised in a homogeneous manner and weighted using Italian census data in order to represent the population, since the decades, using new approach of Hold a Smith (1979). Based on post-stratification had been adopted. As the budgets on food expenditures of all families was not available for all households therefore, for missing value imputation method has been used and is based on both the modern imputation routine, the multivariate imputation by chained equation method, which was developed by Royston in 2005 and on a procedure developed to deal with probability, that the missing values are zero.

It is further analyses the food expenditures in then carried out by differentiating the observations in the sample between four strata, coming from the matrix between two macro-regions of Italy (North/Centre and South/Islands) and the occupation of the head of the household (agricultural and non agricultural). Time span is divided into five different periods.

The picture that comes out of the data describes a low rise of the Italian food expenditures in the long run, this process has not been homogeneous and has alternated rapid increases (1913-27) and 1946-60) to dangerous and downturns. The level of food expenditures definitely reached a high just after the Second World War. While during the period between 1890 and 1940 the disparity of food expenditure between the richer and poorer strata, although decreasing was still wide, during the 1950's.

Turkey

Deniz Ahethoca and Tumay Ertek in their study of the "Consumption patterns of Households in North Cyprus" examined qualitatively the consumption patterns of urban Turkey.

Four functional forms to obtain the better results for their Engel curve study.

It is further explained that due to non availability of appropriate cross-section data to be used for Engel Curve, researchers collected the necessary data based on a consumer's net income (after tax) and expenditure. From the nine functional forms they used following four functional forms to obtain the better results for their Engel curve study.

- 1st Linear form
- 2nd Semi Logarithmic form
- 5th Double Logarithmic form
- 8th working Leser form

The data of 300 households was collected from the four cities (districts etc) through the questionnaires. Data collected was of income and expenditure on the group of commodities i.e. food, restaurant, clothing, furniture, rent, electricity water and gas, house services, health, personal care, transportation and communication, cultural, education and entertainment and other. Then from the obtained data, all expenditures aggregated for households for all commodities.

Deniz and Tumay calculated data by means of consumer expenditure survey for North Cyprus. The sample of 300 households was divided a, 40% of households from Lefkosa, 30% from Gazimagusa, 20% from Girme, and 10% from Guzelyurt. The data obtained was total expenditure figure of all groups of commodities of all households.

ESTIMATION

In the estimation of Engel's curves, it has been common practice to use total expenditures in place of income (Tansel, 1986, 244) expenditure approach is adopted due to false reporting of income level.

They used both expenditure and income alternatively as explanatory variables. Theoretically, weighted arithmetic means (average) of elasticities expected to be equal to one. When calculated the data the results (findings) shows that average elasticity for:

1 st Linear form	0.964
2 nd Semi Logarithmic form	0.824
5 th Double Logarithmic form	0.785
8 th working Leser form	0.964

The above data gives an average elasticity nearest to one is Working Leser form and is found the most satisfactory one.

Elasticities obtained from the working Leser functional form estimates indicates that food, rent, elasticity, water and gas, house services, and transportation and communication are necessities ($e < 1$) and the others (restaurant, clothing, furniture, health, personal, personal care, culture, education and entertainment, and other) are luxuries ($e > 1$).

Tanzania:

An Econometric Analysis of Engel's Curve: the case of peasant households in Northern Tanzania is written by Micheal O.A Ndanshau. When law is established then by putting data a curve appeared therefore the Engel's law is also called Engel's curve.

The article further states that analysis is based on a micro survey data of peasant households and both statistical and econometric analyses demonstrate that household size and income significantly and positively determine expenditure on food and some other consumption items, depending on the area of study. The age of the household is established to have no significant influence on expenditure on food, but only on other consumption items investigated. The study has also established that education has no significant influence on any expenditure items of the sampled households. The main purpose of this paper is to investigate empirically the relevance of Engel's law in Tanzania by using micro -survey data of rural households that were randomly interviewed in three of the ten districts in Arusha region.

METHODOLOGY

The data collected for the Tanzania study is through structured questionnaire from the random sample of 256 livestock keeping and crop producing households. From The sampled households about 72 percent of all respondents were between 30 and 59 years of age.

The most popular forms of equations subjected to empirical tests have included the linear and double -log functions.

USA

Rodney B. Holcomb, John L. Park and Oran Capps, Jr. in their article "Revisiting Engel's law: Examining Expenditure Patterns for food at Home and Away from home" wrote that from the Houthakkar publications they observed noticeable trends in US household food expenditures.

Further in 1992 U.S households spent 45% \$ of their food dollar on food away from home (FAFA), up from 39% in 1980 and 34% in 1970 (Manchester). This trend is expected to continue into the 21st century, with expenditure on FAFH growing at a faster rate than expenditures on food at home (FAH) Blisard and Blaylock)

According to Senauer, Asp, and Kinsey "rapid changes have occurred in the way food is prepared, in who cooks it, and in the places it is consumed.

FUNCTIONAL FORMS ARE USED TO REACH THE RESULTS

The study of Rodney used following functional forms to reach the results:

Double logarithmic form (linear in logarithms) which provides the estimate of the income elasticity directly and this elasticity are constant over all households. Working lesser, Semi-Logarithmic, Quadratic.

The data used of year 1987-88 for US households and concluded that Engel's law is again verified. However, Engel's law was extended beyond total food expenditures to also include expenditure on both FAFH and FAH. Several functional forms were employed in this study the working -lesser; semi-logarithmic; double-logarithmic; and the quadratic forms. The Heckman two-step procedure was used to account for censored responses in the analysis of FAFH. Regardless of functional form, the results in robust fashion, verified for Total Food, FAFH and FAH.

RESULTS

As every economist, researcher applied more or less same functions to reach the results therefore all the above models of the countries confirm the Engel's law of family budget that as poorer households devote a higher share of income to food than richer households.

CONCLUSION

Thus, despite the changes in food consumption patterns over the past 150 years and the problems of data unavailability of developing countries the venerable law of Engel still is very much in evidence. The studies done by the different economists of many countries confirmed the law. It is concluded that whatever functional forms are used by different economists of the world the same result is obtained.

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**FACTORS ANALYSIS OF RESISTANCE BY HUMAN RESOURCE
TOWARDS THE ORGANIZATIONAL CHANGES**

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ABSTRACT

This research investigates the factors, which are the major cause of resistance imposed by the manpower towards the adoption of new changes i.e. technological changes, policies changes, structural changes, etc. As a matter of fact, the management is still looking for finding out the ways to transform the human behavior in the favor of the organization but it is quite difficult to examine the rapid changes in behavior occur due to unexpected situations. This research emphasize on the internal as well as the external phenomenon. The structural questionnaire designed as an instrument for the collection of data whereas twenty five (25) Pakistani organizations were surveyed by using simple random technique. This paper contains a new paradigm, which will focus on the resistance factors. This paper reports the results of evaluating this conceptual framework. It is exposed that how the human behavior may be contradictory with the organizational changes.

KEYWORDS

Human behavior; Organizational changes; external phenomenon.

INTRODUCTION

This is a fact that nothing is constant except change. Change is difficult enough in small companies. At Centrelink and other scale organizations, it requires monumental effort and persistence. Organizational change is also very messy. Centerlink's change process looks like a well-executed strategy but all organizational transformations are buffered by uncertain consequences, organizational politics and various forms of employee resistance.

According to Schein, "Learning that creates stability and culture is different from the learning that enables organizations to innovate as they encounter changing conditions in both their external and internal environment." Edgar H Schein, Models and Tools for stability and Change in Human System, (Society for Organizational Learning & MIT; 2002). Here Schein referred to change phenomena defined in terms of learning which are:

- Learning in stable organisation
- Learning in changing or innovative Organization
- Interaction with internal and external environment

Change has the direct impact over the organizational development. Basically some external forces are the cause of change. There are many forces for change in the external environment, but the prominent forces are information technology, globalization, competition and demographic.

Once the forces have been identified, then it is important to implement the change so that the Organization may run its functions properly. But the question rises that is the change implementation an easy task for the management? It is observed that when an organization makes any change in its structure, policies or technology, the human resource always resists against the change. Factors which influence the human resource to resist for the acceptance of change may be varied but the result is always same.

BENEFITS AND SIGNIFICANCE

The subject matter holds a tremendous importance for both individual and organization. Let us discuss some of the benefits from organization perspective.

1. Understanding environment (society, government, customers)

It is important for organization to understand, assess and gauge the dynamics in its external environment in order to envisage and establish an appropriate relationship with various actors like government, customers and society. Therefore managers by knowing the subject of change management can better be prepared to understand whatever is going on in the environment.

2. Objectives, strategy formulation & implementation (to develop competitive advantage)

Second is consequent upon knowing the impact of change at extraneous level on its own internal dynamics, and the foremost is objective setting and seeking competitive advantage.

3. Employees (trained, high performing work practices, reliable organisation)

The employees are the recipient of change plan. One such perpetual concern of senior managers is to make organization highly reliable, therefore employees ought to be trained and high performing one in today's hyper competitive world.

4. Technology Issues

Technology is considered the engine of growth in today's world. Perhaps the greatest challenge for contemporary organizations is the acquisition and integration of technology in its strategy, structure and process. As such the concern of top managers is how to avoid organization being obsolete and how to cope and absorb the impact of changing information and communication technologies which have decisively influencing production and consumption behavior?

5. Globalization

The management of international economic and political forces what is today known as internationalization and globalization is yet another important factor influencing decision making of organization. No organization or nation can stay independent and indifferent to what ever is happening at international (political) level. For instance the impact of September 11 events have been tremendous on the economies and organizations of developing countries like Pakistan. Similarly supra – national

institutions are becoming more assertive over nation states not only in political terms but also on social issues like child labour and gender issues. So government and states are considered somewhat less sovereign in imposing their will over their subjects (individual and organizations) against the ever increasing and complex interdependencies amongst states. For example the compulsions and legal provisions of international treaties like WTO and ISO certification regimes have decisively influenced the organizations and economies of the developing world. Hence imperative for managers, CEOs and entrepreneurs from smaller or larger organizations alike, of different sectors of economy, are to understand the complexities of globalisation and its impact on organization's business.

This research focuses over the resistance factors raised by the HR during the implementation of change. This research accumulates the factors in social and political climate of Pakistan. Research indicates that how employees react when the management focuses over the growth of the organization by any modification. During the research, it also observed that employees' resistance is not only because of their own interest but sometimes few ambiguities create the same problems.

As we are the followers of American managerial style with some mixed components in Pakistani culture so it is important to understand that there should be some different strategy to manage the HR for any major decision in the organization. The Pakistani HR has different psychology as compare to American human resource. They both have different cultures. That's why both have different reactions against the change. It is observed that the American has proactive approach rather than reactive, whereas this is opposite in Pakistan. A simple case of technology can be the best example of it.

It was observed during the research that there are various factors which influence the human resource to resist against the organizational change. The assessment was done on the basis of respondents replies of the questionnaires designed by the research team.

PROCEDURE

Data Collection and Methodology

The data were collected from 25 business organizations based on different disciplines in Pakistan i.e. Tele communication, banks, FMCGs, Pharmaceutical, etc. The structured questionnaire was designed to collect the individuals' response from the public as well as the private companies. The target population was the working people and the sampling frame was the management (top, middle and low) and the staff, whereas only skilled employees were targeted. Sampling units were taken on the basis of simple random sampling to ensure that everyone has the equal chances of being a respondent. As far as the research is concerned, we decided to set the size of sample as 500. It has already been discussed that we had the structured questionnaire to conduct the field survey. The questionnaire consists of 15 questions, where as 12 questions were short answer questions and the rest of the questions were open ended. We visited 25 organizations and conducted the survey. We had the mix response from the sample. The bifurcation of the data was as follows on some specified criteria.

CRITERIA FOR THE BIFURCATION OF THE RESPONDENTS									
Level of Respondent		Nature of Organization		Gender		Age			
Mgt	Staff	Working in Public	Working in Private	Male	Female	21-30	31-40	41-50	51-60
127	373	184	316	339	161	118	172	147	63
500		500		500		500			

RESULTS

After conducting the survey, the different resistance factors against the acceptance of organizational change were observed, are as follows.

1. Prior SKAs:

Usually employees have the belief that their prior Skills, Knowledge and attitude are much better than the new imposed changes. That's why the employees resist to adopt such changes which may have the clash with their prior SKAs.

2. Age:

It was also observed during the research that mostly the old employees create resistance as compare to the younger employees.

3. Learning Deficiency:

It is also an important and common factor observed during the research that employees create resistance due to inability of learning. Some of the employees were not ready to learn new things for the acceptance of change.

4. Self-Esteem and Self-Efficacy:

Employees having lower self-esteem and self-efficacy were observed to resist against the change. According to their opinion, the changes are good enough for the organizational development but they were not enough good to adopt the changes.

5. Culture:

It was also observed that the employees raise the resistance because the changes adopted by the organization may have the contradiction with the societal culture. On the other hand, merger of more than one company is also the cause of clash in two different cultures so the employees show the resistance.

6. Ego:

Some senior employees were observed while resisting just because of their negligence. They claimed that the top management did not try to know their point of view regarding the adoption of changes so that they are not cooperating with the management.

7. Benefits:

As it has been discussed that changes are adopted for the organizational development but what about the HRD (Human Resource Development)? HR looks for some growth after the adoption of changes but if they find no positive response from the management for HRD then they start to create problems.

CONCLUSION

“The next few decades will bring about an avalanche of change and that most people and organisations will not be prepared for the vastly accelerated pace of change.”

Alvin Toffler, Future Shock (1970)

Here followings variables are highlighted:

- Rate or pace of Change
- Quality and quantity of change
- Individuals
- Organizations
- Un-preparedness

“If we could understand the ways in which individuals were motivated we could influence them by changing the components of that motivation process.”

Charles Handy, Understanding organizations, (1976)

Three things focussed here

- Individuals
- Changing the components
- Motivation Process

The underlying theme here is that individuals can be control and their behaviour can be predicted in a scientific or methodological manner which is the focus of this subject. The focus of subject like management and change management is how to control, predict and motivate human behaviour for productivity enhancement.

RECOMMENDATIONS

1. It is very essential to communicate all the pros of the new changes in detail with the employees. Once the employees will be aware with all aspects of the change, they will automatically move towards your desired changes. Arrange different session with first line managers and asked them to do the same practice with their subordinates. Similarly, the top management should also communicate the desire change with all of its pros in front of operational staff. It will enhance the confidence of the employees. The employees will feel the importance of their role in the organizational development by adopting the changes. The discussion session should be open.
2. The management should show the cases of other companies that what happened with the companies when they adopted the changes as per demand of the market.
3. Pay to win. Give employees some benefits to make them ready for the changes. They should be motivated by rewards in order to adopt the required changes.
4. Avoid ambiguity while communicating with your employees for the required changes. Be clear and show the result that what benefits the organization will enjoy in future after adopting the changes.
5. Avoid cultural clash. The changes must be adjustable within the existing societal culture.
6. Never change: your core values.

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STUDY A NEW MEASURE OF INFORMATION AND ITS PROPERTIES

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ABSTRACT

In this paper, we argue about cumulative residual entropy (CRE) and its dynamic form which are recently introduced as a measure of entropy based on cumulative function. CRE has introduced by Rao et al. [2] and extended by Asadi and Zohrevand. Asadi and Zohrevand (2007) studied the properties of CRE and obtained some interesting and useful results on this measure of information in connection with reliability theory [1]. They introduced the dynamic form of CRE (DCRE) and obtained a nice result in [1] which is relationship between the CRE and a well-known measure of reliability theory. In present paper we introduce the dual definition of CRE that it is called cumulative past entropy (CPE). The CPE and the dynamic form of it (DCPE) denoted by $\varepsilon^*(X)$ and $\varepsilon^*(X, t)$.

KEYWORDS

Information theory, Reliability theory, Uncertainty, Cumulative function, Mean past life time.

1. INTRODUCTION

The concept of entropy is important for studies in many branches of sciences such as Reliability, Survival Analysis, Biology, Economics, Management, Thermodynamics, Computer sciences, Digital communications and etc.

In the recent years the problem of measuring information based on Shannon entropy and other measures of information have explored by many researchers to use it for modelling in different branches of sciences. One of the well-known measures of uncertainty is the Shannon information function.

Suppose X be a non-negative random variable with distribution F and density function f respectively. The Shannon entropy in the continuous case which it is called differential entropy, denoted by $H(X)$, is defined as

$$H(X) = -\int_0^{\infty} f(x) \log f(x) dx \quad (1.1)$$

Teitler et al. (1986) have shown that a useful representation of differential entropy in terms of hazard rate function is as follows:

$$H(X) = 1 - \int_0^{\infty} f(x) \log r_F(x) dx = 1 - E(\log r_F(x)). \quad (1.2)$$

where E denoted the mathematical expectation and $r_F(x)$ called hazard rate function is as follows:

$$\begin{aligned} r_F(x) &= \frac{f(t)}{\bar{F}(t)}, \\ &= \frac{m'_F(t)+1}{m_F(t)} \end{aligned} \quad (1.3)$$

However Shannon's information have played pivotal role in information theory ([3], [4]), but in this approach, discrete variable and absolutely continuous distributions are treated in a somewhat different way through entropy and differential entropy, respectively.

2. CUMULATIVE RESIDUAL ENTROPY

Rao et al. [2] have proposed a new measure of uncertainly base on survival function called Cumulative residual entropy (CRE). We denoted it by $\varepsilon(X)$ that is

$$\varepsilon(X) = - \int_0^{\infty} \bar{F}(x) \log \bar{F}(x) dx \quad (2.1)$$

They have studied $\varepsilon(X)$ and obtained some results and several properties on this measure. Asadi, M. and Zohrevand, Y. [1] have obtained an interesting relationship between the CRE and a well-known measure of reliability theory (mean residual life function). Using part by part integrating from (2.1), it can easily seen

$$\varepsilon(X) = E(m_F(X)). \quad (2.2)$$

where $m_F(t)$ is the mean residual life (MRL) of variable X and we have

$$m_F(t) = E(X - t | X > t) = \frac{\int_t^{\infty} \bar{F}(x) dx}{\bar{F}(t)}. \quad (2.3)$$

Also they have proposed the dynamic from of $\varepsilon(X)$ ($\varepsilon(X, t)$) in the study of life time distribution. On the other hand, DCRE or $\varepsilon(X, t)$ is time dependent form of CRE or $\varepsilon(X)$. Suppose that X be the lifetime of a component or a system of components. We use H(X) or $\varepsilon(X)$ for measuring information or prediction of failing time of component (system). If the component (system) survive up to time t, H(X) (or $\varepsilon(X)$) is no useful for measuring uncertainty about residual lifetime of component (system) hence we have

$$\begin{aligned}
 \varepsilon(X, t) &= - \int_t^\infty \bar{F}_t(x) \log \bar{F}_t(x) dx \\
 &= - \int_t^\infty \frac{\bar{F}(x)}{\bar{F}(t)} \log \frac{\bar{F}(x)}{\bar{F}(t)} dx \\
 &= - \frac{\bar{F}(x)}{\bar{F}(t)} \int_t^\infty \bar{F}(x) \log \bar{F}(x) dx + m_F(t) \log \bar{F}(t) \\
 &= E(m_F(X) / X \geq t).
 \end{aligned}
 \tag{2.4}$$

where $\bar{F}_t(x)$ denote the survival function of residual life of component (system) and it can easily seen that for each $t, t \geq 0, \varepsilon(X, t)$ possess all the properties of the CRE.

Asadi, M. and Zohrevand, Y. display some properties of CRE and DCRE such as characterization and ordering the lifetime distributions. In following, we show several of those properties.

Remark 1.

Classification of lifetime distribution based on ageing properties frequently is used in reliability theory. A class of distribution, which use in study of lifetime distribution, is the class of new better (worse) than used in expectation (NBUE (NWUE)) distribution. If F be a NBUE (NWUE) distribution then

$$m_F(t) \leq (\geq) m_F(o) = \mu. \tag{2.5}$$

Corollary 1.

If F is NBUE (NWUE) then using (2.2) and (2.4) we have

$$\varepsilon(X) = E(m_F(X)) \leq (\geq) \mu. \tag{2.6}$$

Corollary 2.

The distribution F is increasing (decreasing) DCRE if and only if for $t \geq 0,$

$$\varepsilon(X, t) \geq (\leq) m_F(t). \tag{2.7}$$

From (2.7) we can see the distribution F has constant DCRE if and only if it is an exponential distribution.

Corollary 3.

An absolutely continues distribution F has decreasing (increasing) DCRE if and only if the MRL of F is decreasing (increasing).

Corollary 4.

Let X be an non-negative absolutely continuous random variable with survival

function $\bar{F}(t)$, MRL $m_F(t)$, HR $r_F(t)$ and DCRE $\varepsilon(X, t)$. Then

$$\varepsilon(X, t) = cm_F(t), \quad c > 0, \tag{2.8}$$

if and only if X distributed as

- Exponential where $c=1$,
- Power where $0 < c < 1$,
- Pareto where $c > 1$.

3. CUMULATIVE PAST ENTROPY

If X be the lifetime of the living organism, component or system of components it is reasonable to presume that in many situations uncertainty is not necessarily related to the future (residual life time), but it can also refer to the past. Suppose that in inspection time t , the living organism or the system is found to be down, then the uncertainty about prediction the life time (or the life time of fail) relies on the past.

In the following, first we introduce cumulative past entropy (CPE) then obtain an interesting relationship between CPE (where it is a measure of information theory) with mean past life times function (where it is an another well-known measure of reliability theory).

Let X be the lifetime of the living organism (a non-negative absolutely continuous random variable with cumulative function F), if we are interested to measure the uncertainty about the failing time of living organism, then the connected random variable which implies to past lifetime is $X_t = \{x / x < t, t > 0\}$.

Hence, we define the amount of information about past lifetime as follows:

$$\varepsilon^*(X, t) = - \int_0^t F_t(x) \log F_t(x) dx. \quad (3.1)$$

where $F_t(x) = P(X \leq x / X < t) = \frac{F(x)}{F(t)}$, is the cumulative function of past time

($[X / X < t]$). We call $\varepsilon^*(X, t)$, dynamic cumulative past entropy (DCPE).

In reliability theory researchers usually focus on the ageing or lifetime of systems. They use several measures to study the lifetime distributions. Also in information theory we have different information functions which use to measure the uncertainty in variables.

Hence, we can use information functions to study the lifetime (underlying variable in reliability) for prediction the failing times. In the following we show a nice relationship between DCPE and a well-known measure of ageing that is called mean past lifetime.

We denote mean past lifetime (MPL) function of distribution F with $\mu_F(t)$ as

$$\begin{aligned} \mu_F(t) &= E(t - X | X < t) \\ &= \frac{\int_0^t F(x) dx}{F(t)}. \end{aligned} \quad (3.2)$$

MPL and MRL are important in reliability and related sciences, because like the other characterization factor of a distribution (cumulative distribution function, probability

density function of a distribution, moment generating function and etc.) characterized the related distribution. Hence study of the treatment these function can be very useful. In the next theorem we prove that the CPE is in fact, the expectation of MPL.

Theorem 1.

Let X be a non-negative continuous random variable MPL function μ_F and CPE $\varepsilon^*(X)$, such that $\varepsilon^*(X) < \infty$. Then

$$\varepsilon^*(X) = E(\mu_F(X)). \quad (3.3)$$

Proof:

To prove the theorem, note that

$$\begin{aligned} E(\mu_F(X)) &= \int_0^\infty \frac{\int_0^t F(x)dx}{F(t)} f(t) dt \\ &= \int_0^\infty \left(\int_0^t F(x)dx \right) \frac{f(t)}{F(t)} dt \\ &= \int_0^\infty \left(\int_0^x \frac{f(t)}{F(t)} dt \right) F(x) dx \\ &= \int_0^\infty \left(\int_0^x \tau_F(t) dt \right) F(x) dx \\ &= \int_0^\infty F(x) (-\log F(x)) dx \\ &= \varepsilon^*(X) \end{aligned}$$

Hence the proof competes. \square

Theorem 2.

Suppose X be a non-negative continuous random variable MPL function μ_F and DCPE $\varepsilon^*(X, t)$, such that $\varepsilon^*(X, t) < \infty$, for $t > 0$. Then

$$\varepsilon^*(X, t) = E(\mu_F(X) / X < t). \quad (3.4)$$

Proof:

The proof easily implies with same step as used to prove the theorem (1).

The theorems 1 and 2 are very useful in study the entropy of lifetime distributions or entropy of past lifetime because above theorems state that the treatment of the DCPE depend on the behaviour of MPL.

4. CONCLUSION

In this paper we have argued the lifetime distributions from new point of view. On the other hand in this paper like as [1], [4], [7], [8] and etc, we study and investigate the links between information and reliability theory by mentioned theorems. I think there are several open problems and ideas for researchers who interested in entropy and uncertainty.

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FASHION IN WOMEN APPAREL: A COMPARATIVE STUDY OF FEMALE STUDENTS AND HOUSEHOLDS

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ABSTRACT

Consumer behavior can be defined as ‘the process and activities that people engage in when searching for, selecting, purchasing, using, evaluating, and disposing of products and services so as to satisfy their needs and desires’ (Belch and Belch, 1993. p. 115). Fashion involves evaluation of an idea, practice or product or as a form of collective behavior; hence affects many dimensions of human life (Schrunk, 1973). It is also relevant to social change and collective behavior. The purpose of this study is to understand the fashion perception of young college teens and the households and compare their relative attitudes. It, also, analyzes the relative importance of various communication vehicles in creating fashion sense and awareness. A cross-sectional sample of 250 females (consisting of 125 young college going teens and household each) was selected and was surveyed using self-administered pre-printed questionnaires. Responses were collected using five point attitudinal likert scale. Factor loading using principle component method was conducted (for both strata viz female college and university teens and households) and factors influencing the perception were extracted. One limitation of the research is that it only focuses on women apparel. The results of the research paper will develop various insights in textile and fashion industry including understanding the relative importance of various media vehicles and women preferences towards fashionable dresses in comparison to comfortable dresses.

INTRODUCTION

Researchers have long been interested in knowing the fashion consciousnesses of females as the later are very keen to be perceived as cultured and up-to-date with respect of their appearance. The study of fashion in dressing is broader than any other field because clothing is highly noticeable. Dressing is a symbol of identity and a basic means of communication among people of commonality (Malcom, 1996). Textiles and apparel were the most prominent symbols of early interaction between East and West (Martin & Koda, 1994). A change in clothing pattern exerts a change in a lot of other fields of human life (Schrunk, 1973). The objective of this research paper is to analyze the fashion consciousness of female teens and households. It would not only support the textile, apparel and fashion industry but also designers in understanding the consumer behavior.

LITERATURE REVIEW

“Fashion can be defined as a socially derived evaluation of an idea, practice or product, or as a form of collective behavior and, therefore, has implications for many

facets of living human groups. The role fashion plays in diffusion of ideas, practices, or products reflects changing relationships between human beings and between man and his material culture” (Schrack, 1973. p. 534). It is a strong influential factor in an individual’s life (Blumer, 1969). Forecasting the fashion consciousness of the market is difficult as it is erratic and unpredictable (Hayes and Jones, 2006). Fashion industry is facing chaotic situation because of excessive pressure in achieving labor economies (Kilduff, 2005) and attaining competence of making products in various sorts and sizes in fixed lead times (Ebihara, 1985). Textile and firms tend to focus on market niches (Parrish, Cassill and Oxenham, 2006). The global and competitive era compel apparel manufacturers and vendors to be flexible, well-organized, better off in trend prediction, invention and selling of apparel (Kinkade, Regan and Gibson, 2007) yet many companies in apparel industry still follow primitive production and sale system (Pitimaneeyakul *et al.*, 2004). Anderson, Warfield and Barry (1987) suggested cooperation between textile and fashion industry. Consumer behavior involves “the processes and activities that people engage in when searching for, selecting, purchasing, using, evaluating, and disposing of products and services so as to satisfy their needs and desires” (Belch and Belch, 1993. p. 115). Peter and Olson (1998) emphasized the influence of culture on consumer behavior. Since celebrities symbolize the culture of any country so the products are contrived by referring the personality of celebrity and then offered to the customer (Luna & Gupta, 2001). Consumer behavior dictates fashion and apparel manufactures have to follow it in order to stay in the industry. Cho and Less (2005) highlighted the consumers’ emotional response to existing fashion styles and based on this, subsequent adjustment to the trends for the upcoming season. Individuals and society both are equally responsible for the change in fashion (Cholachatpinyo *et al.*, 2002). Lumpkin (1985) identified the tendency of a large number of females who were willing to pay more money for apparels because of their fashion consciousness. Goldsmith, Stith & Whit (1987) noticed that women spent more time and money on new fashions so as to look modern and are more fashion conscious than men. Moreover, information sources play an important role in acceptance of new fashion. Kaiser and Chadler (1985) observed that older people enormously use television for getting appearance and fashion-related information. Greco and Paksoy (1989) observed that the mature market is the second highest growing population engaged in internet use with women chiefly accountable for this flow. This makes internet a feasible source of fashion information. Fashion-conscious women often think that they are young as compared to their age (Barak and Stern, 1985) and are provoked by a wish to diversify (Hurlock, 1929). Busy life style and element of prestige pose people to choose and wear branded and designers’ clothing as they proffer customer a shortcut to buy excellence and value (Hung, 2006).

METHODOLOGY

To analyze the fashion conscious behavior of female teenagers and household, a field study was conducted in Pakistan. The exploratory research used a communicative, ex post facto, descriptive approach using a cross-sectional data. Data was collected using pre-printed structure questionnaire. Questionnaires were developed in both languages viz English and Urdu, due the very nature of the respondents. The population consists of women between the age eighteen and above. The targeted population comprised of respondents from five metropolitan areas of the province of Punjab (Pakistan) viz

Gujranwala, Gujrat, Lahore, Sialkot and Wazirabad. Three trained bilingual surveyors used an intercept technique to approach the respondent. The teenage females were approached in colleges and universities whereas household females were approached by contacting them at their houses. In addition to the demographic variables, questionnaire contained twenty one variables grouped into five constructs. Responses for these five constructs were tapped using a five point attitudinal likert scale. In addition to the introduction of the survey given at the start of the questionnaire and filling instructions, surveyors assisted respondents with the first few questions and then allowed respondents to finish the survey by themselves. Surveyors remained in close proximity to answer any questions. Where the respondents cannot read and write, the surveyors used interview approach to get feedback. Responses were collected in a time span of 10 days. Around 300 respondents were contacted to collect data to be used in research. Only 260 respondents were available during the research activity. So, only 260 questionnaires were distributed that resulted in a non contact-rate of around 14%. Of these 250 questionnaires were responded and returned which constituted a response rate of 96%. 10 questionnaires were rejected during screening process (incident rate = 96 %) and hence 240 questionnaires are used for this research. Statistical Program for Social Sciences (SPSS) version 15 was used for data analysis.

FINDINGS AND DISCUSSION

Factor loading using principal component analysis method was used to extract variables that best describe the perceived importance of various factors pertaining to fashion conscious behavior of females. Factor analysis method uses covariance and correlation matrix analysis to explain the relationship between variables by using less number of factors (Ozdamar, K, 1999). It results in increased parsimony (Leech, Barrett & Morgan, 2005). Precisely, PCA is simply directed toward enabling one to use fewer variables to provide the same information that one would obtain from a larger set of variables. In PCA, the analysis is performed on an ordinary correlation matrix, complete with the correlations of each item or variable with itself.

Assumptions for Principle Component Factor Analysis:

One of the assumptions of PCA is that the variables in the analysis should have normal distribution. Normality is important as skewness or outliers affect the observed correlations. In order to test the normality of the data, we used “Varimax with Kaiser Normalization” and found that the data was normally distributed. PCA is based on correlation and requires the variable to be related to each other (in pairs) in a linear fashion. Finally, at least some of the variables should be correlated at a moderate level. Bartlett's test of sphericity addresses this assumption. PCA is conducted at the construct level. A variable's communality must be estimated prior to performing a factor analysis. Communality refers to the proportion of a variable's variance explained by a factor structure and may be interpreted as the reliability of the indicator. It is the squared multiple correlation for the variable as dependent using the factors as predictors. When an indicator variable has a low communality, the factor model is not working well for that indicator and possibly it should be removed from the model. Similarly, the eigenvalue for a given factor measures the variance in all the variables which is accounted for by that factor. The ratio of eigenvalues is the ratio of explanatory importance of the factors with

respect to the variables. If a factor has a low eigenvalue, then it is contributing little to the explanation of variances in the variables and may be ignored as redundant with more important factors. The results are given hereafter:

Table 1: Total Variance Explained – Teenagers

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.641	26.860	26.860	5.641	26.860	26.860	2.919	13.900	13.900
2	1.557	7.415	34.275	1.557	7.415	34.275	2.272	10.821	24.721
3	1.432	6.820	41.095	1.432	6.820	41.095	2.159	10.281	35.002
4	1.400	6.667	47.762	1.400	6.667	47.762	1.679	7.994	42.996
5	1.254	5.973	53.735	1.254	5.973	53.735	1.585	7.545	50.542
6	1.015	4.833	58.567	1.015	4.833	58.567	1.477	7.032	57.574
7	1.005	4.786	63.353	1.005	4.786	63.353	1.214	5.779	63.353
8	.840	4.000	67.353						
9	.816	3.887	71.240						
10	.745	3.550	74.789						

Extraction Method: Principal Component Analysis.

Table 1 shows the initial eigenvalues, extraction sums of squared loadings (both individual and cumulative) and rotation sum of square loadings. In order to conserve space, the variables with eigenvalues less than 1 are not given. The first seven variables show a cumulative variance of 63.35%.

Table 2: Rotated Component Matrix – Teenagers

	Component						
	1	2	3	4	5	6	7
Fashionable clothing is important	.455	.280	.538	.053	.039	-.059	-.028
It is important to judge the people by their clothing	-.111	.236	.594	.211	.132	.141	.103
Yourself is reflected by what you wear	.385	.227	.724	-.019	-.101	.011	-.060
There is something wrong with the women who does not care about dressing nicely	-.064	.093	.693	.047	.209	.004	.079
You frequently willing to try new ideas about clothing fashion	.134	.768	.208	-.049	-.051	.055	.147
It is important to change your clothing styles according to season's fashion	.395	.612	.192	.040	.162	.152	-.190
You buy new fashionable clothes only when they are well accepted	.449	.160	-.015	.509	.113	.154	-.280
You are concerned about fashionable outfits	.404	.090	.321	.189	-.367	.299	.062
Price effect to adopt new fashion in clothing	.136	.642	.292	.276	.119	.085	.081

	Component						
	1	2	3	4	5	6	7
You are concerned about modest price	.099	.233	.005	.056	.008	.794	-.071
Spending excessive amount of money on clothes is ridiculous	.000	-.146	.117	.107	.108	.670	.431
Fashion in clothing is just away to get more money from the consumer	.182	.126	.041	-.038	.086	.121	.791
Your friends and family regards as a good source of advice on fashion selection	.680	.115	-.057	.074	.069	.015	.081
Print Media is best source of information on fashion in clothing	.635	.232	.006	.108	.284	.061	.107
Electronic Media is the most effective source of information on fashion in clothing	.598	.424	.218	.001	.039	.052	.100
Actors' clothes on the television affect what you wear	.035	.411	.143	.289	.151	-.300	.389
Observation clothing in social gathering and window or store displays are a source of information in clothing	.553	-.128	.088	.477	-.081	-.119	.153
It is important to wear branded and designers' clothes	.028	.083	.148	.836	.057	.113	.031
Designers' clothes are symbol of fashion	.164	.369	.016	.428	.595	-.066	.013
Fashion satisfied a person psychologically	.196	.022	.247	.051	.763	.077	.158
Element of comfort in fashionable clothing is important	.593	-.022	.257	-.155	.497	.281	-.019

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a) Rotation converged in 11 iterations.

Table 2 represents the Rotated Component Matrix for teenagers. The first variable extracted is friends and family as an important source of advice on fashion selection (loading value = 0.680, variance = 26.86%), second variable is willingness of trying new ideas about clothing fashion (loading value = 0.768, variance = 7.415%), third variable is personality is reflected by what you wear (loading value = 0.724, variance = 6.820%), fourth variable is branded and designers' clothes (loading value = 0.836, variance = 6.667%), fifth variable is fashion as a determinant of person's psychological satisfaction (loading value = 0.763, variance = 5.937%), sixth variable is concern about price (loading value = 0.794, variance = 4.833%) and seventh variable is fashion in clothing is a way to get more money from customer (loading value = 0.791, variance = 4.786%).

Table 3: Total Variance Explained – Household

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.945	23.546	23.546	4.945	23.546	23.546	3.100	14.760	14.760
2	2.164	10.302	33.848	2.164	10.302	33.848	2.613	12.442	27.201
3	1.915	9.120	42.968	1.915	9.120	42.968	2.021	9.622	36.823
4	1.602	7.627	50.595	1.602	7.627	50.595	1.924	9.161	45.985
5	1.203	5.728	56.324	1.203	5.728	56.324	1.837	8.747	54.732
6	1.093	5.204	61.528	1.093	5.204	61.528	1.427	6.796	61.528
7	.986	4.695	66.223						
8	.892	4.245	70.469						

Extraction Method: Principal Component Analysis.

Table 3 shows the initial eigenvalues, extraction sums of squared loadings (both individual and cumulative) and rotation sum of square loadings. For the purpose of the component factor analysis, factors that explain less information than a single factor would have explained (Eigenvalue smaller than 1) are not considered. In order to conserve space, the variables with eigenvalues less than 1 are not given. The first six variables show a cumulative variance of 61.528%.

Table 4: Rotated Component Matrix – Household

	Component					
	1	2	3	4	5	6
Fashionable clothing is important	.569	.551	-.075	-.056	.072	.054
It is important to judge the people by their clothing	.786	.197	.015	.012	-.108	.152
Yourself is reflected by what you wear	.484	.371	.199	-.014	-.122	.390
There is something wrong with the women who does not care about dressing nicely	.395	.460	-.223	.079	.278	.229
You frequently willing to try new ideas about clothing fashion	.141	.808	.066	-.015	.167	-.120
It is important to change your clothing styles according to season's fashion	.236	.694	.103	.053	-.116	.070
You buy new fashionable clothes only when they are well accepted	.593	.146	.015	-.110	.334	-.074
You are concerned about fashionable outfits	.048	.004	-.083	.514	.319	-.510
Price effect to adopt new fashion in clothing	.243	.435	.230	-.086	.383	-.093
You are concerned about modest price	-.099	.224	-.115	.709	.309	-.066
Spending excessive amount of money on clothes is ridiculous	.018	-.133	.033	.787	-.129	.157

	Component					
	1	2	3	4	5	6
Fashion in clothing is just away to get more money from the consumer	.027	-.038	.325	.676	-.288	-.071
Your friends and family regards as a good source of advice on fashion selection	.426	.371	.371	-.043	.196	-.048
Print Media is best source of information on fashion in clothing	-.177	.317	.755	-.067	.149	.104
Electronic Media is the most effective source of information on fashion in clothing	-.196	.191	.641	.107	.055	.445
Actors' clothes on the television affect what you wear	.256	.043	.138	.027	.231	.618
Observation clothing in social gathering and window or store displays are a source of information in clothing	.292	-.239	.736	.159	.070	-.115
It is important to wear branded and designers' clothes	.771	.123	-.062	.066	.084	-.097
Designers' clothes are symbol of fashion	.270	.346	.158	-.033	.139	-.499
Fashion satisfied a person psychologically	.445	.195	.073	-.013	.573	.068
Element of comfort in fashionable clothing is important	-.023	-.007	.133	-.002	.810	.015

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a) Rotation converged in 14 iterations.

Table 4 represents the Rotated Component Matrix for household. The first variable extracted is judgment of people by their clothing (loading value = 0.786, variance = 23.546%), second variable is willingness of trying new ideas about clothing fashion (loading value = 0.808, variance = 10.302%), third variable is print media as best source of information on fashion clothing (loading value = 0.755, variance = 9.120%), fourth variable is over spending on clothing is ridiculous (loading value = 0.787, variance = 7.627%), fifth variable is comfortable clothing (loading value = 0.755, variance = 5.728%) and the sixth variable is the influence of celebrities on the garments purchase decision (loading value = 0.618, variance = 5.204%).

Table 5: KMO and Bartlett's Test

		Teenagers	Households
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.789	.732
Bartlett's Test of Sphericity	Approx. Chi-Square	733.493	742.161
	Df	210	210
	Sig.	.000	.000

Both Barlett's test of sphericity and KMO test are conforming the standard benchmark of more than 0.7 and less than 0.05. The Cronbach's alpha for the questionnaire (N=23) is 0.804.

The study shows that teenagers consult their friends and family to get information on fashion. Although our general perception is that students use print or electronic media for this purpose but it is not entirely right. The reason is, teenagers like to follow the trends which are followed by their friends and family because they are highly affiliated with them whereas households get inspiration from print media and actors' clothes because they are matured and mostly rely on the authentic information which they think print media could be a good source. Similarly, female students and households, both are interested in trying and adopting new ideas in clothing. The point of view of teenagers is that they are more energetic and always want to do something new that's why they frequently try new ideas but households' point of view is that they want to look young and up-to-date like youngsters. Students believe that the personality is affected by the person's dressing styles and households, also, reflect that it is important to judge the people by their dressing. It means both have same perception that wearing reflects the individual's personality most. Branded clothes are preferable by the students because they are more conscious about brands. Both students and households are concerned about price that shows they are price conscious beside fashion conscious. Female students' opinion is that fashion satisfies a person's psychological needs because if someone's dressing is according to current fashion he/she feels more satisfied. As household females are mature and want more comfort than students so they demand element of comfort in addition to fashion.

CONCLUSION

This study broadens the knowledge on fashion in female clothing. The opinions regarding different variables were collected and results were analyzed on the basis of collected data. The study concludes that a common pattern of preferences exist in teenagers and household *viz* price consciousness and innovativeness. However, there are important areas where both the segments differ from each other. Teenagers match the clothing with their personality and psychological attitude whereas households match it with celebrities. Teenagers take influences from friends and family whereas the purchased decision of household is influenced by print media. Moreover, the household because of the very nature of their daily routine prefer comfortable clothing. The textile and apparel manufacturers and fashion designer should account for such differences while designing their product and promotion mix.

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**SOME NEW RESULTS ON THE APPROXIMATE
WEAK AMENABILITY OF BANACH ALGEBRAS**

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ABSTRACT

In this paper, I have investigated the notion of approximate weak amenability of Banach algebras. As is well known, if A is the Banach algebra, B is a closed sub-algebra of A and I is a closed ideal of A which $A = B \oplus I$, then weak amenability of A implies weak amenability of B too. In this article, by some conditions on the derivations of A to three dual of A , I conclude approximately weakly amenable of A . Also under some particular conditions with the use of that conclusion, I show that the above statement is correct in approximate case. In addition, let $A^\#$ be the unitization of the Banach algebra A . I discuss on the approximate weakly amenability of $A^\#$ and its equivalent conditions.

KEYWORDS

Approximately weakly amenable, derivation, weakly amenable.

INTRODUCTION

In 1972, Johnson introduced the theory of amenable Banach algebras in [9]. This theory is largely the creation of modern Analysis which it is the wide range of mathematics with which it is involved. A few years later, Bade et al.[1] introduced weak amenability for commutative Banach algebras and afterwards Helemskii recommended weakly amenable for every arbitrary Banach algebras[8]. At last, Ghahramani and Loy investigated amenability in the approximate case [7]. They have shown that many consequences on the amenability remain invariant in the approximate case too. Ghahramani and Lau continue study weak amenability of Segal algebras on locally compact groups [6]. I will present some new results weak amenability in the approximate case. In all through this paper, A denoted by Banach algebra and X is Banach A -module, then X^* is dual of Banach A -module which it is a Banach A -module by following actions

$$\langle a.x^*, x \rangle = \langle x^*, xa \rangle \text{ and } \langle x^*.a, x \rangle = \langle x^*, ax \rangle \quad (a \in A, x \in X, x^* \in X^*).$$

A derivation of A to X is a continuous linear operator D that is satisfied in law $D(ab) = a.D(b) + D(a).b$ for every $a, b \in A$ and it is inner (res. approximately inner) if for every $a \in A$, $D(a) = ax - xa$ for some $x \in X$ (res. $D(a) = \lim_{\alpha} ax_{\alpha} - x_{\alpha}a$ for some net $(x_{\alpha}) \subseteq X$ that is possibly unbounded). Ghahramani and Loy showed that D is

approximately inner if and only if there is a net $(x_\alpha) \subseteq X$ such that $ax_\alpha - x_\alpha a \xrightarrow{w} D(a)$ for all $a \in A$ [7]. Indeed A is defined amenable (res. approximately amenable) if for every Banach A -module X , any derivation from A to X^* is inner (res. approximately inner) and A is defined weak amenable (approximately weak amenable) when X is equal to A on the above definition. Whenever A be commutative, A is weak amenable if and only if any derivation from A to A^* is zero. Thus it is obvious that in this expression notions of weak amenability and approximate weak amenability are conformed.

DERIVATIONS INTO THREE DUAL OF BANACH ALGEBRAS

In the following theorem' it is expressed that a sufficient condition for approximate weak amenability of Banach algebras.

Theorem 1.

Suppose that for any derivation $D: A \rightarrow A^{***}$, there is a net $(x_\alpha^{***}) \subseteq A^{***}$ such that $a.x_\alpha^{***} - x_\alpha^{***}.a \rightarrow D(a)$ in w^* -topology for all $a \in A$. Then A is approximately weak amenable.

Proof.

Suppose that $D: A \rightarrow A^*$ is a derivation and so $D: A \rightarrow A^{***}$ is derivation too, thus there is a net $(x_\alpha^{***}) \subseteq A^{***}$ such that, $\lim_\alpha \langle a.x_\alpha^{***} - x_\alpha^{***}.a, m \rangle = \langle m, D(a) \rangle$ for all $m \in A^{**}$. Take finite sets $F \subset A, \Phi \subset A^{**}$ and $\varepsilon > 0$. Let $H = \{a.m.m.a: a \in F, m \in \Phi\}$, then there is $\nu = \nu(F, \Phi, \varepsilon)$ such that $|\langle a.x_\alpha^{***} - x_\alpha^{***}.a, m \rangle - \langle m, D(a) \rangle| < \frac{\varepsilon}{2}$. By Goldstine's theorem there is $x_\alpha^* \in B_{A^*}$ such that $|\langle \|x_\alpha^{***}\|n, x_\alpha^* \rangle - \langle \frac{x_\alpha^{***}}{\|x_\alpha^{***}\|}, \|x_\alpha^{***}\|n \rangle| < \frac{\varepsilon}{2}$ for all $n \in H$, because $\{x_\alpha^{***} \in A^{***} : |\langle \|x_\alpha^{***}\|n, x_\alpha^* \rangle - \langle \frac{x_\alpha^{***}}{\|x_\alpha^{***}\|}, \|x_\alpha^{***}\|n \rangle| < \frac{\varepsilon}{2}, n \in H\}$ for any α , is an open neighborhood in $\sigma(A^{***}, A^{**})$. Therefore, with the supposition of $y_\alpha^* = \|x_\alpha^{***}\|x_\alpha^*$ we have

$$\begin{aligned} & |\langle m, a.y_\alpha^* - y_\alpha^*.a \rangle - \langle m, D(a) \rangle| \\ &= |\langle m.a - a.m, y_\alpha^* \rangle - \langle m, D(a) \rangle| \\ &= |\langle n, g_\alpha \rangle - \langle a.x_\alpha^{***} - x_\alpha^{***}.a, m \rangle + \langle a.x_\alpha^{***} - x_\alpha^{***}.a - D(a), m \rangle| \\ &\leq |\langle n, y_\alpha^* \rangle - \langle x_\alpha^{***}, n \rangle| + |\langle a.x_\alpha^{***} - x_\alpha^{***}.a, m \rangle - \langle m, D(a) \rangle| \\ &< \frac{\varepsilon}{2} + \frac{\varepsilon}{2} = \varepsilon. \end{aligned}$$

whence $a.y_\alpha^* - y_\alpha^*.a \xrightarrow{w} D(a)$. So D is approximately inner. ■

As also said in abstract, approximate weak amenability of A transport to B which $A = B \oplus I$ under some conditions. This statement will be shown by the next theorem.

Theorem 2.

Suppose that A is approximately weakly amenable such that $A = B \oplus I$, B is a reflexive closed sub-algebra of A and I is a closed ideal of A . Then B is approximately weakly amenable.

Proof.

Let $D: B \rightarrow B^{***}$ is a derivation and $\pi: A \rightarrow B$ is image map, then $\Delta = \Lambda \circ \pi^{***} \circ D \circ \pi$ from A to A^* is a derivation such that $\Lambda: A^{***} \rightarrow A^*$ by defined $\langle \Lambda(x^{***}), a \rangle = \langle x^{***}, a \rangle$ for any $x^{***} \in A^{***}$, $a \in A$. Thus there is a net $(f_\alpha) \subseteq A^*$ such that $a.f_\alpha - f_\alpha.a \rightarrow \Delta(a)$. Suppose that g_α is restricted f_α to B , we define $\langle x_\alpha^{***}, m \rangle = \langle m, g_\alpha \rangle$ for any $m \in B^{**}$. Thus we have

$$\begin{aligned} \langle a.x_\alpha^{***} - x_\alpha^{***}.a, b \rangle &= \langle g_\alpha, ab - ba \rangle \\ &= \langle a.f_\alpha - f_\alpha.a, b \rangle \\ &\rightarrow \langle \Delta(a), b \rangle \\ &= \langle D(a), \pi^{**}(b) \rangle \\ &= \langle D(a), \pi(b) \rangle \\ &= \langle D(a), b \rangle. \end{aligned}$$

In this case, the hypothesis that B is reflexive helps us to obtain this conclusion $a.x_\alpha^{***} - x_\alpha^{***}.a \rightarrow D(a)$ in w^* -topology for any $a \in A$. Now, apply theorem 1. ■

APPROXIMATE WEAK AMENABILITY OF $A^\#$

Let $A^\# = A \oplus Ce$ be the unitization of A and $e^* \in A^{\#\#}$ such that $e^*|_A = 0$, $\langle e^*, e \rangle = 1$. Then $A^{\#\#}$ becomes a Banach $A^\#$ – module with action given by

$$\begin{aligned} (a + te).(f + se^*) &= (a.f + tf) + (f(a) + ts)e^*, \\ (f + se^*).(a + te) &= (f.a + tf) + (f(a) + ts)e^* \end{aligned}$$

for every $a \in A$, $f \in A^*$, $s, t \in C$. It is from conclusion Zhang [12] which $A^\#$ is weak amenable if and only if $\overline{A^2} = A$ and indeed for any derivation $D: A \rightarrow A^*$ with following provision is inner,

$$\exists g \in A^* : g(ab) = \langle D(a), b \rangle + \langle D(b), a \rangle \quad (a, b \in A).$$

In a similar proof, we see that it remains true for approximate weak amenability case if role of inner replaced with approximately inner. In addition, Ghahramani and loy [7]

showed that approximate amenability of A and $A^\#$ are equivalent and Zhang proved when A has a approximate bounded identity, approximate weak amenability of A and $A^\#$ is equivalent and in addition to if A has a bounded approximate identity and an approximate diagonal, then $A^\#$ also has an approximate diagonal. But we have following proposition.

Proposition 1.

- (a) Let A is approximately weakly amenable with approximate bounded identity. Then $A^\#$ is approximately weakly amenable.
 (b) If A is reflexive Banach algebra and $A^\#$ is approximately weakly amenable, then A is so.

Proof.

- (a) An alternative proof would be follow the standard argument [12] which in it $D: A \rightarrow A^*$ is a derivation, bounded linear operator $g: A \rightarrow C$ is defined by $g(ab) = \langle E, D(a) \rangle$ for any $a \in A$ that E is w^* -closure point approximate bounded identity (e_α) for A . Therefore we have

$$\begin{aligned} g(ab) &= \lim_{\alpha} \langle D(a), e_\alpha a \rangle + \langle D(a), be_\alpha \rangle \\ &= \langle D(b), a \rangle + \langle D(a), b \rangle, \end{aligned}$$

where $a, b \in A$. Indeed we have $\overline{A^2} = A$ and so by above argument $A^\#$ is approximately weakly amenable.

- (b) It is clear with note theorem 2. ■

Remark.

The following statements are established.

- (a) Let $\theta: A \rightarrow B$ be a continuous Banach algebras isomorphism and A is approximately weakly amenable, then it is clear that B is so.
 (b) A is not weakly amenable (approximately weakly amenable) if it admits a non-zero continuous point derivation, see [2], [7].
 (c) Let A, B are commutative Banach algebras and $\theta: A \rightarrow B$ be a homomorphism with image dense of B . If A be approximately weakly amenable and B is not, there is a non-zero derivation D of B to B^* . It is easy to see that $\theta^* \circ D \circ \theta$ is a non-zero derivation of A to A^* . Hence approximately weakly amenable of A implies that approximately weakly amenable of B .
 (d) Take $1 \leq p < \infty$, then $\ell^p(N)$ is a Banach sequence algebra that it is discussed in [11]. We know that $\ell^p(N)$ is weakly amenable but not amenable [11]. It is shown that $\ell^p(N)$ is not approximately sequentially amenable in [7] and it is not approximately amenable too in [5].

(e) Let G be a locally compact group, and let $L^1(G)$ be its group algebra and $M(G)$ measure algebra. It is known that $L^1(G)$ is always weakly amenable [4] (and so approximately weakly amenable) and it is amenable (approximately amenable) if and only if G is amenable, see [7], [9], [10]. It follows when G is non-discrete, $M(G)$ has a non-zero point derivation, so $M(G)$ is weakly amenable if and only if G is discrete [3] and it is amenable (approximately amenable) if and only if G is discrete and amenable [3], [7]. With note on (b), $M(G)$ is approximately weakly amenable if and only if G is discrete.

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**GAINSAYS AND INDICATORS FOR MAINTAINING THE QUALITY
EDUCATION CULTURE IN PAKISTANI VARSITIES**

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ABSTRACT

Quality is the means through which an institution can guarantee with confidence and certainty that the standards of its educational provision are being maintained and enhanced. Quality in education is a dynamic entity which is the outcome of interaction among many factors including inter-alia (that he be promoted in other thing) leadership, quality of faculty and students, infrastructure facilities, research and learning environment, governance, strategic planning, assessment procedures, and market force. In this study we will indicate the some important parameters/indicators of quality education in which the education system of Pakistan can excel. Not a day passes without a statement by the government functionaries claiming that Pakistan's education system is making great advancement and we, as a nation, are close to achieving the literacy target by 2015. However, the Education for All (EFA) Global Monitoring Report 2008, which was released by UNESCO, recently, has rejected these claims. According to the report, "Pakistan and India are at a serious risk of not achieving the adult literacy target by 2015 because their literacy rates are very low and increasing too slowly."

This study focuses several problems to the education in Pakistan and also proposes some measures to solve these problems to increase the quality of education in Pakistan. The major problems to the Pakistani education system are Low literacy level and low standard of education , Inappropriateness of curricula and pedagogy , Multiplicity of educational systems , Deficiency of Research lab ,Lack of professional's in Research field , Pakistan has a combined primary, secondary, and tertiary enrollment rate of 35 percent of its school-aged youth, according to the United Nations Development Program (UNDP), ranking it 165 among 173 countries , Girls in Pakistan face unequal access to education. Another very important factor that has plagued this sector is the low budgetary allocation. According to the World Bank, Islamabad expenditure on public sector education is only 2.3 per cent of the GDP which is to a great extent lesser than the South Asian average of 3.6 per cent and the low-income states average of 3.4 per cent.

INTRODUCTION

Education plays a vital role in human capital formation. It raises the productivity and efficiency of individuals and thus produces skilled manpower that is capable of leading the economy towards the path of sustainable economic development. Like many other

developing countries, the situation of the education sector in Pakistan is not very encouraging. The low enrolment rates at the university level, wide disparities between regions and gender, lack of trained teachers, deficiency of proper teaching materials and poor physical infrastructure of university indicate the poor performance of this sector.

The extremely low level of public investment is the major cause of the poor performance of Pakistan's education sector. Public expenditure on education remained less than 2 percent of GNP before 1984-85. In recent years it has increased to 2.2 percent. In addition, the allocation of government funds is skewed towards higher education so that the benefits of public subsidy on education are largely reaped by the upper income class. Many of the highly educated go abroad either for higher education or in search of better job opportunities. Most of them do not return and cause a large public loss.

In Pakistan, the quality higher education has a declining trend. It is realized that science education in particular is reaching lowest ebb and needs to be improved urgently. At the time of independence and thereafter there remained acute shortage of teachers, laboratories were poor and ill equipped and curriculum had little relevance to present day needs (Behrman, 1976). The results suggest that certain minimum levels of enrolment at primary and secondary level represent a necessary condition for the development of functioning higher education. For relevant participation rates at university level, a net primary enrolment rate of 80 percent seems to be the minimum required. Similarly, about 80 percent of secondary net enrolment typically seems to be the minimum to develop higher education institutions with the potential to be listed in international university rankings, to employ the considerable number of researchers and to develop significant new ideas. Another relevant result of analysis is that the strong differences between educational institutions at secondary level may be detrimental for tertiary education quality (Katharina, 2006). The Education Sector in Pakistan suffers from insufficient financial input, low levels of efficiency for implementation of programs, and poor quality of management, monitoring, supervision and teaching. As a result, Pakistan has one of the lowest rates of literacy in the world, and the lowest among countries of comparative resources and social/economic situations. With a per capita income of over \$450 Pakistan has an adult literacy rate of 49%, while both Vietnam and India with less per capita income have literacy rates of 94% and 52%, respectively (Human Development Centre, 1998). Literacy is higher in urban areas and in the provinces of Sindh and Punjab, among the higher income group, and in males.

LITERATURE REVIEW

Education provides the bedrock for reducing poverty and enhancing social development. An educational system of poor quality may be one of the most important reasons why poor countries do not grow. In Pakistan, the quality of education has a declining trend. It is realized that science education in particular is reaching lowest ebb and needs to be improved urgently. There is acute shortage of teachers. Laboratories are poor and ill equipped and curriculum has little relevance to present day needs. The schools generally are not doing well. Tracing causative factors responsible for the present state is a critical need. These include defective curricula, dual medium of instruction at secondary level, poor quality of teachers, cheating in the examinations and overcrowded classrooms (Economic Survey of Pakistan, 2002).

In Pakistan efforts have been made to mould the curriculum in accordance with our ideological, moral and cultural values as well as our national requirements in the fields of science, technology, medicine, engineering and agriculture, etc. The rise in supply of educational infrastructure or removal of the supply side constraints can play an important role in raising literacy and education of the population. Development budget allocation for the social sector has been very low throughout and is evident from the budgetary allocation for education.

Table-1: Finance Act 1995-96 to 2002-03

(Rs. in Billion)

Year	Recurring Budget	Development Budget	Total Education Budget	% of GDP
1995-96	39.610	2.585	42.195	2.00
1996-97	40.536	1.968	42.504	2.62
1997-98	46.100	2.984	49.084	2.34
1998-99	46.979	2.427	49.406	2.40
1999-2000	51.572	2.430	54.002	1.7
2000-2001	54.396	1.966	56.362	1.6
2001-2002	64.975	2.500	67.475	1.9
2002-2003	67.270	2.604	69.874	1.7

From the tabular data it can easily be concluded that government is not able to invest the requisite amount on education in accordance with the population growth. Allocations lag behind the developing countries in the region.

The National Education Census (NEC) 2005 has been conducted for the first time in the history of Pakistan. Reliable, accurate and comprehensive database is a prerequisite for any type of planning. Obviously planning and management of education system at all levels also requires information based on the comprehensive database including all categories of educational institutions in the country. Thus the need for National Education Census was being felt from all quarters for more informed and visionary policy formulation, decision-making, efficiency, effective reforms and quality of education.

In the past incomplete database was being used which had partial information of private sector schools, colleges and universities, technical and vocational education, professional institutions, deeni madaris etc. There was no data to visualizing the total expenditure on education, as expenditure by the private sector was not available. Planning of education was affected because of the incomplete data, which is clear from the existing gap between planning and implementation. Even at international level our ranking among the countries of the world remained low due to non-availability of complete data which sometime caused embarrassment for the authorities.

Keeping in view the multiple concerns for lack of comprehensive data, the Ministry of Education decided to conduct National Education Census (NEC) 2005 in collaboration with Academy of Educational Planning and Management (AEPAM) and Federal Bureau of Statistics (FBS), Statistics Division. The census aimed at complete enumeration of all

categories of educational institutions in the country and establishment of comprehensive National Data Bank on Education.

The National Education Census (NEC) covered 245,682 institutions which includes public and private schools, colleges and universities, professional institutions, vocational and technical institutions, mosque schools, deeni madaris, non-formal basic education centers, distance education centers, special education institutions etc. The census has primarily focused to gather data on the level, type and management of the institution, enrolment, teaching staff and their qualifications and training, non-teaching staff, medium of instruction, building and other facilities available and expenditure. The data on different aspects of institutions have been collected for the year 2004-05. By this we came to know the role of H.E.C to improve the quality of education as we have the complete data of all university acting under H.E.C in private or public sector.

QUANTITATIVE DIMENSION

Different data indicate that that education system in Pakistan generally is not doing well. Tracing causative factors responsible for the present state is a critical need. These include defective curricula, dual medium of instruction, poor quality of teachers, cheating in the examinations and overcrowded classrooms. However, efforts are on the way of molding the curriculum in accordance with our ideological, moral and cultural values as well as our national requirements in the fields of science, technology, medicine, engineering and agriculture, etc. In the following table the enrolment of the students has been indicated in various schools.

Table-2: Enrolment in Education Institutions by Kind, Level and Sex

Year	Primary Total	Schools Female	Middle Total	Schools Female	Secondary Total	Schools Female
1992-93	130596	38080	11808	5055	9326	3029
1993-94	134050	39987	12126	5194	9655	3142
1994-95	139634	41967	12571	5562	13335	3323
1995-96	143130	43434	13330	5719	10119	3329
1996-97	149661	42042	14487	5760	10436	3394
1997-98	156318	51204	17354	7168	11685	4019
1998-99	159330	56515	18072	7985	12931	4710
1999-2000	162521	58748	18435	8146	13211	4805
2000-01	147736	42870	25472	5875	15416	3009
2001-02	149085	37165	26790	18837	15658	8554

Source: Pakistan Statistical Year Book 2004, Federal Bureau of Statistics, Government of Pakistan.

Literacy levels continue to be low with male literacy being higher at 61.3% and female literacy considerably below the average at 36.8%. According to the 1998 provincial population census reports, the school age population of the age group 5-9 years is more than 20 million. Of this about 11 million (57%) have never attended school. The nexus between poverty and education is reflected in the data which shows that 42% of the population living in households with illiterate heads is poor, compared to 21% of those in households with literate heads. Net primary enrolment rate is 59% for the non-poor, and

37% for the poor, and is particularly low among poor female children in rural areas (SPDC, 2002). On the other hand, Pakistan reportedly has the highest number of private schools in the region with candidates for foreign held examinations at the secondary and higher secondary levels also being the highest. This situation is reflective of widespread discrimination in access and opportunity, which has serious social implications. Compared to other countries in the region Pakistan is lagging behind in all the important indicators as indicated by the table below.

Table-3: Key Education Indicators

Key Education Indicators	Pakistan	India	Sri Lanka
Adult literacy rate % (1999)	45	56.5	91.4
Female literacy rate % (1999)	30	44.5	88.6
Primary Enrolment (gross) % (1997)	74	100	100
Secondary Enrolment (gross) % (1997)	26	49	75
Children drop out before grade 5 % (1995-1999)	50	48	3
Public expenditure on education % (of GNP) 1995-97	2.7	3.2	3.4

Source: Human Development Center, 1999. Journal of Management and Social Sciences

RESEARCH METHODOLOGY

The study was focused on to find out the important indicators for maintaining the quality education in the Pakistani universities. The study was descriptive survey type. The following method was adopted for study.

- **Population**

There are number of universities in the Karachi. All the students and teachers are the population of this study.

- **Sample**

There is number of universities in Karachi. It is very difficult to visit every university. Hence following three universities are selected and include in the sample.

- Federal Urdu University
- Karachi University
- Iqra University

Number of teachers and students who respond.

Name of Universities	No of Students	No of Teachers
Federal Urdu University	105	25
Karachi University	30	10
Iqra University	65	15
Total	200	50

DISCUSSION AND DATA ANALYSIS

1) CHALLENGES TO THE HIGHER EDUCATION IN PAKISTAN

Not a day passes without a statement by the government functionaries claiming that Pakistan's education system is making great advancement and we, as a nation, are close to achieving the literacy target by 2015. However, the Education for All (EFA) Global

Monitoring Report 2008, which was released by UNESCO recently, has rejected these claims. According to the report, "Pakistan and India are at a serious risk of not achieving the adult literacy target by 2015 because their literacy rates are very low and increasing too slowly."

Although plans have been made and targets set, the outcome is pathetic to say the least. These heart-breaking figures can put across the point more effectively. Still, 53 million of the world's illiterates are found in Pakistan. The overall literacy rate stands at 51.6 per cent, 63.7 per cent for males and 39.2 per cent for females. Islamabad ranks second with the highest number of out-of-school children. Ten million children of primary school-going age are not enrolled and more than 50 per cent enrolled in schools drop out before they reach fifth grade. [2, 3]

This paper discussed several problems to the education in Pakistan and also proposes some dimension to solve these problems to increase the quality of education in Pakistan. The following are major problems to the Pakistani education system.

- a) Low literacy level and low standard of education
- b) Inappropriateness of curricula and pedagogy
- c) Multiplicity of educational systems
- d) Deficiency of Research lab.
- e) Lack of professional's in Research field.
- f) Pakistan has a combined primary, secondary, and tertiary enrollment rate of 35 percent of its school-aged youth, according to the United Nations Development Program (UNDP), ranking it 165 among 173 countries
- g) Girls in Pakistan face unequal access to education.

The quality of education now-a-days facing another very harmful problem that is the phenomenon of Talibanisation is very complex brought into being by several factors. One of the factors, as in the case of Afghanistan and Pakistan, is the absence of universal education. It is not certain if this factor can be even regarded as an important or a crucial one. Indeed if education is provided to all citizens, then there will be few people frustrated on account of having grown without having any marketable skills. Hence, they are easily attracted to nihilistic and fascistic ideologies and political action,

Another very important factor that has plagued this sector is the low budgetary allocation. According to the World Bank, Islamabad expenditure on public sector education is only 2.3 per cent of the GDP which is to a great extent lesser than the South Asian average of 3.6 per cent and the low-income states average of 3.4 per cent.

2) RECOMMENDATIONS

A. Declare educational emergency

The present government should declare a national educational emergency and involve the whole nation, including the army, in waging a war against illiteracy. Some steps that the government might consider taking in this regard are:

1. Declare education as the highest priority of the government. Explain that unless the impediments of illiteracy and lack of education are removed, the road to democracy will remain fraught with the danger of exploitation of the masses by the select few, and that in the absence of political will in the ruling

- classes to do something tangible in this arena, it seems that it is up to the army to defend the country against illiteracy and lack of education, for there is no factor more important to the well-being of a nation than human resource and no negligence worse than ignoring its development.
2. Make it a mandatory requirement for various degree programs that the candidates, after taking their exams, shall spend a specified period of time for specified hour(s) in teaching at assigned institutions.
 3. Many government buildings can be converted into commercial universities of good level. The government can consider offering many of these universities to private sector organizations in the field of education.
 4. Introduce standardization of curricula and licensing and certification of teachers to improve standards (as is done in the USA).
 5. Introduce high quality selection procedure for higher level teachers and offer the candidates better incentives.
 6. Use electronic media more extensively for educational purposes. A channel could be devoted to just education. In this regard,
 - a) teachers of high caliber can take classes for different subjects at various levels,
 - b) these lecturers can be telecast as well as recorded,
 - c) the lectures can be delivered by telecasting them or by playing recorded cassettes even in schools in far flung areas where quality education is usually not available,
 - d) later on computers can also be used with sufficient data banks and with internet and e-mail facilities for more interactive education, and
 - e. if an appropriate system is designed, more students can be taught in one school using cassettes, discs, etc. with relatively less teachers.
 7. In rural areas, provide each college with at least one army man to ensure that people face no resistance from the feudal in educating their children.
 8. Provide people with incentives to educate their children. This can be done in various ways. For instance
 - a) even lower level government jobs as for clerks, peons, constables can be linked to a minimal level of education and entrance tests.
 - b) various loans (e.g. agricultural loans) can be linked to whether an applicant has educated or is educating his children.

B. Improve, update and form curricula, texts, pedagogy, and examination and evaluation techniques

There is no need to say that improvement, updating and new work needs to be done in these areas. Again, some steps that the government might consider taking are:

1. Give more importance to language education and mathematics at the colleges and universities levels. The unfortunate fact is that usually even our postgraduates lack basic skills in these areas. Language and mathematics are essential for the foundation on which acquisition of other skills depends. Though much of the problem is due to poor teaching, yet curricula, texts,

- pedagogy and examination techniques also have a lot to do with the current situation.
2. Various teams of experts should be involved in performing the above mentioned task of improvement and formation.
 3. Computer education should also be introduced gradually right from the elementary stage in education.
 4. At the proper stage, instruction in foreign languages (especially Arabic for closer cultural and economic ties with the Arab world, for curbing sectarianism and fanaticism, for greater unity in the Ummah, and for better understanding of Islam in the educated classes) and social skills (for enhancing Emotional Intelligence) should also be encouraged (Goleman,* 1996). Both these areas have gained immense importance in the wake of globalization.
 5. More emphasis should be given to the development of educational institutions for some unconventional disciplines as fashion designing, art, music and literature. There is a lot of talent in the country in this field and a great, high return international market for the products and services of skillful people in this area.
 6. Similarly, a system of continual vocational training should also be introduced for workers in different fields.
 7. Interesting and informative documentaries and activities should also be designed for the education of students. Similarly, institutions as museums, internet clubs, libraries, etc. should also be developed. Contributions from the public can also be sought for this purpose.
 8. Various bodies of academic experts should also be formed to monitor, standardize and develop all the above mentioned programs (1-7).

CONCLUSION

During this study we observe that there is major need for improvement in the education sector especially in the higher education. In this project we also highlight some problem with the higher education in the Pakistani universities and recommend some step for instant improvement in this sector. Under the light of our study in survey we conclude that:

- The future of country is always in the hands of young generation to provide them the weapon of education that how to lead the world according to our survey we find that 100% people agreed that Pakistan higher education system need to improvement on priority bases.
- The quality of education is intrinsically integrated with the availability of physical infrastructure. The physical facilities are essential requirements to achieve the required educational standards. This survey showed that building requirements with all facilities are essential. The 90% people agreed with this.
- The highly qualified teachers play a major role to build younger generation as an asset for the country, qualified teachers in the Universities are prerequisite for quality education in this regard teachers training has always been key issue for the providence of quality education, the training of the teachers has played vital role in the quality assurance and while the survey analysis shows that 76% agreed with this.

- To achieve the high ratio of higher education in the country the curriculum design play a major role in our survey 83% people agreed that the curriculum must be based on research and overall education should be research oriented which can full fill the need of today and future.

Finally we can hope this study can help the higher decision making authorities to make the policies in such a way that can full fill the demand of higher education of our country in coming future.

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**IMPACT OF TRAINING AND DEVELOPMENT ON EMPLOYEE
EFFICIENCY IN ACADEMIC INSTITUTIONS**

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ABSTRACT

Training and development is systematic approach to increase the knowledge and job related skills as well as behavior through formal instructions. The importance of access to quality information and knowledge is as important as other key resources, like manpower and finance. By the help of emerging field of knowledge management we can effectively manage organizations intellectual capital, i.e. the workers having distinct skills and expertise. We can use training and development as a tool to convert worker into knowledge worker by using I-R-S-A - framework of KM.

This study aims to deal with the scope of training and development in academics having different variables for employee efficiency and environmental context then other sectors.

Training and development and employee efficiency relation provide base for estimation of the training needs and required skills necessary to meet strategic goals of organization.

This study provides an idea about significance of training and development in Academic sector to meet market requirements, furthermore, this study is helpful to design more effective training and development programs for whole staff of an academic institution.

KEY WORDS

Knowledge management, I-R-S-A Framework, Intellectual capital, Employee efficiency, Employee morale, Employee productivity

INTRODUCTION

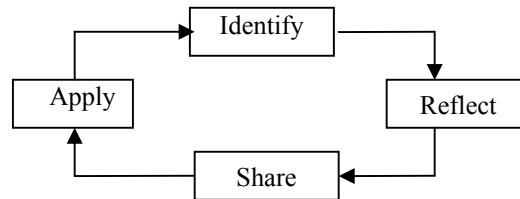
Training and development is a systematic approach to increase the knowledge and job related skills as well as behavior through formal instructions.

The importance of access to quality information and knowledge is as important as other key resources, like manpower and finance. By the help of emerging field of knowledge management we can effectively manage organizations intellectual capital, i.e., the workers having distinct skills and expertise.

In this study we analyze How Training & Development effect employee efficiency in Academic institutions and also the role of Knowledge Management to conduct effective training programs for workforce including teaching and non-teaching staff. Knowledge management provides different frameworks which are helpful to locate and share knowledge within the organization to bring improvement in organizational functions. As knowledge management provide base for training & development programs, IRSA framework will helpful for us in order to conduct effective training programs or to locate knowledge sources in the organization and as well as for the development of knowledge sharing culture within the organization.

IRSA frame work consists of four steps as:

- I** - identification of knowledge person i.e., a competent trainer for effective training.
- R** - reflection of the knowledge ,skills or competencies sought by under training workers from knowledge source(trainer).
- S** - sharing of knowledge i.e., methods and techniques of training to deliver knowledge in appropriate manner.
- A** - application includes the practical implementation of newly taught skills, techniques in order to increase overall efficiency.



The I-R-S-A Framework

Source: (Carl Davidson's, Knowledge Management in global perspective)

The I-R-S-A model drawn as a cycle shows that knowledge management is a process. Once an organization has identified its existing knowledge, reflected, share with its workers and then applied this knowledge, it will helpful to the organization to learn and discover new things.

This approach is also helpful in training need assessments, before training to ensure or select right candidate for the right training program in right time.

SCOPE OF RESEARCH

- This study provides understanding about the scope of training and development in Academics having different variables for employee efficiency and environmental context.
- Training and development and employee efficiency relation provide basis for estimation of the training needs and required skills necessary to meet strategic goals of organization.
- This study provides an idea about significance of training and development in Academic sector to meet market requirements.
- This research is helpful to design more effective training and development programs for whole staff of an academic institution.
- This research is helpful to understand Knowledge management role in academics and the current KM position in Pakistan's academic institutions.

REVIEW OF LITERATURE

In the present era of advanced technology, where the new inventions reshape the human lives their lifestyle as well as their way of thinking , understanding i.e., learning, this advancement puts a major responsibility on the shoulders of educational institutions to produce quality work force (knowledgeable students).In order to meet the continuous changes in the education industry, institutions need a proper training and development programs for all staff, including teachers and non-teachers in their area of interest in order to meet strategic goals and to support related industries.

Branin (2003) states that Knowledge Management Method (KM) has been applied to the education industry since the post World War II and sputnik era of 1950 to 1975. Basically, Knowledge Management (KM) is the tool of academic development that improves the information systems and academic resources patterns within and outside organizations in order to be effectively accessed.[1] A survey by Sam Hijazi and Lori Kelly (2003) has indicated that higher learning institutions and the business world have some difficulty in understanding the implication of KM as a new model to support business process. For that reason; it is difficult to establish a common understanding of what KM is. Besides, the knowledge is everywhere and it has not been captured, collaborated and managed systematically especially in the higher learning institutions. Similarly, resource in higher learning institutions may not be sustained for long period too. As a result, these resources need to be transformed into knowledge, since it is hard to be replicated. From the research done, the higher learning institutions are no longer just providing knowledge to the students, but also have to manage and collaborate the existing knowledge for future reference[2].

According to Petrides and Nodine (2003) the use of knowledge management method in education enables the encouragement of greater intelligence, practical know-how, and effectiveness of education institution management. Knowledge management in education also offers the superiority of practical assessment framework that depends on the effectiveness of information management.[3] Alok Sharma, Dr. Harvinder S. Saini, and Raviteja Tiruvury (2007) state that by using information technology i.e., (information system or software) we can implement knowledge management in educational institutions effectively.[4]

Galagan (2003), As the nature of the economy evolves and the need to develop intellectual capital grows, industry experts agree that involvement in knowledge network development is an avenue for professional success (or survival) for the T & D practitioner. According to Tamar Elkeles, vice president of learning and development at QUALCOMM, “There’s a convergence of training and information roles and if you’re solely focussed on training, you’re missing the boat. You need to be broader and to do more than just help employees learn specific skills. In a learning organization, you need to help people learn about the company, the culture, the industry, the market, and so on.”[5]

Nowack and Wimmer (1997). Successful coaches must learn to interact with trainees in a way that is supportive and compelling. A coach must know how to overcome the resistance the trainee may exhibit when confronted with discrepancies between his or her self-evaluation and feedback from others and when asked to make changes in his or her behavior. [6]

Krebs (1998) Communities in companies self-organize naturally around common problems, interests, customers, and complex knowledge areas. It is within these networks where core competencies of organizations are stored, shared, nurtured and enhanced. Individual learning is facilitated by being a member of one or more of these knowledge networks [7] Zhou & Fink(2003),The structures and relationships that allow workers to share information, brainstorm, refine ideas and create innovations are called knowledge networks. Workers in today's economy add value to the organization by synthesizing and analyzing information, then planning and making decisions based on that information. The work that builds intellectual capital – especially customer relations capital, organizational capital, innovation capital, process capital, intellectual property and intangible assets– requires problem-solving skills and the ability to apply judgment.].[8]

Knowledge adds value to an organisation through its contribution to products, processes and people, while KM transforms information, data and intellectual assets into enduring value by identifying “useful knowledge” for management actions (O'Dell, 1996) [9] Zack (1999), Knowledge is the most valuable asset to organizations and individuals alike. Organizations must efficiently and effectively create, locate, capture and share the organization's knowledge and expertise to remain competitive.[10] Kidwell, Vander Linde and Johnson (2004) also demonstrated that the benefits of the use of KM method in higher education can be classified into five main categories, such as the benefits on the research processes, the curriculum development processes, student and alumni services, administrative services, and strategic planning so these issues be can explained in detail consecutively.[11]

Kathy Napierala, Loren Weiss Selig, Zane Berge (2005), Describe that rapid change at work place can effectively be managed by using intellectual capital and knowledge networks. Training and development will help to increase intellectual capital of a company while knowledge networks provide long term benefits in terms of increase in intellectual capital productivity and return on investment,which is an important aspect of training and development profession.[12] Kostas Metaxiotis, John Psarras (2003),In the current higher learning institutions, research is the key for knowledge creation and knowledge dissemination. The higher learning institutions are no longer just providing knowledge to the students, but also manage and collaborate the existing knowledge for future reference. Therefore, the current higher learning institutions in overseas have adapted their changing role in a knowledge-based society and recognize the value of their intellectual capital to their continuing role in society.[13]

Butschler (2002),_Needs analysis of the organizational areas that most effect strategic goals, to identify where information flows smoothly and effectively, and where it bogs down. It is best to do this on an organizational level, a process level, and an individual level [14].

Gaines(2003),Knowledge networks are an extension of training; they come into play when training and continuing education cannot keep pace with the scope of knowledge required for high quality performance [15].

HYPOTHESIS

H0 = Training and development have significant impact on employee efficiency.

H1 = Training and development have no significant impact on employee efficiency.

METHODOLOGY

This research study used a structured questionnaire as the instrument for data collection. It was designed to collect information about different factors which significantly impact employee efficiency in academic sector. The demographic aspect included age, gender, and education level and field of study. The employee efficiency variable includes, employee motivation employee morale, employee productivity and performance appraisal. The sample comprised of 300 male/female teaching & non-teaching staff from different academic institutions and university students of various disciplines, age range 13 to 60 plus years, engaging in different fields of studies / specialization. The 300 respondents were selected on the basis of goal-directed sampling. Out of the total number of questionnaires, 37 were dropped from the analysis on counts of incomplete/ fake / selecting all dimension or choices data entry at the respondents end. Therefore the analysis presents data of 263 respondents, i.e. n=263. For the purpose of survey, we select major universities and educational institutions of Karachi. In addition to the primary research, secondary data was collected from articles published in academic journals and internet sources.

DATA ANALYSIS AND DISCUSSION

Training and development has significant importance in order to increase employee morale, behavior, efficiency, skills and their retention. According to our survey results 88% peoples agree that the training and development are essential for individuals, teams and for organizations in order to excel their careers and to gain competitive edge.

1. Training for Teaching and Non-teaching staff

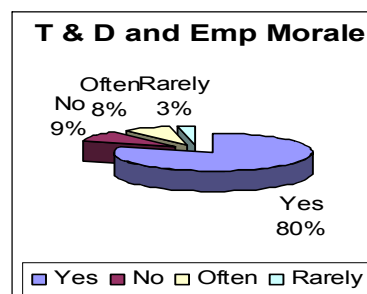
In educational institutions teaching and non-teaching staff should be trained in order to reduce communication gap between teachers and students, curriculum development, to take decisions, motivate and retain the staff to increase organizational efficiency and productivity. Training of non-teaching and administrative staff include developed leadership, communication, management and computer skills etc.

Table 1: Effect of Training on Employees

Factors	Yes	No	Often	Rarely
Improvement in lecture delivery	85%	2%	11%	2%
Helpful to meet f future objectives	84%	1%	13%	2%
Regular Training for non-teaching staff	75%	0.7%	23%	1.5%
Leads to motivate staff	79%	3%	14%	3%
Impact on efficiency	82%	2%	14%	1%

2. Training & Development and Employee Morale

The employees who are engaged in company-sponsored training are more loyal. According to our survey results training and development have significant impact on employee morale and after training employee morale is found to be higher than before training.



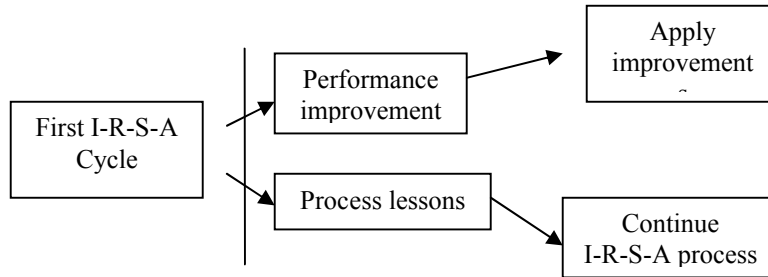
3. Training & Development as Motivator

Training & development are rated as the major motivational agent. Training helps employee to be more productive and confident. It is observed that trained employees work with greater morale and motivation than untrained or unskilled workers. According to survey result 79% employee rate training and development as a key motivational factor for an organization.

4. Knowledge Management and Training & Development

Knowledge management is a tool of academic development that includes the academic resource patterns, although, it is a very new field of education development.

Knowledge management offers different frame work such as I-R-S-A framework for educational institution success. Our survey result shows it provides basis for training & development of employees effectively. Hence, KM plays major role in training development in order to meet the organizational need of intellectual capital (knowledge workers).



I-R-S-A Framework Cycle

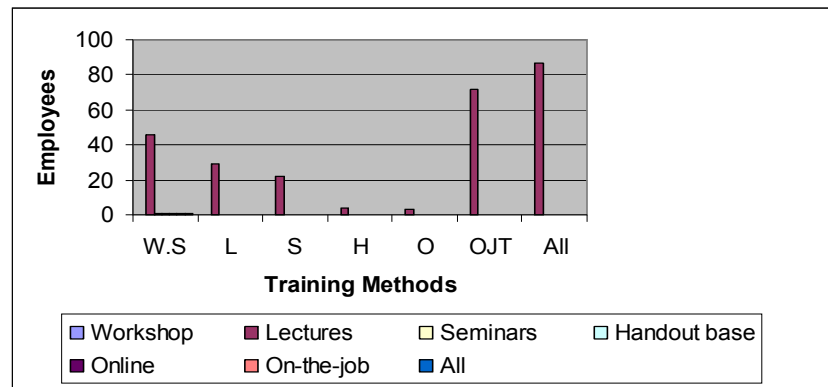
Source: (Carl Davidson's, KM book)

As the I-R-S-A frame work shows improvement in the performance i.e., improvement in employee performance, when applied it ultimately leads towards organizational improvement.

5. Need of Training & Development

In order to gain competitive advantage of training and development, it is necessary to develop required skills, expertise in existing work force to meet strategic goals of organization. Successful organizations spend a large amount for the training and development of their employees. To ensure the effectiveness of training programs a proper need assessment in terms of organizational, personal or task analysis should be done before training sessions. Need assessment helps to identify the right employee according to their required trainings. Employees are also in favor of continuous training programs which help them to excel in their careers.

Multiple training methods should be used to accommodate diversified work background and learning style as the results of survey shows.



6. Performance Appraisal and Training & Development

Performance appraisal is also effected by training and development. The time of award for accomplishing a certain number of hours in training can be good incentive, if the training result in some type of certification, degree or award .As the survey results show employees are agreed that, workers gain more authority responsibilities, access to important knowledge, promotions or *PERK* after training and development programs.

Table 2: Performance appraisal after Training

Yes	73%
No	7%
Often	17%
Rarely	3%

CONCLUSION

Training & Development plays major role to meet strategic goals and to gain competitive advantage. Regular training & Development programs for employee are helpful to increase employee motivation morale, productivity and to develop necessary skills to advance in their careers. The knowledge management frame work. i.e., I-R-S-A provide the way to manage valuable knowledge within the academic institutions, which are necessary and helpful to take strategic decision or to meet objectives of training and development programs means to transform the employees into intellectual capital (knowledge worker) a more valuable asset for the organization

According to our survey result analysis, we accept **H0** hypothesis.

H0 = Training and development have significant impact on employee efficiency.

RECOMMENDATIONS & SUGGESTIONS

- Training & development should be conducted on regular basis to update employees, which enable them to meet new challenges.
- Use more appropriate training methods according to their nature of work or interest.
- Train & Develop the right people i.e., selection should be on merit.

- Organization should assess the employee performance to evaluate training results and take corrective actions if result is negative.
- Organization should provide more compensation to retain or motivate trained or skilled workers.
- Knowledge management system and networks should be established to store, share knowledge and experiences of knowledge workers.
- Organization should promote knowledge culture within the organization.

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UNDERSTANDING/LEARNING ISLAM BY STATISTICAL TOOLS

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ABSTRACT

The Statistical text books used at inter and graduate levels are no doubt the standard ones and these books are written with lot of efforts to help students for learning and developing their interest in the subject area. These text books more or less cover every topic regarding the course contents by giving comprehensive exercises at the end of the topic. A number of examples are also available in every book. If we critically observe the examples and exercises of the books, available at inter and graduate levels they are restricted to the applications of statistics in different branches of science which is not wrong from any point of view but one can not find any example for the applications of statistical tool to some data from the HOLY QURAN or any of the Islamic Literature. The problem is that one is unable to find many research about the HOLY QURAN and students are merely getting superficial knowledge about playing cards, tossing a coin, rolling a die or drawing a ball, however, they are weak to apply any statistical tool to present the Islamic literature in a beautiful way so that they can help people to understand Islam in a simple way. Not many of the teachers try to generate some questions that would improve the student's knowledge in Islamic literature. Often we see different research papers or articles and after reading these articles we find that it is mentioned 1400 years ago in the HOLY QURAN. We generally not try to study or research the HOLY QURAN to find statistical information regarding astronomy, environment, medical science etc. The questions in which data regarding Islamic literature used are recommended to be added that will give a sense for not only to apply the tools of the statistics but also to improve human knowledge about Islam which is important for every human being to understand the real teaching of this noble religion.

INTRODUCTION

The objective of this article is to use Islamic information for statistical questioning, so that it will enhance the general knowledge of students and readers about Islam. The idea is generated from the point that all the students studying at any level use statistical techniques to solve questions in which the information about drawing balls from an urn, selecting a card from playing cards, temperature, speed and number of insects etc. These questions and examples are useful for understanding the basic concepts of statistics. The idea behind these examples is to make students familiar with the applications of statistics in different fields not only in practical life but also to develop their confidence so that they can help different scientists to solve their research problems. However in Islamic countries, female students are not yet playing role in the field of statistics. Yet these examples are required to refine human understanding in the application of statistics. The question is that why to use only these particular examples which not even used by most

of the persons, especially in the society. Why not replace these kinds of questions with those that would make one-self proud not only on this noble religion but also on the Muslims of 1400 years ago. For example we can draw bar chart of number of dots, number of over bar (Zabar), number of under bar (Zaer), and number of Raque in the Holy Quran etc. some of the examples are given in the following section.

Often, it is observed that students who do not have enough statistical information about this true religion, they can hardly tell any non muslim why this religion is the ultimate religion for the mankind. In fact, this lack of knowledge is a result of lack of research about this great religion of the world. Instead that the focus is merely on the regular text books of Islamiat, which has not enough and authenticated information about Islam. Why only Islamiat is responsible to teach this noble religion? Being a Muslim and Statistician, one can contribute a lot to learn this noble and true religion by using some questions and examples in text books that will be based on the data from Islam. For example by asking students that Makki and Madni Surrahs are mutually exclusive or not mutually exclusive. Many solved examples are given in the next section. This would not amaze any person as it was mentioned in the Holy Quran.

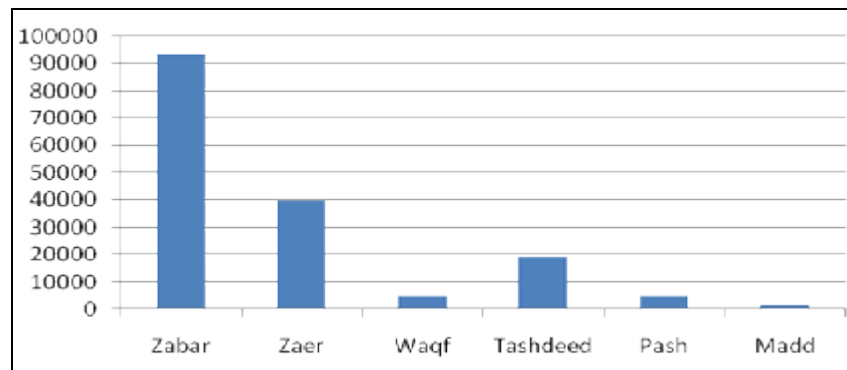
METHODOLOGY

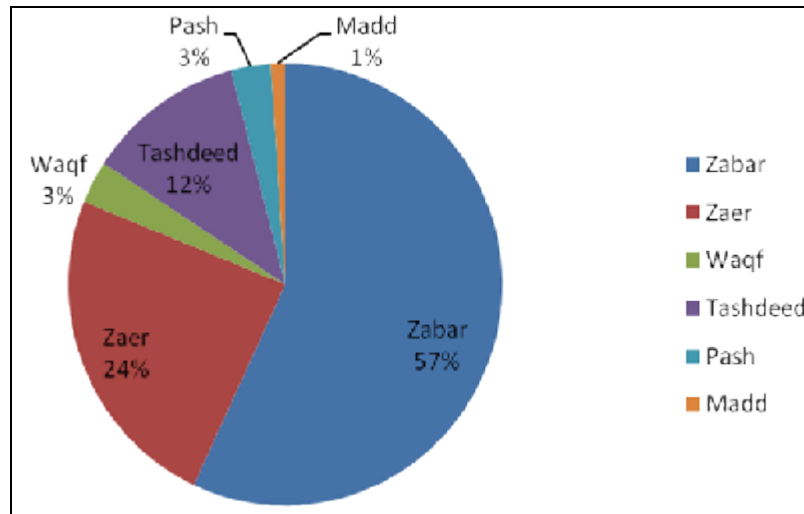
Lot of information about the Holy Quran collected from internet and by reading Holy Quran and it is converted into some statistical questions for the purpose of application of statistical methods is presented in this section.

Example 1

Draw a histogram and pie chart of the following data.

Information	Zabar	Zaer	Waqf	Tashdeed	Pash	Madd
Frequency	93243	39586	5098	19253	4808	1771



**Example 2**

We can use the above data for measures of central tendency and measures of dispersion. For example mean of the above data is 27293.17 and the standard deviation is 35255.43 where as the coefficient of variation is 77.41549%. Similarly we can convey many other information about the Holy Quran through probability questions. Some of the examples are presented here.

Example 3

There are 114 Sura in Quran out of which 86 are Makhi and 28 are Madni. Two of Suras are selected at random, find the probability that it is Makhi (II) it is Madni (III) it is Makhi or Madni. In this way students will know the number of total, Makhi and Madni Suras.

Example 4

There are 86 Macci sura in Quran out of which 12 contain Sajda and 28 Madni Sura out of which 2 contain Sajda. One of the Sura is selected at random find the probability that

1. It is Makhi
2. It is Madni
3. It is Makhi and contain Sajda
4. It is Madni and contain Sajda
5. It is Makhi or contain Sajda
6. It is Madni or contain Sajda
7. A sura selected at random contains a sjda. Find the probability that it is Macci.
8. If a sura selected at random is Madni find the probability that it does not contain Sajda.
9. It contains Sajda.
10. It does not contain Sajda

Example 5

There are three Suras in the Holy Quran that start with only one letter Qaf, Sad and Noon, four Suras start with the word "Inna" Fatha, Nuh, Qadr, Qausar and five sura whose names are with out dot Hamd, Raad, Toor, Room and Masad. One of the sura is selected at random find the probability that selected sura is one

1. Starts with one letter
2. Starts with the word "Inna"
3. Starts with the word without dot.

REFERENCES

The Holy Quran

MODIFIED INFERENCE ABOUT THE SCALE PARAMETER OF THE WEIBULL DISTRIBUTION BY USING TYPE II CENSORED SAMPLE

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ABSTRACT

In this paper the scale parameter of Weibull distribution has been estimated by using modified maximum likelihood approach for doubly type II censored sample. The asymptotic variance and expectation of estimator have been derived. Then find the variance and mean square error of order statistics of any sample of size n. The effect of doubly type II censored sample on estimator has also been studies.

KEYWORD

Type II censored sample, Modified maximum likelihood Estimator, Maximum Likelihood Estimator, Weibull distribution, Mean Square Error, Bias, Order Statistics

1. INTRODUCTION

The two- parameter weibull distribution with scale and shape parameter is given as

$$f(y; \alpha, \lambda) = \frac{\alpha}{\lambda} y^{\alpha-1} \exp\left(-\frac{y^\alpha}{\lambda}\right) \quad (1.1)$$

where α is the shape and λ is the scale parameter .with distribution function

$$F(Y) = \exp\left(-\frac{Y^\alpha}{\lambda}\right) \quad (1.2)$$

2. THE MODIFIED MAXIMUM LIKELIHOOD ESTIMATOR OF THE SCALE PARAMETER OF THE WEIBULL DISTRIBUTION

For the doubly type II censored sample with r samples censored on the left and s samples censored on the right .The likelihood function is given as

$$L = \frac{n!}{r!s!} [F(Y_{r+1})]^r [1-F(Y_{n-s})]^s \prod_{i=r+1}^{n-s} f(y_i) \quad (2.1)$$

where $r = [nq_1] + 1$ and $s = [nq_2] + 1$, q_1 is the proportion of left censored sample and q_2 is the proportion of right censored sample. By using (1.1) and (1.2) in (2.1) we get

$$L = \frac{n!}{r!s!} \left[\exp\left(-\frac{y_{r+1}^\alpha}{\lambda}\right) \right]^r \left[1 - \exp\left(-\frac{y_{n-s}^\alpha}{\lambda}\right) \right]^s \prod_{i=r+1}^{n-s} \left[\frac{\alpha}{\lambda} y_i^{\alpha-1} \exp\left(-\frac{y_i^\alpha}{\lambda}\right) \right]$$

The first derivative of the log-likelihood function with respect to λ is given by:

$$\frac{\partial \ln L}{\partial \lambda} = r \left(\frac{y_{r+1}^\alpha}{\lambda^2} \right) + \frac{sy_{n-s}}{\lambda^2} \left[\frac{-\exp\left(-\frac{y_{n-s}^\alpha}{\lambda}\right)}{1-\exp\left(-\frac{y_{n-s}^\alpha}{\lambda}\right)} \right] - \frac{n-s-r}{\lambda} + \frac{1}{\lambda^2} \sum_{i=r+1}^{n-s} y_i^\alpha \stackrel{(set)}{=} 0 \quad (2.2)$$

By using $\exp(-z) = \frac{1-\frac{z}{2}}{1+\frac{z}{2}}$ for intractable term in (2.2), see Suresh (2004). Solving

(2.2) for λ , the modified maximum likelihood estimator of λ is given as

$$\hat{\lambda} = \frac{ry_{r+1}^\alpha + \frac{sy_{n-s}}{2} + \sum_{i=r+1}^{n-s} y_i^\alpha}{n-r} \quad (2.3)$$

3-ASYMPTOTICAL VARIANCE AND BIAS OF $\hat{\theta}$

By using Glivenko-Cantelli lemma given by John and Chen (2005b), we have

$$p_1 = G^{-1}(q_1) \text{ and } p_2 = G^{-1}(1-q_2) \text{ So as } n \rightarrow \infty$$

$$z_{r+1} = G^{-1}(q_1) \text{ and } z_{n-s} = G^{-1}(1-q_2)$$

z_{r+1} can be evaluated by using following relation

$$G(z_{r+1}) = q_1$$

$$\int_0^{z_{r+1}} f(z) dz = q_1$$

$$z_{r+1} = -\ln(1-q_1) \quad (3.1)$$

and

$$G(z_{n-s}) = 1-q_2$$

$$\int_{z_{n-s}}^{\infty} f(z) dz = q_2$$

$$z_{n-s} = -\ln(q_2) \quad (3.2)$$

and

$$\lim_{n \rightarrow \infty} E \left\{ \frac{1}{n} \sum_{i=r+1}^{n-s} z_i \right\} = \int_{z_{r+1}}^{z_{n-s}} zf(z) dz = \int_{z_{r+1}}^{z_{n-s}} z \exp(-z) dz$$

$$= (1-q_1)(1-\ln(1-q_1)) - q_2(1-\ln q_2) \quad (3.3)$$

Put $z_{r+1} = \frac{y_{r+1}^\alpha}{\lambda}$, $z_{n-s} = \frac{y_{n-s}^\alpha}{\lambda}$, and $\dots z_i = \frac{y_i^\alpha}{\lambda}$ for intractable term in equation (2.2)

$$= \frac{rz_{r+1}}{\lambda} + \frac{sz_{n-s}}{\lambda} \left(\frac{-\exp(-z_{n-s})}{1-\exp(-z_{n-s})} \right) - \frac{(n-s-r)}{\lambda} + \frac{\sum_{i=r+1}^{n-s} z_i}{\lambda}$$

Again use modification by Suresh(2004) to solve intractable term of the above equation we get

$$\frac{\partial \ln L}{\partial \lambda} = \frac{ry_{r+1}^\alpha}{\lambda^2} + \frac{sy_{n-s}^\alpha}{2\lambda^2} - \frac{s}{\lambda} - \frac{(n-s-r)}{\lambda} + \frac{\sum_{i=r+1}^{n-s} y_i^\alpha}{\lambda^2}$$

Partially differentiating the above equation w.r.t λ

$$\frac{\partial^2 \ln L}{\partial \lambda^2} = -\frac{2ry_{r+1}^\alpha}{\lambda^3} - \frac{2sy_{n-s}^\alpha}{2\lambda^3} - \frac{s}{\lambda^2} - \frac{(n-s-r)}{\lambda^2} - \frac{2 \sum_{i=r+1}^{n-s} y_i^\alpha}{\lambda^3}$$

Multiplying both sides by $-\lambda^2$ and applying expectation, we get

$$-E\left(\frac{\partial^2 \ln L}{\partial \lambda^2}\right) = \frac{n}{\lambda^2} \left(2q_1 z_{r+1} + q_2 z_{n-s} - 1 + q_1 + 2E\left(\frac{\sum_{i=r+1}^{n-s} z_i}{n}\right) \right) \quad (3.4)$$

where $q_1 = \frac{r}{n}, q_2 = \frac{s}{n}$

By using equation (3.1),(3.2)and (3.3) in (3.4)we have Asymptotic variance given as

$$\text{var}(\hat{\lambda}) = \frac{\lambda^2}{n(1-q_1-2q_2+q_2 \ln q_2 - 2 \ln(1-q_1))} \quad (3.5)$$

We observe that as $n \rightarrow \infty, \text{var}(\hat{\lambda}) \rightarrow 0$

Now put $z_{r+1} = \frac{y_{r+1}^\alpha}{\lambda}, z_{n-s} = \frac{y_{n-s}^\alpha}{\lambda}, z_i = \frac{y_i^\alpha}{\lambda}$ in the equation (2.3), we get

$$\hat{\lambda} = \frac{\lambda r z_{r+1} + \frac{s}{2} \lambda z_{n-s} + \lambda \sum_{i=r+1}^{n-s} z_i}{n-r}$$

Applying expectation on both sides and from (3.1), (3.2) and (3.3) we have

$$\text{Bias} = E(\hat{\lambda}) - \lambda = \frac{\lambda \left(\frac{1}{2} q_2 \ln q_2 - \ln(1-q_1) + q_2 \right)}{1-q_1} \quad (3.6)$$

We observe as sample size n increases, the Bias tends to decreases

4. ESTIMATION OF THE MEAN SQUARE ERROR OF $\hat{\lambda}$ FOR ORDERED RANDOM VARIABLE

The probability density function of $z_{r:n}$ is given by

$$f_{r:n}(z) = \frac{n!}{(r-1)!(n-r)!} (1 - \exp(-z))^{r-1} \exp(-(n-r+1)z) \quad 0 \leq z \leq \infty$$

By definition $E(z_{r:n})$ is given as

$$\begin{aligned} E(z_{r:n}) &= \int_{-\infty}^{\infty} z f_{r:n}(z) dz \\ &= \int_0^{\infty} z \frac{n!}{(r-1)!(n-r)!} (1 - \exp(-z))^{r-1} \exp(-(n-r+1)z) dz \end{aligned}$$

The above integred can be solve as (See Akhter, S. (2006))

$$E(z_{r:n}) = \sum_{i=1}^r \frac{1}{n-j+1} = \alpha_r$$

Similarly

$$v(z_{r:n}) = \sum_{i=1}^r \frac{1}{(n-j+1)^2} = \beta_r$$

Now we find mean and variance of $z_r = \frac{y_r^\alpha}{\lambda}$

$$\begin{aligned} E(z_r) &= \frac{1}{\lambda} E(y_r^\alpha) \\ E(y_r^\alpha) &= \lambda \alpha_r \quad \text{where } \alpha_r = \sum_{j=1}^r \frac{1}{(n-j+1)} \end{aligned} \quad (4.1)$$

$$\begin{aligned} \text{var}(z_r) &= \frac{1}{\lambda^2} \text{var}(y_r^\alpha) \\ \text{var}(y_r^\alpha) &= \lambda^2 \beta_r \quad \text{where } \beta_r = \sum_{j=1}^r \frac{1}{(n-j+1)^2} \end{aligned} \quad (4.2)$$

Apply expectation on (2.3) and by using (4.1)

$$\text{Bias} = E(\hat{\lambda}) - \lambda = \frac{\lambda \left(q_1 \alpha_{r+1} + \frac{q_2}{2} \alpha_{n-s} + \frac{\alpha}{n} - 1 + q_1 \right)}{1 - q_1} \quad (4.3)$$

Now from (2.3) by using (4.2), we get

$$v(\hat{\lambda}) = \frac{\lambda^2 \left(q_1^2 \beta_{r+1} + \frac{q_2^2}{4} \beta_{n-s} + \frac{\beta}{n^2} \right)}{(1 - q_1)^2} \quad (4.4)$$

We observe that for large n , $\text{var}(\hat{\lambda}) \rightarrow 0$

By using 4.3 and 4.4, we have

$$MSE(\hat{\lambda}) = \frac{\lambda^2}{(1-q_1)^2} \left(\left(q_1 \alpha_{r+1} + \frac{q_2}{2} \alpha_{n-s} + \frac{\alpha}{n} - 1 + q_1 \right)^2 + \left(q_1^2 \beta_{r+1} + \frac{q_2^2}{4} \beta_{n-s} + \frac{\beta}{n^2} \right) \right) \quad (4.5)$$

5. COMPARISON OF TYPE-II CENSORED SAMPLE VERSES COMPLETE SAMPLE

Apply Method of Maximum Likelihood on the equation (1.1) we get

$$\hat{\lambda} = \frac{\sum_{i=1}^n Y_i^\alpha}{n} \quad (5.1)$$

which is the estimator of complete sample.

Apply expectation on the equation (5.1) and by using equation (4.1) we get

$$Bias(\hat{\lambda}) = \lambda \left(\frac{\alpha}{n} - 1 \right) \quad (5.2)$$

$$\text{where } \alpha = \sum_{i=1}^n \sum_{j=1}^i \frac{1}{(n-i+1)}$$

Now from (5.1) by using (4.2), we get

$$\text{var}(\hat{\lambda}) = \lambda^2 \left(\frac{\beta}{n^2} \right) \quad (5.3)$$

$$\text{where } \beta = \sum_{i=1}^n \sum_{j=1}^i \frac{1}{(n-j+1)^2}$$

From the equation (5.2) and (5.3) we get

$$MSE(\hat{\lambda}) = \left(\lambda \left(\frac{\alpha}{n} - 1 \right) \right)^2 + \lambda^2 \left(\frac{\beta}{n^2} \right) \quad (5.4)$$

R=Reduction in efficiency = (Mean Square Error of type-II censored sample / Mean Square Error of complete sample)-1

Which can be obtained from the equation (4.5) and (5.4)..... (5.5)

6. COMPARISON OF TYPE-II CENSORED SAMPLE VERSES COMPLETE SAMPLE

In this section the effects of type-II censored sample has been discussed by using tables. Table (6.1) has been constructed by the equation (3.5), Table (6.2) has been constructed by the equation (4.3), Table (6.3) has been constructed by the equation (4.5) and Table (6.4) has been constructed by the equation (5.5)

Table 6.1:
The asymptotic variance of Modified Maximum Likelihood estimates from doubly type-II censored sample in term of λ^2 for n=10, 20, 30, 50 and 100

q1	q2	n=10	n=20	n=30	n=50	n=100
		$\text{var}(\lambda)/\lambda^2$	$\text{var}(\lambda)/\lambda^2$	$\text{var}(\lambda)/\lambda^2$	$\text{var}(\lambda)/\lambda^2$	$\text{var}(\lambda)/\lambda^2$
0	0.1	0.1755	0.0878	0.0585	0.0351	0.0176
0	0.2	0.3596	0.1798	0.1199	0.0719	0.036
0	0.3	2.5768	1.2884	0.8589	0.5154	0.2577
0.1	0.1	0.147	0.0735	0.049	0.0294	0.0147
0.1	0.2	0.2572	0.1286	0.0857	0.0514	0.0257
0.1	0.3	0.6688	0.3344	0.2229	0.1338	0.0669
0.2	0.1	0.1225	0.0613	0.0408	0.0245	0.0123
0.2	0.2	0.1907	0.0953	0.0636	0.0381	0.0191
0.2	0.3	0.3508	0.1754	0.1169	0.0702	0.0351
0.2	0.4	1.2536	0.6268	0.4179	0.2507	0.1254
0.3	0.1	0.1017	0.0509	0.0339	0.0203	0.0102
0.3	0.2	0.1446	0.0723	0.0482	0.0289	0.0145
0.3	0.3	0.2212	0.1106	0.0737	0.0442	0.0221
0.3	0.4	0.4051	0.2026	0.135	0.081	0.0405
0.3	0.5	1.4975	0.7488	0.4992	0.2995	0.1498
0.4	0.1	0.0839	0.042	0.028	0.0168	0.0084
0.4	0.2	0.1111	0.0556	0.037	0.0222	0.0111
0.4	0.3	0.1514	0.0757	0.0505	0.0303	0.0151
0.4	0.4	0.2197	0.1099	0.0732	0.0439	0.022

Table 6.2:
Bias of Modified Maximum Likelihood estimates from doubly type-II censored sample in term of λ for n=10, 20, 30, 50 and 100

q1	q2	n=10	n=20	n=30	n=50	n=100
		$\text{Bias}(\lambda)/\lambda$	$\text{Bias}(\lambda)/\lambda$	$\text{Bias}(\lambda)/\lambda$	$\text{Bias}(\lambda)/\lambda$	$\text{Bias}(\lambda)/\lambda$
0.1	0.1	-0.0948	-0.1074	-0.1121	-0.1159	-0.1189
0.1	0.2	-0.2575	-0.2703	-0.2747	-0.2784	-0.2812
0.1	0.3	-0.3925	-0.4044	-0.4085	-0.4119	-0.4144
0.1	0.4	-0.5089	-0.5198	-0.5235	-0.5265	-0.5287
0.1	0.5	-0.6114	-0.6211	-0.6244	-0.627	-0.629
0.1	0.6	-0.7029	-0.7113	-0.7141	-0.7164	-0.7181
0.1	0.7	-0.785	-0.7922	-0.7946	-0.7965	-0.798
0.2	0.2	-0.1335	-0.1524	-0.1589	-0.1642	-0.1682
0.2	0.3	-0.2853	-0.3033	-0.3094	-0.3144	-0.3181
0.2	0.4	-0.4163	-0.4331	-0.4387	-0.4433	-0.4467
0.2	0.5	-0.5316	-0.5471	-0.5523	-0.5564	-0.5596
0.2	0.6	-0.6345	-0.6486	-0.6533	-0.657	-0.6598
0.3	0.3	-0.122	-0.1494	-0.1586	-0.1659	-0.1715
0.3	0.4	-0.2717	-0.2977	-0.3063	-0.3133	-0.3185
0.3	0.5	-0.4035	-0.428	-0.4361	-0.4426	-0.4475
0.4	0.4	-0.0392	-0.0802	-0.0938	-0.1046	-0.1127

Table 6.3:
The Mean Square Error of Modified Maximum Likelihood estimates from
doubly type-II censored sample in term of λ^2 for n=10, 20, 30, 50 and 100

q1	q2	n=10	n=20	n=30	n=50	n=100
		MSE (λ)/ λ^2	MSE (λ)/ λ^2	MSE (λ)/ λ^2	MSE (λ)/ λ^2	MSE (λ)/ λ^2
0.1	0.1	0.0279	0.017	0.0153	0.0147	0.0146
0.1	0.2	0.0804	0.0778	0.0781	0.0789	0.0796
0.1	0.3	0.166	0.1681	0.1697	0.1711	0.1724
0.1	0.4	0.2696	0.2746	0.2768	0.2788	0.2803
0.1	0.5	0.3833	0.3901	0.3926	0.3948	0.3965
0.1	0.6	0.5022	0.5099	0.5126	0.5148	0.5165
0.1	0.7	0.623	0.6309	0.6336	0.6358	0.6374
0.2	0.2	0.0373	0.03	0.0291	0.029	0.0292
0.2	0.3	0.0982	0.0986	0.0997	0.101	0.1022
0.2	0.4	0.1884	0.194	0.1966	0.1988	0.2007
0.2	0.5	0.2963	0.3055	0.309	0.312	0.3143
0.2	0.6	0.4146	0.4264	0.4305	0.4339	0.4365
0.3	0.3	0.0436	0.0341	0.0324	0.0316	0.0314
0.3	0.4	0.1003	0.1002	0.0324	0.1024	0.1035
0.3	0.5	0.1875	0.1944	0.1975	0.2002	0.2023
0.4	0.4	0.0597	0.0325	0.0255	0.0206	0.0174

Tables 6.4:
For Comparison of type-II censored as Compared to Complete sample
for n=10, 20, 30, 50 and 100

q1	q2	n=10	n=20	n=30	n=50	n=100
		R(λ)	R(λ)	R(λ)	R(λ)	R(λ)
0.1	0.1	0.1645	1.0841	2.624	7.2992	27.2521
0.1	0.2	1.6833	7.5991	16.5587	42.7768	152.5012
0.1	0.3	4.5614	17.6086	37.1435	94.0291	331.3256
0.1	0.4	8.1105	29.4608	61.3015	153.8454	539.352
0.1	0.5	12.0183	42.315	87.4072	218.3292	763.2699
0.1	0.6	16.1035	55.6531	114.444	285.0237	994.6581
0.1	0.7	20.2476	69.1257	141.7213	352.2542	1227.8
0.2	0.2	0.1882	2.2671	5.4988	15.045	55.2167
0.2	0.3	2.2183	9.8521	21.3734	55.0556	195.9694
0.2	0.4	5.3171	20.4797	43.2022	109.4168	385.8037
0.2	0.5	9.0353	32.9054	68.5621	172.2977	604.7662
0.2	0.6	13.1103	46.3666	95.9506	240.059	840.3684
0.3	0.3	0.3168	2.6489	6.1787	16.4684	59.3548
0.3	0.4	2.2883	10.0317	21.7068	55.8176	198.457
0.3	0.5	5.3142	20.55	43.4291	110.1686	388.964
0.4	0.4	0.881	2.4823	4.6287	10.3716	32.5198

7. DISCUSSION AND CONCLUSION

1. From table (6.1) the conclusions are given as:
 - As the sample size increases, the variances are decrease with the same proportion of left and right type-II censored sample.
 - Variance of scale parameter also depends on total proportion of type-II censored sample as the total proportion of type-II censored sample increase variance also increase
2. From table (6.2) the conclusions are given as:
 - As the sample size increases, bias tends to decrease with same proportion of left and right type-II censored sample.
 - As the total proportion of type-II censored sample increases, the bias also decreases.
3. From table (6.3) the conclusions are given as:
 - As the sample size increases Mean Square Error also increases.
 - Mean Square Error also depend on total proportion of type-II censored sample as the proportion increases Mean Square Error also increases.
4. Comparison of results of table (6.1) and table (6.3)
The results of both tables (6.1) and table (6.3) given the variation of estimator. Comparing both tables the following conclusions are made.
 - The asymptotic variance can be estimated for $q_1 = 0$, but the Mean square error cannot assume $q_1 = 0$
 - Mean square error is minimum as the asymptotic variances.
5. From table (6.4), the Reduction in efficiency has been calculated following conclusion is made
 - As the sample size increases the efficiency is also increases.
 - As the total proportion of type-II censored sample increases the efficiency is also increases.

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QUANTILE ANALYSIS OF THE GENERALIZED EXPONENTIAL DISTRIBUTION

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ABSTRACT

This paper presents the Quantile analysis of the Generalized Exponential distribution also the properties of Quantile analysis as the percentile life used B-life in engineering terminology. The main interests are in the relationship between β and various B-lives; measure of variability for B-lives as the numerical quantities that describe the spread of the values in a set of data. Here these quantiles models presented graphically and mathematically.

KEY WORDS

Generalized Exponential distribution, Quantile analysis, percentile life.

1. INTRODUCTION

The Generalized Exponential distribution is one of the most widely used probability distributions in the reliability engineering discipline. The Generalized Exponential distribution has since become a standard in reliability for modeling time-dependent failure data. This paper focuses to present the Quantile analysis as the percentile life used B-life in engineering terminology. The Generalized Exponential Probability distribution is very useful life time model for checking the failure components. The Generalized Exponential distribution is very flexible that approaches to different distributions. It is the Generalization of the Exponential distribution and is very useful in reliability theory. The Generalization Exponential distribution is applicable when in life testing item consists of many parts, and each part has the same failure time distribution, and the item falls when the weakest part fails, then the Generalized Exponential distribution be an acceptable model of that failure mode (Gupta, Kundu; 1999, 2001, 2003).

2. GENERALIZED EXPONENTIAL MODEL ANALYSIS

The Generalized Exponential probability distribution has three parameters η, β and t_0 . It can be used to represent the failure probability density function (PDF) is given by:

$$f_{GEP}(t) = \frac{\beta}{\eta} \left[1 - \text{Exp} \left[- \left(\frac{t-t_0}{\eta} \right) \right] \right]^{\beta-1} \text{Exp} \left[- \left(\frac{t-t_0}{\eta} \right) \right], \eta > 0, \beta > 0, t_0 > 0, -\infty < t_0 < t$$

(2.1)

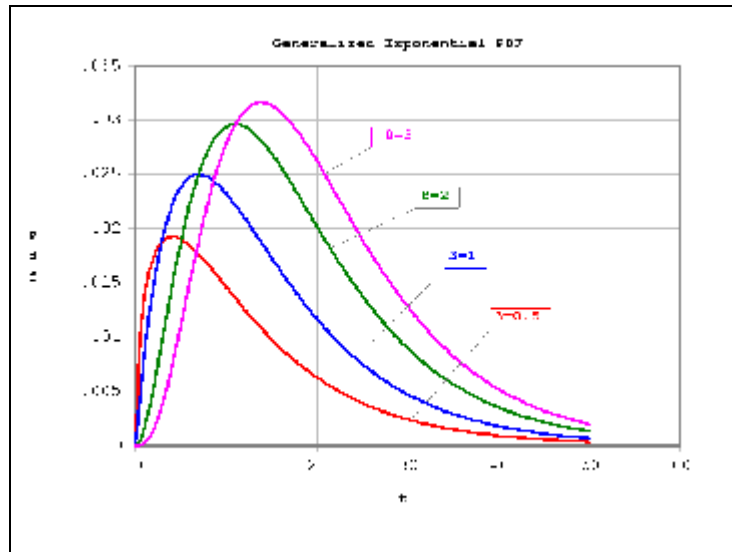


Fig 2.1 The Generalized Exponential PDF

where β is the shape parameter representing the different pattern of the Generalized Exponential PDF and is positive and η is a scale parameter representing the characteristic life at which $(63.2)^\beta\%$ of the population can be expected to have failed and is also positive, t_0 is a location parameter also called a guarantee time, failure-free time or minimum life. If $t_0 = 0$ then the Generalized Exponential distribution is said to be two-parameter Generalized Exponential distribution. It is important to note that the restrictions in (2.1) on the values of t_0, η, β are always the same for the Generalized Exponential distribution. Fig. 2.1 shows the diverse shape of the Generalized Exponential PDF with $t_0 = 0$ and value of $\eta = 10$ and $\beta = (0.5, 1, 2, 3)$.

3. QUANTILE ANALYSIS

One of the important properties of the Generalized Exponential distribution is the percentile life or B-life in engineering terminology is defined as

$$t_p = t_0 + \eta \ln \left(\frac{1}{1 - p^{\frac{1}{\beta}}} \right) \quad (3.1)$$

$F_{GEP}(t_{0.01}) = 0.01$ mean this is the life at which the unit will have a failure probability of 1%. Fig. 3.1 shows the relationship between β and various values of B-lives (B-0.0001, B-0.001, B-0.01, B-0.1, B-0.2 and B-0.3 lives) for $\eta = 1000$. It is clear that the larger the value of β , the longer the B-lives for the same value of η . For the case of $\eta = 1000$, all

the lives, B-0.0001 to B-0.01, are effectively zero for $\beta \leq 0.3$. Fig. 3.1 shows the relationship between $\beta = 0(0.1)10$ and B-lives (B-0.0001, B-0.001, B-0.01, B-0.1, B-0.2 and B-0.3 lives) when $\eta = 1000$. It is interesting to note that the values of B-0.0001, B-0.001, B-0.01 lives for each cycle differ approximately by factors of 10 when $\beta = 1$.

Here, we conclude that the values between B-lives for each 10 cycles can be approximately determined, when β is the integer. We have also shown the relationship between β and various B-lives (B-0.0001, B-0.001, B-0.01, B-0.1, B-0.2 and B-0.3 lives) for $\eta = 1000$. These B-lives B-0.1, B-0.2 and B-0.3 lives are used for censored data. For B-10 life mean this is the life for which the unit will have a failure probability of 10%.

For B-25 life mean this is the life for which the unit will have a failure probability of 25%, For B-50 life mean this is the life for which the unit will have a failure probability of 50%, For B-75 life mean this is the life for which the unit will have a failure probability of 75%. It is clear that the larger the value of β , the longer the B-lives (B-10, B-25, B-50 and B-75 lives) for the same value of η . For these cases of $\eta = 1000$ all the lives (B-10, B-25, B-50 and B-75 lives) are effectively used in manufacturing technology.

The first Quartile life (25^{th} percentile) of the Generalized Exponential distribution is defined as

$$B_{25GEP} = t_0 + \eta \ln \left(\frac{1}{1 - \left(\frac{1}{4}\right)^{\frac{1}{\beta}}} \right) \quad (3.2)$$

Quartiles are the values in the order statistics that divide the data into four equal parts. This is the life by which 25% of the units will be expected to have failed, so it is the life at which 75% of the units would be expected to still survive. We obtain the minimum value of lower quartile life is 0.000954 for $\beta=0.1$ and the maximum value of lower quartile life is 2044.465 for $\beta=10$. The relationship between β and B-25 life for $\eta = 1000$ is shown in Fig. 3.2. Here we note that as $\beta \rightarrow \infty$ then B-25 life has a maximum value asymptotically. Hence β and B-25 life have a positive proportion when $\beta > 0.1$.

The second Quartile life (50^{th} percentile) of the Generalized Exponential distribution is defined as

$$B_{50GEP} = t_0 + \eta \ln \left(\frac{1}{1 - \left(\frac{1}{2}\right)^{\frac{1}{\beta}}} \right) \quad (3.3)$$

This is the life by which 50% of the units will be expected to have failed, and so it is the life at which 50% of the units would be expected to still survive. We obtain the minimum value of median life is 0.97704 for $\beta=0.1$ and the maximum value of median life is 2703.555 for $\beta=10$. The relationship between β and B-50 life for $\eta = 1000$ is shown in Fig. 3.3. Here we note that as $\beta \rightarrow \infty$ then B-50 life has a maximum value asymptotically. Hence β and B-50 life have a positive proportion when $\beta > 0.1$.

The upper Quartile life (75th percentile) of the Generalized Exponential distribution is defined as

$$B_{75GEP} = t_0 + \eta \left(\frac{1}{1 - \left(\frac{3}{4}\right)^{\frac{1}{\beta}}} \right) \quad (3.4)$$

This is the life by which 75% of the units will be expected to have failed, and so it is the life at which 25% of the units would be expected to still survive. We obtain the minimum value of upper quartile life is 57.96128 for $\beta=0.1$ and the maximum value of upper quartile life is 3562.834 for $\beta=10$. The relationship between β and B-75 life for $\eta = 1000$ is shown in Fig. 3.4. Here we note that as $\beta \rightarrow \infty$ then B-75 life has a maximum value asymptotically. Hence β and B-75 life have a positive proportion when $\beta > 0.1$.

4. MEASURES OF VARIABILITY FOR B-LIVES

A measure of variability for B-lives is the numerical quantity (as percentile life) that describes the spread of the values in a set of data. For the percentile life the measure of variability is Quartile deviation ($Q.D_{GEP}$). For B-10 life mean this is the life for which the unit will have a failure probability of 10%, Here the relationship between β and various B-lives (B-10, B-25, B-50, B-75 and B-90 lives) for $\eta = 1000$. For B-25 life mean this is the life for which the unit will have a failure probability of 25%. For B-50 life mean this is the life for which the unit will have a failure probability of 50%. For B-75 life mean this is the life for which the unit will have a failure probability of 75%. For B-90 life mean this is the life for which the unit will have a failure probability of 90%. It is clear that larger the value of β , the longer the (B-10, B-25, B-50, B-75 and B-90) lives for the same value of η .

The Quartile Deviation ($Q.D_{GEP}$) life of the Generalized Exponential distribution is defined as

$$Q.D_{GEP} = \frac{B_{75GEP} - B_{25GEP}}{2} \quad (4.1)$$

$Q.D_{GEP}$ is the measure that has positive or zero values. The minimum value of the $Q.D_{GEP}$ shows that a small amount of variability in the set of data, whereas the large values indicate the more variability in the life time data, we obtain the minimum value 28.98016 for $\beta=0.1$ and obtain the minimum value of quartile deviation life is 759.1846 for $\beta=10$. The relationship between β and $Q.D_{GEP}$ life for $\eta = 1000$ is shown in Fig. 4.1. We see that larger the value of β the larger the value of $Q.D_{GEP}$.

The Coefficient of $Q.D_{GEP}$ life of the Generalized Exponential distribution is defined as

$$\text{Coeff. Of } Q.D_{GEP} = \frac{B_{75GEP} - B_{25GEP}}{B_{75GEP} + B_{25GEP}} \quad (4.2)$$

The Coeff. Of $Q.D_{GEP}$ is the measure that used to compare the variability of two or more set of life time data. It will take the same value for two or more populations if in each population; the standard deviation is directly proportional to the mean. In these situations, we say that two or more populations are consistent.

We obtain coeff. Of $Q.D_{GEP}=1$ for $\beta=0.1$ and obtain the minimum value of coeff. Of $Q.D_{GEP}$ life is 0.270784 for $\beta=10$. The relationship between β and Coeff. Of $Q.D_{GEP}$ life for $\eta = 1000$ is shown in Fig. 4.2. We see that larger the value of β the smaller the value of coeff. of $Q.D_{GEP}$.

The coefficient of skewness (SK_{GEP}) is defined as

$$SK_{GEP} = \frac{B_{25GEP} + B_{75GEP} - 2B_{50GEP}}{B_{75GEP} - B_{25GEP}} \quad (4.3)$$

It is a pure number and lies between -1 and +1. For symmetrical distribution its value is zero. SK_{GEP} is the quantity used to measure the skewness of the distribution. If $SK_{GEP} < 0$, then the distribution is skewed to the left (Mean < Median < Mode); if $SK_{GEP} = 0$, then the distribution is symmetrical (Mean = Median = Mode) as in the Normal distribution, and if $SK_{GEP} > 0$, then the distribution is skewed to the right (Mean > Median > Mode). The relationship between β and SK_{GEP} is shown in Fig. 4.3.

The Percentile coefficient of kurtosis (K_{GEP}) is defined as

$$K_{GEP} = \frac{Q.D_{GEP}}{B_{90GEP} - B_{10GEP}} \quad (4.4)$$

K_{GEP} is the quantity, which can be used to measure the kurtosis or peaked ness of the symmetrical distribution. If $K_{GEP} = 3$ represent the peaked ness of the Normal distribution for the percentile coefficient of kurtosis. When $K_{GEP} > 3$ the Generalized Exponential PDF shape is more peaked than a Normal PDF shape for the percentile coefficient of kurtosis. If $K_{GEP} < 3$, then the Generalized Exponential PDF shape is flatter

than the Normal PDF for the percentile coefficient of kurtosis. The relationship between β and K_{GEP} is shown in Fig.4.4. Here we note that as $\beta \rightarrow \infty$ then K_{GEP} has a maximum value asymptotically. Hence β and K_{GEP} have a positive proportion when $\beta > 0.1$.

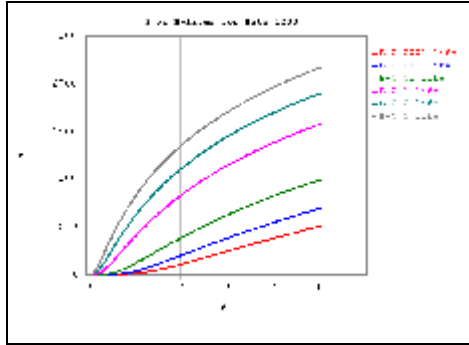


Fig. 3.1 β vs B-lives for $\eta = 1000$

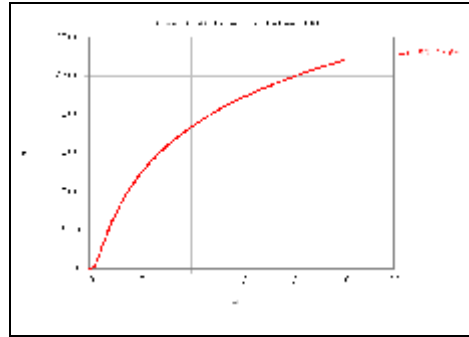


Fig. 3.2 β vs B-25 life for $\eta = 1000$

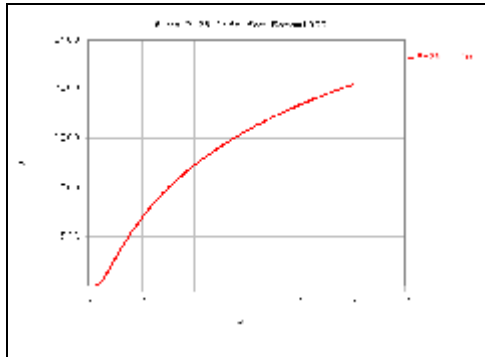


Fig. 3.3 β vs B-50 life for $\eta = 1000$

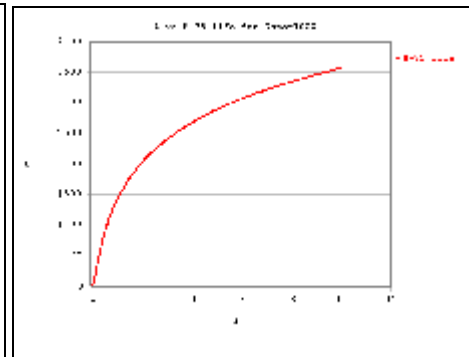


Fig. 3.4 β vs B-75 life for $\eta = 1000$

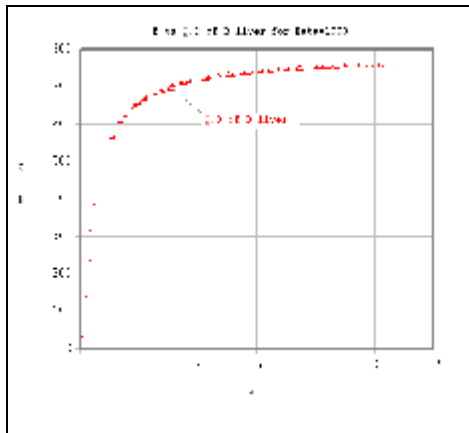


Fig. 4.1 β vs $Q.D_{GEP}$

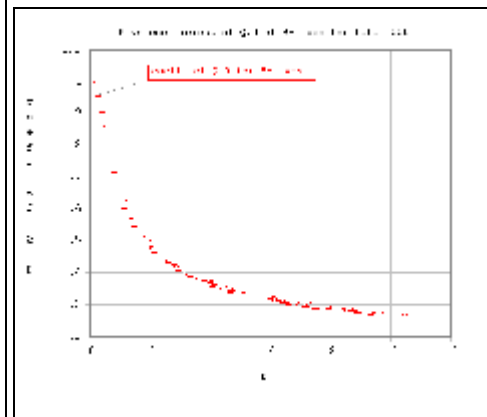
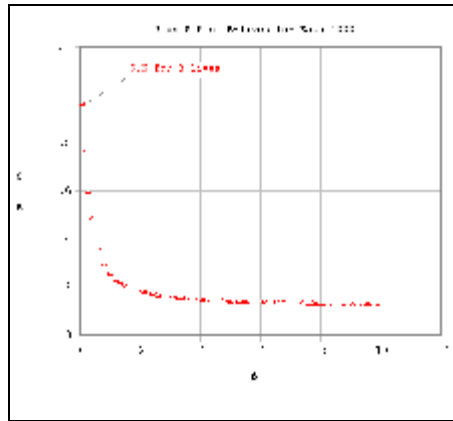
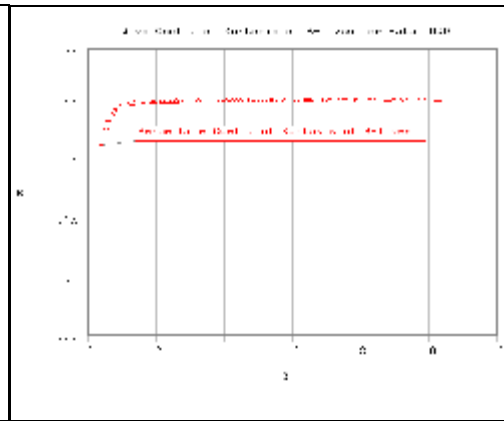


Fig. 4.2 β Vs. Coeff. Of $Q.D_{GEP}$

Fig. 4.3. β vs SK_{GEP} Fig. 4.4 β vs K_{GEP}

5. SUMMARY AND CONCLUSIONS

This paper concludes that the Generalized Exponential distribution is the generalization of the exponential distribution. From the quantile comprehensive study of the Generalized Exponential quantile modeling is predicted for finding the life time of the electrical and mechanical components. These properties of the Generalized Exponential distribution for Quantile analysis are used as B-life in engineering terminology. These patterns of β and various B-lives are helpful for finding the life of components. In this paper we also presented measure of variability for B-lives as the numerical quantities that describe the spread of the values in a set of data. Here we simulate these quantiles models graphically and mathematically presented.

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**ON THE ROLE OF VALID DATA REPORTING SYSTEMS IN PUBLIC
SECTOR HR CAREER MANAGEMENT IN DEVELOPING COUNTRIES**

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ABSTRACT

Data has the pivot value in decision making in any business activity like banking, industry, agriculture, health, crimes, techno-utilities and / or environment for achieving set targets in public as well as private sector organization(s). This data management is essentially required for decision making at each managerial level. The data creditability on performance indicators of HR in Public Sector becomes more imperative as functioning of Public Sector organizations is based on set procedures and rules and compatible decisions are required to be taken. This requirement of reliable and valid data at implementation / monitoring level becomes more critical.

An attempt has been made in this paper to identify the problems faced with respect to access to valid information as per requirements of HRM activity in Public Sector Organizations and measures for developing quality data bases (or data powers) in public sector organizations leading to good governance in the developing countries have been suggested.

KEY WORDS

Human Resource Management (HRM), Career Management (CM), Monitoring & Control, data power, motivation, threshold scores

1. INTRODUCTION

- 1.1 Data is the basis for logical decision making in all spheres of life from “**policy planning**” to “**monitoring and control**”, may it be production, industry, agriculture, education, health, and environment or personnel performance appraisal systems.
- 1.2 Correct and reliable information is pivot for unbiased decision making by the management for achieving set targets in the organization (technical or non-technical) in public / private sectors.
- 1.3 No doubt, National Statistical Organizations (NSOs) have been established in almost all developing countries for collection of data, as per individual country requirements covering a wide variety of data on social, economic, industrial and demographic aspects of a country but without proper programmed responsibility and not as per one standardized format. Similar is the case in data reporting within the organizations with regard to HRM.
- 1.4 The requirement of reliable and valid data in HRM and specially career management

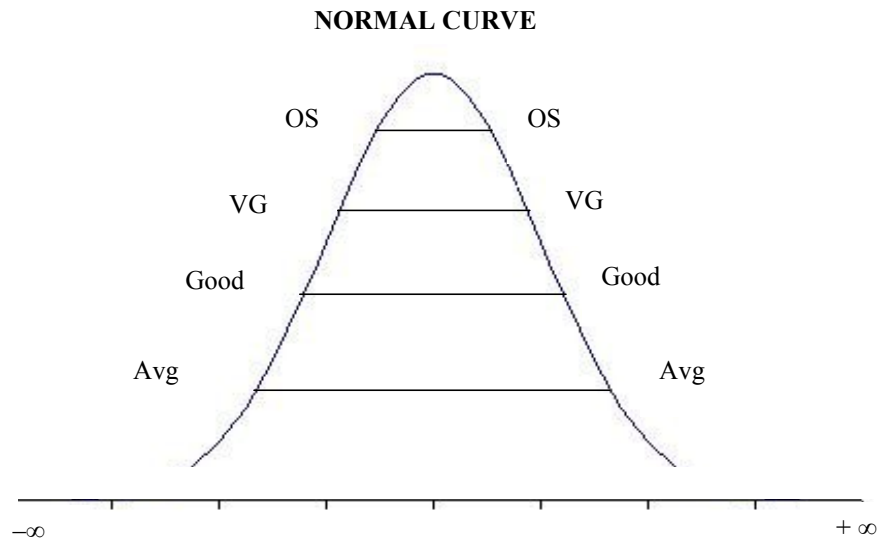
of personnel in any organization (technical or otherwise) becomes more critical when positioning of officers for higher responsibilities is to be made and judged from different angles (competency, controlling function and integrity etc.).

- 1.5 In the age of Information Technology (IT), HR Career Management is now shaping into online activity, so chances of data audit in such selection proceedings are remote. This further necessitates quality data input.

2. ANALYTICAL DISCUSSION

- 2.1 Career Management of personnel, an essential part of HRM, generally involves recruitment and selection of the personnel, their training and development and right placements as per set rules and procedures besides job satisfaction / motivation in the form of bonuses, accelerated promotions to higher ranks and time scale upgradations etc. Especially succession planning of officers for key positioning with high profile personnel, requires valid data base.
- 2.2 Why certain organizations fail to integrate their HR policies within their strategic agenda which eventually leads to several HR related problems such as inability to attract, develop and effectively utilize the talent [2]. HR Career Management is based on performance indicators of the potential personnel e.g. for promotions to higher rank, the Selection Boards recommend personnel on the basis of evaluation reports / assessments and other personality traits. Specific benchmark threshold score (pointed figure) is laid down for comparison and selection of best amongst the better. This is possible if data are valid and correct. Likewise recommending a person on training (off-job or off-cum-on job) local or foreign, the performance of potential candidate (work, conduct, integrity etc) is the benchmark.
- 2.3 Quality of administrative or official statistics used for HR career management in public sector organizations in the developing countries is questionable. The following are the general observations with respect to miss-reporting of data:-
- a) Identification data input formats not customized to the targetted responsibility e.g ACRs reporting forms are same for all cadre employees. Personnel are not rated in accordance with level / nature of job assignments but treating all the jobs equally.
 - b) Performance evaluation documents like Annual Confidential Reports (ACRs) are not written as per given time schedule but with years time lag (from 2 to 5 years say) which may involve human memory error at the time of writing such ACRs.
 - c) The integrity of the reporting officers is sometimes itself challengeable (say in writing of ACR, the officer is over / under estimated) and this leads to biased calculations of bench marks (say threshold scores).
 - d) Writing duplicate ACRs by the same officer even when its 1st script is available, resultantly leading to corrupt merit culture in an organization.
 - e) Assessment weightage is given only to one senior reporting officer and not to all reporting officers.

- f) Sometimes the reporting officers do not know how to measure and rate personality traits of subordinates (integrity work or moral assessment). Even the reported data is manipulated by the evaluators.
- g) Performance ratings of employees (Outstanding, Very Good, Good, Average etc.) HR of an organization (flat or pyramid) generally follow “Normal Curve” pattern but in developing countries such reported data reflect that performance indicators are bracketed to a maximum of upper performance levels.



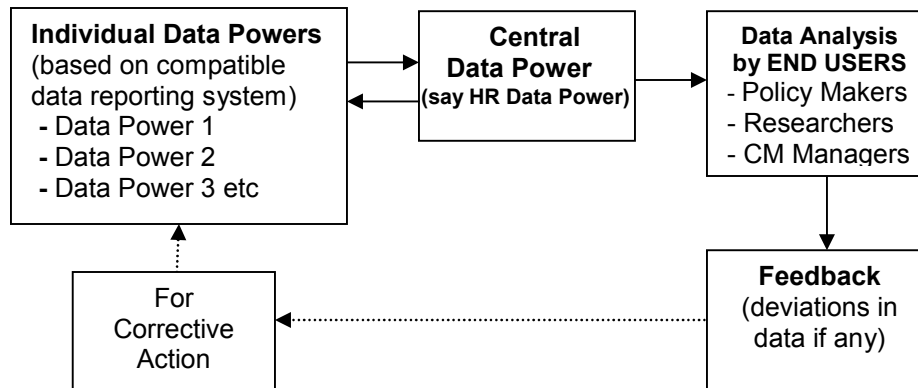
- 2.4 The career management activity thus carried out on the basis of such data (with reporting errors) may not be transparent and lead to biased decision making resulting in wrong selections, promotions, placements, trainings etc. of the personnel.
- 2.5 The decisions in public sector organizations are generally taken by the non-statisticians, so if data bases are not valid, decision making could be biased.

3. DATA QUALITY IMPROVEMENT

- 3.1 The above discussion boils down to the fact that for unbiased decision making and merit and just culture spread over an organization, valid data reporting systems are must. How this end can be achieved? The quality of data on performance indicators could be improved provided:-
- a) Data benchmarks are well defined; data is filtered through use of statistical techniques both in case of primary as well as secondary data. Data input formats are customized and standardized.

- b) Performance assessment indicators could be correct and valid, if reporting officers (line managers) are groomed for assessment of personnel in terms of completion of targets (MBO technique).
- c) Proper data bases / data powers with valid capacity building are developed in the organizations with technical assessors.
- d) Capacity building with respect to valid data collection, compilation, dissemination and data updation by the line managers (say data power 1, data power 2 by line manager 1 and line manager 2 etc) as well as at central level will have to be customized. This will be checked by instrumentation support (e.g. IT involvement) for data analysts. Data reporting system can be viewed in the following proposed data power model:-

PROPOSED VALID DATA POWER MODEL



4. RECOMMENDATIONS

- 4.1 The following recommendations are made for evolving valid data capacity building in the organizations for sound decision making and merit based HRM. This will lead to good governance in the developing countries.
 - a) Data reporting input / formats or HR performance indicators be customized and standardized for correct and valid data input.
 - b) Valid Data Powers based on compatible data inputs, data quality as per MBO technique and as per targetted time schedule be developed in the Public Sector organizations.
 - c) Training of performance appraisers (HR managers) be managed at the start of career of young officers as this will affect the future career management of the officers. They should also be trained in basic statistics for better interpretation of HR data profiles in the form of refresher courses / seminars / workshops, etc.

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**FOOD PRICES AND MONEY SUPPLY:
A CAUSALITY ANALYSIS FOR PAKISTAN ECONOMY**

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ABSTRACT

The present research attempts to investigate the direction of causality between the food prices and money supply in Pakistan, using ARDL causality test. Empirical results show unidirectional causality from money supply to food prices in Pakistan. Hence the money supply is not neutral in determining food prices. Therefore it recommended that in Pakistan monetary policy instrument could use to control inflation in general and food inflation in particular case.

KEY WORDS

Food Prices, Money Supply, ARDL.

1. INTRODUCTION

Distortions in food prices have great impact on the consumers' and farmers living standard. Recently Pakistan has face strong upward pressure on food prices. Conventional agricultural economics examine that the food consumption and prices are determine by the interaction of supply and demand forces. In the short run, supply is relatively fixed and inflexible, and prices adjust so product clear the market. When supply more than demand, prices goes down and consumers buy more. Conversely, smaller supply of food than prices will be higher and smaller purchases. In the long run, framers adjust production in response to market prices, producing more of higher priced goods and less of lower priced goods. Demand of food in the aggregate is not very responsive to price changes because there is little room for substitution between food and nonfood goods in the consumer's budget. However, demand for individual foods in more responsive to prices as consumers substitute among alternative food commodities. But on the other hand the least studies on the agricultural economics examines that the macroeconomics, particularly monetary factors effect on the agricultural prices Tween (1980) found that the monetary shocks little effect on the agricultural prices. David A. Bessler (1982) empirically finds out that causality from money supply to agricultural prices in Brazilian data. Devadoss and Meyers (1987) support the hypothesis that agricultural prices faster response than manufacturing product prices to a change in money supply in the U.S.A. Saghaian, Reed and Marchant (2002) empirically prove that the in the long-run money neutrality does not hold in the determination of agricultural prices in U.S.A. Xuehua peng et al. (2004) investigate that the monetary variables impacts on the food prices in China.

Most of the related empirical research was conducted on the well developed market economies regarding macroeconomic variables impact on the agricultural prices. Compared with these markets, Pakistan's agricultural commodity markets not well developed. But due to the financial reforms in Pakistan, it is anticipated that the monetary policy play a more vigorous role in affecting food prices in Pakistan. Hence, it is important to validate the monetary impacts on food prices in Pakistan through quantitative method so that the food prices changes can be better understand.

The objective of this paper is to investigate the impact of monetary expansion on the food prices in Pakistan by using the annual time series data for the period 1971-2007. For econometrics analysis this study utilize the Autoregressive Distributed Lag (ARDL) based causality test to determine the causal relationship between the monetary expansion and food prices in Pakistan. The sketch of the remaining paper as follows. Section 2 will discuss the empirical data used and econometric methodology. Section 3 presents the result and the final section concludes this study.

2. DATA AND METHODOLOGY

The present study uses the annual time series data by 1971 to 2007. The data is taken from the various issue of Pakistan economic survey. Both variables, Money supply (M2) measures in million of rupees and Food prices in index form (Food whole sale price index, 2000=100). Both Money supply (MS) and Food prices (FP) are transformed into natural logarithms prior to econometric analysis. Because Ehrlich (1977) and Layson (1983) argue on theoretical and empirical grounds that the log-linear form is superior to the linear form. Both Cameron (1994) and Ehrlich (1996) suggest that a log-linear form is more likely as compare to the linear form.

Table 2.1
Descriptive Statistic and Correlation Matrix

Descriptive Statistic		
	Ln(FP)	Ln(MS)
Mean	3.91	12.47
Median	3.87	12.50
Maximum	4.89	14.95
Minimum	2.42	9.94
Std. Dev.	0.63	1.51
Skewness	-0.41	-0.06
Kurtosis	2.60	1.81
Correlation Matrix		
Ln(FP)	1	0.96
Ln(MS)	0.96	1

ECONOMETRIC METHODOLOGY

This pioneer study adopts a three-stage procedure to test the direction of causality between the variables under consideration. In the first stage, the order of integration of the variables is established by implementing the Phillips and Perron (1988) unit root test.

The second step, we evaluate the question of Causal relationship between the money supply (MS) and food prices (FP) using the newly developed bound testing approach auto-regressive distributed lag (ARDL) based long-run causality test (Pesaran and Shin, 1999; Pesaran et al., 2001). This method has certain econometric advantages in comparison to other single co-integration producers. Firstly, endogeneity problems and inability to test hypotheses on the estimated coefficients in the long-run associated simultaneously. Secondly, it is apply ir-respective the variables included in the model are purely $I(0), I(1)$ or mutually cointegrated. Thirdly, a dynamic error correction model can be deriving through a simple linear transformation. Fourthly, all variables are assumed to be endogenous.

$$\begin{aligned} \Delta \ln(FP)_t = & \lambda_0 + \sum_{i=0}^n \lambda_i \Delta \ln(FP)_{t-i} + \sum_{i=0}^n \lambda_i \Delta \ln(MS)_{t-i} \\ & + \alpha_1 \ln(FP)_{t-1} + \alpha_2 \ln(MS)_{t-1} + v_{3t} \end{aligned} \quad (1)$$

$$\begin{aligned} \Delta \ln(MS)_t = & \gamma_0 + \sum_{i=0}^n \lambda_i \Delta \ln(MS)_{t-i} + \sum_{i=0}^n \gamma_i \Delta \ln(FP)_{t-i} \\ & + \beta_1 \ln(MS)_{t-1} + \beta_2 \ln(FP)_{t-1} + v_{3t} \end{aligned} \quad (2)$$

The F-tests are used for testing the existence of long-run relationships. The Pesaran et al. approach compute two sets of critical values for a given significance level. One set assumes that all variables are $I(0)$ and the other set assumes they are all $I(1)$. If the computed F-statistic exceeds the upper critical bounds value, then the H_0 (null hypothesis) is rejected. If the F-statistic falls into the bounds, then the test becomes inconclusive. Lastly, if the F-statistic is below the lower critical bounds value, it implies no co-integration. When long-run relationship exists, the F-test indicates which variable should be normalized. The null hypothesis of equation (1) is $\langle H_0 = \alpha_1 = \alpha_2 = 0 \rangle$. This is denoted as $F_{FP} \langle FP | MS \rangle$. In equation (2), the null hypothesis is $\langle H_0 = \beta_1 = \beta_2 = 0 \rangle$ this is represented by $F_{MS} \langle MS | FP \rangle$.

The third stage includes forming standard Granger-type causality tests augmented with a lagged error-correction term. The Granger representation theorem suggests that there will be Granger causality in at least one direction if there exist a co-integration relationship among the variables in equations (1) & (2), providing that they are integrated order of one. Engle-Granger (1987) caution that the Granger causality test, which is conducted in first difference via a vector autoregressive (VAR), it will be misleading in the presence of co-integration. Therefore, inclusion of an additional variable to the VAR system, such as the error-correction term, would help us to capture the long-run relationship. To this end, an augmented form of Granger causality test involving the error-correction term is formulated in a multivariate p th order vector error-correction model (VECM), as follows:

$$\begin{bmatrix} \Delta \ln(FP)_t \\ \Delta \ln(MS)_t \end{bmatrix} = \begin{bmatrix} \Gamma_1 \\ \Gamma_2 \end{bmatrix} + \sum_{i=1}^p \begin{bmatrix} n_{11i} & n_{12i} \\ n_{21i} & n_{22i} \end{bmatrix} \begin{bmatrix} \Delta \ln(FP)_{t-i} \\ \Delta \ln(MS)_{t-i} \end{bmatrix} + \begin{bmatrix} \Omega_1 \\ \Omega_2 \end{bmatrix} [EC_{t-1}] + \begin{bmatrix} \psi_1 \\ \psi_2 \end{bmatrix} \quad (3)$$

ECT-1 is the error correction term, which is derived from the long-run relationship. The Granger causality test may be applied to equation (3) as follows: i) by checking statistical significance of the lagged differences of the variables for each vector; this is a measure of short-run causality; and ii) by examining statistical significance of the error-correction term for the vector that there exists a long-run relationship.

3. EMPIRICAL RESULT

Before testing of co-integration, we conducted a test of order of integration for each variable using Phillip Perron (P-P). Even though the ARDL model does not require pre-testing to be done, the unit root test could convince us whether or not the ARDL model should be used. The result in Table 3.1 shows that all variables I (1) and therefore, the ARDL testing could be proceeded.

Table 3.1
Unit Root Test

Variable	P-P test statistic	
	Level	First difference
Ln(FP)	-3.018	-4.66*
Ln(MS)	-2.93	-4.82*

*: Significant at 1% level

The next step is to estimating the long-run relationship among the variables. The optimal numbers of lags selected by using the Schwarz-Bayesian criteria (SBC). The lag length that minimizes SBC is one. The calculated F-Statistic for the co-integration test is reported in Table 3.2. The critical value is reported together in the same table which based on critical values suggested by the Narayan (2004) using small sample size between 30 and 80. The calculated F-statistic is higher than the upper bound critical value at 5 per cent level of significance when the Food prices (FP) is dependent variable. This that the null hypothesis of no co-integration cannot be accepted at 5% and 10% level and therefore, there is a co-integration relationship among the variables. At the bottom of Table 3.2, the estimate of co-integrated equation shows a positive elasticity (equal to 0.34) of food prices with respect to money supply.

Table 3.2
ARDL Co-integration Test

Dependent Variable	F-Statistic ¹
Ln(FP)	6.91*
Ln(MS)	0.63
Long run elasticity (Co-integrated equation).	
Ln(FP) = -0.11 + 0.34 Ln(MS)	
t-ratio	(-0.22) (7.83)

*: 5% Significance level.

¹ The critical value ranges of F-statistics are 3.96 – 4.53 and 3.21 – 3.74 at 5% and 10% level of significances, respectively. See Paresh Kumar Narayan (2005).

Table 3.3
Augmented Granger Causality Test

F-statistics			
Dependent Variable	$\Delta \text{Ln}(\text{FP})$	$\Delta \text{Ln}(\text{MS})$	$\text{EC}_{t-1}(\text{t-statistic})$
$\Delta \text{Ln}(\text{FP})$	-	1.20 (0.31)	-0.34 (0.00)
$\Delta \text{Ln}(\text{MS})$	1.42 (0.25)	-	-0.03 (0.26)

Table 3.3 show the results augment granger causality test the coefficient on the lagged error-correction term is significant with the expected sign in the food price equation. This implies that monetary expansion Granger cause the Food prices in the long -run and the directional of causality runs interactively through the error –correction term.

4. CONCLUSION AND POLICY RECOMMENDATION

The goal of this research to estimate the causal relationship between the monetary expansion and food prices in Pakistan for the period 1971-2007. We estimate this relationship by using the ARDL robust Cointegration technique. Empirical result of long-run bound testing shows that the long-run relationship exists when the FP is dependent variable. So, unidirectional causality from money supply to food prices in the long run in Pakistan. The short run Argumented Granger causality test shows no short run causality in either direction. Thus the money supply is not neutral in determining food prices in the long run. Therefore it recommends that the Pakistan policy maker should use monetary policy instrument to control inflation in general and food inflation in particular case.

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PRE A*-ALGEBRA AS A POSET

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ABSTRACT

This paper is a study on algebraic structure of Pre A*- algebra. We define center of a Pre A*-algebra, $B(A) = \{x \in A / x \vee x^{\sim} = 1\}$ and prove that $B(A)$ is a Boolean algebra. We define ordering relation \leq on Pre A*- algebra A by $x \leq y$ if $y \wedge x = x \wedge y = x$ and prove that \leq is a partial ordering on A and also find necessary conditions for the poset (A, \leq) to become a lattice. We prove that for each $x \in A$, $A_x = \{s \in A / s \leq x\}$ is a Pre A*-algebra under the induced operations, A_x is isomorphic to a quotient algebra of A . i.e., $A / \theta_x \cong A_x$, where $\theta_x = \{(s, t) \in A \times A / x \wedge s = x \wedge t\}$ and obtain decomposition theorem on Pre A*-algebra.

AMS Subject Classification (2000): 06E05, 06E25, 06E99, 06B10.

0. INTRODUCTION

In a drafted paper [6], The Equational theory of Disjoint Alternatives, around 1989, E.G. Maines introduced the concept of Ada, $(A, \wedge, \vee, (-)', (-)_{\pi}, 0, 1, 2)$ which however differs from the definition of the Ada [7]. While the Ada of the earlier draft seems to be based on extending the If-Then-Else concept more on the basis of Boolean algebras, the later concept is based on C-algebras $(A, \wedge, \vee, (-)^{\sim})$ introduced by Fernando Guzman and Craig C. Squir [3].

In 1994, P. Koteswara Rao [5] firstly introduced the concept of A*-algebra $(A, \wedge, \vee, *, (-)^{\sim} (-)_{\pi}, 0, 1, 2)$ and studied the equivalence with Ada [6], C-algebra [3], and Ada [7] and its connection with 3-ring, Stone type representation and introduced the concept of A*-clone and the If-Then-Else structure over A*-algebra and ideal of A*-algebra. In 2000, J. Venkateswara Rao [8] introduced the concept Pre A*-algebra $(A, \wedge, \vee, (-)^{\sim})$ analogous to C-algebra as a reduct of A*- algebra.

1. PRELIMINARIES

In this section we concentrate on the algebraic structure of Pre A*-algebra and we prove some results which will be used in the later text.

1.1 Definition:

An algebra $(A, \wedge, \vee, (-)^\sim)$ satisfying

- (a) $x^\sim = x, \forall x \in A,$
- (b) $x \wedge x = x, \forall x \in A,$
- (c) $x \wedge y = y \wedge x, \forall x, y \in A,$
- (d) $(x \wedge y)^\sim = x^\sim \vee y^\sim, \forall x, y \in A,$
- (e) $x \wedge (y \wedge z) = (x \wedge y) \wedge z, \forall x, y, z \in A,$
- (f) $x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z), \forall x, y, z \in A,$
- (g) $x \wedge y = x \wedge (x^\sim \vee y), \forall x, y, z \in A$

is called a Pre A*-algebra

1.2 Example:

$\mathbf{3} = \{0, 1, 2\}$ with operations $\wedge, \vee, (-)^\sim$ defined below is a Pre A*-algebra.

\wedge	0	1	2	\vee	0	1	2	x	x^\sim
0	0	0	2	0	0	1	2	0	1
1	0	1	2	1	1	1	2	1	0
2	2	2	2	2	2	2	2	2	2

1.3 Note: The elements 0, 1, 2 in the above example satisfy the following laws:

- (a) $2^\sim = 2$
- (b) $1 \wedge x = x, \forall x \in \mathbf{3}$
- (c) $0 \vee x = x, \forall x \in \mathbf{3}$
- (d) $2 \wedge x = 2 \vee x = 2$ for all $x \in \mathbf{3}$.

1.4 Example:

$\mathbf{2} = \{0, 1\}$ with operations $\wedge, \vee, (-)^\sim$ defined below is a Pre A*-algebra.

\wedge	0	1	\vee	0	1	x	x^\sim
0	0	0	0	0	1	0	1
1	0	1	1	1	1	1	0

1.5 Note:

- (i) $(\mathbf{2}, \vee, \wedge, (-)^\sim)$ is a Boolean algebra. So every Boolean algebra is a Pre A* algebra
- (ii) The identities 1.1(a) and 1.1(d) imply that the varieties of Pre A*-algebras satisfies all the dual statements of 1.1(a) to 1.1(g).

1.6 Lemma:

Every Pre A*-algebra with 1 satisfies the following laws

- (a) $x \vee 1 = x \vee x^\sim,$
- (b) $x \wedge 0 = x \wedge x^\sim.$

1.7 Lemma:

Every Pre A*-algebra satisfies the following laws.

- (a) $x \vee (x^{\sim} \wedge x) = x$,
- (b) $(x \vee x^{\sim}) \wedge y = (x \wedge y) \vee (x^{\sim} \wedge y)$,
- (c) $(x \vee x^{\sim}) \wedge x = x$,
- (d) $(x \vee y) \wedge z = (x \wedge z) \vee (x^{\sim} \wedge y \wedge z)$.

1.8 Definition:

Let A be a Pre A^* -algebra. An element $x \in A$ is called central element of A if $x \vee x^{\sim} = 1$ and the set $\{x \in A / x \vee x^{\sim} = 1\}$ of all central elements of A is called the centre of A and it is denoted by $B(A)$.

1.9 Theorem:

Let A be a Pre A^* -algebra with 1, then $B(A)$ is a Boolean algebra with the induced operations $\wedge, \vee, (-)^{\sim}$.

1.10 Lemma:

Let A be a Pre A^* -algebra with 1 and $x, y \in B(A)$ then

- (a) $x \wedge x^{\sim} \wedge y = x \wedge x^{\sim}$,
- (b) $x \wedge (x \vee y) = x \vee (x \wedge y) = x$.

1.11 Note:

By 1.3 we have, if $a \in A$ such that $a^{\sim} = a$ then $a \wedge x = a \vee x = a$, $\forall x \in A$, in this case $x \wedge (x \vee a) = x \vee (x \wedge a) = a$ and $a \wedge a^{\sim} \wedge x = a \wedge a^{\sim}$, $\forall x \in A$.

1.12 Lemma:

Let A be a Pre A^* -algebra with 1, 0 and let $x, y \in A$

- (a) If $x \vee y = 0$, then $x = y = 0$,
- (b) If $x \vee y = 1$, then $x \vee x^{\sim} = 1$.

1.13 Theorem:

Let A be a Pre A^* -algebra with 1 and $x, y \in A$, if $x \wedge y = 0$, $x \vee y = 1$, then $y = x^{\sim}$.

Proof:

If $x \vee y = 1$, then $x \vee x^{\sim} = 1$ (By 1.12(b) $\Rightarrow x^{\sim} \wedge x = 0$).

$$\begin{aligned} \text{Now } y &= 1 \wedge y = (x \vee x^{\sim}) \wedge y = (x \wedge y) \vee (x^{\sim} \wedge y) \\ &= 0 \vee (x^{\sim} \wedge y) = (x^{\sim} \wedge x) \vee (x^{\sim} \wedge y) = x^{\sim} \wedge (x \vee y) = x^{\sim} \wedge 1 = x^{\sim}. \end{aligned}$$

1.14 Definition:

Let $(A_1, \vee, \wedge, (-)^{\sim})$ and $(A_2, \vee, \wedge, (-)^{\sim})$ be a two Pre A^* -algebras. A mapping $f: A_1 \rightarrow A_2$ is called an Pre A^* -homomorphism if

- (i) $f(a \wedge b) = f(a) \wedge f(b)$,

$$(ii) f(a \vee b) = f(a) \vee f(b),$$

$$(iii) f(a^\sim) = (f(a))^\sim.$$

The homomorphism $f : A_1 \rightarrow A_2$ is onto, then f is called epimorphism.

The homomorphism $f : A_1 \rightarrow A_2$ is one-one then f is called monomorphism.

The homomorphism $f : A_1 \rightarrow A_2$ f is one-one and onto then f is called an isomorphism, and A_1, A_2 are isomorphic, denoted in symbols $A_1 \cong A_2$.

1.15. Definition:

Let A_1, A_2 be two Pre A*-algebras and $f : A_1 \rightarrow A_2$ be a homomorphism, then the set $\{x \in A_1 / f(x) = 0\}$ is called the Kernal of f and it is denoted by Kerf.

1.16. Lemma:

Let A be a Pre A*-algebra with 1, 0. Suppose that for every $x \in A - \{0,1\}$, $x \vee x^\sim \neq 1$. Define $f : A \rightarrow \{0, 1, 2\}$ by $f(1) = 1$, $f(0) = 0$ and $f(x) = 2$ if $x \neq 0, 1$. Then f is a Pre A*-homomorphism.

2. PRE A* ALGEBRA AS A POSET

In this section we define a partial ordering ' \leq ' on Pre A*- algebra and study the properties of Pre A*-algebra as a poset.

2.1 Definition:

Let A be a Pre A*-algebra .Define ' \leq ' on A by $x \leq y$ if and only if $y \wedge x = x \vee y = x$.

2.2.Lemma:

If A is a Pre A*-algebra , then (A, \leq) is a poset.

Proof:

Since $x \wedge x = x$, $x \leq x$ for all $x \in A$.

Therefore \leq is reflexive.

Suppose that $x, y, z \in A$, $x \leq y$ and $y \leq z$ then $y \wedge x = x \vee y = x$ and $z \wedge y = y \wedge z = y$.

Now $x = x \wedge y = x \vee y \wedge z = x \wedge z$. Therefore $x \wedge z = z \wedge x = x$. i.e., $x \leq z$.

This shows that \leq is transitive.

Suppose that $x, y \in A$, $x \leq y$ and $y \leq x$, then $y \wedge x = x \vee y = x$ and $x \wedge y = y \vee x = y$.

This shows that $x = y$.

Therefore \leq is antisymmetric. Therefore (A, \leq) is poset.

2.2 Note:

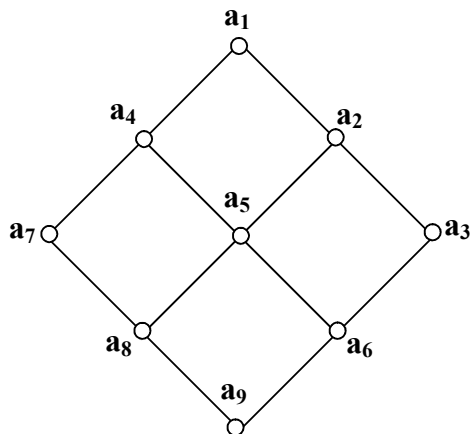
If A is a Pre A^* -algebra with $1, 0, 2$ then $x \leq 1 (1 \wedge x = x \wedge 1 = x)$, for all $x \in A$ and $2 \leq x (2 \wedge x = x \wedge 2 = 2)$. This shows that 1 is the greatest element and 2 is the least element of the poset.

The Hasse diagram of the poset (A, \leq) is



2.3 Note:

We know that $A \times A$ is a Pre A^* -algebra under point wise \wedge -operation. The Hasse diagram is given below $A \times A = \{ a_1 = (1,1), a_2 = (1,0), a_3 = (1,2), a_4 = (0,1), a_5 = (0,0), a_6 = (0,2), a_7 = (2,1), a_8 = (2,0), a_9 = (2,2) \}$



Observe that, $x \leq a_1$, i.e., $(x \wedge a_1 = a_1 \wedge x = x)$ and $a_9 \leq x (x \wedge a_9 = a_9 \wedge x = a_9)$ for all $x \in A \times A$. This shows that a_1 is the greatest element and a_9 is the least element of $A \times A$.

2.4 Theorem:

In the poset (A, \leq) , for any $x \in A$, Supremum of $\{x, x^{\sim}\} = x \vee x^{\sim}$, Infimum $\{x, x^{\sim}\} = x \wedge x^{\sim}$.

2.5 Theorem:

In a poset (A, \leq) with 1 , for any $x, y \in A$, $\text{Inf}\{x, y\} = x \wedge y$.

In general for a Pre A^* -algebra with 1 , $x \vee y$ need not be the l.u.b of $\{x, y\}$ in (A, \leq) . For example $2 \vee x = 2 \wedge x = 2, \forall x \in A$ is not a least upper bound. However we have the following.

2.6 Theorem:

In a poset (A, \leq) with 1, for any $x, y \in B(A)$, $\sup \{x, y\} = x \vee y$.

2.7 Theorem:

In the poset (A, \leq) , if $x, y \in B(A)$, then $x \vee y \leq x \vee x^{\sim}$.

Proof:

$$\begin{aligned} (x \vee x^{\sim}) \wedge (x \vee y) &= \{x \wedge (x \vee y)\} \vee \{x^{\sim} \wedge (x \vee y)\} \\ &= x \vee (x^{\sim} \wedge y) \text{ (By lemma 1.10(b) \& 1.1(g))} \\ &= x \vee y \text{ Therefore } x \vee y \leq x \vee x^{\sim}. \end{aligned}$$

2.8 Theorem:

In the poset (A, \leq) , if $x \leq y$, then for any $z \in A$,

(a) $z \wedge x \leq z \wedge y$,

(b) $z \vee x \leq z \vee y$.

Proof:

If $x \leq y$, then $x \wedge y = x$

(a) $(z \wedge x) \wedge (z \wedge y) = \{(z \wedge x) \wedge z\} \wedge y = (z \wedge x) \wedge y = z \wedge x$ Therefore $z \wedge x \leq z \wedge y$,

(b) $(z \vee x) \wedge (z \vee y) = z \vee (x \wedge y) = z \vee x$ Therefore $z \vee x \leq z \vee y$.

2.9 Lemma:

In a Pre A*-algebra

(i) $x \leq y \Leftrightarrow x \wedge (x^{\sim} \vee y) = (x^{\sim} \vee y) \wedge x = x$,

(ii) $x \leq y \Leftrightarrow y \wedge (y^{\sim} \vee x) = (y^{\sim} \vee x) \wedge y = x$.

Now we prove modular type results in the following.

2.10 Lemma:

In the poset (A, \leq) , if $x \leq y \Rightarrow x \vee (y \wedge z) = y \wedge (x \vee z)$.

Proof:

Suppose $x \leq y$, then $y \wedge x = x$.

$$\text{Now } y \wedge (x \vee z) = (y \wedge x) \vee (y \wedge z) = x \vee (y \wedge z).$$

If $x, y \in B(A)$ then by theorem 2.6 $\sup \{x, y\} = x \vee y$. In general $x \vee y$ need not be an upper bound of $\{x, y\}$ in poset (A, \leq) . If $x \vee y$ is an upper bound of $\{x, y\}$ in poset (A, \leq) then A becomes Boolean algebra. Now we have the following theorem.

2.11 Theorem:

If A is a Pre A*-algebra and $x \wedge (x \vee y) = x$ for all $x, y \in A$, then (A, \leq) is a lattice.

Proof:

By theorem 2.5, we have every pair of elements have g.l.b. and if $x \wedge (x \vee y) = x$ for all $x, y \in A$, then by theorem 2.6 we have every pair of elements have l.u.b. Hence (A, \leq) is a lattice.

3. THE PRE A*-ALGEBRA A_x

Recall that for every Boolean algebra B and $a \in B$ the set $[a] = \{x \in B / x \leq a\}$ ($[a] = \{x \in B / a \leq x\}$) is a Boolean algebra under the induced operations \wedge, \vee where the complementation is defined by $x^* = a \wedge x'$ ($x^* = a \vee x'$).

In this section we prove that if A is a pre A*-algebra and $x \in A$, then $A_x = \{s \in A / s \leq x\}$ is a Pre A*-algebra under the induced operations and A_x is isomorphic to a quotient algebra of A.

3.1 Theorem:

Let A be a Pre A* algebra, $x \in A$, and $A_x = \{s \in A / s \leq x\}$. Then $\langle A_x, \wedge, \vee, * \rangle$ is Pre A* algebra with 1 where \wedge, \vee are the operations in A restricted to A_x , s^* is defined by $x \wedge s^{\sim}$, the relation defined on Pre A* algebra A by $s \leq x$ if $s \wedge x = x \wedge s = s$.

Proof:

If $s \in A_x$, then $x \wedge s^* = x \wedge (x \wedge s^{\sim}) = (x \wedge x) \wedge s^{\sim} = x \wedge s^{\sim} = s^*$.

So that $s^* \in A_x$ and $s^{**} = (s^*)^* = (x \wedge s^{\sim})^* = x \wedge (x \wedge s^{\sim})^{\sim} = x \wedge (x^{\sim} \vee s) = x \wedge s = s$.

Now, for $s, t \in A_x$, $(s \wedge t)^* = x \wedge (s \wedge t)^{\sim} = x \wedge (s^{\sim} \vee t^{\sim}) = (x \wedge s^{\sim}) \vee (x \wedge t^{\sim}) = s^* \vee t^*$.

For $s, t \in A_x$ $s \wedge (s^* \vee t) = s \wedge ((x \wedge s^{\sim}) \vee t) = s \wedge (x \wedge s^{\sim}) \vee (s \wedge t) = s \wedge (s^{\sim} \wedge x) \vee (s \wedge t) = (s \wedge s^{\sim}) \vee (s \wedge t) = s \wedge (s^{\sim} \vee t) = s \wedge t$ (since $s, t \in A_x$).

The remaining properties hold in A_x since they hold in A. Hence $\langle A_x, \wedge, \vee, * \rangle$ is a Pre A*- algebra.

3.2 Note:

- (i) Observe that A_x is not a sub-algebra of A because the operation $*$ is not the restriction of $^{\sim}$ to A_x .
- (ii) $\langle A_x, \wedge, \vee, * \rangle$ is a Pre A*-algebra with $s \wedge x = s, \forall s \in A$. Hence “x” is an identity for \wedge .
- (iii) If A is a Pre A*-algebra with 1, $a \in A$ such that $a^{\sim} = a$ and $x \in A_a$ then $x = a$.

3.3 Theorem:

Let A be a Pre A*- algebra. Then the following hold:

- (i) $A_x = \{x \wedge s / s \in A\}$,

- (ii) $A_x = A_y$ iff $x = y$.
 (iii) $A_x \cap A_y = A_{x \wedge y}$ (v) $(A_x)_{x \wedge y} = A_{x \wedge y}$.

3.4 Lemma:

Let $f : A_1 \rightarrow A_2$ be Pre A* - homomorphism where A_1, A_2 are Pre A* algebras with 1_1 and 1_2 . Then

- (i) If A_1 has the element 2, then $f(2)$ is the element of A_2 ,
 (ii) If $a \in B(A_1)$, then $f(a) \in B(A_2)$.

3.5 Definition:

A relation θ on a Pre -A* algebra $(A, \wedge, \vee, (-)^\sim)$ is called congruence relation if (i) θ is an equivalence relation (ii) θ is closed under $\wedge, \vee, (-)^\sim$.

3.6 Lemma:

Let $(A, \wedge, \vee, (-)^\sim)$ be a Pre A*-algebra and let $x \in A$. Then the relation $\theta_x = \{(s, t) \in A \times A / x \wedge s = x \wedge t\}$ is a congruence relation.

3.7 Theorem:

Let A be a Pre A*-algebra with 1 and $x \in A$, then the mapping $\alpha_x : A \rightarrow A_x$ defined by $\alpha_x(s) = x \wedge s$ for all $s \in A$ is a homomorphism of A onto A_x with kernel θ_x and hence $A / \theta_x \cong A_x$.

Proof:

For $s \in A$ $x \wedge (x \wedge s) = x \wedge s$, $x \wedge s \leq x$ and hence $x \wedge s \in A_x$.

Let $s, t \in A$, then $\alpha_x(x \wedge s) = x \wedge s \wedge t = x \wedge s \wedge x \wedge t = \alpha_x(s) \wedge \alpha_x(t)$

$$\alpha_x(s^\sim) = x \wedge s^\sim = x \wedge (x^\sim \vee s^\sim) = x \wedge (x \wedge s)^\sim = (x \wedge s)^\sim = (\alpha_x(s))^\sim.$$

We can prove that $\alpha_x(s \vee t) = \alpha_x(s) \vee \alpha_x(t)$. Hence α_x is a Pre A* homomorphism. Now $s \in A_x$, we have $\alpha_x(s) = s$. Therefore α_x is onto homomorphism. Hence by the fundamental theorem of homomorphism $A / \ker \alpha_x \cong A_x$ and $\text{Ker } \alpha_x = \{(s, t) \in A \times A / \alpha_x(s) = \alpha_x(t)\} = \{(s, t) \in A \times A / x \wedge s = x \wedge t\} = \theta_x$. Thus $A / \theta_x \cong A_x$.

4. DECOMPOSITIONS OF A

If B is a Boolean algebra and $a \in B$, then we know that B is isomorphic to $\{a\} \times [a]$. In this section we prove similar decomposition for a Pre A*-algebra. First we prove the following.

4.1 Lemma:

Let A be a Pre A* algebra with 1, $a \in B(A)$ and $x, y \in A$. Then

$$a \vee x = a \vee y, a^\sim \vee x = a^\sim \vee y \Leftrightarrow x = y.$$

The above lemma fails if $a \notin B(A)$. For example, in Pre A^* -algebra A , we have $2 \notin B(A)$ and $2 \vee 1 = 2 \vee 0$ and $2^- \vee 1 = 2^- \vee 0$ but $1 \neq 0$.

Now we prove the following decomposition theorem.

4.2 Theorem:

If A is a Pre A^* -algebra with 1 and $a \in B(A)$ then A can be embedded into $A_a \times A_{a^-}$.

4.3 Note:

In the above theorem, for $a = 0$, we have $A_a = \{0, 2\}$, $A_{a^-} = \{0, 1, 2\}$ and $A_a \times A_{a^-} = \{(0, 0), (0, 1), (0, 2), (2, 0), (2, 1), (2, 2)\}$. So we can't find α such that $\alpha(x) = (2, 0)$. Hence α is not an onto mapping. But we have the following theorem.

4.4 Theorem:

If A is a Pre A^* -algebra with 1 and $a \in B(A)$, $A_a = \{s \in B(A) / s \leq a\}$ and $A_{a^-} = \{t \in B(A) / t \leq a^-\}$ then $B(A) \cong A_a \times A_{a^-}$.

4.5 Theorem:

If A is a Pre A^* -algebra with 1 and $a \notin B(A)$, then $\alpha : A \rightarrow A_a \times A_{a^-}$ defined by $\alpha(x) = (\alpha_a(x), \alpha_{a^-}(x))$, $\forall x \in A$ is a constant onto homomorphism.

4.6 Theorem:

If A is a Pre A^* -algebra and $a \notin B(A)$, then $A \cong A_a \times A_t$, where t is an identity for \wedge .

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C-COMMERCE WITH WEB SERVICES BASED ON WIRELESS TECHNOLOGY

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ABSTRACT

The great amount of research work is under way on web services and wireless network. In result lot of technology's and protocol has been developed. They facilitate to the developers to develop such type of applications at rapid phase, but looking the feature of the portability and integration of multiple platform. The designed system is fully integrated and doing collaborative commerce at rapidly. The questions in how do you collaborate business industries, and the answer is web services. Web services is only way to collaborate business industries and provide c-commerce framework. We have taken full advantage from the beauty of the web service with wireless technologies.

INTRODUCTION

During the past two years, collaborative commerce, or "c-commerce" has become a major focus for many organizations. C-commerce optimizes supply and distribution channels to make an organization more competitive and more profitable. Deploying c-commerce systems and related infrastructures helps companies collaborate up and down the supply chain. Collaboration for the common good must be the prime-motivating factor in getting demonstrable value from a c-commerce imitative [1]. There is significant type about the claims of software and integration vendors on c-commerce support. Vendor products facilitate everything from online meeting capabilities to inter enterprise workflow management. These tools are important enabling factors in a c-commerce plan, but initiating and deploying a c-commerce effort depends more on the collaborative skills of people. Companies need to cooperate to build common solutions to shared challenges. This may involve shifting to more collaborative mind- set when working with business partners, suppliers, distributors, customers and competitors. In doing so, executives and employees must cast aside an "us vs. them" mentality and focus on how they can work with other companies to better serve a common set of requirements.

C-commerce to truly succeed on a grand scale, companies may need to rethink how they view their business partners, customers and competitors could stymie c-commerce efforts. In this new landscape, everyone is your partner. Formalizing these relationships takes time and commitment, but they will benefit entire industries beyond what any one company could accomplish.

WEB SERVICES

Web Services are the basic fundamental building blocks of invoking features that can be accessed by an application.

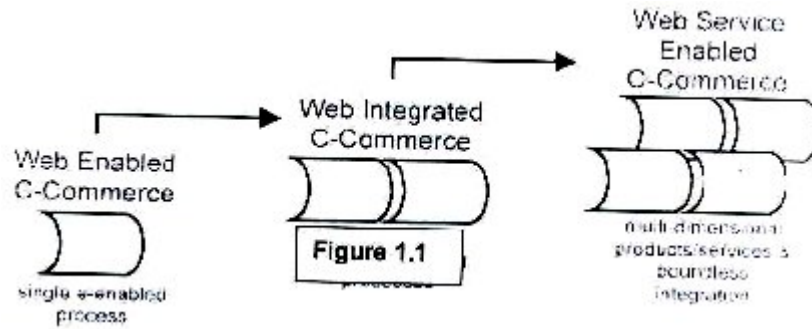
The accessibility to provide the feature across different platforms that are developed using different languages, and can be used by any remote application, over the internet, etc..., makes the web services more useful at times by means of providing the user only the specific and relevant information, avoiding the accessibility to resources that have to be securely maintained.

Web Services comprises of the following main aspects that are included:

1. **XML Web Service:** The communication between the service and the application is through a standard format called XML (Extensible Markup Language) which is universal and is accepted on any platform across the distributed network.
2. **WSDL (web Services Description Language):** It consists of the description about the web service, which is basically a file with .wsdl extension that you can find in your application folder. It includes the information about the namespace of the xml file which is the tag `<xmins:"name">`. It also holds the description of the elements that the service consists of and also the information relevant to the parameters supplied.
3. **SOAP (Simple Object Access Protocol):** SOAP is a protocol that by means of which Web Services is enabled; it is the format that is acclaimed universally due to its nature of standardization and rules that it implements. The inter-communication in web services uses SOAP for the efficient communication. –
4. **UDDI (Universal Description, Discovery and Integration):** UDDI is specifically a governing body that monitors the publication and discovery of the web services implementation with respect to message communication between the application and also at the enterprise level.
5. **IIS (Internet Information Server for Microsoft Visual Studio.NET):** It is the core aspect in web technology which deals with the Client/Server model, as the web service is a module available throughout the web for usage. Whenever a client sends the request to find the web server IIS (for Dot Net) and the discovery, description of the web service is returned after which the client sends a request to consume the web service.

Web Services and Collaborative Commerce

Collaborative Commerce (c-Commerce) is the name given to commercial relationships carried out over a collaborative framework to integrate enterprise business processes, share customer, relationships and manage knowledge across enterprise boundaries. The ultimate aim of c-Commerce initiatives are to maximize returns on intellectual capital investment, business agility and the quality of the customer experience. C-Commerce is far more crucial than basic B2B e-commerce that is designed to construct a virtual link for a pre-defined community of trading partners to buy or sell goods and services. Even after the fall of the dot-com era, corporate strategists and venture capitalists are embracing C-Commerce as the next generation of e-commerce and an evolution of Traditional Approach of c-Commerce the Traditional Supply Chain Process.



In the figure above, we can see the three stages of c-Commerce web enabled c-Commerce, a one dimensional, single e-enabled business process that allows certain internal data to be visible to external trading partners, and vice versa. Typically, this meant implementing a web presentation of the data, and allowing partners access to it.

This is a limited form of c-Commerce, with very limited values, saving only labor cost. Typical applications would be displaying demand for production material, showing sells forecasts to suppliers, or presenting bills electronically.

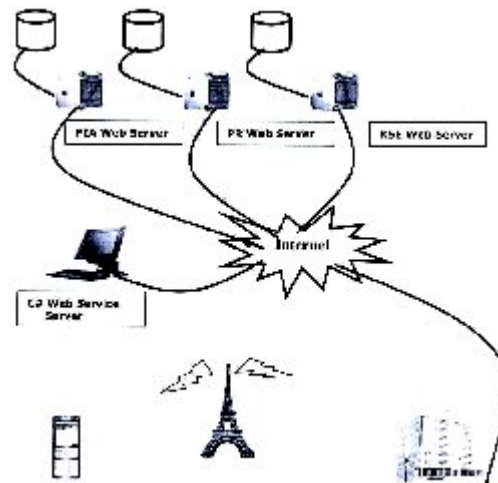
Second stage of c-Commerce exchanges in markets such as steel, auto parts, chemicals or airline equipment. Buyers, sellers and suppliers are integrated through a web portal. In this stage, each enterprise can reconfigure its supply chain through the market place to leverage aggregate buying power and elements brokerage fees and middle men. The first two stages of c-Commerce have never reached the critical mass required for mass adoption by all industries, because of the cost of integration. Third stage of c-Commerce will be built on Web Service as a core integration engine to deliver seamless process integration, seamless customer satisfaction integration and seamless product design integration. It is a plug and play sort of c-Commerce rather than a hard-wired, integration driven effort.

ARCHITECTURE OF DESIGNED SYSTEM

We have created C# web services and used mobiles as Web service clients written in Java2 Micro Edition, accessing the information from the C# web service server.

C# Web Services: This demonstrates the c# web service server, which provides the complete information about Pakistan International Airline & Pakistan Railway and also for Karachi Stock Exchange.

Client Web Service using J2ME as client for requesting information. Web Services demonstrates heterogeneous



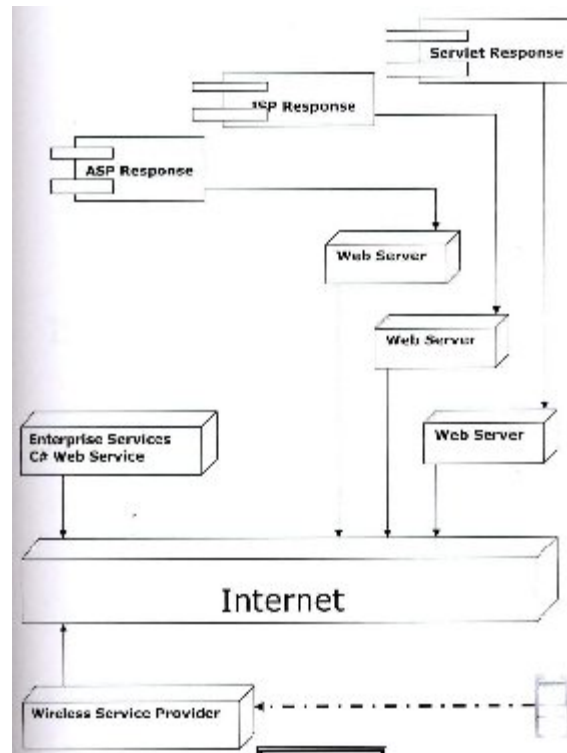
interoperability. By changing one setting in the web services, the web service client can either communicate with the Web services. The following high-level diagram depicts what the architecture of this system design look like it's shown in figure.

This software is completely based on wireless clients. When ever any mobile client wants information than it's going to send a request thought Internet to the C# web server shown in figure the C# web server perform an Action according to that request. If a mobile client request for Karachi Stock Exchange information than the request will directly communicate with C3 web server. C# web server is going to analyze that request after that the C# web server is going to connect with the Karachi stock exchange web server and send that request. Which send by the mobile client. Karachi Stock exchange web server the request send to the web server as a URL.

When the Karachi stock exchange web server receives a request as a URL than the server treat that request as a normal request like it's came from any web browser and also it's replies. As a normal request with all the header's plus script and html code. Our C# web service server is going to receive all this replied information from Karachi Stock exchange web browser. Our C# web server has an ability to parse that coming information and just collect the important information from that and make a xml file this xml file is send to mobile client request with the help of soap protocol.

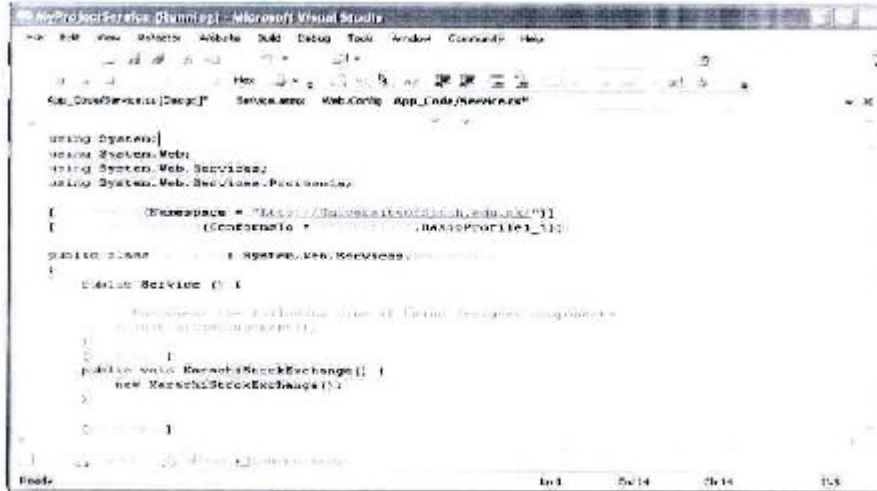
PROJECT DEVELOPMENT DIAGRAM

Development diagram show configuration of run time process nodes and the components hosted on them you can say it's address the static development view of an architecture.



RESULT AND DISCUSSIONS

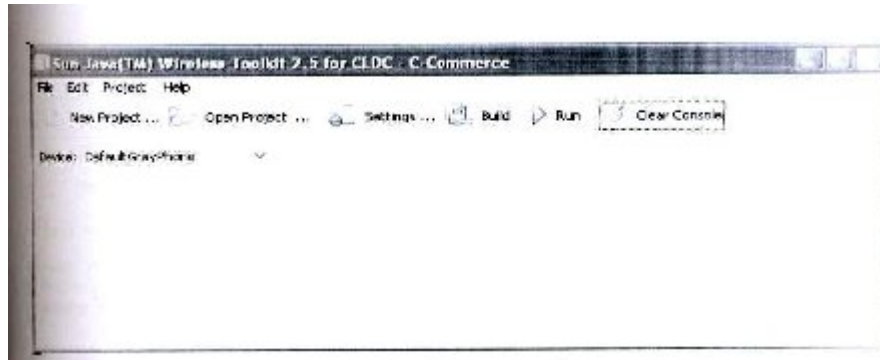
To run this project first of all you have open visual studio to run the server. The figure is shown that how to run a web service in Visual Studio 2005



If you wants to check the web service is working that you check it own your local browser. Type this URL [http://localhost:13338/\(project-name\)/\(Program-name\).asmx](http://localhost:13338/(project-name)/(Program-name).asmx) , after this you will find this output.



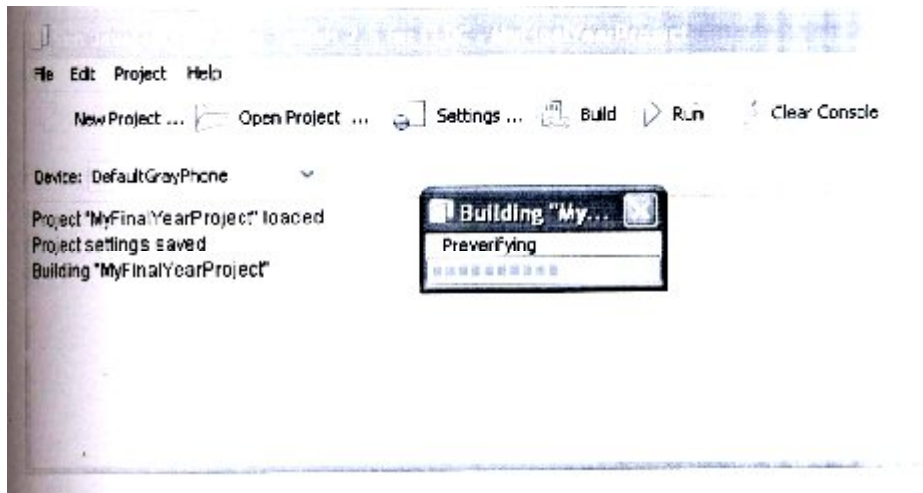
When you completely test the web service now you have to test the client for this to open a Sun Java Toolkit 2.5 for CLDC.



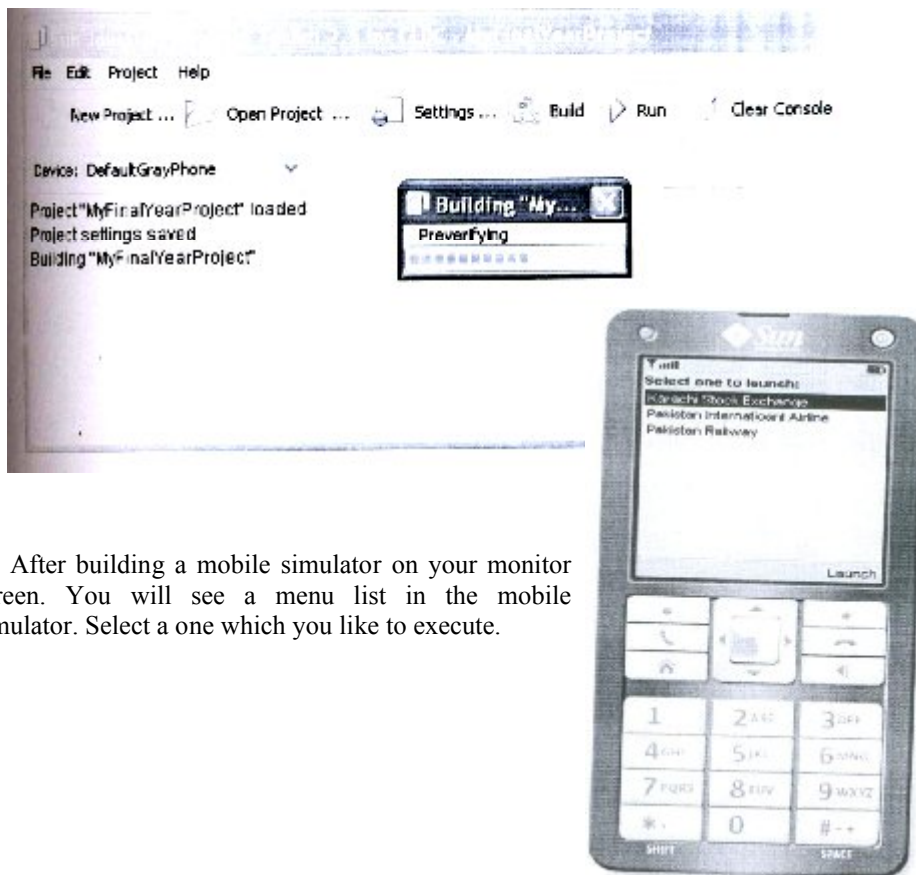
When open J2me kit than open the project select the project from the list and press open.



When opened that project than you have to build/compile for building or compiling any project to press build.



When the project is successfully build then press run to execute the project.



After building a mobile simulator on your monitor screen. You will see a menu list in the mobile simulator. Select a one which you like to execute.

If we select the Karachi Stock Exchange from the list than see further menu list of Karachi stock exchange.

In the Karachi stock exchange menu select the Market summary than you will see the other menus for Market summary now select company type.

CONCLUSION

The designed system is a new framework for providing more power to network user. The designed system is developed using modern programming languages. It is concluded that the software C-Commerce with Web Services based on Wireless Technology is efficient, reliable, portable and user-friendly.

It is effectively and accurately applicable for heterogeneous network environment where net runtime exists. It is also concluded that it costs less and provides a lot of benefits. Its hardware and software requirements are cheap and available in the market.



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**A FRAMEWORK FOR BALANCING PERFORMANCE
AND RISK IN BANKING INDUSTRY**

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ABSTRACT

De-regulation and liberalization has multiplied the competition as well as the scope of risk to systems in financial services sector. Performance, being the only managerial focus in the past, is inadequate to identify and control the events that represent threats to the organizations. The firms are now required to balance their performance targets against an acceptable risk levels and at the same time show growth in ever increasing global competition.

The paper develops a conceptual framework that may be used by managers to balance risk and performance in a comprehensive control system. The framework can identify risk and manage performance, against the measures that effect firm value derived from the over all business strategy. The underlying objectives suggest that the integration of both the processes would aid firms in not only achieving sustainable growth, but it would also facilitate in securing risk and increasing shareholder value.

KEYWORDS

Banking Industry; Risk Management; Performance Management; Scorecard, Pakistan.

INTRODUCTION

Financial liberalization has been implemented in several emerging economies to acquire efficient financial institutions by eliminating government control and exposing them to increased market competition (Barajas and Steiner, 2000; Hermes and Lensink, 2005). The increased competitive pressure stimulates banks to become more efficient by improving on overall bank management and risk management (Denizer et al., 2000).

Recent bankruptcies indicate that present performance controls are insufficient and inadequate. Mere performance checks are not sufficient to determine the risk involved. Therefore, managerial imperative is to develop such a comprehensive control systems which could assess risk as well as monitor performance. The unforeseen future events often unidentified call for the dire need of the integration of risk management and performance management processes in order to counter act with the dilemmas confronted.

The study is conducted in the context of Pakistan banking industry as hit by de-regulation and liberalization has augmented efficiency as well as risks in the prevailing

system. The magnitude of the problem is indicated by evidence from market research which shows that banks in Pakistan are at the brink of bankruptcy (Zavadjil et al., 2005).

This research will lead to the development of improved comprehensive control system providing improved diagnostic information to managers in the banking industry of Pakistan, ensuring the performance achievement with adequate risk controls. It focuses on the issue of risk management and compliance given competitive pressures and profitability goals. Thus, giving insight on how performance and risk can be integrated resulting in central adequate control over performance outcomes.

LITERATURE REVIEW

Patti et al. (2005) examined cost and profit efficiency of financial liberalization in Pakistan, using data for 1981-2002. The results confirmed the role of financial liberalization in leading to increased bank profits in the first round of financial reform during 1991-1992. However, in subsequent years reforms do not have a positive impact on bank performance. The study shows that profitability declines after 1997. The past decade has witnessed dramatic losses in banking industry. Despite of best performance monitoring & control practices employed, the firms are unable to avoid the major losses due to poorly analyzed sudden changes within and outside the organization.

Survey suggest that in the five years to 2000 around half of all companies attempted to transform their performance measurement systems, while more recent data indicate that 85% of organizations had performance measurement initiatives under way in 2004 (Neely, 2007). In highly competitive environment, the quest for performance management system which could confirm the achievement of company's objectives is the dilemma confronted to all organizations.

Performance measurement and productivity has geared adequate attention from both academics and practitioners in recent years, resulting in remarkable progress in performance measurement systems by including portfolio of measures aimed to balance the more traditional, single focus view on profitability (Tangen, 2004) with the major objective of encouraging proactive rather than reactive management (Bitichi, 1994). However, establishing performance measurement systems based on measures balanced between tangible and intangible profits are not sufficient to confirm the achievement of long term gains.

The better-known approaches utilized for performance management include (Tangen, 2004), but not limited to Sink & Tuttle model (1989), Balanced Scorecard (BSC) developed by Norton & Kaplan (1992), Performance pyramid i.e. the SMART system proposed by Cross & Lynch (1992), the Performance Prism (Neely et al., 2001) etc. They extend beyond traditional performance measurement and have proved to be quite useful in past when performance was the only managerial focus. However, these approaches do not offer greater level of insights into the risks generated from the activities undertaken to achieve the targets against which performance is monitored and managed. A good performance management requires a strong strategic focus on a business in conjunction with robust compliance program to ensure measures are in place to correctly articulate and manage risk within capabilities and resources of the business. Recent events including shift to new economy, increasing levels of globalization and cost uncertainty,

increased regulatory demands such as Basel II, the Swiss Solvency Test, Solvency II etc. have caused many firms to focus on performance as well as risk (Calandro and Lane, 2006).

The gap recognized in the current frequently used methodologies need to be filled. It is essential because value cannot be created, sustained or grown in an ever more efficient (and volatile) global economy without efficient management tools that comprehensively assess the relative success (or failure) of business activities, and the risks generated from those activities over time (Calandro and Lane, 2006).

Performance should not only be monitored from the results point of view but it should consist of measures that would monitor the potential disruptions from all aspects hindering the achievement of the desired results. There should be a balance between 'what' is achieved and 'how' it can be achieved. Performance management system should be intelligent enough to recognize and evaluate the intensity of risk involved in the particular business so that proper steps could be taken to mitigate the risk or transfer it or simply avoid taking it, as best suited to the situation.

There is a strong correlation between performance management and risk management. Performance management system monitors & controls the actions derived from the firm strategy to achieve the firm's objectives where as, risk management is the process of understanding and managing the risks that the organization is inevitably subject to in attempting to achieve its corporate objectives', thus, ensuring the achievement of corporate objectives (Woods, 2004). Organization wide in their scope, both are designed to ensure the achievement of corporate objectives. Risk management and performance management can become fully integrated systems (Woods, 2004).

The importance of risk management is identified by its relation with the value of company. The development of risk can destroy the planned goals of an organization. The growing competition resulting in increased demand for error free systems require preventive actions to be taken. The long term success of the company requires the identification, analysis and management of all the relevant sources of potential disruption confronted to the achievement of strategic objectives. Safety planning in relation to organization development is a key factor to the future success of a company. A survey showed CFOs are primarily concerned with providing management information on performance, growth and risk (IBM BCS, 2005).

The implementation of regulations to control the risk in business operations as well as banking exposure confirm the concern of State bank of Pakistan about the importance of both risk management and bank performance. No company can successfully manage risk without tying it to performance management (Wood, 2004). The Bank of Tokyo-Mitsubishi HQA integrated the COSO enterprise risk management framework into the BSC's internal perspective in order to cope proactively with the growing demands of changing environment (Kaplan and Norton, 2004; Nagumo, 2005). However, this affixture in a single perspective might not provide with comprehensive diagnostic information regarding performance indicators working towards increasing firm value.

Though it would be advisable to integrate the two in a single platform for better assistance to management, however, not much concentration has been given to the combination of separately managed identical managerial tasks i.e. risk and performance.

The process of integration should start right from the level of strategy development. Evidence from literature suggests that performance control measures should be derived from strategic objectives or else it might support actions that have the opposite effect of those implied on strategy (Tangen, 2002). As strategy changes over time so does performance measures to make them coherent to the organization's objectives. Similarly, in order to understand the influence of risk in constantly changing environment, it is necessary that risk control measures must be derived from the business strategy. An executive survey highlighted the importance of linking risk with business strategy (Protiviti, Inc., 2005). Thus, the alignment of performance measures & risk measures with firm's overall strategic objectives links the two, confirming the transfer of sole strategy at all levels in the organization.

FRAMEWORK FOR BALANCING PERFORMANCE AND RISK

The new framework (figure 1) shall not only monitor the performance of value generating indicators but it shall also keep a check on all the potential disruptions from different aspects hindering the achievement of the desired value generation. It shall recognize and evaluate the intensity of risk involved in the particular business so that proper steps could be taken to mitigate that particular risk confronted or transfer it or simply avoid taking it, as best suited to the situation.

Thus, the proposed system shall not only ensure tangible and intangible benefits generation leading to increased firm value but also fulfill the risk compliance requirements laid by the regulatory bodies. Risk focused performance controls, derived from the overall business strategy, underscoring financial, operational, market and innovation & evolution zone, with proper communication at different levels within organization make the management control processes effective.

Financial analysis creates a structured way of the performance analysis of the companies through a detailed review of business activities dealing with liquidity, asset turnover, financial leverage, and profitability. The ratios, widely used by the financial analysis professionals, allow a precise and quick review of the companies' activities in easy and comprehensive format. However, having limited access to information, organizations try to pick up only the cream of the market for the deals. But yet there is always a risk that the partner would fail to pay the obligation.

The peculiarity of the financial performance management is that with all world wide extensively utilized ratios at their disposal, the managers still need to identify and weigh risk elements residing in the organization's environment to achieve the target by mitigating or avoiding them. The employment of risk controls help to better manage the concentration risk exploiting the diversification benefits and establishing the exposure limits. Thus, the framework, by integrating risk measures with performance indicators, provides insight to the risks relative to the profit generated from business activity.

Operational risk comes along with any process of a bank's business despite of all efforts to avoid malfunctions including employment practices & workplace safety, clients, products & business practice, business disruption & system failures etc. Although financial institutions have been subject to operational risk throughout their history, only during the last decade has operational risk management attracted significant attention among regulators, managers, and investors. Its incorporation in Basel II Capital Accord (Basel Committee, 2005) and Solvency II project for insurance regulation (Swiss Federal Office of Private Insurance, 2004; Sandström, 2005) shows its significance.

Performance Risk Scorecard

Perspectives	Objectives Derived from Strategy	Performance Indicators	Risk Measures
Financial Zone	Revenue Growth	Net Profit Margin Return on Shareholder Equity	Probability of default Allowance for Credit losses
	Liquidity Security	Current Ratio Surplus Liquid Position	Industry Analysis Net Deposit Drains
Operational Zone	Adherence to international Business standards	Cost in comparison to Market Service Quality	Employee errors System Downtime (failure)
	Adherence to Regulatory Compliance	Implementation Stage	Sanctions due to non-compliance of regulatory framework
Market Zone	Stakeholder value enhancement	Net Interest Income Forex hedging efficiency	Value – at – Risk Currency Risk Exposure
	Market Share expansion	% Growth from new Product/Service % Growth from new Customer	Top Product/Service (Competitor) Industry Exposure limit
Innovation & Evolution Zone	Process re-engineering	Comparison of Existing systems with system deployed	Resistance of employees towards Change
	Employees Training	No. of workshops undertaken	Employee turnover rate

Figure 1: Risk & Performance integrated and balanced in a single Scorecard
Modified from (Calandro & Lane, 2006; Beasley et al., 2006; Woods, 2007)

Operational risk and performance measures need to be viewed on a single scorecard so that organization could identify & assess the risk in order to monitor and control performance within a targeted level of operational risk and in compliance with legal, regulatory and corporate guidelines, aligned with business objectives, maximising operational performance while simultaneously minimising cost.

Financial Institutions are the active participants in the *market*, seeking to realize returns through careful management of their positions and allocated resources. The ability to recognize Market Risk in a timely manner allows mitigation of risks caused by the market conditions. Performance-Risk Scorecard is an effective tool to address the underlying factors in trading and investment activities covering market risk for Financial Institutions.

The viability of the competitors should not only be assessed against the quantitative measures but also qualitative measures. Financial information combined with analysis of the strengths and weaknesses of the competitor's products and/or services, the investigation of the grounds for customer dissatisfaction, assessment of the competitor's ability to react to continuous market fluctuations and the like can give and in-depth knowledge of the competitor and the market thus helping us in directing towards the goal achievement.

Constant breakthroughs in Information Technology, making the systems less prone to errors, calls for constant learning leading to innovations and ultimately evolution of efficient business processes. *Innovation & evolution zone* involves improving the overall business performance by improving the quality of the services which, in return, can only be managed by employees' efficiency. This perspective specifies how training enhances adaptation to change resulting in quality improvement leading towards increased market share.

The consolidated view of performance measures and risk controls will aggravate the chances of objective achievement.

CONCLUSION

Though liberalization and deregulation has witnessed the escalation in efficiency variables in banking sector of Pakistan, however, the increased competition, resulting in exploiting risky exposures to capture market, has drawn several banks to the brink of bankruptcy.

Several performance monitoring systems deployed to monitor and control performance in order to achieve set targets has proved to be supportive in few but not all ends. They provide management a single dimension view, thus, helping management in having reactive approach. However, the obstructions confronted to the achievement of objectives are identified once the loss has been incurred. The reason is individual treatment of risk and performance in different departments. Though both are working towards the same goal i.e. firm's objective accomplishment.

Therefore, in order to have proactive approach the system need to have a bi - dimensional view, which shall not only provide details of what is achieved but also the information regarding the elements which could hinder that achievement.

The purpose shall be achieved by integrating performance and risk measures, derived from the overall business strategic objectives, on the same scorecard. It shall give a comprehensive view of organization's value and threats to its value.

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**SOME APPLICATIONS OF MEMON AND DAVID THEOREM
FOR FINDING FACTORIAL MOMENTS OF RANDOM VARIABLES
ARISING FROM BINOMIAL TRIALS**

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ABSTRACT

The use of Single Binomial trials cannot be avoided in scientific studies where a specified event appears with constant probability. In this situation one could possibly be interested in some configuration evolved by these events in independently repeated trials. The design of a configuration can pose much difficulty in finding the probability distribution of the number of such configurations. Finite moments of configurations arising from binomial trials are calculated and various applications of these results are illustrated.

1. INTRODUCTION

The use of single binomial trials, or experiments, cannot be avoided in studies relating to ecological disorders and epidemiological patterns of a disease that inflicts human dwellings. If each single binomial trial results in the same event, one could possibly be interested in the number of patterns of this event occurring simultaneously in similar trials. In some situations it becomes quite tedious to determine the probability distribution of the randomly arising number of patterns. Memon and David (1968) develop a relationship between the factorial moments of this distribution and probabilities of particular events. They apply this theorem to find the distributions of horizontal and vertical join counts in a rectangular lattice when a single binomial trial results in an event at each location of the lattice. We provide in this paper additional applications of this theorem.

2. APPLICATIONS OF THE THEOREM

2.1 Application-I

Consider n locations at each of which the events E occur independently with probability p . Let X be the number of events materializing simultaneously. To find its factorial moments by the above theorem, let

$$\mu_{[r]} = n!/(n-r)! p^r$$

2.2 Application-II

Consider two independent sets each comprising n locations. Let the probabilities of materialization of events E and E^* at these locations be as follow.

Set A $p_{a1}, p_{a2}, \dots, p_{an}$ at Location a_1, a_2, \dots, a_n

Set B $p_{b1}, p_{b2}, \dots, p_{bn}$ at Location b_1, b_2, \dots, b_n

Let the random variable X be the number of links that join location a_i in Set A with any location b_j in Set B, at which the events E and E^* occur simultaneously so that

$$\mu_{[r]} = \sum_{i=1}^n p_{ai} \left(\sum_{j_1=1 \leq \dots \leq j_r \leq n_{cr}}^{n_{cr}} \prod_{k=1}^r p_{bj_k} \right)$$

a maximum of n^2 links L_{ij} can materialize. That is, $X=0, 1, 2, \dots, n^2$. The r^{th} moment of X by above theorem simplifies to

For $r = 1$ from above

$$\mu_{[1]} = \left(\sum_{i=1}^n p_{ai} \right) \left(\sum_{j=1}^n p_{bj} \right)$$

2.3 Application III

Let n locations be so arranged that two locations i^{th} and $(i+1)^{\text{th}}$ can be treated as a join when the event occurs at these locations. We define the random variables

$\Phi_i = 1$ for the i^{th} join that materializes. $i = 1, 2, \dots, n-1$.
 $= 0$ for otherwise,

and X as the number of materializing specified joins. We find below the moments of this random variable assuming $n > 10$.

$\mu_{[1]}$

From the above theorem this moment is

$$\mu_{[1]} = (n-1)p^2,$$

as Prob. $(\Phi_i = 1) = p^2$, and here the number of possible joins is $n-1$.

$\mu_{[2]}$

To obtain it we need $\Phi_i = \Phi_{i+1} = 1$, $1 \leq i \leq n-2$ with probability p^3 . The other situation is

$\Phi_i = \Phi_j = 1$ where $j \geq i+3$, $1 \leq i \leq n-4$ for which the probability is p^4 .
and so $\mu_{[2]} = 2(n-2)p^3 + (n-3)(n-4)p^4$

$\mu_{[3]}$

$$\mu_{[3]} = 6(n-2)(n-3)p^4 + 6(n-4)(n-5)p^5 + (n-5)(n-6)(n-7)p^6$$

$\mu_{[4]}$

$$\mu_{[4]} = 24(n-4)p^5 + 24(n-5)(n-6)p^6 + 12(n-6)(n-7)(n-8)p^7 + (n-7)(n-8)(n-9)(n-10)p^8$$

2.3.1 Remark on Asymptotic Moments of X

Assuming that $np^2 \rightarrow \lambda$ as $n \rightarrow \infty$, and p is small, it is easy to see that the first, second, third and factorial fourth moments of X are simplified to

$$\lambda, \lambda^2, \lambda^3, \lambda^4,$$

and so X is asymptotically distributed as a Poisson distribution with λ as its parameter.

2.4 Application IV

We consider a set of locations arranged in n rows and n columns. Suppose that a binomial trial results in an event with the same probability p and that similar binomial trials occur independently at these n^2 locations at the same time, or during the same period of time. Our configuration here is that the trials simultaneously produce the event at four adjacent locations. We term it a rectangular configuration, or simply a rectangle. So assuming that the similar binomial trials materialize at all n^2 locations our interest is in 'the number of rectangles' so arising. Let X denote the number of rectangles. It is discovered that for n even as small as 4 the exact distribution of the random variable X turns to be very intricate.

Let ϕ_{ij} denote j^{th} link in i^{th} row with a value:
 $= 1$ (if the event E occurs at locations j and $j+1$ in i^{th} row)
 $= 0$ Otherwise

Thus the condition $\phi_{ij} = \phi_{i+1j} = 1$ entails a rectangle with the event E that occurs at the locations (i, j) , $(i, j + 1)$, $(i + 1, j)$, $(i+1, j+1)$
 $= 0$ Otherwise

Let X be the number of rectangles that arise when independent Bernoulli trials materialize simultaneously at n^2 locations of the lattice. The use of Memon and David (1968) theorem in Appendix will be made to find the factorial moments of X in this paper.

2.4.1 First Factorial Moment

A particular rectangle occurs when

$$\phi_{ij} = \phi_{i+1j} = 1 \text{ with } i, j = 1, 2, 3, \dots, n-1; \text{ and zero otherwise}$$

For $r = 1$ in Memon and David theorem [2] we have the following first factorial moment

$$u_{[1]} = \sum_k p_k$$

where p_k is the probability of a particular rectangle.

The probability p_k of a particular rectangle is p^4 and the total number of such possible rectangles

$$= \sum_{i, j, r, s=1}^{n-1} \phi_{ij} \phi_{rs}$$

which simplifies to

$$\sum_{i, j=1}^{n-1} \phi_{ij} \phi_{i+1j} = (n-1)^2$$

that is,

$$u_{[1]} = (n-1)^2 p^4$$

2.4.2 Second Factorial Moment

The second factorial moment follows from $r = 2$ in the Memon and David (1968) theorem. That is,

$$u_{[2]} = 2! \sum \text{Prob (two particular rectangles)}$$

where the summation \sum is carried over all possible sets of two rectangles in the $n \times n$ lattice. Since two rectangles may have a common side, a common corner, or non-contiguous with probabilities p^6 , p^7 and p^8 respectively it follows that the above moment can be expressed as

$$= 2! \left(a_{2,6} p^6 + a_{2,7} p^7 + a_{2,8} p^8 \right)$$

We find below the coefficients of probability

$$p^6, p^7 \text{ and } p^8.$$

where

$$a_{2,6} = 2(n-1)(n-2)$$

$$a_{2,7} = 2(n-2)^2$$

$$a_{2,8} = (n-1)(n-2)(n-3) + (n-2)^2(n-3) + \frac{1}{2}(n-1)(n-2)^2(n-3)$$

2.4.3 Third Factorial Moments

The third factorial moment follows from $r = 3$ in the theorem referred above. Here,

$$u_{[3]} = 3! \sum \text{Prob (three particular rectangles)}$$

where the summation \sum is carried over all possible sets of three rectangles with probabilities p^8 , p^9 , p^{10} , p^{11} and p^{12} depending on how these rectangles emerge. The three rectangles may have one or more common corners, one or more common sides, or they may be non adjacent. The third moment can be expressed as

$$= 3! \left(a_{3,8} p^8 + a_{3,9} p^9 + a_{3,10} p^{10} + a_{3,11} p^{11} + a_{3,12} p^{12} \right)$$

As done in the second factorial moment, we specify their locations and formulate a model involving the variables ϕ_{ij} and enumerate the possibilities using the product

$$\prod_{i=1}^6 \phi_{n_i, m_i} \text{ where } n_i, m_i \text{ take values from } 1, 2, \dots, n-1.$$

$$a_{3,8} = 6n^2 - 24n + 22$$

$$a_{3,9} = 8n^2 - 40n + 48$$

$$a_{3,10} = 12n^3 - 96n^2 + 246n - 198$$

$$a_{3,11} = n^4 - 2n^3 - 39n^2 + 172n - 192$$

$$a_{3,12} = \frac{1}{6} (n^6 - 6n^5 + 6n^4 - 68n^3 + 725n^2 - 2122n + 1920)$$

2.5 Application -V

We consider a set of n^3 locations arranged in a cubical way. Suppose that a binomial trial results in an event with the same probability p and that similar binomial trials occur independently at these n^3 locations at the same time, or during the same period of time. Our configuration here is that the trials simultaneously produce the event at eight adjacent locations. We term it a rectangular Box configuration, or simply a Box. So assuming that the similar binomial trials materialize at all n^3 locations our interest is in 'the number of Boxes' so arising. Let X denote the number of Boxes.

$$u_{[1]} = (n-1)^2 p^8$$

$$u_{[2]} = 2! \left(a_{2,6} p^{12} + a_{2,7} p^{14} + a_{2,8} p^{16} \right)$$

$$u_{[3]} = 3! \left(a_{3,8} p^8 + a_{3,9} p^9 + a_{3,10} p^{10} + a_{3,11} p^{11} + a_{3,12} p^{12} \right)$$

2.5.1 A Remark on Asymptotic Factorial Moments of X

Assuming that $n^2 p^2 \rightarrow \lambda$ as $n \rightarrow \infty$, and p is small, it can be seen that the first, second, third factorial moments of X are simplified to λ . It follows that the random variable X is asymptotically distributed as a Poisson random variable with λ as its parameter.

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PDM BASED I-SOAS DATA WAREHOUSE DESIGN

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ABSTRACT

This research paper briefly describes the industrial contributions of Product Data Management in any organization's technical and managerial data management. Then focusing on some current major PDM based problems i.e. Static and Unintelligent Search, Platform Independent System and Successful PDM System Implementation, briefly presents a semantic based solution i.e. I-SOAS. Majorly this research paper is about to present and discuss the contributions of I-SOAS in any organization's technical and system data management.

KEYWORDS

I-SOAS, Data Warehouse, PDM

1. INTRODUCTION

Product Data Management (PDM) is a digital electronic way of maintaining organizational data to maintain and improve the quality of products and followed processes. PDM based products mainly maintain the information about the organization including personal involved in managerial and technical operations, running projects and manufacturing products [1]. Where PDM based products are heavily benefiting industry there PDM community is also facing some serious unresolved issues i.e. successful secure platform independent PDM system implementation, PDM system deployment and reinstallation, static and unfriendly machine interface, unintelligent search and scalable standardized framework.

Many approaches and solutions systems including Meta-phase (SDRC), SherpaWorks (Inso), Enovia (IBM), CMS (WTC), Windchill (PTC), and Smarteam (Smart Solutions) [2] are proposed targeting these above mentioned problem oriented issues all together and on individual basis but still there is no as such one promising approach or product exists which claims of providing all the solutions.

Targeting some of above mentioned PDM based problem oriented issues i.e. Static and Unfriendly Graphical User Interface, Static and Unintelligent Search, Platform Independent System and Successful PDM System Implementation, we have also proposed an approach called Intelligent Semantic Oriented Search (I-SOAS) [3] (See Fig 1).

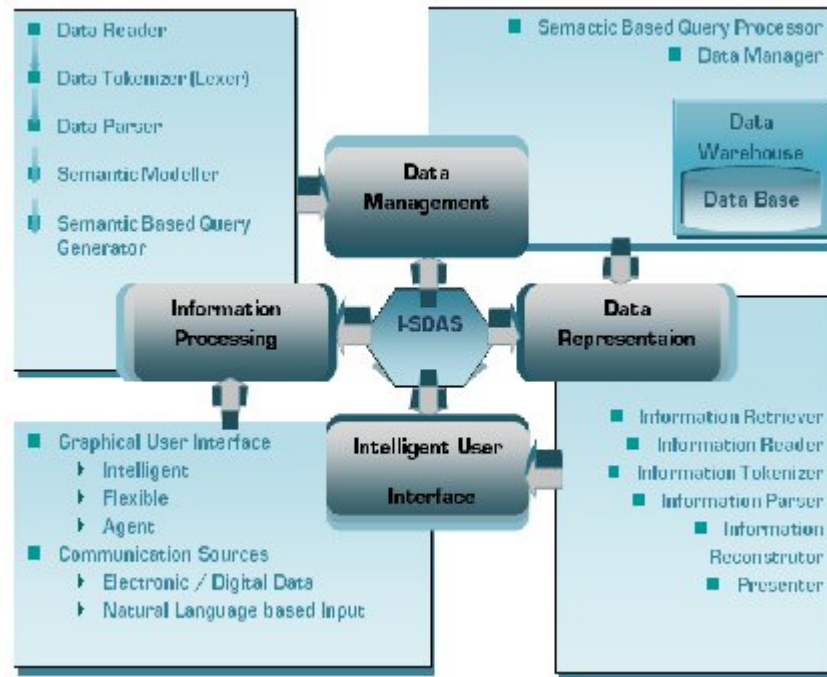


Fig.1. I-SOAS Conceptual Architecture [3]

I-SOAS is an agent, information engineering & modeling, data warehousing and knowledge base approach, proposed to provide solution in implementing a semantic based intelligent application capable of handling user's structured and unstructured requests by processing, modeling and managing the into data base. To meet aforementioned goals I-SOAS's proposed conceptual architecture is divided into four sequential iterative components i.e. Intelligent User Interface (IUI), Information Processing (IP), Data Management (DM) and Data Representation (DR) (See Fig 1). IUI is proposed to design intelligent human machine interface for system user communication, IP is proposed to process and model user's unstructured and structured inputted request by reading, lexing, parsing, and semantic modeling, DM is proposed to manage user request and system performance based information and DR is proposed to represent system outputted results in user's understandable format [4].

To implement I-SOAS we have designed an implementable architecture consisting of four main modules i.e. I-SOAS Graphical Interface, I-SOAS Data Warehouse, I-SOAS Knowledge Base, I-SOAS Processing Modelling and three communication layers i.e. Process Presentation Layer (PPL), Process Database Layer (PDL), and Process Knowledge Layer (PKL) (See Fig 2) [5].

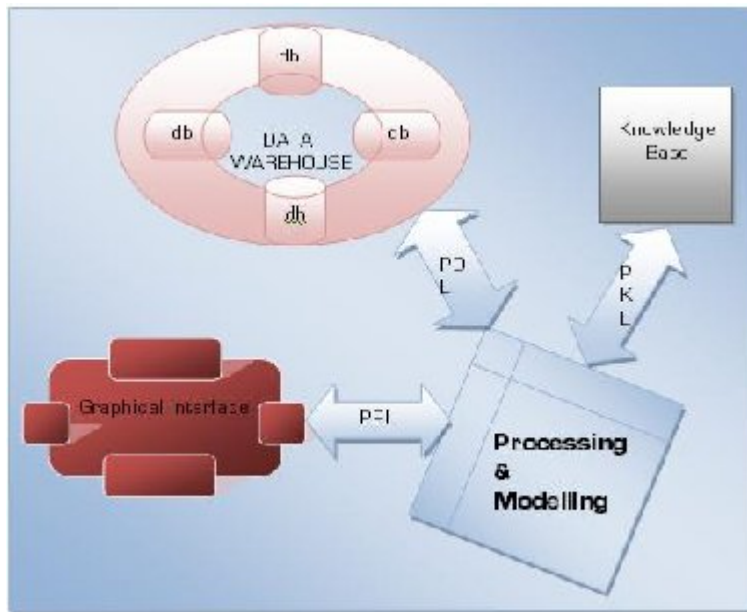


Fig.2. I-SOAS Implementable Architecture [5]

I-SOAS Graphical Interface is proposed to implement intelligent human machine interface, I-SOAS Data Warehouse is proposed to load and manage the organizational technical and managerial data, I-SOAS Knowledge Base is proposed to capture, manage, improve and deliver knowledge and ISOAS Processing and Modelling is proposed to read, organized, tokenize, parse, semantically evaluate and generate a semantic based queries to extract desired results from I-SOAS Data warehouse and I-SOAS Knowledge base. Three communication layers are proposed to transfer data between above mentioned four major modules of I-SOAS Implementable Architecture (See Fig 2).

In this research we are not going in details of any other component of I-SOAS except I-SOAS Data Warehouse. Initially we present I-SOAS Data Warehouse in detail in section 2 of this research paper, then we present I-SOAS Data Warehouse design requirements in section 3, I-SOAS Data Warehouse entity relationship design in section 4 and I-SOAS Data Warehouse's system sequence design in section 5. Moreover we also present information about involved tools and technologies in the development of I-SOAS Data Warehouse in section 6, conclude discussion in section 7 and present the future recommendation in section 8 of this research paper.

2. I-SOAS DATA WAREHOUSE

The main theme or the idea behind the I-SOAS Data Warehouse is to develop a repository to store and manage Product Data Management based Application's heavy volume data. Moreover the designed I-SOAS Data warehouse is conceptually based and meeting the requirements of third component of I-SOAS's conceptual iterative architecture Data Management (see Fig 1).

As we said before, I-SOAS Data Warehouse module is mainly the repository to store, extract, transform, load and manage organizational technical and managerial data. I-SOAS Data Warehouse is supposed to work like other Data Warehouses by providing several options to produce common data model for all data of interest easier to report and analyze information, prior loading data, security and retrieval of data without slowing down operational systems [5].

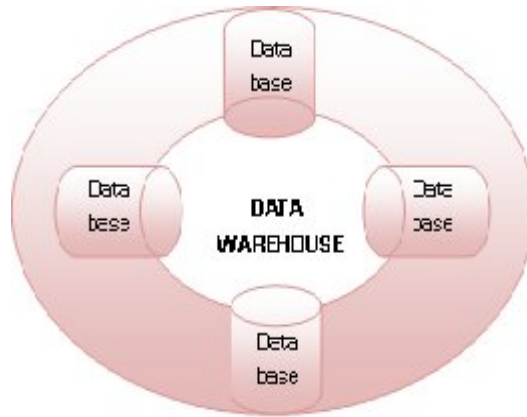


Fig 3. I-SOAS: Data Warehouse

The technical architecture of I-SOAS Data Warehouse consists of five main steps i.e. Extraction, Transformation, Loading, Security and Job control [6].

1. Data will be extracted from different sources during Extraction
2. Data will be transformed by management, integration, de-normalization, cleansing, conversion, aggregation, and auditing in transformation.
3. Data will be loaded in cyclic process in Loading.
4. Data will be secured in security.
5. Job scheduling, monitoring, logging, exception handling, error handling, and notification will be performed in Job handling.

3. I-SOAS DATA WARE DESIGN REQUIREMENTS

The I-SOAS Database must be designed keeping two major record keeping requirements i.e. *Organizational Data and System Data* in mind.

A) Organizational Data

The designed database must be capable of storing and managing organizational technical and non technical data divide into three sub major categories *User Data, Project Data and Product Data*.

The designed database must be capable of storing and managing user data containing user's personal information, role(s), responsibilities, type (s), group(s) and right(s) etc.

The designed database must be capable of storing and managing Project data containing detailed information about project, start end dates, actions, ownerships, category, state, tasks, meeting, status and deadlines etc.

The designed database must be capable of storing and managing Product data containing detailed information about the product produced in the organization, release dates and important notes etc.

B) System Data

The designed database must be capable of storing and managing System Data containing the information about user inputs, system output, actions, reactions, input processing, modeling and event log etc.

4. I-SOAS DATA WAREHOUSE ERD

Following the designed requirements two entity relationship diagram are designed for I-SOAS Database i.e. *I-SOAS Database Organizational Data* and *I-SOAS Database System Data*.

A) I-SOAS Database Organizational Data Design

The designed entity relationship diagram of I-SOAS Database Organizational Data consists of 5 main relations i.e. *Organization*, *Person*, *Staff*, *Project*, *Product* and 17 supportive relations i.e. *Name*, *Contacts*, *Contacts_Web*, *Contact_Telephone*, *Contact_City*, *City_Country*, *City_State*, *Start_End_Date*, *Project_Team*, *Meeting*, *Activity*, *Staff_Meeting*, *Document*, *Type*, *Staff_Document*, *Organisation_Document*, *Project_Document* designed and connected to store and manage organizational data, employee's (user) personal data, project data and product data.

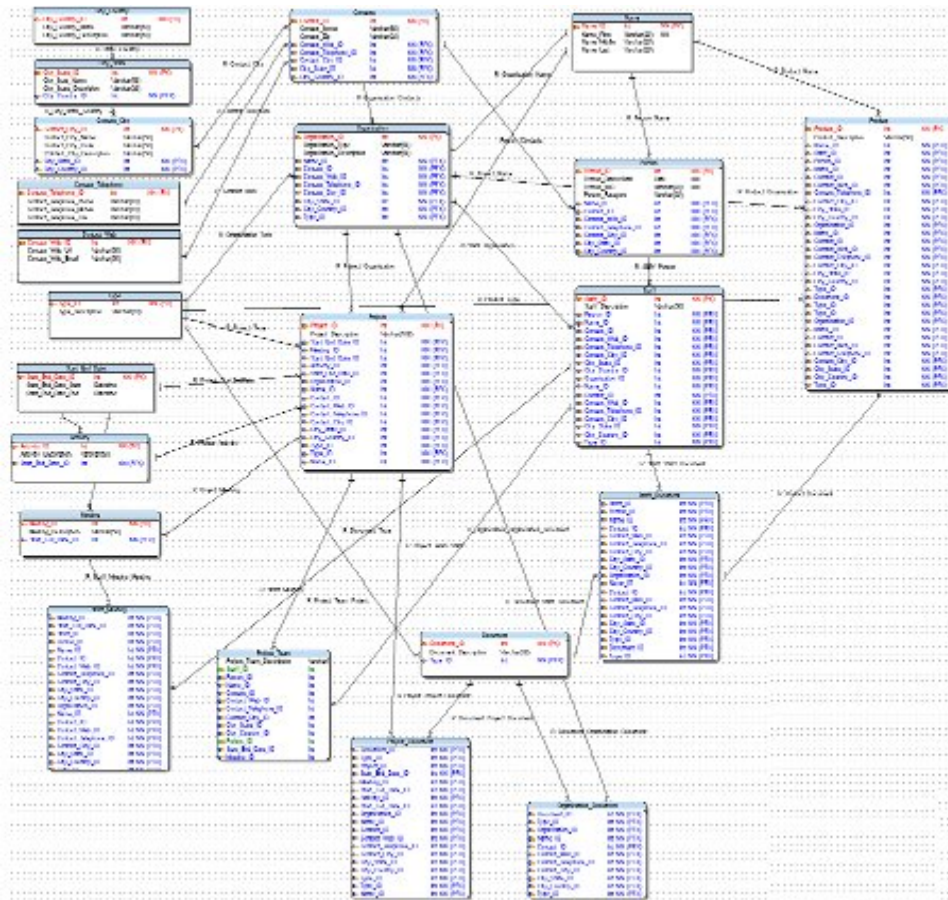


Fig 4. I-SOAS: Data Warehouse Organizational Design

- *Organisation* relation is designed to store and main the information about respective Organisation.
- *Person* relation is designed to store and main the information about every associated person with organization.
- *Staff* relation is designed to store and maintain the information of each and every employee of the organization
- *Project* relation is designed to store and maintain the information of each and every running is the organization.
- *Product* relation is designed to store and maintain the information of each and every product developed in the organization.
- *Document* relation is designed to store and maintain the information of each organizational personal, staff and project document.
- *Staff_Document* relation is an extended relation of relation Document and designed to store and maintain the joint information about staff and document.
- *Organisation_Document* relation is an extended relation of relation Document and designed to store and maintain the joint information about organization and document.
- *Project_Document* relation is an extended relation of relation Document and designed to store and maintain the joint information about project and document.
- *Name* relation is designed to store and maintain the information of the name of Organization, Person, Project and Product
- *Contacts* relation is designed to store and maintain the information of the contacts of Person and Organisation.
- *Contacts_Web* relation is an extended relation of relation Contact and designed to store and maintain the information about the web contacts consisting of email address and url.
- *Contact_Telephone* relation is an extended relation of relation Contact and designed to store and maintain the information about the telephone contacts consisting of Mobile, Fax and Telephone numbers.
- *Contact_City* relation is an extended relation of relation Contact and designed to store and maintain the information about the city contacts consisting of City Name and Code.
- *City_State* relation is an extended relation of relation City and designed to store and maintain the information about the belonging State contacts of the city.
- *City_Country* relation is an extended relation of relation City and designed to store and maintain the information about the belonging Country contacts of the city.
- *Project_Team* relation is designed to store and maintain the information of each team in the organization working on any organizational project.
- *Activity* relation is designed to store and maintain the information of each activity performed in the orgazation.
- *Meeting* relation is designed to store and maintain the information of each meeting between organizational staff.
- *Staff_Meeting* relation is an extended relation of relation Meeting and designed to store and maintain the joint information about staff (attended meeting) and meeting itself.
- *Type* relation is designed to store and maintain the information of the types of organization, document, project, product, system input and system output.

- *Start_End_Date* relation is designed to store and maintain the information of the start and end date and timing of organizational projects and meetings.

B) I-SOAS Database System Data Design

The designed entity relationship diagram of I-SOAS Database Organizational Data is consists of three relations i.e. *Login*, *SystemInput* and *SystemOutput*.

- *Login* relations is designed to store and maintain the user system login information (User name and Password).
- *SystemInput* relation is designed to maintain user input instruction by storing information about user inputted instruction details including time, date and user (who inputted).
- *SystemOutput* relation is designed to maintain system Output by storing information about system outputted instruction details including time, date, and respective input.

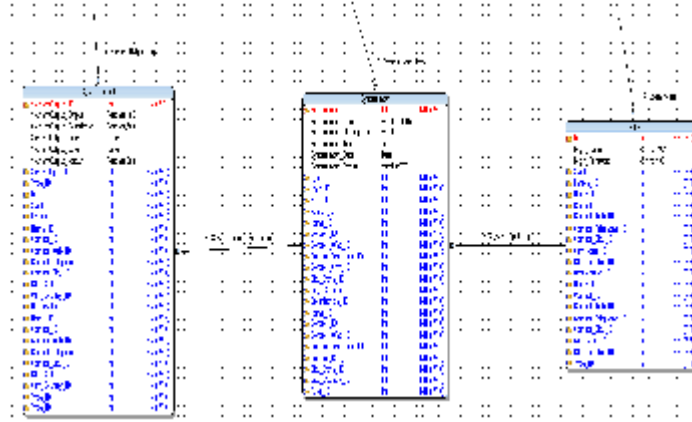


Fig 5. I-SOAS: Data Warehouse System Data

5. I-SOAS DATA WAREHOUSE SYSTEM SEQUENCE DESIGN

I-SOAS Data Warehouse System Sequence Design is consists of three main components i.e. Process Database Layer (PDL), Data Input and Database.

These three components are supposed to perform certain jobs. The job of Process Database Layer (PDL) is to bring system data from I-SOAS Processing and Modelling and forward to Data Input. Then system data will be stored and managed in database by Data Input component. Then the final acknowledgement will be send to I-SOAS Processing and Modelling via Process Database Layer (PDL).

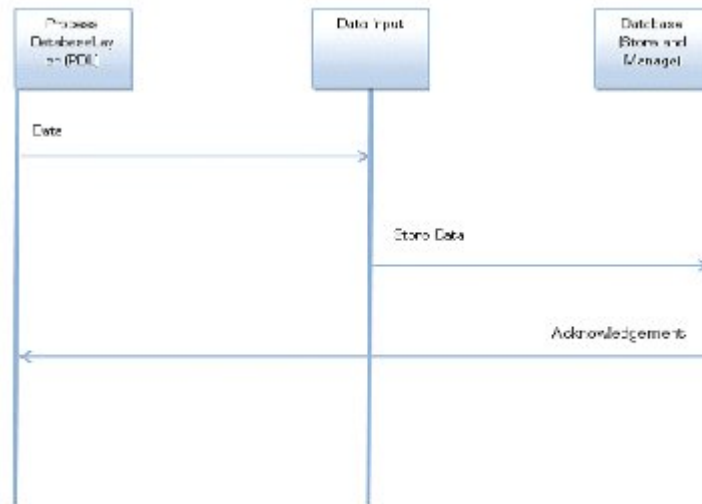


Fig 6. I-SOAS: Data Warehouse System Sequence Design

6. I-SOAS DATA WAREHOUSE TECHNOLOGIES INVOLVED

For the implementation of I-SOAS Data Warehouse we are considering MySQL Data Warehousing platform.

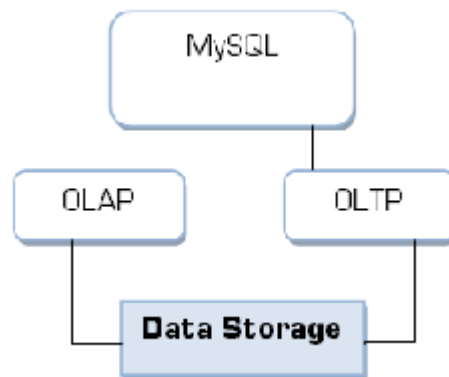


Fig 7. I-SOAS: Data Warehouse Technologies Involved

7. CONCLUSION

In this research paper we have briefly described Product Data Management and its some major existing challenges, then continuing the presentation of research briefly described the conceptual and implementable architecture of our own proposed solution based approach I-SOAS targeting PDM challenges. In this research paper we have also described the design requirements and implementation of I-SOAS Data Warehouse (a component of I-SOAS). Moreover describing the detailed information about I-SOAS

Data Warehouse, we have presented information about the theme, design requirements, designed designs and technologies involved in the development of I-SOAS Data Warehouse.

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**OUTCOMES OF CUSTOMER SATISFACTION
A STUDY OF AUTOMOBILE SECTOR IN PAKISTAN**

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ABSTRACT

The purpose of this study was to examine the impact of outcomes of customer satisfaction in automobile sector. The data was collected from 225 customers through a questionnaire. The findings reveal that the outcomes of customer satisfaction are significantly correlated with price, quality and brand loyalty. These factors can improve the sales volume of any automobile company and the company can become more interested and motivated for getting the satisfaction of its customers. Results indicate that Innovation is an investment of the company and it changes the idle sales into rising graph of sales and helps to become the tycoon in automobile industry. The companies will have to develop more strategies according to the customer needs to increase the sales volume.

INTRODUCTION

Customer satisfaction increases the repurchase intentions (Anderson & Sullivan, 1993). Consistently providing high satisfaction leads to higher repurchase intentions (Anderson & Sullivan, 1993). In marketing, customer satisfaction is assumed to be one of the most vital determinants for company's success (Anselmsson, 2006). Research shows that customers, who are highly satisfied, pay high prices (Homburg, Koschate, and Hoyer 2005) and are less price sensitive (Stock, 2005).

In Pakistan, there are well known brand of automobile companies operating their business in Pakistan like Toyota, Suzuki, Honda, Mercedes, Mitsubishi and other companies. They are introducing new models in the market and successfully gaining profits. We conducted this research because there has been a very few research work on the outcomes of the customer satisfaction in Pakistan. No proper research is conducted in this area to find out why some companies are bearing losses and how some companies have enhanced their profitability. There has been a phenomenal growth in users of the automobile in Pakistan from last two decades. One of the major reasons of this growth is the auto financing scheme by the banks. Our study will enable the automobile companies to understand what drives overall customer satisfaction, how their effects vary across customers and what the firm could do to specifically influence these drivers of overall satisfaction and thus improve firm performance.

LITERATURE REVIEW

Literature relevant to Customer Satisfaction indicates a number of variables which determine Outcomes of Customer Satisfaction. Some of these findings are given in the following sections.

Price: Money for which thing is bought or sold is called Price. The consumer often goes through a sequence of steps by choosing the best alternative before arriving at final choice (Hanssens & Johansson, 1991). Price conscious consumers buy the lower priced brand available (Lal, 1990). It is very important to understand the customer requirements to manage the customer satisfaction for retention and creation of new customers (Reddy, 2005). Research indicates that prices tend to decrease as a product form cross the time path of its life cycle (Curry & Riesz, 1998). High-quality brands are generally less adversely affected by a price increase than are low quality brands (Sivakumar & Raj, 1997). For many products the relation between quality and price is weak; hence, for many products, higher prices appear to be poor signals of higher quality (Gerstner, 1985). The sensitivity of price in loyal customers is very less as compared to no loyal customers (Graham & Garber, 1984). For a major brand, the main benefit of price promotions will come from variety seeking consumers rather than from reinforcement consumers (Kahn & Raju, 1991).

Based on above findings, price has been identified as a factor that influences customer satisfaction. Data analysis will determine extent of relationship between customer satisfaction and price among automobile users in Pakistan.

H1: Price is negatively associated with customer satisfaction.

Quality: The degree to which a product meets the expectations of the customer is called Quality. General views of people about price have a great impact on product quality (Huq, 2005). Quality which falls short of expectations was found to have a greater impact on satisfaction and retention than quality which exceeds expectations (Anderson & Sullivan, 1993). For quality evaluation consumers analyze internal standards of the product (Urbany et al, 1997). When companies improve quality of the product it becomes more favorable for the firms that it gives tangible benefits (Brown & Swartz, 1989). High level quality can lead commitment of the customer to repurchase the product (Stiving, 2000).

The present study will attempt to find out as to what extent the quality of automobiles is affecting customer satisfaction of Automobile users in Pakistan.

H2: Quality is positively associated with customer satisfaction.

Brand Loyalty: Loyalty to brand of a product or good is defined as the tendency to buy that particular brand of a product. Loyalty in terms of product or brand is defined by Kotler and Killer “loyalty is a commitment to re-buy or re-patronize a preferred product or service”. Brand loyalty is not simply repeat-purchase behavior. The distinction is crucial. A consumer who chooses the same brand each time he buys a new car is not necessarily doing so out of brand loyalty. He may be comparing current prices and vehicle quality and then choosing to purchase the same brand. Loyal customers are less price sensitive than non loyal customers in the choice decision (Tellis, 1988). Consumers need not be uncertain about the prices for brands they often purchase, e.g. their favorite brand (Chaudhuri & Holbrook, 2001). Research shows that the weaker brand gains more from price promotions (Muehling & Laczniak, 1988). The high quality of the product creates loyal consumers (Kumar & Leone, 1988).

The present study tells as to what extent the brand loyalty exists in automobile users of Pakistan and how much people are brand conscious.

H3: Brand Loyalty is positively associated with customer satisfaction.

CUSTOMER SATISFACTION

Analysis of Customer satisfaction helps managers to target the right customer segments (Krishnan et al, 1999). Customer satisfaction results from meeting and exceeding the customer expectations (Reddy, 2005). Customer satisfaction was found to have a positive impact on repurchase intentions (Anderson & Sullivan, 1993). Customer Satisfaction plays a key moderating role for the relationship between price increases and Repurchase intentions (Homburg, Hoyer & Koschate, 2005). Although Toyota was slow with the introduction of front-wheel drive, it was still ahead of the Europeans, except Volkswagen and Saab which were early promoters (Afullo, 2004). Japanese autos penetrated the American market successfully; their chances of acceptance in the European market were further enhanced (Garbarino & Johnson, 1999). The experience in the auto industry may or may not be replicated in other industries, and thus we cannot draw general conclusions from this particular study alone. However, it is difficult to attribute these results to any special factors in the auto industry, and it seems quite likely that the same scenario has been repeated in other industries, including many consumer electronics markets, copiers, and cameras. Of course, further research is necessary to assess this more thoroughly.

THEORETICAL FRAMEWORK

This Diagram is based on hypothesis indicating that customer satisfaction is dependent variable and it is directly supported by three independent variables which are price, quality and brand loyalty. Two independent variables have positive relation with Customer Satisfaction and one has negative relation with customer satisfaction.

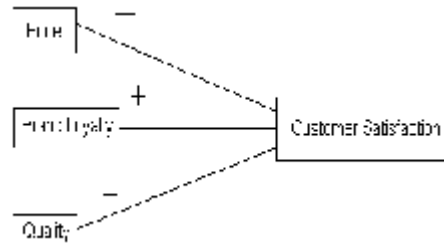


Fig. 1: Relationship between price, quality, brand loyalty and customer satisfaction

RESEARCH DESIGN

The purpose of this study is to test hypothesis. We develop the hypothesis on the basis of review of other researches about the same topic. In this study we are testing the relationship of Customer satisfaction with price, quality and brand loyalty. This study is co relational study because we have to find out the relationship of one dependent factor customer satisfaction with three independent contributing variables; price, quality and brand loyalty. In our research there was minimal interference level and this research is conducted in natural or non contrived environment. Data has been collected from individual users by personally distributing questionnaire to each individual. Data collection is cross sectional and only collected once and then analyzed.

METHODOLOGY

This section discusses the methodology adopted for the research. It includes discussion about questionnaires and participants.

Questionnaire: We developed the questionnaire ourselves. Only the questions for brand loyalty were adopted by Huq (2005) who used it to find out brand loyalty of products in Bangladesh. We used this questionnaire to find out customer satisfaction. We made little changes in questionnaire and used 5-point likert scale. We also made some minor changes in demographics data as per local requirements of Pakistan. The 5-point likert scale used is

1 = strongly agree, 2 = agree, 3 = Neutral (neither disagree or agree),
4 = Disagree, 5 = Strongly Disagree

This questionnaire includes four sections. The demographics section includes 5 items and section 1, 2, 3 and 4 respectively consists of 6, 6, 11 and 15 items. The questionnaire was distributed personally and filled individually from automobile users from different areas of Pakistan.

PARTICIPANTS

Automobile users of Pakistan are taken as sample working in different organizations in Pakistan. The questionnaire was distributed in 5 different sectors in Pakistan among 270 users. Where as 225 questionnaires were returned back. The response rate was 83 %. The majority of the respondents are male participants which are 195 and it makes 86 % of total sample. Where as 30 respondents are female participants which make 13 % of total sample. The reason behind this huge difference is that most of the females do not drive in Pakistan. As now in Pakistan, the trend of driving by women is increasing since last couple of years but this is mostly for women working in organizations. That's why women participants are less than those of men. A large number of participants are in 20s and 30s and mostly employees and business men. This research is made among the automobile users of elite class. Mostly the users working in organizations at senior level have large tenure and are well educated. Young automobile users are mostly students.

STATISTICAL METHODS

Statistical tool such as correlation matrix and regression were used for data analysis. Their details are discussed in the following section.

Correlation matrix: Correlation test was conducted to verify existence of relationship between the independent variables i.e. price, quality and brand loyalty and the dependent variable customer satisfaction.

Regression analysis: Relative strength of relationships between customer satisfaction and its outcomes was examined through regression analysis.

RESULTS

The results obtained by data analysis are discussed in the following section.

Table 2: Correlation matrix

	CS	Price	Quality	BL
CS	1			
Price	0.139*	1		
Quality	0.104	0.189**	1	
BL	0.277**	0.446**	0.199**	1

n=225, CS= Customer satisfaction, BL= Brand Loyalty

The correlation matrix (Table 2) indicates that Price is positively and significantly correlated with Customer satisfaction of automobile users (0.139*) Correlation analysis establishes that Quality has significant relationship with Customer satisfaction (0.104). There is significant relationship between Brand Loyalty and Customer satisfaction (0.277**).

Table 3: Regression Analysis

Independent Variables	Beta	t-value	Sig
Constant		4.271	.000
Price	0.211	3.595	.000
Quality	0.398	6.686	.000
BL	0.102	1.717	.087

n =225; R Square = 0.256; Adjusted R Square = 0.246;

F = 25.391 Significance F = .000; Dependent Variable = Customer satisfaction

Table 3 presents the regression coefficient of independent variables on dependent variable i.e. Customer satisfaction.

DISCUSSION

The purpose of our study was to examine relationship between Price, Quality, Brand Loyalty and Customer Satisfaction among automobile customers in Pakistan. As per hypothesis, Price emerged as a determinant of Customer Satisfaction. As long as our independent variables (price, quality and customer satisfaction) are concerned, the findings proved significance of the statements that were hypothesized. That is they are strongly and positively linked with customer satisfaction.

Being key component of necessity of customer satisfaction, individuals of any discipline are more concerned about price and quality which allow them to buy a standard vehicle. Respondents' answers to various questions showed that they feel high prices do not matter to them when they are going to buy a good quality vehicle. Our research shows that quality is the most important element of automobile customers either they are buying a low budget vehicle or a high budget vehicle. Concluding these results, we found that customers are satisfied with their vehicle brands. Customers of low price vehicles are not satisfied with the offered features. Brand loyalty has a direct influence on the decision of the customer. After sales services increase the customer satisfaction and it is a very attractive tool by the automobile companies.

IMPLICATIONS

The present study provided a number of implications for automobile companies in Pakistan. Results indicate that Innovation is an investment of the company and it changes the idle sales into rising graph of sales and helps to become the tycoon in automobile industry. The companies will have to develop more strategies according to the customer needs to increase the satisfaction level. This ultimately affects the sales volume.

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DESIGN OF DNA ORIGAMI

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ABSTRACT

In this paper we are proposing the basic units of AutoCAD design and DNA (Deoxyribho nucleic acid) Top-down methods for patterning at the nanoscale have been very successful. Methods range from photolithography, which allows routine patterning at the 90-nanometer scale, to more exotic methods like electron beam lithography, di-pen lithography, atomic force microscopy (AFM) and scanning tunneling microscopy (STM) that allow patterning at length scales from 20 nm down to 0.1 nm.

INTRODUCTION

Top-down methods, however, have several drawbacks. To reach finer length scales, it appears that photolithography will require fabrication equipment of steeply increasing cost. The remaining techniques are serial; they require that patterns be created by drawing one line or one pixel at a tie. Except for dip-pen lithography and AFM, top-down methods require ultra-high vacuum, ultra-clean conditions, or cryogenic temperatures.

Self-assembly, the spontaneous organization of matter by attractive forces, has been put forth as an inexpensive, parallel method for the synthesis of nanostructures that dos not required expensive equipment and extreme conditions. At the molecular scale many different classes of molecules have been advanced as the basic units of self assembly, from relatively small organic molecules like porphyrins or short peptides to proteins or while viral particles. Much progress has been made in these systems but the resulting structures are relatively simple and generally periodic in nature.

The problem is that to creative complex structures using self-assembly, one must be able to program complex attractive interactions into the basic units: the interactions between the basic units must be highly specific and the geometry between units, once bonded, must be well-defined. An important difficulty is that of creating many different types. This paper we organized section 1 (design of DNA) on page 3 section 2 on page 4 section 3 linking number on page 8 and conclusion on page 9 and reference section 5 on page 10 will be purposing basic unit's interactions between AutoCAD design and DNA with the help of DNA origami.

DESIGN OF DNA

If components of type A, B,C and D are to stick together into a linear structure ABCD then three specific attractive interaction between the specific glues – no pairs AC form, for example, for most classes of molecules, creating more than a few types of components and a few types of specific glue is a difficult research project. Creating components with complex geometry, for example squares with four edges, each capable

of carrying a specific glue, is beyond our reach for most classes of molecules; for proteins it may take a decade or more before we can engineer such components.

DNA, however, is readily engineered to create complex components for self-assembly. The use of DNA for this purpose is encompassed by the field of 'DNA nanotechnology'. Which uses exquisite molecular recognition of Watson-Crick binding to program the self-assembly of complex structures. DNA nanotechnologists rely on the principle that, to first order, a DNA sequence composed of the 'A', 'G', 'C', and 'T' binds most strongly to its perfect complement.

For example '5-ACCGGGTTTT-3' binds most strongly to '3-TGGCCCAAAA-5', somewhat less strongly to a sequence with a Hamming distance of 1 from the perfect complement '3-TGGCCCAAAC-5', even less strongly to a sequence of Hamming distance 2, such as '3-TGGCACAAAC-5', etc. The ordering of binding strengths is only approximately governed by Hamming distance and actually depends on the sequences in questions; much progress can be made with this approximation, however. Further, while the energy of binding decreases roughly linearly with Hamming distance, the tendency of two strand to bind, as measured by the equilibrium constant, changes exponentially – making it possible to design many different DNA glues of extraordinary specificity.

A second major principle, upon which DNA nanotechnologists rely, is the DNA has many rigid, well-characterized forms that are not a linear double helix. Of particular interest are branched forms of DNA, wherein three or more double helices intersect at a common vertex. This is accomplished by giving each of three different DNA sequences partially complementary sequences. The first half of strand 1 complements the last half of strand 2, the first half of strand 2 complements the last half of strand 3 and the first half of strand 3 complements the last half of strand and show an important example, a 'double-crossover molecule' the first rigid, engineered DNA structure in which two double helices are held in a rigid parallel arrangement. Note how some strands (2, 3 and 4) participate in both helices – they wind along one helix, then switch to another through a structure called a 'crossover' (small black triangles). It is the crossovers that hold the helices together.

Over the last 15 years, such techniques have been used to create a diverse set of arbitrary DNA shapes and patterns (Reproduces some of them). Shapes include a cube a truncated octahedron and an octahedron. The most complex pattern demonstrated to date is a 4 x 4 array of 16 addressable pixels. All these designs represent milestones in the creation of DNA nanostructures; each took significant effort to design and synthesize (on the order of 1- 2 years). A question becomes, how may the lessons learned from landmark DNA nanostructures be generalized to create a framework that allows the creation of arbitrary patterns and shapes?

To answer this questions, one must understand the advantages and disadvantages of different approaches. Within the DNA nanotechnology paradigm, a couple major distinctions can be drawn. First, designs may be classified by how they are built up from component strands, being (1) composed entirely of short oligonucleotide strands as in (2) composed of one long 'scaffold strand' (black) and numerous short 'helper strands' (colored) as in (3) composed of one long strand and few or no helpers as in (3) composed of one long strand and few or no helpers as in Here these design approaches are termed

'multi-stranded', 'scaffolded', and 'single-stranded', respectively. The last two are termed 'DNA origami' because a single long strand is folded, whether by many helpers or by self-interactions.

Multithreaded designs (such as the cube and truncated octahedron) suffer from the difficulty of getting the ratios of the component short strands exactly equal. If there is not an equal proportion of the various component strands then incomplete structures form and extensive purification may be required. Because, for large and complex designs, a structure missing one strand is not very different from a complete structure, purification can be difficult. Single stranded origami (such as the octahedron) do not suffer from this problem but generalization to arbitrary geometries seems difficult (perhaps not enough thought has been given to the problem). Scaffolded origami sidesteps the problem of equalizing ratios of strands by allowing an excess of helpers to be used. As long as each scaffold strand gets one of each helper, all scaffolds may fold correctly (some might get trapped in misfoldings). Because origami are easily differentiable from the helpers, separating them is not difficult (e.g. large origami stick much more strongly to mica surfaces than helpers do and so excess helpers can be washed away). Generalization of the parallel helical geometry introduced by double-crossover molecules is simple using scaffolded DNA origami (and is the subject of this paper).

A second important distinction between different approaches is the question of whether or not any DNA sequences are repeated in the design. If not, a structure is uniquely addressed and there is no ambiguity as to which strands should stick where in a final structure. In this situation Watson-Crick binding directs each strand to a unique location and an experimenter is free to mix all of the strands together at once in free to mix all of the strands together at once in so-called one-pot reaction. If some sequences are repeated, then either a mixture of structures is formed or the resulting structure has some symmetries unless there is a specific method employed to break symmetry in the system for example DNA strands are added to the test tube in a particular sequences. The cube, truncated octahedron and octahedron are all uniquely addressed structures, as are biological proteins. The 4x4 pixel array is not uniquely addressed and was assembled over multiple steps in a hierarchical fashion.

DESIGN OF SCAFFOLDED DNA ORIGAMI

The design of DNA nanostructure rests on knowledge of the natural geometry of DNA. While the fine structure of DNA double helix depends on the actual sequence of bases (certain sequences of DNA are helices is largely independent of sequences. Thus, with few exceptions, nanometer scale features of DNA nanostructures be engineered without regard to the sequences that is used. At the grossest level, double stranded DNA can be idealized as a cylinder ~2 nanometers in diameter and roughly 3.6 nanometers long for every turn of the double helix.

Thus to approximate a shape using DNA, one begins by creating a geometric model made from 2 nm cylinders. To do so, pairs of parallel cylinders of identical length, are used to fill the shape from top to bottom. The cylinders are cut to fit the shape in sequential pairs, with the constraint that they must comprise an integral number of DNA turns and thus be multiples of 3.6 nm in length. The resulting model approximates the

shape within one DNA turn in the x -direction and two helical widths in the y -direction. To hold the cylinder together, a periodic array of crossovers is added. In the final molecular design, as in the double crossover strands will switch between helices at these points. In crossovers occur every 1.5 turns along a helix, but any odd number of half turns may be used. Studies of DNA lattices have shown that parallel helices joined by crossovers are not close-packed, perhaps due to electrostatic repulsion. It appears that the 'inter-helix gap' depends on crossover spacing, ~ 1 nm for 1.5-turn spacing and ~ 1.5 nm for 2.5~turn spacing. Thus, depending on crossover spacing an appropriate inter-helix gap is incorporated into the model.

Conceptually, the translation of a geometric model to a molecular design proceeds by folding a single long scaffold strand back and forth in a raster fill pattern so that it comprises one of the two strands in every double helical domain. Such a folding path is shown by the black contour in when circular DNA is used as a scaffold, the path must end where it begins. To achieve this the raster direction is reversed halfway through the design and a 'seam' a contour which the scaffold does not cross, is formed. Importantly, the scaffold switches between helical domains only at points where DNA twist places the scaffold backbone near a tangent point between helices. (This requires a finer-grained model of DNA that takes into account details of the helix). To fold the scaffold into this conformation, a set of helpers is added colored strands. These strands provide Watson-Crick complements for the scaffold and create the crossovers shown at crossovers strands are drawn misleadingly, as if single stranded regions span the inter-helix gap, but in the design no bases are unpaired. In reality helices may bend gently to meet at crossovers so that only a single phosphate from each backbone occurs in the gap as suggests for similar structures. Wherever two helpers meet, there is a nick in the backbone. Nicks do not occur between helices as might be concluded from but rather on the top and bottom faces of the helices, as depicted.

To give the helpers larger binding domains with the scaffold (e.g. for higher specificity), pairs of adjacent strands are merged to yield fewer, longer, strands. The pattern of merges is not unique, different choices yield different final patterns of nicks and helpers. While any pattern of merges creates the same shape, the pattern of merges dictates the types of patterns that can later be applied to the shape. A rectilinear pattern of merges leaves a rectilinear pattern of helpers; staggered merges leave a staggered pattern of helpers. In helpers cross the seam and the two halves of the shape must be held together by weak stacking interactions that occur between helix ends across the seam.

LINKING NUMBER

Linking number is a topological property of two or more oriented linked circles. It can be calculated by assigning +1 or -1 (according to the convention shown below) to each crossing of different curves (self crossings are not taken into account), summing the values for all crossing and then dividing by 2.

A node convention. If clockwise rotation of the overpassing segment leads to superimposition, then the node is negative (-1); if such rotation is counterclockwise, then the node is positive(+1).

Because DNA strands can be assigned an orientation (5' to 3', or reverse), we can assign linking numbers to supercoiled DNA molecules. It turns out that most plectonemically supercoiled DNA is negatively supercoiled. This means that the Linking different = $Lk - Lk_0$, where Lk_0 is the linking number of relaxed DNA, is a negative number.

Another, even more useful, parameter is the specific linking density, defined as $(Lk - Lk_0) / Lk_0$. Specific linking density is more useful because it can be easily determined experimentally. Linking numbers can be related to two geometrical parameters : twist (T_w) and Writhe (W_r) using the following formula;

$$Lk = T_w + W_r$$

Twist of DNA described how two strands coil around each other, and writhe describes how the axis coils in the space.

CONCLUSION

The generation of arbitrary patterns and shapes, at very small scale is at the heart of my effort miniaturize circuits and is fundamental to the developed method for folding long single strands of DNA into arbitrary two-dimensional shapes using a raster fill techniques – ‘scaffold DNA origami’. Shapes up to 100 nanometers in diameter can be approximated with a resolution of 6 nanometers and decorated with patterns of roughly 200 binary pixels at the same resolution. The creation of a dozen shapes and patterns, the method is easy, high yield, and lends itself well to automated design and manufacture. So far, DNA are simple, require hand-design of the folding path, and are restricted to two dimensional designs.

I have recently developed a method for using scaffolded origami to create arbitrary nanoscale shapes, which may then be decorated with arbitrary nanoscale patterns. Structures are uniquely addressed and can be created simple in a one-pot reaction. The design methods and experiments demonstrating its generality are described in reference included are atomic force micrographs of DNA origami that allow direct comparison with the designs described here. Below, I review the method and describe some issues in the computer aided design of scaffolded DNA origami.

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**BANGLE WOMEN AND HER CONTRIBUTIONS IN THE HOUSEHOLD
ECONOMY: A CASE STUDY OF HYDERABAD, SINDH**

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ABSTRACT

Hyderabad is leading bangle making city in the Pakistan. Bangle making has a very long history well before the partition of India. People migrated from India to present Pakistan and brought bangle making art along with others crafts in Hyderabad. Women in bangle making have been actively involved and performs various tasks to achieve final product. Her role in the context of her economic contributions has seldom been studied due to ignorance and overall attitude of society in general. This paper attempts to examine the extent to which bangle women efficiently plays effective role in the family unit. The paper also highlights some of the health and social challenges that she encounters with while making bangles.

KEY WORDS

Peri-urban; Bangles; Time budgeting; Economic Contributions; Sample study area; and Family structure.

1. INTRODUCTION

A very large number of women participate shoulder to shoulder with men in economic activities that constitute a large proportion income constituted domestically. These women work in the agricultural fields, construction works and in many other sectors of urban economy. Seldom is their role recognized. This research examines the economic role of women working Bangle industry in the urban areas of Hyderabad, Sindh. The paper is divided into three parts: Part one briefly explains conceptual framework and introduces the research in the context of its objectives and methods. Part two presents some primary data analysis and interprets it through findings. Part three provides summery of conclusions and recommendations.

2. CONCEPTUALIZATION

Women constitute around one third of the wage-labor force in the world. Much of their work, however, is unpaid, including gathering fuel and water, among a wide range of other activities in rural-urban sectors of economy. Women also dominate the informal sector of the economy - and this work is not usually reflected in economic statistics. If global calculations of the gross domestic product included household work, the amount would increase by at least 25 per cent. When all of women's work is taken into account, their economic contribution increases dramatically and is generally greater than that of men. It is also clear that women work much longer hours than men. In developing countries, women's work hours exceed men's by approximately 30 per cent. The use of

part-time and temporary workers is becoming increasingly common, and up to 90 per cent of these workers are women in developing world. This has short-term benefits in that it increases the number of jobs that can be handled along with household responsibilities. It has long-term disadvantages, however, including reduced job security, retraining opportunities, and workplace benefits, such as pensions and health insurance.

Women work because they need to do so to support their families, whether or not they have a partner and whether or not he is making a contribution to the household. Male unemployment and underemployment have put even more pressure on women to take on the role of bread-winner. Men are increasingly unable to support their families alone. Because women are more likely to spend their earnings on their families' basic needs, their income tends to have more positive effects on family well-being.

Despite their key economic roles, women occupy a very small minority of decision-making positions in the economic arena. They have a small proportion of such positions in public economic institutions, such as ministries of finance. In most countries, they make up just 10 to 30 per cent of managers in the private sector, and occupy less than 5 per cent of the very highest positions.

Examining the role and economic and contributions of working women in the household economy is a challenging task especially in the urban slums. Women work hard to contribute towards total earnings generated by the family members in the household. Overall, the research is geared to quantify economic potentials of bangle industry in Hyderabad. Also, to explore policy options that could be used for improving the working conditions of women in the bangle industry. The succeeding sections highlight some of the methodological aspects of the study followed by results and policy recommendations. Table 1 explains the study methods, selection criterion and sample size in summarized form.

Table 1: Summery of Study Methods Criterion and Sample Size

Study Dimension	Sample Size	Sampling Division (in Years)	Parameters
Women's Role	120	40 Women 1-5 40 Women >5 to 10 40 Women >10	<ul style="list-style-type: none"> • Demography • Family Structure • Time Management
	35	Bangle Industry Owners	<ul style="list-style-type: none"> • Role in family Decisions • Children • Leisure and Events
	6	Market Intermediaries	<ul style="list-style-type: none"> • Facilities - Health, Schooling, Shelter & Diet • Employment • Wages, Costs, and Incomes • Opinions, Responsibilities and Issues

3. RESULTS AND FINDINGS

The women in Bangle work is an integral part in the industry as she actively participate in the bangle making process, she also contributes to a significant levels for the development of her household economy as well as the economy of the province as a

whole. All age group of women could easily be found engaged in bangle making works. The data analysis indicates that good number of young girls, married and old age women were doing bangle work.

Table 2: Marital Status of Sample Respondents

S.No.	Marital Status	Cases	%
1	Married	56	47
2	Un-Married	64	53
3	All	120	100

Source: Survey Data, 2004

The household composition of sample women presents a typical scenario of urban slum. Theoretically joint family structure is reported. Whereas, once women is married she cooks separate and her income along with her husband's income and the income of their working youth are pool together to look after the needs of their individual household unit. In other words, although married brothers, sisters and some times close relatives live together under one roof but the financial obligations and responsibilities are not shared collectively.

Table 3: Average Family Size of Sample Respondents- N=120

Respondent Experience Category- Years	Average	Stdev	Minimum	Max
1-5	7.8	2.7	3	13
>5-10	8.5	2.6	2	13
> 10	7.5	2.8	3	15
All	7.9	2.7	2	15

Source: Survey Data, 2004

Each individual married unit living under that roof has to look after their needs, and match demands in the light of income they generate as a single unit. Thus, the concept of joint family household only operates as a mechanism for social security, and to counter eventualities that emerge as an exogenous factor.

Table 4: Tasks performed By Bangle Women for Final Product

TASKS
• Jurai: joining ends
• Chhatai: sorting
• Katai: engraving
• Pakai: heating
• Packaging
• Counting
• Sorting out
• Glass blowing
• Cleaning the apparatus
• Trade marking
• Burnishing and many other dangerous activities.

Source: Survey Data, 2004

The individual units living under one roof has only to meet and share common liabilities such as utility bills, and wear and tear. The total amount under liability is proportionality shared and agreed by the individual family units living under one roof. The bangle work is tough and hard, it affects the health of working women. Data indicates that sample women suffered from eye problems, lung diseases, nail burns and other problems such as backache and headache. According to respondents health related problems were directly attributed to bangle work as majority of women developed these complaints only after their involvement in bangle work. The industry at this moment is faced with lots of problems- in terms of policy conflicts with the public sector; to much ignorance by the public sector in recognizing this vital economic contributing sector for the development of Sindh.

Table 5: Ranking Problems Faced by the Women Working in Bangle Making

S.No.	Opinion	Ranking
1	Payment Procedure not satisfactory	1
2	Women has to look after all health & other risks on their own	2
3	Industry is performing good but women is paid less	3
4	Over past couple of years work load has decreased	4
5	Industry is performing poor that reflects payments	5
6	Middlemen is the problem	6
7	Middle men earn higher to that of the working women	7
8	Payment is enough for helping household expenditures	7
9	Over past couple of years work load has Increased	8
10	Not sufficient Payments to meet even Household Expenses	9
11	Enough payment to attend events and spend on leisure	10
12	Major source for earning of household	11
13	Health and other risks are taken carefully by the industry	11

Source: Survey Data, 2004

Due to problems at industry level there is hardly any trickle down effects on women workers. The market intermediaries because of their overall dominance in the profit making process are better-off in terms of profit margins as compared to wage women workers in the industry. The women workers are heavily dependent on the pricing mechanism set by the intermediaries and the quantity of work assigned to them by the intermediaries. In terms of profit making the women are worst-off even though they work on average 4 hours per day. The bangle women worker significantly supplements family income, she is a major motivation for family members within the household units and an active partner for small to medium ranged decisions for the betterment of the family unit.

Table 6: Sample Respondent by Activities during 24 Hours of the Day

S. No.	Average Activities in 24 Hours	Average	Stdev
1	Rest and Sleep	8	1.3
2	Cooking Cleaning House	3	.9
3	Entertainment	3	1.3
4	Praying in 24 Hours	2	.52
5	Bangle Work	4	1.5
6	Other- Washing, Time to Children etc	4	2.3

Source: Survey Data, 2004

The process in which final product is made, and a laborious task in which bangle women is required to operate is quite challenging not only in terms of her physical involvement in the process but also in terms of her time, devotion for the work. In contrast, what she gets as a financial reward is not enough to meet her individual needs, and needs of the family. However, her portion of income is used as pool money that is used by the family unit to look after needs collectively.

Table 7: Ranking For Lack of Education among Sample Respondents- N=120

S.No.	Reasons	Ranking
1	Poverty	1
2	Lack of Interest by the Respondent	2
3	Social Barriers for Girl Education	3
4	Lack of Interest by Parents	4
5	No School	5
6	Other	6

Source: Survey Data, 2004

Data indicate that the incidents of absolute poverty which means women without adequate purchasing power, accessibility to essential information and infrastructure is relatively not applicable to the slums in which bangle working women clusters are found. The data indicate that 99 percent of total sample women had accessibility to schooling, health dispensary and other basic needs as the area where these women were living was an integral part of urban Hyderabad.

Table 8: Wage Rate by Type of Bangle Work

S.No.	Type of Activity	Wage Rate (in Rupees)
1	Balancing	25-50 per day
2	Balancing & Joining	50-70 per day
3	Chataee	30-50 per day
4	Bhatee Work	400 per month
5	Coloring	50 –200 per day
6	Cuttings	60- 100 per day
7	Designing	60- 200 per day
8	Separating	60 – 100 per day
9	Printing	30 100 per day

Source: Survey Data, 2004

When women rights in urban slums are compared with the women living in the peri-urban and rural areas in Hyderabad, one would find that women in those areas are denied of her basic rights. She has limited accessibility, she is also denied off the right over the income in most cases that she generates through working directly and indirectly in agriculture. Contrary to this, all sample women working in bangle industry reported that they used the money they generated at their own will. They also reported that there was no influence from male members regarding how and how much money is spent. It was their decision to be an active participant for family unit's welfare. They desirably wanted to pool as only they can jointly meet the needs and live reasonably better life.

Table 9: Average Costs & Incomes from Bangle Work (N=120)

Description	Costs	Incomes
Average	745	9235
Minimum	180	2400
Maximum	1200	14850
STDEV	243	3340

Source: Survey Data, 2004

4. CONCLUSION

Paper largely reviewed the state of health of bangle women in Hyderabad, her economic contribution to look after the household affairs. It was reported that bangle women does not get adequate financial returns in relation with the task she performs and time spends in performing those tasks. The middlemen become the largest recipient as he substantially exploits bangle women's inputs to his own advantages. The market margins are very high but the greatest beneficiary is always been the middlemen in the bangle making industry. There is no government intervention in curbing or else putting checks on the industry. As a result not only that the industry is performing inadequately but also the bangle women that put so much labor receives very low returns.

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A NEW EXTERIOR POINT SIMPLEX ALGORITHM

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ABSTRACT

We present a new exterior point simplex algorithm (NEPSA) that does not involve artificial variables and can start with any type of basis. The NEPSA uses maximum non-negative ratio test instead of minimum non-negative ratio test which is commonly used in recently developed algorithms [2, 6-8, 11]. The NEPSA can solve Klee-Minty [4] examples in just two pivots what ever the number of constraints and variables are. It can be considered as a variant and improvement of [2].

The algorithm consists of three phases and uses admissible pivots. A comparison of the NEPSA with the standard simplex and [2] reveals that the NEPSA involves lesser iterations for most of the test problems especially where there are a larger number of \geq constraints. The finiteness proof is also given in the paper.

KEY WORDS

Linear programming, basic variable set, artificial variables, artificial constraints, admissible pivots, exterior point simplex algorithms.

1. INTRODUCTION

In [9] Klee and Minty proved the exponential behavior of the simplex method and since then efforts are being made to find a polynomial time algorithm. [6] suggest initial basis which improves iteration number of the simplex method. [10] combines pivot and interior point techniques. [7] presents an exterior point algorithm that requires a dual feasible basis which is always a difficult task to achieve as most of the linear programming problems don't have the dual feasible basis at the start. It also shows exponential behavior for [9]. [8] requires a feasible basis, it means that it requires a phase- I like the simplex method to get rid of \geq and $=$ constraints. [11] presents the criss cross method which avoids phase – I of the simplex method shows exponential behavior for [9]. Recently developed push-to- pull algorithm [2] by H. Arsham shows exponential behavior for the Klee-Minty problem though it avoids artificial variables and requires less computational work. It shows false unboundedness for even smaller problems and infeasible solution for those problems for which simplex method gives optimal solution. One of the main reasons to this exponential behavior is the minimum ratio test.

In this paper we present a new exterior point algorithm and the purpose is to avoid phase-I of the simplex method and use original variables of the problem to find the optimal solution. We use maximum ratio test, admissible pivots and advantage of Dual Simplex Method. The maximum non-negative ratio assigns maximum value to a variable and in this course solution may become infeasible. Phase-I of the new algorithm and that

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of [2] both completes BVS (the basic variable set) but the difference is the maximum ratio test and use of open rows for = constraints whereas the Two-Phase Method (Simplex) uses artificial variables. The NEPSA may be considered as a type of Criss Cross Method [11] or as a generalization of Dual Simplex Method.

2. NOTATION AND DEFINITIONS

Consider the Linear Programming Problem
Maximize or Minimize

$$Z = \sum_{j=1}^n c_j x_j$$

Subject to

$$Ax (\leq, =, \geq) b$$

where $c, x \in R^n$, $b \in R^m$ and A is an $m \times n$ matrix (the matrix of coefficients).

We assume that A has a full row rank. RHS (right hand side) may assume negative values.

3. STANDARD FORM

The problem is converted to the following standard form before solving it with the proposed algorithm:

- The problem must be a maximization problem. If it is a minimization problem, then convert it to maximization by multiplying the objective function by -1.
- All the variables must be non-negative. If not, make them non-negative
- RHS may become negative, keep it as it is.
- Change \geq constraint to \leq by multiplying it with -1.
- Add slack variables in \leq constraints.

It is assumed that after adding slack variable to all \leq constraints, the coefficient matrix is a full row rank matrix. If we have a zero row, then (i) when its RHS is zero, it is a redundant constraint, delete this row and proceed, but (ii) when RHS is non-zero, the problem is infeasible. For = constraints, use open rows that is there will be no variable in the BVS for = constraints. This indicates the incomplete BVS in the initial tableau, whereas push-to-pull uses open rows for both = and \geq constraints.

4. ADMISSIBLE PIVOTS FOR THE PROPOSED ALGORITHM (NEPSA)

The NEPSA uses generalized admissible pivots. The NEPSA uses all possible choices in calculating the ratio of right hand side to pivot column. Here the denominator can be negative whereas in [1] and in the simplex method denominator must be positive number.

5. THE NEPSA (THE PROPOSED ALGORITHM)

To begin with, write the problem in the standard form given in 4.2. The NEPSA consists of three phases. All the phases use the usual Gauss pivot rules.

5.1 Phase - I

If there are no = constraints then there is no need of phase - I, start with phase - II. The phase - I completes the BVS i.e. it fills the open rows. To generate a complete BVS we proceed as follows:

5.1.1 Entering Variable

Entering variable is the non-basic variable having most negative objective coefficient. If there are no negative entries in the objective row, choose the one with most positive objective coefficient.

5.1.2 Leaving Variable

Leaving variable is associated with basic variable having maximum non-negative ratio. In phase – I, calculate the ratio of RHS to pivot column only for = constraints. If ratio does not exist, then choose the next most negative entering variable (or most positive if we are selecting positive entering variables) and find the ratio. If all the choices of entering variable are used and pivot is not possible, then find minimum of RHS associated with = constraint.

i) If **minimum of RHS** > 0 , choose the entering variable associated with most positive objective coefficient (or most negative if we are selecting positive entering variables) and leaving variable with maximum non-negative ratio. Repeat the pivot using positive entering variable (or negative entering variables) until BVS is complete or there is no choice of admissible pivot.

Otherwise (ii) If **minimum of RHS** $= 0$, then find a non-zero entry in the constraint row and pivot; if non- zero entry does not exist, this indicates an incomplete BVS (i.e. constraint row is redundant). Delete this row and proceed.

Otherwise (iii) If **minimum of RHS** < 0 , then find a negative entry in the constraint row

with $\max \left(\frac{z_j - c_j}{a_{rj}} \right), a_{rj} < 0$ and pivot. If all the entries are non-negative in the constraint

row then solution is infeasible. This will complete the BVS.

Note: In the completing BVS in phase – I, switch between positive entering variable and negative entering variable and vice versa if pivots are not possible.

5.2 Phase – II

After the BVS is complete or there is an indication of redundant constraint, check the dual feasibility of the solution. If it is dual feasible, then apply dual simplex method. Note that the objective of phase - II is to attain dual feasibility.

5.2.1 Entering Variable

The entering variable is associated with a non basic variable having the most negative objective coefficient.

5.2.2 Leaving Variable

The leaving variable is associated with basic variable having maximum non-negative ratio of RHS to pivot column. If ratio does not exist, find another entering variable with the next most negative objective row coefficient. If all the choices for entering variable are used and the pivot is not possible, then find the minimum of RHS.

i) If **minimum of RHS** ≥ 0 , then solution is unbounded.

ii) If **minimum of RHS** < 0 , then find a negative entry in the constraint row with

$\max \left(\frac{z_j - c_j}{a_{rj}} \right), a_{rj} < 0$ and pivot. If it has no negative entries in the pivot row, then

solution is infeasible similar to the dual simplex method.

Repeat the procedure of finding the entering and leaving variable until an optimum or dual feasible solution is reached. As the NEPSA involves dual pivots, there is a chance that it may not produce a dual feasible solution over a large number of iterations N [The large number N , the number of iterations is also suggested by [11] and it is 2-times the sum of the number of variables and constraints]. If so, then add an artificial constraint to obtain dual feasible solution and apply the dual simplex method. This procedure is well defined in the literature of the dual simplex method, see [5].

Now take artificial constraint as

$$\sum \alpha_j + s = M$$

where α_j is 1 associated with negative c_j , s is the slack variable and M is a large number.

5.3 Phase - III

After obtaining dual feasible basis, apply dual simplex method if solution is primal infeasible.

The NEPSA solves a problem for N iterations. If dual feasible solution is not obtained by phase – II, then it suggests to add an artificial constraint to the current tableau or add artificial constraint to the tableau obtained at the start of phase - II. After adding the artificial constraint to the problem, maximum ratio test will automatically select the slack variable in artificial constraint as the leaving variable. The next tableau then becomes dual feasible.

Note: In solving test problems artificial constraint was never used in NEPSA whereas push-to-pull algorithm shows false unbounded solution and requires artificial constraint for small size problems. The NEPSA may require artificial constraint for a large scale problem in the presence of degeneracy.

5.4 Finiteness of the NEPSA

Theorem 1:

Phase - I can always generate a complete basic variable set which may not be feasible. (The proof of the theorem is similar to the one given by [2])

Proof:

The proof is followed by the contradiction from the fact that there is no redundant constraint. A complete BVS can then always be generated. When BVS is not completed i.e. all the elements in any row are zero, then we encounter two situations. The first case is the one in which RHS is non-zero and the second in which RHS is zero. In the first case problem is infeasible and the later case represents a redundant constraint. Delete this row and proceed.

Theorem 2:

Phase - III and Phase - I are free from pivotal degeneracy that may cause cycling. (The proof of the theorem is similar to the one given by [2]).

Proof:

In phase - I, variables are not replaced. Instead, we expand BVS by bringing variables in the open rows thus there is no chance of cycling in the basic variable set.

Phase - III is the usual dual simplex method which selects negative RHS and replaces it. Hence phase - III is also free from pivotal degeneracy.

Theorem 3:

Phase - II can always produce a dual feasible basis.
(The proof is similar to the one given by [11])

Proof: If the algorithm produces a dual feasible solution in less than N iterations (discussed in Section 5.2.2) then there is nothing to prove. However, if solution after N iterations is still not dual feasible, then we can add an artificial constraint as defined in 5.2.2 to make it dual feasible. The maximum non-negative ratio test will then automatically forces the slack variable of artificial constraint to leave the solution and after that the dual simplex method is applied. Consequently phase - II will always produce a dual feasible basis.

Theorem 4:

The NEPSA terminates successfully in a finite number of iterations.

Proof:

The proof directly follows from theorem 1, 2 and 3, at the end after dual feasible solution. The dual simplex method is applied to find optimum solution, which terminates in a finite number of steps by the well known theory of the dual simplex method.

5.5 Strengths and Limitations of the NEPSA

The NEPSA uses the original variables and it does not involve artificial variables. It gives a new idea of maximum non-negative ratio that can result in series of such new algorithms. Another aspect of NEPSA is that it uses dual simplex method whenever we have a dual feasible basis as shown in first example whereas push-to-pull algorithm and simplex method use open rows and phase - I to get a feasible basis. The NEPSA uses open rows for $=$ constraints only. However, if a problem has a large number of \geq constraints then number of iterations in phase - I will be less than those in the phase - I of both the simplex and push-to-pull algorithm. The NEPSA can solve Klee - Minty problems in just two iterations whereas both simplex and push -to- pull algorithm shows exponential behavior. A problem may not require all three phases of the NEPSA. For large scale problems and highly degenerate problems, the NEPSA may require necessary modification.

5.6 Experimental Results

For experimental verification algorithm was written in Matlab 7. To write its code in Matlab we use Matlab tutorial [1]. Changes are made in functions of simplex method accordingly to write code for the NEPSA. Zero tolerance is 10^{-8} . The problems are similar to those given in [5], examples given in Sixpap software [4] and are randomly generated in Matlab. Out of 220 problems the push-to-pull algorithm shows false unboundedness for 22 problems which means that it requires artificial constraint to avoid it. However NEPSA does not require artificial constraint for these problems. In 6 problems the push-to-pull algorithm shows infeasible solution and there is one problem in which the simplex method fails to produce an optimal solution but the NEPSA solves all the 220 problems. All the problems are solved by Sixpap software which shows iterations for both the push-to-pull (P&P) algorithm and the standard simplex method.

The mean number of iterations and standard deviation were calculated for three algorithms that is the push-to-pull algorithm, the simplex and the NEPSA.

Mean No of Iterations			Standard Deviation		
P&P	Simplex	NEPSA	P&P	Simplex	NEPSA
4.37	4.74	3.26	2.26	2.36	1.67

5.7 Conclusion

The results show that the NEPSA has less number of iterations for most of the problems. It does not exhibit exponential behavior like in the simplex method and the push-to-pull algorithm. The simplex method, the MBU rule, the criss cross method and the push-to-pull algorithm, all show exponential behavior for Klee - Minty problems. The push-to-pull algorithm shows false unboundedness for some problems and for this it uses artificial constraint even for smaller problems whereas artificial constraint for those problems is not involved in NEPSA. The NEPSA uses the original variables and artificial constraint is used only when it is required. It can be used as substitute to the push-to-pull algorithm and to the simplex method. Its final tableau can be used for sensitivity analysis as the simplex method and the push-to-pull algorithm.

The NEPSA can be taken as a generalization of dual simplex method or a new kind of criss cross method. The maximum ratio test used in the NEPSA can be helpful in constructing and modifying alternate algorithms. Our future plan is to solve large scale problem with new algorithm and possible improvements in the algorithm.

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**DETERMINANTS OF UNDER-NUTRITION OF PRIMARY SCHOOL-AGE
CHILDREN: A CASE STUDY OF URBAN BAHAWALPUR**

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ABSTRACT

The current paper highlights the determinants of under-nutrition of primary school-age (5-11 years) children using the primary data. Sixteen clusters from urban and slum areas of Bahawalpur city were surveyed to make the data valid. Probit model is applied to 882 observations. The Composite Index of Anthropometric Failure (CIAF) is taken as the indicator of under-nutrition, that is composed of all type of malnutrition measures, i.e. stunting, wasting and under-weight. It is found that probability for anthropometric failure increases by increase in age (in linear way), and birth-order of the child. The girls are more likely to be anthropometric failure. The child is more likely to be anthropometric failure, if she/he is involved any activity (child labor or home-care activity) other than schooling. The study shows that parents' education specifically mothers' education can play an important role for child's nutritional status. The household per-capita income and ownership of assets by the household also affect the nutritional status of child positively. Congestion in the household (number of household members per room) affects the nutrition adversely. The living condition of the household (a composite of cemented house, provision of electricity, safe drinking water, flush toilet and underground drainage) turns out to be positively affecting child's nutrition. The children living in slums are more likely to be anthropometric failure. From the policy perspective awareness about gender equity of child, adult education, improvement of household per-capita income and improvement in living conditions specifically of slums (through public health works program) may contribute to enhance children' nutritional status.

KEY WORDS

Under-nutrition; Children; Anthropometry; Epidemiology; Pakistan; CIAF.

Field of Research: J160; I12; J12; J13.

1. INTRODUCTION

Economic literature suggested that nutrition of children may pay off in terms of economic growth and equity by improving the health and ultimately educational performances of poor children in the developing economies (see Behrman 1996). Under-nutrition is further acknowledged to play a major role in the premature deaths of millions of children in developing countries (Black, et. al. 2003). Those it does not kill, it renders

vulnerable in infection and disease, blighting the lives of hundreds of millions (WHO and World Bank 2002). Currently at the national level, 41.5 percent of children are under-weight, 30 percent are stunted and 11.6 percent are wasted in Pakistan. The country is signatory to the millennium development declaration and Government is fully committed in improving the nutritional status of children¹. However, concerns about whether this and other Millennium Development Goals will be met has been raised, given that the resources and, the national and global attention have been diverted to addressing other issues like the war on terror (see also Nandy and Miranda 2008).

A number of studies have attempted to explore the determinants of under-malnutrition in under-5 years children (see for instance, Mehamood and Kiani 1994; Kurg and Johnson-Welch 1997; Ibrahim 1999; Mahmood 2001 and Arif 2004). Very few studies (see for instance, Gross, et. al. 2004 for street children in Jakarta and Ali, et. al. 2004 for street children in Pakistan) have analyzed the nutritional status of children in the age group more than 5 years. The primary school-age (5-11 years) is significant regarding the cognitive and physical development of the child in coming years. We will probe the socio-economic determinants of under-nutrition for this age group.

The most commonly used indices from these measurements are stunting (low height for age), wasting (low weight for height) and under-weight (low weight for age). These indices reflect distinct socio-economic, anthropological and biological phenomenon, and their use is necessary for determining appropriate interventions. However, because they overlap, none is able to provide a comprehensive estimate of the number of undernourished children in a population. Some children who are stunted may have wasting and/or be underweight. Similarly, some children who are underweight may have wasting and/or be stunted and some children who have wasting may be stunted and/or underweight. So an alternative composite measure that includes all undernourished children is required (see Svedberg 2000). An aggregate indicator that includes all wasting, stunting and under-weight children is Composite Index of Anthropometric Failure (CIAF)². We will attempt to construct the CIAF and estimate the determinants of under-nutrition in children of primary school-age (5-11 years

2. LITERATURE REVIEW

In the previous literature, Mehmood and Kiani (1994) explored the health-care determinants of children (under-5 years) using secondary data. The factors identified were that urban children and children from the educated mothers have greater survival chances. The urban mother's education effect on child survival is found greater than rural educated mothers. Ibrahim (1999) has analyzed the growth attainment of under-five Pakistani children. Stunting and under-weight was used as failure of growth attainment. Children most likely to be stunted and under-weight were those whose mothers were

¹ The indicator of nutritional status of children is under-weight in Millennium Development Goals.

² Though conventional indicators of under-nutrition provide important information on prolonged and acute food deprivation, illness or disease in the form of stunting and wasting, and they are valuable especially for clinicians and field workers, who need to respond differently to different forms of under-nutrition.

aged 40-44 years and with no-education, and children from rural areas and with birth-interval of less than 24 months. In the Height/Age model succeeding birth-interval more than 24 months, mother's age, her education and having toilet facilities in the household are positively associated with growth attainment. For Weight/Age model along with above variables electricity in the household and living in Punjab and NWFP province is positively associated with growth attainment. Mahmood (2001) has probed the growth retardation in Pakistani children under-five years of age by ordered logistic regression. The study found that maternal age at birth less than 20 years, birth-interval of less than 4 years, siblings more than 5 in the household, pre-mature born children, children of the mothers starting feeding with nipples, children born in other than hospital, and children receiving no BCG vaccination at birth has a significant positive association with stunting. In the socio-economic factors, children living in households with flush toilet facilities and public tap as a source of drinking water are more likely to be well-nourished. Shahzad (2006) found that both transitory and permanent health status of children is significantly affected by gender of child, parental characteristics (parental education, mother's age), household's socio-economic conditions (family size, household durables) and health-care variables (hospital beds facility in the area). The novelty of our study is that we have added two new variables along with others, i.e. activity of child, whether the child goes to school or is involved in any other activity and locality of the household, i.e. whether the household is situated in urban or urban slums.

3. METHODOLOGY AND ESTIMATION MODEL

We have defined the undernourished children as the children who experience either stunting, wasting, under-weight, or any combination. It represents the CIAF. The undernourished children have been segregated for each indicator, i.e. stunted, wasted and under-weight by z-score. Children whose z-scores for each indicator fell below-2 standard deviation are classified as stunted, wasted or under-weight. Age and sex were taken into account when calculating the z-scores from the reference population medium. Then the CIAF is constructed for children. Primary data exclusively collected for the study by cluster sample technique is used. A survey of 600 urban and slum households of Bahawalpur city in March-April and September-October 2007, which have at least one child in the age group of 5-11 years made the information valid. The survey contains the particulars of children, parents and household. The sixteen clusters were selected as eight from each urban and slums. The data set has been transformed into a new set of variables. They were few in number than the original set of variables. To estimate the determinants of under-nutrition we adopted probit model in which under-nutritional status is a function of several socio-economic, demographic and environmental variables. The function is

$$UNC = f(X_1 \dots X_n) \quad (1)$$

where UNC is the under-nutritional status of child. $X_1 \dots X_n$ are the exogenous variables influencing the nutritional status. The definitions of dependent and explanatory variables are shown in Table 1.

Table 1
Definitions of Dependent and Explanatory Variables Used in the Model

VARIABLES	DEFINITIONS
Dependent Variable	
UNC (Under-nutritional Status of Child)	• 1 if the child is under-nourished (falls in CIAF), 0 otherwise
Explanatory Variables	
AGE (Child's Age)	• Child's age in completed years
AGSQ (Child's Age Squared)	• Child's age squared
BORD (Child's Birth-order)	• Child's Birth-order
GEN (Child's Gender)	• 1 if the child is male, 0 otherwise
ACT (Child's Activity)	• 1 if child goes to school, 0 otherwise
MAGE (Mother's Age)	• Mother's age in completed years
MEDU (Mother's Education)	• Completed years of formal education of mother
FEDU (Father's Education)	• Completed years of formal education of father
ASST (Ownership of Assets by Household)	• 1 if the household owns assets, 0 otherwise
HCPY (Household's per-capita Income)	• Household per-capita income (in 00 Rs.) per month
NCH (Number of Children)	• Number of children (up to 15 years) in the household
PPR (Number of Persons per Room)	• Number of household members per room
LIV (Living Conditions)	• Number of provisions of better living conditions (Pakka house, electricity, safe-drinking water, flush toilet and underground drainage).
LOC (Locality of the Household)	• 1 if household is urban, 0 if is slum

4. DISCUSSION OF FINDINGS

We have calculated the ratio of stunting, wasting and under-weight children and then CIAF children in the sample. The results have been shown in table 2. It is evident that for all categories of anthropometric failure, the slum children have higher ratio and among the categories of under-nutrition, the under-weight children of slums have highest ratio.

Table 2:
Prevalence of Under-nutrition by Indicators in Urban and Slums

INDICATOR	URBAN	SLUMS	OVERALL
Stunting (Low Height for Age)	12.4	31.6	22.7
Wasting (Low Weight for Height)	7.2	16.5	9.4
Underweight (Low Weight for Age)	18.8	38.2	23.5
CIAF (Overall Under-nutrition)	24.4	44.3	38.7

The probit results have been given in table-3. The results are consistent with theoretical implications of under nutrition in children.

Table 3:
OLS Probit Model Results of Determinants of Under-nutrition of Children

Variables	Mean	Standard Deviation	Probability Derivative	T-Values
Constant	-	-	1.0053	2.9629*
UNC	0.3871	0.3249	-	-
AGE	7.9168	3.5784	0.0204	1.7153**
AGSQ	50.3581	97.0568	1.7369	.03328
BORD	2.6047	2.1664	-0.0859	-1.9846*
GEN	0.4980	0.6573	-0.0360	-1.6069**
ACT	0.8324	0.5914	-0.0950	-1.9616*
MAGE	37.8157	6.5409	-0.4974	-2.1047**
MEDU	2.7674	4.3587	-0.0237	-1.8755**
FEDU	3.2072	3.9946	-0.0078	-1.2597**
ASST	0.7823	0.5938	-1.9438	-1.7574**
HPCY	1793.18	1501.37	-0.0586	-1.3576**
NCH	3.5746	2.4218	0.0043	1.3620**
PPR	2.4938	1.9029	0.1795	3.5270*
LIV	1.8862	3.3174	-0.0976	-1.8394*
LOC	0.5796	0.5185	-1.1475	-2.9814*
Number of Observations = 882		R-Squared = 0.7394		
Percent Correct Predictions = 0.7658		Log Likelihood = -748.9489		

* Significant at 5 percent level and ** significant at 10 percent level.

The following features of the results are worth noting.

4.1 Child's Age:

The nutritional status of children may vary by increase in age because at varying age different levels of food intake are required. It is found that probability for the child to be anthropometric failure increases by increase in age in a linear way. Though, Arif (2004) found that for preschool children nutritional status first declines, until about three years and then increases (see also Alderman and Garcia 1994).

4.2 Birth-order of Child:

In our study, the effect of birth-order is significant. The children with high birth-order (later born) are more likely to be undernourished. Horton (1988) found similar results in the case of Philippines. The negative birth-order effect is due to strains on household resources. Although in theory households could allocate financial resources intertemporarily to offset the disadvantages to later-born children, this is unlikely for developing countries and low-income households.

4.3 Gender of Child:

Our results have shown that boys are less likely to fall in CIAF as compared to girls. Kurz and Johnson-Welch (1997) narrated that in developing countries although, there are no conclusive results for gender bias in health and nutrition of children (under-5 years) but it is clear that girls are not as often taken to health-care facilities as boys and receive less attention from their parents. Arif (2004) have found no gender bias for under-weight and stunting of the children under-5 years age (see also Ibrahim 2004). The explanation for gender differential in child malnutrition may be that boys are considered the bread-winners and old-age supporters of parents.

4.4 Child's Activity:

Child labor is prevalent in low-income households and it affects the growth of the child. To see the effect of activity of child, whether the child is attending school or is involved in any economic/non-economic activity, the variable of child's activity has been included in the model. It is found that if the child goes to school, it is less likely to be composite anthropometric failure. The explanation may be that all other activities of children like economic activity (child labor, part-time work, seasonal work) and non-economic activity (help in household activities or home-care) retards the growth of children. It is evident in literature that food-intake of child laborers remained substandard and in less quantity resulting into anthropometric failure (see for instance, Ali, et. al. 2004 for Pakistan; Gross, et al. 19996 for Jakarta).

4.5 Mother's Age:

Conceptually, the mother's age may impact the nutritional status of children in two ways. Firstly, the mother gain more experience with age and child's nutritional status may increase due to maturity and experience. Secondly, by the increase in mother's age there is probability for larger number of children due to high fertility, that is a characteristics of developing countries, the child's nutritional status may decrease. In our results the effect of mother's age on child's nutritional status is found negative. The explanation may be that, more the mother's age, more the number of children and less the per-capita human resources for children.

4.6 Parents' Education:

In our analysis the mother's education (as a continuous variable) has shown significant positive effect on child's nutritional status. The explanation may be that more educated mothers demand more child health output. Handa (1999) argued that mother's education helps to understand how to manage nutrition and disease most effectively. It increases the knowledge of appropriate sanitary behavior. The effect of father's education (as a continuous variable) has also been found positive. However, the role of father's education in child nutrition is found less effective as that of mother's. The educated parents take keen interest in child's nutritional status.

4.7 Assets of Household:

Conceptually, it may be believed that children from asset-rich households are more likely to be well-nourished. It is found that children from the households without assets are more likely to be anthropometric failure. The ownership of assets like a household enterprise, house, land, shop, machinery, etc. is an obvious measure of a household's wealth. Hence the results suggest that the probability of child's well-nutritional status is systematically high for households with wealth.

4.8 Household per capita income:

Conceptually, the increase in household per-capita income may result in to better nutritional status of children. Birdsall (1988:105) observed a strong association between high household income and low fertility and then low fertility leading to higher parental spending on children's human capital. We have entered the household per-capita into the model to see its impact on nutritional status of children. It has shown a positive effect, signaling the importance of the availability of resources for child nutrition (see also Handa 1990).

4.9 Number of Children:

The larger number of children in the household conceptually may affect the nutritional status of children negatively. In our study the number of children (up to 15 years) in the household has shown negative effect on children's nutritional status. The explanation may be that mothers are not able to take adequate care of several young children so the children are exposed to greater risk of illness and making recovery from illness and catching up in weight longer.

4.10 Persons per Room:

The number of persons per room represents the congestion in the household. Large number of persons per room is expected to have an adverse effect on child's nutritional outcome through congestion and over-crowding. When this number is large, children may be more prone to communicable diseases. We have found a negative effect of congestion on child's nutritional status.

4.11 Household Living Condition:

Household living characteristics are used as indicators of condition of living. The choice of this variable has been made on the basis of access to facilities determining quality of living. It broadly includes household facilities like *pakka* (cemented) house, electricity, safe drinking water (mineral, boiled, filtered or piped), flush toilet, and underground drainage. The variable also represents the extent of effect of household access to public health facilities. Household living conditions turn out to be positively affecting the anthropometric outcomes of children, that is an important finding confirming results by earlier studies in literature.

4.12 Locality of the Household:

The effect of urban residence (in comparison with slums) is positive on child's nutrition, i.e. urban child is less likely to be undernourished as compared to slum child. The explanation may be that urban child has greater opportunities in terms of health-care facilities, clean water, and sanitation, etc. as compared to slum child.

5. CONCLUSION AND POLICY RECOMMENDATIONS

In our analysis, the important predictors are gender and activity of child, parental education, household per-capita income, ownership of assets, number of children in the household, congestion in the household, household's living conditions and locality. These results have implications for policy formation, where awareness about gender equity of children and keeping away the children from child labor and other related activities can play an important role for elimination of under-nutrition in children. The improvement in parents' education specifically of mothers needs attention of the policy makers to enhance the children's anthropometric outcome. The household per-capita income through income-generating programs and direct stipends to the poor community may be useful for sliding down the under-nutrition of children. Fertility reduction programs may also be beneficial for the purpose along with other desirable socio-economic objectives. The removal of congestion of the household and improvement in living condition should be a part of development policy. In this regard, the local and provincial governments may contribute a lot in the form of provisions of public health facilities.

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ROLE OF GLOBALIZATION ON SMEs BUSINESS IN PAKISTAN

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ABSTRACT

This research explores the impact of globalization on SMEs business in Pakistan. The Small and Medium Scale Enterprise (SMEs) and playing very significant role in almost all the economies around the world in irrespective of the countries development stage. Most of the developed countries like Japan, China, Malaysia, Taiwan all these developed through SMEs business to overall economy in many aspects such as employment generation, export, tax, income, innovation competitiveness. Recent wave of Globalization has impact overall business of the world SMEs grew more in this wave of Globalizes world and Pakistan particular has significant impact on income distribution social stability, domestic resources usage, regional development and ultimately it is phenomenon as a developing countries located in South Asian region. Most of these economy. Data were collected from 100 SMEs business owners by using simple random technique and structural questionnaire has been formulated as an instrument for the measuring the impact of globalization. It was revealed that overall impact of globalization on SMEs business grew 10% but due to the hampered b the lack of technology. And non availability of technical labor and government irregularities like loan and other facilities. Access to credits and markets lack of infrastructure and competition from foreign products etc .In spite of and assistance offered by successive government in Pakistan with the assistance of Private sector, NGO and donor agencies since political independence still this SME sector is less dynamic and underdeveloped as against large scale enterprise in the national economy. It was further revealed that if government take positive measures this business can grow up to 50% in the Global scenario export o SMEs increased by 40%.

KEY WORD

Globalization, SMEs, Business, Pakistan.

1. INTRODUCTION

The first part of current research paper highlights the various aspects of SMEs in terms of Globalization and their impact o the Growth of SME business and their contribution to Pakistan economy by suing various data indicators. Finally tentative conclusions and suggestions about the SMEs business growth and possible solution on export oriented products which can be marketed in Globalize world of business.

2. DEFINITION OF SMEs IN PAKISTAN

The Pakistan SMEs are engaging in wide range of business activities in agriculture, mining fishing industry /manufacturing, construction retail and whole sales and services in rural urban and estate setting by servicing local and international. They are active in most of the industry sub sectors such as agricultural inputs/outputs business in rural areas to food and beverages business in city up to more advanced light engineering sectors such as computer, chemical machinery. Apparel and person show or are run by few family individuals, usually relatives, friends or business partners who take most of the decisions. Usually no distinction between private and business assets and subjective and personal factors play a large role in decision making. The personal stakes of Pakistan SMEs have in their business are much higher than those of corporate executives in their companies. This enhances the attendant and commits entrepreneurs even more strongly to the success of their enterprises. Most Pakistani SMEs in informal sector are reposting very low productivity and income therefore owners and worker are working poor high income and decent life for workers and owners this wide variation of diversity turnover/revenue, sophistication, innovation, productivity and growth orientation due to this complexity it is very hard to defines SMEs overtime in Pakistan and currently nationally acceptable single definition is not available. There are very many definitions available based on assets, employees skills capital turnover/revenue in local and exports markets, sophistication, and innovation productivity and growth orientation. But most of these definitions are made according to organizational needs and purpose of interests about SMEs. Financial institution public sector authority non-government organizing (NGOs) Trade and industry chambers international organizations researchers SMEs such as criteria selection Most of these organization used various terms for SMEs such as Small and Medium Scale Industries (SMEs) Micro Enterprises (Mes), Rural Enterprises (Res), Small and Medium Scale Activities (SMAs), Cottage and Small Scale Industry (CSSI), Informal Sector Activities (ISAs), Micro and Small Scale Activities (MSSA) etc., Generally, enterprise is defined as any business activity or entity engaged in industry agri-business and/or services whether singles proprietorship, partnership or corporate veture. This enterprise definition is universally accepted around the World .The following table shows most popular definitions of SMEs available in Pakistan.

In addition to this, various banks, financial institutions, donor agencies, NGOs industry related task forces, trade and industry chambers adopted their own definitions for SMEs for their convenience and objectivity of studying SMEs, But almost all these definitions adopted their main criteria as no of employees, capital employed /total assets and turnover. But these criteria have its own limitations overtime and need changes with technology improvement, productivity increases and inflation, etc. very recently in Pakistan for this SMEs equation, micro and Cottage enterprises also came and now Micro Cottage and Small Scale Enterprises are in Enterprise are in picture and in most cases medium scale enterprises are out from the equation. Some than five employees) and small enterprises should receive government should be changed to fit with various other criteria and range of value should be assigning to define SMEs sector as a whole and sub group–wise. Still in Pakistan, SMEs data abase from SMEs and charge it overtime looking at the market changes Recently SMEDA appointed SMEs

working committee on SME definition vested power to come up with new definitions for SMEs micro and large scale industries to more specifically target incentives to promote and develop SMEs.

3. DATA ANALYSIS ON PAKISTAN'S SMEs

Data were collected from 100 SMEs business owners by using simple random technique and structural questionnaire has been formulated as an instrument for the measuring the impact of globalization. These survey data shows that in geographical location of enterprises industries 65% enterprises are located in Punjab, 18% in Sindh, 14% in NWFP and other 3% in Baluchistan and Islamabad In concentration of enterprises, 53% are wholesale retail, restaurants and hotels 22% community social and personal services and 20% are in manufacturing in rural urban holds wise also this concentration is holding true. More than 96% of establishment belong less than 5 employee category and ties is true for region-wise also. This may be a good to further research to see that most Pakistan establishments are micro level SMEs Another interesting fact is that ownership wise more than 96% enterprises are more than 90% of SMEs are less than 20 years old and this picture holds for rural Generally small related others leather sector and foods and beverages sectors .Even in region and rural and urban area wise this picture holds true. This may be their message policy makers to and very young SMEs have many obstacles to access to finance and credit markets.

In analyzing ISIC (two digit industry categories a large proportion of industries are concentrated on few categories: 47% industrial establishment are in textile apparel and leather, 20% in food beverage and tobacco 10% in wood and wood products 10% in metal and fabricated metal sector and 8% in handicrafts and think to diversify Pakistani industrial structure.

In terms to employment status more than 70% of employees are unpaid family workers, Partners and self employed people and ties is very clearly visible in Pakistan's house hold level enterprises and it is truly valid for rural urban and region-wise as well In gender-wise as well, In gender-wise female participation is very less even in paid or unpaid partnerships and self-employed areas. In overall female labor participation is 7% and it is 3% in unpaid partnerships and self-employed areas. In rural urban household and region-wise this picture holds true.

Building status wise in overall establishments more than 58% are running their business in rented buildings and this is true in urban-wise (74%) but rural-wise majority of business are conducting in their own premises More than 99% establishment employed capital (Not included land and buildings) is less than one million PK Rs. And this picture holds for true for rural, urban and region-wise. More than 97% of Pakistan enterprises are earning less than 20 million PK Rs. per years and this is hold true in region-wise as well.

SEMs are naturally labor intensives and therefore they contribution heavily for employment income distribution and poverty eradication. More than 98% of Pakistan enterprises in terms of Urban, Ural and region -wise employ less than 10 persons.

4. FUTURE RESEARCH DIRECTIONS FOR PAKISTAN'S SMEs

- 1) Research agenda need to identify key issues in SME's can Promote research to under Diagnostic review of public private, NGOs and donors supported SME instruction it is better to document earlier SME sector studies currents ME program and activities main donors policies being implemented and key policies affecting small rural enterprises.
- 2) Research necessary to identify training needs of SME support institution and same time can romote case study to see effectiveness of regional programming strategy of key aid agencies working in Pakistan and make a catalogue of rural SEMs development in Pakistan.
- 3) Research necessary to identify and make recommendations of priority sectors and sub sector of SMEs that could be supported and promoted with potential for value addition employment creation and growth in exports.
- 4) Research agenda needs to analyze the activities of financial instructions particularly banks serving rural areas by defining range of financial products.
- 5) Research necessary to design operational guidelines providing standards and performance indicators which donors NGOs and Government interventions /program in rural areas should comply with.
- 6) More empirical research re necessary to frame national policy framework strategies operational guidelines institution set-up and support network building initiatives for network and support instructions to support strategy.
- 7) How far we can use ICT related various E-Commerce applications and tool's to promote and develop various aspects of SMEs. Especially SMEs competitiveness network be improve by using ICT my be good areas to research.
- 8) Research on productivity differences in small medium and large scale enterprises and their various implications are necessary in Pakistan context (World Bank SMEs, 2003), Especially better to explore why competitive markets leaves automatically ensure that less productive firms are forced out why market leave room for bigger firms with higher productivity by less potential to creature create employment and social justice? Why is tit that's mall firms still dominating the economic structure even in more developed economies? What is their competitive advantage? Does the dominance of small firms hinder or harm poverty reduction? Or is there a way o enhance productivity growth in small and medium enterprise.
- 9) More quantitative research are necessary to see the exact relationships between the share of employment and calue addressing SMEs vicious cycle idea (Desanayake, S.: 2006) and to promoted to further developed find strategies and means to break it. Furthermore. SMEs stakeholder integration frame work can be further developing to link the various SMEs stakeholders.
- 10) Re-establishment and rehabilitation of recent earth quake affected Pakistan is very slow even and with flood and rains of forging and local assistance to this area. Therefore, action oriented research necessary to find out reasons for this failure area

and to find new framework and model to implement for disaster affected SMEs rehabilitation.

- 11) More research can be promoted to see the technology management issues in important SME sub sectors or industry clusters in Pakistan, Especially various business incubator models can be experimented to Pakistan looking at the best practices around the world (Nelson, O. and Dasanayaka, S. 2006).
- 12) An applied research project can be promoted to see and effectiveness Pakistan SME apex bodies operational strategies in terms of costs/benefits or impact centers may be right start point for research.

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**SOME RESULTS CONCERNING KOSTKA–FOULKES POLYNOMIALS
AT CUBE ROOTS OF UNITY**

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ABSTRACT

In this paper Kostka-Foulkes Polynomials $K_{\lambda\mu}(t)$ which are entries of transition matrices between Schur functions $s_{\mu}(x)$ and Hall – Littlewood symmetric functions $P_{\lambda}(x;t)$, are discussed at cube roots of unity. Schur functions and Hall-Littlewood Symmetric functions are bases of ring of all homogenous symmetric polynomials of degree n in independent variables $x = (x_1, x_2, \dots, x_n)$, denoted by Λ^n . We have derived two main results which relate $K_{\lambda\mu}(t)$ and different values of λ and μ at cube roots of unity.

KEY WORDS

Partition of positive integer, Young Tableau, Word of tableau, Standard word, Charge of word.

INTRODUCTION

Schur functions and power sum symmetric functions are types of symmetric functions. These functions are extensively used in representation theory of symmetric groups and general linear groups.

Morris (1964) has introduced a new class of symmetric functions. These are called Schur-Q-functions. Foulkes (1974) has posed a conjecture to find Kostka-Foulkes polynomials as follows:

$$k_{\lambda\mu}(t) = \sum_T t^{C(T)} = \sum_T t^{C(W(T))}$$

This conjecture has been proved by Lascoux and Schutzenberger (1978). They have used combinatorics of Young diagrams to prove the above conjecture. Tables to find $K_{\lambda\mu}(t)$ for different values of λ and μ as partitions of n , are present in Macdonald (1979).

Macdonald (1988) has discussed transition matrices. These are matrices, which relate pairs of different bases of a ring of symmetric functions Λ^n . Kostka-Foulkes polynomials are entries of the transition matrix, which relates bases $P_{\lambda}(x;t)$ and $s_{\mu}(x)$. Kirillov and Reshetikhin (1988) have developed a new method to find $K_{\lambda\mu}(q)$. They have used

combinatorial objects “rigged configurations” to develop the method. They have given following formula to find $K_{\lambda,\mu}(q)$:

$$K_{\lambda,\mu}(q) = \sum_{\nu} \prod_{i,j \geq 1} q^{c(\nu)} \left[\begin{array}{c} P_{ij}(\nu) + Q_{ij}(\nu) \\ Q_{ij}(\nu) \end{array} \right]_q$$

The sum is running over all configurations ν of type (λ, μ) and $\left[\begin{array}{c} n \\ m \end{array} \right]_q$ are the q-binomial coefficients.

Sultana (1990) has developed recurrence relation between HL-Q-functions and Schur functions, which gives Kostka-Foulkes polynomials.

Desarmenien et al. (1994) have presented some applications of Kostka-Foulkes polynomials to representation theory of general linear groups. They have discussed various combinatorial interpretations of Kostka-Foulkes polynomials.

In this paper we have derived two main results and one corollary, which give relationship between $K_{\lambda,\mu}(t)$ and different values of $\lambda, \mu \vdash n$, in the case $t^3 = 1$.

1. KOSTKA-FOULKES POLYNOMIALS

In Sultana (1990) the recurrence relation between HL-Q-function and s-function has been proved, which gives Kostka-Foulkes polynomials $k_{\lambda,\mu}(t)$. These polynomials can also be defined by using charge of tableau. Foulkes (1974) conjectured that it should be possible to attach to each tableau of shape λ and weight μ a positive integer $C(T)$ such that

$$k_{\lambda,\mu}(t) = \sum_T t^{C(T)} = \sum_T t^{C(W(T))} \quad (1)$$

Here sum being all over tableau of shape λ and weight μ and $W(T)$ is the word obtained from a tableau T of shape λ and weight μ . To obtain $W(T)$ read T from right to left, starting from top to the bottom row. The result (1) was proved by Lascoux and Schutzenger (1978).

Kostka-Foulkes polynomials can also be found by using the following theorem developed by Kirillov and Reshetikhin (1988).

Theorem

Let $\lambda, \mu \vdash n$, then $K_{\lambda,\mu}(q)$ is defined as:

$$K_{\lambda,\mu}(q) = \sum_{\nu} \prod_{i,j \geq 1} q^{c(\nu)} \left[\begin{array}{c} P_{ij}(\nu) + Q_{ij}(\nu) \\ Q_{ij}(\nu) \end{array} \right]_q$$

The sum is running over all configurations v of type (λ, μ) and $\begin{bmatrix} n \\ m \end{bmatrix}_q$ are the q-binomial co-efficients.

Proof:

See Kirillov and Reshetikhin (1988).

2. KOSTKA-FOULKES POLYNOMIALS at $t^3 = 1$

Some results, which give relationship between $K_{\lambda\mu}(t)$ and different values of $\lambda, \mu \vdash n$, in the case $t^3 = 1$ are as follows:

2.1 Theorem (A)

If $\lambda = (n)$ and $\mu = (n)$, where λ and $\mu \vdash n$, then $K_{\lambda\mu}(t) = 1$.

In particular $K_{\lambda\mu}(\eta) = 1$, where η is a cube root of unity.

Proof:

Let $\lambda = (n)$ and $\mu = (n)$, then tableau of shape λ and weight μ is:

1	1	1	-----	1
---	---	---	-------	---

n (times)

So $W(T) = \underline{1}11\text{-----}1$ (n times)

We extract standard sub word from $W(T)$ as

$$w_1 = \frac{1}{0} \Rightarrow c(w_1) = 0$$

Erase w_1 from $W(T)$ to get

$$\underline{1}11\text{-----}1 \text{ (n-1) times}$$

Again standard sub word is

$$w_2 = \frac{1}{0} \Rightarrow c(w_2) = 0$$

Erase w_2 from $\underline{1}11\text{-----}1$ (n-1) times to get $\underline{1}11\text{-----}1$ (n-2) times

Repeat above process

$$w_n = \frac{1}{0} \Rightarrow c(w_n) = 0$$

Also $C(W(T)) = c(w_1) + c(w_2) + c(w_3) + \dots + c(w_n) = 0$ Thus from equation (1)

$$k_{\lambda\mu}(t) = \sum_T t^{C(T)} = \sum_T t^{C(W(T))} = \sum_T t^0 = \sum_T 1 = 1$$

Thus $k_{\lambda,\mu}(\eta) = 1$. Here 1, ω and ω^2 are cube roots of unity and are denoted by η .

2.2 Corollary

If $\lambda = ((2k + i)^2)$ and $\mu = ((2k + i)^2)$, where λ and μ are partitions of $(2k + i)^2$, $i = 0, 1$ and $k = 1, 2, 3, \dots$, then $k_{\lambda,\mu}(\eta) = 1$, where η is a cube root of unity.

Proof:

Here $\lambda = \mu$ so using theorem (A), we get $k_{\lambda,\mu}(\eta) = 1$, where η is a cube root of unity.

2.3 Theorem (B)

If $\lambda = ((2k)^2)$ and $\mu = (2k, 1^{2k})$, where λ and $\mu \vdash (2k)^2$ and $k = 1, 2, 3, \dots$, then

$$k_{\lambda,\mu}(\eta) = \begin{cases} \eta & \text{when } k = 1, 4, 7, 10, \dots \\ 1 & \text{when } k = 2, 3, 5, 6, 8, 9, \dots \end{cases}$$

Here η is a cube root of unity.

Proof:

Since $\lambda = ((2k)^2)$ and $\mu = (2k, 1^{2k})$, so tableau of shape λ and weight μ is :

1	1	1	-----	1	1	1
2	3	4	-----	2k-1	2k	2k+1

(2k)times
(2k)times

So $W(T) = \underline{1}11\text{-----}1 \underline{(2k+1)} \underline{(2k)} \underline{(2k-1)} \dots \underline{4} \underline{3} \underline{2}$

We extract standard sub word from $W(T)$ as

$$w_1 = \begin{matrix} 1 (2k+1) (2k) (2k-1) \dots \underline{4} \underline{3} \underline{2} \\ 0 (2k-1) \dots \underline{2} \underline{1} \underline{0} \end{matrix}$$

We erase w_1 from $W(T)$ to get

$$\underline{1}11\text{-----}1 (2k-1) \text{ times}$$

Then $w_2 = \begin{matrix} 1 \\ 0 \end{matrix}$

Repeat above process

$$w_{2k} = \begin{matrix} 1 \\ 0 \end{matrix}$$

We find $C(W(T))$ as:

$$w_1 = \begin{matrix} 1 (2k+1) (2k) (2k-1) \dots \underline{4} \underline{3} \underline{2} \\ 0 (2k-1) \dots \underline{2} \underline{1} \underline{0} \end{matrix}$$

$$c(w_1) = 0 + 0 + 1 + 2 + \dots + 2k-1 = k(2k-1)$$

$$w_2 = 1 \Rightarrow c(w_2) = 0$$

$$w_{2k} = 1 \Rightarrow c(w_{2k}) = 0$$

Thus

$$C(W(T)) = c(w_1) + c(w_2) + c(w_3) + \dots + c(w_{2k}) = k(2k-1) \tag{2.3.1}$$

Case-I

When $k = 1, 4, 7, 10, \dots, 3n-2, \dots$, then from equation (2.3.1)

$$C(W(T)) = 3(6n^2 - 9n + 3) + 1$$

From equation (1)

$$k_{\lambda, \mu}(t) = \sum_T t^{C(T)} = \sum_T t^{C(W(T))} = \sum_T t^{3(6n^2 - 3n) + 1}$$

$$k_{\lambda, \mu}(t) = t^{3(6n^2 - 9n + 3) + 1}$$

Thus

$$k_{\lambda, \mu}(\eta) = \eta, \text{ where } \eta \text{ is a cube root of unity.}$$

Case-II

When $k = 2, 5, 8, \dots, 3n-1, \dots$, then from equation (2.3.1)

$$C(W(T)) = (3n-1)[2(3n-1)-1] = 3(2n-1)(3n-1)$$

From equation (1) $k_{\lambda, \mu}(t) = \sum_T t^{3(2n-1)(3n-2)} = t^{3(2n-1)(3n-2)}$

Thus

$$k_{\lambda, \mu}(\eta) = 1, \text{ where } \eta \text{ is a cube root of unity.}$$

Case-III

When $k = 3, 6, 9, \dots, 3n$, then from equation (2.3.1)

$$C(W(T)) = 3(6n^2 - n)$$

From equation (1) $k_{\lambda, \mu}(t) = \sum_T t^{3(6n^2 + n)} = t^{3(6n^2 - n)}$

Thus

$$k_{\lambda, \mu}(\eta) = 1, \text{ where } \eta \text{ is a cube root of unity. Now from Case-I, II \& III}$$

$$k_{\lambda,\mu}(\eta) = \begin{cases} \eta & \text{when } k = 1, 4, 7, 10, \dots \\ 1 & \text{when } k = 2, 5, 8, \dots \\ 1 & \text{when } k = 3, 6, 9, \dots \end{cases}$$

or

$$k_{\lambda,\mu}(\eta) = \begin{cases} \eta & \text{when } k = 1, 4, 7, 10, \dots \\ 1 & \text{when } k = 2, 3, 5, 6, 8, 9, \dots \end{cases}$$

FURTHER RESEARCH

Further we are planning to find more results for different partitions of positive integer n and Kostka–Foulkes polynomials at cube roots of unity.

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**ECONOMIC PERFORMANCE OF SME'S IN OF PAKISTAN
A CASE STUDY OF SINDH**

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ABSTRACT

This issue remained a hot topic for centuries. Economists were of the view that it is a large firm, which participates actively in the economy and also shares a large amount of foreign exchange earnings. But their point of view changes when the countries like Taiwan, Japan and Korea developed on their small and medium based business. It is the crystal clear that these economies developed through the grass root level as small and medium enterprises belong to grass root. Those who believe that the large firms are only responsible for economic growth should keep in mind that the small vendors and small suppliers contribute heavily in the production of large firms. The reality on ground is that small firms are held responsible for making large firms to attain their targets. The progress and prosperity, which take place from the lower level, benefit all the classes of the society. The spill over impacts of SMEs proves to be ever lasting on the world's economy.

KEY WORDS

Economic, Importance, SMEs, Pakistan.

INTRODUCTION

Due to Globalization and changing in the world business environment and Pakistan's geographical location is the heart of South Asian market for SMEs business and if undertaken in systematic way can prosper economy within no time. Sindh province has a considerable advantage in some areas, which needs to be explained quickly to reap the benefits of exports. Such benefits can increase foreign exchange rates very positively to develop a favorable framework in all areas of progress. The awareness like fishing, education, fruit, crops, garments, cotton, sugar cane, dates Ginning, wood, auto and many other areas are the basic startups for many people. This research explains the potentialities of some areas and knowledge of how these areas can contribute towards Pakistan's economy by increasing the foreign exchange rates with reference to Sindh province. The high authorities and ministry of development and production should formulate some strategies to design practical policies with the cooperation of stakeholders; such policies will be flexible in enhancing the SMEDA plan and flourishes SMEs activities at the larger scale. This will give a big boost to startup ideas and create favourable atmosphere of businesses. This will aid a lot more in understanding the export of Pakistan and improve our foreign exchange earnings. The main focus will be on SMEs' role in economic growth

through the increase of entrepreneurial and small-scale business activities in the country. The small business enterprise is often described as the natural bone of entrepreneurship. It provides the ideal environment enabling entrepreneurs to use their talent to the full and to attain the goal and objectives they have set for themselves. In all successful economies, entrepreneurs are seen as essential for growth, job creation and social progress and the virtues of small business are by now almost universally accepted." (Dr Ben Vosloo, 1994, Chief Executive of the Small Business Development Corporation). Pakistan is at great efforts to produce the enterprises.

Generally, the Study will discuss the role of SMEs in economic growth of Pakistan. The Study would highlight SMEs' share in the GNP/GDP of Pakistan. It would explain its importance in manufacturing sector and its impact on the economy. The fallout effect of exporting SME is not only on foreign exchange earnings but also on the GDP/GNP in the shape of higher incomes, job creation and exports, etc.

Afterward, the Study will focus on the contribution of SMEs to Pakistan's exports. This aspect of the Study would be an attempt to find out the performance of SMEs and to highlight their contribution to Pakistan's foreign exchange earnings.

SMES EXPORT-GROWTH MODEL

The system of equations estimated was based on SMEs Growth-model as Appears below:

$$\lambda_i, \Pr(Y_i = y_i | x_i) = \frac{e^{-\lambda_i} \lambda_i^{y_i}}{y_i!}, y_i = 0, 1, 2, \dots$$

$$z_i = \frac{\left[(y_i - \hat{\mu}_i)^2 - y_i \right]}{\sqrt{2\hat{\mu}_i}} \text{ on } w_j = \frac{g(\hat{\mu}_i)}{\sqrt{2\hat{\mu}_i}}; E_i$$

Description of the Model

- λ_i = Measures the value based services in SMEs Export Growth
- Y_i = SMEs Export Products from Sindh
- P_n = Facilitation from TDA (Trade Development Authority)
- P_{ni} = Potential of Total Export
- Y_i = Export Earning from Sindh
- Z_i = Information Available for the exporters
- E_i = Un tapped Markets
- μ_i = Quality of export Products
- g = Incentives for exporters
- a = Free information to SMEs exporters
- b = free information regarding tariff
- C = free information regarding raw material
- D = Access to overseas markets
- T = Technology adoption
- C = Credit facility
- S = Skilled labor

Model Description:

λ_i = Measures the value of SMEs Export Growth that how export growth of SMEs sector will contribute in the Foreign exchange earnings and overall economy of Pakistan.

Y_i , is demonstrate the SMEs export share from Sindh, by exporting different Fruits and vegetables, mainly dates, Guva, and Mangos are exporting to overseas and earning billions of the dollars.

P_n This variable determines the TDA (trade development Authority) contribution in the promotion of SMEs and how it will be beneficial for the exporters of SMEs.

P_{ni} It elaborates the total share of SMEs in export and it can be enhanced if some suitable measures should be taken.

Y_i Indicates the total share of Export Earning from Sindh and how this share contributes in the foreign exchange earnings.

Z_i Indicates Information Available for the exporters and this information helps the SMEs exporters; it also describes the market base products.

E_i This indicates an untapped market, where no access of any exporters and it will be the opportunity for the SMEs exporters to market the products.

μ_i This demonstrates the quality of export products which is offered to the international customer and how this quality issue will be addressed and their possible effects on enhancing the SMEs export. The above model is a manifesto of discussion with some businessmen, entrepreneurs, professional trainers and few government officials working in SMEDA and SMEs domains. Some of them are also mentioned in the reference and bibliography. This shows that SMEs are pathways for enhancing the export and prosperity in the country. If these two things are favorable then they can bring huge growth in foreign exchange earnings which ultimately benefit Sindh province.

SMES IN RURAL AREAS OF SINDH

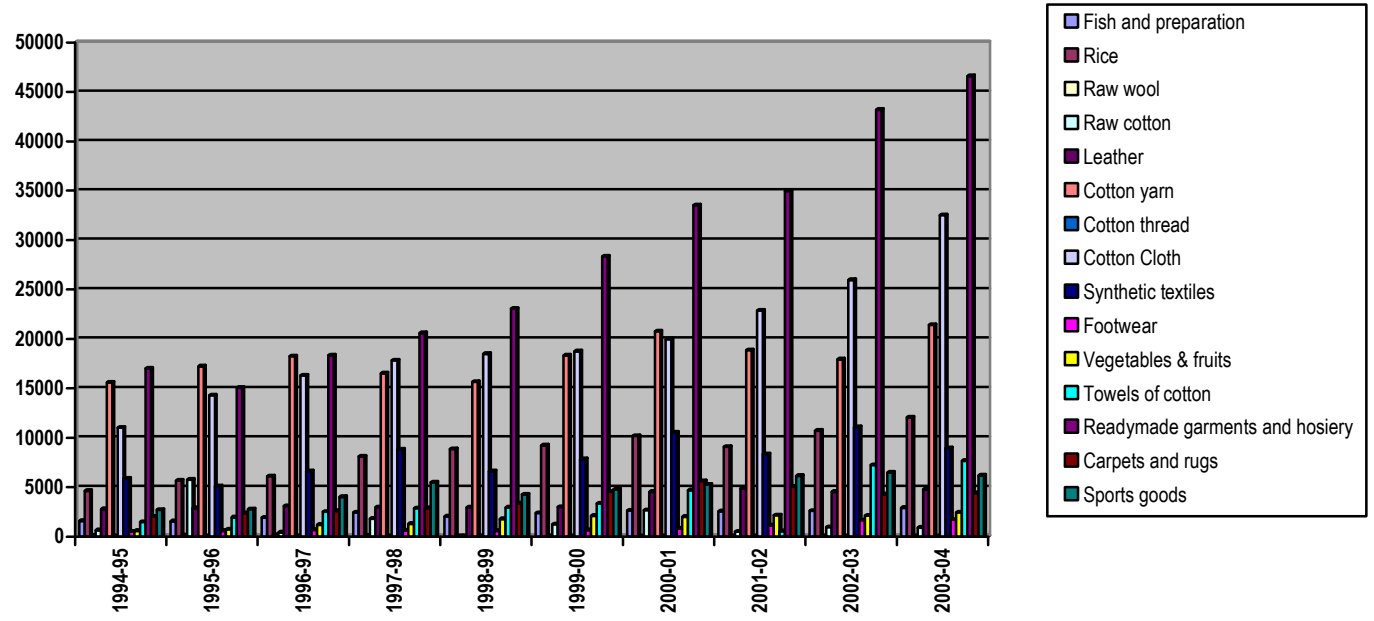
Research on Potentialities of Smes' in Sindh:

The research switched over towards the actual search of the potentialities which have been endowed in the soil of the Sindh naturally. The SMEs in rural areas of Sindh where SMEs are directly contributing to export. The areas of research include Dadu, Ghotki, Hyderabad, Jacobabad, Jamshoro, Kashmore, Khairpur, Larkana, Mirpurkhas, Naushahro Feroze, Nawabshah, Qambar, Sanghar, Shikarpur, Sukkur, Tharparkar, Thatta and Umerkot. Following products are exported from Sindh. This information is generated from some of the data from Export promoters EPM and Chamber of Commerce.

Frozen food includes fish, vegetables, fruits etc from various parts of Sindh

Table-1
Export Share of SMEs from Pakistan

ITEMS	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Total	Share
Fish and preparation	1570.899	1551.693	1913.50	2433.42	2037.71	2372.931	2638.185	2556.114	2596.077	2905.848	22576.38	22.57638
Rice	4628.448	5656.53	6089.49	8105.625	8852.25	9221.652	10180.27	9078.135	10702.82	12056.45	84571.67	84.57167
Raw wool	109.23	136.455	174.108	96.789	44.121	20.064	12.309	19.107	25.608	26.829	664.62	0.66462
Raw cotton	635.019	5749.029	409.002	1809.258	38.412	1241.064	2663.925	495.693	947.958	904.695	14894.06	14.89406
Leather	2772.231	2879.547	3076.16	2960.265	2935.35	2993.463	4528.458	4864.068	4531.857	4782.162	36323.56	36.32356
Cotton yarn	15572.9	17214.19	18228.84	16496.07	15648.86	18310.12	20761.72	18854.42	17923.62	21400.83	180411.6	180.4116
Cotton thread	19.569	16.434	22.605	26.037	25.146	21.846	19.965	10.098	9.207	5.643	176.55	0.17655
Cotton Cloth	11013.12	14282.07	16286.92	17817.06	18473.5	18729.88	19960.25	22867.98	25959.58	32518.93	197909.3	197.9093
Synthetic textiles	5856.84	5093.748	6616.071	8820.669	6590.49	7820.175	10530.73	8326.461	11066.12	8947.488	79668.79	79.66879
Footwear	499.686	568.623	664.62	615.318	579.513	636.24	821.403	1133.913	1655.775	1687.719	8862.81	8.86281
Vegetables & fruits	572.88	726.033	1189.122	1288.65	1766.68	2093.124	2003.727	2142.327	2113.056	2439.096	16334.7	16.3347
Towels of cotton	1473.879	1936.671	2498.793	2857.14	2935.08	3343.428	4686.594	542.751	7219.344	7667.88	35161.56	35.16156
Readymade garments and hosiery	17001.93	15068.82	18326.06	20578.54	23049.25	28336.94	33514.64	34931.66	43208.58	46602.86	280619.3	280.6193
Carpets and rugs	2018.412	2353.296	2580.798	2874.333	3370.22	4516.908	5616.6	5040.948	4260.531	4396.986	37029.03	37.02903
Sports goods	2694.351	2763.585	4003.23	5475.789	4240.96	4770.942	5253.237	6145.59	6461.07	6170.934	47979.69	47.97969



Survey 2006-07

Table 2
Export share of SMEs from Sindh

ITEMS	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Total	Share
Vegetables & fruits	143.22	181.5083	297.2805	322.1625	441.672	523.281	500.9318	535.5818	528.264	609.774	4083.676	4.083676
Fish and preparation	392.7248	387.9233	478.3763	608.355	509.4293	593.2328	659.5463	639.0285	649.0193	726.462	5644.098	5.644098
Rice	1157.112	1414.133	1522.373	2026.406	2213.063	2305.413	2545.067	2269.534	2675.706	3014.113	21142.92	21.14292
Raw cotton	158.7548	1437.257	102.2505	452.3145	9.603	310.266	665.9813	123.9233	236.9895	226.1738	3723.514	3.723514
Leather	693.0578	719.8868	769.0403	740.0663	733.8375	748.3658	1132.115	1216.017	1132.964	1195.541	9080.892	9.080892
Cotton yarn	3893.225	4303.547	4557.209	4124.018	3912.216	4577.529	5190.43	4713.605	4480.905	5350.208	45102.89	45.10289
Cotton thread	4.89225	4.1085	5.65125	6.50925	6.2865	5.4615	4.99125	2.5245	2.30175	1.41075	44.1375	0.044138
Cotton Cloth	2753.281	3570.518	4071.73	4454.266	4618.375	4682.469	4990.062	5716.994	6489.896	8129.732	49477.32	49.47732
Synthetic textiles	1464.21	1273.437	1654.018	2205.167	1647.624	1955.044	2632.682	2081.615	2766.53	2236.872	19917.2	19.9172
Footwear	124.9215	142.1558	166.155	153.8295	144.8783	159.06	205.3508	283.4783	413.9438	421.9298	2215.703	2.215703
Towels of cotton	368.4698	484.1678	624.6983	714.285	733.7715	835.857	1171.649	135.6878	1804.836	1916.97	8790.392	8.790392
Readymade Garments and hosiery	4250.483	3767.206	4581.514	5144.634	5762.312	7084.234	8378.659	8732.914	10802.15	11650.72	70154.83	70.15483
Carpets and rugs	504.603	588.324	645.1995	718.5833	842.556	1129.227	1404.15	1260.237	1065.133	1099.247	4083.676	4.083676

Survey-2006-07

Table-3
Share of SMEs in foreign exchange earnings of Sindh (000 THOUSANDS)

ITEMS	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	Total	Average Export value
Vegetables & fruits	143.22	181.5083	297.2805	322.1625	441.672	523.281	500.9318	535.5818	528.264	609.774	4083.676	40.83676
Fish Dhambra and Pala	392.7248	387.9233	478.3763	608.355	509.4293	593.2328	659.5463	639.0285	649.0193	726.462	5644.098	56.44098
Rice	1157.112	1414.133	1522.373	2026.406	2213.063	2305.413	2545.067	2269.534	2675.706	3014.113	21142.92	211.4292
Raw cotton	158.	1437.257	102.2505	452.3145	9.603	310.266	665.9813	123.9233	236.9895	226.1738	3722.759	37.22759
Leather	693.0578	719.8868	769.0403	740.0663	733.8375	748.3658	1132.115	1216.017	1132.964	1195.541	9080.892	90.80892
Cotton yarn	3893.225	4303.547	4557.209	4124.018	3912.216	4577.529	5190.43	4713.605	4480.905	5350.208	45102.89	451.0289
Cotton thread	4.89225	4.1085	5.65125	6.50925	6.2865	5.4615	4.99125	2.5245	2.30175	1.41075	44.1375	0.441375
Cotton Cloth	2753.281	3570.518	4071.73	4454.266	4618.375	4682.469	4990.062	5716.994	6489.896	8129.732	49477.32	494.7732
Synthetic textiles	1464.21	1273.437	1654.018	2205.167	1647.624	1955.044	2632.682	2081.615	2766.53	2236.872	19917.2	199.172
Footwear	124.9215	142.1558	166.155	153.8295	144.8783	159.06	205.3508	283.4783	413.9438	421.9298	2215.703	22.15703
Towels of cotton	368.4698	484.1678	624.6983	714.285	733.7715	835.857	1171.649	135.6878	1804.836	1916.97	8790.392	87.90392
Readymade Garments and hosiery	4250.483	3767.206	4581.514	5144.634	5762.312	7084.234	8378.659	8732.914	10802.15	11650.72	70154.83	701.5483
Carpets and rugs	504.603	588.324	645.1995	718.5833	842.556	1129.227	1404.15	1260.237	1065.133	1099.247	9257.26	92.5726

RESULTS

- Growth in Export
- Poverty alleviation at some extent.
- Increase in Foreign exchange earnings
- Overall prosperity (Present and Future)

After such trends, the people will become more confident, ambitious drive, pursuing relevant knowledge, education and business laws. To analyze and verify such things, the hypotheses were tested through SPSS-16.5 computer software. The hypothesis mentioned before research methodology followed quantitative analysis. d Such respondent was also important in any research as to collect into information about SMEs flow in Sindh. The government agencies and other young employees remained cooperative in providing data which helped to structure research data into proper research design.

CONCLUSION

This study tried to throw light on importance of SMEs in Pakistan's economy. It can be seen in review of earlier findings and studies that an SMEs is able to cope with the global challenge if it realizes reliable, balanced and high-standard operation in its business. Analysis of entrepreneurship supports the labour abortion production techniques, which will lead to innovations. The discussion also highlights that subcontracting or networking of small and medium firms can give extraordinary results than the single firms working in isolation. Moreover, SME exports are concentrated in labor-intensive sub-sectors where low wages are important to enhance the comparative competitive position of foreign markets and as well as SMEs do not necessarily export their products directly but through trade networks. Further, it is important to learn from the *experiences of countries like Japan, Hong Kong, Taiwan, republic of Korea, Singapore and China because their export oriented growth has corroborated the importance of SMEs in exports. The lesson, which we learn from experiences of these countries that by supplying low-cost labour intensive products SMEs can play significant role in this early stage of export oriented industrialization strategy of Pakistan. And finance*, technological and skill development are some crucial issues in which the Pakistani SMEs should pay attention. *Another lesson is that the strong support from regional/local governments in public testing, R&D, technology development centers, on-the-job training, etc is compulsory for the growth of SME.*

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MANAGERS' KNOWLEDGE ABOUT BASIC MANAGEMENT CONCEPTS

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ABSTRACT

The study was conducted on the role of managers in the success of organizations by utilizing the management concepts and theories. A complementary survey was conducted from 40 branches of various banks located in Sukkur Division and also from other organizations of Sukkur and five point likert scale was used as measurement tool. SPSS statistical software was used for data analysis. Result shows that about 75% managers working as 1st line manager's lack in knowledge about management terminology and roles and skills of a good manager. Data was collected via questionnaires and direct interviews.

KEY WORDS

Manager; knowledge; management; concepts.

INTRODUCTION

The purpose of this research is that how management concepts and theories are practically implemented and to what extent managers working at 1st line management level are familiar with the concepts of management, terminology of management and their roles and skills as a good manager. How managers can achieve the goals efficiently by utilizing the key skills by managing the resources of the organization. For this purpose research was conducted from managers working in various banks located in Sukkur Division and also from other organizations such as NGOs. Managers were asked to fill the questionnaire consisting of 20 questions and direct interview was also conducted. After assessing the results of research, a majority of managers were exposed in terms of their knowledge about basic management terms. Most of managers do not know about the terminology of management and have little knowledge about management functions as well as about the roles and skills of a good manager. This research shows that there is a little implementation of management theories and concepts in practical businesses, which may be the reason for inefficiency of organizations. As with the implementation of management theories in practical businesses performance can be enhanced so organizations must look to give training to their 1st line managers to enhance their knowledge, as they are the responsible for day to day activities and with the help of knowledge their decision making can improve as knowledge is the key element for resource allocation and decision making.

DATA COLLECTION METHODOLOGY

A complementary survey was conducted from 40 branches of various banks located in Sukkur Division and also from other organizations of Sukkur and five point likert scale was used as measurement tool. SPSS statistical software was used for data analysis.

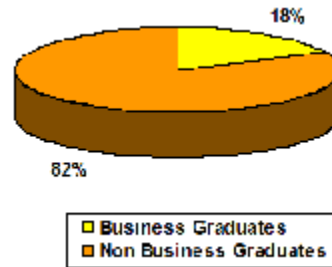
FINDINGS OF RESEARCH

1. Education Level of managers
2. Knowledge about basic functions of management
3. Knowledge about managerial roles and skills
4. Leadership Styles
5. Motivation

Education Level of Managers

It was found that most of managers are not business graduates; they are at their positions because of their experience in the organization.

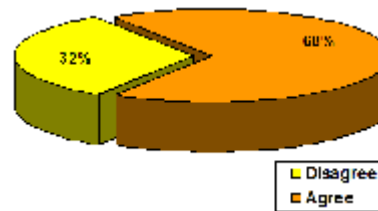
As the chart shows that about 82% managers working at 1st line level are not business graduates. So their academic background does not support them in the management of operations, they are just working on the basis of their prior experience.



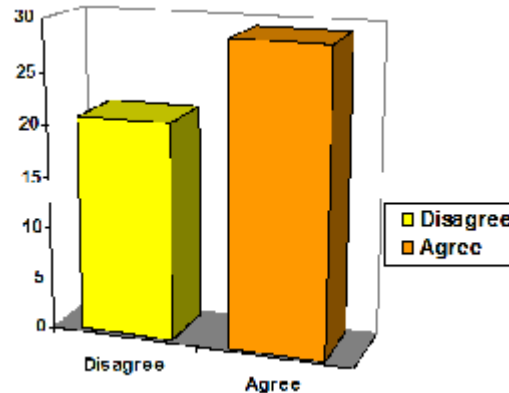
Knowledge about basic functions of management

A majority of managers were exposed that they lack in the knowledge about the basic functions of management, as they were asked questions like;

As top management is responsible for setting goals, so a 1st line manager should not consume time in planning.



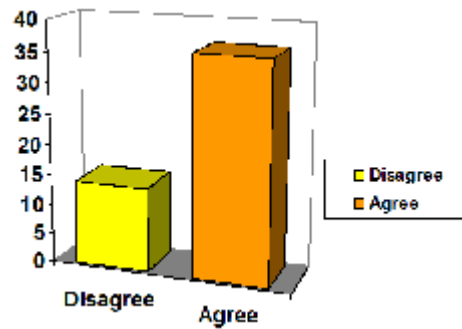
68% managers were agreed that 1st line managers should not plan because it is the responsibility of top management. But as it is obvious every manager at any level has to perform the basic four functions i.e. planning, organizing, leading and controlling. So their knowledge about functions is quite clear. Furthermore they were asked few questions in questionnaire like;



Manager should only focus on the functioning of his/her branch rather than focusing the whole organization.

A manager can only control employees, not other resources because they are non-human.

According to 72% of managers controlling is all about human resource, others non human resources are not controllable.

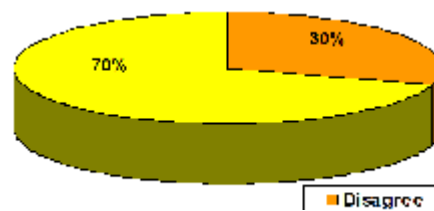
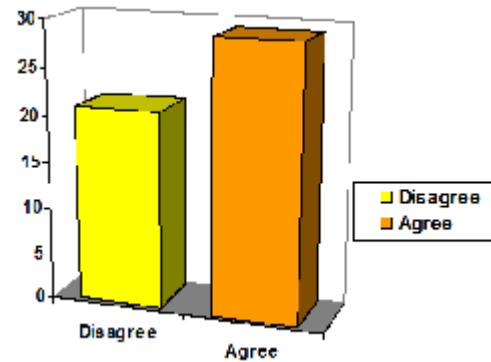


Knowledge about managerial roles and skills

Although most of managers were very good at their communication and interpersonal skills, I was very impressed with their behavior but the results shows that most of managers have not clear idea about the managerial roles and skills as they asked

Being a 1st line manager, he/she should have more conceptual skills than interpersonal.

42% managers were disagreed, while 58% managers believe that for 1st line managers conceptual skills are more important for them.



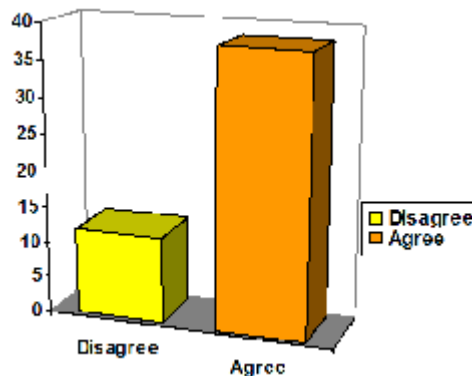
Leadership Style

About 76% of managers were found autocratic in their behavior. They do not use to share any information with their subordinates and also do not discuss any organizational matter to them. In one of the question it was found that most of the managers are used to threaten their subordinates to motivate towards work.

As most of employees work when they are threatened so a manager should not be lenient.

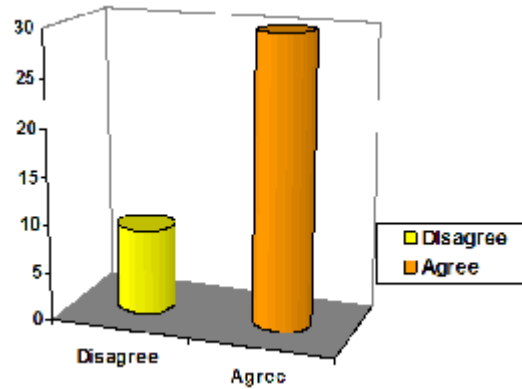
Motivation

When managers were inquired about motivating their subordinates they were found using discriminatory behavior with employees as they were asked.



Manager should not treat all the employees in the same manner because all are not good at work, so treatment should be according to their work.

If two employees asking manager for leave at the same time, manager can allow one, so manager should allow one who is nearer to him because he is good at work.



This shows that employees will never be satisfied if their manager is showing discrimination among them; they will be demotivated towards work as a result of this, their performance will be affected which will affect the ultimate goals of organization. This may also be the reason that many employees.

CONCLUSION

The focus of this study is on a very specific issue of the knowledge of the 1st line managers working in different organizations that how management concepts and theories are practically implemented and to what extent managers working at 1st line management level are familiar with the concepts of management, terminology of management and their roles and skills as a good manager. How managers can achieve the goals efficiently by utilizing the key skills by managing the resources of the organization effectively and efficiently. After assessing the results of research, a majority of managers were exposed in terms of their knowledge about basic management terms. Most of managers do not know about the terminology of management and have little knowledge about management functions as well as about the roles and skills of a good manager. This research shows that there is a little implementation of management theories and concepts in practical businesses, which may be the reason for inefficiency of organizations.

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IMPACT OF ORGANIZATIONAL POLITICS ON ANTISOCIAL BEHAVIOR IN PUBLIC SECTOR OF PAKISTAN

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ABSTRACT

We conducted this study to evaluate the extent of organizational politics, and its impact on antisocial behavior in public sector of Pakistan. The data was gathered from public sectors through questionnaires. The results showed that most of the organizational politics (illegitimate) result in loss of working hours, decrease production and law and order issues so it had negative impact on antisocial behavior e.g. (strikes, absenteeism) but in some cases it help organization finding rotten eggs in the form of traitor doing harm to the organization so had positive impact on antisocial behavior if it is legitimate politics e.g. (back biting).

INTRODUCTION

The organizational politics can manipulate employees in a positive or negative way, thus puts a strong impact on their performance. (Mayes and Allen, 1977). If the organizations have political environment then nobody would invest because it is very risky. (Cropanzano, Howes, Grandey and Toth, 1997). Politics was the main/strongest reason of stress outcomes. (Randall, Cropanzano, Bormann and Birjulin, 1999). By the organizational politics individual outcomes and organizational outcomes may be adversely affected. (Cook, Ferris and Dulebohn, 1999). The organizational politics is an important variable to find out the organizational functioning. Politics have positive relationship with work behavior in some conditions. To measure the outcome of organization we must investigate the organizational politics. (Cropanzano, Howes, Aliciaa, Grandey and Toth, 1997).

The research on organization politics is mostly restricted to developed countries. The findings of these studies although provide us an idea about the outcomes of organizational politics still these cannot be applied in other parts of the world. Especially the developing countries like Pakistan. The public sector organization in Pakistan have recovered very little attention from researchers. While many of public sector employees are engaged in organization politics. We have no study to see impact of these political activities.

Hence our study will show the association among organizational politics and antisocial behavior in public sector of Pakistan. Anti social behavior is a major problem with in the organizations which has strongly affected the performance of the employees at certain level. So there is a great need of the public sectors to be focused by the researchers. This research will conclude that organizational politics do have some positive or negative impact on anti social behavior in public sectors and by which extent.

LITERATURE REVIEW

Organizational Politics:

Definition: “Organizational politics is the management of influence to obtain ends not sanctioned by the organization or to obtain sanctioned ends through non-sanctioned influence means.” (Mayes, and Allen, 1997). Organizational politics have negative relationship with both dimensions related to performance-job dedication and interpersonal facilitation. Organizational outcome show negative impact on the perception of organizational politics. (Witt, Kacmar, Carlson and Zivnuska, 2002). Organizational politics is different from procedural or distributive justice. (Andrews and Kacmar, 2001). Job stress is plays an important role in the formation of link between the organization politics and aggressive behavior by the employees (Eran, 2002). Politics and support are related to the employee’s job satisfaction turnover intention and affective commitment with the organizations and also their performance (Gray, and Ariss, 1999). Organizations are naturally political places .There are a number of different levels of workplace politics which produce negative outcomes. If we found that workplaces lead inefficient outcomes, then managers within the organization have to think how to reduce the negative consequences. (Chen and Fang, 2008). In political organization employees are interested to attain the reward and resources through biasness. (Sussman, Adams, Kuzmits and Raho, 2002). Employees are more pleased and more eager to stay with the political environment of the firm as they are getting reward unjustly and those who don’t get the reward are disappointed and depart the political organization if the rewards are determined to them. (Harris, Andrew and Kacmar, 2007).

Turn over intension is high in public sector as compare to private sector because politics level high in public sectors compare to private sector organizations. (Miller, Rutherford, Kolodinsky, 2008).There is the negative impact of work stress on individuals, organizations and economy. Therefore stressful work environment and burnout cause the lost of time, reduce effectiveness, productivity of the organization, increase the rate of accidents, high absenteeism rate, human kindness and high turnover intension. (Vigoda, 2002).

Antisocial Behavior:

When the anti social behavior is not control in its initial stage it can not be controlled further. (Kim, Hetherington and Reiss, 1999). Precipitating factor which is anti social behavior leads to mental treatment but at that this factor also cause the mental disorder. (Jacobs, 1964). Job satisfaction, self esteem, and happiness are highly related to the sexuality at work in the public firm. (Williams, Giuffre and Dellinger, 1999). The situation could be better if the employees’ responses to their bully boss that they would not tolerate him anymore (Leck, 2006). If we reduce the ethical hesitation immediately than political behavior results in the major cognitive. (Cavanagh, Velasquez and Moberg, 1981). Non aggressive antisocial behavior is less in males then in females, the antisocial behavior is heritable with difficult temperament. (Eley, Lichtenstein and Stevenson, 1999).



Hypothesis:

Organizational politics associated with antisocial behavior.

METHODOLOGY

Questionnaire was adopted form Kacmar and Ferris (1991) and Robison and Kelly (1998). It contained 20 items and 3 sections. The population for data collection was employees working in public sector of Pakistan. The sample was collected from various cities of Pakistan and the sample size was 200 employees. The questionnaire was personally administered through HR department of the concerned organization. Total 200 hundred questionnaires were distributed out of 141 questionnaires were received back by making response rate 71%.

Characteristics of sample:

S.No.	Items	Items	Frequency	Percentage of frequency
3	Gender	Female	9	6.4%
		Male	132	93.6%
2	Age	18 – 22	7	4.96%
		23 – 27	30	21.28%
		28 – 32	38	26.95%
		33 – 37	28	19.86%
		38 – 42	30	21.28%
		43 – 47	5	3.55%
		48 – 52	3	2.13%
1	Qualification	Metric	20	14.18%
		Inter	24	17.02%
		Graduate	64	45.39%
		Masters	33	23.40%
		PhD	0	0%

Females are mostly avoiding the public sector organization in the Pakistan and public sector organizations also prefer the male employees especially for top management. That why females move towards private sector rather than public sector. Due to this reason percentage of females is less then males.

FINDINGS

Correlation

	Antisocial behavior	Organizational politics
Antisocial behavior	1	.165
Organizational politics	.165	1

Correlation analysis indicate the weak relationship between antisocial behavior and or organizational politics (.165).

Regression analysis:

Models	Beta	t	Sig.
Organizational politics	.165	4.554	.000

Dependent variable: Antisocial behavior n = 141 R square = 0.027

Adjusted R square = 0.020 F = 3.877 Sig. = 0.051

DISCUSSION

Political behavior and the use of power affect almost every important decision in organizations. As public organizations are more closely attached to the political system, they operate in a less flexible, less responsive and less participatory organizational environment. 200 questionnaires were distributed among public sectors employees. In all, 141 usable surveys were returned which represented the relationship between both variables. The results of the study showed that organizational politics have very negligible impact on anti social behavior in public sector. Mostly in public sector organizations antisocial behavior and organizational politics both are the major problems. From this research we found that both are interdependent but in very few cases antisocial behavior depends on organizational politics. So that antisocial behavior is not due to organizational politics. It may be caused by perception, personality and impression management. Antisocial behavior may be more biologically-based. That's way it is dependent on organizational politics at very low level. It is caused due to the differences between participants under severe and stressful conditions and child behavior, impulsivity, low intelligence and attainment, family criminality, poverty and poor parental child-rearing behavior. Offending was only one element of a larger disorder of antisocial behavior that develops in childhood and persisted into adulthood. Organizational politics affects the individual's outcome, organizations outcome and employees performance. The outcomes of organizational politics are stress, higher turnover intentions, high absenteeism rate, burnout, less organizational commitment, conflict in the work environment and employee satisfaction. As politics is a potential source of stress in the work environment it is due to biasing or strikes etc within the organization. The relationship between the stress and politics is relative concepts not real or at certain level it depends on person's perceptions. Absenteeism is also a major outcome of politics in organizations it is because most of the time employees involve themselves in political activities. Politics have a significant effect on organizational commitment of top management.

Turnover is also significant outcome of organizational politics like if there is some differences in salaries of employees who are on same post it will cause stress and then it force the employees to leave that organization. Other cause of turnover is when employees are unable to tolerate the situations and have aggressive behaviors. Some time organizational politics negatively effect the employee satisfaction. But in some cases it positively effect on employees' satisfaction like, if they are unfairly rewarded at their workplace they are satisfied and the same individuals got unsatisfied and leave the organizations when they are rewarded fairly like if a person use the politics effectively he/she will be in a positive side and preserving his/her own interest and benefits if not the opposite occurs. Burnout has critical relationship with organizational politics.

Today's workforce is experiencing job burnout in contagion magnitude. Workers at all levels feel anxious, unconfident, misunderstood and undervalued at their workplace. When workers suffer job burnout they are only responsible for their fatigue and anger. If evaluations, benefits and promotions are not applied fairly the organization cannot be trusted by the employees. Conflict in the work environment is due to the overloading of work or exhaustion of employees. It can be caused because of Discrimination in the workplace, separating or making distinctions among job applicants or employees, based on race, national origin, or sex. When there is politics in the organization it involves the lower level employees and then managerial level. Politics also have some effect on productivity level. It also causes injuries, harms and losses to the employees and organizations.

Organizational politics have strong relationship with negligible behavior not antisocial behavior. When there is antisocial behavior in the organization it is not necessary that it is due to politics. There are many other reasons which we have discussed. Politics have its own outcomes but they don't affect employee behavior in negative way always. Because of weak relationship among the variables there are limited search available in our literature review.

IMPLICATIONS

The organization politics have very weak relationship with antisocial behavior. There are many other reasons of antisocial behavior like perception and personality and impression management. Both variables are mostly interdependent There is a need to focus on those reasons that causes politics in the organizations. And we must control them. Mostly in public sector when employees have antisocial behavior and organization starts controlling and focusing the organizational politics which is not correct our research clearly shows that there is very less impact of antisocial behavior on organizational politics. If we want to know how to control organization politics we should focus on its outcomes; job stress, burnout, turnover rate, absentees, employees commitment, job satisfaction and work conflict.

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**EVALUATION OF THE FOOD SUPPORT PROGRAM
OF PAKISTAN BAIT-UL-MAAL**

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ABSTRACT

This study was undertaken to evaluate the performance of the Food Support Program (FSP) under the Pakistan Bait-ul-Mal (PBM). This paper explains different variables that affect the efficiency of the FSP program. The research work was based on both primary and secondary data collected from the concerned resources. The secondary data on the budgets and disbursements of finances was collected from Pakistan Bait-ul-Mal who also helped with the addresses of the beneficiaries. The primary data was collected by serving a questionnaire to the beneficiaries of the FSP. The primary data was analyzed using SPSS program and linear regressions were run to demonstrate relationship between the variables. Frequency analysis of the primary data was also carried out. The results which resolved in favour of FSP have been discussed along with future implications.

KEYWORDS

Evaluation, Food Support, Pakistan Bait-ul-Maal.

1. INTRODUCTION

A number of public and private social welfare organizations are actively involved in solving the problem of poverty and unemployment all over the world with a special focus on food situation in the developing countries and food security. Various studies have been undertaken in the past that formed the basis of work being reported here and many are currently in progress to determine poverty and suggest suitable measures to alleviate it (Stevens and Jackson 1979, Mellor, 1983, Kuhn et al, 1996, Gunderson and Ziliac, 2003). The organizations operate through programs designed at both national and international level that are usually evaluated for their successes and failures. Currently, such like programs are being carried in developing countries particularly in African and Asian that are badly affected by poverty and unemployment. An example at national level from Pakistan is Pakistan Bait-ul-Mal (PBM) which is a public sector program. PBM is an autonomous body that was set forth by Ministry of Social Welfare and Special Education with an aim to alleviate poverty or at least to minimize it as much as possible. Thus, the main aim of PBM is to provide social security to the deprived and the underprivileged parts of the society. Food Support Program (FSP) is one of 7 programs being carried by PBM to combat problem of poverty

Here, FSP was undertaken to assess its performance over the last six year. The questions to answer were as under:

1. Whether the FSP was working efficient?
2. Whether the selection process of this program was effective?
3. Whether the aid of FSP was helping the deserving people?

2. BACKGROUND OF FSP

FSP is a public security program focusing on the underprivileged class to provide assistance due to a rise in wheat prices since 2000 (Official Website PBM, 2007). It is administered by the Pakistan Bait-ul-Mal in collaboration with Pakistan Post Office and Provincial Governments. The Federal Government has recently revised the maximum grant paid annually to the beneficiaries, along with increase in coverage from 1.25 to 2 million households and thus has increased budget substantially. For the Fiscal Year 2007-08 the annual budget of FSP has been raised from Rs.4.38 billion to Rs.6 billion. Since the initiation of FSP a total of Rs.18.368 billion have been paid. The main objective of the FSP is to assist poor in the purchase of wheat and also to fulfil the nutritional requirements of the underprivileged sector of the society.

3. GOAL OBJECTIVES AND HYPOTHESES

3.1 Goal:

The main goal behind the research was the evaluation of performance of FSP.

3.2 Objectives:

The objectives of this research are as follows:

1. Examination of the effect of durables owned by the applicant on the number of applicants.
2. Checking of the impact of marital status on the number of applicants?
3. Seeing whether the family size has any effect on the number of applicants.
4. Determination of the effect of education on the number of applicants.
5. Estimation of the impact of sanitary conditions on the number of applicants.

3.3 Variables and Hypotheses:

The dependent variable in the study was the number of applicants while the independent variables designated as X_1 to X_{13} are listed in Table 1, 2 and 3. The hypotheses framed are given below.

1. H_0 : Amount of durables will have no effect on the number of applicants
 H_1 : Amount of durables will have an effect on the number of applicants
2. H_0 : Marital Status has no affect on the number of applicants.
 H_1 : Marital Status has an affect on the number of applicants.
3. H_0 : Family size has no affect on the number of applicants.
 H_1 : Family size has an effect on the number of applicants.
4. H_0 : Sanitary Conditions has no affect on the number of applicants.
 H_1 : Sanitary Conditions has an affect on the number of applicants.
5. H_0 : Education has no affect on the number of applicants.
 H_1 : Education has an affect on the number of applicants.

4. RESEARCH METHODOLOGY

4.1 Secondary Data:

Secondary data were collected from the regional office of PBM. Information regarding the application process and the addresses of the relevant beneficiaries were also collected.

4.2 Primary Data:

The primary data were collected by getting responses of beneficiaries of FSP against a questionnaire and of officers through interviews of the officials concerned. To assess the status of implementation of FSP and its direction the PBM administration was involved in data collection. The sampling universe has been confined to Lahore (Lahore Mufassil, Lahore City and Lahore Cantt.).

4.2.1 Population:

The applicants of PBM who had received food support during the last year were considered as the total population. The total population size was 41,355 applicants.

4.2.2 Sampling:

Probability Proportional to Size formula (below) was used to determine sample size. In the formula n = Sample size, N =Population=41,355, d = Margin of error = 0.05 (Acceptable error 5%) p = Probability of involvement of the population in project activities (Guessed = 0.5 or 50%) Z = 1.96 at level of significance α 0.05 (Value of normal variable at 95% confidence level).

$$n = \frac{Nz^2 p(1-p)}{Nd^2 + z^2 p(1-p)} = Np(1-p)z^2 d^2$$

The computation led to a sample size of 99. However number of respondents accessed were limited to 60.

4.3 Statistical Analysis:

The collected data were analyzed using SPSS software. The programmed regression equation was as under:

$$Y = \alpha + \beta(X_1) + \beta_1(X_2) + \beta_2(X_3) + \beta_3(X_4) \dots$$

where Y = Number of Beneficiaries and X_1 --- X_{13} = Independent variables.

The results have been interpreted at 5% significance level.

5. RESULTS AND DISCUSSION

5.1 Results of Univariate Qualitative Analysis:

The results of the interviews of the people who were government officials and were aware of the program were interpreted qualitatively. The individuals interviewed were aware of the FSP and its objectives. They verified all the findings of the primary research. The problem they believed was the process which takes longer mainly because of the verification of the beneficiary. The application process was between 2-3 weeks which is normal. They told that due to rising prices the FSP aid had been raised and that the selection process of the beneficiaries was working finely and very effectively to keep fraudulent claims at bay. One of the officials was of the same view that application process was not long but it was the minimum time that took for an application to be processed. In fact the process took long because the application had to be verified from the head office in Islamabad. In his opinion also the selection process of FSP was very effective because when the program was initiated the administration made sure to close all the loopholes which might cause fraudulent claims from any government member and

that only the deserving were able to get the aid. According to him till then the program had not faced any major problem. When asked about the incorrect addresses, he responded by saying that the program had some problems which need be fixed, but the reason behind the incorrect addresses was because the beneficiary might have moved to a new address and had not informed the PBM. The beneficiaries in question did not aim for own business.

5.2 Results of Univariate Quantitative Analysis:

The results of the quantitative analysis include the frequency tables, graphics. As graphics and tables meant duplication, the results of frequency analysis are computed in Table 1 to 3 (Reconstructed from original SPSS result tables).

Table 1 shows that most of the beneficiaries were women. Only in Lahore Cantt area the males seemed to dominate. The reason behind more women was the lack of employment in this proportion of population. Most of these beneficiaries were married but still a substantial part of them were either divorced or widows who did not have a regular source of income and thus were more deserving.

More than 90% of the addresses (Table 1) were accurate suggesting that there are no factitious beneficiaries in PBM's record. The overall conclusion was that the program is reliable.

More than 75% (Table 1) of the beneficiaries interviewed were aged above 41 years. This suggested that the proportion of younger beneficiaries was very small. Overall observation was that the beneficiaries were the elderly.

The results showed that more than 50% of the beneficiaries were illiterate (Table 1) which showed that the beneficiaries belonged to low class.

Details		Lahore City	Lahore Mufasil	Lahore Cantt	Freq.	%age
Gender Allocation	Male	8	5	13	26	43
	Female	12	15	7	34	57
	Total	20	20	20	60	100
Allocation according to marital status	Single	3	2	4	9	15
	Married	13	14	10	37	62
	Divorced	3	4	4	11	18
	widow	1	0	2	3	5
	Total	20	20	20	60	100
Allocation according to accuracy of name/address	Correct Contact	19	20	17	56	93
	Defective	1	0	3	4	7
	Total	20	20	20	60	100
Allocation by age	Below 30	1	2	1	4	6.66
	31 – 40	4	3	3	10	16.66
	41 – 50	5	5	5	15	25
	51 – 60	4	5	3	12	20
	60+	6	5	8	19	31.66
	Total	20	20	20	60	100
Allocation according to education received	None	14	11	12	37	61.66
	up to 5	4	8	6	18	30
	6+	2	1	2	5	8.33
	Total	20	20	20	60	100

Most of the beneficiaries had 3 children (Table 2). More the children, more difficult it was for the beneficiaries to accommodate their needs within given amount paid to them. So these people were more deserving. Most of the beneficiaries were labourers. They were followed by the housewives and the elderly. Not a single beneficiary made a statement which suggested that they had any business or plan to have any (Table 2), which means that these people belonged to lower classes.

The housing conditions were a major factor (Table 2) in the aid provided by the PBM. More than one-third of the beneficiaries had houses which were partially made by baked bricks. Only in areas of Model Town and Lahore Cantt., the proportion of “pakka” houses was high. The conditions of the houses suggested that the beneficiaries had poor income and thus deserved aid. Moreover, most of the houses had availability of flush, which is a major factor in social standards. Even though more than 50% of the beneficiaries had flushes, a big portion of interviewees still did not have any such benefit.

Details		Lahore City	Lahore Mufasil	Lahore Cantt	Freq.	%age
Family Size	none	1	3	3	7	11.66
	1-2	2	6	5	13	21.66
	3-4	12	7	6	25	41.66
	5-6	5	4	6	15	25
	7+	0	0	0	0	0
	Total	20	20	20	60	99.98
Allocation according to occupation	Labor	10	7	5	22	36.66
	Elderly	4	2	5	11	18.33
	Incapacitated	1	4	2	7	11.66
	Housewife	4	3	5	12	20
	Housemaid	1	3	0	4	6.66
	Other	0	1	3	4	6.66
Total	20	20	20	60	99.97	
Allocation according to type of house	Kutch (K)	6	0	2	8	13.33
	Pucca (P)	4	9	8	21	35
	K + P	9	11	4	24	40
	Hut/Tent	1	0	6	7	11.66
	Total	20	20	20	60	100
Type of toilet	Flush	12	10	14	36	60
	Bucket	8	8	5	21	35
	Fields	0	2	1	3	5
	Total	20	20	20	60	100

Most of the beneficiaries faced sanitary problems (Table 3) which again suggested that they belonged to lower class and were deserving people. Comparatively more beneficiaries had availability of wells mostly in inner Lahore City. However, due to development in three areas, most of the beneficiaries were able to have access to clean drinking water. Before that they were constrained to poor quality water

More than 50% of the houses did not have electricity and of the beneficiaries who had electricity were only able to use a single light bulb or fan in summer (Table 3). This indicated that these people belonged to lower class.

The durables such as radio and bicycles placed emphasis on the lower standards of the beneficiaries. Hardly, few of them were able to afford televisions and motorcycles. When they were inquired further about the details, their answer was, they had acquired them on

installments. Most of the deserving had very low income or none at all. The ones that were earning said that due to high food inflation their income amounted to nothing (Table 3).

Most of these people were labourers who work on daily wage set by the market. The labour market does not provide much for these beneficiaries as the daily wage set for them is very low. Most of the applicants were street hawkers. The results indicated that the people in question were needy and deserving.

Table 3: Frequencies

Details		Lahore City	Lahore Mufasil	Lahore Cantt	Freq.	%age
Sanitary conditions outside house	Littered	9	7	5	21	35
	Unclean	8	8	10	26	43.33
	Clean	3	5	5	13	36.66
	Total	20	20	20	60	99.99
Water supply	Piped water	5	7	4	16	26.66
	Hand-pump	4	6	6	16	26.66
	Pond	1	2	2	5	8.33
	Well	7	4	6	17	28.33
	Tube-well	3	1	2	6	10
	Total	20	20	20	60	99.98
Availability of electricity	yes	6	8	13	26	43.33
	No	14	12	7	34	56.66
	Total	20	20	20	60	99.99
Availability of durables	T.V.	3	2	2	7	11.66
	Radio	5	9	8	22	36.66
	Motorcycle	3	1	4	8	13.33
	Bicycle	9	8	6	23	38.33
	Total	20	20	20	60	99.98
Distribution according to income earned	None	6	3	4	13	21.66
	Up to 1000	5	7	6	18	30
	1001 – 2000	4	5	5	14	23.33
	2001 – 3000	3	4	2	9	15
	3000+	2	1	3	6	10
	Total	20	20	20	60	99.99

5.3 Results of Multivariate Analysis:

The value of R squared was 72.3% which meant that more than 70% of the changes shown in the dependent variable were caused by the independent variables.

In order to satisfy the hypothesis condition, the significance level should be less than 0.05. On the basis of significance level of different variables (Table 4), hypotheses are tested below.

1. H_0 : Amount of durables will have no effect on the number of applicants (Accepted, $p = 0.020 < 0.05$) H_1 : Amount of durables will have an effect on number of applicants (Rejected)

2. H_0 : Marital status has no effect on the number of applicants (Rejected, $p = 0.189 > 0.05$) H_1 : Marital status has an effect on the number of applicants (Accepted).

Table 4: Results of Econometric Model

Variables		Un-standardized Coefficients		Standardized Coefficients	p value
		B	Std. Error	Beta	
(Constant)		32.95	15.859		.044
Marital Status	X ₂	-2.848	2.138	-.142	.189
Education (years)	X ₅	1.462	1.251	.109	.249
Family Size	X ₆	5.847E-02	1.552	.003	.970
Sanitary conditions outside house	X ₁₀	6.810	1.410	.540	.000
Availability of durables	X ₁₃	-3.228	1.342	-.234	.020

R-squared = 0.723 Significance Level = 0.000

3. H_0 : Family size has no effect on the number of applicants (Rejected, $p = 0.970 > 0.05$).
 H_1 : Family size has an effect on the number of applicants. (Accepted)
4. H_0 : Sanitary conditions have no effect on the number of applicants. (Accepted, $p = 0.00 < 0.05$)
 H_1 : Sanitary conditions have an effect on the number of applicants. (Rejected)
5. H_0 : Education has no affect on the number of applicants (Rejected, $p = 0.249 > 0.05$).
 H_1 : Education has an effect on the number of applicants (Accepted)

6. CONCLUSION

The study concluded that the FSP of PBM is effective and is aiding people as much as it can. The program is essential for poor as rising food inflation has rendered wheat and other foodstuffs very expensive. The policies being implemented are running FSP effectively. The administration is working efficiently for the program. Further improvement can be done by making people aware of FSP through wide advertisement.

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**AN ANALYSIS OF INDIVIDUAL FINANCE ASSISTANCE PROGRAM
UNDER THE PAKISTAN BAIT-UL-MAAL**

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ABSTRACT

The work reported in this article was undertaken to evaluate performance of the Individual Finance Assistance (IFA) Program under the Pakistan Bait-ul-Maal. Both primary and secondary were collected to identify variables that affect the efficiency of the IFA program. The secondary research includes data from Pakistan Bait-ul-Maal on the budgets and disbursements of finances and current addresses of the beneficiaries. The primary data was questionnaire based and was addressed at the beneficiaries of the Individual Financial Assistance Program. The primary data was analyzed using SPSS program and linear regression was run to determine the values of the parameters that indicate significance of relationship between performance of PBM and variables. Frequency analysis was also done on the data from the questionnaires and the results computed. The results of this analysis are discussed along with future implications

KEYWORDS

Individual, Support, Pakistan Bait-ul-Maal.

1. INTRODUCTION

Pakistan is a developing country badly stricken by high level poverty. There is no quick solution to this problem. That is why effective implementation of strategies framed to slowly reduce poverty and eliminate it from our society in the long run is being pursued by Pakistan. One of these strategies pertains to Pakistan Bait-ul-Maal (PBM), a social welfare organization erected on the foundation of the Islamic Laws in context of poverty alleviation. PBM was set up in 1992 under the Bait-ul-Maal Act 1991 to provide assistance to extremely poor who earn less than Rs. 800/annum. It is financially sponsored from the national taxes and Zakat, an annual tax at the rate of 2.5% of personal assets beyond a certain limit.

The PBM has undertaken a number of programs on this front and, IFA is one of them. Apart from helping individuals PBM also acts as a microcredit institute that provides loans to individuals on zero mark up to set up their businesses.. It stipends for education to brilliant students with excellent academic records, rehabilitation and medical treatment to the destitute, needy women, orphan and invalids irrespective of their gender, caste, creed or race.

The IFA has four major sponsorship categories: General Assistance, Medical Assistance, Educational Assistance and Rehabilitation Assistance. The amount of finance and the mode of utilization is transparently defined (Official PBM Website, 2007). There

are also certain laws to govern the application process and there are stringent policies for the admission of an application. The criterion for judging the applicants for assistance is their monthly income.

2. BACKGROUND LITERATURE

A number of studies have been carried out on poverty and its alleviation (Redga, 2000, Koveos, 2004, Fields, 2005, Robert, 2006, Hartungi, 2007). All these studies indicate that every country including even USA faces the problem of poverty. Countries in the African Continent are affected more by poverty and are in greater need of financial assistance by other nations. The family allowance plans in USA, food stamps distribution to households in Africa and many other programs in other regions have been made on the basis of studies referred above but not implemented satisfactorily.

Unfortunately, these studies have no significant impact on the status of poverty and its alleviation in the poor countries. Some studies have been undertaken in Pakistan to discuss the role of different types of financial aids but little work has been undertaken to evaluate the performance of PBM. Pasha, et al (Pasha, 2000) discussed different types of financial aids provided by the Government of Pakistan. The authors determined the types of social security nets which included different subsidies, benefits, Ushr and Zakat, PBM Housing Finance by House Building Finance Corporation (HBFC) and Microcredit Scheme of Habib Bank Limited. The discussion mainly focused on the policy implications in these sectors and on evaluation of each scheme on the basis of a pre-planned criterion. The appraisal of social safety nets in Pakistan demonstrated that Government of Pakistan has traditionally shown relatively low priority towards interventions for poverty alleviation.

After taking into consideration the studies outlined above, this piece of work on assessment of the performance of ISA program was undertaken. The questions before study to answer were as under:

1. Whether the IFA program was working efficiently?
2. Whether the process of selection under IFA program was effective?
3. Whether the aid of IFA was helping the deserving subjects?

3. GOAL, OBJECTIVES AND HYPOTHESES

3.1 Goal:

The goal of work was the assessment of PBM performance in implementation of IFAP.

3.2: Objectives:

The objectives of this research were as under:

1. Examination of the effect of beneficiary income on the number of applicants to PBM.
2. Assessment of the impact of number of trips made to PBM on the number of applicants.
3. Checking of the impact of length of the application process on the number of applicants.
4. Testing the effect of average age of beneficiary. on the number of applicants.
5. Determination of the effect of distance of residence of applicant from PBM on the number of applicants.

3.3 Variables and Hypotheses:

The dependent variable in the study was the number of applicants while the independent variables designated as X_1 to X_8 are listed in Table 1 and 2. The hypotheses framed are as under:

1. H_0 : Amount of aid received by the applicant will have no effect on the number of applicants.
 H_1 : Amount of aid received by the applicant will have an effect on the number of applicants
2. H_0 : Number of trips made to PBM does not affect the number of applicants.
 H_1 : Number of trips made to PBM does affect the number of applicants.
3. H_0 : number of applicants is not affected by the age of the applicants.
 H_1 : number of applicants is affected by the age of the applicants.
4. H_0 : The length of the application process has no effect on the number of applicants.
 H_1 : The length of the application process has significant effect on the number of applicants.
5. H_0 : Distance of PBM from residence of applicant does not affect the number of applicants.
 H_1 : Distance of PBM from residence of applicant does affect the number of applicants.

4. RESEARCH METHODOLOGY

4.1 Secondary Data:

Secondary data were collected from the Regional Office of PBM. The data from PBM included the budget allocation tables and the addresses of the applicants. The data also contained policies of the IFA program and the complete application process.

4.2 Primary Data:

The primary data were collected by getting responses of beneficiaries of IFAP against a questionnaire and of officers through interviews of the officials concerned. To assess the status of implementation of IFAP and its direction the PBM administration was involved in data collection. The sampling universe has been confined to Lahore City.

4.2.1 Population:

The Applicants of IFAP who had received financial support during the last year were considered as the total population. This population consisted of 7,450 applicants.

4.2.2 Sampling:

Probability Proportional to Size formula (below) was used to determine sample size.

$$n = \frac{Nz^2 p(1-p)}{Nd^2 + z^2 p(1-p)} = Np(1-p)z^2 d^2$$

In the formula n = Sample size, N =Population=41,355, d = Margin of error = 0.05 (Acceptable error 5%). p = Probability of involvement of the population in project activities (Guessed = 0.5 or 50%) Z = 1.96 at level of significance α 0.05 (Normal variable at 95% confidence level).

The computation led to a sample size of 86. However, number of respondents accessed were limited to 60.

4.3 Statistical Analysis:

The collected data were analyzed using SPSS software. The programmed regression equation was as under:

$$Y = \alpha + \beta(X_1) + \beta_1(X_2) + \beta_2(X_3) + \beta_3(X_4) \dots$$

where Y= Number of Beneficiaries and X_1 ---- X_8 = Independent variables.

The results have been interpreted at 5% significance level.

5. RESULTS AND DISCUSSION

5.1 Results of Univariate Quantitative Analysis:

The qualitative analysis includes the questionnaire and the interviews of the administration of the PBM. Mr. Farooq Elahi, PBM's Individual Financial Assistance Program was interviewed. He said that the average time it takes for an application to get processed is two-three weeks which matched with what the primary survey concluded.

He said that financial aid is given on a need basis and that the neediest and the desiring are given financial aid. The salary of an individual is considered and if it's below the level set by the PBM, then only the aid is provided. Some officials also talked about the red tape and bureaucracy which lengthens the time it takes for the application to get processed. According to them, all the Medical Assistance applications are checked and mailed to Islamabad which is the head quarters of PBM. This inefficient and time consuming method not only wastes human energy but also puts the life of the applicant in danger. Medical and Educational Assistance applications take longer because of this reason.

5.2 Results of Univariate Quantitative Analysis:

The results of the frequency analysis of responses directly related to finance are shown in Table 1 of those indirectly related to finance in Table 2.

Table 1 indicates that the order of priority for disbursement of grant by PBM was Education. > Medical>General>Rehabilitation (35%>27%>23%>15%). 86% of the applicants didn't pay anything in charges while only 13% paid less than Rs. 200. in costs. Out of the sixty beneficiaries questioned, 95% were actually benefited by the aid, while only 5% were not benefited by it. A significant proportion of beneficiaries were granted significant financial aid: Rs 20,000 to 70,000 (30%) and Rs 70,000 to 150,000 while only 10% got less than Rs. 20,000 and .balance (About 22%) got even highest grant (Above Rs. 150,000)

Table 2 shows that 68% of the interviewees reported that the application process took more than a month, whereas it never took one week, around 65% had to make two and six trips to PBM to apply while only 8 % got their work done in 1trip and 27 % had to visit more than six times for the process. It demonstrates that most of applicants (65%) lived between 10 to 25 KM of PBM

Table 1: Responses to questions directly related to financial aid

Questions	Details	Frequency	Percent
Q1. What type of aid did you receive?	Educational	21	35
	Medical	16	26.7
	Rehabilitation	9	15
	General	14	23.3
	Total	60	100.0
Q3. How much did you incur in Rs. while applying for grant?	None	52	86.7
	Below 200.	8	13.3
	Above 200.	0	0
	Total	60	100.0
Q5. Has the aid benefited you?	Yes	57	95
	No	3	5
	Total	60	100.0
Q8. How much financial aid in Rs. did you receive from PBM?	Less than. 20,000	6	10
	20,000 to. 70,000	23	38.3
	70,000 to 150,000	18	30
	More than 150,000	13	21.6
	Total	60	100.0

Table 2: Responses to questions indirectly related to financial aid

Questions	Details	Frequency	Percent
Q2. How long did it take for the Application to get the grant processed?	1 week	0	0
	2 weeks	1	1.7
	3 weeks	6	10
	4 weeks	12	20
	Above 4 weeks	41	68.3
	Total	60	100.0
Q4. How many trips did you make to get application processed?	Yes	57	95
	No	3	5
	Total	60	100.0
Q6. How many KM is PBM's Office from your house?	Above 10	5	8.3
	10 to 25	39	65
	Above 25	16	26.7
Q7. What is your age in years?	Less than 25	33	55
	25 to 50	6	10
	Above 50	21	35
	Total	60	100.0

Office while 26% lived farther than 25 KM and only 8% lived within 10 KM of PBM. More than 50% of the applicants were less than twenty five year old while only 10% were between the ages of 25 and 50. The average age of the applicants was also calculated to check the age group that most generally needs financial aid. The research proved that there are large number of students and other business men who apply for financial assistance at PBM. People who were below 30 year of age were the frequent applicants.

The purpose of the report was to evaluate and check whether the individual Financial Assistance Program was running to its potential. The reason for asking the applicants about the number of trips made to PBM and the transaction costs incurred during the application process was to check the efficiency of the management of PBM and their concern towards the applicant's conditions. Most people said that it took 2 weeks or 3 weeks for the application to get processed which was quite normal because of the inefficient means of document transportation.

5.3 Results of Multivariate Analysis:

Table 6: Results of Econometric Model

Variables		Un-standardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
(Constant)		28.92	.638		.000
Type of Aid Received	X1	-3.19	.406	-2.62	.034
Length of the Application Process	X2	-5.928	.709	-4.566	.207
Benefits of Financial Aid	X3	7.922	.366	11.370	.000
Trips to Pakistan Bait-ul-Maal	X4	-2.556	.050	-.726	.096
Transaction Costs incurred	X5	-.367	0.622	-.101	.000
Distance from PBM	X6	-0.0076	.209	-.958	.035
Average Age of Applicant	X7	4.595	.142	.3.976	.000
Amount of Aid received	X8	2.798	.743	.988	.000

R-squared = 0.694 Significant Level = 0.000

The value of R squared is 69.4 % which means that 69.4 % of the changes in the dependent variable are caused by the independent variables.

In order to satisfy the hypothesis condition, the significance level should be less than 0.05.

- H_0 : Amount of aid received will have no effect on number of applicants. (Accepted $p=0.034<0.05$)
 H_1 : Amount of ad received will have an effect on the number of applicants. (Rejected)
- H_0 : number of trips made to PBM does not affect the number of applications. (Rejected $p=0.096>0.05$)
 H_1 : number of trips made to PBM does affect the number of applications. (Accepted)
- H_0 : number of applicants is not affected by the age. (Accepted $p=0.00<0.05$)
 H_1 : Number of applicants is affected by the age of the applicant (Rejected)
- H_0 : The length of application process has no effect on the number of applicants. (Rejected $p=0.207>0.05$)
 H_1 : The length of the application process has effect on the number of applicants (Accepted).
- H_0 : Distance of PBM from Residence of Applicant does not affect the number of applicants. (Accepted $p=0.035<0.05$)
 H_1 : Distance of PBM from Residence of Applicant does affect the number of Applicants (Rejected)

Overall results proved that IFA program under the PBM working efficiently given that the PBM receives the financial resources to finance the needy from the Government of Pakistan on time.

6. CONCLUSION

The research was conducted to evaluate the performance of the individual Financial Assistance Program. The regressions and the variables proved that PBM is working efficiently and that more work needs to be done to empower the public and to provide them with the basic necessities of life. Gas prices are at their peak and with a rise in the price of oil, the prices of wheat and sugar go up in Pakistan and the government needs to help those who cannot sustain through this inflation.

The results prove that there are good policy makers who are controlling the funding to Bait-ul-Maal and the running it as efficiently as it can possibly run.

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**EFFECTIVE MARKETING MANAGERS PRACTICES IN PAKISTAN
A CASE STUDY OF SUKKUR**

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ABSTRACT

A research was taken in the market just to know that how the marketing managers are performing their works and that what is the marketing in the mind of marketing managers and how they implement their skills of marketing into their organizations. The survey was conducted in Sukkur and their vicinity from 30 marketing managers, questionnaire was the basic tool for measuring the effectiveness and five point likert scale were used. SPSS 16.5 statistical software was used for data analysis. For the purpose a survey a paper was design, which has multiple choices. It was revealed that marketing managers in Sukkur and their vicinity is not doing according to way it should. Most of the marketing managers are not performing at it is. The resources were used to be known the result were the interviews and the questionnaires

KEY WORDS

Effective, Marketing, Managers, Survey.

INTRODUCTION

The basic purpose of conducting this research is to promote the awareness of the marketing research that how to promote an organization and also to now that what is the ratio of that marketing managers, who follow the specific methods and rules made by the great marketers of history. For this purpose the survey was conducted of few popular branches under the Sukkur city through which a conclusion can easily be made. The managers were taken from different branches of organizations. Like consumers goods factories, services departments and mostly banks were involved. Marketing Managers were requested to fill the questionnaire consisting much of questions and after filling the paper a little interview was conducted to them about the positions of their organizations in the market and also about the strategies that how they adopt strategies to promote and enhance their organizations. After all the research was showing the result that most of the managers were not making quick and effective as well as efficient strategies so that organization survive in more grammatical way Now here questions and the lacking of marketing managers are given here.

DATA COLLECTION METHODOLOGY

The survey was conducted in Sukkur and their vicinity from 30 marketing managers, questionnaire was the basic tool for measuring the effectiveness and five point likert scale were used. SPSS 16.5 statistical software was used for data analysis.

Parts of Question

- ❖ Qualification level, Experience, Style of working, Style of surviving, Procedures

- **QUALIFICATION LEVEL**

In the qualification level it was sadly found that most of the marketing managers were hired on graduate level and they had no good academic background.

So the result found

- **EXPERIENCE**

It was asked to the managers about their experiences so it was also not very justify result that most of the marketing managers were hired on their speaking skills. It is good skill that should be in every manager but experience cant be got by anything but spending of time.

Ur experience before joining the organization

GRADUATES	MASTERS
70%	30%

So the for cause of experiences most of the managers, marketing managers were unable to take decision rapidly even spending a lot of time in their organizations but still have no idea to adopt strategies according to market, An other question was asked about the experience that

Do u think that without having the experience a manager can make everything right in his own organization.

So 70% managers agree upon the statement that show that marketing manager don't think about experience and don't care about the experience not all but much

EXPERIENCEABLE MARKETING MANAGERS	UNEXPERIENCEABLE MARKETING MANAGERS
30%	70%

So as no experience importance so no much good ideas in marketing manager's mind

- **STYLE OF WORKING**

Do you agree that a marketing manager should wait for competitor and when the competitor offers something in market on that time should react

AGREE	DISAGREE
60%	40%

Most of the managers (60%) did agree on that point that first we should check the other's strategies then we should make our strategies. This thing shows that every one is on others hand. Every one is waiting for others, not making strategies by him/her just waiting and some times it leads us wrong and down side

Research is the best way to collect the data, do u think that primary data is so far best then secondary data

AGREE	DISAGREE
69%	31%

It was amazingly surprised answer that 69% managers did agree on the question. Means the managers do rely on primary data rather then secondary data. So only relying on primary data can make the organization fall into dark

Do you agree that strategic planning shouldn't be changed after making a planning

AGREE	DISAGREE
50%	50%

The 50% managers did agree. It is the normal ratio but any factor can come at any time, which can disturb the planning so this concept should be in their mind that planning might be changed if condition comes.

● STYLE OF SURVIVING

As a marketing manager, do you think that strategy that should be perfect, if it is not then we can change it letter.

AGREE	DISAGREE
60%	40%

60% managers agree on the statement that we can change planning if it doesn't seem so good. But try to make a concept that if planning is not according to the market so can change but should make strategies through which can survive in market a long period.

Do you agree that if u have good market share in the market so u r quiet surviving in market and nothing have to do. Will u be relax

AGREE	DISAGREE
50%	50%

50% managers answer was they will relax and it is not confidential answer because when ever we pass or get success in any organization so we should walk more ahead, not to get relaxation and watch over all

Do you agree that first we should do market segmentation then do the marketing according the category.

AGREE	DISAGREE
80%	20%

The 80% managers did agree the statement and show that it is good to segmentize befor starting the marketing of any product

PROCEDURES

Do you agree to follow the procedures written by the most experienceable personalities in

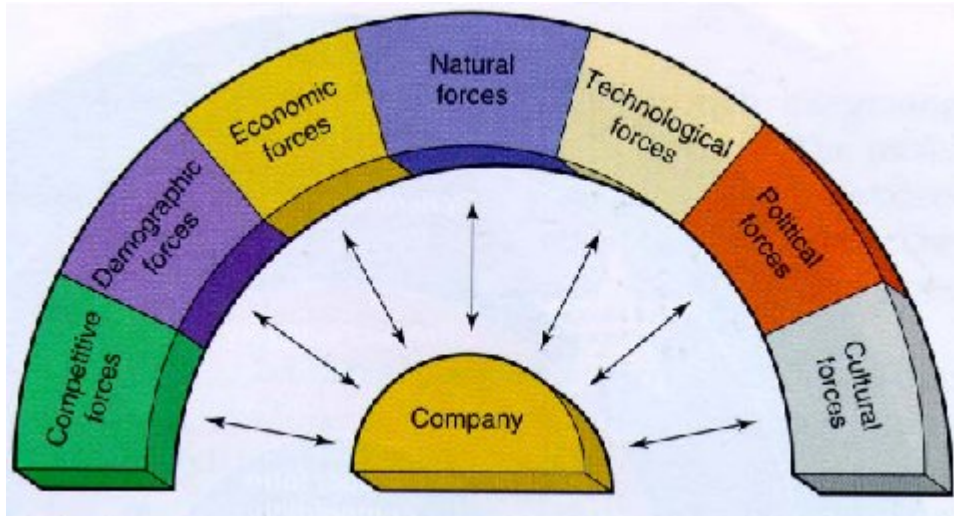
AGREE	DISAGREE
40%	60%

The 40% managers follow the methods and procedures of the experienceable persons. As we know that walking with old experience is the best way to get the success so by not adopting procedures and not following experience we cant get the good market share and cant survive in the market

Do you agree that these factors can effect the marketing and make our strategy change

AGREE	DISAGREE
98%	2%

98 % managers did agree on the above factors but 2% still not agree and said we are the good marketing managers and we will not be affected by any one factors.



Do u agree that we should follow the marketing tools in same manner.

- *Creating*
- *Offering*
- *Freely exchanging*

AGREE	DISAGREE
99%	1%

99% managers agree to this statement that we should follow in same manner because first will make then offer then do exchange. And we can't give first offer then produce so its must important to follow I it in same manner

Is it very necessary to follow the "QSCV" (quality, service, clearness and value) when entering in market and which one is more important

QUALITY	SERVICE	CLEARNESS	VALUE
50	18	22	10

50% manager's preferred Quality. 18% preferred good service, 22% clearness and 10% preferred all. But all managers should prefer to all of them coz nothing is any one without all.

These were all the Questions were asked to Marketing Managers with view.

CONCLUSION

After conducting all the research and answers of question, that were asked to marketing managers we can easily be known that how much marketing is very necessary for the promotion of any organization and it's the work of marketing manager to do promote the product of organization so that having all procedures and in systematic manner. The basic reason of collecting the research was also to enhance the efforts for the marketing. We know that every marketing manager does the marketing but marketing is not only the process. The great Regis Mecca said in his book that "**MARKETING IS NOT A PROCESS, IT'S A WAY OF DOING BUSINESS**" So in every country marketing managers should promote their items so that they can full fill the demand of target market and also build the image of their organization.

SUGGESTIONS

Every managers should adopt the environment of every culture and then make the strategies not only strategies but long term strategies. If first culture wouldn't be adopt so organization wont survive in market. So that strategies should be changed according to the positions, factors and conditions that always comes in every field.

Every company's marketing manager should be well educated person cause he/she has to survive in market also make his/her organization survive in market. A market manager should know each and every thing about the environment because without having the knowledge of environment can't survive.

As a marketing manager u should first give priority to competitors because competitors are always be in market and try to catch your customers. In market marketing manager should have an eagle eye so that can cover all the market and don't let any thing pass without seeing of marketing manager. In the end marketing managers should have to run his organization by using his/her skills.

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FACTORS AFFECTING AGING POPULATION: PAKISTAN

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ABSTRACT

Aging of population may have its implications at individual, family, community and for economic activities. This paper explains how different factor affect aging population. Such factors are identified and categorized; the relevance of such factors with aging population is examined in a survey consisting of 341 observations. The findings demonstrate that living facilities, media of information, migration, education and employed workers are persistent correlates of aging population. The study reflects affect of various factors on aging population and the finding may be of interest for the researcher and parishioners.

INTRODUCTION

Though the world population is aging because of improved health and sanitation facilities, yet aging population has already threatened the economic prosperity besides giving births to many social securities of elderly people mostly in European countries (United States 2005). With the rapid decline in mortality and increase in longevity, Pakistan is also likely to face such problems in the near future. Aging of the population has many important socio-economic and demographic implications because the variation in age structure would pose little problem if the attitude and behavior of the population did not vary with age (Yusuf and Pollard, 1981). It presents challenges for economic activities. One of the most critical demographic events in the world today is the population aging (Mohan, 2004), the process by which the share of older individuals in the total population starts becoming larger.

The changing age structure of populations has significant social and economic implications at the individual, family, community and societal levels (United Nations, 2007). Pakistan has more older men than older women (Clark et al. 2002).

Existing studies in the area concerned considered different factors rather than just age. Amongst the socio-economic-demographic variables are income, household, type of housing unit, tenure type, employment status, car ownership, geographical location, and number of children etc. Past research showed that some of these variables are correlated and care has to be taken in order to not confound various competing influences on environmental budgets (Lenzen, 2006).

OVERVIEW OF AGING POPULATION

United Nations (1992) discussed the issues of aging as the major cause of the age-structure of population with an increasing proportion of the elderly, with declining birth

and fast improvement in health facilities. The past research addressed various issues regarding elderly people as mentioned below:

- Afzal (1997) mentioned in his study a number of factors which contribute to minimizing the risks of early termination of life. The sample consists of elderly males and females population residing in too small urban and rural areas of Pakistan.
- Djuhari et al. (1997) proposed to reveal the main issues confronting elderly people based on analysis through multiple logistics model. They mentioned that issue of equal significance is the dynamics of families with elderly members.
- Ishikawa (2002) noted that the population migration rate had the most significant impact everywhere and contributed to the regional differences.
- Hashmi (2003) studied various aspects such as sex, education, employment, migration and headship about the elderly population.
- Gupta and Sankar (2003) highlighted the determinants of health status of elderly in India using multivariate analysis. Their findings revealed age, gender, education, social status and residence as important factors that may affect the ability to control the illness elderly.
- Hafeez (2004) argued that the rapid growth in older populations around the world was resulting in an increased socio-economic burden on societies. He mentioned that the elderly people in Pakistan were generally active and used to participate in paid jobs and household activities.
- Anguera (2008) says that the world is facing new challenges due to changing population structure and growing trend of issues.

INDEPENDENT AND DEPENDENT VARIABLES

Past research discussed different variables predicting aging population. We have classified the independent variables keeping in view their common characteristics. Their details are as follows:

SOCIAL ASPECTS

Awareness of some change in age structures in various countries is almost common (United Nations, 2007). However, since the countries have different experience in social and economic conditions, so the change is more distinct in some countries than in others (Madrid, 2002). We used various aspects as residential status, school/college attendance, highest level of education, specialization in education, housing facilities: latrine and bathroom, mother tongue, district of birth, previous district of residence and duration of stay in residence.

ECONOMIC ASPECTS

Older persons are still often neglected by those who promote economic development, health care and education (ESCAP, 2004). Employment status also varies with age; the proportions of workers who are employees fall off sharply while the number of workers who are self employed increases obviously with age (Fougere and Merette, 1999). We used various aspects as occupational and employment status, disability, source of

information: TV, radio, mobile, fax, newspaper, telephone, internet and others, housing characteristics: source of light and cooking fuel, and types of tenure.

DEMOGRAPHIC ASPECTS

Age, sex, marital status, fertility and mortality are important demographic characteristics and have an effect on aging population (Fair et al. 2005). Throughout the world the marital status is regarded as a basic component of the demographic structure and a key role assigned to the family is that of providing care to family members at every stage of life (Martin and Kinsella, 1994). The main demographic feature of an ageing population is not the increase of the life span of its individuals, but the decrease in the fertility of its individuals (Veras, 1991). We used Age, sex, and marital status.

The objective of this research is to explore selected socio-economic and demographic issues relating to elderly population and their anticipated impacts. The different aspects discussed earlier lead to the following hypothesis:

HYPOTHESIS

H₁: Living facilities affect on aging population of Pakistan

H₂: Media of information do influence the aging population of Pakistan

H₃: Region and aging of the population are associated

H₄: Education and employed workers have significant effect on aging population of Pakistan.

METHODOLOGY & RESEARCH INSTRUMENT

After reviewing different research methods which are commonly in use, we found survey research to be more appropriate for our research study. Sampling, designing questions and interview are the basic components of survey approach (see Fowler, 1993). Corbetta (2003), say that survey is the widest spread quantitative research techniques. Here the population refers to the individual being researched, so a major step in social research is to define population clearly that consequently may help in selection of a representative sample for inferring characteristic of the part (sample) that close to the whole (population) (Labovitz and Hagedorn, 1981). The proposed sampling technique of the present study has in built method of estimating sampling errors as standard error. However estimates are blown up through the application of ratio estimation method with the help of two auxiliary variables, age and sex, as controlled variables as to match with the actual population count emerged through quick count listing.

Nearly 5.5 percent sample, 3.8 percent from urban area and 1.7 percent from rural area roughly proportionate to population size of urban/rural populations were selected. A three-stage stratified systematic random sample was drawn with probability proportionate to block size in term of number of households per block. There are 341 observations related to aging population (as person have age 60 or above) are 194 in urban areas and 147 in rural areas of Islamabad Capital Territory with 40 social, economic and demographic characteristics of aging population are picked up.

We use factor analysis because it refers to a variety of statistical techniques whose common objective is reducing to manageable number many variables that are belonging

together and having overlapping measurement characteristics (Kim and Mueller, 1978; Copper and Schindler, 1998). The past research shows that researchers of various disciplines use factor analysis in their daily research (Hotelling, 1942; Barki and Hartwick, 2001; Palanisamy and Sushil, 2001; McHaney, 2002; Hong and Kim, 2002; Ishikawa, 2002 Hackbarth, et al. 2003). Two important measures to determine the appropriateness of the factor analysis and to quantify the degree of intercorrelations among the variables are the Bartlett test of sphericity and measure of sampling adequacy (see Kaiser, 1970; Kaiser, 1974). The procedure for a factor analysis is described in terms of three stages such as: i) provisional factor loadings are determined, ii) then these are modified by a process of factor rotation to obtain a model for the data that is easier to interpret, and iii) finally, factor scores are calculated, which are the values of the factors for the individuals that have known X values. For deciding the number of factors to extract, the researcher generally begins with some predetermined criteria, which are the Eigen value criterion (Hair et al. 1998; Manly, 2005). The loadings that greater than the factor weight criteria of 0.5 are judged significant (Hair et al. 1979; Hair, et al. 1995; Marbal, 2003; Bhatti, 2005). Estimates greater than 0.70 are generally considered to meet the reliability criterion (see Nunnally, 1978; Shih, 2003; Bhatti, 2005). So, the generally lower limit of Cronbach's alpha is 0.70 although it may decrease to 0.60 in much exploratory research (Robinson, 1991).

DATA ANALYSIS & CONCLUSIONS URBAN AREA

Factor analysis considered 29 variables and ignored 11 variables which have not enough strength for further consideration. To see the pattern of correlations we use the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy which is 0.632, and indicates mediocre as Hair et al. (1998) described. This meets the fundamental requirements of factor analysis. So, we can apply the factor analysis for our study.

**Table 1
KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.632
Bartlett's Test of Sphericity	Approx. Chi-Square	2487.711
	df	406
	Sig.	.000

According to the Kaiser rule, is to drop all components with Eigen values under 1, which is specified under the extraction options, resulting in 9 factors. The alternative criterion for deciding how many factors to retain is the Cattell Scree test, which plots the components as the X axis and the corresponding Eigen values as the Y axis as shown in following figure.

Looking at the rotated matrix (factor loadings), the living facilities has high loadings from 4 socio-economic variables of aging population: TV as source of information, source of light, housing facilities latrine, source of cooking fuel, and had moderate loading on housing facility bathroom and Others as source of information such as chatting/ gossiping etc. School/college attendance, highest level passed, specialization in education are strongly associated with education. Three variables: previous district of residence, district of birth and duration of stay in residence are positively associated with

migration. Occupational and employment status are strongly associated with employed workers. Telephone, newspaper, and internet are strong media of information. The disability is associated with two variables i.e. intensity and nature. The variables residential status and fax as source of information are moderately associated with multiple component.

Marital status, mother tongue, and radio as source of information are associated with one character component as marital status, mother tongue, and radio respectively. These factors derived but are single variable so; we do not interpret these factors and do not consider these as factors.

Table 2
Reliability Check

S#	Determinant and Component Items	Factor loading	Eigen Value	Variance explained	Cronbach's Alpha
	Living Facilities		3.775	13.017	0.608
1	Source of Information TV	-.879			
2	Source of Light	.864			
3	Housing Facilities Latrine	.792			
4	Source of Cooking Fuel	.769			
5	Housing Facilities Bathroom	.632			
6	Other Information Source	.565			
	Education		2.714	9.358	0.741
7	Highest Level	.899			
8	School/College Attendance	.855			
9	Specialization	.760			
	Migration		2.521	8.692	0.731
10	Previous District of Residence	.905			
11	District of Birth	.903			
12	Duration of Stay in Residence	.744			
	Employed Workers		2.274	7.841	0.841
13	Employment Status	.915			
14	Occupation	.907			
	Media of Information		2.045	7.053	0.675
15	Telephone	.779			
16	Newspaper	.747			
17	Internet	.678			
	Disability		1.751	6.038	0.665
18	Nature	.907			
19	Intensity	.890			
	Multiple Component		1.403	4.838	0.398
20	Residential Status	.649			
21	Source of Information Fax	.560			

As Table 2 indicates the most critical factor is employed workers, the second important factor is education, the third significant factor is migration, the fourth influenced factor is media of information, the fifth important factor is disability and the

sixth one is living facility because these factors satisfied the reliability condition. So, these six factors influence the aging population.

RURAL AREA

To see the pattern of these correlations we use the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy which is 0.665, and indicates mediocre. This meets the fundamental requirements of factor analysis. So, we can apply the factor analysis for our study.

Table 3
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.665
Bartlett's Test of Sphericity	Approx. Chi-Square	2098.487
	Df	351
	Sig.	.000

Cattel Scree test, that plots the components as the X axis and the corresponding Eigen values as the Y axis as shown in following figure.

Looking at the rotated matrix, the migration has high loadings from 4 variables of aging population: previous district of residence, district of birth, duration of stay in residence, reason for migration and low loading of mother tongue. Education is strongly associated with highest level passed, school/college attendance, and specialization, 4 variables of aging population: housing facility; latrine, bathroom, source of; light and cooking fuel, are positively associated and three variables TV, mobile, and newspaper are negatively associated with living facilities. Employment, occupational and residential status are strongly associated with employed workers. Two variables nature and intensity are strongly associated with disability. Two variables internet and telephone are strong media of information. Marital status and sex are associated with demographic component.

The one variable components; type of tenure, and age are associated with type of tenure and age respectively. These factors derived but are single variable factor so; we do not interpret these factors and do not consider these as factors in subsequent analysis.

Table 4
Reliability Check

S#	Determinant and Component Items	Factor loading	Eigen Value	Variance explained	Cronbach's Alpha
	Migration		3.808	14.102	0.821
1	Previous District of Residence	.959			
2	District of Birth	.958			
3	Duration of Stay	.895			
4	Reason for Migration	.819			
5	Mother Tongue	.495			
	Education		3.029	11.218	0.835
6	Highest Level Passed	.911			
7	Specialization	.823			
8	School/College Attendance	.811			

S#	Determinant and Component Items	Factor loading	Eigen Value	Variance explained	Cronbach's Alpha
	Living Facilities		2.810	10.408	*-0.070
9	Housing Facilities (Latrine)	.751			
10	Source of Cooking Fuel	.664			
11	TV	-.640			
12	Housing Facilities (Bathroom)	.613			
13	Mobile	-.516			
14	Newspaper	-.468			
15	Light	.463			
	Employed Workers		2.278	8.439	0.711
16	Employment Status	.919			
17	Occupation	.879			
18	Residential Status	.609			
	Disability		1.813	6.715	0.662
19	Nature	.901			
20	Intensity	.898			
	Media of Information		1.507	5.583	0.481
21	Internet	.836			
22	Telephone	.531			
	Demographic Component		1.230	4.555	0.451
23	Marital Status	-.707			
24	Sex	-.525			

As Table 4 indicates the most important factor is education, the second critical factor is migration, the third important factor is employed workers and the fourth important factor is disability because these factors satisfied the reliability criterion.

URBAN RURAL AREA'S COMPARISON

For urban area the critical factors according to reliability criterion are the employed workers, education, migration, media of information, disability and living facility. While for rural area critical factors are education, migration, employed workers, and disability. In both areas the common critical factors are employed workers, migration, education and disability.

RESULT'S DISCUSSION

Employed worker is critical factor because the aged people gets pension after their retirement which is a good source of income for them to fulfill their needs. In periods of prosperity, there were likely to be improvements in the coverage and benefits of retirement plans which tended to encourage aging persons to withdraw from the labour force. On the other hand, due to labour shortages, pension system might be altered to permit and economic policy altered to encourage retirees to hold part time jobs. Those methods had been successful in inducing pensioners to continue working after retirement in a number of countries. If government considering to increase the age of retirement, it was recognized that the desire to continue work into the later ages differed greatly by

occupation. The problem of old age dependency might be addressed by increasing the age of retirement. If parents expected a longer retirement period, they might have a greater incentive to invest in the human capital of their children as a source of old-age support. The aging of the employed workers might be significant alter the wage and employment structures of firms. While younger workers might reduce wage and salary differentials to the benefit of younger workers and might also bring about a reduction in the rigidity of tenure arrangements. The effect of technical change on employment opportunities for the elderly would depend, in part, on the rate of increase of the educational levels. In examining the implications of population aging it is important to assess employed workers because in large measure provisions for income and health in old age are linked to employment.

It is important to consider education as critical factor, because this is key resource for employment and achievement in adulthood which then are major factor in determining the quality of old age. The old age educated person can easily get jobs in any private sector after getting retired from government sector. They can benefit the country by participating in welfare programmed and easily survive without burden for anyone. They can also participate in social activities and can look after themselves very well. They pass their time by reading books on different topics of their interest. Both old men and women spend a great deal of their recreative time in religious activities and outings.

The disability of an old age person may appear as burden for the society as the disability of a person may impeach his effort to be done for any cause up to maximum level. In case the society ignores such people then it might lead to a miserable situation for a disable person. The disability may appear as one of the cause to move.

No doubt information is a key resource in information age. Information economy is highly dependent on exchange of information in the society. Currently available information through media either electronic or paper always helps to be aware of what is heaping in our society and surroundings. Consequently it may help to plane various aspects in our daily life. Various resources those have been studied in our research are helpful in getting up to date information about government policies and other programmes that allow individuals to become a good citizen. It is speculated that the availability of different media helpful in enquiring information contributes towards social life of the citizens of all ages however; it may keep the old citizens to lead a good time. Moreover, the use of internet provides ample opportunities in every area of life.

CONCLUSION

Our research explore various factors those have their impact on old age citizens. The degree of facilities old age citizens are availing and their importance. The findings demonstrate that living facilities, media of information, migration, education, disability and employed workers are persistent correlates of aging population. So, these factors do influence the aging population. The findings may be of interest for the researchers and practitioners who are working in the relevant area of research interest. It also provides guide line to explore other social factors and their implication towards the life of old age people in Pakistan.

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**EXAMINE THE IMPACT OF TRAINING & DEVELOPMENT AND
JOB CHARACTERISTICS ON EMPLOYEE SATISFACTION
IN INSURANCE COMPANIES OF PAKISTAN**

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ABSTRACT

This study examines the impact of training & development and job characteristics on employee satisfaction in insurance companies of Pakistan. For the research purpose we have distributed questionnaires in different insurance companies of different cities in Pakistan and the total numbers of respondents were 110 out of 150. We used regression and correlation for our data analysis and after applying the results we found that job characteristics and employee training & development are positively correlated with employee satisfaction. So we can say on the basis of our result it is very necessary to provide better training and development to improve satisfaction level in employees.

INTRODUCTION

Job satisfaction is the scheduled process of training and development of employees from time to time to different jobs within the organization. In the past, very few organizations were using this tool for the employee development. The one reason for this may be that in the past organizations were more interested in the specialization of the employee about the job for which they have been hired but now a days it is quite different as most of the organizations need flexible workers and also there is high cost being incurred on the recruitment and selection of employees and therefore the organizations are focusing on the training and development of employees satisfaction and for this purpose organizations are using training and development tool to make their employees more flexible and generic to compete with the changes and challenges faced by modern organizations. This study is an effort to identify the training and development effects on the employee satisfaction and ultimately on the organization.

LITERATURE REVIEW

Training and Development:

The study indicates that training interventions are benefit for individual that are more successful implementation in the workplace. (Meyer, Lees, Humphries and Connell, 2007). The professional development was a result of the participant's satisfaction. Training administrator had multiple choice that knowledge about weakness, past result and it is possible that the impact of training on employee behaviors. (Grammatikopoulso et al. 2008). The training is highly concerned with the employee previous skill. The people who receive training in future have earning low by non trainee's person. (Pinscher,

2001). The training of employee during the working hours is benefit for employee and employee should be accepted by lower current wages. (Pinscher, 2001). Training is the critical process within the organization. The quality requirement for training is no different than the quality requirement for any other critical process. (Wills, 1995). We was selling life insurance policy in intelligent method by way of training. (Gravengaard, 1947). Training is an instrument which cause employee move in different organization. (Glance et al. 1997). The low cost training method is most important for public accounting firm because the most knowledge is collected during the job learning experience. (Earley, 2008). The career development of female entrepreneurs are Good educated and managerial skills, Internal control and Get a additional managerial training. (Hisrich, 1986). Training experts are opinion that the analysis needs and his ability to capture in mind what basis of insurance program are required. (Gravengaard, 1947). Training provide aim to throw light on the uneven development in service industries and also different qualitative characteristics of this employment. (Damesick, 1986). The staff that you selected for training relevant and providing you to achieve competencies. (Meyer et al. 2007). The relationship between knowledge and skills reached to the development of a logical links between education and training. We have also noted that this is only one of variety of links that might usefully be developed. (Melton, 1995). We will always be learning regards to trainees about new development and changes in the content of training. (Anderson et al. 1995). Training had multiple choices that are receiving knowledge about weakness; it is possible that the impact of training make the employee behaviors better. (Grammatikopoulso, 1995). If organization becomes too large and its employees do not receive training the organization does not make progress. (Glance et al. 1997). The analysis of the characteristics and training impression especially in the areas of supervision and provide unexpected results in other areas, such as satisfaction level for employment. (Robert, 1994).

Job Characteristics:

The job characteristics were important in explaining the variation in work strain. Job characteristics with more control and being in casual employment were factors related to less work strain. Specifically, working longer hours was strongly and positively associated with both work strain measures, with working full time. (Baxter and Alexander, 2008). The evaluations of job characteristics have been clearly demonstrated. In particular, its factor structure and relationships to other indices of job characteristics warrant further scrutiny. (Aldag, 1978). The treatment of characteristic supply relationships as perfectly inelastic with respect to current job characteristic values. (Ethridge, 1992). The finding appears to lack of explicit attention given by the intensification to the possibility that the moderating effect of job characteristics is itself temporary. (Fried, 1990). Job characteristics provide strong prove over wide spectrum of job satisfaction in different organization. (Sims, Szilagyi, and Keller, 1976). We have estimated one labor supply and characteristics demand model for males and another for females. The average percentage effect of employer size and the complexity index are higher for males than for females, with the fatal accident risk displaying similar values. (Garcia, and Molina, 1999). Organizations can meet the challenge of attracting, retaining, and motivating employee if they take proactive steps. They should not assume that a simple passage of time within organization will automatically integrate an individual into the organization's culture. (Meglino et al. 1989). In short different job characteristics are

more or less important in relation to different aspects of employee satisfaction. (Wilmar and Schaufeli, 1998). The consistent with the intensification approach, the degree of behavioral interferences in the office was generally not related to the examined workspace characteristics. (Fried, 1990). Early retirement and pension policy very important characteristic for employee satisfaction. (Filer and Petri, 1988). The Participant's reaction to job characteristics might be expected to yield some valuable remedies. (Blumberg, 1980).

Employee Satisfaction:

The strategy for measuring employee job satisfaction are presented to encouraging the employee satisfaction. (Lichtenstein, 1984). There are some points that describing the employee satisfaction with jobs autonomy, relationship with staff, salary, training and outcomes. (Elnora et al. 1999). Job satisfaction is describe in an executive literature as the positive emotional state resulting from the appraisal one jobs or job experience. (Shugars, Hays, Dimatteo and Cretin, 1991). The amount of job satisfaction is strongly connected with the job investigation and level of job satisfaction. (Wisniewski, 1990). The organization is known that expectation may exist to work with the employee to satisfy the purpose of both the employee and organization. (Sagan, 2008). Job satisfaction is not a single concept, it correspond to different aspect of the work environment. In which each fact must be addressed in the measurement of job satisfaction. (Early, 2001).

H1: Training and development has positive relationship with employee satisfaction.

H2: A Job characteristic has positive relationship with employee satisfaction.

Questionnaire:

The questionnaire was contained 20 items and 4 sections. The first section related to demographics, second and third section related to independent variables and fourth section related to dependent variable. Responses are obtained on a 5 point likert scale where 1=strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=strongly agree.

Sampling:

The population for data collected was employee working in insurance sector of Pakistan. The sample was selected various cities of Pakistan and total sample size was 110. The questionnaire was personally administrated through the HR department of the insurance company. A total of 150 questionnaires were distributed out of which 110 were received back making response as 73 %.

RESULTS

Correlation Analysis

	Employee Satisfaction	Job Characteristics	Training and Development
Employee satisfaction	1		
Job Characteristics	0.29**	1	
Training and development	0.34**	0.31**	1

Correlation is significant at the 0.01 level. Correlation analysis indicates that job characteristic having a positive relationship with employee satisfaction, which is **0.29; it means that both the variables have a positive significant correlation with each other.

Employee training & development and employee satisfaction have a positive significant relationship with each other, which is **0.34**; it means that both the variables are positively correlated.

Regression Analysis

	Beta	T	Significance
Constant		6.223	0.000
Job Characteristics	0.208	2.215	0.029
Training and Development	0.272	2.899	0.005

n=110; R Square = 0.152; Adjusted R Square = 0.136; F = 9.606;
Significance F = 0.000; Dependent Variable = Employee Satisfaction

The independent variable job characteristics and training & development had a significant effect on employee satisfaction.

DISCUSSION

Training plays a significant role for better mental satisfaction among employees. Whenever employees are hired they are provided with proper initial training to avoid from deficiencies and improve their skill in concerned area. This is not only case, but employees who has been with organization since years are also provided training to upgrade there skill levels. So training has a strong effect on employee satisfaction. People who are considered to be the best workers are provided some carrier development programs to enhance their abilities that the reason development has a strong relationship with employee satisfaction. Training and development increase the employee motivation. Research shows that a proper staff training program can increase productivity and employee feedback, reduce absenteeism, improve customer service, reduce the number of complaints and decrease the need of supervision. Without training good employees leave the organization and productivity of company decrease. After that the organization spends more time to hire new employee. In an organization job characteristics and empowerment of employee is benefit for the organization and employee point of view because it increases the profit of the company and also the quality of lives of employees throughout the company. Because employees should take reasonable risks at reasonable costs. Now days the use of technology can help greater training program and give more satisfaction of employee.

IMPLICATIONS

The current study provided a number of implications for insurance companies of Pakistan. As per our results we can say, training and development has more effect on employee satisfaction. So the insurance companies should increase their focus on training and development so their employees are more satisfied. The organization trained the employee according to their job descriptions as we see the job characteristic has relatively low correlation with employee satisfaction. Therefore the insurance companies should redesign the job description in order to make it more attractive. As job characteristics has a positive relation with employee satisfaction so management should focus on the characteristics of employees on regular basis.

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**RELATIONSHIP BETWEEN WORK OVERLOAD, JOB TENSION AND
WORK FAMILY CONFLICT WITH DEVIANT WORK PLACE BEHAVIOR
A STUDY OF POLICE PROFESSIONALS IN PAKISTAN**

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ABSTRACT

In past, issues regarding the police sector of Pakistan have been mostly ignored. These include work overload, job tension and family conflicts in relation to deviant work place behaviors. The object of this study is based on three independent and one dependent variable mentioned above respectively. In this survey study, 109 police professionals revealed deviant work place behavior in police sector of our country, showing a significantly negative relation between work overload and job tension but a positive relation between deviant work place behavior and family conflicts. The outcomes of this study show that negative behaviors are exhibited by police officials in the form of violence and aggression, lack of interested in job matters in the duty hours, and the abuse of authority allocated to them at their office when family conflicts influence them while work over load does not influence their work behavior and has a significantly negative relation to deviant work place behavior. The study suggests ways to improve the situation in the end. It is also hoped that the study will pave the way to further research in this neglected yet challenging sector that direly needs to be restructured.

INTRODUCTION

The work of police is considered highly stressful (Kroes, 1976). High over load/ high hours leads to high conflicts (Crouter, bumpus, Head and McHale, 2001). An organization or every body in it is effected by the burn out officer (Kurtz, 2006). Due to job tension one feel bad about one's job (Lusch and Serpkenci, 1990). Deviant work place behavior has destructive nature (Appelbaum and Shapiro, 2006).

A number of research studies have attempted to find out the relationship between work over load, job tension, work family conflicts and deviant workplace behavior; however these variables have received very little attention from the researchers in Pakistan and especially, the police sector has been the most neglected area. In general, the citizens of this country have a negative opinion about the behavior of police because of a wide range suffering of various degrees that most would experience from time to time. Venturing into finding the reasons behind these behaviors has been overlooked for the past many years. What our citizens don't realize is that complaining alone will not bring about any change in the current scenario. It is important to know what exactly the reasons behind this are. Why police indulges into immoral activities and why they misuse their authorities must be investigated. There is also a need to take their interests into account so that the matter can be dealt with adequately.

The main theme of this research is to uncover, express and handle the deviant work place behavior due to job tension, work overload and family Conflict. In this study we attempted to find the link between police work attitude while suffering any job related Tension, heavy load of work and their family conflicts. The worker's job is negatively affected due to family conflict, job related tension and heavy work hours/work overload but this study shows a some what different relation of work place tension and over load to deviant work place behavior. A common case is that of misbehaving with people they come across during their duty hours that is while handling concerns and fears of the citizens that come to them with their complaints. The survey takes these and many other aspects into account in order to reveal a true and fair picture of the circumstances while also studying relation of emotional exhaustion during job and displeasing family behavior to it.

Research studies have proved that the impact of Work overload on employee's performance is negative effect. Increasing the burden on employees after a certain point reduces an employee's urge to achieve the departments required level of output. This situation is most visible in police land it leads them towards deviant work place behavior.

The same situation of deviant work place behavior can be observed when work family conflicts create critically disturbing conditions for the employees. In Pakistan police workers are supposed to be present at their duties for twenty four hours in a day and so, they are unable to spend a considerable amount of time with their families which also create troubles between workers and their families. In Pakistan all the government and private sectors are growing very rapidly but the sector of police is still at the point from where it started many years ago. Infact the only change is that of further deterioration.

These are the main reasons (variables), which lead the police towards the misuse of their authority.

LITERATURES REVIEW

Literature relevant to the variables having the effect on the deviant work place behavior is given below.

WORK OVERLOAD

How much work has been a hot one in 1990s (Jenkins, Repetti and Crouter, 2000). Employer and human service provider should have the awareness about the drawbacks of work overload (Crouter, Umpus, Head, and Mchale, 2001). Because according to Jacobs and Winslow (2004) people who do work long hours mostly show their dissatisfaction towards the work assigned to them. Mckay and Tate (1999) argue that work overload indirectly affect the job satisfaction through job tension and work family conflicts as work overload has more complex role. Cordes and Doughert (1993) had added work overload is linked with exhaustion that is a basic stage of burnout. Heavy work to do in limited amount of time makes it difficult for people to handle them (Coverman, 1978).

H1: Work overload is correlated with deviant work place behavior.

JOB TENSION

Peoples show their attitude in responses of job tension as Mckay and Tate (1999) argued that job tension might directly affect the turnover intension and organizational

commitment. According to Jackson and Maslach (1982) various police officers mostly release their stress by using alcoholic drinks and smoking. Billing and Moos (1982) conducted a research on work stress and the stress-buffering role of work and family resources and have found that work stress has more related to the functioning of men than women. Executive level disturbance in an organization also contributes towards the job tension and deviant work place behavior as Pool (1999) strongly argued in his research that the role conflict and ambiguity among business executives increase the job tension as they are liable to produce harmful effects on satisfaction, commitment and performance of the employees.

H2: Job tension is correlated with deviant work place behavior.

WORK FAMILY CONFLICT

Most family clashes occur in the adolescent period of a person's life (Bredehoft and Hey, 1985). Konrad and Mangel (2000) argued that conflicts between the work and family might arise in the form of employee withdrawal or increase the turnover intension. Mcneely and Fogarty (1988) found that about half numbers of employees do not think that it is important to give employees training on how to deal with their work and family life. Schedule work also creates the stress on family life and leads to stress (Macdermid, Williams, marks and Heilbrun, 1994). Work family conflicts and the working qualities have the strong effect on the emotional characteristics of the people (Schieman, Mcbrier and Gundy 2003). According to Edwards and Rothbard (2000) if less time is spent with family then family role might suffer and more attention can be given to work which ultimately increase performance.

H3: Work family conflicts are correlated with deviant work behavior.

DEVIANT WORK PLACE BEHAVIOR

Deviant work place behavior is related to the employees' justification which depends upon justice of boss and unfair explanation. (Haris, Harvey, Harris and Brouer, 2007). The determination of work behavior depends upon the many factors like economic, health, nature of job, available opportunities as well as the demographic conditions (Mitchell, 1991). Perez, Berg and Myers (2003) had found that in the eyes of some white and black poor police behavior is liable for the creation of disturbance in the San Francisco as well as the Boston. The behavior of police towards work can be judged by the number of arrest they makes and the number of arrests cleared (Wilson and boland, 1978). Previous research studies also showed the minimum optimistic view of employees towards the deviant behavior place behavior.

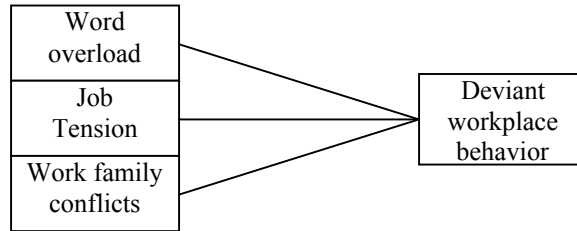
THEORETICAL FRAMEWORK

The objective of this research was to find out the relationship between work overload, job tension, and work family conflict with the deviant work place behavior so that the deviant work place behavior among police professional may be uncover and acquired. Mostly research as mention in the literature review is not in the Pakistan framework but our research emphasis on Pakistani context. This study has three independent variables namely work overload, job tension, and work family conflict, and one dependent variable namely deviant work place behavior.

H1: Work overload is correlated to deviant work place behavior.

H2: Job tension is correlated to deviant work place behavior.

H3: Work family conflict is correlated to deviant work place behavior.



METHODOLOGY

Subject

The subject of the research was police professional in different cities of Pakistan. Out of 150, 109 questionnaires were acquired to be used as sample size.

Procedure

Data in the form of questionnaires was received which were circulated among various police professional at their work places. In these questionnaires the questions related to work overload, job tension, work family conflict and deviant work place behavior were included.

All respondents were male because male professional are working quite large in numbers in Pakistan. The marital status is very important in this study as having a children increase responsibility on individuals and mostly work life and family conflict situation created when there is an imbalance between work and family life.

To find out the results, the questionnaires were distributed in Punjab and NWFP province of Pakistan in both languages (English and Urdu) as per the qualification of the professionals of police. In addition the questionnaires were also distributed in capital of Pakistan.

STATISTICAL METHOD

Correlation and regression were used as a statistical tool for data analysis.

Correlation Table Analysis

	DWPB	WOL	JT	WFC
DWPB	1			
WOL	-.218	1		
JT	-.086	.635	1	
WFC	.010	.432	.436	1

n=109, DWPB= Deviant work place behavior, WOL= Work overload, JT= Job tension, WFC= Work family conflict.

Correlation table indicates that work overload is negatively correlated with deviant work place behavior (-.218). This analysis also indicates the negative relationship between the job tension and the deviant work place behavior (-.086). Further our research

found the work family conflict is positively related with deviant work place behavior (.010)

Regression Analysis

	Beta	T	Significance
Work overload	-.305	-2.427	.017
Job tension	.056	.447	.656
Work family conflict	.117	1.084	.281

Dependent variable: Deviant work place behavior

R Square= <u>0.063</u>	Adjusted R Square= <u>0.036</u>
F= <u>2.345</u>	Significance= <u>0.077</u>

DISCUSSION

The objective of this study is to examine the relationship between work overload, job tension and work and family conflict with the deviant work place behavior among police professional in Pakistan. Few studies examine work place behavior in various public and private sectors of Pakistan. In this study, the result regarding variables creates a different perspective in the sector under observation compared to previous researches. Previous researches suggest that the impact of the above mentioned variable is positive on the dependant variables. These variables have an unbelievably negative relation to the behavior of police officials working in Pakistan and as Parley (1967) argued that tension is a motivation factor for people to materialize what they want to do and does not always lead to panic.

For the police working here, work overload is a far cry because most officers don't consider their work seriously. They don't even have sufficient work to keep themselves busy. However, increasing the level professionalism by adequate training decreases the time to work on the projects at hand, improves work quality and also decreases their work activities in part and the time taken to perform the activities also lessens.

The research also includes the variable job tension which is negatively related to deviant work place behavior. What the job demands and what the job of police requires on a day-to-day basis is another case. The primary task of Police is to supervise under staff or the general public and maintain some certain operations which do not stress them at all because they are under worked. Their projects are boring and thus they do not appear interested in their work and often spend time in other activities, consequently, police job is free from heavy load of work and thus any form of tension suggests the survey conducted in Pakistan.

In addition to this finding in our research, we included another independent variable namely work family conflict with the purpose to show their impact on deviant work place behavior. This variable creates a positive impact on the dependent variable. As the problems in family increase so does the problematic behavior of police and they behave negatively in the response and effect of this variable at of course their work place.

The above mentioned scenarios lead us to the point where one is forced to think whether the circumstances can be improved by analyzing and constantly upgrading the recruitment and training of police departments.

Another question is that could personality type or temperament towards the work be an adequate criterion for selection at police or related services departments? And then is it possible to categorize stable personality types suitable for this sector in Pakistan, to of course improve the sectors performance?

The results derived from the questionnaires showed that the impact of independent variables namely work overload and job tension are negatively interlinked with deviant work place behavior and the work family conflicts is positively interlinked with the deviant work place behavior in police sector of Pakistan.

The possible strong reason for this negative impact is another variable that is salary which forces them (police professionals) to deviate from their desired behavior. If salary is insufficient to meet their needs, then their behavior is alarmingly negative and if the salary is increased then their behavior is extraordinarily different and of course positive as well.

Our research opens the gate way to an innovative and interesting further study that may take salary and any other related variables into account to explore and understand the police sector.

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**IMPACT OF PERFORMANCE APPRAISAL AND SUPERVISOR SUPPORT
ON ORGANIZATIONAL COMMITMENT IN MULTINATIONAL
COMPANIES OPERATING IN PAKISTAN**

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ABSTRACT

The purpose of this research is to find out how performance appraisal and supervisor support affects organizational commitment in multinational companies operating in Pakistan. This study focuses on the finding out the factors which can affect the organizational commitment through Supervisor Support and performance appraisal. The data was collected from 150 employees of Multinational Companies working in vicinity of Rawalpindi and Islamabad through Questionnaires. In this report we have mentioned various factors through which we can find how employees can be more committed to their organizations. The result shows that supervisory support and performance appraisal have positive impact on organizational commitment.

INTRODUCTION

The research was carried out to find out the scope of organizational commitment in multinational companies operating in Pakistan. This research is an important step forward in finding out how supervisor can improve their behavior towards their employees and how the performance appraisal can be utilized in increasing organizational commitment and reducing turnover rate. First, our analysis showed the differences in levels of information and knowledge concern with performance appraisal system which is because of role of individual in an organization (Levy and William 1998). The tactical use of human resources is essential for the performance of the organization. In an organization development, performance appraisal effectiveness refers to the accuracy of performance and rating as well as ability of performance appraisal process to improve the future of company (Lee, 1985). Performance appraisal and employees motivation depends upon the supervisor support. If workers are working under good supervision than it helps them to achieve goals and objective of that organization and similarly if they are working under bad supervision than this leads to a failure of organizational goals and objectives. If the supervisor is supportive and encouraging, the employ will be more loyal and committed to its organization. Wayre and Liden found that subordinate may do favors for the supervision over the time in hope of getting good annual performance appraisal.

Supervisors initiate subordinates performance. They influence subordinates performance through goal setting, helping, coaching, evaluating and rewarding, and thus are instrumental to enhancing performance. The performance of supervisor has direct effect on employee's level of organizational commitment. Therefore supervisor's assessment is also important for the organization. Through this we come to knows that our employees are

satisfied from their supervisor or not. In 1987, Mottaz said that commitment is considered to be a relatively stable attitude that develops slowly over time as individual establishes relationship with organization. The benefits of this research are to help multinational companies reduce turnover rate and increasing organizational commitment by improving supervisor support and appraising the employees on performance basis. This can be done by training the supervisors about how to manage the employees tactfully and to maintain a friendly working environment in an organization. Performance appraisal is another method to encourage employees and gain their confidence in the long run. This will help multinational to secure their future profits and to promote more human resource.

LITERATURE REVIEW

Review of the literature reveals a number of authors who have suggested that “Performance appraisal and supervisory support” are critical elements of success for organizational commitment. Improving the job performance of employee and proper supervisory support has been the focus of many motivation theories.

PERFORMANCE APPRAISAL

Employee suggestion system is way of facilitating the method of motivating employees to think more creatively, to share their thoughts and to convert their imaginative ideas into valuable innovations. If the employee creativity is not utilize properly, it not only waste employ talent it also wastes organizational resources therefore effective ways can help convert that waste into useful asset. To contribute effectively in system objectives, performance appraisals should focus on the behaviors that make it possible (Lam and Schaubroeck, 1999). We must understand that the things which change human performance will always be an unsure and undefined process. Good performance ranking can lead both to self-confidence and being treated sympathetically by others; poor performance can lead both to loss of self-confidence and being treated harshly by others (March and Sutton, 1997).Bonuses can motivate your workforce towards a common company goal. Either flexible or linked to set targets. Bonuses can be for performance, service or bad health records. Appraisal system must be linked with some sort of bonuses in the form of pay raise. Firms or Organizations also gives incentives to their employees to decrease the chance of bribery and leaking of information. Good training is also another element to improve employee’s performance. Lee in 1985 said that to improve the performance appraisal process effectiveness, the employee must be trained to meet and process information of challenging situation which require conscious and alert decision making. Smith in 1986 said that the outcome will be greater if the employees are more actively involved in the training process.

SUPERVISORY SUPPORT

Supervisors smooth the employee performance. Supervisors and employees can work together, recognize the key processes and then generate the most wanted outcome (Lam and Schaubroeck, 1999).The proper utilization of human resources is important for the performance of the organization. Employee’s supervision will have optimistic effect on organizational performance by adopting such practices. Supervision played an vital role in improvement of any organization. If workers are working under good supervision than it helps employees to accomplish goals and intention of that organization and similarly if

they are working under bad supervision than this leads to a failure of organizational goals and objectives. Needs can be recognized when the requisites are known and then training can be done in a way to secure additional knowledge. During the career, some type of instruction is provided to nearly all the employees. It is the fact that employees rely on these training programs to learn new skills and to improve their current skills. Thus, it is a form of large investment, which an organization makes to polish their employee's skills to get better job performance from them. Supervisors can persuade employees to take advantage of professional growth activities. Working supervisor deals with purely internal problems (Strauss, 1957). Supervisors these days are very much motivating. Their motivation creates the sense of responsibility in employees and they are more committed to their organization. If the supervision is good employee will work harder, will be more interested in performing task, more committed to organization, hence reduces turnover rate. But similarly if the supervision is bad, employee's intention to work will become low, he won't be more committed to his organization and this will increase turnover rate. Good supervision helps employees to clear any ambiguity about their work. Supervisors' behavior may be quite significant for finding the uncertainty and unpredictability which subordinates feel about their work tasks, about management, and about the social and political dynamics of the organization (O'driscoll and Beehr, 1994). Employees are more committed and loyal to their organization and the turnover rate will fall if the employees are provided with proper guidance, proper support, and direction to perform task. If the supervisor is supportive and encouraging no matter how tough the task is his subordinates will perform it calmly and nicely. Effective supervisor provide proper feedback about task to employees, this creates a positive interest of employee in his work. Employee performs variety of jobs in the environment where the managers, team leaders and supervisors play important part in enhancing and motivational characteristics of work environment (Griffin, Patterson and West, 2001). Researchers have shown that there is always a link between supervisor support and employee performance. Supervisory behavior has made a lot of change in employee personal behavior towards his work. Employees are more satisfied with their job. When supervisors instigate structure, set goals, assist with problem solving, provide social and material support, and give feedback on work performance, their employee experienced lower ambiguity and uncertainty, and hence greater satisfaction with their job (O'driscoll and Beehr, 1994).

ORGANIZATIONAL COMMITMENT

Organizational Commitment is always directly or indirectly related to the employee's performance, his job satisfaction, and with the supervisory support he is getting from his supervisor. Organization commitments mean that how much an employee is loyal to its organization. It also related to employees interest towards his job, more he is interested, the more benefits company gets. If the individual is not sincere towards his organization, organization cannot perform its task properly. Organizational goals and principles are the unfocusedly referents of individual commitment (Reichers, 1985). Similarly organizational trust is based on the combined trust of organizational. The external trust is based on outside partners such as suppliers, customers, or joint partners and internal trust is base on the environment inside organization (Huff and Kelly, 2003). Different authors have different view regarding organizational commitment like Mottaz in 1987 said that organizational commitment is related to the individual attitude that bound the individual with his or her organization. Individual working in an organization have strong link with

the organization, with their goods as well as their bad. People working in an organization must have strong link with each other. This strong relation within employees will provide effectiveness in their work, elevate their commitment with organization and lessen conflicts in organization. Conflicts in an organization minimize the effectiveness of an organization and also damage its repute. Organizations need to find major causes for this conflict and bring in more balanced work life policies to increase organizational commitment (Sajjid Bashir and Mohammad Ismail Ramay, 2008). Similarly the sense of job importance is very necessary, higher the motivation level of employee higher will be organizational commitment (Moon, 2000).

HYPOTHESIS

This study is carried out in order to find out factors that determine and help in increasing employee's commitment with the organization. We have selected two independent variables; Supervisory support and performance appraisal. We assume that these two variables are some of the most important factors that affect Organizational Commitment.

Hypothesis 1: Performance Appraisal has positive relation with Organizational Commitment.

Hypothesis 2: Supervisory Support is directly related to Organizational Commitment.

METHODOLOGY

This study was based on primary data. A questioner was used to collect data from respondents. The data was collected from the employees of various reputed multinational in the vicinity of Rawalpindi and Islamabad where the large number of respondents are available. It took couple of weeks to collect all questionnaires back although they were only 167 in numbers out of 200 distributed. As some of the questionnaires were not properly filled so only 150 responses are used for study. Respondents were given enough time and instructions so that the response should be accurate. The main variables kept in mind while making questionnaires, were organizational commitment, performance appraisal and supervisory support. The questioner comprised of 18 questions, six for each variable. Responses were obtained using Likert-type scale in which strongly agree=5, agree=4, 3=neutral, 2=disagree, and 1=strongly disagree. After collecting data analysis was carried out in SPSS. Correlation and regression techniques were applied for analysis of responses.

RESULTS

Results of correlation:

Correlation analysis indicates that performance appraisal and supervisory support both have positive impact on organizational commitment. The correlation between our both independent variable and dependent variable is significant and very strong. It is significant at 0.01.

	Oc	ss	pa
oc	1		
ss	.634**	1	
pa	.482**	.603**	1

The above data indicates that the correlation between supervisory support and organizational commitment is strong that is (.634) similarly the correlation between performance appraisal and organizational commitment is also positive that is (.482). The value of R=.418 which shows that dependence of supervisory support and performance appraisal is 41%.

RESULTS OF REGRESSION

	Beta	T	Sig
pa	.142	1.987	.49
ss	.506	6.689	.000

R square= .418	F=53.507	n=150
Variables = Performance appraisal & supervisory support		

The impact of supervisory support is relatively low than that of performance appraisal. This difference due to the reason that employees working in multinational are more influenced by performance appraisal than that of supervisory support. The reason behind is this that employees are more concerned of getting bonuses, incentives and promotion which is due to performance appraisal. Organizational Commitment is directly related to performance appraisal. The success of any organization totally depends upon the performance level of employee. Organizations seek to follow the performance of successful employees and try to do better practices and arrangements in an organization (March and Sutton, 1997). Performance of employees has very strong impact on their commitment with the organization. Where as the impact of supervisory support is relatively less. The reason behind it is that most of the multinational either don't have supervisors or the supervisors working in their organization are not playing important role in employee's commitment with organization. Studies shows that supervisor support plays a very essential role in the employee commitment with an organization. Supervisor usually treat his employees very pleasantly when employees do not know about some work or even they have mistake somewhere, the supervisor supports his employees. The individual when join the job have certain beliefs and ideas concerning what the job requires and what he or she needs to do in order to attain job goals (Campbell and Lee, 1988). The supervisor is the best source to help them out in such conditions. So the multinationals working in Pakistan must emphasize on the supervisory support which will increase employee's commitment with organization. The results shows that the both hypothesis we developed are proven true and the performance appraisal as well as supervisory support both have positive impact on organizational commitment.

RECOMMENDATION AND IMPLICATION

Pakistan is developing country and as far as business sector is concern, it is also at its growing stage. Every organization need committed and motivated employees to achieve its desire goals and objectives. Our research is very useful to overcome these organizational needs. In Pakistan employees performance level in multinational organization operating is based on bonuses, incentives, rewards and promotion so they are paying attention more towards performance appraisal rather than paying on supervisory support. As concluding organization must pay attention towards both performance appraisal system and supervisory support in an organization. They must know what their employees want? What are the factors which will enhance their performance level? How will be they more committed to

their organization? What supervision they want from their supervisors? How can supervisors help and motivate them? By keeping all these factors in consideration, the organizational goals as well as employee's personal goals can be attained. This will take organization to prosperity. Employees will be more committed and loyal to their organization and perform well. Thus organizations can have more productive employees by considering these major factors and knowing the needs of their employees, they can give them proper supervision.

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**IMPACT OF PRICE, AND QUALITY ON BRAND LOYALTY
OF AUTOMOBILES IN PAKISTAN**

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ABSTRACT

This study is conducted to find out the impact of price, and quality on brand loyalty. The data was collected from one hundred and twenty consumers of automobile industry, through questionnaires, from various cities of the Pakistan. The result shows that quality and price are directly linked with brand loyalty. Companies can enhance large market share by emphasizing on the availability of cheaper spare parts and providing the vehicles which consume less fuel.

INTRODUCTION

The true customer is essential element of brand loyalty (Schoenbachler and Gordon, 2001). If there is a small increase in price it may produce no significant response change in brand loyalty (Monroe, 1976). To lead a better brand loyalty, a high perceived quality in a product is required (Lee and Wang, 2006). To provide a high quality along with customer satisfaction are equally important for all firms (Fornell, 1992). High prices can be charged for high quality products (Engel, 1963)

In launching new products, companies are facing a highly competitive market. It is very challengeable that they capture considerably large market share for their products. But there are still some factors which are winning competitive advantages and generating revenues for companies. Along with some other factors, quality and price make the product highly competitive in a market. Price and quality plays important role to develop the loyalty with a product. If a product is not able to provide a high quality with suitable price, it can lose its loyalty among the target customers. Each brand has a customer intact that makes the product more and more loyal-able. The firms are always busy in expanding their customer database.

Companies in the market have a market share that is shared among different companies supplying the same brand. To maintain their market share, it is necessary to keep on promoting the product. If the price is increased drastically, the company may lose its customers. Quality is major factor that contributes toward brand loyalty. If the customer is fully satisfied while utilizing the product, it is a good sign towards the loyalty with the brand.

Automobile industry is one of biggest industries functioning in the Pakistan. There are well known brands of automobiles running their business in Pakistan; like Toyota, Suzuki, Honda, Mercedes and many more. They are providing different type of vehicles. They also keep on introducing new models in the market, which successfully gain them

profit. So brands are considered as status symbol. They have enough market shares. This industry has an emerging potential in Pakistan. To develop more and more loyalty among the customers the industry need to put more emphasis on the factors of price and quality.

There has been no proper study conducted on automobile industry regarding these two elements and their effect on brand loyalty. So we are conducting this research to analyze the impact of quality and price on brand loyalty in automobile industry of Pakistan.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

Brand Loyalty

According to encyclopedia Britannica (1971) "Loyalty, as a general term, signifies a person's devotion or sentiment of attachment to a particular object, which may be another person or group of persons, an ideal, a duty, or a cause". Loyalty in term of product or brand is defined by Kotler and Killer "Loyalty is a commitment to re-buy or re-patronize a preferred product or services". Brand loyalty creates favoritism for a brand (Anderson, 1974). Brand loyalty is very helpful in choosing brand (Swaminathan, Fox and Reddy, 1988). For high market share, brand loyalty play significant role. If there is high brand loyalty, it will result in higher market share (Singh, Ehrenberg and Goodhard, 2008). Loyal consumers are the great assets for a firm because they purchase higher volumes so brand manager must concentrate on loyal consumers (Ownens, Hardman and Keillo, 2001). Devoted customers are durable assets rather than a threatening liability (Shugan, 2005).

Much of the success of a business depends upon the skills to create and maintain loyalty. Brand selling to loyal customer reduce cost and high loyalty give companies strong competitive weapons (Ergin, 2005). Brand loyalty is in the favor of firms. It maximizes the profit by double digit. But when number of brand increases, the loyalty for a particular brand decreases. First the loyalty level decreases and then it becomes level off (Raj, 1985). In a competitive market the first priority of the companies should be to satisfy customers. This is because, satisfied customers repeat purchases. They become loyal to the firm and are effective communicator in the society for the firm (Lglesia and Guille'n, 2008). Companies should concentrate on attracting loyal customers instead of making new customers. Loyal customers are willing to pay more for a brand (Lau, 2006). But they will make strategies to make new loyal customers to deter the entry of competitors in market (Schmalensee, 1974).

Brand loyalty is a consumer's preference to buy a particular brand in a product category. It occurs because consumers perceive that the brand offers the right product features, images, or level of quality at the right price. This perception becomes the foundation for a new buying habit. Basically, consumers initially will make a trial purchase of the brand, and after satisfaction, tend to form habits and continue purchasing the same brand, as the product is safe and familiar. When a product is successful in building loyalty, it has various advantages for the consumers and sellers. For consumers, it becomes easy to select a product. In other words, it helps consumers to save time in selecting products to purchase. As loyal customers are committed to repurchase the product and there is very less chance for switching from one brand to other so it give companies high level of profits and this increase their market share by making the product competitive in the market. Loyal customers are essential elements for companies. They are helpful in minimizing lot of expenses of the company. For example, they reduce promotion cost for the company by communicating brand effectiveness of the brands they are mostly inspired from. Secondly,

if the company has a huge number of loyal customers, they can easily sell out their products without wasting their energies. Hence, it makes the brand very competitive.

But this is also a fact that the increase in the number of brands, results in decrease of loyalty level, because of competition. Other brands are also trying to capture market share. They offer new features and make innovations. As monition in literature, when brands in a market increase, first loyalty level decline and gradually it become level off. So company should concentrate on the satisfaction of loyal customers.

Quality

Stanton defines quantity as, “The degree to which a product meets the expectations of the consumer”. Quality plays an imperative role in making brand loyalty. When consumers acquire awareness about a brand, quality is one of the first variables which are tartan by consumers. Simply he perceive the quality first (Wonglorsaichon and Sathainrapabayut, 2008). Logistic regression model supported that product quality is one of the important driver of consumer loyalty followed by services quality and brand image (Clottey, Collier and Stodnick, 2008). For marketer the quality of the product offering is the intervention point and to create loyal consumers, quality has great importance (Darsono and Junaedi, 2006). The sales of high quality brands are less affected by increase in prices. But when prices are falling, the high quality brand gives favorable benefits as relative to low quality brands (Kumar and Raj, 1997). Due to long period of usage and performance, highly functional products are assumed as having higher quality (Page and Herr, 2002). For quality evaluation, consumers analyze internal standards of the product (Kirmani and Baumgartner, 2000). When companies improve quality of the product, it becomes more favorable for the firms as they give tangible benefits (Dranove 1999). High level quality can lead commitment of the consumers to repurchase the product (Thurau and Klee, 1997).

When a consumer wants to buy any product, quality is one of the first variables to inspire and make the consumer decide to repurchase the product. One can be aware of quality while using the product; consumer will examine standards and features of the product. If he is inspired by the performance of the product he will decide to repurchase whatever circumstances are. Whether prices are increasing or decreasing. He will prefer to purchase at any cost.

Available literature also shows that high price products and long performer emerge high quality, but loyal consumers don't care about high price. So this is understood, that high quality products make loyal consumers.

Here, we want to see the relationship of quality and brand loyalty. We want to see the effect of change in quality on brand loyalty.

H1 *Quality is significantly proportional to brand loyalty.*

Price

The amount of money needed to buy particular goods, services or resource. The sensitivity of price in loyal customers is very less as compared to non loyal customers (Krishnamurthi and Raj, 1991). Increase and decrease strategy of price results in increase or decrease of brand loyalty of the product (Gedenk and Neslin, 1999). High brand loyalty is associated with high level price brands (Chauduri, 1999). Price promotions,

especially temporary price reductions, reduce brand loyalty (Mazumdar and Papatla, 2000).

H2 *Price has converse relationship with brand loyalty*

RESEARCH METHODOLOGY

Questionnaire was adopted from (George Bali) it contained three parts.

Sample

The population for Data collection was regular users of automobile sector of Pakistan. The collection related from various cities of Pakistan and the total sample size was 120. The questionnaire was personally filled and received from the respondents. A total of 150 questionnaires were distributed out of which 120 were received back with response rate of 80%.

RESULTS

Correlation Analysis

Correlation analysis of our research is showing in the table below:

	Brand loyalty	Price	Quality
Brand Loyalty	1		
Price	0.368	1	
Quality	0.409	0.455	1

FINDING

Correlation analysis indicates a relative strong relation between the Price and the brand loyalty, which is (0.68).

Further more, the quality and brand loyalty also show a positive relationship, that is (0.409)

REGRESSION ANALYSIS

	Beta	T	Significant
Price	.230	2.255	.026
Quality	.305	2.988	.004

$R^2 = .209$ Adjusted R square= 0.193
 $F = 12.701$ significant= 0.000

DISCUSSION

We proposed the hypothesis that quality is significantly proportional; and price has converse relationship with brand loyalty, which is, as price increases loyalty must be decreases. But our findings do not support our hypothesis for price. The results show that, if prices are increasing, there will be no effect on brand loyalty in case of automobile industry of Pakistan. There are reasons behind these results. The first one according to our observations is that the people who are the users of automobile of different companies are most loyal to their brand.

They are satisfied with the performance of the vehicles. So this mean the companies are providing good services to their customers in Pakistan. And they wanted to purchase the same brand in future. Purchasing power of the users is another observable fact, which maintains the loyalty of the users. The sample that we were analyzing showed a perception, that when prices are economical and are within the range of customer's purchasing power, then they attract customers.

Here purchasing power plays an important role in buying behavior of customer. The trend of purchasing vehicles is found in middle class and upper class of society in Pakistan. And each class has their own behavior of choice. As we mentioned earlier, that in Pakistan automobile brands are considered as status symbol. Some brands are said to be status symbols like Suzuki is compared with middle class and other brand like Toyota, Honda and Mercedes are suppose to be related with higher class.

The maximum size of our sample consists of the people who are using Suzuki and suggests that they purchase only the brand which has economically suitable price. They also mentioned Suzuki cars are cheaper then other brands, for its maintenance and fuel consumption. Hence, loyalty for these brands is measured to be more then the others.

Our findings are very much supportive for our hypothesis about quality. In the light of our findings we can predict that when companies provide good quality and long time performance products, then brand loyalty will increase as a result. As well as consumers are intended to re purchase the product. Infact due to high quality, customers are loyal and they want to repurchase particular loyal brand's vehicles at any cost.

CONCLUSION AND FUTURE RESEARCH

In our research, we found that both quality and price are positively linked with brand loyalty in automobile industry of Pakistan. But there are some other factors which can be influencing on purchasing behavior of the customers and also making them loyal. One of the factors, which lead to the basis for future research, is purchasing power of the consumers. We find people arguing that within their range of making purchase of vehicle, they are satisfied with every aspect of the brand and this makes the people brand loyal. So, companies must be aware of purchasing power while launching new models in the market.

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**RELATIONSHIP BETWEEN BUDGET DEFICIT AND TRADE DEFICIT:
A CASE STUDY OF PAKISTAN ECONOMY**

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ABSTRACT

This study model the relationship between the Budget deficit & Trade Deficit, by using the ARDL [Pesaran et al. (2001)] and DOLS [Stock & Watson (1993)] empirical estimation methods. The empirical results indicate that the Budget leads the Trade Deficit in the long run & it more stimulate in future but Trade deficit cause the Budget Deficit in the short run.

KEY WORDS

Budget Deficit; Trade Deficit; ARDL.

JELClassification: C₁₁, C₂₂

INTRODUCTION

Currently Pakistan's budget deficit would remain above the target of 4.7 percent of the GDP and current account deficit would stand around 8 percent of GDP. With slower growth in industry and weak global demand conditions, projected import growth will still result in a large trade deficit. The core purpose of this work is to determine the association between the budget deficit and the trade deficit in Pakistan during the period 1971-2006. For of econometrics estimation this empirical work employs the newly advance autoregressive distributed lag (ARDL) approach to Cointegration, proposed by Pesaran et al. (2001) and Dynamic Ordinary Least Square (DOLS). The rest of the paper is planned as follows. Section B presents the theoretical explain and literature review. Section C presents econometrics methodology. Section D presents the empirical findings. Conclusions and policy implications are discussed in Section E.

THEORETICAL EXPLANATION AND REVIEW OF LITERATURE

A simple Keynesian open economy model indicates a positive relationship between the government budget and trade balance. In an open economy, algebraic model as follow,

$$Y = C + I + G + (X - M) \quad (1)$$

where Y (gross domestic product) is the sum of C (private consumption expenditures), I (gross private domestic investment expenditures), G (government expenditures) and X-M (net exports).

Conversely, this relationship explain as,

$$Y = C + S + T \quad (2)$$

Y equals to C (private consumption expenditures), S (savings) and T (taxes).

Replacing (2) in (1) and reorganized expression as,

$$(X - M) = (S - I) + (T - G) \quad (3)$$

Equation (3) proposes net exports equal private and public savings.

The Mundell-Fleming Model claims that the increase in the government's budget deficit could lead to an increase in the trade deficit through increased consumer spending (Fleming, 1962; Mundell, 1963). Furthermore, the Keynesian absorption theory argues as well that an increase in the budget deficit would induce domestic absorption and therefore import expansion, causing a current account deficit.

The number of empirical studies has been investigating the above relationship. We review some recent empirical work on this topic. Boucher (1991), Evans (1988) and Bachman (1992) find no evidence of a long run relationship between the current account and net national saving. Miller & Russek (1992) concludes that the structural fiscal deficit is indicating robust relationship with the trade balance, but the measured fiscal deficit is not indicating robust relationship with the trade balance. Summers (1988), Islam (1998), Khalid & Teo (1999) and Alkswani (2000) argues that the unidirectional causality runs from the current account to the budget deficit. This may be due to the deterioration in the current account leading to a lower economic growth and thus may increase the budget deficit. Piersanti (2000), Akbostanci and Tunc (2002) and Saleh et al. (2005) finds long run relationship between the budget deficit and current account deficits. Ali Salman Saleh (2006) partially supports the Keynesian view that there is a linkage between trade deficit and budget deficit but the direction of causality is inverted which is consistent with many other empirical studies. Khorshed & Saleh (2007) suggests that the relationship exists between the current account, budget deficit and savings & investment gap. They found that trade openness has a positive effect on the current account deficit, but is statistically insignificant. Saqib et al. (2007) empirically finds that the long run relationship exist between the current account balance and the balance of trade, domestic saving, total consumption and workers remittances. Tahir et al. (2007) examines that the long run relationship exist between the two deficit and also shows that the bidirectional among them. Acaravci (2008) concludes that there is a long run relationship exist between budget deficit and current account imbalances. The empirical results also indicate that the direction of causality runs from the budget deficit to the current account deficit.

DATA AND ECONOMETRIC METHODOLOGY

This study employs annual time series data from 1971- 2006. Data has been taken from the various issues of Pakistan Economic survey. Both variables Budget & Trade deficit use as percentage of the GDP (Gross Domestic Product or Economy) & natural logarithms form of both variables are used for econometric estimation. The order of integration determines by using the ADF (Augmented Dicky Fuller) and DF-GLS (Dicky Fuller Generalized Least Square). Due to less consistency of ADF for small size data (Dejong et al. 1992, and Harris 2003) we also employ the DF-GLS test of unit root. The Dicky-Fuller Generalized Least Square de trending test developed by Elliot et al. (1996) and followed by Ng-Perron (2001). On of the assumption that there is need to test the order of integration of variable X_t , Elliot et al. (1996) enhance the power of ADF test by de trending criteria and DF-GLS test is based on null hypothesis $H_0: \delta=0$ in the regression:

$$\Delta X_t^d = \delta^* X_{t-1}^d + \delta_1^* \Delta X_{t-1}^d + \dots + \delta_{p-1}^* \Delta X_{t-p+1}^d + \eta_t \tag{4}$$

where X_t^d is the de trended series and null hypotheses of this test is that X_t has a random walk trend, possibly with drift as follows.

$$X_t^d = X_t - \hat{\phi}_0 - \hat{\phi}_1 t \tag{5}$$

Actually, two hypotheses are proposed.

- i) X_t is stationary about a linear time trend and
- ii) It is stationary with a non zero mean, but with no linear time trend.

Considering the alternative hypotheses, the DF-GLS test is performed by first estimating the intercept and trend utilizing the generalized least square technique. This estimation is investigated by generating the following variables:

Subject:

$$\bar{X} = [X_t, (1 - \bar{\beta}L)X_2, \dots, (1 - \bar{\beta}L)X_t] \tag{6}$$

$$\bar{Y} = [X_t, (1 - \bar{\beta}L)Y_2, \dots, (1 - \bar{\beta}L)Y_t] \tag{7}$$

$$Y_t = (1, t) \bar{\beta} = 1 + \frac{\alpha}{T} \tag{8}$$

where “T” stands for number of observation of X variable and α is fixed¹. While OLS estimation is followed by this equation:

$$\bar{X} = \phi_0 \bar{Y} + \phi_1 Y_t + \varepsilon_t \tag{9}$$

And OLS estimator’s ϕ_0 and ϕ_1 are utilized for the removal of trend from as X_t above. ADF test is employed on the transformed variables by fitting the OLS regression.²

$$\Delta X_t^d = \lambda_0 + \rho X_{t-1}^d + \sum_{j=1}^k \gamma_j \Delta X_{t-j}^d + u_t \tag{10}$$

In alternative hypothesis, $\hat{\alpha} = -7$ in the required equation of β , above, then they calculate

$X_t^d = X_t - \phi_0$, fit the ADF regression on new transformed variable and employ the test of the null hypothesis that is $\rho=0$.

ARDL COINTEGRATION

This empirical research used two approaches used to examine the long run relationship between Budget & Trade Deficit. First recently advance Cointegration technique, known as autoregressive distributed lag (ARDL) model {Pesaran *et al.* (2001)}. This approach has the following econometric advantages in comparison to other Cointegration procedures. The long and short run parameters of the model in question are estimated simultaneously. It is applicable irrespective of whether the underlying regressors are purely $I(0)$, purely $I(1)$, or mutually integrated. The Pesaran *et al.* procedure involves investigating the existence of a long run relationship in the form of the unrestricted error correction model for each variable. According to ARDL procedure the unrestricted model of our concerned function will be as follow:

¹ The power of envelop curve is one half at $\hat{\alpha} = -13.7$ when the model has constant and trend term, and at $\hat{\alpha} = -7$ when it has only constant term (see Elliot et al., 1996 for comprehensive study)

² For the critical values (see Elliot et al., 1996) of null hypothesis which is $\rho=0$.

$$\Delta \ln(BD/GDP)_t = \lambda_0 + \sum_{i=1}^n \lambda_i \Delta \ln(BD/GDP)_{t-i} + \sum_{i=0}^n \lambda_i \Delta \ln(TD/GDP)_{t-i} + \alpha_1 \ln(BD/GDP)_{t-1} + \alpha_2 \ln(TD/GDP)_{t-1} + v_{1t} \quad (11)$$

$$\Delta \ln(TD/GDP)_t = \lambda_0 + \sum_{i=1}^n \lambda_i \Delta \ln(TD/GDP)_{t-i} + \sum_{i=0}^n \lambda_i \Delta \ln(BD/GDP)_{t-i} + \zeta_1 \ln(TD/GDP)_{t-1} + \zeta_2 \ln(BD/GDP)_{t-1} + v_{2t} \quad (12)$$

where $\ln(BD)$ is the natural logarithm of Budget deficit & $\ln(TD)$ is the natural logarithm of Trade deficit, Δ is the difference operator and v_t is the stochastic error term. To analyze the long run relationship existence we restrict the coefficients α_1 and α_2 . The null hypothesis of equation (11) is $\langle H_0 = \alpha_1 = \alpha_2 = 0 \rangle$. This is denoted as $F\{Ln(BD/GDP) | Ln(TD/GDP)\}$. In equation (12), the null hypothesis is $\langle H_0 = \zeta_1 = \zeta_2 = 0 \rangle$ this is represented by $F\{Ln(TD/GDP) | Ln(BD/GDP)\}$. The F-test is used to test the existence of long-run relationships. Thus; the Pesaran *et al.* approach compute two sets of critical values for a given significance level. One set assumes that all variables are $I(0)$ and the other set assumes they are all $I(1)$. If the computed F-statistic exceeds the upper critical bounds value, then the H_0 (null hypothesis) is rejected. If the F-statistic falls into the bounds, then the test becomes inconclusive. Lastly, if the F-statistic is below the lower critical bounds value, it implies no Cointegration. When long-run relationship exists, the F-test indicates which variable should be normalized.

DOLS METHOD FOR LONG RUN RELATIONSHIP

Stock and Watson (1993) developed a model for the investigation of long run relationships among dependent variable and explanatory variables. This procedure involves regressing the dependent variable on all explanatory variables in levels, leads and lags of the first difference of all $I(1)$ explanatory variables (Masih and Masih, 2000). This method is superior to a number of other estimators as it can be applied to the systems of variables with different orders of integration (Stock Watson, 1993). The inclusion of leads and lags of the first differenced explanatory variables corrects for simultaneity bias and small sample bias among the regressors (Stock and Watson, 1993). The specification of DOLS model is given below:

$$X_t = \lambda_0 Y + \phi_1 Y_t + \sum_{j=-p}^p \lambda_j \Delta Y_{t-1} + \mu_t \quad (13)$$

where X_t is dependent variable, Z_t is a vector of explanatory variables and Δ is lag operator.

EMPIRICAL INTERPRETATION

In order to find out the level of integration this uses two tests of unit root ADF & DF-GLS. Both tests result suggest that the both variable non stationary at level and stationary at first difference.

Table 1: Unit Root Test				
Variables	ADF		DF-GLS	
	Level	First Difference	Level	First Difference
BD	-2.66	-3.65**	-2.40	3.54**
TD	-1.74	-4.67*	-1.41	-3.97*

*:**: 1%, 5% Level of significance respectively.

Next step we apply the ARDL (Autoregressive Distributive Lag Model) by Pesaran (2001) to determine the long run relationship between the variables. Before undertaking the ARDL test, we first selected the relevant order of lags (ρ) through the VAR model. The results of bound test are presented in table-2. The shows that the long run relationship exist, when Trade Deficit dependent variable because F-Statistic value upper than critical bound value. The long run relationship could not determine when Budget Deficit dependent variable as the F-Statistic value fall between the lower and upper critical value.

Dependent Variable	Ln(BD)	Ln(TD)
F-Statistic	3.39	4.98**

** : * Level of significance (5% & 10%) of the critical bound values that determine by Pesaran.

The Dynamic Ordinary Least Square method use to determine the long run coefficients. The result shows (Table-3) that the BD positively and statistically significantly effect on the TD. While the long run elasticity of the TD with respect to the BD greater than one. The first lead of BD shows that the BD stimulates the TD in coming years. On the other hand the TD could not influence the BD in the long run.

Variable	Dependent Variable			
	Ln(TD)		Ln(BD)	
	Coefficient	T-Ratio[Prob]	Coefficient	T-Ratio[Prob]
Constant	-0.30	-0.27[0.78]	1.84	5.73[0.00]
Ln(BD)	1.07	1.70[0.10]	-	-
D(Ln(BD(1)))	1.10	2.01[0.05]	-	-
Ln(TD)	-	-	-0.01	-0.10[0.92]
D(Ln(TD(1)))	-	-	-0.10	-0.80[0.43]
D(Ln(TD(2)))	-	-	-0.03	-0.27[0.79]
R-squared	0.80		0.54	
F-statistic	10.50		8.24	
Prob(F-statistic)	0.00		0.00	
Durbin-Wat	1.96		2.27	

SHORT RUN ELASTICITY

The short run coefficient could explain by using the error correction model. The result shows that the BD statistically insignificantly effect on the TD. The error correction terms shows the speed of adjustment of from short run to the long run. In this case the coefficient of error correction terms with expected negative sign and statistically significant. It shows that 58 percent discrepancy in the short run adjusted in the long run per year. On the other hand, TD significantly causes BD in the short run. The error correction term shows that 32 percent incongruity in the short run adjusted in the long run per year.

Independent Variable	Dependent Variable			
	$\Delta(TD)$		$\Delta(BD)$	
	Coefficient	T-Ratio[Prob]	Coefficient	T-Ratio[Prob]
$\Delta(TD)$	-	-	0.14	2.05[0.04]
$\Delta(TD(-1))$	0.29	2.3[0.02]	-	-
$\Delta(BD)$	0.21	0.82[0.41]	-	-
ecm(-1)	-0.58	-5.19[0.00]	-0.32	-2.80[0.00]
Constant	0.61	1.39[0.17]	0.38	-2.80[0.00]
R-Squared	0.51		0.26	
F-stat.	10.58[0.00]		5.41[0.00]	

CONCLUSION

The aim of this study, explores the relationship between the Budget deficit & Trade Deficit, by using the recently advance Cointegration technique ARDL Pesaran et al. (2001) & Dynamic Ordinary Least Square (DOLS). The results indicate that the Budget leads the Trade Deficit & it more stimulate in the future in the long run but Trade deficit cause the Budget Deficit in the short run.

Considering above results the following policy implications derives. First, The GOVT rationalized the peoples to save more (Minimize the gap between the saving and investment). Second the GOVT increase the expenditure in these areas where potential of the country (like the natural resource management or agricultural development) education and health. Which helpful for the enhances exports.

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**IMPACT OF TRAINING ON EMPLOYEE PERFORMANCE
IN MULTINATIONAL TELECOM SOLUTION PROVIDERS
OPERATING IN PAKISTAN**

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ABSTRACT

This article is based on finding the impact of training on employee performance in multinational telecom solution providers operating in Pakistan. Data has been collected from 503 employees working in five major telecom solution providers in Pakistan. These are multinational companies and they spend a lot of money in the training of their employees. This article focuses on the impact of this training on these employees. Previous researches in this regard are reviewed and strategies regarding issues related to employee training and performance are also been discussed.

1. INTRODUCTION

A multinational corporation is a complex system and possesses diversity that communicates with its environment which contains tasks, responsibilities, situation handling, grasping of work motives and many more aspects. Smith (1999) said that the major reason for investment in training is the improvement of employee work performance. Sofu (2007) found that nearly all trainees (over 90 per cent) believed that the training could be applied to their job, would improve their job performance and career prospects and that they were confident in learning and were accountable for their learning. Organizational performance criteria most directly influenced by employees' knowledge and skills to show the strongest relationship with training and development activities (Birdi, Patterson, & Wood, 2007).

This research is conducted to know the effect of training in multinational telecom companies operating in Pakistan on the employee performance. These multinationals have a positive impact of training on employees in other countries. This research would enable them to know whether the results are same in Pakistan and the degree of positive impact of training. As multinational companies came from different background, culture and they have different working conditions in their home countries as compared to the culture and prevailing working conditions in Pakistan where people have different backgrounds so as to implement the training and exercises is hard to be gobble up by people here. If the training and exercise is creating a positive impact on the employees then how it turns out to be a mile stone in the career growth of an individual as well as the companies.

Rose & Nilda (1999) suggest that diversity training should only be one part of an organization's comprehensive diversity strategy and should not stand alone. In isolation,

the diversity training is not likely to have a major impact, but as part of an overall strategy it can help move an organization forward by helping to maximize the potential of all employees. The larger the organization, the greater the economies of scale that can be achieved in training and greater the ability of enterprise to provide internal, formal training and to support this training with high investment in training infrastructure (Smith, 1999), his survey confirms that the main reason for investment in training is the improvement in employee work training. The development of an organizational culture which accepts performance evaluation and measurement takes time and requires that individuals and work units are clear about their objectives and have accountability to reach them (Bartos, Kelly, 1997).

Previously no significant research is conducted in Pakistan regarding training in telecom sector. This research has a great importance because up till now there has been no work done in Pakistan, in this regard and we wanted to assist multinational telecom solution providers working in Pakistan to know the impact of training they do on employees working here. Earlier researches have been done in the western environment where the data is very much different from the data here because here the priorities, needs and the desires of people are very much different from the people living in the west. The hierarchy of needs is at a much lower level and the main motivational factor for employees here is the income.

2. LITERATURE REVIEW

2.1 Training

According to Bartel, (1995) training was found to have a positive and significant effect on job performance, thereby confirming the robustness of the relationship between training and productivity. Lien, Yuan & McLean (2007) say that the growth of the high-tech industry relies on its unique human resources. Companies attempt to retain valuable employees to sustain their competitiveness; therefore, training provides a channel for these companies to attract and retain talented and highly motivated employees. Velada, Caetano, Michel, Lyons and Kavanagh (2007) suggest that for organizations to maximize their return on investment with regards to training and development, they need to focus on all three determinants of transfer of training: training design, individual characteristics and work environment. Evidence of direct returns to training by firms must be sought in evidence of improved performance, to which we now turn (Greenhaul, 2002).

For the growth of any organization they must need trained employees to boost company competitiveness and return on investment, with in an Imperfect system there is plenty of room for improvement, and it is to this neglected aspect of improving effectiveness in post-compulsory education and training (Gleeson, Glover, Gough, Johnson and Pye, 1996). Noe (2008) says that perhaps, training will be more effective if attention is giving to ensuring that the work group environment is supportive and encouraging change and personal development. Training is not a certain group of exercises forcefully implemented on working people but are the aspects used to groom the personality and thinking style of a person so it should be done in a charismatic way so everyone take part in it which will help to learn and to perform well in organization. As per Hung & Wong (2007) employer endorsement of continuing education and training can have a positive impact on the job satisfaction and perceived performance of employees, especially when the level of perceived organizational support is relatively low.

Henderson, Berry, Matic, (2007) found in their study that high-incentive training programs help incumbents maintain strength and endurance are likely to be cost effective in terms of job performance in high strength and endurance requiring jobs. Education during the job provides career opportunities as well as enhances understanding of variable trends in market and performance of the organization. The first and foremost condition for transfer of training to occur is the right placement of trainees after the training. Consequently, it is only then that supervisors can base their monitoring and evaluation of their trainee subordinates' performance on the predetermined objectives (Sofa, 2007). Participants revealed that the training they had received was relevant to their jobs and used the acquired skills/abilities to fulfill daily business engagements. Therefore, it is possible to argue that even though training has a short-term focus, it can still offer to improve or to enable participants to learn skills, knowledge and abilities that are needed to perform his/her present job (Wickramasinghe, 2006). On-The-Job Training is found to have a positive and significant effect on job performance, thereby confirming the robustness of the relationship between training and wage and performance. Formal training does indeed increase wage growth and job performance even when selection bias in assignment to training programs is eliminated (Bartel, 1995). The "Filter Down" and "Shadowing" approaches to training in operation within the home have a number of benefits within the employees.

2.2 Performance

According to Devraj & Babu, (2004) stream specific training and the job performance are strongly correlated. Conducting excellent training programs produce employee development and consequently performance enhancement (Krishnaveni, Sripirabaa, 2008) Performance of employees is mostly increased by providing them latest training so that they can perform according to market trends so u do investments and gain profits. Employee commitment and attachment to the organization can be increased through efforts to improve the organization's social atmosphere and sense of purpose, performance and productivity can be increased by having more committed employees (Balfour, Wechsler, 2007). Organizational performance and effectiveness should be considered with the context of people management and HRM practices in organization. Policy leaders should emphasis, train people in and evaluate good management practices within organization (Michael, West, 2004). Organizational performance is usually increased by the committed employees as they feel the work place as their entity.

Regular benefits and variety of trainings should be provided to the employees so they don't get bore dome of work and hence improve there performance (Bartos & Kelly, 1998). On-the-job training provides care-workers to experience and learn from events in the home. Training should be provide in order to develop social and communication skills among employee in order to develop understanding of their clients and better performance results (Fearfull, 1997).

3. HYPOTHESIS

H1 Training is positively related with the performance.



Figure 1-Theoretical framework

The above mentioned diagram shows the relationship between training and performance. It shows relation we made in our hypothesis.

4. RESEARCH METHODOLOGY

Data for the study was obtained by distributing questionnaires through mails and by visiting the Multinationals solution providers (minimal interference) in Pakistan. We had distributed almost 653 questionnaires and got back 503.

The study was the part of course Business Research Methodology, we are studying in BBA, to evaluate on- the training and off-the job training that whether these trainings have any impact on employee performance or not and if it has then how much improvement it took in it.

5.1 Subject:

503 employees from different large Telecom solution provider Companies served as a sample for our studies.

5.2 Scale:

A previously developed famous scale is used in our studies. We used Likert Scale in our questionnaires to know the response of employees. This scale has 5 points from strongly disagree to strongly agree.

5.3 Data collection:

The questionnaires were hand delivered to the companies which we selected for our studies. Instructions on how to complete the questionnaire were given to the employees and were also written on the top of questionnaire. The respondents were asked to be as fare in their answers as possible.

5.4 Data Analysis:

Bivariate Correlation analysis was used to test research hypothesis. Information which we got from the bivariate relationship between the dependent variable and independent variable helped us in the interpretation of results.

Second test which we applied on our data is regression analysis in order to know that how much improvement in performance of employees depend on the training and what are the other variables which affect their performance. By doing so we got an exact contribution of training in the improvement of performance in the form of R^2 .

6. RESULTS

6.1 Correlation Analysis

	Means	S.D	Training	Performance
Training	4.0198	.45762	1	.477(**)
Performance	4.3084	.60416	.477(**)	1

** Correlation is significant at the 0.01 level (2-tailed) Number of Respondents = 503

The software's used to measure the values are MS Excel and SPSS. The table above shows the correlation between training and performance. All the values are positive and significant up to the 0.01 (**). This table also shows the means and standard deviations of the responses.

6.2 Regression Analysis

Figure 3a – Regression Model				
Model	Predictors	Beta	t	Sig.
1	Training(Constant)	-	8.476	.000
	Performance	.477	12.141	.000

a) Predictors: Training (Constant), Performance

The above table shows the dependence of performance on training in exact figures. The value of beta is .477, $t=12.141$, $R=.226$, $F=147.416$ and significance=.000.

Figure 3b – Regression Model	
R square: .227	Adjusted R square: .226
F: 147.416	Significance: .000
Number of Respondents: N = 503	

a) Predictors: Training (Constant), Performance

7. DISCUSSION

The important facts in the successful application of training which we find in our research study are that these companies first align the training advantages for their own blessing and also present it in a way that employees find it beneficial too or in other words we can say that whenever an organization is providing training to its employees the first beneficiary is organization itself. Organizations adopt training programs on account to increase their productivity and work rate in order to secure their future and to maintain their position and image in the market. To attain this ambition, they ought to have employees with high efficiency; greater work grasp and Craftiness in their art. For the conversion of their conviction/notion in reality they need to attract their employees and make them interested in training programs as well. They show it beneficial for their employees so that they find it interesting. There is a chain of facts behind this peerless study. In this day and age every multinational organization is performance oriented and to perform well individuals need to have apprehension about their jobs and the related tasks. Training provides employee's financial and non financial benefits.

When employees are more trained they are more confident about their jobs and got the ability to tackle and handle complex situations. Employees have an edge in their field they can give their maximum outturn. Training adds brassiness to the skills of employees, gives career security, and expands their portfolio therefore they can perform different jobs. If we talk particularly from telecom sector (our area of study) point of view, which we find during our visit to these organizations, when they trained their employees for usage of a particular machine then they are assigned new projects and locations so that they practically apply it on the job in order to learn it more clearly. New locations and projects give them a sense of authority and they feel more satisfaction and comfort.

Further we found that when employees are sent on foreign training they feel that organization is very concerned about them: feel to be given attention and importance.

The decision of promotion is made on the basis of performance of employees. To motivate employees and to make apparent the importance of training; incentives, bonuses, increment in salaries are also given by looking at their productivity. According to the prevailing situation in Pakistan these sorts of monetary rewards elevates the quality of life and wage. This financial ease brings peace of mind for employees who in turn again makes them motivated about the training and brings positive impact on their work quality because when they are mentally more stable, they can give more attention to their training and job.

Now how the organizations come to know that there is improvement in the performance of employees who are getting training? The simple method used by the organizations in Pakistan is to look at the objectives set before the training programs were initiated and also by looking at the objectives which managers and trained employees set after the training; both the objectives have to be fulfilled. If both the objectives are achieved then it is clear indication of impact of training on employee performance. This is simple analysis to measure the impact. Investment in training is beneficial for organizations or not? The answer to this is very amazing. According to one HR manager of these companies "To spend 1 in order to save 100 is not a big deal".

Our results of correlation show that training has significant results on performance and the values are 0.477**. And it explains that there is a strong correlation between training and performance. It shows that if an organization provides training to its employees it will certainly have a positive impact on their performance. We further used regression analysis to find out the results more keenly that how much performance of employees depends on the training. In the regression analysis we found that 22.7% variation in performance (the dependent variable) can be explained by the relationship to training (the independent variable). According to experts, diversity training should only be one part of an organization's comprehensive diversity strategy and should not stand alone. In isolation, the diversity training is not likely to have a major impact, but as part of an overall strategy it can help move an organization forward by helping to maximize the potential of all employees (Rose, nilda, 1999). The value of beta is .477%. Beta shows that if all the independent variables remains constant except one variable then how much variance that particular variable brings in the dependent variable but as we have only one independent variable in our model so beta here shows the variance, training (independent variable) brings in the performance (dependent variable). Further the value of $F=147.416$ which shows the variance of whole model and it should be greater than 4 and it is greater, significance should be <0.05 and we have 0.00, and the value of t should be ($t>2$) and we have 12.141.

All these values prove that there is a positive impact on training on employee performance. Training has significantly enhanced the performance of employees working in these organizations. These companies have made massive investment in the training of these employees. Although much research has not been conducted in Pakistan but soon the day will come when Pakistan would be a successful country in research output. Our study/research is descriptive. As we are citizens of Pakistan and no such activities are boosted in this regard. So we tried to provide a basic guideline about the attitudes and

behavior of people working here in Multinationals. And we tried to guide Multinationals about the uniqueness of the people living here and their concepts of acceptability and denial of training in particular field.

8. CONCLUSION

Training is an aspect which provides more and more knowledge which employees and work force can use on their job and they feel more competent and confident while doing their tasks. Because when a person starts knowing any activity or work he starts doing that work more appropriately and efficiently because he starts getting know how of that specified field and job. When a person doesn't know about a specified task he/she will pull back his/her self from that work and will withdrawn of doing that work wrongly to escape from humiliation. That is why to avoid work place hindrance and to maintain equality at job; Multinationals first make their employees fully trained to avoid such humiliating situations as everyone possess its self respect. And when a person thinks that he is capable enough to perform a certain task efficiently then he can give his maximum output and hence he can work for the betterment for the organization. He feels that organization want my personal growth plus my career growth so why don't I work for the betterment of organization. This is how training changes perception, attitude and mind sets of individuals. So the people who get training are more likely to perform well and better because they start believing in their own abilities and skills regarding the task performance. Training makes them to perform well and to know the inner strengths and qualities which were hidden before training. The nut shell of this study is that training leads organizational employees towards better performance. That is why training has a positive impact on performance.

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