*A*rth *A*nvesan

विज्ञानं ब्रह्म

ARTH ANVESAN

अर्थ अन्वेषण

CONTENTS

EDITORIAL

Arth-Anvesan is a Refereed, Bi-Annual journal from College of Management, Shri Mata Vaishno Devi University, Jammu. The primary objective of Arth-Anvesan is to provide a vibrant and creative forum for spread of research based knowledge covering various areas of Management.

We are aware of the fact that in today's Global Work Environment; of the ever evolving tools in the field of Modern Management, no work is going to be the last word in its Study. In our humble initiative, we have attempted to gather the latest trends, researches and studies from the best brains in the business. The Journal emphasizes on the publication of papers based on effective Management Practices, Empirical Analysis, Case Researches and Policy Papers. In the present issue, ten research papers from diverse fields within the broader ambit of Management, have been chosen for publication. Articles from different states of India and Abroad are included, based on double blind peer review process. We have endeavoured to publish Papers from different fields of study in order to be purposeful for the students of Management. A brief summary of the articles follows.

The first paper by Koushik Das and Pinaki Chakraborty find that trade and globalization in most cases, aggravate the problem of green house gas emission and thus call for greater cognizance towards using energy saving technologies while at the same time maintaining profitability. Maniklal Adhikary, V. Dominic, Sj and Anindya Bhattacharyya in their paper focus on Cardamom cultivated in Sikkim that is native to India and has the intrinsic property of economic viability and ecological sustainability. D.Mukhopadhyay, Pabitra Kumar Jena and Rashi Taggar have made an attempt towards identifying the important determinants of Willingness to pay (WTP) to measure the economic values of Shri Mata Vaishno Devi Shrine and use these economic values to determine the entrance fee on the basis of cost- benefit analysis for viewing the Holy Cave of Shri Mata Vaishno Devi (SMVD) Shrine. Bhagwan Jagwani's paper comprise of an interesting comparative analysis of the companies taken up for study, with respect to the relationship between foreign equity present in the companies and various performance variables of the same. Vijay M. Kumbhar tries to examine the development of electronic fund transfer service in India and evaluates customers' perception regarding various service quality dimensions. Rural urban migration in Odisha in general and their accessibility to health care in particular is nicely explained by Kshitish Kumar Khuntia and Byomakesh Debata in their paper. Bimal Jaiswal Namita Nigam have done a comparative analysis of the performance of public and private sector sponsored mutual funds using various performance evaluation tools like Sharpe, Treynor, Jenson, etc. Obasan Kehinde A and Ogunkoya Olufemi. A have researched the relationship between poverty and entrepreneurship level in the south-western states in Nigeria. A comparative study on packaged food shopping styles of Indian working women has been carried out by Hari Sundar.G.Ramand, D. Sudharani Ravindran and Sandhya Vivek. The concluding paper by Archana Singh and Saurabh deduct that Industrialisation is one of the means to achieve the goal of growth and the small scale industry has a significant role in balancing the employment issue along with positive contribution towards industrialisation. This paper has a policy level implication which can positively be applied at various levels in order to identify the confidence of entrepreneurs with the investment concentration in the small scale industry groups in the various regions based upon the regional benefits.

Our expectation is that the objectives we set ourselves before the publication of this journal viz. to provide a meaningful platform to the researchers, readers and students in such varied fields as, Empirical Modes, Research Design as also the outcome of the papers, are met and shall enhance the knowledge and Analytical skills of its reader.

Dr. Kakali Majumdar

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INTERNATIONAL TRADE AND IMPACT OVER DOMESTIC ENVIRONMENT: A COMPUTABLE GENERAL EQUILIBRIUM ANALYSIS FOR INDIA

Koushik Das* and Pinaki Chakraborty**

Abstract

The objective of the present paper is to understand general equilibrium implication of international trade and globalization on environmental externality. We applied Computable General Equilibrium (CGE) modelling as our relevant methodology following Shoven, J.B. and Whalley, J (1984). Constructing an Energy/Environmental Social Accounting Matrix (SAM), paper attempts to purport the effects of liberalized trade over different macroeconomic aspects and energy consumption through an Environmental CGE model logically based on SAM. Assuming Coal, Natural gas and various Petroleum products as relevant source of energy, attempts have been made to simulate various trade related policies like import liberalization, foreign capital inflow, technological innovation, public expenditure reduction etc. to examine the impact over macroeconomic variables and domestic physical environment. Our research finds that trade and globalization in most of the cases aggravate the problem of green house gas emission and thus calling for greater cognizance towards using energy saving technologies.
Keywords: CGE, SAM, Trade & Environment

INTRODUCTION

Environmental emission now a days has attained great deal of attentions concerning global sustainable development. Advocates of free trade sometimes point out that developing economies are emerging as the "pollution haven" for dirty manufacturing industries which migrated from developed nations owing to their lax environmental standard (Copeland & Taylor, 1994). Freer trade policy, although expands global production structure by engaging resources in efficient line of production, may even damage the economy by changing pollution levels through scale, technique and composition effects (Grossman &.Krueger,1993). Serious question thus arise while formulating appropriate environmental policies whether stricter policies would worsen country's competitiveness in export market due to greater abatement expenditure and distraction of sectoral domestic production.

With the expanding globalization, Indian economy has embraced rapid industrialization which led to deterioration of environmental standard as well as health hazards while import of sophisticated and eco friendly technology reduces environmental pollution in urban manufacturing sectors considerably.

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It is, thus a very pertinent question whether international trade in the phase of liberalized regime reduces environmental pollution or it has aggravated the problem. Considering three different kinds of fossil fuel sectors a) Petroleum & its products,   b) Coal and c) Gas which generate different green house gases like CO_2, SO_2 and NO_2 during their combustion, we studied different trade policy effects on environment and economic factors. In particular, we studied the impact of trade liberalization, foreign capital inflow and technological up gradation including energy saving technologies on different macro economic factors and domestic physical environment by formulating country specific Environmental Computable General Equilibrium Model following Conrad K. and M. Schroder (1993) and GEM-E3 model by Capros et al. (1996).

Since pure theory of international trade is not much akin to perfectly competitive set up, monopolistically competitive market structure is assumed with the presence of scale economy in production structures and consumer's love for variety by introducing Spence-Dixit-Stieglitz (1979) type social welfare function in the demand side of the model. To address our research problems we applied Computable General Equilibrium (CGE) approach as it seems to be most appropriate methodology for policy simulations. For calibration of our model we used Social Accounting Matrix (SAM) of India for the year 2003-04 constructed by Shaluja and Yadav (2006) and aggregated it into Energy/Environmental SAM according to our requirement.

SOCIAL ACCOUNTING MATRIX

CGE models are traditionally based on SAM which is matrix representation of all transactions and transfers that takes place between different production activities, various factors of production and different institutions like households, corporate and government within the country and with respect to rest of the world in a particular financial year. SAM, therefore, defines a comprehensive framework that can depict full circular flow of income from production activities to factor service providers like households. Each row of a SAM represents total receipts of any account and column represents expenditure of that account. Therefore row total is supposed to be equal with corresponding column total. An entry in the i[th]row and j[th] column represents receipts of i[th] account from the j[th] account.

A SAM is a database and extension over input/output matrix. Use of I/O matrix is widely accepted with the pioneering work of Wassily Leontief. I/O matrix however, does not represent interrelationship between factor value added and agent's final expenditure. Extension of an I/O table with the introduction agent's behavior and institutional characteristics one can get essential features of a SAM. This can depict entire circular flow of income much more effectively. Our environmental CGE model is based on schematic structure of SAM and for calibration of the model we constructed Energy /Environmental SAM for India for the year 2003-04 following Saluja and Yadav (2006).

STRUCTURE OF ENVIRONMENTAL CGE

Sectors and agents: Following SAM for India of the year 2004 produced by Saluja &Yadav (2006) and Ojha et.al.(2009), we grouped all sectors of the economy into seven aggregated sectors i.e. 1) Primary sector consisting of all agricultural products, minerals, primary products such as iron ores, crude petroleum and agro processing activities 2)Secondary sector comprising mainly of all manufacturing activities like, cotton & textile, plastic, rubber and lather products, cement ,different chemical products etc. 3) Infrastructural services consists of road transport, railway, power and water supply, hotel

and restaurant etc. and finally the 4) Other service sectors comprising of education, health care services, public administration, bank and insurance, postal services etc and separate energy sectors 5) Coal 6)Gas and its distribution and 7) Petroleum products. Again there are four types of agents in the economy i.e. a) Household b) Firm c) Government and d) Rest Of the World (ROW).We consider four types of households i.e. i) RHH-1(Rural agricultural and other laborers) ii) RHH-2(Agricultural self employed and other households)iii) UHH-1(Urban salaried class) andiv) UHH-2(Urban casual labour and others).All other countries and regions are clubbed together into ROW.

Production and Factor inputs: We have considered two basic factors of production i.e. labour and capital that take part in the production process within which substitution is possible through Cobb-Douglas production technology. Each production unit requires intermediate inputs following fixed coefficient type Leontief technology. Apart from intermediate inputs and basic factors, production sectors require energy inputs as fuels. We assumed three types of energy inputs a) Coal b) Gas and its distribution and c) Petroleum products among which inter fuel substitution is possible[1] through a nested Cobb-Douglas type production function.

Prices: Product prices are determined from the equality of price and average cost. Average cost is comprised of basic factor cost, cost of intermediate inputs and cost of energy inputs. Increasing returns to scale is assumed through the presence of fixed cost in the production units. We further assume firms control their environmental pollution and incur abatement cost which is a part of average cost of production.

Household income & expenditure: Households are rendering factor services in terms of labour and capital while in return they are receiving factor payments in the form of wages and rentals. We have considered four types of household, two of them are rural type and other two are urban type. Household spends his income for consumption purposes. We have assumed linier expenditure system type demand function for household.

Government income & expenditure: Source of income of the Government is a) Direct, indirect and corporate taxes b) Import tariff[2] c) Income from entrepreneurial activity. In the expenditure front we assumed government's expenditure in any sector is exogenously determined i.e. determined in the government's budget and adjusted to benchmark SAM. Difference between government's income and expenditure is government's savings[3].

Investment & Savings: We considered Neo-classical type closure rule where investment is guided by saving. Total saving is comprised of i) Household saving ii) Government saving iii) Corporate saving iv) Foreign savings. Total saving is converted to total investment.

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[1] See Burniux(1992) in this regard.
[2] Net indirect tax mentioned in the SAM has been classified into domestic indirect tax and import tariff.
[3] In the Indian context government savings in most of the cases is negative that constitute large part of country's fiscal deficit. Expenditure of the government is usually determined in annual budget.

Armington function and trade:
International trade in our model is guided by Armington function. Total availability of composite commodity in the domestic economy is composed of domestically produced variety of the good demanded by the domestic people and foreign variety of the same good. Both types of variety is combined together following a Constant Elasticity of Substitution type preference function.

Production of output and transformation: Total supply of each domestic good produced using labour, capital and intermediate input is used up by export of that good and to meet up domestic demand of domestic variety. Both export and domestic demand of the produced good is combined together following CES type transformation function.

Factor prices and equilibrium: We consider two basic factors of production i.e. labour and capital. Total supply of basic factor is fixed in value terms and factor prices are flexible. Physical quantity of labour or capital may change in different simulation experiments following demand and supply equilibrium mechanism in the factor market. Demand for factor is originated from the production of goods and services.

Equilibrium in commodity market: In the commodity market total supply of the composite commodity is constituted by domestic variety as well as imported foreign variety corresponds to each good. Demand for the composite commodity is generated from household consumption, government consumption expenditure, total investment demand and demand for intermediate input. Composite commodity price is determined from the demand and supply of composite commodity.

$$\textit{Environmental emission} = \sum e_{en} \cdot Q_{en} \text{ (1)}$$

Where e_{en} is emission coefficient[4], Q_{en} represents total domestic consumption of the fuel and *en* represents three types of fuel, i.e. a) Coal, b) Gas, c) Petro products.
Welfare and GDP: Aggregate GDP is measured summing a) Agricultural and other primary sector GDP b) Manufacturing and other secondary sector GDP c) Infrastructural GDP. d) Service sector GDP. Welfare function is assumed to be Dixit-Stiglitz (1976) type where consumer's welfare increases as number of product variety increases. Environmental social welfare function is then computed combining environmental benefit and welfare thus obtained from household consumption. Environmental welfare function can be presented as follows:

$$\widetilde{W} = F(W, Q) \text{ (2)}$$

$$\widetilde{W} = \left[W^{-\sigma} + Q^{-\sigma} \right]^{\frac{1}{\sigma}} \text{ (3)}$$

$$Q = \overline{Q} - D \text{ (4)} \quad D = s.Emis \text{ (5)}$$

W is the welfare obtained from CGE and Q is the environmental quality defined in equation (2). $\overline{Q}$ Refers to "endowment" of environmental quality and D is damages from

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4 Caliobration of emission coefficient is discussed in the next section.

emission. $(D/\overline{Q})$ is assumed to be .25.s stands for social marginal value of damage and its value is assumed to be Rs .50per Kg. of CO_2 emission.

DATABASE AND CALIBRATION
The parameters of our CGE model are estimated constructing Energy /Environmental SAM[5]. Estimates are of two types a) Point estimate and b) Econometric estimate. Few parameter values are taken from other studies and not from SAM, known as econometric estimates, like different emission coefficients. Remaining parameters are adjusted, so that they are consistent with benchmark SAM. We have manipulated the equations of the model so that parameters of the model can be expressed as functions of the data and solve those equations to obtain parameter values. The procedure is commonly known as calibration which is deterministic without any standard error. Calibrated CGE model is solved to reproduce benchmark data as the replica. This is also called base run which generates benchmark equilibrium.

Few economic factors like fixed cost is assumed to be 10% of the total capital employed by the capitalist obtained directly from SAM. In the social welfare function *number of product variety* and *elasticity of substitution between variety* parameters are taken from Horridge, M and Abayasiri, Silva (1995). Different abatement cost function parameters are taken from GEM-E3 model (Caproset.et.al). Different Emission coefficients correspond to various fossil fuels are computed following IPCC (Inter Governmental Panel on Climate Change) guideline.
Carbon /Sulfur/ Nitrogen- di-oxide emission coefficient. = (Carbon./Sulfur/Nitrogen contentin the fuel)*(% of fuel oxidized)*(Specific gravity)*(Molecular weight ratio).

SIMULATION EXPERIMENTS
After completing base run we have performed policy simulation experiments over our benchmark dataset. In doing so, we changed relevant policy parameters appropriately and solved the model once again to obtain counterfactual equilibrium values. Impact of the policy change has been obtained comparing benchmark equilibrium values and counterfactual equilibrium values. Our first and second simulation are related to trade liberalization in all sectors through tariff reduction, third simulation is related to inflow of foreign capital , fourth simulation is related to technology improvement and final simulation is related to government's expenditure reduction.

EXPERIMENT-1&2: TRADE *liberalization through 50% and 100% import tariff reduction:*
We reduced import tariff gradually by 50% and 100%, respectively. Import price relative to domestic price is reduced in all sectors. As a result, share of import in total domestic consumption increases in almost every sector apart from petro products. However, there is fall of real exchange rate owing to greater foreign exchange earnings due to increased export in manufacturing sector, Infrastructural service sector. Export, however, falls in agricultural and primary sector products. Change in export and import affects domestic production pattern. Sectoral domestic production rises in manufacturing industries, Petro Products sectors and Infrastructural service sectors. Sectoral output, however, falls in agricultural sector due to shift of labour and capital towards industrial sectors and few energy sectors like gas and coal. Greater supply of composite commodity due to higher

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5 We followed Saluja and Yadav(2006) for our construction.

import leads to fall of composite commodity prices in almost every sector. This, intern, reduces relative domestic prices as there is a shift of demand from domestic to imported variety.

According to our assumption wage rate is acting as the numerare and basic factors payments are fixed exogenously i.e. adjusted to benchmark SAM value. Sectoral change in demand and supply of physical volume of labour and capital along with substitution possibilities leads to rise of rental rate approximately by 2%. Although this may lead to an increase of household income, we get reduction of household income for all types of household due to sharp decrease of government transfer owing to fall of government income from lower tariff revenue earning Real household income however, does not fall as the price of composite commodity is reduced in all the sectors. This leads to the rise of household consumption in almost all sectors and for all types of households. Composition of product variety within household consumption however shifts from domestic to foreign variety. Green house gas emission increases by .96% and 2.4% respectively due to higher fuel consumption[6].

EXPERIMENT-3: *Increased inflow of foreign capital in the domestic economy*
We examined the effect of 20% increase of foreign capital inflow over domestic economic factors. Exchange rate has been appreciated by 1.5% causing import cheaper and export dearer. We find import increases in primary sector and in service sector. Export has been reduced in almost every sector. Overall investment has been increased by 2.4% replacing public expenditure. Overall fiscal deficit thus reduces by .44%. Private investment increases in almost every sector. Gross output increases in infrastructural service sector like construction sector and in primary sector to meet increased household consumption demand. Private money income increases for all types of household with fall in composite commodity prices that leads to the rise of increased real income for the consumers. Although GDP increases by .047%, overall welfare falls as increased consumption benefit is outweighed by the increase of green house gas emission.

EXPERIMENT-4: *Impact of technology improvement including energy saving technologies.*
Liberalized trade regime promotes technology transfer from developed to developing countries and also spurts innovation, research & development. We have increased production function shift parameter by 3% to resemble the impact of technological improvement and found that over all GDP has increased by 2.6% with the increase of green house gas emission by 2.9%. Over all, social welfare rises only by .3% being outweighed by green house gas emission as negative external effect. Export increases by 2.5% causing exchange rate to appreciate by 3% while import increases by 2.7%.

EXPERIMENT-5: *Reduction of government consumption to reduce fiscal deficit*
Liberalized trade is sometimes characterized by less government control, disinvestment and lower public expenditure. We examined the impact of 10% reduction of government consumption and immediate effect is the reduction of fiscal deficit by 11%.

6 Simulation results are presented in tabular form in appendix.
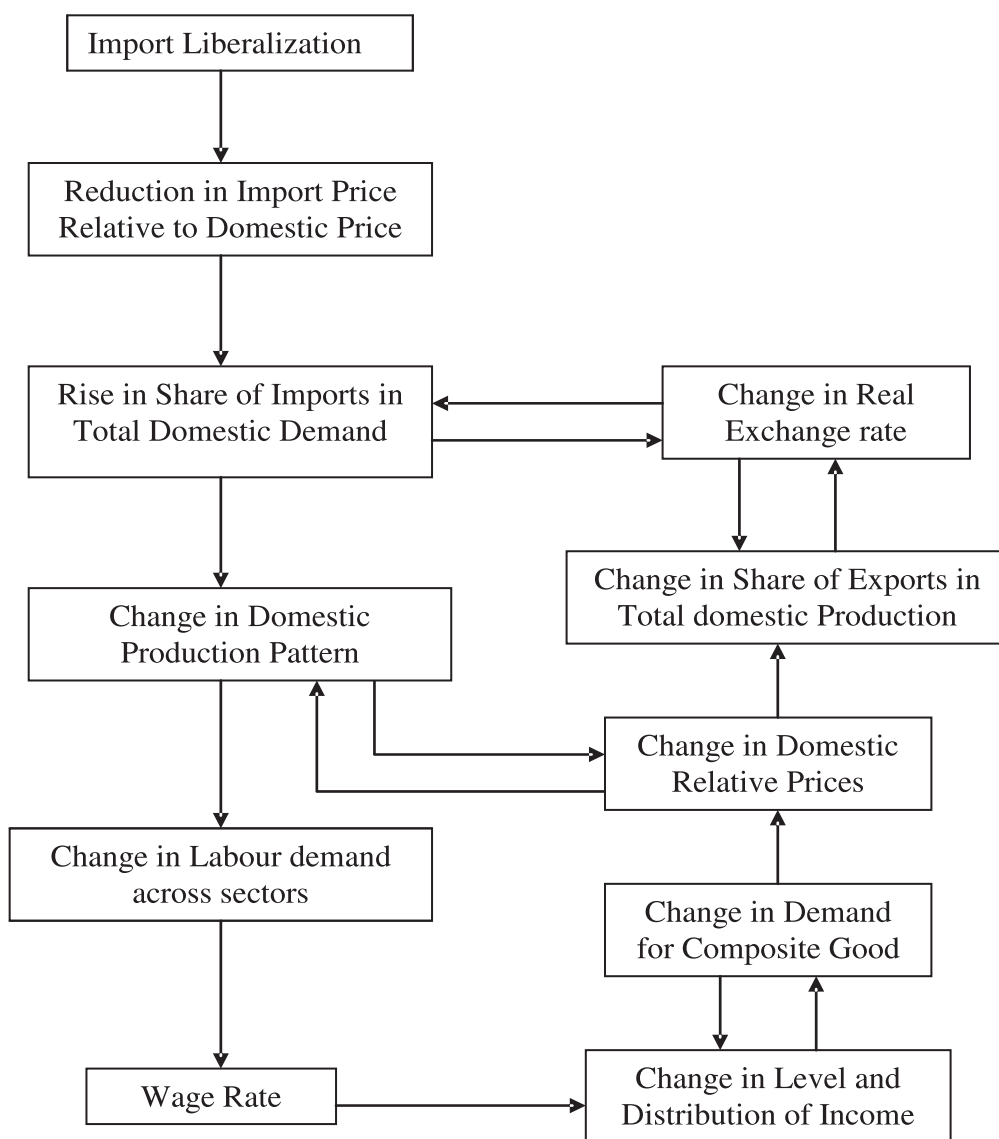
Fig. 1: Major Interactions due to import liberalization

Source: Panda and Quizon (2001)

GDP increases by .36% while gross investment increases by 0.9% to replace government expenditure in manufacturing, transport and service sectors including health care, education and banking & insurance sectors. Fiscal deficit reduces by 11% and various energy consumption increases by 0.637%, 1.031%, and 0.645% for petro products, coal and gas, respectively. Green house gas emission increases by .7% causing overall social welfare to fall by .23%.

POLICY IMPLICATIONS

The present paper attempts to examine the impact of different trade related policy changes on macroeconomic variables and on the domestic physical environment exhibited particularly through energy consumption and consequent air pollution. We find that trade liberalization in the presence of increasing returns to scale expands trade, increases GDP, social welfare, private consumption, gross investment and reduces composite commodity prices while deteriorating environment through green house gas emission. 3% technical progress increases GDP, social welfare and private consumption. Increased domestic competitiveness raises export and foreign exchange earnings appreciating domestic exchange rate while increasing air pollution by 2.9%. Greater foreign capital inflow appreciates exchange rate, increases import and reduces export. GDP, gross investment, welfare and private consumption expand with the negative emission effect. Reduction of government purchase diminishes public dis-savings that constitute large part of fiscal deficit. Green house gas emission increases with the greater consumption of fossil fuels. Thus in general we find that liberalized trade policies although expand economic activities, they generate deteriorating impact over domestic physical environment. Uses of energy saving technology bearing associated cost through private-public partnership, scaling up and expansion of investment in research and development of such technologies or implementation of green technology transfer from developed countries are the possible options to reduce green house gas emission in the globalised scenario[7].

In CGE analysis behavioural parameters are assumed to be constant over simulation exercises. In reality, however they do not remain unchanged while other macro indicators get changed. This is commonly known as *Lucas critic* after Robert Lucas first pointed out the problem in 70's. In addition to, our constructed CGE model is absolutely country specific and we are confined to single country analysis. Multi country CGE models such as GTAP models may be used to extend our work in a multi country framework.

7 In this regard see the interim report on *Low Carbon strategies for inclusive growth* by the Planning commission, Government of India in May 2011.

Table-1 Schematic structure of SAM

		Activities (1)	Commodities (2)	Factors (3)	Households (4)	PVT Corp. (5)	Pub.Ent (6)	Govt. (7)	Ind. taxes (8)	Capital A/C (9)	ROW (10)	Total
1	Activities		Gross output									Output
2	Commodities	Purchase of raw material			Household consumption			Govt. consumption		Gross Fixed Capital Formation	Exports	Aggregate demand
3	Factors	Value added									Net factor income	Factor Income
4	Household			Endowment Of HH				Govt. transfer,			Net current transfer	Total Household income
5	PVT corp.			Operating Profits				Interest on debt				Income of Private Corporate
6	Pub. Ent.			Operating Surplus								Income of Public departmental
7	Govt.			Income from entrepr.	Income tax by households	Corporate taxes			Total indirect taxes		Net capital transfer	Total govt. earnings
8	Ind. tax	Taxes on intermediate			Taxes on purchases			Taxes on purchases		Taxes on investment	Tax on exports	Total Indirect taxes
9	Capital A/C			Depreciation	Household savings	Corporate savings	Public sector savings	Govt. savings			Foreign savings	Gross savings of economy
10	ROW		Imports									Foreign exchange payments
	Total	Total cost of production	Aggregate supply	Total factor endowments	Total use of HH income	PVT CORP income	Income of PSU	Aggregate govt. exp.	Total ind. tax	Aggregate investment	Foreign Ex. Recpt.	

Source: Shaluja and Yadav (2006)

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Table-2: SAM of India for the year 2003-04.

Sectors	C1	C2	C3	C4	COAL	GAS	PETROL	Labour	Capital
C1	7795512	19679426	2754875	130303	0	41	10979251	0	0
C2	4885900	66996947	15428999	6079624	564602	310158	574364	0	0
C3	3028165	24862552	6639444	3069054	127379	155252	391156	0	0
C4	508025	12906085	8167558	8196396	129261	134541	697159	0	0
COAL	15781	3743228	9585	14115	9303	9	138232	0	
GAS	1895	1085501	222	4550	0	0	1705	0	0
PETROL	1031219	4531136	293645	765254	28677	9324	673676	0	0
Labour	34310321	33292466	24461809	38969523	830950	383573			
Capital	29878150	27090185	33397891	31081063	1787368	311009			
RHH1	0	0	0	0	0	0	0	38556099	8909593
RHH2	0	0	0	0	0	0	0	22966890	45955245
UHH1	0	0	0	0	0	0	0	61509848	16734549
UHH2	0	0	0	0	0	0	0	8661430	5406382
Private corporations									9557281
Public Enterprises									4626200
Government									3618000
Indirect taxes	-1306585	9471626	3514423	1145516	37219	1535728	2111355		
Capital A/C	0	0	0	0					25363700
Rest of the world	12756258	28730550	3326565	4213424	500866	8608702	2111355		
Total	93480335	231376699	100069843	106094471	4005030	11143813	20312455	130721519	120352089

C1= Primary Sector, C2= Industrial secondary sector, C3=Infrastructural services, C4 = Other service activities.
Source: Author's calculation.

Table-3: SAM of India for the year 2003-04.

Sectors	RHH1	RHH2	UHH1	UHH2	PVT. Corp.	Pub. Enterprises	Government	Indirect. Tax	Capital a/c	Rest of the world	Total
C1	9716069	14488790	10682460	2205372	0	0	241670	0	1803896	2978019	93480335
C2	12641795	15316343	13271477	585204	0	0	5157523	0	55622644	25376947	23137669
C3	5644772	5679316	6855314	1209437	0	0	1871435	0	3260561	10605075	10006984
C4	11734098	18534595	25392996	5250963	0	0	24837174	0	693607	4824222	10609447
COAL	18095	4684	17339	5281	0	0	5126	0	6740	15711	4005030
GAS	3906	3110	3742	1140	0	0	13784	0	1508	7551	129627
PETROL	654677	364959	1483422	233571	0	0	274112		-1484529	1398547	20312455
Labour	0	0	0	0						-312600	13072152
Capital	0	0	0	0						-1095200	12035208
RHH1	0	0	0	0	0	0	5207567	0	0	993035	53666294
RHH2	0	0	0	0	0	0	9824402	0	0	2157927	80904465
UHH 1	0	0	0	0	0	0	9113270		0	6175802	93533470
UHH2	0	0	0	0	0	0	1190924	0	0	2562618	17821354
Private Corporations									1216819		10774100
Enterprises											4626200
Government	224068	3506373	1500237	2906519	6099400			246164 65		-248200	40437165
Indirect taxes	1517569	2035126	13333662	440247			685090		5094808	-157127	24616465
Capital a/c	10308227	20323643	21205637	2945766	4674700	4626200	-16661127			-3426241	67692335
Rest of the World	0	0	0	0							49026796
Total	53666294	80904465	93533470	17821354	10774100	4626200	40437165	2461646 5	67692335	49026796	

Source: Author's calculation

APPENDICES
A. Mathematical structure of the model in GAMS programming language:
Production Block

eqPY(j)..   Y(j)   = e =   B(j) * prod(h, F(h, j) ** beta(h, j));

eqX(i, j)..   X(i, j)   = e =   ax(i, j) * Z(j);

eqY(j)..   Y(j)   = e =   ay(j) * Z(j);

eqF(h, j)..   F(h, j)   = e =   beta(h, j) * PY(j) * Y(j)/PF(h) ;

eqPY1(j)..   Y1(j)   = e =   B1(j) * prod(en, F1(en, j) ** beta1(en, j));

eqY1(j)..   Y1(j)   = e =   ay1(j) * Z(j);

eqF1(en, j)..   F1(en, j)   = e =   beta1(en, j) * PY1(j) * Y1(j)/pq(en);

eqpzs(j)..   PZ(j)   = e =   ay(j) * PY(j) + sum(i, ax(i, j) * PQ(i))$(not en(j))

$$+ \ ay1(j) * PY1(j) \ + \frac{FC(j)}{Z(j)} \ ;$$

Government behaviour:

eqGINC..   GINC   = e = sum(HH, Tdr(HH)) + Tdc + Tind + NCAT + ENT + TARR;

eqTDR(HH)..   TDR(HH)   = e = taud(HH) * HI(HH);

eqTDC..   TDC   = e = tcorp * (OPR + IND);

eqOPR..   OPR   = e = sop * (sum(h, PF(h) * FF(h)) + NF1 + NF2);

eqTIND..   TIND   = e = sum(i, tauz(i) * PZ(i) * Z(i));

eqGTRAN(HH)..GTRAN(HH)   = e = gt(HH) * GINC;

eqTS..   TS   = e = taus * sum(i, PE(i) * E(i));

eqTARR..   TARR   = e = sum(i, tm(i) * PM(i) * M(i));

eqGEXP..   GX   = e =   sum(i, XG0(i)) + sum(HH, GTRAN(HH)) + TS ;

eqSG..   SG   = e =   GINC - GX;

Household Income and Consumption:

eqHI(HH)..   HI(HH) = e = sum(h, PF(h) * FF(h) * R(HH, h)) + NCUT(HH) + GTRAN(HH);

eqXP(i, HH)..   XP(i, HH)   = e = alpha(i, HH) * (HI(HH) - SP(HH) - TDR(HH))/PQ(i);

Investment and Savings:

eqXv(i)..   XV(i)   = e = lamda(i) * (Dep + SV)/PQ(i);

eqSV..   SV   = e = sum(HH, SP(HH)) + SG + SC + epsilon * SF;

International trade:

eqPED(i)..   PED(i) = e = epsilon*pWe(i)*(1 + taus);

eqPMD(i)..   PMD(i) = e = epsilon*pWe(i)*(1 + tm(i));

eqepsilon..   sum(i, pWe(i)* E(i)) + SF + Sum(HH, NCUT(HH)) + NF1 + NF2 + NCAT + TS

                    = e = sum(i, pWm(i)* M(i));

Armington Function:

eqPQ(i)..   Q(i)   = e = gamma(i) * (deltam(i) * M(i) **eta(i)
                 + deltad(i) * D(i) **eta(i)) **(1/eta(i));

eqM(i)..   M(i)   = e = (gamma(i) **eta(i) * deltam(i) * PQ(i)
                 /(PM(i) * (1 + tm(i)))) **(1/(1 - eta(i))) * Q(i);

eqD(i)..   D(i)   = e = (gamma(i) **eta(i) * deltad(i) * PQ(i)
                 /PD(i)) **(1/(1 - eta(i))) * Q(i);

Transformation function:

eqpZ(i)..   Z(i)   = e = theta(i) * (xie(i) * E(i) **phi(i) + xid(i)
                 * D(i) **phi(i)) **(1/phi(i));

eqE(i)..   E(i)   = e = (theta(i) **phi(i) * xie(i) * (1 + tauz(i)) * PZ(i)
                 /(PE(i) * (1 + taus))) **(1/(1 - phi(i))) * Z(i);

eqD(i)..   D(i)   = e = (theta(i) **phi(i) * xid(i) * (1 + tauz(i)) * PZ(i)
                 /PD(i)) **(1/(1 - phi(i))) * Z(i);

Market Equilibrium:

eqPQD(i)..   Q(i)   = e = Sum(HH, XP(i, HH)) + XG(i) + XV(i) + sum(j, X(i, j));

eqPF(h)..   FF(h)   = e = sum(j, F(h, j));

Fictitious objective function:

$$\text{obj..} \quad \text{UU} \quad = e = \text{Sum}\left(\text{HH}, \text{XP}(\text{HH}).N^{1/\gamma - 1}\right)$$

List of endogenous variables:

Y (j) = Composite factor in jth sector.
X (i, j) = Intermediate input demand.
F (h, j) = Demand for hth factor.
F1 (en, j) = Demand for energy input.
PZ (j) = Supply price.
PQ (i) = Composite commodity price
PM (i) = Import price.
PE (i) = Export price.
PD (i) = Relative domestic price.
PF (h) = Basic factor price.
GINC= Total government income.
TDR (HH) = Direct tax.
TDC = Corporate tax.
TIND = Indirect tax.
GTRAN (HH) = Government transfer.
TS = Export subsidy.
TARR = Tariff revenue.
GX = Total government expenditure.
SG = Government savings.
HI (HH) = Household income.
XP (I, HH) = Household consumption.
XV (i) = Total investment.
SV = Total savings.
PED (i) = Domestic export price.
PMD (i) = Domestic import price.
Q (i) = Total availability of composite commodity.

M (i) = Import.
E (i) = Export.
FF (h) = Total factor supply.
List of important exogenous variable.
ax (i, j) = Unit requirement of intermediate input.
ay (j) = Unit requirement of composite factor.
ay1 (j) = Unit requirement of energy input.
FC (j) = Fixed cost.
taud = Direct tax rate.
tauz(i) = Indirect tax rate.
taus = Export subsidy rate.
tm (i) = Import tariff rate.
XG0 (i) = Sectoral government expenditure.
Dep = Depreciation.
epsilon = Exchange rate.
SF = Foreign savings.
PWe = World price of export

phi (i) = Transformation function parameter.
NCUT (HH) = Current transfer to household.
eta (i) = Armington function parameter.

Table-4: B. Simulation Experiments Results.

ECONOMIC VARIABLES	BASE RUN	EXP-1	EXP-2	EXP-3	EXP-4	EXP-5
Macro Indicators	(In Rs. lakhs)	(in %form)	(in%form)	(in%form)	(in %form)	(in%form)
GDP	4.75E+08	0.428	1.009	.047	2.594	.367
Gross Investment	67692335	1.35	1.282	2.4	4.52	0.893
Private consumption	462304387	-0.327	0.018	-0.49	2.147	-0.123
Welfare	2.384991E+7	-0.429	2.891	-0.4	.304	-0.23
External accounts						
Export	45206080	4.68	9.99	-0.908	2.503	0.813
Import	4.97E+07	5.16	10.98	0.393	2.73	0.893
Exchange Rate	1	-0.129	.813	-1.49	-3.19	-0.893
Govt. Account						
Govt. Income	40437165	-14.55	-33.379	-0.273	-0.134	0.246
Govt. Expenditure	23776038	-6.91	0.0	-0.358	-1.577	-5.472
Govt. Savings	-16661127	0.363	1.726	-0.44	-2.97	-11.024
Household Consumption						
RHH1	40413419	0.916	.833	0.652	3.01	0.275
RHH2	5.44E+07	0.313	-0.248	0.475	2.86	0.172
UHH1	3.58E+08	-1.06	-0.133	-1.375	1.494	-0.421
UHH2	9490968	0.28	0.044	0.332	2.76	0.109
Sectoral output						
Primary Sectors	7.846715 E+7	-1.71	-4.094	0.047	2.752	0.719
Industrial Manufacturing	1.914785 E+8	0.959	2.706	-0.104	2.581	1.046
Infrastructural services	9.858651 E+7	1.2	2.274	0.373	2.92	0.613
Other Services	8.471178 E+7	-0.514	-0.979	-0.30	1.82	-2.153
Coal	3298805.2	-4.027	-7.798	2.07	4.26	1.309
Gas & Distributions	1272807.1	-0.999	-7.548	-0.016	1.31	0.517
Petroleum products	1.674169 E+7	3.498	4.663	0.087	1.343	.87

Table 4 Continued

Composite Prices						
Primary Sectors	1	-1.95	-3.590	-0.284	-2.62	-0.07
Industrial Manufacturing	1	-2.4	-4.269	-0.74	-2.96	-0.226
Infrastructural services	1	-2.6	-3.444	-1.557	-3.6	-0.593
Other Services	1	-0.458	-0.811	-0.066	-2.4	0.078
Coal	1	-4.63	-4.756	-6.267	-7.01	-2.317
Gas & Distributions	1	-0.39	-4.746	-1.47	-3.18	-0.179
Petroleum products	1	-8.53	-7.878	-1.489	-3.18	0.824
Sectoral Export						
Primary Sectors	2978019	-0.895	-1.458	-2.521	1.46	0.486
Industrial Manufacturing	25376947	5.00	4.945	-1.385	2.17	1.121
Infrastructural services	10605075	5.74	5.275	0.498	3.72	1.374
Other Services	4824222	-0.26	-0.582	-3.0	0.39	-2.639
Coal	15711	-1.1102E-14	-1.1102E-14	12.2	12.59	5.590
Gas & Distributions	7551	-1.23	-1.1102E-14	-1.11E-14	-1.11E-14	-1.11E-14
Petroleum products	1398547	21.87	26.581	-1.11E-14	-1.11E-14	-1.11E-14
Sectoral Import						
Primary Sectors	12756258	24.46	57.061	2.94	4.18	0.976
Industrial Manufacturing	28730550	-1.11E-14	-1.1102E-14	-1.11E-14	-1.11E-14	-1.11E-14
Infrastructural services	3326565	5.248	12.799	0.215	1.91	-0.336
Other Services	413424	5.74	16.537	2.975	3.531	-1.575
Coal	500866	1.088	2.864	-9.021	-5	-3.622
Gas & Distributions	8608702	8.933	3.432	-0.032	2.64	1.037
Petroleum products	2111355	-6.778	0.170	0.174	2.7	2.686
Greenhouse gas emission	3.01E+7 (In Kg lakhs)	0.976	2.407	0.369	2.88	.713

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AN ENQUIRY INTO THE NATURE AND FEATURE OF AGRICULTURAL SUSTAINABILITY: AN ANALYSIS OF IMPACT OF WTO ON CROP DIVERSIFICATION IN SIKKIM

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Abstract

India is a major agrarian economy. Her agricultural problems have been intensified by two economic development initiatives, namely the liberalization of economic policy as a part of the economic reforms programme initiated in July, 1991 and India's commitment to keep pace with the new international trade regime following Uruguay Round agreement and formation of WTO. The WTO regime has fundamentally changed the global agricultural trade scenario. The issue of significance is the strategy of crop diversification that has definite links to sustainability of agriculture through optimum utilization of scarce agricultural input resources and may be expected to play some key role both in keeping up the environmental status and in earning comprehensive remuneration for those who are engaged in primary occupation. In this article we focus on Cardamom (cultivated in Sikkim) that is native to India and has the intrinsic property of economic viability and ecological sustainability. We have examined the impact of WTO on cardamom cultivation in various cardamom producing states in India and the effect of WTO on cropping pattern and the resultant eco-sustainability of agriculture in Sikkim. With the help of spline function approach it has been found that in Sikkim, in the pre-WTO period growth rate of share in production was as high as 5.47% per annum but it significantly fell to mere 1.97% per year in the later phase. In the rest of the cardamom producing states the share in production is itself falling. In case of growth rate of share in India's total area under cardamom production, the trend over the two phases are similar in the sense that it is nowhere increasing in the WTO phase. In Sikkim and West Bengal, however, the figures of growth rates of relative productivity are greater than the national figure in the pre-WTO phase but lower in the WTO phase. Issues in the north-east region of India recently get adequate attention from the Government and the policy makers simply because the region is relatively backward although with great potential in various aspects. Sikkim is a part of that region and has high potential in agro-forestry that is to be realized with the help of appropriate policies and their implementations.

Keywords: Global agricultural trade, diversification, sustainability, cropping pattern, WTO, agro-forestry

INTRODUCTION

India is a major agrarian economy. Though the share of agriculture in GDP is declining monotonically since 1950-51 when it was 52% until very recently to 18.5% in 2006-07, it does not mean India is shifting from agriculture to industry at a wholesome rate. The Indian farmers do take the cultivation not as their profession but as their life. This belief is, however, one of the causes behind India's unorganized practices in farming and there lies the seed of lack of sustainability.

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Haphazard inception of mechanization and usage of chemical inputs to farm, lack of training in scientific farming have not only led to disastrous ecological degradation and pollution but also have caused serious exhaustion of natural resource-base along with damage in its resilience power.

However, 'indiscriminate' use of chemicals and machines in farming and the threatening consequences of these are not only India's problems; it is an international concern. In the last three decades, economic policymakers have been equally worried about ecological sustenance and the concept themes of 'sustainable agriculture' have gradually thrived. The steps that are now to be taken to attain 'sustainability' in agriculture are no doubt time-taking. But, there is no other way than adopting sustainability measures and making our farmers conscious about the norms of sustainable agriculture. Otherwise, it would mean breaking down of both ecological and economic systems and will definitely raise the question of sustenance of human beings on the planet within a foreseeable future.

India's agricultural problems have been further intensified by two economic development initiatives in the nineties—the first is liberalization of economic policy as a part of the economic reforms programme initiated in July, 1991 and the second is India's commitment to keep pace with the new international trade regime following Uruguay Round agreement and formation of WTO. The WTO regime has fundamentally changed the global agricultural trade scenario. The fact that economic reforms did not include any specific package for agriculture on the presumption that the liberalized agricultural market and competitive trade in agricultural sector would provide price incentives, and also increase gross capital formation in agriculture, has actually been proved not to be right and resulted in reduced growth rate in this sector, decline in per capita foodgrain production and also in inadequate employment generation.

With reference to such problems the strategy of crop diversification that has definite links to sustainability of agriculture through optimum utilization of scarce agricultural input resources may be expected to play some key role both in keeping up the environmental status and in earning comprehensive remuneration for those who are engaged in primary occupation. In this article we focus on a crop, namely, Cardamom, a plant that is native to India and has the intrinsic property of economic viability and ecological sustainability. In India Sikkim which is at the centre of our discussion holds important position amongst the states of Kerala, Karnataka, Sikkim, Tamil Nadu and West Bengal.

A BRIEF ECONOMIC AND ECOLOGICAL PROFILE OF SIKKIM

Two-thirds of Sikkim is covered by high altitude Himalayan peaks with little plain and lowland, and extreme variation in relief juxtaposition with poor infrastructural facilities. Rainfall is entirely controlled by south-west Monsoon and regionally varies from 50 inches to 200 inches. Climate of Sikkim is sufficiently conducive to growing high-grade species of cardamom, though conventionally large cardamom (*Amomum subulatum*) is grown. Sikkim's natural vegetation covers the subtropical forests (below 5000ft), the temperate forests (within 5000 to 13000ft), and Alpine forests (at higher elevations). Sikkim can boast of its rich biodiversity that encloses hundreds of species of flora and fauna.

Sikkim is mainly a traditionally agrarian economy and at a very young stage of industrialization. The new agricultural strategy adopted in India since mid-sixties could not be implemented in Sikkim due to inadequate and irregular supply of fertilizers to this region and lack of irrigational base. Local agricultural labourers put enormous efforts to turn Himalayan mountain slopes into terrace for cultivation and only about 15% of total land occupied by the state can be used for the purpose of agriculture.

Table 1 : Decadal Population and Annual Growth of Population over the Period 1951 – 2001.

Year	1951	1961	1971	1981	1991	2001	Annual Growth Rate (%)
Total	137725	162189	209843	316385	406457	540851	2.85
Urban	2744	6848	19668	54084	37006	59870	6.13
Rural	134981	155341	190175	264301	369473	480981	2.65

Source: District Census Handbook 1971, 1981, 1991; Primary Census Abstract 2001, GOI.

One of the major sources of increase in population is immigration. The population is diverse in ethnicity. The ownership of cultivable land as well as cardamom production has historically been under the control of Bhutia *kazis,* the aristocrats and the landlords. Recently Nepali immigrants have leased land from *kazis* and gradually acquired land from Bhutias and Lepchas. This resulted in scarcity in arable land as well as in unequal distribution of land among farming communities. Further, rapid growth of family size has caused land fragmentation and encouraged cultivation of those crops that grow on marginal land. Poor rural people in Sikkim are now forced to settle on the steeper forested slopes of the mountains at greater height, and continue agriculture there. All these have extended the cultivation of cash crops such as cardamom, ginger, mandarin oranges etc. and it has caused a shift in the agricultural pattern from foodgrains based subsistence farming to cash crop based commercial farming. In this way the production of cardamom in Sikkim has been encouraged.

Concept of Sustainability in Agriculture and its Significance

The essence of sustainable development lies in the idea that it allows the present generation to maximize consumption without compromising the level of consumption of the next generation (Brundtland Commission Report, 1987). Sustainability in agriculture follows the same norms with some specificity to agriculture as have been mentioned below (Stewart and Robinson, 1997). Sustainability in agriculture integrates three goals.

(i)   Economic viability which takes into account increasing profitability from agriculture.
(ii) Ecological stewardship that ensures optimum state of surrounding natural resources.
(iii) Prosperity of farming communities that includes the idea of equitable distribution of profits from farming etc.

Agriculture, the most fundamental livelihood and occupational source, obviously causes depletion of natural resources, destroys the quality of soil through reduction of fertility of soil and the quantity of soil through tilling, ploughing, water drainage and irrigation and also leads to severe soil and water pollution from using chemical pesticides and

fertilizers. Sustainable agricultural practices that include intensive cultivation, crop rotation, multi-cropping, scientific soil amendment, traditional agro-forestry and many others have to be introduced. All these methods, if follow, definite scientific ways of cultivation ensures basic nutrition for the economy, provides durable employment and sufficient income to farming communities, and maintains the regenerative capacity of renewable resources (FAO, 1995). Traditional techniques of crop cultivation like monoculture result in overexploitation of some scarce resources such as land and water and it jeopardizes surrounding biodiversity, soil nutrients making agriculture vulnerable to the variety of diseases and pests. Mechanized agriculture biased to overuse of chemicals and machines, synthetic and toxic pesticides ultimately cause severe harm to soil and water quality, livestock and insect pollinators and finally to human society. Environmental concerns are mainly neglected in agriculture and economic viability gets hurt from this in turn.

All these sustainable techniques take care of both the ecological and the economic aspects. From this point of view, in any mountainous region, traditional agroforestry is a system that integrates forests to agriculture and plays a key role in safeguarding ecological balance and biodiversity and protecting the economic interests of the local inhabitants. The main benefit of this practice is that it strengthens the economy-ecology chain and multiplies the positive effects that can be attained. A very good example is the agricultural practices by local people of Hindukush-Himalayan regional mountain belt. As we focus on a hilly state of our country that is situated on this agro-climatic belt, it is our concern that Sikkim is itself a very strong instance of traditional agro-forestry. Agro-forestry here creates proper environment for living of human beings, of wild animals, of natural vegetation; thus takes care of ecological balance. The cost of soil fertility conservation and soil nutrition can be reduced as natural forest is the best nutrition provider.

Again, the cultivation of large cardamom can be efficiently done through the method of agro-forestry. Its cultivation is an example of how a local mountain niche can be exploited in a sustainable manner. The eastern Himalayas is a unique place for its cultivation. Cardamoms are better grown in loamy soil enriched with organic matter, on marginal land and under shade trees. The cardamom plant is a long-living perennial tropical plant belonging to ginger family *zingiberacae* and yields come after 2-3 years after planting the rootstock or seedlings whatever the case may be. Moderate shade of big trees plays a key role in adding to quality of the crop. Cardamom is widely cultivated under the nitrogen-fixing Himalayan alder (*Alnus nepalensis*), a practice that causes quick nutrient-cycling and enriches the soil with fertility. The cardamom plant is considered matured enough to be harvested when the cardamom seeds turn black or brown though the tree is still green. Cardamom is known as the 'Queen of Spice' for its flavour and it has some unique medicinal properties.

The crop has some mountain-specific characteristics such as the cardamom seeds are a high-value low-volume crop easing its transportation, it is non-perishable, and it can be grown on marginal land. Besides, it has the great natural boon that the plants are less exhaustive in terms of soil nutrient absorption and this quality makes the crop suitable for sustainable cultivation. Not only that, soil in the hill area is intrinsically fragile that increases the incidences such as landslides, avalanche etc and makes the life of human

beings as well as of wild life vulnerable, causes irreversible damage to economic standard of livelihood of human beings and such unfavourable wrath of nature can at least be contained to some degree through cultivation of cardamom while other commercial mountain crops such as ginger, mandarin oranges, potato all add to fragility level of the soil and call for increased incidences of landslides etc. Again, the crop can be cultivated under big trees more successfully; thus both the trees and the crop can sustain together. Actually, the tree diversity index that is another indicator of sustainability that is higher for cardamom agro-forestry. Existence of a good many number of trees enhances biodiversity of surrounding areas. In this way cardamom cultivation becomes a good example of agroforestry that is by nature self-sufficient and requires least amount of external inputs.

REVIEW OF LITERATURE
There are a number of studies on cultivation of cardamom in Sikkim. However, some selected articles have been mentioned here. Eklabya Sharma, Rita Sharma, K.K. Singh and G. Sharma (2000) have jointly written an article 'A Boon for Mountain Population: Large Cardamom Farming in the Sikkim Himalaya' that illuminates some crucial issues on cardamom production and conducive environment of the state that encourages its production. The article has cited land fragmentation to be one of the causes for which the farmers adopt cardamom farming. Another article by the same authors, Rita Sharma, Eklabya Sharma and A.N.Purohit (1996), 'Cardamom, mandarin and nitrogen-fixing trees in agro-forestry systems in India's Himalayan Region' focuses on the nitrogen cycling of cardamom-alder agro-forestry and how it benefits each other and maintains sustainability. The article 'IT potential in agriculture - A GIS implementation in evaluating cardamom potential in Sikkim Himalayas' by Saurabh Gupta, Syed Taha Owais is highly technical in searching out appropriate conditions for cardamom production with the help of GIS technique. An article 'The Structural Change of Sikkim and other North-Eastern states: A Brief Review' that has been written by K.K. Bagchi and S. Chakrabarti (2008) discusses recent changes in the north-eastern states with a special emphasis on Sikkim.

RESEARCH METHODS
Objectives
Our objectives in this paper are as follows.

- To examine the impact of WTO on cardamom cultivation in various cardamom producing states in India.
- To look into the effect of WTO on the area and yield rate under the production of major crops in Sikkim.
- To study the effect of WTO on the matter of crop diversification – crop addition or crop substitution or stated alternatively the change in cropping pattern and the resultant eco-sustainability of agriculture in Sikkim.

Economic Model and Methodology and Data
In order to consider the effect of WTO on the economy and ecology of Sikkim relating to the cultivation of Sikkim, we consider Chow Test for locating the year of structural break for the regression analysis. Once a particular year is accepted as a significant point of

structural shift, we shall centre on that year to examine the effect of WTO with the help of spline function.

Spline Function Approach
Following Poirier's (1974) spline function approach, the trend in the growth of several variables of interest is looked into for different regimes. Assuming a linear time trend, the postulated model is

$$\text{Regime 1:} \qquad \ln Y_t = \alpha_1 + \beta_1 t + u_t \qquad \text{for } t \leq t_1$$
$$\text{Regime 2:} \qquad \ln Y_t = \alpha_2 + \beta_2 t + u_t \qquad \text{for } t_1 < t \leq t_{end} \tag{1}$$

where the choice of t_1 as the time point of structural shift will be confirmed by the test of stability based on Chow (1960) Test and reparameterise the function as

$$\ln Y_t = \alpha_1 + \acute{c}_1 \operatorname{Re} gime_{1t} + \acute{c}_2 \operatorname{Re} gime_{2t} + u_t \tag{2}$$

where, $\operatorname{Regime}_{1t} = t; \quad \operatorname{Regime}_{2t} = \begin{cases} 0 & \text{if} & t \leq t_1 \\ t - t_1 & & t_1 < t \end{cases}$

The expression $\left[\exp(\beta_i) - 1\right] * 100$ will yield the percentage growth rate for the *i*-th regime ($i = 1, 2$; that is, $1981 - 1995, 1996 - 2005$), where

$\beta_1 = \acute{c}_1$ and $\beta_2 = \acute{c}_1 + \acute{c}_2$. For the entire regime (1981 - 2005) from the equation

$$\ln Y_t = \alpha + \beta t + u_t \tag{3}$$

the growth rate will be computed as $\dfrac{d\ln Y_t}{dt} = \beta$

In the framework of spline function a number of hypotheses we shall test as follows.
Hypothesis 1: WTO is likely to increase state's share of area in India's total area under the production of Cardamom and state's share of production in India's total production of Cardamom.

We shall consider the effect of WTO on state's share of area in India's total area under the production of Cardamom and state's share of production in India's total production of Cardamom.
Hypothesis 2: In Sikkim WTO is likely to increase the area (yield rate) under (in) the production of Cardamom and reducing the area (yield rate) under (in) the production of other crops.

Let A_i be the area under the production of $i^{th} (i = 1, 2, 3, \ldots, n)$ crop and $A = \displaystyle\sum_{i=1}^{n} A_i$

be the total area in India under the cultivation of crops in Sikkim. In terms of the spline function we like to examine whether WTO has affected the relative area and relative yield rate. Then, by definition, we can write that

$$A = \sum_{i=1}^{n} A_i \tag{4}$$

$$\Rightarrow \quad A_1 = A - \sum_{i=2}^{n} A_i = f(A_2, A_3, \ldots, A_n) \tag{4a}$$

$$\Rightarrow \quad A_1 = -\sum_{i=2}^{n} \frac{dA_i}{dA_i} A_1 = -\sum_{i=2}^{n} A_i \frac{dA_i}{dA_i} \frac{A_1}{A_i} = -\sum_{i=2}^{n} A_i \eta_{i1} \tag{4b}$$

where η_{1i} is the share of land under 1st crop occupied by the ith crop. Since, $A_i \geq 0$, the equation (6.4b) is valid only if $\eta_{1i} \leq 0$ or $\eta_{i1} \leq 0$ for all i. Now, if $\eta_{1i} \leq 0 \Rightarrow \frac{dA_1}{dA_i} \frac{A_i}{A_1} \leq 0 \Rightarrow \frac{dA_1}{dA_i} \leq 0$, this implies that when the area under i^{th} crop increases, the area under 1st crop declines (remains constant). Here there are four possibilities. First, the 1st crop substitutes the ith crop. Second, the 1st crop substitutes the area under cultivation of crops other than i^{th} crop. Third, the 1st crop may occupy the land that was left fallow. Fourth, if the existing physical land for cultivation is already exhausted, the increase in area under the 1st crop may be made available through deforestation. The first and second possibilities indicate the crop substitution and the third and fourth the crop addition. For testing crop-substitution we need to test the negativity of η_{i1}. But we need another condition for crop-substitution.

Putting (4a) in (4b), we get

$$A = \sum_{i=2}^{n} \left(1 - \frac{1}{\eta_{1i}} \right) A_i \tag{5}$$

Since $A > 0$ and $A_i \geq 0$ and also $\eta_{i1} \leq 0$, the equation (5) is valid if the absolute value of η_{i1} is less than one. This implies that $\left(1 - \frac{1}{\eta_{i1}} \right) \geq 0 \Rightarrow \left| \frac{dA_i}{A_i} \right| \leq \left| \frac{dA_1}{A_1} \right|, \Rightarrow \left| \frac{1}{\eta_{i1}} \right| \leq 1$

$\Rightarrow \eta_{i1} \geq 1 \Rightarrow \left| \frac{dA_1}{dA_i} \frac{A_i}{A_1} \right| \geq 1$ which is the condition for substitution between the 1st crop and the ith crop. If $\eta_{1i} = -1$, it is the situation of perfect crop substitution. If $\eta_{i1} > 1$, it is the situation of partial crop substitution. The two conditions combined together yields that $-1 \leq \eta_{i1} \leq 0$ for crop substitution. We may test the null hypothesis that

$H_0 : \eta_{i1} = 0$ against the alternative hypothesis that $H_1 : \eta_{i1} < 0.$ It should be noted that

for crop substitution since $\eta_{1i} = 0$ this implies that $\sum_{i=2}^{n} \eta_{1i} = 0.$ We can write also that

$$\sum_{i=2}^{n} \left(\frac{dA_1}{dA_i} \frac{A_i}{A_1} \right) = 0 \Rightarrow \frac{dA_1}{dA_2} \frac{A_2}{A_1} + \frac{dA_1}{dA_3} \frac{A_3}{A_1} + \cdots + \frac{dA_1}{dA_n} \frac{A_n}{A_1} = 0 \qquad (6)$$

This implies that in (4a) A_1 is a homogeneous function of degree zero. Thus, this function being the homogeneous of degree zero indicates the fact of crop substitution.

Hypothesis 3: In Sikkim WTO is likely to diversify crops favourably for (adversely against) the Production of Cardamom (other crops).
In order to examine the effect of WTO on crop diversification we shall estimate log-linear equation as specified below.

$$\ln ARCDM = const + \beta_Y \ln Y + \beta_P \ln P + \beta_G \ln G$$
$$+ \beta_{TP} \ln TP + \beta_{TEA} \ln TEA + \beta_{RG} \ln RG + \beta_{PD} PD + U$$
$$(7)$$

where
$ARCDM = $ Area under the cultivation of Cardamom measured in `000 hectares
$Y = $ Yield rate of Cardamom per hectares in `000 tonnes
$P = $ Price per kg of Cardamom in terms of $
$G = $ Area under the cultivation of Ginger measured in `000 hectares
$TP = $ Area under the cultivation of Tapoica measured in `000 hectares
$TEA = $ Area under the cultivation of Tea measured in `000 hectares
$RG = $ Area under the cultivation of Ragi measured in `000 hectares
$PD = $ Policy Dummy Variable which takes the value 0 if the period refers to Pre-WTO period and 1 if the period refers to Post-WTO period

We shall test a set of hypotheses.
➢ The area under the cultivation of cardamom is linear homogeneous in price and yield rate.
➢ The area under the cultivation of cardamom is homogeneous function of degree zero areas under other crops.
➢ The WTO is expected to work in favour of economic and ecological sustainability.
The hypotheses to be tested are:
Hypothesis 1: $\beta_Y + \beta_P = 1$ in (7) for constant returns to scale in price and yield rate of cardamom and Hypothesis 2: $\beta_G + \beta_{TP} + \beta_{TEA} + \beta_{RG} = 0$ for crop substitution.

The hypothesis-1 and 2 will be tested by using *t-statistic* as $\dfrac{\beta_Y + \beta_P - 1}{S.E.(\beta_Y + \beta_P)} \square\ t_{n-k}$ and

$$\frac{\beta_G + \beta_{TP} + \beta_{TEA} + \beta_{RG} = 0}{S.E.(\beta_G + \beta_{TP} + \beta_{TEA} + \beta_{RG})} \square\ t_{n-k}.$$

Data Collection
The study is based on secondary data, collected from the publications of various government organizations like Planning Commission, Government of India, Economic Survey, Department of Economics and Statistics, Department of Agriculture and Co-operation, The Handbook of Statistics on Indian Economy and independent agencies like Centre for Monitoring Indian Economy (CMIE). Different issues of Agricultural Statistics at a Glance (Ministry of Agriculture, Government of India), different issues of International Financial Statistics Year Book (IMF) and different issues of Food and Agricultural Organizations of the United Nations Trade and Commerce Year Book. These data provide a broad outlook about the overall agricultural trade during the period of pre and post WTO period and also composition and trends of agricultural trade during these periods. The period is classified as the pre WTO period and post WTO period, more specifically agricultural trade.

EMPIRICAL ESTIMATES AND ANALYSIS
Chow Test in Table 2 has confirmed 1995 as a year of significant change in the production of cardamom. In Figure1, we see that as far as share of area is concerned, Sikkim is one of those two states that have experienced increased share of land for cultivating cardamom in the WTO era compared to its share of area for cardamom production before this era. Another state that has increased its share in land for production of cardamom is Kerala. In Kerala, area for cardamom has marginally increased from year to year. Thus, it had 37.7 thousand hectare area for cardamom production in 1981, that has crept up slowly in the subsequent years and in 2006 Kerala has 42.9 thousand hectare of land for this purpose. Whereas in Sikkim the quantum of land for cardamom was only 7.6 thousand hectare in 1981, though land for this purpose has been increasing at a far more rapid rate in the subsequent years. In the year 1995, the figure stood to be almost 18 thousand hectare. Within 10 years it has nearly doubled to 34.26 thousand hectare. It is obvious that compared to Kerala, in Sikkim, though addition of fresh land has taken place at a higher rate, production has not grown at that rate.

Table 2: Chow Breakpoint Test at 1995 for Production of Cardamom

Parameters	Kerala	Karnataka	Sikkim	Tamil Nadu	West Bengal	India
F-Statistic*	4.676	4.708	6.001	3.196	39.748	3.892
Log-Likelihood Ratio*	9.210	9.263	7.999	6.631	39.753	7.877

*All values are statistically significant at 5% level.

In terms of share in total production of cardamom, Sikkim's position has improved in the year 1995. In the WTO era Sikkim (within the period 1995-2006) produces 29% of total indigenous production in place of only 20% before 1995, while Karnataka, Tamil Nadu

and West Bengal are losing their past positions as they now produce only 14%, 5% and 5% of total production though they shared as high as 25%, 15% and 10% of entire production during the period 1981-1995. Share of Kerala in total cardamom production has increased from 31% to 47% within this period.

Almost 75% farmers of north Sikkim have replaced the food grain agriculture on their farmlands with cardamom and alder tree plantations during the period of WTO era. Cardamom-alder forestry plantation provided permanent green cover to thousands of hectares i.e. 23% of farmland. The contribution of cardamom farming to livelihoods ranges between 40-88%. Cardamom production has been ecologically adapted to farming on sloping lands and forestry system and the plants maintain permanent green cover on forest floor. Its production has been domesticated by farmers in Sikkim. Globally almost 90% of cardamom is produced in Sikkim and its neighbouring valleys of Nepal and Bhutan alone. Sikkim is the real niche of cardamom and enjoys comparative advantage in marketing. All these factors provided the intuitive reasons behind the increase in Sikkim's share in cardamom production from 20% before 1995 to 29% in the WTO era (period 1995-2006).

In Table-3, the growth rates of share in India's total production as well as growth rates of share in India's total area under cardamom production of every cardamom producing state of India have been calculated for both the pre-WTO period and the WTO period. The results show that in both the phases the growth rates in share of production are falling. In Kerala, in pre-WTO period, share of production grew at a rate 5.95% per year. But in the WTO period it has fallen to 2.35% per year. In Karnataka, the share of production grew at a negative rate, i.e., -3.24% per year. It means that the state's share in

production started falling in the pre-WTO period while in the WTO period its share in production is falling by larger margins that are statistically significant and the growth rate falls to -4.99% per year. Similar trends have been revealed by Tamil Nadu and West Bengal.

Figure-1. State's Share in the Inda's Total Area and Production of Cardamom
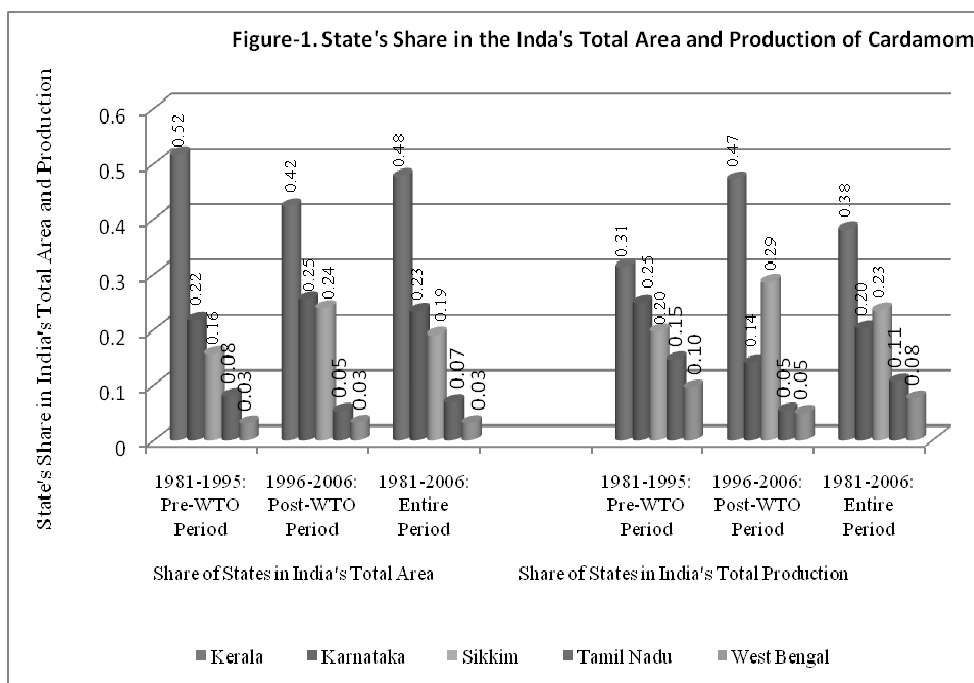
Data Source: Different Issues of Economic Survey, Government of India; Economic Reviews, Government of West Bengal.

In Sikkim, in the pre-WTO period growth rate of share in production was as high as 5.47% per annum but it significantly fell to mere 1.97% per year in the later phase. In the rest of the cardamom producing states the share in production is itself falling.

In case of growth rate of share in India's total area under cardamom production, the trend over the two phases are similar in the sense that it is nowhere increasing in the WTO phase. In Kerala, it fell at a rate of -1.33% per annum in the pre-WTO period, but in the later phase, it falls further at   -1.66% per annum. Tamil Nadu, too, experiences negative growth rate in both the phases where the growth rate falls further in the WTO period. In Karnataka, Sikkim and West Bengal, the growth rates in area under cardamom production as a proportion of India's total area for the same purpose are positive in both the periods. However, in the WTO period, the absolute growth figures are lower compared to that in the pre-WTO period. The difference between growth figures of share of production and that of share of area lies in the result that in case of share in production, the growth rates are significant in the WTO period but in case of share in area they are not statistically significant, only the directions of those figures are statistically relevant.

Table 3: Impact of WTO on Area and Production of Cardamom in Different States of India

	Coefficients for Regime			Diagnostic Tools		Growth Rate of Regime (%)		
	Constant	1	2	R^2 ($\overline{R}^2$)	D.W. Statistic (d)	1	2	Entire Period
Dependent Variable: State's Share of Production in India's Total Production of Cardamom								
Kerala	-1.623	0.058	-0.035	0.96	2.133	5.95	2.35	3.55
	(-42.684)*	(12.118)*	(-4.968)*	0.95				
Karnataka	-1.124	-0.033	-0.018	0.95	2.740	-3.24	-4.99	-4.47
	(-23.432)*	(-5.483)*	(-2.079)**	0.95				
Sikkim	-2.050	0.053	-0.034	0.80	2.449	5.47	1.97	3.16
	(-26.075)*	(5.406)*	(-2.346)*	0.78				
Tamil Nadu	-1.390	-0.071	-0.011	0.96	1.767	-6.88	-7.93	-7.86
	(-17.940)*	(-7.342)*	(-0.800)	0.96				
West Bengal	-2.025	-0.041	-0.017	0.97	1.744	-4.01	-5.61	-5.17
	(-47.794)*	(-7.706)*	(-2.168)**	0.97				
Dependent Variable: State's Share of Area in India's Total Area under the Production of Cardamom								
Kerala	-0.551	-0.013	-0.003	0.97	1.715	-1.33	-1.66	-1.56
	(-43.442)*	(-8.446)*	(-1.447)	0.97				
Karnataka	-1.671	0.019	-0.009	0.81	1.666	1.89	0.96	1.28
	(-54.755)*	(4.884)*	(-1.636)	0.79				
Sikkim	-2.215	0.043	-0.014	0.92	1.595	4.43	3.02	3.46
	(-45.504)*	(7.096)*	(-1.522)	0.92				
Tamil Nadu	-2.271	-0.033	0.000	0.98	2.437	-3.20	-3.19	-3.25
	(-98.522)*	(-11.260)*	(0.020)	0.98				
West Bengal	-3.572	0.008	-0.007	0.72	2.678	0.83	0.10	0.36
	(-299.47)*	(5.547)*	(-3.328)*	0.70				

The Figures in the parentheses are estimated *t* values. * Significant at 1% level. ** Significant at 5% level.

The result in summary is that, Kerala is the only state where the growth of relative productivity is higher than the national growth of relative productivity in both the phases. In sharp contrast to this result, Karnataka and Tamil Nadu show these growth rates to be lower than the national figures in both the phases.

In Sikkim and West Bengal, however, the figures of growth rates of relative productivity are greater than the national figure in the pre-WTO phase but lower in the WTO phase. This implies that their performances have significantly deteriorated in the WTO era. This also indicates the possibility for these two states of having some unfavourable impacts of WTO in the field of cardamom production.

Table:4 contains the results of eight estimated spline functions. It shows in specific that the growth rate of area under cardamom relative to area under ragi in Sikkim in the pre-WTO period was as high as 6.35% though in the WTO period it reduces to only 3.22%. Similarly in case of tea and tapioca growth rates have come down in the WTO period. The growth rate of area under cardamom relative to that under tea was 12.3% in pre-WTO period but 8.75% in the WTO period.

Table 4: Impact of WTO on Relative Area and Relative Yield Rate of Cardamom in Sikkim

	Coefficients for Regime			Diagnostic Tools		Growth Rate for Regime (%)		
	Constant	1	2	R^2 ($\overline{R}^2$)	D.W. Statistic (*d*)	1	2	Entire Period
Dependent Variable: Sikkim's Area under Production of Cardamom Relative to Area Under								
Ragi	0.569	0.062	-0.030	0.81	1.903	6.35	3.22	4.77
	(7.785) *	(8.519) *	(-2.962) *	0.79				
Tea	2.189	0.116	-0.032	0.76	1.793	12.30	8.75	12.77
	(29.943) *	(3.731) *	(-2.061) *	0.74				
Tapioca	3.152	0.048	-0.034	0.63	1.756	4.88	1.40	3.37
	(43.105) *	(6.583) *	(-2.258) *	0.60				
Ginger	2.460	-0.066	-0.021	0.71	1.903	-6.36	-8.27	-7.45
	(33.651) *	(-2.846) *	(-2.159) *	0.68				
Dependent Variable: Sikkim's Yield Rate of Cardamom Relative to the Yield Rate of								
Ragi	-1.462	0.083	-0.008	0.84	1.785	8.67	7.82	6.87
	(-6.571)*	(3.508)*	(1.450)	0.82				
Tea	1.162	-0.058	0.021	0.68	1.704	-5.63	-3.64	-4.81
	(3.321)*	(-2.667)*	(2.545)*	0.65				
Tapioca	0.640	0.043	0.009	0.58	2.640	4.34	5.31	4.62
	(3.120)*	(2.219)*	(1.432)	0.54				
Ginger	4.149	-0.092	0.088	0.78	1.773	-8.79	-0.38	-4.23
	(6.498)*	(-9.667)*	(1.973)**	0.76				

The Figures in the parentheses are estimated *t* values.
* Significant at 1% level. ** Significant at 5% level.

The growth rate of area under cardamom relative to the area under tapioca was 4.88% in the pre-WTO period whereas it fell to only 1.4% after the WTO regime started. Thus

for these three crops the relative growth of land under cardamom has been positive. But in case of ginger that is another major crop item being produced in Sikkim this figure is negative in both the phases. In the pre-WTO period this growth rate was –6.36% that fell further in the WTO period to –8.27% implying that the rate of growth of area under ginger production exceeds the growth rate of area under cardamom by larger margins.

In the lower panel of Table 4 another set of results for four estimated spline functions is presented. The rates of growth of yield rate of cardamom relative to the yield rate of ragi as well as that relative to the yield rate of tapioca have been positive in both the phases though in the later phase the growth rates of yield rate of cardamom in comparison to both ragi and tapioca fall. This means that the growth rate of yield for cardamom was higher than the growth rates of ragi and tapioca in both the phases; however, the growth rate of yield for cardamom exceeds the growth rates of yield of ragi and tapioca by higher edges in the WTO phase. In contrast to this trend, the growth rates of yield of cardamom relative to that of tea and ginger have been negative for both the phases while in the later phase its value has become lower comparative to that in the former phase. The implication is that the yield rate of cardamom has fallen short of the yield rates of tea and ginger. Thus in the WTO era the relative yield rate of cardamom has improved with respect to ragi and tapioca, but in comparison to tea and ginger its relative yield has fallen.

Figure 2 reveals the cardamom's price scenario for the entire period. The overall growth rate of price of cardamom is calculated and it is –0.07% per year. Thus it is obvious that price has fallen at an average rate of 7% per annum. In the pre-WTO period mean price was US$ 32.61 per kg. In the WTO period this dropped to only US$12.19 per kg, though it is true that price fluctuation and consequent uncertainty was higher in the pre-WTO period and that is clear from higher coefficient of price variation in the pre-WTO period.

In Table 6, the results of the estimates of the equation, in which area under cardamom production in Sikkim is regressed on yield rate of the crop, price of the crop, area under some different cash crops grown within the state, and a policy dummy that takes value 0 for pre-WTO period and 1 in the WTO era. The results show that the area under cardamom positively depends on its yield rate. Higher the yield rate greater is the quantum of area allotted for it. The elasticity of area under the production of cardamom with respect to the yield rate of cardamom is 0.537. Again, price of cardamom is also directly related with the area under its cultivation. The result that is statistically significant, again, supports our second hypothesis. Both these two explanatory variables—yield rate and price—are expected to enhance profitability of production of the crop and results are in that direction. As it has been already discussed in the previous section that the price scenario for cardamom is all along depressing, the sole effect of price change is that the farmers substitute cardamom cultivation for some other crops and there is transfer of arable land from cardamom to other crops.

Figure-2. Price ($) Per KG of Cardamom

$y = 53.10e^{-0.07x}$
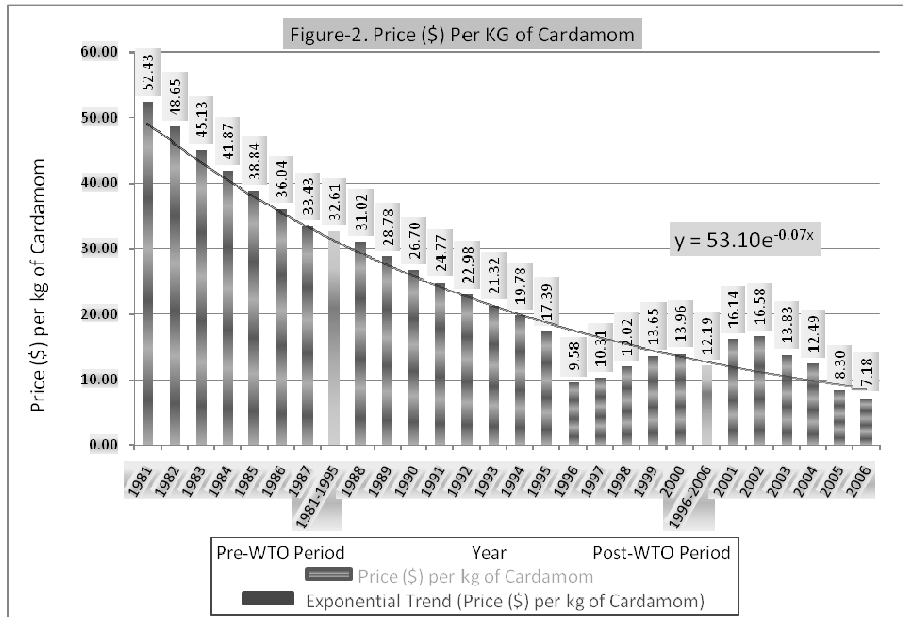
The estimate of coefficient of area (Table-6) under ginger is positive, meaning that as area for cultivation of ginger increases that of cardamom increases. However, this contradicts our hypothesis that predicts it to be negative.

The estimates of the coefficients of area under tapioca, under tea and ragi come out to be negative. This implies that as area under production of tapioca and tea reduces, area under cardamom increases. It may mean that in reality the increase in area under cardamom may have resulted from release of land under tapioca and tea. But it is not right to confirm it as a fact, simply because area under production of ginger has increased side by side. The reality may be like that the entire addition to land for ginger production is a result of reduction of area for tea or tapioca production; or the total addition to area for cardamom as well as for ginger may have come from area meant for tea and tapioca.

Table 6: Regression Analysis on Crop Diversification in Sikkim during 1981 – 2006.

Model:

$$\ln ARCDM = const + \beta_Y \ln Y + \beta_P \ln P + \beta_G \ln G + \beta_{TP} \ln TP + \beta_{TEA} \ln TEA + \beta_{RG} \ln RG$$

			Coefficients of the Regressors						Diagnostic Tools		
Depend. Variable (ARCDM)	Const.	Yield Rate of Carda-mom (Y)	Price ($) per kg of Carda-mom (P)	Area under the Cultivation of				Policy Dummy (PD)	R^2 $(\overline{R}^2)$	F-Stat. (7,18)	D W Stat. (d)
				Ginger (G)	Tapioca (TP)	T ea (TEA)	Ragi (RG)				
Area under Cardamom	0.947	0.537	0.459	0.431	-0.182	-0.194	-0.063	-0.04	0.89	(21.02)*	1.723
	(0.16)	(3.86)*	(2.85)*	(2.86)*	(-3.69)*	(-1.98)**	(-0.48)	(0.59)	0.85		
Diagnostic Sstatistic (t)		Returns to Scale	Crop Substitution								
		(-2.031)**	(-1.233)								

Source: Authors' own calculation based on data from CMIE and Different Issues of Economic Survey, Government of India. The Figures in the parentheses are estimated *t* values. * Significant at 1% level. ** Significant at 5% level.

The impact of the policy variable is [100*{1-(exp (-0.028))} % =] 2.76% reduction in area under the production of cardamom in the WTO period, though this result is not statistically significant. This means that the specific effect of WTO era is negative and it discourages the local farmers from producing cardamom.

However, the test procedure rejects hypothesis of constant returns to scale and supports the phenomenon of crop substitution. This implies that the area under the production of cardamom is a homogenous function of degree zero in areas under the production of ginger, tapioca, ragi and tea. The fact that the increase in agricultural land due to reduction of area under tapioca, tea and ragi has been allotted for production of ginger gets established here. The land that has been added to the production of cardamom must be some fresh land that has been procured by converting either some forest area or fallow land into agricultural land. The possibility that cardamom production now thrives at the cost of deforestation is not desirable from the sustainability point of view. Production of cardamom can be performed without disturbing soil quality rather sometimes adding fertility to it whereas land-slides in the hill areas are aggravated through the cultivation of crops like ginger, potato, onion etc. that aggravates the soil fragility. However, results in this section reveal that the present practice of cardamom cultivation must have some deficiencies as far as sustainable measures are concerned.

POLICY PRESCRIPTION AND CONCLUSION

Growth rate of area of cardamom production relative to area under some cash crops such as ragi, tea and tapioca in Sikkim has increased but growth rate of area under cardamom relative to ginger has fallen in the WTO era. Therefore, one of our major findings is that both cardamom and ginger are competing for acquiring greater share of area in the state but even if cardamom can be cultured in more sustainable manner, farmers nowadays transfer land from other crop area for the purpose of producing of ginger as the cultivation of ginger is far more economically profitable in the short run.

Finally, the regression analysis suggests that in Sikkim crop substitution is being carried out at a significant rate. However, the point that worries, is that local farmers encroach into forest area in the mountain slopes in order to create additional land for production of cardamom. In some cases farmers destroy forest trees that could have served as valuable shade trees for quality cardamom. Depending on these implications as provided by our empirical study let us suggest some tentative policy.

The most important policy should be regarding price structure. The observed trend for price of cardamom is all along declining. As agro-forestry requires least external inputs price support in the form of subsidized fertilizers, pesticides etc. are not very helpful. Government should adopt some strategy to give positive price incentive for cardamom cultivators. The role of the Central Government is imperative in this field. As India is also a large consumer of large cardamom that it produces domestic price is to be reasonably set considering both the sides of the suppliers and the buyers.

Government may, however, can share a part of transport cost, processing and maintenance costs borne by the local farmers.

Another point is its marketing. India produces grade-one large cardamom that is dearer compared to the cardamom produced by its competing producer countries such as Guatemala or Tanzania. Thus cardamom from India loses price competitiveness in international market. The consequence is that our neighbouring country Nepal imports cardamom from far-away Guatemala. Our task should be to make customers aware worldwide of our quality through moderate price edge, attractive packaging, advertisements etc. Provision of improved marketing infrastructure also plays a key role. Post-harvest processing with quality sorting, minimized wasting and congenial work environment for labourers are to be launched.

Very recently Sikkim's cardamom is being degenerated in the international market on the ground of poor quality, irregular supply etc. One of the major reasons that have been sought after behind this is cross-border smuggling of Indian cardamom (XI Lok Sabha Debates, Session IV {Budget}, March 04, 1997). Along with taking stricter legal measures some economic incentive such as increase in price of cardamom can be expected to work in the long run in getting back lost reputation.

Issues in the north-east region of India recently get adequate attention from the Government and the policy makers simply because the region is relatively backward although with great potential in various aspects. Sikkim is a part of that region and has high potential in agro-forestry that is to be realised with the help of appropriate policies and their implementations. This paper has many interesting open ends that may be used for detail and elaborate study on Cardamom production in Sikkim.

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DETERMINING ECONOMIC VALUE FOR THE DEVOTEES OF SHRI MATA VAISHNO DEVI SHRINE BY CONTINGENT VALUTION METHOD: A CRITICAL STUDY

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Abstract

This study aims at identifying the important determinants of Willingness to pay (WTP) to measure the economic values of Shri Mata Vaishno Devi Shrine and use these economic values to determine the entrance fees on the basis of cost- benefit analysis for viewing Shri Mata Vaishno Devi (SMVD) Shrine. For this study Survey has been conducted during April-July of 2011 in Katra city of Jammu & Kashmir on a sample of 200 respondents. Contingent Evaluation Method was used to determine the WTP. The study finds that WTP is Rs.45.90 (46) with respondents ranging from Rs 20 to 130. Additional fees can be charged by improving the present infrastructure facilities. This study also shows that in totality income, age, day spent, travel cost and marital status positively affect WTP of SMVD Shrine visitors who come for darsana purpose. It also shows that gender and number of times visit negatively affect WTP of SMVD Shrine visitors. Finally, the paper goes on to discuss some of the policy suggestions for better management and development of SMVD Shrine.
Keywords: SMVD, contingent evaluation method and willingness to pay.

BACKGROUND

Tourism is an important activity all over the world. All countries across the globe endeavour to promote tourism and make all out efforts in this direction. Unlike most other industries, tourism – if considered as an industries – amalgam of several industries viz. hotel industry, transport industry, aviation industry, construction industry, restaurant industry, entertainment industry and several others. Thus, tourism generates more employment and income to the local people than what can be done by promotion of any other industry. Accordingly, tourism is one of the most preferred and fastest growing industries in the world at present.

Shri Mata Vaishno Devi Shrine is tourist spot in Katra of Jammu & Kashmir State. Shri Mata Vaishno Devi Shrine is one of the holy Hindu Shrines dedicated for worship of *Shakti,* located in the Trikuta hills of Jammu and Kashmir, India. In Hinduism, Vaishno Devi, also known as Mata Rani and Vaishnavi, is a manifestation of Universe. The temple is near the town of Katra, in the Reasi District in the State of Jammu and Kashmir. It is one of the most revered places of worship in India. The shrine is at an altitude of 5200 feet and a distance of approximately 14 kilometers from Katra. Approximately 12 million pilgrims (yatris) visit the temple every year and it is the second most visited religious shrine in India, after Tirumala Venkateswara Temple. The Shri Mata Vaishno Devi Shrine Board maintains the shrine. A rail link from Udhampur to Katra is being built to facilitate pilgrimage. The nearest airport is Jammu Airport which has very high flight frequency. All leading domestic airlines have their services to Jammu Airport.

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The Shri Mata Vaishno Devi Shrine is regarded as one of the "*Shakti Peeths*" of Goddess ' Durga'. This holy shrine of Mata Vaishno Devi which is situated in the folds of mighty 'Tirkuta' Hills' attracts lakhs of devotees from all parts of India and abroad. People who visit the shrine constitute a heterogeneous profile comprising of wealthy and poor, aged and young, males and females from within and outside the country. The Shrine of Goddess 'Vaishno Devi' is reached by an arduous climb. The scenic beauty, the landscape around and the constant chanting of 'Jai Mata Di', leaves a mystic effect on the devotees. At the culmination of their pilgrimage the devotees are blessed with the 'Darshans' of the deity in her three manifestations as three 'Pindies', located inside the sanctum-sanatorium, which is open for the devotees throughout the year in all seasons. It is truly a spiritually uplifting experience to witness the faith of the devotees, who are motivated by the heart by three words being chanted since the ages-"Jai Mata Di". 'Vaishnavi' means the one who is related to lord "Vishnu". Goddess Vaishnavi is the manifestation of the collective spiritual strengths of Mata Maha Kali, Mata Maha Lakshmi and Mata Maha Saraswati. The concept of economic valuation on temple is one of the most influential and widely adopted ideas. So in this paper we have tried to find out market economic value of Shri Mata Vaishno Devi Shrine.

OBJECTIVES OF THE STUDY
Tourism has a place in the major objectives for the management of Shri Mata Vaishno Devi Shrine. It is essential to analysis the need and requirement of ecotourism in and around Shri Mata Vaishno Devi Shrine. The objectives are listed below:
   (a) To measure the economic values of Vaishno Devi Shrine and use this economic value to determine the entrance fees on the basis of cost- benefit analysis.
   (b) To get feedback from the visitors in order to improve upon the existing facilities at Shri Mata Vaishno Devi Shrine.

LITERATURE REVIEW
Since, very less number of studies are available on economic valuation of Shrine we have tried to review some of the papers on economic valuation of natural resources across the world to know how economic valuation can help for better management and development of tourism industry.
   The study by Adis Isangkura (1998) empirically measures the value of environmental benefits of three recreational areas in northern Thailand: Doi Inthanon National Park, Doi Suthep and Mae Sa Waterfall. For measuring the value, he used the contingent ranking method. These recreational values are then used to determine new entrance fees for these recreational areas. The study recommends that the entrance fee for Doi Inthanon National Park be increased from 5 baht (US12 cents) per person to 40 baht (US$1) per person. This would increase park revenue from 5 million baht (US$125,000) per year to 40 million baht (US$1 million) per year. Additional user charges should be applied at environmentally sensitive sites around Doi Inthanon. The entrance fee for Mae Sa Waterfall should be increased from 5 baht (US12 cents) per person to 20 baht (US50 cents) per person. This would increase park revenue from 2 million baht (US$50,000) per year to 8 million baht (US$200,000) per year. As for Doi Suthep, the entrance fee should

remain at zero given the difficulty of assessing the predominantly spiritual value of the site. The study also recommends that special consideration be given to low-income visitors. For instance, a total waiver or partial reduction of entrance fees should be applied to school children on educational tours and to senior citizens, as well as to the general public during some public holidays. Certain parts of Doi Inthanon (such as the lower section of the park) might charge a lower entrance fee to facilitate access to low income families, while full entrance fee could be charged for the middle and upper sections of the park.

A recent Study by Belkayali, Atan, Talay and Akpinar (2010), has been undertaken with the aim of determining the recreational and tourism use value of Göreme Historical National Park with the contingent valuation method, examining effective factors of users' willingness to pay. As a result of the study, according to survey results which conducted in Göreme Historical National Park, annual willingness to pay value for current situation $ 8.672.788 and according to survey results which conducted out of Göreme Historical National Park, annual willingness to pay value for current situation $ 7.347.404 were calculated by using Contingent Valuation Method.

Another study by Herath and Kennedy (2004), estimating the economic value of the oldest Mount Buffalo National Park of Victoria Australia. This study estimates the economic value of the park using the travel cost method (TCM) and the contingent valuation method (CVM). The TCM gives higher consumer surplus (CS) than the CVM. The CS shows that the economic value of the park is high and that there are opportunities to introduce innovative fee schemes to enhance its revenue. Present entry fee systems do not capture the economic value of the park.

A similar study by Walpole et.al.(2001), studied the Pricing Policy for Tourism in Protected Areas from Komodo National Park, Indonesia. They used financial data from Komodo National Park, Indonesia, and a willingness-to-pay questionnaire of independent visitors to examine the financial contribution of tourism in offsetting the costs of tourism and wider management and assess the effect of hypothetical fee increases on park revenues, visitation patterns, and local economies. Although only 6.9% of park management costs were recovered, visitors were willing to pay over 10 times the current entrance fee, indicating a substantial potential for increased revenue. The potential negative effect of large fee increases on visitor numbers and the resultant effect on local economic benefits from tourism may limit the extent to which greater financial benefits from Komodo National Park (KNP) can be realized. Their results suggest that a moderate, increase in entrance fees is most appropriate, and that partial revenue retention by KNP would help demonstrate the conservation value of tourism to both visitors and managers and has the potential to increase visitors' willingness to pay.

An earlier study by Hadker et.al. (1997), was conducted to survey the residents of Bombay and elicit their willingness to pay for the maintenance and preservation of

Borivil National Park by using the contingent valuation method. Despite India being a developing country with medium to low income levels, the evidence suggested that people are willing to pay for preserving environmental amenities. The study reports a true willingness to pay of Rs 7.5 per household per month amounting to a total net present value of Rs 1033 million.

A study by Chutarat (2008), studied for evaluating the economic value of Phu radueng National Park by the travel cost method (TCM) and the contingent valuation method (CVM) and to estimate the demand for travelling and the willingness to pay. The data for this study were collected by conducting two large scale surveys on users and non-users. A total of 1,016 users and 1,034 non-users were interviewed. The data were analyzed using multiple linear regression analysis, logistic regression model and the consumer surplus (CS) was the integral of demand function for trips. He got the result by using the travel cost method which provides an estimate of direct benefits to park users, we found that visitors' total willingness to pay per visit was 2,284.57 bath, of which 958.29 bath was travel cost, 1,129.82 bath was expenditure for accommodation, food, and services, and 166.66 bath was consumer surplus or the visitors 'net gain or satisfaction from the visit. Further, he concluded that, Thai visitors to Phu Kradueng National Park were further willing to pay an average of 646.84 baths per head per year to ensure the continued existence of Phu Kradueng National Park and to preserve their option to use it in the future. And, Thai non-visitors, on the other hand, are willing to pay an average of 212.61 baths per head per year for the option and existence value provided by the Park. Finally the study by Herath (2005), estimates the economic value of the Mount Buffalo National Park in Victoria, Australia, with the travel cost method (TCM) and the contingent valuation method (CVM). He got the result that the economic value of the park is high and there are opportunities to introduce innovative fee schemes to enhance its revenue.

DATA SOURCES AND METHODOLOGY
This study is based on primary survey. Survey has been conducted during April-July of 2011 at Katra city of Jammu and Kashmir State. The primary data consist of visitors' socioeconomic characteristics; visitor's perceptions about ecotourism resources, attitude, and their Willingness to Pay (WTP) to enjoy the ecotourism resources at SMVD Shrine. In this study total 250 respondents were interviewed. Here simple random sample has been used for data collection. The interview methods used in this research was face-to-face interview with the visitors. Finally we could incorporate only 200 samples in our study.

Questionnaire Design
The questionnaire for this research has been designed to collect primary information such as socio demographic profile, attitude, and visitors' willingness to pay for ecotourism resources at SMVD Shrine and travel cost to SMVD Shrine. The questionnaires consist of multiple categories questions. This study used contingent valuation method for

evaluating the value of SMVD Shrine. Let us offer a brief outline of Contingent Valuation Method (CVM).

The Contingent Valuation Method
Contingent valuation[8] is a survey-based economic technique for the valuation of non-market resources. While these resources do give people utility, certain aspects of them do not have a market price as they are not directly sold – for example, people receive benefit from a beautiful view of a mountain, but it would be tough to value this benefit using price-based models. Contingent valuation survey is a technique which is used to measure these aspects. Contingent valuation is often referred to as a stated preference model, in contrast to a price-based revealed preference model. Typically the survey asks how much money people would be willing to pay (or willing to accept) to enjoy certain non market price activities. Thus Contingent Valuation Method (CVM) is an economic, non-market based valuation method especially used to infer individual's preferences for public goods. In this study contingent valuation method (CVM) attempts to ascertain nonmarket values of eco-system services of SMVD Shrine by asking people directly for their Willingness to Pay (WTP).CVM was first suggested as a method to study the non-marketed public good by Ciriacy-Wantrup (1947) in order to account for the 'extra market benefits' of preventing soil erosion through eliciting one's willingness to pay for these benefits through a survey method.

The goal of CVM is to measure the compensating variation or the equivalent variation for the good in consideration. The measure generally reflects the consumer surplus. Numerous critics have pointed out that the method is fraught with technical and conceptual problems. The description and framing of what is to be valued is critical to the reliability of the method. The information a survey provides as well as the order in which questions are asked substantially influences WTP (Samples et al., 1986; Samples and Hollyer, 1990). Prior knowledge, preconceived opinions and level of understanding in respondents affects the results of CV (Lord et al., 1979; Wilks, 1990; Arrow et al., 1993). Compliance bias occurs when respondents affects the results of CV (Lord et al., 1979; Wilks, 1990). CVM involves interviewing a sample of consumers in order to obtain their willingness to pay to have the good, or a minimum compensation sum to go without it, i.e. their willingness to accept or in some cases involving willingness to sell. WTP and WTA may also be estimated for any welfare reduction actions or their loss. Therefore it could be hypothesized that WTP by individuals 'i' (visitors) of the SMVD Shrine as the site j are affected by a variety of factors, including social and economic specified as follows:

$WTP_{ij} = f(Y, S, C, L, T)$

Where, Y = Income
     S = Socio-economic variables (age, sex, marriage,)
     C = Cost of visit
     L = Length of stay
     T = Times of visit to the SMVD temple

Linear regression has been used to establish the model for the CVM. Costs of visit will depend on the distance travelled and /or the time taken to travel, an admission fee and other expenses. This demand functions are applied to simulate a demand curve for

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[8] The CVM establishes a direct figure for the benefits recreationists derived from consuming a public good or specific recreation

economic value of SMVD Shrine. Visitors are assumed to react to opportunities that have been offered to them by expressing their yield an estimate of consumer surplus.

SMVD Shrine Demand Function
The demand function is estimated to analysis the relationship between the willingness to pay with the socio-economic variables and then finally to estimate the consumer surplus of the park. The demand function specified as follows:
WTP = f (Y_t, A_t, S_t, M_t, T, D_t, TC_t,)
Whereas,
Y = Income of the respondents at time t,
A = Age of the respondents at time t,
S = Sex of the respondents at time t,
M = Marital status of the respondents at time t,
T = Number of Times of the visit to the Shrine
D = Day spent in the Shrine at time t,
TC = Travel cost of the respondents at time t,

FINDINGS
A survey was conducted in April-July, 2011 at Katra city of Jammu & Kashmir State. A total of 200 respondents were interviewed. The preliminary findings and statistics of 200 respondents are presented below.

Table-1
Descriptive Statistics of the Respondents

Variables	Number of Respondents	Mean	Std. dev	Minimum	Maximum
Age	200	32.891	9.234	16	55
Income	200	22,900	11,970.351	7,000	90,000
Times of Visit	200	1.5	1.008	1	6
WTP	200	45.90	18.707	20	130
Travel Cost	200	4,419.15	2,502.600	350	12,000
Days Spent	200	1.45	.608	1	4

In the above table mean WTP is Rs.45.90 (46) with respondents ranging from Rs 20 to 130. The sample had a mean age of 32.891(33) years, with respondents ranging from 16 to 55 years of age. Out of 200 respondents 74% (148) respondents consist of male and 26% (52) respondents are of female. With respect to income, the average income of the respondents is Rs. 22,900 and the income is varies from Rs.7,000 to Rs.9,0000. In the case of marital status, 73.5% respondents had married; and 26.5% had unmarried. With respect to travel cost (which is including both food and other expenditure in the surrounding place) the maximum amount spent by respondents are of Rs 12,000 for visiting SMVD Shrine, and the lowest amount spent by the respondents is

Rs 350 only. Finally With respect to number of days spent mean days spent is 1.45 and it ranges from 1 to 4.

Measuring of Open – Ended WTP Demand Function

An open-ended WTP question for entrance fees was asked during the survey. And, the open-ended WTP question shows that on average a person is willing to pay Rs 45.90 (46) to visit SMVD Shrine. The WTP demand functions are estimated with Ordinary Least Squares (OLS) and the results are reported in Table 2.

We employ OLS method for measuring the economic value and to determine the entrance fee of SMVD Shrine.

The econometric model used for empirical study for measuring the economic value of SMVD temple as:

$WTP = \beta_0 + \beta_1 AG_t + \beta_2 DS_t + \beta_3 GEN_t + \beta_4 INCM_t + \beta_5 MAR_t + \beta_6 TC_t + \beta_7 TV + \square_t$ …(1)

Where:

AG_t = Age of the respondent at time t
DS_t = Day spent of the respondent at time t
GEN_t = Gender of the respondent at time t
$INCM_t$ = Income of the respondent at time t
MAR_t = Marital status of the respondent at time t
TC_t = Travel cost of the respondent at time t
TV_t = Times of visit of the respondent

The coefficients $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 show the elasticity coefficient of AG_t, DS_t, GEN_t, $INCM_t$, MAR_t, TC_t, and TV_t respectively.

This study used E-views econometric packages for calculating ADF unit root test and OLS test. The second part of this paper used Stata statistical packages for calculating logit and multinomial logit function. The result of OLS are given below in following Table2.

Table 2

Parameter Estimates of the WTP Functions

Dependent Variable: WTP

Method: Least Squares

Sample: 200
Included observations: 200 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.982613	4.802760	1.245662	0.2144
AG	0.285781	0.109471	2.610562	0.0098
DS	7.440291	1.966623	3.783284	0.0002
GEN	-1.033343	2.527496	-0.408841	0.6831
INCM	0.000668	9.53E-05	7.013843	0.0000
MAR	0.221159	2.633583	0.083977	0.9332
TC	0.001233	0.000474	2.599164	0.0101
TV	-0.558576	1.022082	-0.546507	0.5854

R-squared	0.441748	Mean dependent var		45.90000
Adjusted R-squared	0.421395	S.D. dependent var		18.70668
S.E. of regression	14.22944	Akaike info criterion		8.187681
Sum squared resid	38875.58	Schwarz criterion		8.319614
Log likelihood	-810.7681	F-statistic		21.70435
Durbin-Watson stat	1.694644	Prob(F-statistic)		0.000000

In the above table, the income variable (INCM) as expected is positively affecting WTP which is highly statistically significant (P Value= 0.000 and t value=7.013843).This means WTP depends upon income of the visitor. In other word, when income would increase visitors' WTP will also increase. We have included the travel cost for determining the willingness to pay demand function. The travel cost here is inclusion of the entire money spent by the respondent for visiting the SMVD temple from his/her destination point. Travel Cost (TC) is positively affecting the willingness to pay (WTP) and it is also statistically significant (P Value= 0.0101 and t value=2.599164.This signifying that when visitors are coming by spending more money to visit SMVD temple their WTP is more. The age variable we got as expected positive and statistically significant (P Value= 0.0099 and t value=2.610562). This implies that more aged people WTP is more. The day spent by the respondent is also another important determinant of willingness to pay. Here we got Days Spent (DS) and it is positively affecting the WTP and it is also statistically significant (P Value= 0.0002 and t value=3.783284). This depicts who are staying more days at SMVD temple their WTP is more compared to those who is staying less day. Marital status is positively affecting the willingness to pay (WTP) and it is not statistically significant (P Value= 0.9332 and t value=0.083977). It shows that even if married people, WTP is more but it is not significant because some unmarried people WTP is also more. Time visit is negatively affecting the willingness to pay (WTP) but it is not statistically significant (P Value= 0.5854 and t value=-0.546507).This not so important for WTP but have some positive effect on WTP. Gender is negatively affecting the willingness to pay (WTP) but it is not statistically significant (P Value= 0.6831 and t value=-0.408841).

Since, gender (GEN) is negatively affecting WTP; we further wanted to investigate what are the main probable factors for becoming gender as a negative factor for WTP. For this we have used logistic regression function which is popularly known as logit model.

Theoretical Description of Logit Model
Logistic regression (sometimes called the logistic model or logit model) is used for prediction of the probability of occurrence of an event by fitting data to a logit function logistic curve. An explanation of logistic regression begins with an explanation of the logistic function, which, like probabilities, always takes on values between zero and one:

$$f(z) = \frac{e^z}{e^z + 1} = \frac{1}{1 + e^{-z}}$$

The model has an equivalent formulation

$$p_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_{1,i} + \cdots + \beta_k x_{k,i})}}.$$

This functional form is commonly called a single-layer perceptron or single-layer artificial neural network. A single-layer neural network computes a continuous output instead of a step function. The derivative of p_i with respect to $X = x_1...x_k$ is computed from the general form:

$$y = \frac{1}{1 + e^{-f(X)}}$$

Where $f(X)$ is an analytic function in X. With this choice, the single-layer neural network is identical to the logistic regression model. This function has a continuous derivative, which allows it to be used in back propagation. This function is also preferred because its derivative is easily calculated:

$$y' = y(1 - y)\frac{df}{dX}.$$

Table:3

Dependent Variable: GEN
Method: Logit
Included observations: 200 after adjusting endpoints
Convergence achieved after 9 iterations
Covariance matrix computed using second derivatives

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.067965	0.853367	-1.251472	0.2108
AG	0.054662	0.022857	2.391511	0.0168
DS	-1.145687	0.358655	-3.194400	0.0014
INCM	5.21E-05	2.49E-05	2.096503	0.0360
MAR	0.624242	0.442467	1.410821	0.1583
TC	5.73E-05	9.23E-05	0.621034	0.5346
TV	0.372415	0.245742	1.515468	0.1297
WTP	-0.006021	0.014748	-0.408275	0.6831

Mean dependent var	0.740000	S.D. dependent var		0.439735
S.E. of regression	0.395600	Akaike info criterion		1.032541
Sum squared resid	30.04781	Schwarz criterion		1.164474
Log likelihood	-95.25411	Hannan-Quinn criter.		1.085932
Restr. log likelihood	-114.6114	Avg. log likelihood		-0.476271
LR statistic (7 df)	38.71455	McFadden R-squared		0.168895
Probability(LR stat)	2.22E-06			

Obs with Dep=0	52	Total obs		200
Obs with Dep=1	148			

In the above Table-3 WTP and day spent has negative impact on gender. This means in main regression gender has negative impact on WTP because people who are male and spending more days at SMVD Shrine are willing to pay less. Since 75% people WTP ranges between 30-50, we further wanted to investigate what are the factors which are affecting different ranges of WTP i.e. 30, 35, 40, 45 and 50. In order to know this thing in this study we have applied multinomial logit model for different rages of WTP.

Multi Nomial Logit: A Theoritical Note
Multinomial logit model, also known as multinomial logistic regression, is a regression model which generalizes logistic regression by allowing more than two discrete outcomes. That is, it is a model that is used to predict the probabilities of the different possible outcomes of a categorically distributed dependent variable, given a set of independent variables (which may be real-valued, binary-valued, categorical-valued, etc.). In multinomial logistic regression, one category of the dependent variable is chosen as the comparison category. Separate relative risk ratios are determined for all independent variables for each category of the dependent variable with the exception of the comparison category of the dependent variable, which is omitted from the analysis. Relative risk ratios (actually technically odds ratios), the exponential beta coefficient, represent the change in the odds of being in the dependent variable category versus the comparison associated with a one unit change on the independent variable.

Multinomial logit regression is used when the dependent variable in question is nominal (a set of categories which cannot be ordered in any meaningful way, also known as categorical) and consists of more than two categories. For example, multinomial logit regression would be appropriate when trying to determine what factors predict which major college students choose. Multinomial logit regression is appropriate in cases where the response is not ordinal in nature as in ordered logit. Ordered logit regression is used in cases where the dependent variable in question consists of a set number (more than two) of categories which can be ordered in a meaningful way.

$$\Pr(y_i = k) = \frac{\exp(X_i \cdot \beta_k)}{1 + \sum_{j=1}^{J} \exp(X_i \cdot \beta_j)}$$

$$\Pr(y_i = 0) = \frac{1}{1 + \sum_{j=1}^{J} \exp(X_i \cdot \beta_j)},$$

Where for the *i*th individual, y_i is the observed outcome and X_i is a vector of explanatory variables. The unknown parameters β_j are typically estimated by maximum a posteriori (MAP) estimation, which is an extension of maximum likelihood using regularization of the weights to prevent pathological solutions (usually a squared regularizing function, which is equivalent to placing a zero-mean Gaussian prior distribution on the weights, but other distributions are also possible.

Table-4
1. When WTP=30

Variable	Coefficient	P-Value
CONSTANT	-4.217443	0.008
INCM	003057	0.002
AG	-.10836	0.052
GEN	-1.303595	0.022
MAR	1.131083	0.068
TV	-28.16642	0.000
DS	.3834072	0.087
TC	.0004865	0.161

Table-5
2. When WTP=35

Variable	Coefficient	P-Value
CONSTANT	-8.413556	0.007
INCM	0001433	0.000
AG	.0883291	0.005
GEN	-.0544988	0.022
MAR	.1811007	0.000
TV	-.4446775	0.785
DS	2.518587	0.003
TC	-.0003434	0.04

Table-6
3. When WTP=40

Variable	Coefficient	P-Value
CONSTANT	-6.084941	0.004
INCM	.000101	0.118
AG	.0858864	0.065
GEN	.1805719	0.078
MAR	-2.012045	0.056
TV	-.7980031	0.034
DS	2.319071	0.056
TC	.0002016	0.111

Table-7
4. When WTP=45

Variable	Coefficient	P-Value
CONSTANT	-6.773451	0.003
INCM	.000103	0.073
AG	.091396	0.117
GEN	-1.242339	0.005
MAR	-.7591117	0.779
TV	029189	0.065
DS	1.060397	0.093
TC	.0000753	0.004

Table-8
5. When WTP=50

Variable	Coefficient	P-Value
CONSTANT	-9.174042	0.002
INCM	0001265	0.076
AG	.0968067	0.123
GEN	1.085661	0.006
MAR	-.9668554	0.113
TV	-1.672293	0.008
DS	3.822295	0.098
TC	.0000414	0.006

In Table-4 for WTP=30 main factors which positively affect WTP are income, marital status, day spent and travel cost. Factors which negatively affect WTP =30 are age, gender and times visit. Further in Table-5 for WTP=35, main factors which positively affect WTP income, age, marital status and day spent. Factors which negatively affect willingness to pay at WTP =35 are gender, number of times visit and travel cost. In Table-6 for WTP=40 main factors which positively affect WTP are income, age, marital status and day spent. Factors which are negatively affect WTP at 40 are number of times visit and marital status. In table-7 for WTP=45 main factors which positively affect WTP income, age, travel cost, number of times visit and day spent. Factors which negatively affect WTP at 45 are gender and marital status. Finally in Table-8 for WTP=50 main factors which positively affect WTP are income, age, gender, travel cost and day spent. Factors which negatively affect WTP =50 marital status and times visit. So for every group of people income is the main determinants of WTP. So when income of visitors will have rising trend then SMVD Shrine management can charge entry fees on the basis of cost benefit analysis.

SOME POLICY SUGGESTIONS

There are some of the policy suggestions in order to make the management SMVD Shrine more effective. So that it will attract more tourists within the nation as well as across the globe.

➢ Infrastructure facilities should be created for attracting more visitors to SMVD temple.
➢ Temperature bulletin may be issued continuously so that people at the base can prepare themselves for overcoming temperature related problems when they shall be reaching the temple.
➢ Some people should always be posted at the different places throughout the journey to assist tourists and devotees.
➢ There should be suggestion box in every one kilometre for visitor feedback
➢ Rest rooms for the devotees may be made available keeping in view demand and supply criterion.
➢ Mobile medical van may be made available for the devotees.
➢ Budget and Budgetary control should be his existence. This would help the process of revenue generation and expenditure management.
➢ Cost should not be more then benefit quantifiable in monetary terms
➢ Conservation of forest and maintenance of road should be given priority.

CONCLUSION

The study successfully employed the CVM to measure the recreational and devotional value SMVD Shrine. This method has been proved useful for the nonmarket recreational value and hence determines the entrance fee. The study recommends that the entrance fee for SMVD Shrine can be fixed at Rs. 46 per person. This would increase SMVD Shrine revenue. Additional charges can be obtained by improving the present infrastructure facilities. This study also shows that in totality income, age, number of days spent, travel cost and marital status positively affect willingness to pay of SMVD Shrine visitors who

come for visiting purpose. It also shows that gender and number of times visit affect negatively the willingness to pay by SMVD Shrine visitors. In addition to establishing new entrance fees, special consideration should be given to low-income visitors. This study recommends that children below 16 years of age and senior citizens be charged half price. School children or university students who visit the Shrine as part of school activities should be exempted from entrance fees. Entrance fee exemption may also be granted during special holidays at half the charges. Lastly, it concludes that, it not only increases the Shrine Board's revenue but also will help to develop the ecosystem services. Devotee management is a herculean task for the SMVD Shrine Board. The given study can be extended further on macro level. SMVD Shrine Board is engaged in many charitable and philanthropic activities and the revenue earned in the form of donation and devotional fee (Prananmy) can be increased to many folds when the devotees would be given an understanding that SMVD Shrine accessibility and other infrastructural facilities are created in order to reduce the stress of the devotees. SMVD Shrine Board should provide boarding and lodging facilities where devotees can take rest especially at night. More and more rain shed may be installed at different points throughout the entire way to the Shrine. It is hoped that the present study may be helpful to the policy formulators and decision makers. Presently there is no entry fee and then the recommended entry fee may ease the maintenance projects. During the course of field work, it was felt the devotees are in favour of minimum entry fee if quality of service improves.

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CORPORATE PERFORMANCE AND FOREIGN EQUITY: AN EMPIRICAL STUDY OF RELATIONSHIP

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Abstract:
The focus of the present research paper is to study the relationship between 'corporate performance' and 'foreign equity'. For this purpose, an attempt has been made in this paper to study the association between the components of foreign equity present in a company (other than foreign portfolio investment) and various performance aspects of the company. The study specifically focuses on two premier companies of India- Reliance Industries Ltd., known for its aggressive & path-breaking corporate strategies, and Tata Steel Ltd., known for its relatively conservative and cautious business approach. Period of the study is from 2000-2011 (both financial years included). Findings of the study comprise an interesting comparative analysis of the aforementioned companies with respect to the relationship between foreign equity present in the companies and various performance variables of the same. The study concludes with raising concerns on the expectation of India Inc. from foreign equity.
Key Words: *Corporate Performance, Foreign Equity, Financial Ratios*

INTRODUCTION

Various studies have been conducted in the past to study the impact of foreign capital both at the country level and the firm level. These studies, however, provide different results. The focus of the present research paper is to study the relationship between 'foreign equity ownership' in a firm and the 'performance' of the firm. For this purpose, an attempt has been made in this paper to ascertain the components of foreign equity ownership appearing in the share capital of sample companies and also to study the association between those components and various performance aspects of the companies in the light of empirical findings of earlier studies.

LITERATURE REVIEW

Earlier and recent empirical studies conclude that foreign ownership has positive influences on the firm's performance. Goethals and Ooghe (1997) conducted a study to investigate the performance between domestic Belgian firms and Belgian firms taken over by foreigners. They calculated 28 financial ratios for both foreign and domestic firms and concluded that firms with foreign ownership perform better than their domestically owned counterparts.

Grant (1987) and Qian (1998) assessed the relationship between the return performance and multiple explanatory factors per se multi-nationality. Grant's study

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to investigate firm's performance revealed that profitability for the 304 largest UK manufacturing firms drawn from 'The Times 500' list of Britain's largest companies was positively correlated to their level of multi-nationality.

Qian(1998) included in his analysis the 164 largest US industrial corporations on the Fortune 500 listings. He found that the return performance is different due to differences in the level of foreign involvement. Most importantly, multi-nationality has a significant impact on the performance of MNEs. Besides, Liu et al. (2000) looked at the issue from a different angle and examined the intra-industry productivity spillovers from FDI on manufacturing sector in the UK. Their findings indicate that FDI existence has a positive spillover on the productivity of UK owned firms.

Some conflicting results in respect to the aforementioned findings also appear in the concerned literature. For instance, Kim and Lyn (1990) made a research to evaluate the performance of MNEs operating in the United States of America (USA). They took as sample 54 largest foreign corporations operating in the USA. Another research conducted by Douma et al. (2006) in developing economy tested foreign ownership effects on performance of 1005 Indians firms in 1999 and 2000. They observed that foreign ownership positively affects firm performance. Akimova and Schwödiauer (2004) examined the impact of ownership structure on corporate governance and performance of privatized corporations in Ukrainian transition economy. Their analysis revealed that there are significant ownership effects on firm performance, but are mainly non-linear in nature. In other words, its effect is positive within lower range but negative from the point that closes to majority ownership.

With this backdrop, the present paper examines the effect of foreign ownership on the performance of Indian listed companies having foreign equity and evaluates whether the findings are compatible with earlier studies.

SCOPE OF RESEARCH

The scope of this research is limited to those components of equity share capital of sample companies that represent 'foreign equity ownership'. Following points have been identified as the components of 'foreign equity ownership' in a company:

i.   Direct Investment by Non-resident Indians/Foreign Individuals/Foreign Nationals, Foreign institutions, etc. in the equity shares of Indian companies;

ii. Indirect Investment by Non-resident Indians/Foreign Individuals/Foreign Nationals, Foreign institutions etc. in Indian companies through American Depository Receipts (ADRs) and Global Depository Receipts (GDRs).

OBJECTIVE OF PRESENT STUDY

The objective of the present study is to investigate the association, if any, between the components of foreign equity ownership and various performance aspects of Indian companies chosen as sample. Performance aspects shall include the 'management

effectiveness', 'capital structure', 'cost of capital', and 'financial performance' of sample companies.

LIMITATIONS OF THE STUDY
The findings of the study have to be considered in the light of the following inadvertent limitations:

i.   Most of the variables (i.e. ratios) used in the study have been calculated based upon the 'accounting approach', as distinct to the 'cash approach'. Hence, they might be affected by taxation, depreciation methods, etc.

ii. The data used in this study have been taken from a digital database. The data might have suffered from some limitations that are inherent in the database.

HYPOTHESES TO BE TESTED
Keeping in mind the objective of research, the following Null (Ho) & Alternate (Ha) hypotheses have been formulated.

Ho: There is no significant relationship between Foreign Equity Ownership and various Performance Variables of sample Indian companies.

Ha: There is significant relationship between Foreign Equity Ownership and various Performance Variables of sample Indian companies.

DATA AND RESEARCH METHODOLOGY

Data Collection
Necessary information pertaining to the financials of sample companies was gathered from CapitaLine Plus, a digital database maintained by the Company-Capital Market Publishers India Pvt. Ltd.

Sample description
The study specifically focuses on Reliance Industries Ltd. (RIL), known for its aggressive & path-breaking corporate strategies, apart from being the largest private sector company of India; and Tata Steel Ltd. (Tata Steel), known for its relatively conservative and cautious business approach, apart from belonging to one of the oldest business houses of India. Though the components of foreign equity ownership present in these companies do not form a strategic proportion, it would still be interesting to examine whether the said components bear any significant relationship with the different performance related aspects of these premier companies of India which, of late, have been otherwise active in the area of overseas investment.

Period of the Study
The period of the study is April 1, 2000 to March 31, 2011 (eleven financial years).

Research Methodology
The step-wise research methodology employed in this study is enumerated hereunder:

Technique used for Analysis

All the four aspects of sample companies mentioned earlier have been captured by employing the technique of 'Financial Ratio Analysis'. Suitable ratios corresponding to each aspect of inquiry have been chosen after consulting related books (I.M. Pandey, 2010; Subramanyam and Wild, 2009) & research papers (Beaver, 1966; Goethals and Ooghe, 1997). The ratios so selected comprise the 'Variables of the Study'.

Variables of the Study: The variables of the present study are as follows:

i. Percentage (%) holding of Non-resident Indians/Foreign Individuals/Foreign Nationals, Foreign Institutions etc. in the issued and paid-up equity share capital of sample companies either directly or by way of ADRs & GDRs – for capturing the aspect of 'foreign equity ownership' in sample companies;

ii. Return on Shareholders' Equity (ROE) and Return on Assets (ROA) – for capturing the aspect of 'Management effectiveness' of sample firms;

iii. Debt-Equity ratio (D/E ratio) – for capturing the aspect of 'Capital Structure' of sample firms;

iv. Cost of debt capital – for capturing the aspect of explicit 'Cost of Capital' of sample firms;

v. Cash Earnings per Share (CEPS) – for capturing the aspect of 'Financial Performance' of sample firms;

Values of all the aforesaid variables have been taken from CapitaLine Plus for the financial years ending on March 31, 2001 to March 31, 2011. Values for variables (i) and (iv) above have been computed CapitaLine Plus on the basis of information available therein.

III. Statistical tests used for Hypotheses Testing

As all variables of the present study are numeric in nature, the statistical test used herein for hypothesis testing is 'Bivariate Correlation', measured by the 'Karl Pearson's Coefficient of Correlation (r)'. The 'Coefficient of determination (r^2)' has also been used for further analysis.

IV.   Decision criterion

If the observed p-value (2-tailed) of the 'coefficient of correlation' for any pair of observations is more than the chosen level of significance, which is 0.05 (i.e. 5%) in our case as per prevalent practices, the null hypothesis gets accepted, that is, relationship is insignificant. Otherwise, the alternative hypothesis gets accepted, that is, relationship is significant. The necessary statistical analyses have been performed using the data analysis software Minitab 15 (trial version). These results & findings have been discussed in the next section.

FINDINGS AND ANALYSIS

Values obtained for' Variables of the Study'

Tables 1 and 2 present the values of 'variables of the study' ascertained for RIL and Tata Steel respectively.

Table1: Variables of the Study for RIL

Year ending March 31	Total Foreign Equity Ownership (in %)	ROE (in %)	ROA (in %)	DE ratio	Cost of debt (in %)	CEPS (in Rs.)
2001	6.68	23.05	10.62	0.93	12.00	39.49
2002	6.65	17.63	6.93	0.78	9.64	57.51
2003	6.76	15.58	8.19	0.73	7.87	48.94
2004	6.99	17.39	9.31	0.69	6.85	59.57
2005	9.38	21.82	12.79	0.57	7.82	80.03
2006	5.35	21.9	12.65	0.49	4.01	88.11
2007	4.41	22.45	13.01	0.47	4.27	118.84
2008	4.51	21.64	16.50	0.45	2.95	165.33
2009	4.13	15.69	7.64	0.57	2.36	128.26
2010	4.44	13.37	8.13	0.56	3.20	80.68
2011	4.46	14.78	9.27	0.47	3.45	102.36
Average	5.80	18.66	10.46	0.61	5.86	88.10

Source: CapitaLine Plus & Author's calculations

It is evident from Table-1 that the average percentage holding of foreign equity components in RIL for the period 2001 to 2011 has been around 6%. It peaked to 9.38% for the year ending March 31, 2005. This finding is interesting in the sense that as per the definition of Foreign Direct Investment (FDI) enunciated by the International Monetary Fund and the Organization for Economic Cooperation & Development, the threshold value for foreign equity ownership to be taken as evidence of direct investment relationship (i.e. FDI) is 10%. Thus, foreign equity ownership in RIL, the biggest private sector company of India, nearly entered the ambit of FDI in the recent past.

It is evident from Table-2 that the average percentage holding of foreign equity ownership in Tata Steel for the period 2001 to 2011 has been around 0.6%, nearly one-tenth of the same in RIL. This shows the basic difference between the approach of RIL and Tata Steel towards foreign investment in the company. While RIL has always taken the lead to recognize and avail opportunities, Tata Steel has been relatively conservative in its approach. As highlighted earlier, the association between foreign equity ownership and various performance aspects of sample companies has to be examined in the present study. Findings related to the same have been presented in paragraphs (A) to (D) below.

Statistical Analysis & Interpretation
(A) Relationship between Foreign Equity Ownership & Management Effectiveness
The relationship between foreign equity ownership & Management Effectiveness of sample companies has been studied on the basis of correlation between the percentage holding of all foreign equity components in the paid-up share capital of the sample companies and the ROE & ROA of the companies. Table 3 shows the results obtained for each sample company after running the 'Bivariate Correlation test' between percentage Foreign equity holding and ROE as well as ROA of the companies.

Table 2: Variables of the Study for Tata Steel

Year ending March 31	Total Foreign Equity Ownership (in %)	ROE (in %)	ROA (in %)	DE ratio	Cost of debt (in %)	CEPS (in Rs.)
2001	0	17.7	5.79	1.01	8.83	27.83
2002	0.35	8.47	2.51	1.13	8.57	19.77
2003	0.37	35.41	13.66	1.35	8.10	41.58
2004	0.37	45.36	22.11	0.99	6.72	62.95
2005	0.41	60.02	35.45	0.53	8.35	72.08
2006	0.38	41.7	28.57	0.31	6.94	75.51
2007	0	35.4	17.78	0.51	2.60	84.06
2008	0	25.97	10.34	0.67	5.16	72.48
2009	0	21.88	9.11	0.78	5.53	80.07
2010	1.8	14.19	8.11	0.78	7.32	67.18
2011	2.63	15.19	9.11	0.80	7.89	70.01
Average	0.57	29.21	14.78	0.81	6.91	61.23

Source: CapitaLine Plus & Author's calculations

Table 3: Empirical results of Hypothesis testing for relationship between % Foreign Equity holding and Management Effectiveness of RIL & Tata Steel

	Results obtained for RIL		Results obtained for Tata Steel	
Correlation between →	% holding of Foreign Equity and ROE	% holding of Foreign Equity and ROA	% holding of Foreign Equity and ROE	% holding of Foreign Equity and ROA
Pearson's Coefficient of Correlation (r)	r = 0.284	r = - 0.019	r = - 0.339	r = - 0.175
Observed significance level	p-value = 0.397	p-value = 0.956	p-value = 0.308	p-value= 0.607
Applicable Null Hypothesis (Ho)	No significant relationship between % Foreign Equity and ROE	No significant relationship between % Foreign Equity and ROA	No significant relationship between % Foreign Equity and ROE	No significant relationship between % Foreign Equity and ROA
Status of Ho	Accepted	Accepted	Accepted	Accepted

Sources: Capitaline Plus & Minitab

Major observations in Table 3
As evident from Table 3, the coefficient of correlation between percentage Foreign Equity and ROE of RIL is positive but very low. An increase in Foreign Equity may lead to an increase in the ROE of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

Likewise, the coefficient of correlation between percentage Foreign Equity and ROA of the company is interestingly negative but negligible. An increase in Foreign Equity may

lead to a negligible decrease in the ROA of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

In the case of Tata Steel, the coefficient of correlation between percentage Foreign Equity and ROE of the company is negative and very low. An increase in Foreign Equity may lead to a decrease in the ROE of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

Likewise, the coefficient of correlation between percentage Foreign Equity and ROA of the company is also negative and very low. An increase in Foreign Equity may lead to a decrease in the ROA of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

After running the Bivariate Correlation Test, it was found that both the hypotheses framed for each company were accepted. Thus, no significant relationship exists between percentage Foreign Equity and Management effectiveness of the sample companies.

(B) Relationship between Foreign Equity Ownership & Capital Structure of sample companies
The relationship between Foreign Equity Ownership & Capital Structure of sample companies has been studied on the basis of correlation between the percentage holding of all foreign equity ownership components in the paid-up share capital of sample companies and the DE ratio of the companies. Table-4 shows the results obtained for each sample company after running the 'Bivariate Correlation test' between % Foreign Equity and DE ratio of the companies.

Major observations in Table 4
As evident from Table 4, the coefficient of correlation between percentage Foreign Equity and DE ratio of RIL is positive and moderately high. An increase in Foreign Equity may lead to an increase in the DE ratio of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05).

Table 4: Empirical results of Hypothesis testing for relationship between
Percent Foreign Equity and Capital Structure of RIL & Tata Steel

	Results obtained for RIL	Results obtained for Tata Steel
Correlation between →	% holding of Foreign Equity and DE ratio	% holding of Foreign Equity and DE ratio
Pearson's Coefficient of Correlation (r)	r = 0.503	r = 0.009
Observed significance level	p-value = 0.114	p-value = 0.980
Applicable Null Hypothesis (Ho)	No significant relationship between % Foreign Equity and DE ratio	No significant relationship between % Foreign Equity and DE ratio
Status of Ho	Accepted	Accepted

Sources: Capitaline Plus & Minitab

In the case of Tata Steel, the coefficient of correlation between percentage Foreign Equity and DE ratio of the company, though positive, is almost zero. An increase in Foreign Equity may lead to an increase in the DE ratio of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

After running the Bivariate Correlation Test, it was found that the hypothesis framed for each company was accepted. Thus, *no significant relationship exists between % Foreign Equity and Capital Structure of the sample companies.*

(C) Relationship between Foreign Equity & Cost of Capital of sample companies
        The relationship between Foreign Equity & Cost of Capital of sample companies has been studied on the basis of correlation between the percentage holding of all Foreign Equity components in the paid-up share capital of sample companies and the Cost of debt capital of the companies. Table V shows the results obtained for each sample company after running the 'Bivariate Correlation test' between percentage Foreign Equity and Cost of debt of the companies.

Table 5: Empirical results of Hypothesis testing for relationship between
% Foreign Equity and Cost of Capital of RIL & Tata Steel

	Results obtained for RIL	Results obtained for Tata Steel
Correlation between →	% holding of Foreign Equity and Cost of debt	% holding of Foreign Equity and Cost of debt
Pearson's Coefficient of Correlation (r)	r = 0.736	r = 0.307
Observed significance level	p-value = 0.010	p-value = 0.358
Applicable Null Hypothesis (Ho)	No significant relationship between % Foreign Equity and Cost of debt	No significant relationship between % Foreign Equity and Cost of debt
Status of Ho	Rejected	Accepted

Sources: Capitaline Plus & Minitab

Major observations in Table 5
As evident from Table 5, the coefficient of correlation between percentage Foreign Equity and Cost of debt of RIL is positive and high. An increase in Foreign Equity may lead to an increase in the Cost of debt of the company and vice-versa. Moreover, the correlation is interestingly significant as the significance value of 'r' is less than the chosen level of significance (i.e. *p*-value <0.05). Besides, the coefficient of determination (r^2) comes out to be around 0.54 or 54%. Accordingly, it can be inferred that 54% of the variation in the Cost of Capital of RIL can be attributed to the presence of foreign equity ownership in the company;

In the case of Tata Steel, the coefficient of correlation between percentahe Foreign Equity and Cost of debt of the company is also positive but very low. An increase in Foreign Equity may lead to an increase in the Cost of debt of the company and vice-versa.

However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

After running the Bivariate Correlation Test, it was found that the hypothesis framed for RIL was rejected, whereas for Tata Steel it was accepted. Thus, the relationship between percent Foreign Equity and Cost of Capital is significant in the case of RIL and insignificant in the case of Tata Steel.

(D) Relationship between Foreign Equity & Financial Performance of sample companies
The relationship between Foreign Equity & Financial Performance of sample companies has been studied on the basis of correlation between the percentage holding of all Foreign Equity components in the paid-up share capital of sample companies and the CEPS of the companies. Table VI shows the results obtained for each sample company after running the 'Bivariate Correlation test' between percentage Foreign Equity and CEPS of the companies

Table 6: Empirical results of Hypothesis testing for relationship between percentage Foreign Equity and Financial Performance of RIL & Tata Steel

	Results obtained for RIL	Results obtained for Tata Steel
Correlation between →	% holding of Foreign Equity and CEPS	% holding of Foreign Equity and CEPS
Pearson's Coefficient of Correlation (r)	r = - 0.621	r = 0.123
Observed significance level	p-value = 0.041	p-value = 0.719
Applicable Null Hypothesis (Ho)	No significant relationship between % Foreign Equity and CEPS	No significant relationship between % Foreign Equity and CEPS
Status of Ho	Rejected	Accepted

Sources: Capitaline Plus & Minitab

Major observations in Table 6
As evident from Table 6, the coefficient of correlation between % Foreign Equity and CEPS of RIL is negative and moderately high. An increase in Foreign Equity may lead to a decrease in the CEPS of the company and vice-versa. Moreover, the correlation is interestingly significant as the significance value of 'r' is less than the chosen level of significance (i.e. *p*-value <0.05). Besides, the coefficient of determination in this case comes out to be around 0.39 or 39%, thereby inferring that 39% of the variation in the financial performance of RIL can be attributed to the presence of Foreign Equity components in the company. Thus, the presence of foreign equity ownership in RIL has a negative bearing on its financial performance measured by CEPS. This inference is in alignment to the inference established for the cost of debt of RIL, wherein an increase in foreign equity ownership leads to an increase in the explicit cost of capital of RIL. This, in turn, results in lesser earnings available to the company's equity shareholders and, therefore, lowers the CEPS of the company;

In the case of Tata Steel, the coefficient of correlation between % Foreign Equity and CEPS of the company is interestingly positive but very low. An increase in Foreign Equity may lead to an increase in the CEPS of the company and vice-versa. However, the correlation is insignificant as the significance value of 'r' is more than the chosen level of significance (i.e. *p*-value >0.05);

After running the Bivariate Correlation Test, it is found that the hypothesis framed for RIL is rejected, whereas for Tata Steel it is accepted. Thus, *the relationship between % Foreign Equity and financial performance is significant in the case of RIL and insignificant in the case of Tata Steel.*

CONCLUSION

India, being one among the world's fastest growing major economies, at present needs foreign capital to boost infrastructure and sustain economic growth at its near-double-digit targets. However, the findings of the present study point towards the fact that the impact of foreign capital by way of foreign equity ownership in Indian companies is not positive in contrast to what may have perceived at the time of its inception. Though our empirical analysis considered only two Indian companies as sample and also did not examine the impact of foreign equity ownership on the 'providers' of foreign capital, who are usually from developed economies around the globe, it can be inferred on the basis of literature survey and available evidence that the favourable impact of foreign equity ownership has mainly tilted towards the 'providers' of foreign capital in contrast to the recipient firms. These findings, thus, have important implications not only for Indian companies but also for domestic companies operating in other emerging economies of the world and looking forward to foreign equity ownership for any sought of 'favourable turnaround'.

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CUSTOMERS' PERCEPTION IN ELECTRONIC FUND TRANSFER (EFT) SERVICE: A STUDY OF PUBLIC AND PRIVATE SECTOR BANKS IN INDIA

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Abstract

This study examines the development of electronic fund transfer service in India and evaluates customers' perception regarding various service quality dimensions. It also evaluates overall customer satisfaction in electronic fund transfer service provided by public and private sector banks. Required data was collected through customer survey (N=150) based on likert scale based questionnaire and collected data was analyzed using SPSS 19.0.

A result indicates that, System availability regarding EFT service (Z= -2.930 sig = .003), efficiency of EFT service (Z= -2.104 sig = .035), problem handling service regarding EFT (Z= -2.046 sig = .041) and overall satisfaction in EFT service (Z= -2.349 sig = .019) provided by public and private sector banks were significantly deferent. However, customers' perception regarding remaining service quality dimension i.e. E-Fulfilment, Easiness, Responsibility, Cost Effectiveness and Compensation regarding EFT service were not significantly deferent in public and private sector banks. Based on these results some suggestions have been suggested for managerial implications in public and private sector banks

Keywords: Service quality, EFT, Customers' Perception, Satisfaction, Commercial Banks

INTRODUCTION

Information Technology (IT) has helped in increasing the speed and efficiency of banking operations by facilitating the emergence of innovative products and new delivery channels i.e. internet banking, mobile banking, ATM, credit cards, MICR clearing, electronic clearing service etc. It is called e-banking or high-tech banking services. According to Kaleem Ahmad (2008) electronic banking minimizes the cost of transactions, saves time, minimizes inconvenience, provides up-to-date services, increases operational efficiency, reduces human resource requirements, facilitates quick responses, improves service quality and minimizes the risk of carrying cash. E-banking service began with computerization of banking in India. The first blue print for computerization of banks in India was drawn in 1983-84 as phased plan for mechanization of banking industry (1985-89). Although, the Reserve Bank of India (RBI) installed its first computer in 1968, and a larger one in 1979. But United Commercial

(UCO) Bank, the Standard Chartered Bank, Lloyds' Bank, Grindlays, and others had installed accounting and other machines before 1966[9].

But in large scale computerisation of Indian public sector banks have been undertaken by the phased plan of computerisation in 1985 which was constituted by Dr. C. Rangrajan Committee. Now most public sector banks are computerised fully or

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partially. In the first phase of computerisation spanning the five years ending 1989, banks in India have installed 4776 ALPMs at the branch level, 233 mini computers at the Regional/Controlling office levels and trained over 2000 programmers/systems personnel and over 12000 Data Entry Terminal Operators[10]. Now, almost all banks have been computerized and are providing various types of e-banking services to their customers; even rural bank branches are also providing these services to the customers.

Need of the study

Electronic Fund Transfer (EFT) service is not a new service for customers in developed nations. However, it is new for customers' in developing or underdeveloped nations like India. After review of literature, it is realized that there were very few research work undertaken to know customers' perception in Electronic Fund Transfer (EFT) service provided by banking institutions and to identify the important service quality dimensions of the EFT service as well as service quality of EFT services provided by public and private sector banks. Therefore, the present research was conducted to fill gap in the literature and put forth the facts regarding customers' perception in EFT service provided by banking institutions.

REVIEW OF LITERATURE

Service Quality

There is very strong relationship between quality of service and customer satisfaction (Parasuraman et al, 1985). Increase in service quality of the banks can satisfy and develop attitudinal loyalty which ultimately retains valued customers (Kumbhar, 2010; 2011a). The higher level of perceived service quality results in increased customer satisfaction. When perceived service quality is less than expected service quality customer will be dissatisfied (Jain and Gupta, 2004). Parasuraman, et al. (1988) posited that if there is expected quality of service and actual perceived performance is equal or near about equal the customers can be satisfied, while a negative discrepancy between perceptions and expectations a 'performance-gap' as they call it causes dissatisfaction, a positive discrepancy leads to consumer delight.

The relationship between expectation, perceived service quality and customers satisfaction have been investigated in a number of researches (Zeithaml, et al, 1996). An expectation is minimum requirement of service quality by service providers to the meet customers wants and needs. According to Parasuraman et al (1985, 1988) perceived service quality is viewed as the degree and direction of discrepancy between customers' perceptions and desires.

Performance and Expectation Scale and Performance Only Scale

There are two types of the scales i.e. performance and expectation scale and performance only scale. The SERVQUAL is basic scale as performance and expectation

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scale (Gap Model) and SERVPERF is Performance Only scale available to measure the service quality. However, many researchers have argued that, performance only scale is very suitable and easy to use in customer related research. They (Pont and McQuilken, 2002; Avkiran, 1994; Cronin et al (2000); Kumbhar (2010b), Jain and Gupta (2004); Andronikidis et al (2010); Cohen et al (2006); Asubonteng et al, (1996) and Llusar & Zornoza, (2000)) proved that, Performance Only scale is an excellent scale for measuring service quality and customer satisfaction. Empirical studies evaluating validity, reliability, and methodological soundness of service quality scales clearly points out the superiority and psychometric soundness of the SERVPERF scale. More specifically Lianxi Zhou, (2004), Sungjip Nam (2008) and Aaron and Robin (2010) have mentioned that the Performance-Only measurement of service quality (SERVPERF) as determinants of consumer satisfaction and subsequent behavioural intentions associated with banking services. Therefore, author has used performance only scale for measuring service quality EFT service.

Service Quality Dimensions for the Study

After in-depth and extensive literature review (Khanh, 2005; Parasuraman et al, 1985, 1988, 2005; Zeithaml et al. 1996, 2002, Pont and McQuilken, 2002; Avkiran, 1994; Jain and Gupta (2004) ; Andronikidis et al (2010) ; Cohen et al (2006); Asubonteng et al, (1996) and Llusar & Zornoza, (2000)), there are more than 08 disunions of service quality i.e. System Availability, E-Fulfilment, Easiness, Efficiency, Responsibility, Cost Effectiveness, Problem Handling and Compensation have been identified as dimensions of e-service quality which are applicable to understand customers' perception in EFT service provided by commercial banks.

RESEARCH METHODOLOGY

Objectives of the Study

The purpose of the study is mainly focus on the service quality of electronic fund transfer service of the commercial banks and customers' satisfaction level in EFT service. Particularly the present study was carried based on followings objectives;
1. To review origin and developments of EFT service in Indian banking
2. To identify the important service quality dimensions of the EFT service
3. To understand the customers perception regarding EFT service
4. To compare the customers perception regarding EFT service provided by public and private sector banks

Hypothesis of the Study
1. There is no significant difference in perception regarding system availability of EFT service provided by public and private sector banks.
2. There is no significant difference in perception regarding e-fulfilment of EFT service provided by public and private sector banks.
3. There is no significant difference in perception regarding easiness of EFT service provided by public and private sector banks.
4. There is no significant difference in perception regarding efficiency of EFT service provided by public and private sector banks.
5. There is no significant difference in perception regarding responsibility regarding EFT service provided by public and private sector banks.
6. There is no significant difference in perception regarding cost effectiveness of EFT service provided by public and private sector banks.

7. There is no significant difference in perception regarding problem handling facilities regarding of EFT service provided by public and private sector banks.
8. There is no significant difference in perception regarding compensation facilities regarding of EFT service provided by public and private sector banks.
9. There is no significant difference in perception regarding Overall Satisfaction in EFT service provided by public and private sector banks.

Methodology, Sampling and Data

In this research a quantitative methodology was employed in order to obtain data so as to address the research questions. According to Yin (1994), qualitative method is suitable to empirical studies. Therefore, qualitative method – an empirical case study in particular was applied to conduct this research. In this study, six banks respondents were selected from six commercial banks in Satara city. Because, multiple cases provide the opportunities to compare the services in different banks under different angles and aspects, which enriche the analysis of the research (Yulia Kristensson, 2008).

In this study judgmental sampling method to select samples for the study have been used. 162 respondents were selected to obtain required primary data through a schedule. Out of 162 responses 150 usable responses were used to analysis the perception regarding EFT service. Small sample size was chosen, so as to enable an in-depth study. This is because, many scholars (Bock and Sergeant 2002; Patton, 2002, Ding et al, 1995; Khalil Nor 2005; Marshall, 1996). Miles and Huberman (1984) have argued that a qualitative research typically involves small samples. The 100 to 150 samples are to be the minimum acceptable sample size in the qualitative study to draw a conclusion. However, Bertaux (1981) and Crouch and McKenzievery (2006); Romney, Batchelder, and Weller (1986); Guest et al. (2006), Mason, (2010) and Marshall, (1996 pp523) mentioned that, fifteen is the smallest acceptable and quite sufficient in providing complete and accurate information within a particular segment, with exceptions.

There was no sample size and percentage to total customers that was pre-determined because bankers did not provide details about the number of customers and the information because of legal restrictions and business secrets. Therefore, convenience and judgmental sampling methods was followed to identify the respondents and only those customers were selected who were using EFT service of the public sector or private sector banks.

DATA ANALYSIS

After this initial process, the data was entered in the SPSS worksheet. Author has used descriptive statistics e.g. percentage, mean, average and standard deviation. The SPSS 19.0 package was used to assess reliability of the scale and data collected. Cronbach's alpha test was conducted to assess reliability of the scale. The hypotheses were tested using non parametric test Mann-Whitney U test. Non-parametric methods were used for hypothesis testing because, our data was not normally distributed and it was qualitative nature.

Electronic Funds Transfer (EFT) in India

Reserve Bank of India has introduced the Reserve Bank of India Electronic Funds Transfer System in 1997 which is be referred as 'RBI EFT System as per recommendations of the Share Committee (Committee for proposing Legislation on Electronic Funds Transfer and other Electronic Payments, 1995). Basic infrastructural

facilities regarding EFT service are provided by the RBI and this service permits transfer of funds upto Rs. 5 lakhs from any member bank to another member banks. In this system the Reserve Bank of India acts as the service provider as well as regulator of EFT. The National Electronic Fund Transfer (NEFT) was introduced in 2003 covering about 3000 branches in 500 cities; by Sept, 2010 77 banks have been participating in EFT. The coverage of NEFT has increased about 69000 branches as on June 2010 (Axis Bank- 1003, Bank of Baroda – 3098, Corporation Bank- 1139, HDFC Bank Ltd- 1741, IDBI Bank- 772 and State Bank of India- 13051branches connected with NEFT) this services is also known as Special Electronic Fund Transfer SEFT and it facilitates same day transfer of customers' funds. Recent scenario indicates that, overall EFT and NEFT based transfer grew from Rs. 17,124.81 crore to Rs. 4, 09,507.47 Crore in 2003-04 to 2009-10.

RTGS is one another service which stands for Real Time Gross Settlement. RTGS system is "real time" and on "gross" basis system for large value transactions. It was started in March 26, 2004 as per recommendations of the Dr. R. H. Patil committee (2002). This system facilitates Inter-bank as well a customer payments in India.

Inter-bank clearing is used by banks mainly for four types of transactions i.e. Call money transactions, Rupee payment of foreign currency transactions, Bank to Bank transfers for funding upcountry requirements and Inward remittances. Inter-bank clearing was introduced in Chennai in April 1989, followed by Mumbai, Calcutta and New Delhi. During the year 2009-10, a total of 11,172 bank branches were added in the RTGS system, thereby increasing the number of RTGS enabled bank branches to 66,178. In year 2004-05 to 2008-09 transactions related customers payments have raised up from Rs 2,49,662 crore to Rs 2,95,16,777.47 crore. In 2003-04 to 2008-09 amount of inter-bank payments raised up Rs. 1,965 crore to Rs 1,22,75,773 crore, and whole amount of transaction have been raised up from Rs 1,965 crore to Rs 6,11,39,912 crore in India.

Demographics

There was one important reason for analyzing the demographic characteristics of the respondents of the research that, a clear profile of the EFT service users. In Table 1 descriptive analysis for demographic information indicated that among the analyzed samples (N=190),participation is 17.4% of SBI, 14.7% of BOB, 13.2% of Corp Bank, 18.4% of IDBI Bank, 15.8% of Axis Bank and 20.5% of HDFC Bank (63.7% of Public Sector and 36.3% of private sector Banks). Out of 190 respondents 82.1% of the respondents were male, 17.9 % were female. In terms of age group, 20% were below 25 years, 34.7% of 25 to 35 years, 35.8% were 36 to 50 years and 9.5% were 51 to 60 years old. There were no respondent above 60 years however; some retired persons from military and army were covered under study as samples.

Educational status of the respondents indicates that 4.2% of respondents were below HSC, 5.3% of HSC, 49.5% of graduate and 41.1% of post graduates. There were 31.6% of employees and 36.3% of businessmen as a core respondent who were using most of alternative channels. However, 13.7% of professional (doctor, engineers, charted accountants, investment consultants, insurance agents etc.), 14.2% of students and 4.2% of retired persons were also covered in this study. Income profile of the respondents shows that there were 20.5% of below Rs. 1lakh, 16.3% of 1to 3 lakh, 36.8% of 3 to 8 lakh, 14.2% of 8 to 15 lakh, 4.7% of 15 to 25 lakh, 2.1% of above 25 lakh and 5.3% of dependents (Table No. 1).

Table 1: Demographic Profile of the Respondents					
Items	Frequency	Percent	Income	Frequency	Percent
SBI	32	21.3	Dependents	10	6.7
BOB	25	16.7	<1 Lakh	36	24.0
COPB	19	12.7	1 to 3 Lakh	26	17.3
Axis	20	13.3	3 to 8 Lakh	32	21.3
HDFC	25	16.7	8 to 15 Lakh	18	12.0
IDBI	29	19.3	15 to 25 Lakh	15	10.0
Total	150	100	> 25 Lakh	13	8.7
Age	Frequency	Percent	Education	Frequency	Percent
Below 25	34	22.7	<HSC	8	5.3
25-35	48	32.0	HSC	10	6.7
36-50	50	33.3	Graduate	73	48.7
51-60	18	12.0	Post Graduate	59	39.3
Total	150	100.0	Total	150	100.0
Profession	Frequency	Percent	Gender	Frequency	Percent
Employee	54	36.0	Female	31	20.7
Businessman	46	30.7	Male	119	79.3
Retired & House Wife	8	5.3	Total	150	100.0
Student	24	16.0			
Professional	18	12.0	Source: Survey		
Total	150	100.0			

Analysis and Discussion

Table 2 indicates that, customers' perception regarding to the System Availability (readiness of the service), Efficiency, Problem Handling and Overall Satisfaction in EFT service is deferent in public and private sector banks

- System Availability : Pub 3.82 < Pvt. 4.21
- Efficiency   : Pub 3.86 < Pvt. 4.15
- Problem Handling   : Pub 3.58 > Pvt. 3.17
- Overall Satisfaction : Pub 3.73 > Pvt. 3.30

Table 2 indicates that, there is deference in customers' perception in EFT service provided by public and private sector banks; but it is not so differ

- Cost Effectiveness: Pub 3.60 > Pvt. 3.40).
- Compensation   : Pub 3.81 > Pvt. 3.64).

Table 2 also indicates that, there is very smaller or negligible difference in customers' perception regarding E-Fulfilment, Easiness, Responsibility, Cost Effectiveness and Compensation service relating to EFT service provided by public and private sector banks.

- E-Fulfilment   : Pub 4.06 ≈ Pvt. 4.12).
- Easiness   : Pub 3.92 ≈ Pvt. 3.93).
- Responsibility   : Pub 3.33≈ Pvt. 3.29).

Table 2: Customers' Perception (Based on 5 Point Likert Scale)									
Type of Banks	Public Banks			Pvt. Banks			All Selected Banks		
	Mean	N	Std. Dev	Mean	N	Std. Dev	Mean	N	Std. Dev
System Availability	3.8289	76	0.97143	4.2162	74	0.96897	4.02	150	0.98628
E-Fulfilment	4.0658	76	0.66001	4.1216	74	0.68151	4.0933	150	0.66903
Easiness	3.9211	76	0.62744	3.9324	74	0.81646	3.9267	150	0.72442
Efficiency	3.8649	76	0.61216	4.1579	74	0.86522	4.0133	150	0.75961
Responsibility	3.3395	76	0.82366	3.2973	74	0.8872	3.32	150	0.86132
Cost Effectiveness	3.6053	76	0.8956	3.4054	74	0.82626	3.5067	150	0.86503
Problem Handling	3.5868	76	0.85625	3.1757	74	0.95599	3.3833	150	0.91715
Compensation	3.8158	76	0.66754	3.6486	74	0.95706	3.7333	150	0.82468
Overall Satisfaction	3.7368	76	0.68056	3.3000	74	0.64638	3.51	150	0.67227

Hypothesis Testing

Table 3 indicates that, System availability regarding EFT service (Z= -2.930 sig = .003), efficiency of EFT service (Z= -2.104 sig = .035), problem handling service regarding EFT (Z= -2.046 sig = .041) and overall satisfaction in EFT service (Z= -2.349 sig = .019) provided by public and private sector banks were significantly deferent. However, customer's perception regarding remaining service quality dimension i.e. E-Fulfilment, Easiness, Responsibility, Cost Effectiveness and Compensation regarding EFT service were not significantly deferent in public and private sector banks.

Managerial Implications

Overall results indicate that, customers' perception regarding to the system Availability, Efficiency, Problem Handling and Overall Satisfaction in EFT service is different in public and private sector banks. System availability (readiness) of the EFT service is poor in public sector banks as compared to the private sector banks. Hence public sector banks should maintain their EFT service mechanism up-to-date including internet connectivity with the help of telecommunication department and Public sector banks should concentrate their efforts to increase efficiency in EFT service. Problem handling service relating to problems of EFT service is not too good in private sector banks, therefore the private sector banks should enhance their problem handling mechanism. It will be benefited to increase their customers satisfaction level also which is low as compared to customers of public sector banks. The private sector banks should concentrate their efforts to decrease cost effectiveness in EFT service as well as compensation policy regarding EFT service. Because, customers perception relating to cost effectiveness and compensation policy is lower as compared to the customers of public sector banks.

Table 3 Results of Mann Whinny Test : Public & Private Banks						
Ranks						
	Type of Banks	N	Mean Rank	Sum of Ranks	Mann-Whitney U	
System Availability	Public	76	65.92	5010.00	M-W- U	2084.000
	Pvt	74	85.34	6315.00	Z	-2.930
	Total	150			Sig. (2-tailed)	.003
E-Fulfilment	Public	76	73.68	5599.50	M-W- U	2673.500
	Pvt	74	77.37	5725.50	Z	-.626
	Total	150			Sig. (2-tailed)	.531
Easiness	Public	76	75.12	5709.00	M-W- U	2783.000
	Pvt	74	75.89	5616.00	Z	-.124
	Total	150			Sig. (2-tailed)	.902
Efficiency	Public	76	82.04	6235.00	M-W- U	2315.000
	Pvt	74	68.78	5090.00	Z	-2.104
	Total	150			Sig. (2-tailed)	.035
Responsibility	Public	76	81.09	6162.50	M-W- U	2387.500
	Pvt	74	69.76	5162.50	Z	-1.699
	Total	150			Sig. (2-tailed)	.089
Cost Effectiveness	Public	76	80.91	6149.00	M-W- U	2401.000
	Pvt	74	69.95	5176.00	Z	-1.675
	Total	150			Sig. (2-tailed)	.094
Problem Handling	Public	76	82.20	6247.50	M-W- U	2302.500
	Pvt	74	68.61	5077.50	Z	-2.046
	Total	150			Sig. (2-tailed)	.041
Compensation	Public	76	78.57	5971.50	M-W- U	2578.500
	Pvt	74	72.34	5353.50	Z	-.964
	Total	150			Sig. (2-tailed)	.335
Overall Satisfaction	Public	76	82.78	6291.00	M-W- U	2259.000
	Pvt	74	68.03	5034.00	Z	-2.349
	Total	150			Sig. (2-tailed)	.019

CONCLUSION
Result indicates that, System availability of EFT service (Z= -2.930 sig = .003), efficiency of EFT service (Z= -2.104 sig = .035), problem handling service regarding EFT (Z= -2.046 sig = .041) and overall satisfaction in EFT service (Z= -2.349 sig = .019)

provided by public and private sector banks were significantly different. There is no similarity in the service provided by the public and private sector banks. However, customers' perception regarding remaining service quality dimension i.e. E-Fulfillment, Easiness, Responsibility, Cost Effectiveness and Compensation regarding EFT service were not significantly different; it is almost same in public and private sector banks. Therefore author recommends that, banks should focus their efforts to amplify service quality of the EFT which facilitate superior service perception.

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HEALTH-CARE FACILITIES AND RURAL-URBAN MIGRANTS: AN URBAN LEVEL STUDY IN ODISHA

Kshitish Kumar Khuntia* and Byomakesh Debata**

Abstract

Migration has been defined as crossing of the boundary of a political or administrative unit for a certain minimum period of time. It includes the movement of refugees, displaced persons, uprooted people as well as economic migrants. There are sufficient reasons to say that, migrants are disadvantaged relative to the native population regarding employment, education and health. The vulnerability of the migrants and their health has to be assessed from the framework of accessibility of health and health services in relation to the availability of services, discrimination on the basis of sex and gender roles and economic affordability, quality of available services and the prior conditions of health like right to safe and healthy working conditions, right to adequate food, physical accessibility of health services, culturally sensitive and good quality health services, and the right to seek and receive health related information. The present paper highlights the causes of rural urban migration in Orissa in general and their accessibility to healthcare in particular. People of the rural areas in Orissa migrate to urban areas within and outside their districts and also to the neighboring states. Migration is an outcome due to the repeated disasters that strike at regular intervals. The core objective of the study is to determine the areas and causes of rural migration in the State of Orissa in general and ascertain the health care provisions of the said migrants in particular. For this purpose a cross sectional study has been done. The sample respondents of the study are randomly selected from the study area (Bhubaneswar, The State Capital) and a structured questionnaire has been framed to know the causes of migration along with the healthcare facilities and awareness of the rural migrants in Orissa.

Key Words: Social and Economic Factors, Rural urban migrants, Healthcare provisions

JEL Classification: **I11, I14**

INTRODUCTION

Effects of social and economic inequality on health of a society are profound. In a large, overpopulated country like India with its complex social architecture and economic extremes, the effect on health system is multi fold. Unequal distribution of resources is a reflection of this inequality and adversely affects the health of under-privileged population. The socially under-privileged are unable to access the health care due to geographical, social, economic or gender related distances (Deogaonkar 2004). Indian health care system is not problem free. These problems are varied and complex. Poverty is the real context of India. Three fourths of the population live below or at subsistence levels. This means 70-90 per cent of their income goes towards food and related consumption. In such a context social security support for health, education, housing etc. becomes critical (Duggal 2005).

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India is an under developed country and 50% of the population live in urban areas in an extremely below the poverty condition. As they are lured by massive industrialization, economic and educational opportunities in cities like Chennai, Mumbai, Kolkatta and Delhi are over crowed and the statistics says about one fifth live in slums Most of the health problems in India are generated from these slums only. Urban malaria, tuberculosis and pneumonia, leprosy, meningitis, preventable infections in children such as measles, whooping cough and polio, diarrhea diseases and intestinal worm infections are some of the most common health problems apart from higher morbidity and mortality due to accidents (Chakarapani 2011). Each year, 200 million migrations take place within India, which has prompted the National AIDS Control Organisation (NACO) to provide information on HIV and other sexually-transmitted diseases to migrants (Sanchita 2010). However there are gross inequities in the healthcare delivery between the native population and the migrants. Only ad-hoc approach is followed for seasonal migrants and temporary settlers. Various strategies have been devised time to time to reach out to these vulnerable sections; however these strategies are deficient in quality. Urban slums and migrants generally fall outside the stipulated cover areas of the health-workers, leading to poor delivery of health care services. Household visits by health personnel are rare, leading to increasing dependence of the migrants on private practitioners and unqualified practitioners (Biswas 2011).

Defining Migration:

Migration is defined as a move from one area to another, usually crossing administrative boundaries made during a given interval and involving a change of residence (UN 1993). Internal migration refers to a move from one area (a province, district or municipality) to another within one country. According to Classical theories, migration is a rational decision made by an individual to move from a less advantageous situation to a more advantageous one after weighing risks and benefits (Setia 2010). Migration is considered as one of the most important global issues in recent years. There are now about 192 million people living outside their place of birth which is about three per cent of the world's population. Migration has become a universal phenomenon in modern times. Due to the expansion of transport and communication, it has become a part of worldwide process of urbanization and industrialization. In most countries, it has been observed that industrialization and economic development has been accompanied by large-scale movements of people from villages to towns, from towns to other towns and from one country to another country (Lusome 2006). India has shared the growth pattern and rapid urbanization with some of the fastest growing regions in Asia. The country has witnessed around 8% growth in GDP in the last couple of years and has planned to achieve a target of over 9% growth by the end of 11th Plan period. India's urban population is increasing at a faster rate than that in its total population (Government of India 2009). As the Constitution of India provides basic freedom to move to any part of the country, right to reside and earn livelihood of their choice, migrants are not required to register either at the place of origin or at the place of destination. A number of economic, social, cultural and political factors play an important role in the decision to move. The effects of these factors vary over time and place. Various surveys and studies have shown that migrants are disadvantaged relative to the native population regarding employment, education and

health. The vulnerability of the migrants and their health and human rights has to be assessed from the framework of accessibility of health and health services in relation to the availability of services, quality of available services and the prior conditions of health (Chatterjee 2006).

The present paper highlights the causes of rural urban migration in Odisha in general and their accessibility to health-care in particular. Odisha is one of the poorest states of India. The economy of Odisha is predominantly agricultural and the performance in this sector is crucial to the development of the state. The prevalence of small farmers having small sized land holdings, seasonal unemployment, the non-application of modern technology in agriculture in Odisha had forced the people to search for alternate sources of livelihood. People of the rural areas migrate to urban areas within and outside their districts and also to the neighboring states. Migration is an outcome due to the repeated disasters that strike Odisha at regular intervals. Cyclones, floods, droughts and famines hit the state at different times in different regions. The coastal region is more prone to cyclones, floods whereas the western districts and southern region are vulnerable to droughts and famines and have created a vacuum in livelihoods. The manifestations of disasters are seen in the poverty, malnutrition, distress sale of paddy, property and even children. Landlessness, indebtedness and lack of livelihood force the people to seek survival options in other far way places (Sansristi 2006).

OBJECTIVE AND METHODOLOGY OF THE STUDY
The present study aims at achieving the following objectives.

> To understand the socio-economic characteristics of migrant labourers in Bhubaneswar and the push and the pull factors taking them to Bhubaneswar
> To know the accessibility of health-care facilities
> To determine the provision of health-care facilities for the migrants in the study area
> To suggests some remedies to overcome from the problem related to migrants health
> The core objective of the study is to determine the areas and causes of rural

migration in the State of Odisha in general and ascertain the health care provisions of the said migrants in particular. For this purpose a cross sectional study has been done. The sample respondents of the study are randomly selected from the study area (Bhubaneswar, The State Capital) and a structured questionnaire has been framed to know the causes of migration along with the healthcare facilities and awareness of the rural migrants in Odisha. The study is of a pilot nature on internal migration in Odisha with a very limited sample size of 100 casual workers, seeking work in the labour market on a day-to-day basis. Stratified random sampling was used to select the households. Pre-tested questionnaire was dispensed in a personal interview to the household head (19-49 years) regardless of gender; those were staying in the community for more than two years. Equal numbers of male and female workers were selected. The households of slum dwellers included in the study are the migrants from rural areas. The resident slum dwellers have been kept outside the scope of the study. The data has been presented with tabular form and analyzed accordingly.

Economy of the Study area
The economy of Odisha has been lagging behind the national economy by several decades. Its per capita net state domestic product, a measure of average income, stood at

Rs.20200 for 2006-07 which falls behind the national average by about 35 per cent. Moreover, the gross domestic product of the state grew by a considerable lower rate than many other states for a long time despite its high growth potential. Drawing on the experience of several countries as well as that of India, various studies concluded that economic growth was the most critical factor for reduction of incidence of poverty in the state.

Demography

The population of Odisha which was 316.60 lakh in 1991 increased to 368.05 lakh in 2001. This accounted for a decennial growth rate of 16.25% against 20.06% in the previous decade, which is lower than the corresponding growth rates of 21.34% and 23.86% at the national level. As per the 2008 SRS report, the Crude Birth Rate (CBR) for Odisha was 21.4 against the national average of 22.8. the Crude Death Rate (CDR) declined from 13.1 in 1981 to 9.0 in 2008 as against 7.4 at the national level. The density of population which was 203 per sq. km. in 1991 has increased to 236 per sq. km. in 2001, which is lower than the All India average of 313 per sq. km. Out of the total population, 85.01% live in rural areas and depends mostly on agriculture for their livelihood. Urban population constitutes 14.99%. The sex-ratio (i.e number of females per thousand males) in Odisha has marginally increased from 971 in 1991 to 972 in 2001 and this is much higher than the All India average of 927 in 1991 and 933 in 2001. In respect of SC and ST population also the State fared better sex ratio. As per 2001 Census, the sex ratio among SC and ST was 979 and 1003 respectively as against 936 and 978 at the All India level. As per the 2001 Census, the rural population in Odisha is 31,287,422 and urban population is 5,517,238. The percentage of urban population to total population in Odisha at 14.99% is much below the national average of 27.78%. The projected population of Odisha for the year 2015 will be 425.70 lakh.

Reasons for migration in Odisha:

Migration is one the most important demographic component to determining the size, growth and structure of population of a particular region, besides fertility and mortality. For a large country like India, the study of movement of population in different parts of the country helps in understanding the dynamics of the society and societal change better. At this juncture in the economic development, particularly in areas, such as, manufacturing, information technology or service sectors, data on migration profile of population has become more important. Migration in Odisha can be classified under five broad categories- they are; (i) Migration due to extreme poverty and destitutions, (ii) Opportunity migration for better wage and livelihood(iii) Migration due to industrial and development induced displacement, (v)Migration due to natural disasters and armed conflict and(vi) migration due to human trafficking.

PRIMARY DATA ANALYSIS

Educational Level

From the below table it is revealed that, nearly half of the respondents did not have any schooling. The proportion of female workers with no formal schooling was double that of male workers. However, 8 per cent of the migrants were matriculates.

Table 1: Educational Level of the respondents (%)

Level of Schooling	Male	Female	All
No formal schooling	32	64.0	48.0
School up to 4 years	6.0	10.0	8.0
5-9 years	30.0	14.0	22.0
Failed matriculation	20.0	8.0	14.0
Matriculated	8.0	4.0	6.0
Above matriculation	4.0	--------	2.0
Total	100.0	100.0	100.0

Source: Primary Data

Marital Status

From the below Table-2, it is revealed that, most of the respondents were married. Thirteen per cent of the respondents were either widowed or separated. While unmarried workers were more among the males, widowed/separated were more among the females.

Table 2: Marital Status of Migrant Labourers (%)

Marital Status	**Male**	**Female**
Single	22.0	2.0
Married	72.0	78.0
Widowed	6.0	16.0
Separated	---	4.0
Total	100.0	100.0

Source: Primary Data

Push and Pull Factors of Migration

As may be noted from Table 3, it was the low wages and the lack of opportunities in their native village which were the primary factors that have pushed them out of their villages. Drought/water scarcity in their villages also has forced some of the respondents to migrate temporarily. The high wage rates and more employment opportunities were the factors that pulled them to Bhubaneswar.

Table 3: Push and Pull Factors of Migration (%)

Causes of migration	Male	Female	All
Low wage in the village	66.0	63.0	63.0
Lack of job opportunities in the village	40.0	48.0	44.0
Water scarcity/drought in the village	28.0	42.0	35.0
Migration of spouse	0.0	4.0	2.0
Family problems	2.0	2.0	2.0
Total	100.0	100.0	100.0

Source: Primary Data

Availability of basic amenities for Migrants

From the below table, it is revealed that, 6 per cent of the migrants did not have toilet facility in their places of living, 87 per cent share the toilets with others. The situation has implications not only on the health of the individual migrants but also on public health of the region. It was found that most of the migrant workers use public taps for sourcing drinking water and water for other purposes.

Table 4: Availability of Amenities in the study area

Amenities	Percentage
Toilet Facility	
Separate	7
Common	87.0
No Toilet	6.0
Total	100
Source of drinking water	
Public tap	91.0
piped water	1.0
Well	6.0
Pond	2
Total	100.0

Source: Primary Data

Health Related Aspects

It is well known that household environment plays a crucial role in determining the health of its occupant. Overcrowded living conditions of the migrant labourers result in increased transmission of infectious diseases. Due to non-availability of basic amenities and unhygienic living conditions make the migrant workers vulnerable to diseases. The unfavorable working conditions can also lead to serious occupational and other health problems. Many of the workers have habits which can lead to poor health in the long run. These are presented in Table 5.

Table 5: Unhealthy Habits

Habits	Male	Female	Total
Drink alcohol	60.0	2.0	31.0
Smoking	70.0	2.0	36.0
Use Pan parag	16.0	8.0	12.0
Chewing tobacco	14.0	48.0	31.0

Source: Primary Data

From the above table, it is revealed that many of the respondents are habituated with drinking alcohol & smoking, which are a way ahead to bring health disasters.

Illnesses while Working

Scarcity of basic amenities leads to poor health of the working migrants. Eighty seven per cent of the respondents reported having had some diseases while staying in Bhubaneswar. Incidence of fever and headache was very high. One-in-ten respondents were having cough. Some of these problems are occupation related.

Table 6: Illnesses while Working in Bhubaneswar

Illness	Percent
Fever	81
Headache	71.0
Cough	11.0
Cold	5.0
Pain in leg/hand	4.0
Stomach pain	2.0
Body pain	2.0
Back pain	2.0
Chest pain	1.0
No disease yet	13.0

Source: Primary Data

Place of Treatment of Illness
Table 7: Place of Treatment of Illness

Places of treatment	Total
Private hospital/clinic in Bhubaneswar	36.8
Medical shop	29.8
Government hospital in Bhubaneswar	20.7
RMP(Register Medical Practitioner)	8.1
Did not go for treatment	2.3
Total	100.0

Source: Primary Data

One-third goes to a private hospital/clinic. It is important to note that a significant proportion (30 per cent) approach a medical shop for treatment. Only one-fifth of the workers approach a government hospital. Eight per cent of those who had some disease while working in Bhubaneswar reported that they had gone to RMP (Register Medical Practitioner) because of their inability to communicate effectively with the doctor. Few did not undergo any treatment. The temporary nature of their stay in Odisha might be one of the reasons for not preferring government hospitals for treatment. Treatment is made available from the government hospitals free of cost only if they belong to BPL families. With no ration card, these migrant labourers are not eligible for free/subsidized treatment in government hospitals. Timings of the government hospitals is also not convenient to the daily labourers like the migrants. It is found that while migrant labourers avail themselves of curative care, though very often not at the desired level, they fall largely

outside the coverage of preventive care due to the temporary nature of their employment and stay. It is found that the public health personnel seldom visit the settlements where the migrant labourers live. Just two per cent of the respondents reported that they were visited by the health worker in the month previous to the survey.

CONCLUSION

From the present study, it is found that, the low wages and the lack of opportunities in native village which are the primary factors that push the poor people from rural to urban areas. In the work place they are facing a lot of problems like lack of basic amenities and poor standard of health care facilities. Overcrowded living conditions of the migrant labourers result in increased transmission of infectious diseases. Due to non-availability of basic amenities and unhygienic living conditions make the migrant workers vulnerable to diseases. The unfavorable working conditions can also lead to serious occupational and other health problems.

The present study aims at alerting the policy makers, planners and administrators, at the state as well as the local level on provision of health care facility to the urban migrant of Odisha. In view of the rising in-migration, questions related to governance, public health, sanitation, water supply, housing, urban environment, educational and infrastructural needs law and order, etc., warrant greater attention at the level of policy planning and implementation. The large influx of migrants from different parts of the country with different linguistic and cultural backgrounds puts pressure on governance as well as civic amenities. Besides, in the absence of reliable information on the quantum of in-migration of a floating nature, these migrants are unlikely to be taken into account while making population projections and consequently in planning. For integrating the issues relating to migration into local governance, alternative population projections which include migrants of all types have to be made. From the issues that emerged from the study and recognizing the paramount importance of health in the well-being of the people, it is crucial that policy action be taken to improve health services of these migrant populations who live in these unauthorized slums. As few NGOs are already working in these areas to improve the health facilities with whatever resources available an effective Public Private Partnership programme can be designed to provide to better health care facilities to this population.

KEY RECOMMENDATION

Registration of migrant labourer is essential to regulate and monitor the outflow and inflow of migrant labour at both source and destination states. Special identity cards should be provided to migrant people by local panchayats.

Strict regulation and monitoring of middleman engaged in labour trading should be done by the enforcement agency.

The left-out family members of migrants need to be covered under all food rights entitlements and social security programme on priority and protected from hunger and starvation.

The disaster prone area should have contingent plans for effective rehabilitation and resettlement measures to prevent people from migration and getting trafficked.

Training programme on Employment, Entrepreneurial skill development skill and Capacity building process to be undertaken for the migrant youths.

Requisite vaccination should be carried out along with making availability of medicines for migrants which may be a clear milestone in order to improve their health status.

Special programme should be envisaged to provide care and support to the migrant affected and infected by HIV and AIDs.

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A COMPARATIVE PERFORMANCE EVALUATION OF PUBLIC AND PRIVATE SECTOR SPONSORED MUTUAL FUNDS IN INDIA IN A POST LIBERATION ERA

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Abstract

The mutual fund industry in India is emerged as a dominant player in Indian capital market. As on march 2009, the industry is comprising of 39 asset management companies managing financial asset of over 493,285 crs contributed by more than 4.76 crs investors spread all over the country. The assets have grown at a compounded annualized growth rate of 48 percent over a period of four decades, which is an evidence of growing popularity of mutual funds in the country (as per figure made available by Association of Mutual funds in India). The impressive growth can be attributed to the entry of private players in the industry coupled with rapid growth of capital market after economic liberalization and globalization

The statistics shows that as on year ending 2009, out of total asset under management, private sector sponsored funds constitute the major shares of 78.89 % where as public sector sponsored funds excluding UTI has 11.22% share and UTI after its reorganization in 2003 has only 9.8% share.

In the present study, the comparative analysis of the performance of public and private sector sponsored mutual funds is made in terms of various performance evaluation tools like Sharpe, Treynor, Jenson, Sharpe differential and Fema measures.

Keywords: *mutual fund, capital market, liberalization, globalization, comparative analysis.*

JEL Classification G23, L25

INTRODUCTION-

The mutual fund industry is gaining momentum gradually in Indian financial market due to its bucket of benefits (like diversification, professional management, tax advantage, variety of schemes satisfying different needs of investors) provided to investors. Mutual funds are now competing with commercial banks in the race for retail investors' savings & corporate to float money and it is expected that in coming few years traditional saving avenues will loss out. Many investors are realizing that the investments in saving -accounts are as good as locking up their deposits in a closet. The assets have grown at a compounded annualized growth rate of 48 percent over a period of four decades, which is an evidence of growing popularity of mutual funds in the country (as per figure made available by Association of Mutual funds in India).The impressive growth can be attributed to entry of private players in the industry coupled with rapid growth of capital market after economic liberalization and globalization.

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The statistics shows that as on year ending 2009, out of total asset under management, private sector sponsored funds constitute the major shares of 78.89 % where as public sector sponsored funds excluding UTI has 11.22% share and UTI after its reorganization in 2003 has only 9.8% share. The sharp increase in funds flowing into private sector mutual funds may be due to the introduction of various innovative schemes, better customer service their good performance dunning last decode & increase in number of players & competitions in the market.

In the present study, a comparative analysis of the performance of public and private sector sponsored mutual funds is made in terms of risk and return through some statistical and financial tools.

Mutual Fund – The Concept and growth
The VNR Dictionary of Business and Finance defines Mutual Fund as "An investment fund that pools the invested funds of others and invests whose funds on their behalf, usually in a specific kind of investment such as money market instruments, municipal bonds or common stock.

In 1964 with the formation of Unit Trust of India the Indian mutual fund industry took birth in India. The primary objective at that time was to attract the small investors towards investment in capital market. The monopoly of UTI came to an end in 1987, when government of India by amending Banking Regulation Act enabled commercial Banks in Public sector to set up subsidiaries operating as a trust to perform the functions of mutual funds. The cumulative mobilization of resources went up from 4563.68 Crs in 1987 (mobilized by UTI alone) to Rs. 19110.92 Crs in 1990 (mobilized collectively by UTI, SBIMF, Canban MF, LICMF and Indian Bank MF) registering a 319% increase. The permission given to private sector funds including foreign fund management companies (most of them entering through joint ventures with Indian promoters) to enter the industry in 1993, provided a wide range of choice to investors and more competition in the fund industry .

Private sector was occupying the major share of market of about 78% where as public sector shares only 15.7% in the year 2007-08. After the entry of private sector, the net asset of UTI which was 77.94% of total asset of mutual fund in the 1998-99 showed continuous decline & it comes down to only 9.05 % of the total by March 2009.Where as, private sector mutual fund has shown a tremendous increase from 9.97% of the total assets in the year 98-99 to 80.40% in year ending by March 2009. The reason behind this is the variety of schemes offered by private player satisfying the need of investors with varying attitude and preference, prompt services, good professional managements, good return by these schemes, at the same time public sector remains with the steady share between 7 to 10% during last decade. The statistics shows that, private sector mutual funds manage 80.46%of the net assets , whereas the public sector mutual funds own only 19.54% of the assets in the year 2009 (SEBI).

Objectives of the study-
　　　　To compare the financial performance of public sector sponsored mutual funds with private sector sponsored mutual funds in terms of risk & return as well as through various performance evaluation tools like Sharpe, Treynor, Jenson, Sharpe differential and Fema measures since the entry of private players in the mutual fund industry (i.e. from the year 1993 to 2009).

RESEARCH METHODOLOGY

The data used in the study is secondary data. On 31 march 2009 there are 1001 mutual funds schemes floated by various mutual funds companies with total of 417300 crs asset under management, in which 293 schemes are equity mutual funds schemes, 509 schemes are income schemes and 35 schemes are balanced schemes. Out of these available schemes, 100 actively traded open ended schemes with growth option, are selected for study. The study period is post liberalisation period which start from 1993. Thus the study period is 17 years beginning from December 1993 to June 2009.(The list of 100 sample mutual funds selected for the study is given in the annexure in Table:1)

1.The average logarithemic return on mutual fund is calculated by taking month end NAVs. The return for the sample schemes are calculated by using the following equation-

$$Rpt = Log\ (NAVt/NAVt\text{-}1)$$

Where Rpt= is the annual return on mutual fund portfolio for the period t
NAVt = net asset value for the (t) Period.
NAVt-1= net asset value for the (t-1) Period
The returns on the fund portfolio are averaged as follows

$$Rp = {}^{n}\textstyle\sum_{t\text{-}1} Rpt/n$$

Rp is average return on the mutual fund portfolio.

Logarithmic return is used because it is symmetric, while the arithmetic return is not. It is additive as the n period log can be calculated by adding the consecutive single period log return. S.D. of fund return is used to calculate total risk of mutual fund portfolio.

2.Mumbai stock exchange index (BSE-100) index is used as a bench mark in present study and is considered as market portfolio .The average logrithem return is used as a return from market portfolio.

3.Nationalized bank deposits are considered as risk free asset by common investers and interest rate on such deposits are considerd as risk free return. The interest rate on bank deposits is collected from the website of RBI and logarithmic returns are calculated to find mean return.
4.The performance of mutual fund portfolio is evaluated with the following tools-
Sharpe Ratio, Treynor's Ratio, Jensen Measure, Sharpe differential measure & Fema Measure.

DATA ANALYSIS AND INTERPRETATION
 Performance evaluation of sample public and private sector sponsored mutual funds

Average risk free rate of return   -   0.00413 (0.41%)

Average return on benchmark portfolio   -   0.05227 (5.23%)
(See Table 1- annexure)

Table 1.1:Risk and return statistics for public and private sector sponsored mutual funds

Particulars	Public sector sponsored mutual funds	Private sector sponsored mutual funds
Average Return on mutual fund portfolio (Rp)	0.03978	0.0599
Average Total risk on mutual fund portfolio (σp)	0.14901	0.1547
Average Systematic risk of mutual fund portfolio (βp)	0.6343	0.6012
Average Coefficient of variation	8.03	3.25
Average unique risk	63.43%	60.12%
Average diversification	62.13%	60.20%

Table 1.2:Public and private sector mutual funds showing higher rate of return (R_p) than risk free rate return (R_f)

Sponsor of the mutual funds	Total fund	No. of funds showing higher return than R_f	% of funds showing higher return than R_f
Public sector	38	33	86.84%
Private sector	62	58	93.54%
Total	100	91	91%

Table 1.3: Public and private sector mutual funds showing higher rate of return (R_p) than market rate return (R_m)

Sponsor of the mutual funds	Total fund	No. of funds showing higher return than market return R_m	% of funds showing higher return than market return R_m
Public sector	38	4	10.52%
Private sector	62	28	45.16%
Total	100	33	33%

Comparative statistics regarding public and private sector funds is given in Table 1.1, 1.2 and 1.3 (results are compiled from Table 1 -annexure).

The average return on private sector fund is 5.99 % as compared to public sector fund, which is only 3.39%. Mean market risk on private sector fund is 0.60121 where as the

same is high for public sector funds. This shows that public sector funds have taken higher market risk than private sector funds at low level of return.

Table 3 shows that 86.84 % (33 out of 38 funds) public sector funds have higher return than risk free return where as, 93.54% (58 out of 62 funds) private sector fund earn return higher than risk free rate.But when we compare funds mean return with return on benchmark portfolio(Table 4), it has been observed that only 10.52% public sector funds (4 out of 38 funds earned return higher than market rate of return whereas, 45.16% (28 out of 62) private sector funds are able to earn higher annual return than return on market portfolio . This shows that private sector mutual funds are performing much better as compared to public sector funds.The mean Coefficient of Variation of public sector sponsored schemes in 8.03. Baroda Pioneer has highest degree of variability in their performance with Coefficient of Variation 157.82. Where as UTI Master Share has second highest Coefficient of Variation of 24.64 & SBI magnum has Coefficient of Variation 24.06.The mean Coefficient of Variation of private sector sponsored schemes is 3.27. The Tourous Discovery has highest Coefficient of Variation 27.46, Kotak gilt investment have Coefficient of Variation of 9.99 where as Sahara tax has Coefficient of Variation 9.76.This indicates that variability is performance of Public sector sponsored mutual funds schemes is much more as compare to private sector sponsored mutual funds schemes. Public sector sponsored mutual funds schemes have less consistency, stability or uniformity in their performance with high mean Coefficient of Variation during the period of study.

The average unique risk for public sector fund is 63.43%, whereas, average diversification for public sector fund is 62.13%. Out of 38 public sector schemes 24 i.e. 63% schemes have more than average unique risk, 13 (34%) schemes reflect less than the average degree of diversification. Whereas, the average unique risk for private sector fund is 60.12% and average diversification for private sector fund is 60.2%. Out of 62 private sector sponsored schemes 41 i.e. 66% schemes have more than average unique risk 22 (35%) schemes reflect less than the average degree of diversification.Thus on comparing the level of unique risk and the extent of diversification which the public sector sponsored schemes and private sector sponsored schemes posses it is found that average unique risk of public sector sponsored schemes is slightly more than private sector sponsored schemes at slightly better average diversification as compared to private sector sponsored schemes.

Table 2.1:Compiled results of Sharpe ratio--

Particulars	No. of public sector funds	% of public sector funds	No. of Private sector funds	% of private sector funds	Total
Sp>Sm	18	44.73	43	69.35	61
Sp<Sm	20	55.26	19	30.64	39
Total	38	100	62	100	100

Table 2.1(compiled from Table 2- annexure) shows that out of sample of 38 public sector funds 18 (44.73%) funds have better Sharpe ratio in comparison to the relevant benchmark portfolio, whereas, 20 funds (55.26%) have lower Sharpe ratio as compare to benchmark portfolio.

Thus on evaluating the performance by Sharpe measure, out of 38 public sector mutual funds 18 funds outperform the market in terms of total risk and out of 62 selected private sector funds 43 funds (69.35%) have shown better excess return per unit of risk over benchmark portfolio, whereas 19 funds (30.64%) have shown poor performance as compared to benchmark portfolio.

Thus in case of private sector mutual funds 69.35% funds have outperformed the market.

In total 61% mutual funds have outperformed the market in terms of total risk. Top five performers are Baroda Pioneer income fund, Reliance income fund, Tata income fund, LIC MF MIP, Tata monthly income fund.

Table 2.2:Compiled results of Treynor ratio--

Particulars	No. of public sector funds	% of public sector funds	No. of Private sector funds	% of private sector funds	Total
Tp>Tm	15	36.84	33	53.22	48
Tp<Tm	23	63.15	29	46.77	52
Total	38	100	62	100	100

From the above Table 2.2 (compiled results of table 2-annexure), it has been observed that out of 38 public sector sponsored funds 15 i.e. 36.8% funds have superior Treynor ratio as compare to benchmark portfolio. Only 6 public sector funds have secured position in top 20 funds in terms of performance evaluated by Treynor ratio.

53.22% (33 out of 62) of private sector sponsored mutual funds have higher Treynor ratio is excess return per unit of systematic risk. 14 private sector sponsored fund are in top 20 funds when they are ranked in terms of Treynor ratio.

Performance of private sector mutual funds is much better as compared to public sector sponsored funds in terms of both Sharpe ratio as well as Treynor ratio because 70% of private sector sponsor funds have superior Sharpe ratio as compare to public sector funds those have only 30% funds with superior Sharpe ratio and 53% of private sector funds have better Treynor ratio to bench mark portfolio in comparison to 36% of public sector fund with better Treynor ratio.

Results also indicate that fund managers more efficiently diversify private sector funds.

On the basis of analysis it has been observed that private/foreign mutual funds offer innovative schemes and also deployment of funds on various successful ventures and securities has been accurately predicted by the private funds & this is evident from the superior performance by private sector evident from the superior performance by private sector during the period of study.

Table 3.1:Compiled results of Jensen measure for funds

Particulars	No. of funds for public sector funds	% of public sector funds	No. of funds for private sector funds	% of private sector funds	Total
Jp positive	19	50%	51	82.22	71
Jp negative	19	50%	11	17.74	29
Total	38	100	62	100	100

On comparing the performance of public sector sponsored funds with private sector sponsored funds through Jensen measure, it has been observed through the table 3.1(drived from table 3-annexure), that only 50% funds (19 funds out of sample of 38 funds) are giving excess return over equilibrium return. Whereas 22% fund (51 out of 62 private sector funds) are giving excess return over equilibrium return. This shows private sector sponsored funds have superior performance and able to justify themselves with the risk they carrying by providing higher return over expected return.

Table 3.2:Compiled results of Sharpe differential return measures for public and private sector sponsored funds

Particulars	No. of public sector sponsored funds	% of public sector sponsored funds	No. of public sector sponsored funds	% of public sector sponsored funds	Total funds
Positive Sharpe differential return	14	39.9%	44	70.9%	58
Negative Sharpe differential return	24	60.5%	18	29%	42
Total	38	100	62	100	100

When we measure performance of public sector sponsored funds and private sector sponsored funds in terms of Sharpe differential return , it has been observed by table 3.2(compiled results are drawn from table 3-annexure), that only 36% (14 out of 38 sample fund) public sector sponsored funds have positive sharpe differential return and indicating superior performance, whereas 71% private sector funds (44 out of 62 sample funds) reflect positive Sharpe differential return and are able to give more return then what they should give at a given level of total risk only 29% of private sector funds are poor performance as compare to 64% of public sector fund . Only 14 schemes out of 38 schemes (i.e. 36%) public sector sponsored schemes have return above than average differential return. Where as in case of private sector sponsored schemes, 44 schemes out of 62 schemes i.e. 71% of schemes have differential return above than average differential return of all the funds. The average differential return of sample private sector sponsored schemes is 0.39% p.m. and this indicates that on an

average private sector sponsored mutual funds schemes are earning more than 39% then they should have earned given their level of total risk. Whereas average differential return of public sector sponsored mutual fund schemes is -3.14% p.m as per table D (annexure) this implies that on an average number public sector sponsored scheme is earning return commensurate with the given level of total risk. Hence private sector sponsored schemes are performing better as compared to public sector sponsored funds.

Performance Evaluation by Fema measure -
The analysis of Fema components of performance is as follows (the results of Fema measures are compiled from table 3-annexure) –
(1) Risk free rate of return
89% of public sector sponsored schemes and 95% of private sector sponsored mutual fund schemes are giving return higher than risk free rate of return.
(2) Reward for systematic risk:
10.5% of public sector schemes and 21% of private sector schemes have negative performance on account of risk bearing activity of their fund managers.
(3) Reward for diversification:
Diversification measures additional return that compensate the fund manager for bearing diversifiable or unsystematic risk i.e. how much additional return the fund managers are able to generate, if they assume diversifiable risk. Therefore, an attempt has been made to examine fund managers performance on diversification.
Table 3 (annexure), states that except 6 schemes i.e. ICICI prudential child care, ICICI Prudential FMCG, Taurus discovery fund, JM MIP, SBI magnum equity, LIC MF balance fund (i.e. 4 private sector sponsored and 2 public sector sponsored funds), all the other mutual fund schemes have positive diversification and justify the fund managers ability to generate additional return for bearing diversifiable return.
(4) Return due to selectivity:
The reward for stock selection is for the better selection of stock for the portfolio. It is the return earned on a portfolio over and above the return in view of the risk of the portfolio. If net selectivity is positive, it indicates superior performance and return from portfolio is more than what is warranted by the risk level of the portfolio. However in case net selectivity is negative then it means that fund managers have taken diversifiable risk that has not been compensated by extra returns. This shows that return is not sufficient because of poor selection of stock by fund manager. It has also been observed from Table 3 (Annexure), that 39% of public sector funds have positive net selectivity. However, 71% of private sector funds have positive net selectivity indicating private sector fund managers have shown better stock selection ability as compared to stock selection ability of public sector sponsored funds.

Finding and conclusion-
A comparative analysis of performance of public sector sponsored mutual funds & private sector sponsored mutual funds revealed the following results.

> Private sector sponsored mutual funds securities have outperformed the public sector sponsored funds in terms of average risk and return.
> Only 10% of public sector sponsored mutual fund schemes outperform the benchmark portfolio whereas in case of private sector sponsored mutual fund schemes it is 45.16%.

The average coefficient of variation indicates that variability in performance of public sector sponsored mutual funds is more as compared to private sector sponsored mutual funds.

Both public and private sector sponsored mutual funds lack diversification and are exposed to high unique risk.

In terms of Sharpe ratio as well as Treynor ratio private sector sponsored funds have shown better performance as compared to public sector sponsored funds.

In terms of Jensen measure again private sector has performed better than public sector as 82% of private sector funds in comparison to 50% of public sector funds are giving excess return over equilibrium return.

Sharpe differential measure indicates that with the negative mean differential return no public sector sponsored fund is earning return commensurate with the level of risk they posses, as compare to private sector sponsored funds having positive mean differential return.

Again the Fema component of investment performance reflects that private sector funds have shown better positive net selectivity & their fund managers have shown better stock selection ability as compare to stock selection ability of public sector sponsored funds.

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ANNEXURE

TABLE 1
LIST AND RISK – RETURN STATISTICS OF SAMPLE MUTUAL FUNDS AND BENCHMARK PORTFOLIO

Fund	unique risk	Rsq	Rp	Σp	βp	cov	Rf	Rm	σm
public sector sponsored mutual fund schemes									
Baroda Pioneer ELSS	0.8274	67.46%	0.001153	0.181971	0.8274	157.8	0.00119	0.046007	0.18834
Canana Robeco balance fund - G	0.58703	72.64%	0.036136	0.115336	0.58703	3.19	-0.00212	0.041957	0.16739
Canara.Robeco. equity diversified – G	0.75709	69.04%	0.066752	0.189964	0.75709	2.85	0.051355	0.065215	0.20848
Canara.Robeco. equity diversified tax saver	0.83095	76.09%	-0.02069	0.179462	0.83095	-8.67	0.00119	0.046007	0.18834
SBI magnum balanced – G	0.9675	64.75%	0.043059	0.209325	0.9675	4.86	-0.00807	0.051682	0.17409
SBI magnum contra fund – G	0.805192	66.97%	0.05374	0.185688	0.805192	3.46	0.00119	0.046007	0.18834
SBI magnum equity – G	1.5569	71.66%	0.0095	0.22857	1.5569	24.06	-0.00212	0.041957	0.16739
SBI magnum FMCG	0.58468	52.62%	0.006434	0.151804	0.58468	23.59	0.00119	0.046007	0.18834
SBI magnum global – G	1.2207	80.29%	0.049759	0.237163	1.2207	4.77	-0.00807	0.051682	0.17409
SBI magnum income - G	-0.02960	4.40%	0.030423	0.027207	-0.029608	0.89	-0.00308	0.067808	0.19275
SBI magnum MIP – G	0.08342	50.24%	0.02937	0.022131	0.08342	0.75	0.007881	0.085846	0.19114
SBI magnum index – G	0.797	73.25%	0.08088	0.19088	0.7970	2.36	0.03574	0.093969	0.20496
SBI magnum multiplier plus - G	1.2309	78.42%	0.034329	0.240781	1.2309	7.01	-0.00212	0.040582	0.17318
SBI magnum taxgain - G	1.19129	10.29%	0.029039	0.247929	1.19129	8.54	-0.00502	0.040582	0.17318
SBI magnum pharma - G	0.73505	68.20%	0.027057	0.16766	0.73505	6.20	0.00119	0.046007	0.18834
Canara robeco income - G	-0.13092	58.02%	0.036801	0.03523	-0.13092	0.96	0.03574	0.09396	0.20496
Canara robeco gilt - PGS - G	-0.17676	50.99%	0.039898	0.046618	-0.17676	1.17	0.00119	0.046007	0.18834
Baroda Pioneer income - G	-0.00833	6.43%	0.017257	0.006779	-0.00833	0.39	0.03514	0.09396	0.20496
LIC MF balance – G	0.66446	81.42%	0.04655	0.170158	0.66446	3.66	0.05135	0.065215	0.20848
LIC MF equity – G	0.92686	89.46%	0.030588	0.19514	0.92686	6.38	0.00119	0.046007	0.18834
LIC MF govt sec – G	-0.13588	35.76%	0.033698	0.042813	-0.13588	1.27	0.00119	0.046007	0.18834
LIC MF growth – G	0.99495	75.93%	0.03077	0.21507	0.99495	6.99	0.00119	0.046007	0.18834
LIC MF MIP – G	0.112564	58.26%	0.04263	0.030128	0.112564	0.71	-0.00308	0.0678	0.19275
LIC MF tax plan – G	0.78776	60.99%	0.03185	0.189674	0.78776	5.96	-0.0102	0.05655	0.18787

LIC MF index sensex - G	0.74272	69.76%	0.06167	0.18225	0.74272	2.96	0.03574	0.09396	0.20496
UTI MNC – G	0.65774	75.57%	0.04343	0.14584	0.65774	3.36	-0.00308	0.0678	0.19275
UTI balance – G	0.51989	83.72%	0.05434	0.108104	0.51989	1.99	-0.00807	0.051682	0.17409
UTI equity – G	0.791866	81.84%	0.018664	0.14675	0.791866	7.86	-0.00212	0.04957	0.16739
UTI equity tax saving plan - G	0.76789	68.33%	0.04708	0.17499	0.76789	3.72	0.00119	0.046007	0.18834
UTI mastar index – G	0.80698	81.01%	0.060704	0.17284	0.80698	2.85	-0.00308	0.0678	0.19275
UTI master plus (91) - G	0.821461	80.60%	0.023	0.15315	0.821461	6.66	-0.00212	0.04195	0.16739
UTI master value – G	0.8305	64.77%	0.040021	0.19893	0.8305	4.97	-0.00308	0.0678	0.19275
UTI service industry – G	0.88142	62.58%	0.030472	0.20986	0.88142	6.89	0.00119	0.046007	0.18834
UTI nifty index fund - G	0.79834	78.83%	0.06054	0.17196	0.79834	2.84	0.001322	0.06346	0.19099
UTI master share – G	0.50628	10.52%	-0.0106	0.261218	0.50628	24.64	-0.00212	0.04195	0.16739
UTI CCP balanced – G	0.17605	46.96%	0.003892	0.048386	0.17605	12.43	0.00119	0.046007	0.18834
UTI pharma health care - G	0.41715	68.56%	0.023392	0.094886	0.41715	4.06	0.00119	0.046007	0.18834
Canara robeco MIP – G	0.2068	64.35%	0.47106	0.049299	0.2068	0.10	0.007881	0.085846	0.19114
Private sector sponsored mutual fund schemes									
Birla Sun Life – 95	0.740695	65.06%	0.097593	0.159868	0.740695	1.64	-0.00807	0.051682	0.17409
Birla Sun Life Front Line equity fund –G	0.77441	73.13%	0.110571	0.185626	0.77441	1.68	0.03514	0.093169	0.20499
Birla Sun Life advantage fund – G	1.1606	68.11%	0.078432	0.244861	1.1606	3.12	-0.0078	0.05162	0.17409
Birla Sun Life freedom fund - G	0.532029	70.60%	0.034637	0.119289	0.532029	3.44	0.00119	0.46007	0.18834
Birla Sun Life Buy india fund – G	0.78807	71.69%	0.114165	0.179631	0.78807	1.57	0.001322	0.063461	0.19099
D.B.S. chola growth fund - G	0.662978	62.74%	0.055684	0.228367	0.662978	4.10	0.007881	0.085846	0.19114
D.B.S. chola triple ace - G	-0.026066	3.32%	0.02557	0.026921	-0.026066	1.05	-0.0102	0.056554	0.18787
DSP black rock – G	0.6497	78.68%	0.082054	0.13799	0.6497	1.68	0.00119	0.046007	0.18834
DSP black rock top 100 equity reg – G	0.69782	68.56%	0.085996	0.175707	0.69782	2.04	0.051355	0.065215	0.20848
Escort growth – G	0.91263	72.76%	0.086203	0.20452	0.91263	2.37	0.007881	0.08584	0.19114
Escort balanced – G	0.719056	72.37%	0.084584	0.161592	0.719056	1.91	0.007881	0.085946	0.19114
Franklin tempelton india balance	0.607369	78.86%	0.058456	0.128861	0.607369	2.20	0.00119	0.046007	0.18834
Franklin tempelton india blue chip – G	1.029	68.19%	0.057661	0.215864	1.029	3.74	-0.00502	0.040582	0.17318
Franklin tempelton India prima – G	1.1546	68.39%	0.062078	0.241817	1.1546	3.90	-0.00502	0.04058	0.17318
Franklin tempelton india	0.76513	76.40%	0.07553	0.16487	0.76513	2.18	0.00119	0.04600	0.18834

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Table 1 Continued

Taxshield – G			9	6			7	
Franklin pharma – G	0.53064	57.56%	0.032558	0.131742	0.53064	4.05	0.00119	0.046007	0.18834
HDFC equity – G	0.836684	54.46%	0.084156	0.196342	0.836684	2.33	-0.00502	0.040582	0.17318
HDFC capital builder - G	0.922	72.03%	0.048237	0.18817	0.922	3.90	-0.00502	0.040582	0.17318
HDFC LT advantage - G	0.81522	68.00%	0.105434	0.190396	0.81522	1.81	0.007881	0.063461	0.19099
HDFC tax saver – G	0.961341	69.52%	0.093685	0.20742	0.961341	2.21	-0.00727	0.057269	0.17989
HDFC income fund-G	-0.08306	31.18%	0.033194	0.028411	-0.083063	0.86	0.001322	0.063461	0.19099
HDFC growth – G	0.84722	75.87%	0.086794	0.185767	0.84722	2.14	0.001322	0.063461	0.19099
HSBS equity – G	0.82321	65.90%	0.127797	0.207831	0.82321	1.63	0.03514	0.093969	0.20496
ICICI prudential child care - G	0.90921	75.18%	0.069337	0.20044	0.90921	2.89	0.007881	0.08584	0.19114
ICICI prudential FMCG - G	0.95036	65%	0.048894	0.159776	0.95036	3.27	0.00119	0.046007	0.18834
ICICI prudential growth - G	0.94272	73.22%	0.089982	0.21239	0.94272	2.36	-0.00308	0.07808	0.19275
ICICI prudential balanced - G	0.6667	75.35%	0.041197	0.14468	0.6667	3.51	0.00119	0.046007	0.18834
ICICI prudential income - G	-0.09070	32.73%	0.040186	0.030576	-0.090706	0.76	-0.00308	0.067808	0.19275
Sundaram BNP paribas balanced	0.60924	77.04%	0.06433	0.13259	0.60924	2.06	0.001322	0.063461	0.19099
Principal balanced – G	0.68045	79.32%	0.039146	0.144942	0.68045	3.70	0.00119	0.046007	0.18824
Principal child benefit carrer builder	0.65371	73.91%	0.082451	0.145336	0.65371	1.76	0.007881	0.085846	0.19114
Principal growth – G	0.95866	74.62%	0.06734	0.211987	0.95866	3.15	0.001322	0.063461	0.19099
Principal index – G	0.60927	49.07%	0.041138	0.16383	0.60927	3.98	0.00119	0.046007	0.18834
Principal income – G	-0.18547	18.33%	0.010166	0.079389	-0.18547	7.81	0.001322	0.063461	0.19099
Kotak - 30 – G	0.96197	78.32%	0.080141	0.209683	0.96197	2.62	-0.00308	0.067808	0.19275
Kotak gilt investment regular - G	-0.12946	33.35%	0.04328	0.43216	-0.12946	9.99	-0.00308	0.067808	0.19275
Kotak Bond Deposits - G	-0.10318	44.28%	0.036907	0.02922	-0.103182	0.79	0.00119	0.046007	0.18834
Kotak income plus – G	0.14554	58.51%	0.020155	0.039675	0.14554	1.97	0.05135	0.06521	0.20848
JM balanced – G	0.58588	45.72%	0.0219	0.15085	0.58588	6.89	-0.00807	0.05168	0.17409
JM equity – G	1.0601	83.98%	0.038696	0.2014	1.0601	5.20	-0.00807	0.05768	0.17409
JM MIP – G	0.12635	60.92%	0.02025	0.03337	0.12635	1.65	0.05135	0.065215	0.20848
JM G- sec regular – G	-0.18775	57.01%	0.04412	0.04683	-0.187759	1.06	0.00119	0.046007	0.18834

Table 1 Continued

Morgan stanley growth - G	0.96235	81.65%	0.04323	0.18444	0.96235	4.27	-0.00502	0.04058	0.17318
Reliance growth – G	1.1307	78.38%	0.106603	0.2224	1.1307	2.09	-0.00807	0.05768	0.17409
Reliance income	-0.0729	31.62%	0.039929	0.026073	-0.0729	0.65	-0.0102	0.05655	0.18787
Reliance vision- G	0.9701	76.81%	0.09053	0.19275	0.9701	2.13	-0.00807	0.05168	0.17409
Sahara tax gain – G	0.8002	18.89%	0.03544	0.34576	0.8002	9.76	-0.0102	0.056554	0.18787
Sahara income – G	-0.1002	43%	0.02764	0.03134	-0.1002	1.13	0.03514	0.09396	0.20496
Sahara growth – G	0.71003	71.68%	0.111759	0.171919	0.71003	1.54	0.03514	0.09396	0.20496
Tata balanced fund –G	0.74907	81.42%	0.05502	0.14454	0.74907	2.63	-0.00807	0.05168	0.17409
Tata growth – G	0.77207	56.25%	0.035329	0.17925	0.77207	5.07	-0.00807	0.05168	0.17409
Tata income fund – G	-0.03881	7.95%	0.034361	0.02586	-0.03881	0.75	-0.0102	0.05655	0.18787
Tata monthly income fund - G	0.05048	24.72%	0.01872	0.019079	0.05048	1.02	-0.0102	0.056554	0.18787
Taurus bonanza – G	0.885178	72.46%	0.03846	0.181035	0.885178	4.71	-0.00807	0.051682	0.17409
Taurus discovery - G	1.24884	73.75%	0.00907	0.24905	1.24884	27.46	-0.00502	0.04017	0.17283
Taurus tax shield – G	0.97784	66.54%	0.03219	0.21564	0.97784	6.70	-0.00727	0.05726	0.17989
Taurus income-G	-0.02955	8.25%	0.02004	0.01972	-0.02955	0.98	0.007881	0.08584	0.19114
ING care equity – G	0.93789	73.05%	0.012957	0.020667	0.93789	1.60	0.00119	0.046007	0.18834
ING income – G	-0.0974	45.22%	0.034601	0.027322	-0.0974	0.79	0.00119	0.046007	0.18834
Nifty benchmark ETS -G	0.593	8.86%	0.204632	0.38067	0.593	1.86	0.007881	0.08584	0.19114
Birla Sun Life Basic Industries – G	0.9822	71.03%	0.114754	0.22261	0.9822	1.94	0.001322	0.063461	0.19099
DBS chola gilt investment - G	-0.1406	31.68%	0.03205	0.047714	-0.1406	1.49	0.001322	0.063461	0.19099

TABLE 2
SHARPE AND TREYNOR RATIO FOR SAMPLE MUTUAL FUND SCHEMES

Fund	Sp	Sm	rank	Tp	Tm	rank
Public sector sponsored mutual funds						
Baroda Pioneer ELSS	-0.00019	0.23795	92	-0.000044	0.044817	80
Canana Robeco balance fund - G	0.331691	0.26331	46	0.065168	0.044077	42
Canara.Robeco. equity diversified – G	0.081052	0.06647	86	0.06789	0.01386	38
Canara.Robeco. equity diversified tax saver	-0.12191	0.23796	96	-0.026331	0.044817	83
SBI magnum balanced - G	0.24425	0.34322	61	0.052848	0.059752	56
SBI magnum contra fund - G	0.28302	0.23795	53	0.06527	0.044817	41
SBI magnum equity - G	0.05083	0.26331	89	0.00746	0.044077	77
SBI magnum FMCG	0.034544	0.23795	91	0.008968	0.044817	75
SBI magnum global - G	0.243836	0.34322	62	0.04737	0.059752	61
SBI magnum income - G	1.231411	0.35749	8	-1.1315	0.35749	98
SBI magnum MIP - G	0.97099	0.40789	11	0.257587	0.077965	8
SBI magnum index - G	0.23963	0.28702	65	0.05738	0.058829	49
SBI magnum multiplier plus - G	0.151378	0.24657	77	0.0296116	0.042702	69
SBI magnum taxgain - G	0.137374	0.26332	82	0.02859	0.045602	70
SBI magnum pharma - G	0.154282	0.23795	76	0.03519	0.044817	64
Canara robeco income - G	0.04714	0.28702	90	-0.012686	0.058829	81
Canara robeco gilt - PGS – G	0.83032	0.23795	14	-0.21898	0.044817	88
Baroda Pioneer income - G	2.6379	0.28702	1	2.14656	0.058829	1
LIC MF balance – G	-0.02823	0.06647	93	0.007229	0.01386	78
LIC MF equity - G	0.15064	0.23795	78	0.031717	0.044817	66
LIC MF govt sec - G	0.7593	0.23795	16	-0.239181	0.044817	90
LIC MF growth - G	0.13755	0.23795	81	0.02973	0.044817	68
LIC MF MIP - G	1.5172	0.05116	4	0.406088	0.00986	6
LIC MF tax plan – G	0.22169	0.3553	69	0.053379	0.066754	54
LIC MF index sensex - G	0.80719	0.28702	15	0.198075	0.05882	9
UTI MNC - G	0.3189	0.36776	47	0.070711	0.07088	36
UTI balance - G	0.57739	0.34322	22	0.12006	0.05975	14
UTI equity - G	0.14162	0.30878	79	0.026246	0.05769	71
UTI equity tax saving plan - G	0.26226	0.23795	57	0.059767	0.044817	46
UTI mastar index - G	0.369017	0.36776	43	0.07904	0.070888	32
UTI master plus (91) - G	0.16406	0.2633	75	0.030586	0.044077	67
UTI master value - G	0.21665	0.36776	70	0.051893	0.07088	58
UTI service industry - G	0.13952	0.23795	80	0.033221	0.044817	65
UTI nifty index fund - G	0.34434	0.32534	45	0.074178	0.06213	34
UTI master share - G	-0.04869	0.2633	95	-0.025724	0.04407	82
UTI CCP balanced – G	0.05584	0.23795	88	0.015344	0.044817	72
UTI pharma health care - G	0.23398	0.23795	66	0.053222	0.0422817	55
Canara robeco MIP – G	-0.04309	0.0368	94	0.15325	0.007036	10
Private sector sponsored mutual funds--						

Table 2 Continued

Birla Sun Life – 95	0.66093	0.34322	17	0.142653	0.059487	12
Birla Sun Life Front Line equity fund –G	0.40636	0.28698	40	0.097404	0.058829	26
Birla Sun Life advantage fund - G	0.352184	0.3417	44	0.006548	0.059487	79
Birla Sun Life freedom fund - G	0.28038	0.23796	54	0.062866	0.044817	43
Birla Sun Life Buy india fund - G	0.628186	0.54623	19	0.143189	0.104314	11
D.B.S. chola grawth fund - G	0.209325	0.40788	71	0.0721034	0.077965	35
D.B.S. chola triple ace - G	1.3287	0.84396	7	-1.37228	0.158554	100
DSP black rock - G	0.586004	0.23795	21	0.124463	0.044817	13
DSP black rock top 100 equity reg - G	0.191752	0.06648	73	0.67453	0.01386	2
Escort growth - G	0.382949	0.40789	42	0.08582	0.077965	30
Escort balanced - G	0.47467	0.40878	32	0.107947	0.078136	18
Franklin tempelton india balance	0.4444	0.23796	37	0.094285	0.044817	28
Franklin tempelton india blue chip - G	0.29037	0.26331	51	0.06091	0.045602	44
Franklin tempelton India prima - G	0.277474	0.26332	55	0.058113	0.045602	47
Franklin tempelton india Taxshield - G	0.45093	0.23795	35	0.097171	0.044817	27
Franklin pharma - G	0.228263	0.23796	68	0.59112	0.044817	3
HDFC equity - G	0.454187	0.26332	34	0.097719	0.045602	25
HDFC capital builder - G	0.28302	0.26332	52	0.057762	0.045602	48
HDFC LT advantage – G	0.51236	0.291	27	0.007881	0.05558	76
HDFC tax saver - G	0.486717	0.35877	30	0.105014	0.064539	19
HDFC income fund-G	1.121819	0.32535	10	-0.41004	0.062139	95
HDFC growth - G	0.4601	0.32535	33	0.10088	0.062139	23
HSBS equity - G	0.44582	0.28702	36	0.11255	0.058829	17
ICICI prudential child care – G	0.306602	0.40789	49	0.06759	0.077965	39
ICICI prudential FMCG - G	0.298567	0.23796	50	0.0501957	0.044817	59
ICICI prudential growth - G	0.438165	0.36776	38	0.098716	0.68118	24
ICICI prudential balanced - G	0.27654	0.24422	56	0.06007	0.045417	45
ICICI prudential income - G	1.41503	0.36776	6	0.476991	0.07088	5
Sundaram BNP paribas balanced	0.4752	0.32535	31	0.103425	0.062139	20
Principal balanced - G	0.26187	0.23795	58	0.05578	0.044817	53
Principal child benefit carrer builder	0.51308	0.40789	26	0.11407	0.077965	16
Principal growth - G	0.31143	0.32534	48	0.06886	0.062139	37
Principal index - G	0.24383	0.23795	63	0.06556	0.044817	40
Principal income - G	0.1114	0.32534	84	-0.047684	0.062139	84
Kotak – 30 - G	0.39688	0.36776	41	0.086509	0.07088	29
Kotak gilt investment regular - G	0.107279	0.36776	85	-0.35809	0.070888	94
Kotak Bond Deposits - G	0.85561	0.23795	13	-0.24235	0.044817	91
Kotak income plus - G	-0.78638	0.06648	99	-0.214371	0.01386	86
JM balanced - G	0.19866	0.34322	72	0.057153	0.059752	50
JM equity - G	0.2322	0.34322	67	0.044115	0.059752	62
JM MIP - G	-0.931691	0.06647	100	-0.246118	0.01386	92
JM G- sec regular - G	0.91664	0.23795	12	-0.22866	0.044817	89
Morgan stanley growth - G	0.26163	0.26331	59	0.050143	0.045602	60
Reliance growth - G	0.5156	0.34322	25	0.101417	0.05975	22

Table 2 Continued

Reliance income	1.9226	0.35532	2	-0.64345	0.06675	97
Reliance vision- G	0.51153	1.0463	28	0.10163	0.18216	21
Sahara tax gain - G	0.13201	0.35532	83	0.05704	0.06675	51
Sahara income - G	-0.23912	0.287	98	0.0748	0.05882	33
Sahara growth - G	-0.1998	0.28702	97	-0.04842	0.05882	85
Tata balanced fund –G	0.43648	0.34322	39	0.084229	0.05975	31
Tata growth - G	0.2421	0.34322	64	0.056211	0.05975	52
Tata income fund - G	1.723	0.35532	3	-1.14818	0.066754	99
Tata monthly income fund - G	1.5158	0.35532	5	0.57282	0.044561	4
Taurus bonanza - G	0.251027	0.33005	60	0.052566	0.05975	57
Taurus discovery - G	0.056574	0.26151	87	0.011286	0.045798	74
Taurus tax shield – G	0.18298	0.35876	74	0.040354	0.06453	63
Taurus income-G	0.616914	0.40788	20	-0.411177	0.077965	96
ING care equity - G	0.56933	0.23795	23	0.012546	0.044817	73
ING income - G	1.2228	0.23795	9	-0.34285	0.044817	93
Nifty benchmark ETS –G	0.51684	0.40788	24	0.331786	0.077965	7
Birla Sun Life Basic Industries – G	0.50955	0.32535	29	0.11548	62139	15
DBS chola gilt investment - G	0.644	0.32534	18	-0.2185	0.062139	87

Table-3

Name of the funds	fund return Rp	SML Rs=Rp-Jp	jensen measure Jp	Rp-Fp	risk premium	Diversification	Net selectivity Fp
				expected return	Rβ	Rid	Fp
Public sector sponsored mutual funds-							
Baroda Pioneer ELSS	0.001153	0.38263	-0.03711	0.04633	0.03708	0.00806	-0.04578
Canana Robeco balance fund - G	0.036136	0.023754	0.0123814	0.028249	0.025874	0.004494	0.007887
Canara.Robeco. equity diversified - G	0.066752	0.059295	0.007457	0.056041	0.00794	0.004688	0.010711
Canara.Robeco. equity diversified tax saver	-0.02069	-0.079811	-0.059121	0.131336	0.037241	0.005463	-0.064584
SBI magnum balanced - G	0.043059	0.050271	-0.006681	0.06109	0.05781	0.01403	-0.018031
SBI magnum contra fund - G	0.05374	0.037272	0.016468	0.045371	0.036086	0.008099	0.008369
SBI magnum equity - G	0.0095	0.0665	-0.057	0.05806	0.068623	-0.008436	-0.04856
SBI magnum FMCG	0.006434	0.02739	-0.020959	0.037312	0.0262	0.00992	-0.030878
SBI magnum global - G	0.049759	0.064869	-0.015110	0.083788	0.07293	0.008469	-0.034029
SBI magnum income – G	0.030423	-0.108925	0.139348	0.04738	-0.105845	0.1563	-0.016957
SBI magnum MIP - G	0.02937	0.01437	0.015	0.016908	0.006489	0.002537	0.012462
SBI magnum index - G	0.08088	0.079731	0.001149	0.95479	0.04689	0.8844	-0.87391
SBI magnum multiplier plus - G	0.034329	0.050441	-0.016112	0.011408	0.05256	0.00681	0.022921
SBI magnum taxgain – G	0.029039	-0.001267	0.030306	0.060264	0.054325	0.010959	-0.031225
SBI magnum pharma – G	0.027057	0.019982	0.007075	0.041086	0.032942	0.00695	-0.014029
Canara robeco income - G	0.036801	0.027438	0.009363	0.028349	-0.007702	0.001324	0.008452
Canara robeco gilt - PGS – G	0.039898	-0.006732	0.04663	0.112118	-0.00792	0.019015	-0.07222
Baroda Pioneer income - G	0.017257	-0.000135	0.017392	0.037085	-0.00049	0.00243	-0.019828
LIC MF balance – G	0.04655	0.18668	-0.014013	0.20771	0.009209	-2103	-0.016116
LIC MF equity - G	0.030588	0.042729	-0.012141	0.047626	0.04153	0.0049	-0.017038
LIC MF govt sec - G	0.033698	-0.004899	0.038597	0.011388	-0.00608	0.016267	0.02231
LIC MF growth - G	0.03077	0.045775	-0.015005	0.052364	0.04255	0.00862	-0.021594
LIC MF MIP - G	0.04263	-0.00197	0.044602	-0.00154	0.001109	0.000432	0.04417
LIC MF tax plan – G	0.03185	0.04223	-0.01039	0.057194	0.05244	0.014808	-0.025344
LIC MF index sensex - G	0.06167	0.078832	-0.017162	-0.08396	0.043693	0.008618	0.14563
UTI MNC - G	0.04343	0.043545	-0.000115	0.05055	0.04662	0.007015	-0.00712
UTI balance – G	0.05434	0.022985	0.031355	0.029025	0.031064	0.006039	0.025315

Table-3 Continued

UTI equity - G	0.018664	0.038811	-0.020147	0.043194	0.04093	0.00438	-0.02453
UTI equity tax saving plan - G	0.04708	0.035599	0.011481	0.02895	0.034414	0.007226	0.018126
UTI mastar index - G	0.060704	0.05412	0.006584	0.044579	0.0572	0.050766	0.016125
UTI master plus (91) – G	0.023	0.01192	0.01108	0.038199	0.036207	0.004118	-0.015199
UTI master value - G	0.040021	-0.017729	0.015775	0.070082	0.05887	0.01428	-0.030061
UTI service industry – G	0.030472	0.040692	-0.01022	0.020042	0.039502	0.010437	0.01043
UTI nifty index fund – G	0.06054	0.050924	0.009616	0.057263	0.049604	0.006335	0.003277
UTI master share - G	-0.0106	0.04139	-0.03079	-0.0921	0.02231	0.04646	-0.0815
UTI CCP balanced – G	0.003892	0.009008	-0.005188	0.012702	0.00789	0.00362	-0.00881
UTI pharma health care - G	0.023392	0.027275	-0.059493	0.082885	0.018695	0.003883	-0.000376
Canara robeco MIP – G	0.049299	0.080265	-0.033159	0.080616	0.001455	0.0003596	-0.03351
Private sector mutual funds –							
Birla Sun Life – 95	0.097593	0.036189	0.061404	0.0468	0.044258	0.010612	0.050793
Birla Sun Life Front Line equity fund -G	0.110571	0.08071	0.029861	0.088411	0.045557	0.007714	0.02216
Birla Sun Life advantage fund - G	0.078432	0.06124	0.017192	0.07586	0.06904	0.014628	0.002564
Birla Sun Life freedom fund - G	0.034637	0.3367669	0.0096031	0.029575	0.023843	0.004542	0.005062
Birla Sun Life Buy India fund - G	0.114165	0.083528	0.030637	0.099443	0.082206	0.015915	0.014722
D.B.S. chola grawth fund - G	0.055684	0.051798	0.003886	0.01034	0.051689	0.041458	0.045344
D.B.S. chola triple ace - G	0.02557	-0.01433	0.0399	0.01252	-0.00413	0.02685	0.01305
DSP black rock - G	0.082054	0.030308	0.051746	0.034027	0.029117	0.003719	0.048027
DSP black rock top 100 equity reg - G	0.085996	0.83499	0.02497	0.063035	0.009671	0.002009	0.022961
Escort growth - G	0.086203	0.079034	0.007169	0.091303	0.071153	0.012269	-0.0051
Escort balanced - G	0.084584	0.301816	-0.217232	0.073937	0.056184	0.00987	0.010647
Franklin tempelton India balance	0.058456	0.02841	-30046	0.031853	0.02722	0.003443	0.026603
Franklin tempelton India blue chip - G	0.057661	0.041905	0.015756	-0.177619	0.046924	0.009917	0.23528
Franklin	0.062078	0.047632	0.014446	0.05865	0.058113	0.045602	0.003423

Table-3 Continued

tempelton India prima - G							
Franklin tempelton India Taxshield - G	0.075539	0.03548	0.040059	0.040399	0.03429	0.00494	0.03514
Franklin pharma - G	0.032558	0.67953	0.007586	0.030227	0.0237819	0.007561	0.002331
HDFC equity - G	0.084156	0.033135	0.051021	0.046681	0.03815	0.013571	0.037475
HDFC capital builder - G	0.048237	0.037025	0.0112119	0.049549	0.04204	0.007509	-0.001312
HDFC LT advantage – G	0.105434	0.053194	0.05224	0.063281	0.045309	0.010096	0.042153
HDFC tax saver - G	0.093685	-0.058965	0.15265	0.067146	0.06204	0.012375	0.026539
HDFC income fund-G	0.033194	-0.003836	0.037033	0.009376	0.0051614	0.014404	0.023818
HDFC growth - G	0.086794	0.05397	0.03282	0.061729	0.052645	0.007761	0.025065
HSBS equity - G	0.127797	0.083568	0.044229	0.094789	0.048428	0.011224	0.033005
ICICI prudential child care - G	0.069337	0.051933	0.017404	0.072321	0.070886	-0.00644	-0.002984
ICICI prudential FMCG - G	0.048894	0.043783	0.005111	0.03921	0.04259	-0.00457	0.009684
ICICI prudential growth - G	0.089982	0.639082	-0.5491	-0.498136	0.64216	0.10841	0.588118
ICICI prudential balanced - G	0.041197	0.031867	0.00933	0.036487	0.030672	0.004667	0.00471
ICICI prudential income - G	0.040186	0.352165	0.049695	0.008165	-0.006429	0.017673	0.032021
Sundaram BNP paribas balanced	0.06433	0.039176	0.025154	0.044458	0.037857	0.005282	0.019872
Principal balanced - G	0.039146	0.031686	0.00746	0.035681	0.030495	0.003995	0.003465
Principal child benefit carrer builder	0.082451	0.058847	0.023604	0.068443	0.050966	0.009595	0.014008
Principal growth - G	0.06734	0.060829	0.006511	0.070287	0.05957	0.00945	-0.002947
Principal index - G	0.041138	0.028496	0.012642	0.014556	0.0273	0.011684	0.026582
Principal income - G	0.010166	-0.022554	0.033214	0.02715	-0.01152	0.03735	-0.016984
Kotak - 30 - G	0.080141	0.65113	0.015028	0.074036	0.068192	0.00892	0.0061049
Kotak gilt investment regular - G	0.04328	-0.01225	0.05553	0.155853	-0.009177	0.168112	-0.112573
Kotak Bond Deposits - G	0.036907	-0.00343	0.04034	0.018854	-0.00462	0.011578	0.018053
Kotak income plus - G	0.020155	0.053372	-0.033217	0.053985	0.002017	0.00062	-0.03383

Table-3 Continued

JM balanced - G	0.0219	0.016863	0.005037	-0.002378	0.035	0.01677	0.024278
JM equity - G	0.038696	0.055266	-0.01657	0.016339	0.06334	0.00578	0.022357
JM MIP – G	0.02025	0.05527	-0.03502	0.053566	0.003929	-0.00171	-0.033316
JM G- sec regular - G	0.04412	-0.007227	0.051347	0.012333	-0.008414	0.01955	0.031787
Morgan Stanley growth - G	0.04323	0.038854	0.004371	0.044593	0.04388	0.005736	-0.001365
Reliance growth - G	0.106603	0.059493	0.047112	0.068273	0.06756	0.00877	0.03833
Reliance income	0.039929	-0.055329	0.055329	-0.000931	-0.0052	0.01446	0.04086
Reliance vision- G	0.09053	0.01241	0.07812	1.09909	0.17672	0.93046	-1.00856
Sahara tax gain - G	0.03544	0.02767	0.00777	0.11265	0.053417	0.06943	-0.07721
Sahara income - G	0.02764	0.08453	-0.05689	0.04413	-0.00589	0.01488	-0.016491
Sahara growth - G	0.111759	0.187918	-0.076159	0.027952	0.04177	0.007649	0.083807
Tata balanced fund –G	0.05502	0.036684	0.018336	0.04154	0.04475	0.00485	0.01348
Tata growth – G	0.035329	-0.038062	0.073391	0.053454	0.046132	0.015392	-0.018125
Tata income fund - G	0.034361	0.296459	0.047157	-0.001009	-0.00259	0.011779	0.03537
Tata monthly income fund - G	0.01872	-0.00795	0.026672	-0.007264	0.002249	0.000688	0.025984
Taurus bonanza - G	0.03846	0.04482	-0.00636	0.054063	0.05289	0.56845	-0.015603
Taurus discovery - G	0.00907	0.0514	-0.04233	0.0601	0.056424	-0.03612	-0.05103
Taurus tax shield – G	0.03219	0.05583	-0.023649	0.07009	0.063109	0.014255	-0.0379
Taurus income- G	0.02004	0.01345	0.00659	0.015917	-0.002303	0.010347	0.004123
ING care equity - G	0.012957	0.04322	-0.030266	0.050367	0.042033	0.007147	-0.037413
ING income – G	0.034601	-0.003177	0.037778	0.007691	-0.004367	0.010868	0.02691
Nifty benchmark ETS –G	0.204632	0.054114	0.150518	0.399721	0.04623	0.09207	-0.195089
Birla Sun Life Basic Industries - G	0.22261	0.062354	0.0524	0.147913	0.061032	0.011393	0.102039
DBS chola gilt investment - G	0.047714	-0.00299	0.03504	0.016842	-0.00432	0.019843	0.015208

TABLE 3

JENSON, FEMA AND SHERPE DIFFERENTIAL MEASURES FOR SAMPLE MUTUAL FUND SCHEMES

POVERTY ALLEVIATION THROUGH ENTREPRENEURSHIP: EXPERIENCE FROM NIGERIA

Obasan Kehinde A[*] **and Ogunkoya Olufemi A**[**]

Abstract

This paper aims to study the relationship between poverty and entrepreneurship level in the south-western states in Nigeria. Data on the disposable income level and entrepreneurship were extracted from 4,500 respondents across these states using a stratified random sampling technique. Via the use application of auto regression analysis, it was evident that there exist an indirect directional relationship between poverty and entrepreneurial activities. Entrepreneurship is instrumental in poverty minimization. It also showed that Lagos State indigenes lived relatively above the poverty level compared to the other four states respondents.

Keywords: Poverty, Poverty Alleviation, Entrepreneurship

JEL Classification: **P46, L26**

INTRODUCTION

The variable, Poverty, has received much attention both locally and internationally. It is the longest socio-economic factor ever known to mankind. Poverty is a ferocious socio-economic problem of all nations time immemorial. This macroeconomic variable has been measured by either using monetary factors such as income or consumption (Chen et al, 2001) using a broader set of multidimensional variables (Streeten, et al, 1981). When individuals, families, firms and Governments are unable to meet the minimum required standard of living, then poverty sets in.

The aim of this paper is to examine the relationship between poverty and entrepreneurial development. It is proposed that the higher the level of entrepreneurship in a State, the lower the level of poverty and vice versa.

THEORETICAL AND EMPERICAL LITERATURE

Poverty as explained in this research work goes beyond the contemporary meaning of low-level income; rather, it is found to be multi-dimensional in nature. Thus, its definition and subsequent measurement cannot be pegged on a single criterion. It has political, social and economic dimensions; hence measurements that focus on the economic aspect only are bound to be inadequate.

The World Development Report (2000/2001) as summarized by Enahoro and Ikpefan (2005) emphasizes various dimensions of poverty. These include:

- Lack of opportunities -This is a low level of consumption and income, usually relative to a national poverty line. This is associated with the level and distribution of human capital and social and physical assets such as land and market opportunities that determine their returns to these assets.

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- Low Capabilities -Little or no improvements in health and education indicators among a particular socio-economic group in the area of:
    (i)   Low Level Security -Exposure of risk and income shock that may arise at the Individual level
    (ii)   Empowerment -Capability of poor people to participate in exchange

According to the World Bank Report (1999), poverty is hunger; lack of shelter, being sick and not being able to go to school, not knowing how to read; not being able to speak properly, not having a job; fear for the future, losing a child to illness brought about by unclean water; powerlessness; lack of representation and freedom.

Two basic elements of poverty are usually recognized: absolute poverty and relative poverty. Absolute poverty refers to a condition under which there is a serious deficiency or lack of access to the basic necessities of normal life such as food, clothing, housing, health and education services as explained by -African Medical and Research Foundation (AMREF, 1998). Relative poverty relates to the condition of an individual, household, group or community when considered against some reference, standard or parameter such as the average for the group or region, a target standard or objective, or its ranking on given criteria. In the final analysis however, all concepts of poverty are relative. Thus even when we speak of absolute poverty, we refer to existence below a reference standard of living (AMREF 1998; and UKWU 2002). Aku et al. (1997) analyses poverty from five dimensions of deprivation:

    i)   Personal and physical deprivation experienced as a result of health, nutritional, literacy and educational disability and lack of self-confidence.
    ii)   Economic deprivation drawn from the lack of access to property, income, assets, factors of production and finance.
    iii)   Social deprivation as a result of denial from full participation in social, political and economic activities
    iv)   Cultural deprivation in terms of lack of access to values, beliefs, knowledge, information and attitudes which deprives the people of control of their own destinies and;
    v)   Political deprivation in terms of lack of political voice to participate in decision making that affects their lives.

According to the World Development Report (2002) estimates, a large number of people are struggling to survive on less than US $370 a year -or a dollar a day. As on now, more than a one billion people in the developing world continue to live in poverty. Poverty is highly visible in most African countries. On the dollar-a-day measure, about 210 million people in sub-Saharan Africa are in poverty, and their numbers continue to grow. In south Asia the share of the population in poverty is alarming. However, China has succeeded recently in taken over 200 million people out of poverty. (World Bank, 2009)

The World Bank as cited in Sanusi (2001) has called special attention to the causes of mass poverty in sub- Saharan Africa, the most basic being lack of access to skills,

facilities and opportunities. The reasons behind such lack of access relate to the patterns of social and economic inequality. In a situation of mass poverty such as it is in Nigeria, where poverty is the lot of the generality of the people rather than the misfortune of a few, the primary reason of poverty must be sought not in the circumstances of individuals but in the state of the nation and its management.

As observed by Ukwu (2000), the most developed countries in the world today include some countries very poor in physical resources while the poorest countries include some of the most richly endowed with physical resources like Nigeria

The World Bank report (1990), cited in Okuneye (2001), identified four measures to increase income of the poor. These are: increasing the demand and therefore, the price for those factors of production that the poor own, transferring physical asset such as land to the poor, providing social service such as education of the poor and transfer of current income to the poor through cash or food subsidies. These measures can help in minimizing the incidence of poverty in Africa. Ijaiya (2000) in his empirical analysis of the poverty rate in Ilorin, Nigeria, using the p-alpha class of poverty measurement found that the rate of poverty in Ilorin is slightly high with 58% of the population falling below the poverty line. He attributed these to problem of urban development and can be rectified by a rise in incomes in both the organized formal and the informal sectors to bring about a reduction.

Poverty can involve not only lack of the necessities but also the denial of opportunities for living a tolerable life. Ibru (2000) stated three most critical criteria which UNDP uses for determining the existence of poverty are the individual's ability to lead along and healthy life, to be educated and to enjoy a decent standard of living. Egwuato (2002) in his findings on the study of rural poverty in sub-Saharan with special emphasis on Cote d'voire, deduced that the standard of living of the population is strongly linked to the socio-economic group that the group belongs to.
The result of the regression model showed that the size of the household has a strong impact on the standard of living.
However, meaning of poverty is very wide and elastic. It means different things to different people in different contexts and circumstances. The most basic meanings of poverty, according to Ukwu (2002) are as follows:

> The quality or condition of being poor
> The condition of having little or no wealth or material possession, destitution or want (in various degrees)
> Deficiency, dearth, scarcity, smallest of amounts
> Deficiency in proper or desired quality
> Poor condition of leanness or feebleness resulting from insufficient nourishment, etc.

CAUSES OF POVERTY
As discussed it is evident that the causes of poverty are numerous. The question that arises in the minds of the people is why poverty is more rampant today in Africa than any other region of the world, even though, almost without exception, many of the newly

independent African states had identified poverty reduction as a primary policy objective more than thirty years ago. African Medical and Research Foundation (AMREF, 1998) in a poverty survey in Kisumu district, Kenya, identified environmental, historical, political, demographic and personal factors as major causes of poverty in the district. According to Obadan (1997), the main factor that cause poverty in sub-Saharan African include: inadequate access to employment opportunities, inadequate physical assets, such as land and capital (the poor have minimal access to credit even on a small scale); inadequate access to the means of supporting rural development in poor regions; poor access to markets where goods and services can be sold; low endowment of human capital; degradation and reduced productivity; inadequate access to assistance for those living at the margin and the victims of transitory poverty; and finally failure to involve people in the design of development programmers that affect them.

Enahoro and Ikpefan (2005) identify causes of poverty as large family size; low level of human capital; lack of access to cultivable land; absence of or inadequate access to all weather roads and markets. Other factors are low farm productivity; poor health status of an individual; and culture and social values, which have unfavourable bearing on work ethic; drug and alcohol abuse and certain types of family structure (polygamy, single parent households).

The Economic policy Research centre [1997] identifies the main cause of poverty to be civil strife, economic crisis and the HIV/AIDS epidemic. Yahie (1993) reiterates that the cause of poverty includes:

      (i)   Structural causes that are more permanent and dependent on a host of (exogenous) factors such as limited resources lack of skills, location disadvantage and other social and political factors. The disabled, orphans, landless farmers, households headed by females fall into these Categories.

      (ii)   Transitional causes occasioned by structural adjustment reforms and changes in domestic economic policies that may result in price changes, unemployment and so on. Natural calamities such as wars, environmental degradation and so on also induce transitional poverty.

Poverty can also be the result of urbanization as observed by Ijaiya (2000). The factors that cause poverty in most urban cities can be linked to the inner urban decay caused by poor public facilities that have been allowed to get run down due to lack of maintenance and investment. Insufficient resources and poor maintenance skills are often accountable for this; In addition, the available amenities are frequently inadequate to meet the increasing demands placed on them. It has been observed that local authorities have, over the years, cut expenditure on infrastructure development and raised tax rates. These policies are counter-productive and constrain private firms to relocate to more favourable areas, thus reducing employment. Consequently, the burden of taxes falls disproportionately on the resident of the community who are less likely to move.

According to Ukwu (2002), causes of poverty in sub-Saharan Africa include.

- Inadequate access to employment opportunities.
- Inadequate physical assets, such as land and capital and minimal access by the poor to credit even on a small scale.
- Inadequate access to the means of supporting rural development in poor regions. Inadequate access to markets where the poor can sell goods and services.

- Low endowment of human capital.
- Distinction of natural resources, leading to environmental degradation and reduced productivity.
- Inadequate access to assistance for those victimized by transitory poverty.
- Lack of participation in poverty alleviation programs

THE PROGRAMMES/POLICIES INSTITUTED TO ALLEVIATE POVERTY IN NIGERIA

Nigeria gained its political independece on October 1, 1960. With political independence, various successive governments had taken different strategies aimed at alleviating poverty and thereby making Nigerians to be self-reliant economically, such as

At independence, government's first attempt was the farm settlement centre. This attempt was to develop the food-sub sector for both the cash crop and the food crop. The programme was short lived as it was described a failure by the Gowon Administration that came in 1967.

The General Gowon Administration later introduced the Agricultural Development Project (ADP) in 1973. The World Bank and the Federal and State governments jointly financed the ADP. The programme was aimed at promoting integrated rural development.

The Olusegun Obasanjo administration in 1976 introduced the defunct Operation Feed the Nation (OFN). The major aim of the OFN programme was to raise the awareness of Nigerians towards self-sufficiency in food production. With all the money pumped into OFN, the programme did not produce the expected appreciable positive result at increasing food production.

Again, the Obasanjo government promulgated a decree to ensure that land-tenure system was abolished that all land belongs to the government. The policy was aimed at ensuring that people were not hindered in their attempt to farm. It was believed that with more food production, there would be better standard of living for the citizenry.

During the second republic (1979 – 1983), former president Shehu Shagari introduced the "Green Revolution". Though Nigerian forest had been green before the green revolution, the programme again could not go far as there was no zeal and commitment by the operators of the programme.

Again, during the second Republic, the government introduced "austerity measures". It was a policy aimed at ensuring that people spend wisely. The austerity measure came in as a result of the extravagance spending of the civilian government of the second republic both at state and at the federal levels.

The Babangida regime in 1986 introduced "the structural Adjustment Programme" (SAP). It was a programme, which was aimed at making Nigeria self-reliant industrially. Though, SAP in principle was a good programme, but the then managers of the economy were not committed to its faithful implementation (Usman, 2006).

Another major step aimed at alleviating poverty in Nigeria is the National Directorate of Employment (NDE) by the Babaginda Administration. The NDE's sole aim then was to reduce unemployment with greater emphasis on self-reliance and entrepreneurship. The programme was very laudable but it was not faithfully implemented especially by successive administrations.

The Directorate of foods, roads and rural infrastructure (DFRRI) was another laudable programme by the Babangida government (1985 - 1993), which was aimed at alleviating poverty.The main aim of DFRRI was to open-up rural areas; construct feeder roads and

bridges, water supply etc. Again, the officials in charge of DFRRI became corrupt and the programme lost focus.

The Peoples Bank was another laudable programme by the Babangida Administration, which was aimed at giving small loans to small and medium scale enterprises. As laudable as the programme was, it suffered same fate of the "Nigerian factor" of corruption.

The wife of former president Babangida initiated the better life for rural women. The programme was aimed at raising the standard of living of rural women. Though, the programme was good, urban elite women hijacked it. Nigeria then believed that the faces they were seeing on Better Life Programme were not that of rural women but that of urban elite and affluent women.

It must be noted that government created the Family Economic Advancement Programme (FEAP) in 1997, which was meant to be giving loans to Nigerians. Here again, officials in charge of this programme turned it to a family project with nepotism, being the order of the day.

The Obasanjo Administration set up Nigerian Economic Policy in 1999-2003. The programme was to enable Nigerians to be better placed towards articulating ways of using its subsequent annual budget to realize the developmental goals stated in their policy statement. The Olusegun Obasanjo administration 1999-2007 put up a number of measures aimed at alleviating the suffering of Nigerian masses. Such policies include:

The adoption of measures to stimulate production and broaden the supply base of the Nigerian economy.

The government has also reformed the tariff policies on a number of times with the aim of promoting industrial diversification and economic sustenance.

The deregulation of the nation's economy, which was aimed at returning many government businesses to private hands in order to promote efficiency. It is believed that with efficiency, there will be better and more production of goods and services which will improve the living standard of the people.

The recent debt reduction/cancellation crusade is another bold step aimed at alleviating poverty. With debt reduction, managing the funds, which had hitherto been used to service debts could now be judiciously spent internally to improve the living standard of Nigerians.

One major economic policy put forward at alleviating poverty is the National Economic Empowerment and Development Strategy (NEEDS), which was established by the Obasanjo government in 2003. "NEEDS Policy" is an home grown medium term Economic Development and Poverty Reduction Strategy for poverty reduction, wealth creation, employment generation, infrastructural regeneration and value orientation. The "NEEDS" framework is built on four key pillars.

Redefining the role of government in the economy.

Creating an enabling environment for private sector growth.

Improving social services delivery.

Creating a new value system.

The belief was that the dividends of these laudable programmes would spring up a catalyst that inturn would have multiplier effects in improving the living standard of the people and promote economic development in the nation.

The "NEEDS" programme targets poverty eradication, wealth creation, employment generation and value reorientation, as its major objectives. "NEEDS" was designed based

on citizenry participation and consist of economic and structural reform programmes designed to bring improved macroeconomic stability, and better public expenditure management, reduce corruption and increase transparency, reform of key sectors, including the financial sector and empowerment of the private sector as the engine of growth of the economy. Fiscal and monetary policy measures have been carefully managed in the implementation of the NEEDS. Economic Reform Programme to bring about a stable macro-economic stability, which is critical for growth and economic development. Datt and Ravallion (1992) decompose the observed variation in poverty into growth and redistribution components. This postulate is based on the steps of development that he posited:

  i. The primary sector (agriculture) represents the main part in the structure of the economic activity. This phase is characterized by a quasi uniform distribution of income and a low level of inequality.
 ii. The emergence of the secondary sector (industry) with higher level of productivity compared to the primary sector. This implies an increase in between group inequality as well as in total inequality.
iii. Introduction of new technologies in the primary sector partly eliminates the difference in productivity and incomes.

Therefore, total inequality is reduced. Nigeria presents an interesting case for the view of our development application. One can remark easily that the relative poverty line is very low (far from the World Bank poverty line). The policy implications of this would have far reaching effects. For instance, when the country is very poor and the poverty line is higher than the average standard of living, the explanatory power of inequality on poverty will be very low. In this case, the best policy option to fight poverty is to boost the economy by increasing per capita GDP. On the other hand, if the average standard of living is relatively higher than the poverty line, redistributive policies are appropriate for quick poverty alleviation.
In Nigeria, traditional wrapper markets were established in rural areas to ensure the reduction of hunger, unemployment and poverty. The Bank of Industry has provided avenues to access finance and technical skill to ensuring the exportation of these products. Traditional wrappers have become popular among local communities in advance economies. These has reduced the level dependant relatives and ensured independence of individual and family.

RESEARCH METHODOLOGY AND DATA ANALYSIS
The survey data used in this study was collected from the official website of the Nigerian government www.nigerianstat.gov.ng and of households that was carried out between October 2008 and September 2009. The sample design is a two-stage stratified sampling. At the first stage, clusters of 120 housing units were randomly selected from five south western States
The variables were constructed using a well-structured questionnaire relying on information available on the consumption, savings, and entrepreneurship and poverty factors at the Federal bureau of statistics. Each variable where measured using the Likert scales of 1 to 5. The instruments were validated by experts and the re-retest showed 81.4% reliability. The study further examined a regression between the entrepreneurial

skills and hunger level among the respondents across the state using item 3 and item 7 of the instrument. This method was equally adopted by Egwuato (2002)
. The second stage involved random selection of 200 housing units from the selected states. A total of 1,000 households were randomly chosen in each of the States, summing up to 5,000 households in all. However, some households did not fully complete the questionnaires. Out of the 5,500 households that were targeted, only 4,500 completed the survey. The Descriptive statistics are given below:

Table 3.1:Descriptive statistics

Variables	min	Max	mean	s.d
Creativity	1	5	6.25	0.3828
Innovation	1	5	5.875	0.3654
Entrepreneur skills	1	5	5.5	0.348
Diseases	1	5	5.125	0.3306
Learning	1	5	4.75	0.3132
Mortality	1	5	4.375	0.2958
Hunger	1	5	4	0.2784
Ill infrastructure	1	5	3.625	0.261
Depression	1	5	3.25	0.2436
Low purchase	1	5	2.875	0.2262
Poor wages	1	5	2.5	0.2088
Fairly used good	1	5	2.125	0.1914
Plan to go abroad	1	5	1.75	0.174
No internet facilities	1	5	1.375	0.1566
Divorce rate	1	5	1	0.1392
Malnutrition	1	5	1.625	0.1218
N = 4,500				

Source: Authors' computation 2010

Table 3.2 Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	-.747[a]	.558	.540	.799

a. Predictors: (Constant), entrepreneurial activities

Table 3.3: Regression

Descriptive Statistics

	Mean	Std. Deviation	N
poverty	4.0	0.278	45000
entrepreni	5.5	0.348	4500

Table 3.4 Correlation Analyses of poverty status and entrepreneur activities

Correlations

		Poverty	Entrepre
Pearson Correlation	Poverty	1.000	.-834
	Entrepre	-.834	1.000
Sig. (1-tailed)	Poverty	.	.000
	entrepreni	.000	
N	Poverty	4500	4500
	entrepreni	4500	4500

The regression analysis showed a negative slope of -.707. This measured the degree of changes in the two variables. Where there are zero entrepreneur activities, the poverty level increases by over 70%. The correlation coefficient showed r=-8.34. This confirmed that there was a significant indirect explanatory variable attributable to poverty by entrepreneurial activities. Consequently, as the level of entrepreneurial activities rises incrementally, the level of poverty is equally reducing at the same rate of 70.7%.

An additional factor analysis in Table 3.7 showed that Lagos state account for the most level of entrepreneurial activities of 0.824%.

The Factor analyses showed the most affected state in the region that had the most significant impact of entrepreneurial activities and poverty.

Table: 3. 5 Factor Analysis Results of state's Entrepreneurial level

Lagos State	1.000	.824
Oyo State	1.000	.689
Ogun State	1.000	.631
Ekiti State	1.000	.698
Osun State	1.000	.353
Extraction Method: Principal Component Analysis.		

CONCLUSION

From this study, entrepreneurship is a viable tool for reducing poverty. It also established a positive direct relationship between these two variables. The higher the level of entrepreneurship, the lower the poverty level. Policy makers are thus advised to promote entrepreneurship as a palliative measure to hunger and poverty being experienced in the globe. Poverty reduction, economic growth is a necessity but not a sufficient condition for progress. For growth to be an effective strategy, it has to be accompanied by a deliberate provision of enabling infrastructural environment that can sustain economic development. In addition, government must build an investment climate that facilitates the growth of the private sector and simultaneously empowers

poor people to participate in that growth. Poverty eradication would be a mirage in Nigeria and in the entire black Africa if there is no good governance. Providing a good investment climate extends beyond good policies. It includes the right institutions, good governance, stability and qualitative infrastructure

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A COMPARATIVE STUDY ON PACKAGED FOOD SHOPPING STYLES OF INDIAN WORKING WOMEN

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Abstract

Consumer decision-making styles (in short, shopping styles) like lifestyles, are a prominent area of interest in consumer behavior studies. One or more specific shopping styles dimensions may influence consumer-shopping choices, and these influences are relatively enduring (Sproles and Kendall, 1986). Broadly speaking, these are three types of approaches in studying consumer decision-making styles: the psychographic/lifestyle approach, which identifies hundreds of characteristics related to consumer behavior; the consumer typology approach, which classifies consumers into several types; and the consumer characteristics approach, which focuses on different cognitive dimensions of consumer decision-making (Fan et al., 1998).

Sproles and Kendall (1986) developed a Consumer Style Inventory (CSI) based on the assumption that consumer decision-making behavior can be explained by eight central decision-making dimensions that influence a consumer's decision-making behavior. The eight decision-making style dimensions were: perfectionism/high-quality consciousness, brand consciousness, novelty consciousness, price-value consciousness, impulsive/careless shoppers, recreational and hedonistic shopping consciousness, confused by over-choice shoppers, and habitual and brand/store loyal shoppers.

Despite the eight-dimensional structure being confirmed in the original study, there are indications that the eight-factor model does not represent an ideal solution for every culture because some dimensions showed poor reliability. Unlike other studies which intend to validate the CSI, the objective of this study is to couple the characteristics of Indian consumers with the CSI to identify the packaged food shopping style dimensions and packaged food shopping styles of working women in Chennai and Bengaluru.

Keywords: *Habitual Buying, Media influence, Decision-Making.*

JEL Classification: M37, M31

INTRODUCTION

When taken into account, the different approaches in studying consumer behaviour, there exists three types of approaches in studying consumer decision-making styles: the psychographic/lifestyle approach, which identifies hundreds of characteristics related to consumer behavior; the consumer typology approach, which classifies consumers into several types; and the consumer characteristics approach, which focuses on different cognitive dimensions of consumer decision-making (Fan et al., 1998).

Sproles and Kendall (1986) developed a Consumer Style Inventory (CSI) based on the assumption that consumer decision-making behavior can be explained by eight central decision-making dimensions that influence a consumer's decision-making behavior. The eight decision-making style dimensions were: perfectionism/high-quality consciousness, brand consciousness, novelty consciousness, price-value consciousness, impulsive/careless shoppers, recreational and hedonistic shopping consciousness, confused by over-choice shoppers, and habitual and brand/store loyal shoppers.

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Despite the eight-dimensional structure being confirmed in the original study, there are indications that the eight-factor model does not represent an ideal solution for every culture because some dimensions showed poor reliability.

RESEARCH OBJECTIVES

The main objective of this research is to make a comparative study of shopping styles of working women in Chennai and Bengaluru with special reference to packaged food. To achieve this objective, the following research issues were sought.

1. To investigate the fundamental motivations and packaged food shopping preferences of working women based on the CSI with the copulation of the characteristics of Indian consumers.
2. To generate a typology of the packaged food shopping style dimensions of working women.

RESEARCH METHODOLOGY

All previous studies tend to test the generality of the CSI by directly adopting the instrument but the eight-factor model may not fully profile the style dimensions of different cultures. The present study focused on decision-making styles of working Indian women with packaged food purchasing. The items used for questionnaire consist of a blend of direct CSI items and few self-developed items in Indian context. All the responses on variables related to this study were obtained on 5-point Likert scale (from point 5 for strongly agreeing with the statement, to point 1 for strongly disagreeing).

A total of 230 questionnaires were distributed in Chennai and 220 were delivered in Bengaluru. In total 424 questionnaire were collected and 409 comprising 211 of Chennai and 198 of Bengaluru were found fit for analysis. The survey was administered in randomly selected 6 areas of Bengaluru and four areas of Chennai. While conducting the survey, due consideration was given to the respondents' age group, education level, economic background, family size, number of children and occupational background.

Principal component factor analysis was performed to identify the underlying packaged food shopping style dimensions. Varimax rotation procedure was also performed, to facilitate the interpretation of each factor. Analysis of Variance (ANOVA) was undertaken to assess the differences between Bengaluru and Chennai women. Factor scores of the shopping style dimension were used to cluster the female consumers. The average linkage method and Ward's minimum variance method were used. Alternative analysis with two to six specified clusters were generated via both methods. K-mean cluster analysis was also performed.

RESEARCH FINDINGS
Packaged Food Shopping Style Characteristics: Bengaluru versus Chennai Factor Analysis of Packaged food Shopping Style Dimensions
A screen test, and eigen values greater than 1.00, were used as the criteria for the extraction of factors. Items loaded heavily on more than one factor, and items having low correlations with other items, were dropped in total 16 items were dropped from the questionnaire. The remaining 42 variables were loaded heavily on one of the identified factors, with factor loadings all greater than +0.40 and ranging from 0.439 to 0.853. Fifteen factors with eigen values greater than unity were generated. They accounted for 68.06 per cent of the total variance. Cronbach's alpha coefficient was used to assess the internal consistency among the set of items on each factor. The coefficients ranged from 0.35 to 0.73. Reliability coefficient lower than 0.60 is considered to be poor but acceptable for exploratory research (Hair et al., 1998). Coefficients in the 0.70 range are deemed acceptable, and those over 0.80 good (Uma Sekaran, 2003). The results of factor and reliability analysis, and the mean of each group that agreed with the statements, are listed in Table 1.

Table 1: Results of factor and reliability analysis

S.No.	Shopping Style Dimensions	Loading	Bengaluru Mean (198)	Chennai Mean (211)	Grand Mean
1.	Status consciousness (a=0.739) When shopping with friends or other people, I am more willing to buy expensive food items.	0.746	2.5 2.11*	2.81 2.44*	2.66 2.29
	I like to buy ready-made packaged foods and am not willing to prepare by myself	0.658	2.31*	2.55*	2.43
	I am willing to pay higher price to save time.	0.644	2.89*	3.21*	3.06
	I like to shop in a big shopping mall.	0.63	2.98	2.97	2.97
	I charge a lot of purchase to my credit cards.	0.58	2.23*	2.88*	2.57
2.	Brand consciousness (a=0.713)	0.746	3.32	3.36	3.34
	While shopping, I tend to choose those well-known brands rather than best quality ones	0.853	2.72	2.87	2.79
	I am willing to pay higher prices for famous brands.	0.641	3.00	3.03	3.01
	I prefer to buy the best known advertised brands.	0.639	3.12	3.09	3.1
	I always consult the manufacturing dates while shopping for packaged food.	0.454	4.44	4.48	4.46
3.	Impulsive and convenience seeker (a=0.582)		3.23	3.63	3.44
	Even though without an intention of purchasing, I still like to buy goods for which I have no planned.	0.702	2.77*	3.40*	3.09

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Table-1 Continued

	I usually shop from places that are close and convenient.	0.651	3.77*	4.17*	3.98
	I tend to buy food stuff with useful packages.	0.48	3.18*	3.50*	3.35
	I like to try newly introduced food products.	0.439	3.21*	3.47*	3.35
4.	Information Seekar (a=0.562)		3.36	3.57	3.47
	I prefer packaged food because it educates me the ingredients of the product.	0.776	3.34*	3.57*	3.46
	I prefer to buy the packaged food because it is fresh and hygienic.	0.643	3.58	3.54	3.56
5.	Environment & health consciousness (a=0.559)		3.86	3.75	3.8
	I frequently purchase green products which claim to be environment friendly.	0.793	3.84*	3.60*	3.71
	I am willing to pay higher price for those products that can improve my health.	0.61	4.20	4.21	4.21
	I am willing to pay higher price for green products.	0.511	3.56	3.45	3.5
6.	Reference seeker (a=0.605)		3.3	3.48	3.8
	Advice from friends or colleagues influences my choice of goods and brands.	0.762	3.46	3.42	3.44
	I am often willing to purchase those packaged foods which are recommended by my friends.	0.711	3.15*	3.54*	3.35
7.	Careless shopper (a=1.105)		3.25	3.3	3.28
	I tend to read information on the packaging of a product carefully before making buying decision.	-0.784	3.75	3.65	3.71
	I shop quickly and am not particular about any specific brand.	0.643	3.14	3.02	3.07
	I tend to buy instantly without much careful thought when I see something during shopping.	0.544	2.87*	3.24*	3.06
8.	Quality consciousness (a=0.621)		4.25	4.29	4.27
	I am willing to pay higher prices to buy better quality packaged food products.	0.795	4.03	4.11	4.07
	Product quality is the most important factor when	0.747	4.47	4.48	4.48
9.	Indulging shopper (a=0.445)		3.12	3.25	2.19
	I make my shopping trips fast.	0.693	3.15*	3.38*	3.27
	I believe and make reference to the comments in newspaper & magazines when making buying decisions.	0.629	3.10	3.12	3.11
10.	Media Influence (a=0.357)		3.28	3.29	3.29

S.No.		Loading			
	I consider advertisement on TV and radio influence my buying decision more than the advertisement on newspaper & magazine.	0.736	3.09	3.08	3.09
	Majority of packaged food products are reasonably priced.	0.573	3.48	3.51	3.49
11.	Habitual and brand / store loyalty (a=0.516)		3.48	3.48	3.48
	I often purchase from the same store.	0.779	3.46	3.46	3.46
	I have favorite packaged food brands I buy over & over.	0.629	3.43	3.61	3.52
	When I go for shopping, I buy as per the list prepared.	0.5888	3.57	3.39	3.48
12.	Novelty seeker (a=0.599)		2.69	2.64	2.66
	I like to buy new and imported packaged food goods.	0.773	2.78	2.78	2.78
	I prefer to buy foreign packaged food brands than local brands even though sometimes they are more expensive.	0.457	2.61	2.51	2.55
S.No.	Shopping Style Dimensions	Loading	Bengaluru Mean (198)	Chennai Mean (211)	Grand Mean
13.	Style consciousness (a=0.440)		2.9	3	2.95
	The atmosphere, decoration, and style of the store will affect If I will buy goods in that store.	0.797	3.29	3.37	3.33
	When buying packaged food, I tend to pay attention to their packaging styles rather than if they are good to health.	0.442	2.29*	2.06*	2.17
	Attitude of salesmen influence if I will buy goods in that store	0.425	3.14*	3.57*	3.36
14.	Family reference (a=0.442)		3.39	3.2	3.3
	Family members influence my choice of packaged foods and brands.	0.704	3.64	3.55	3.6
	While shopping, I seldom consider if the product will cause harm to the natural environment.	0.624	3.08	3.12	3.1
	I should plan my shopping more carefully than I do.	0.459	3.47*	2.94*	3.21
15.	Price-value consciousness		3.54	3.42	3.48
	When buying daily consumables, I tend to choose local-made products because their quality is good and prices are reasonable.	0.84	3.54	3.42	3.48

Note: 1 Stands for strongly disagree and 5 for strongly agree, a = Reliability test; *Significant at the 0.05 level

Analysis of Variance (ANOVA) of Shopping Style Dimensions: Bengaluru versus Chennai
The results of the ANOVA suggested that women in Bengaluru and Chennai were not significantly different in terms of brand, style and quality consciousness, media influence, habitual buying and novelty. However, significant differences were found in status consciousness, careless and convenience seeker, information seeker, environment and health consciousness, reference seeker, hasty and carefree shopper, style consciousness, and confused shopper. Consequently, there was more difference than similarities in the shopping style dimensions of the working women in the two areas.

Status Consciousness: The mean values indicate that status consciousness is not very high among working women in Bengaluru and Chennai. However, if we compare both the groups, Chennai women are more status conscious (2.81) than working women in Bengaluru (2.50). Further analysis of the factor brings out significant difference between the opinion of both the groups in four statements. Chennai working women have higher level of agreement with "When shopping with friends or other people, I am ore willing to buy expensive food items", "I like to buy ready-made packaged foods and am not willing to prepare by myself", "I am more willing to pay price to save time", and "I charge a lot of purchase to my credit cards".

Brand Consciousness: Both groups mean values indicate that Bengaluru (3.32) and Chennai (3.36) working women are brand consciousness. However, both the groups emphasise on quality rather than the well-known brands. Chennai women are more quality consciousness than their counterparts. Moreover, both the groups have shown very strong level of agreement to consult the manufacturing dates while shopping for packaged food. Further analysis of the factor does not bring out any significant difference between the opinions of both the groups in the two statements, "I am willing to pay higher prices for famous brands", and "I prefer to buy the best known or advertised brands".

Impulsive and Convenience Seeker: The mean values indicate that there is a significant difference among Bengaluru (3.23) and Chennai women (3.63) in careless and convenience shopping. If we compare both the groups, Chennai women tend to shop more from places that are close and convenient than their counterparts. On the other hand, Bengaluru women are more planned and disciplined to buy food goods. While in comparison Chennai women prone to do purchasing without an intention and no planning. Moreover, Chennai women are more likely to try newly introduced food products and to buy food stuffs with useful packages than their counterparts.

Information Seeker: The mean values indicate that there is a significant difference among Bengaluru (3.36) and Chennai women (3.57) regarding product information. To compare both the groups, Chennai women prefer packaged food because it educates customers of the ingredients of the product, and like to buy food stuff of different cuisines than their counterparts. Both the groups have same opinion that they prefer to buy packaged food because it is fresh and hygienic. In nutshell, Chennai women are more information seeker about a product than women in Bengaluru.

Environment and Health Consciousness: Both the groups are significantly conscious about the environment and their own health. If we compare both the groups, women in Bengaluru (3.86) do frequently purchase green product, which claim to be environment friendly than women in Chennai (3.57). Further analysis of the factor brings out no significant difference between the opinions of both the groups in two statements are "I am willing to pay higher price for green product", and "I am willing to pay higher price for those products that can improve my health".

Reference Seeker: The mean indicate that working women in Bengaluru (3.30) and in Chennai (3.48) are more depend upon other references to make their purchasing packaged food decisions. If we compare both the groups, Chennai women are more willing to purchase those packaged foods which are recommended by friends than the working women in Bengaluru. Both the groups" choice of goods and brands get influenced by advice from their friends or colleagues respectively.

Carefree Shopper: The mean values indicate that both the groups are hasty and carefree shoppers. Compare both the groups of women, Chennai women (3.30) tend to buy instantly without much careful thought when they see something during shopping, but women in Bengaluru (3.25) do not buy instantly and give careful thought before buying something. Bengaluru women are more prone to read information on the packaging of a product carefully before making buy decision than their counterparts. On the other hand, Chennai women do shop quickly and are not particular about any specific brand compared to their counterparts.

Quality Consciousness: Both groups are very quality conscious but Chennai women are slightly more quality consciousness than their counterparts (a mean score of 4.25 in Bengaluru vs. 4.29 in Chennai). However, Chennai women are willing to pay slightly higher prices to buy better quality packaged food products than Bengaluru women.

Indulging Shopper: The mean values indicate that working women in Bengaluru (3.12) and in Chennai (3.25) are frequent in their shopping trips and both are media seekers. If we compare both the groups there is no any significant difference between the opinion of both the groups in two statements: "I make my shopping trips fasts", and "I believe and make reference to the comments in newspaper and magazines when making buying decisions".

Media Influence: The mean values show that both the groups relay on electronic media. In further analysis, there is no significant difference between the opinion of Bengaluru women (3.28) and Chennai women (3.29) in two statements: "Majority of packaged food products are reasonably priced", and "I consider that advertisements on TV and radio influence my buying behavior decision more than the advertisement in newspaper and magazine".

Habitual and Brand / Store Loyalty: Both groups mean values indicate that they are highly habitual and brand / store loyal in packaged food buying decisions. In further analysis there is no significant difference between the opinion of Bengaluru women (3.48) and Chennai women (3.48) in the three statements: "I have favorite packaged food brands I buy over and over", I often purchase from the same store", and "When I go for shopping, I buy as per the list prepared".

Novelty Seeker: The mean values indicate that novelty is not very high among working women in Bengaluru (2.69) and Chennai (2.64). In further analysis there is no significant difference between the opinion of Bengaluru women and Chennai women in the two statements: "I prefer to buy foreign packaged food brands than local brands even though sometimes they are more expensive", and "I like to buy new and imported packaged food goods".

Style Consciousness: The mean values show that style consciousness is not very high among women in Bengaluru (2.90) and Chennai (3.00). However, if we compare both the groups, women in Bengaluru are significantly more prone to pay attention to the packaging styles of the buying packaged food rather than if they are good to healthy than their counterparts. In further analysis there is no significant difference between the opinion of both groups in the two statements: 'Attitude of salesmen has an influence on

whether I will buy goods in that store", and "The atmosphere, decoration, and style of the store will affect if I buy goods in that store".

Family Reference: The mean values indicate that family reference is very high among women in Bengaluru (3.39) and Chennai (3.20). However, if we compare both the groups, women in Bengaluru are significantly confused and admit that they should plan their shopping more carefully than their counterparts. In further analysis there is no significant difference between the opinion of both groups in the two statements: "While shopping, I seldom consider if the product will cause harm to the natural environment", and "Family members influence my choice of packaged foods and brands".

Price-Value Consciousness: The mean values indicate that both groups are significantly price-value conscious. However, women in Bengaluru (3.54) are more prone to choose local-made products because their quality is good and prices are reasonable than Chennai women (3.42).

Cluster Analysis showing shopping styles of Working Women in Bengaluru and Chennai
When comparing the results it was found that the three clusters formed by 'K-mean' method produced more interpretable cluster.

Analysis of Variance (ANOVA) was undertaken to assess the internal validity of the cluster results. Since the variables were used to perform the cluster analysis, there should have been significant difference among the clusters (Saunders, 1994). The results of the ANOVA showed that statistically significant difference did exist between the three clusters. Tables 2 and 3 present the packaged food shopping style and demographic profiles of these three segments.

Table 2: Mean Scores of the Shopping Style Dimensions of the Three Clusters.

S. No.	Shopping Style Dimensions	Aware and Independent Buyers (153)	Hedonistic and Opinion Seeker (224)	Rational and Value Buyers (31)
1.	Status Consciousness	2.62	2.66	2.85
	When shopping with friends or other people, I am more willing to buy expensive food items.	2.26	2.32	2.25
	I like to buy ready-made packaged foods and am not willing to prepare by myself.	2.52	2.42	2.09
	I am willing to pay higher price to save time.	3.09	2.92	3.93
	I like to shop in a big shopping mall.	2.93	2.87	3.9
	I charge a lot of purchase to my credit cards.	2.3	2.81	2.09
2.	Brand Consciousness	3.11	3.47	3.52
	While shopping, I tend to choose those well-known brands rather than best quality ones	2.37	3.01	3.29
	I am willing to pay higher prices for famous brands.	2.98	3	3.29
	I prefer to buy the best known advertised	2.77	3.3	3.29

Table-2 Continued

	brands.			
	I always consult the manufacturing dates while shopping for packaged food.	4.33	4.58	4.22
3.	Impulsive and convenience seeker	3.07	3.65	3.72
	Even though without an intention of purchasing, I still like to buy goods for which I have no planned.	2.91	3.2	3.19
	I usually shop from places that are close convenient.	3.56	4.27	3.96
	I tend to buy food stuff with useful packages.	2.92	3.53	4.16
	I like to try newly introduced food products.	2.89	3.63	3.58
4.	Information seeker	3.13	3.72	3.33
	I prefer packaged food because it educates me the ingredients of the product	3.27	3.6	3.32
	I prefer to buy the packaged food because it is fresh and hygienic.	3.14	3.91	3.09
	I like to buy food stuff of different cuisines.	3	3.65	3.58
5.	Environment & health consciousness	3.96	3.73	3.57
	I frequently purchase green products which claim to be environment friendly.	3.92	3.59	3.54
	I am willing to pay higher price for those products that can improve my health.	4.16	4.24	4.16
	I am willing to pay higher price for green products.	3.81	3.36	3.03
6.	Reference seeker (a=0.605)	3.22	3.52	3.3
	Advice from friends or colleagues influences my choice of goods and brands.	3.32	3.52	3.41
	I am often willing to purchase those packaged foods which are recommended by my friends.	3.13	3.53	3.19
7.	Careless shopper (a=-1.105)	3.28	3.32	2.96
	I tend to read information on the packaging of a product carefully before making buying decision.	3.41	3.91	3.74
	I shop quickly and am not particular about any specific brand.	3.17	3.06	2.7
	I tend to buy Instantly without much careful thought when I see something during shopping.	3.28	2.99	2.45
8.	Quality consciousness (a=0.621)	4.23	4.29	4.31
	I am willing to pay higher prices to buy better quality packaged food products.	4.03	4.07	4.25
	Product quality is the most important factor when	4.44	4.52	4.38
9.	Indulging shopper (a=0.445)	3.18	3.36	1.96
	I make my shopping trips fast.	3.4	3.37	1.87
	I believe and make reference to the	2.97	3.35	2.06

Table-2 Continued

	comments in newspapers & magazines when making buying decisions.			
10.	Media influence (a=0.357)	3.51	3.11	3.46
	I consider advertisement on TV and radio influence my buying decision more than the advertisement on newspaper & magazine.	3.16	2.94	3.74
	Majority of packaged food products are reasonably priced.	3.86	3.29	3.19
11.	Habitual and brand/store loyalty (a=0.516)	3.28	3.57	3.85
	I often purchase from the some store.	3.22	3.54	4.06
	I have favorite packaged food brands I buy over & over.	3.31	3.66	3.51
	When I go for shopping, I buy as per the list prepared.	3.31	3.52	4
12.	Novelty seeker(a=0.599)	2.64	2.73	2.35
	I like to buy new and imported packaged food goods.	2.68	2.92	2.29
	I prefer to buy foreign packaged food brands than local brands even though sometimes they are more expensive.	2.6	2.54	2.41
13.	Style consciousness(a=0.440)	2.73	3.12	2.84
	The atmosphere, decoration, and style of the store will affect if I will buy goods in that store.	2.98	3.62	3
	When buying packaged food,I tend to pay attention to their packaging styles rather than if they are good to health.	2.14	2.09	2.93
	Attitude of salesmen influence if I will buy goods in that store.	3.09	3.65	2.61
14.	Family reference (a=0.442)	2.96	3.53	3.26
	Family members influence my choice of packaged foods and brands.	3.21	3.9	3.32
	While shopping,I seldom consider if the product will cause harm to the natural environment.	2.73	3.37	3
	I should plan my shopping more carefully than I do.	2.96	3.33	3.48
15.	Price-value consciousness	3.09	3.71	3.74
	When buying daily consumables,I tend to choose local-made products because their quality is good and prices are reasonable.	3.09	3.71	3.74

Note: 1 stands for strongly disagree and 5 for strongly agree

Table 3: Summary of the Demographic Characteristics of the Three Clusters (%)

Demographic Information		Aware and Independent Buyers (153)	Hedonistic and Opinion Seeker (224)	Rational and Value Buyers (31)
Area	Bengaluru	54.24	43.75	51.61
	Chennai	45.75	56.25	48.38
Age	20-30 yrs	37.25	46.87	29.03
	31-40 yrs	24.18	26.33	51.61
	41-50 yrs	32.02	18.75	12.9
	51 above	6.53	8.03	6.45
Marital Status	Single	28.75	31.69	29.03
	Married/divorced	71.24	68.3	70.96
Number of children	None/not applicable	37.9	45.98	35.48
	One	23.52	16.96	41.93
	Two	38.56	31.25	16.12
	Three & above	0	5.8	6.45
Qualification	Graduate	27.45	19.19	16.12
	Technical Graduate	15.03	21.87	0
	Postgraduate	45.09	42.85	41.93
	Doctorate	12.41	16.07	41.93
Occupation	Education & Research	36.6	34.37	58.06
	Technical/Professional	15.03	23.66	0
	Managerial/Administration	48.36	41.96	41.93
Sector	Government	50.32	40.62	61.29
	Private	49.67	59.37	38.7
Monthly Salary	Rs.10000-20000	34.64	41.96	41.93
	Rs.21000-30000	39.21	30.35	16.12
	Rs.31000-40000	18.95	11.6	22.58
	Rs.41000 & above	7.17	16.06	19.34

A final three-cluster solution was developed, and the mean scores of the shopping style dimensions, and the demographic characteristics for each cluster were compared. These three clusters were labeled as 'Aware and independent buyers', 'Hedonistic and opinion seeker' and 'Rational and value buyers'. Following is a brief description of each cluster.

1. Aware and Independent buyers (37 per cent): Working women in Bengaluru constituted 54 per cent of this group, which was relatively more mature, and constituted of those who were married, with post graduation, and with managerial / administration jobs. Such women were more conscious of the environment and health of family members. They were least style conscious and did not form habits while shopping / making buying decisions. Their decisions were more independent and were less influenced by family, friends, colleagues or media advertisements.
2. Hedonistic and Opinion Seeker (55 per cent): This was the largest of the clusters. Women from Chennai constituted about 56 per cent of this group, which was relatively young and majority of its constituents were either single or newly married without children. A considerable number of technically qualified

professionals make part of this group. These women were more style conscious and enjoy shopping. They also sought information about products by reading packages, through media and opinion of family, friends, colleagues and salesman. They also sought novelty and were more open to buying and trying new and imported food stuff.

3. Rational and Value Buyers (8 per cent): This group was smallest of the clusters. Working women of Bengaluru and Chennai evenly constituted this group, which was more mature and engaged with education and research. Technical professionals were not a part of this group. Such women were not enthusiastic about shopping. Rather, they were more habitual and particular about which brand to buy and which store to buy from. They considered product quality as one of the important decision criteria, and always sought to buy goods with best value for money. They were more brands conscious and preferred to shop from places that are close and convenient. They also valued time and were ready to pay high price to save time.

Insights for marketers

Unlike most studies which just intend to validate the CSI, the results of the current study build up more concrete understanding on decision-making study. Explicitly, this study concludes that some of the decision-making style dimensions in the CSI are consistently found among different groups of consumers, such as quality consciousness, novelty seeker, price-value consciousness, brand consciousness, and habitual and brand/store loyal. On the other hand, it casts doubt on the general disability of the CSI and suggests that the decision-making style dimensions identified in the inventory may neither be exhaustive nor the optimal number. The current study identified 15 packaged food decision-making dimensions relevant to the target population. It suggests some new decision-making style dimensions which are not found in CSI, including status consciousness, information seeker, environment and health consciousness, reference seeker, indulging shopper, media influence, family reference, and style consciousness which are useful to profile the packaged food shopping styles of Indian women.

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PATTERN OF INVESTMENT IN SMALL SCALE INDUSTRIES OF UTTAR PRADESH DURING POST REFORM PERIOD

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Abstract

Uttar Pradesh has been one of the largest and leading states in terms of the population as well as gross resources in India. The population of the state is equal to the seventh most populous country, on the globe. With vast resource set ups and dense population, the state has been facing the issues of low gross productivity and slow pace of industrialisation. The post reform policy of the economic development of India has envisaged a self-dependent and with more than nine percent growth rate. The target of achieving this goal at does require the huge contribution of the state like Uttar Pradesh which had seen a growth rate of -4.3 percent. During the post reform period the State of Uttar Pradesh has an apparition of new developed state and to contribute significantly towards the goals of growth in India.

Industrialisation is one of the means to the goal of growth and the small scale industries has a significant role in balancing the employment issues along with contribution towards the industrialisation. The paper has an objective to analyse the direction of entrepreneurial activities that can help the policy makers to trigger the industrial investment in small scale sector in the various regions of Uttar Pradesh. The level of industrialisation is analysed by the level of investment input mobilised for the small scale industries in terms of the fixed capital. The fixed capital investment describes the commitment of private as well as public sector in the industrial growth of the state. This may be accorded as the faith in the policy as well as the increase in the confidence of the entrepreneurial activities in the state at small scale level as well as direct input to the employment generation capabilities by various industry groups in the regions of the state. The paper tries to find out the agglomeration of investment in various kinds of industry groups in the four regions of Uttar Pradesh with the help of balassa index. The paper has a policy level implication which can be applied at all the levels in order to identify the confidence of entrepreneurs with the investment concentration in the small scale industry groups in the various regions based upon the regional benefits. A comparison over the five year plans during post reform period also reflects the shift of choice of investment in the various industry groups in the four regions of Uttar Pradesh over the period.

Key Words: Small Scale Industry, Uttar Pradesh, Investment, Balassa Index

INTRODUCTION

In a socio-economic scenario with diverse population and pressure of employment the growth of an economy is largely driven by accelerated industrialisation. Herein the small scale industry plays a vital and large part in the industrialisation scheme due to its ability to generate employment at relatively small capital cost and mobilization of resources of capital and skill at micro levels[1]. The small units have the flexibility and ability to meet the rising demand for goods and services at a localized level as required by the economy. Also the linkages for the production in the heavy industries are largely dependent upon the small scale industries[2].

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It is to be significantly mentioned that in India Small scale industry forms an important sector as in constitutes nearly forty percent of the gross output of the private sector. For a country like India, and as per the scope of this paper, for a state as diversified as Uttar Pradesh, the importance of small scale industry has a socio-economic relevance. With forty percent share in gross industrial output and its thirty five percent share in exports, the small-scale industrial sector in India is acting as engine of growth in the new millennium, not only in terms of registering the presence of the Indian goods and services at the international level but also earning the foreign exchange. A small industry helps in removing regional disparities and thus helps in increasing the rate of economic development. This is possible because large scale industries can be established only in such areas where they can get all the facilities like communication, transportation etc. and in this way it helps in promoting only those areas where the concentration of facilities is high thus leaving large set of areas and population as underdeveloped. This problem is not seen in small-scale industries, as it does not require that much advanced facilities and it can be established in that area also where there are not that much facilities available. Therefore the industrial development for the balanced economic growth and its leverage is highly aligned with the development of small scale industries[3].

The industrial investment is one of the reflections of the growth of the economic activities of the state. It can influence the barometer of the economic development of the state. The investment in the small scale industry influences the spurt of related and unrelated industrial activities in the state thereby providing gear to the various socio economic developments in the region. The importance of the investment in the industrial sector defines the magnitude of the industrial activity in a region. Rosentein-Roden and Paul N (1943) and Nurkse (1953) have argued upon the vicious circle of the investment in the industrial sector and the development of the market for the growth of a region. The absence of investment leads to the absence of industrial activity, resulting in the loss of income with a cumulative effect upon decline of agricultural as well as service sector. This results in the absence of spendable income and savings further resulting in absence of market, viz. a viz. effecting to the absence of the reasons to industrial investment. This is a cycle that continues in the absence of specific regional planning of industrial agglomeration and economic growth.

In Uttar Pradesh, which is one of the most populous states of India, the dynamics of investment in the industrial sector has changed in the post reform period. With the shift in the industrial policy, the spatial pattern of the industrial development in Uttar Pradesh required a special attention for the shaping of the regional investment policies in industries and the development of the socio economic infrastructure. The new economic geography of Uttar Pradesh particularly after post reform period has arisen as a compelling alternative paradigm for the investment and industrial location. Therefore it becomes important to trace the regions that may emerge with a stronger manufacturing base, which would eventually attract more industries involved in intermediate activities. The paper attempts to capture the agglomeration of the industries in the various regions of Uttar Pradesh with fixed capital investment as a barometer.

REGIONAL CONFIGURATION AND STATUS OF INDUSTRIES IN UTTAR PRADESH

Besides known for its enormity of problems and diversified nature of economy, U.P. has the highest share in total population of India. It is also the fourth largest state of country in terms of geographical area. It is characterized by low level of per capita income, low

levels of agricultural and industrial productivity, low level of urbanization, low literacy percentage and high incidence of poverty and unemployment. Not only this, even in the matter of credit-deposit ratio, it is found to be the lowest only next to Bihar in 2001-02 as against the highest 107.09 per cent in Maharashtra followed by 84.39 per cent in Tamil Nadu.[7] In light of the current studies and data available it is evident that Uttar Pradesh still continues as one of the extremely backward State of India (Veeramani And Goldar 2004)

Historically speaking, considering the enormity and diversified nature of its size in terms of area, population, resources, people's needs and aspirations, the whole of Uttar Pradesh was, long back during first half the sixties, divided into five economic regions, following the major criterion of homogeneity. These regions consisted of: (i) the Western; (ii) the Central; (iii) the Eastern; (iv) the Bundelkhand; and (v) the Hills. However, after a long journey of planned development program, enormity of the State was marginally scaled down in the November 2000, when whole Hill region including some portion of the Plains was separated from Uttar Pradesh to carve out the new State of Uttaranchal. Since then, the re-organised State of U.P. has been confining to only four economic regions of the Western, the Central, the Bundelkhand and the Eastern, which are, at present, constituted respectively by 26, 10, 7 and 27 districts[9]. The names of the districts falling in each of the economic regions are given below in the tabular form in Table1.

The concentration of industries particularly in Uttar Pradesh has seen various high and lows in last fifty years. However, during post reform period i.e. 1992, the dynamics of industrialisation in Uttar Pradesh has seen number of policy reforms but slow industrial growth rate. Being one of the most populous states and having one of the largest areas in India the growth of the state signifies an important role. With the shift in the industrial policy the spatial pattern of the industrial development in the Uttar Pradesh required a special attention for the shaping of the regional industrialisation policies and the development of the socio economic infrastructure (Khare and Yadav 2001). During tenth plan India has seen the growth rate of 6.24%, with marginal improvement of 0.74 percent over ninth plan (Table 2). In order to achieve the targeted economic growth of 8 percent for GDP and an ambitious 10 percent of growth rate, a target of 11.5 percent growth rate in manufacturing has been fixed for Eleventh Five Year Plan in Uttar Pradesh. To add to the dismal industrial growth the Ninth Five Year Plan witnessed a negative growth rate of -4.3 percent in the industry sector. However the Tenth Five Year Plan has put the industrial growth back on the track. It witnessed the industrial growth of 7.3 percent. The growth statistics of Uttar Pradesh reflects significant improvement of 2.63 percent in tenth plan over ninth plan. Though the share of manufacturing in GDP saw a marginal improvement at India level but a marginal deceleration was seen in Uttar Pradesh. The trace of improvement in the industrial growth may be attributed to the contribution of SSI sector under manufacturing in the State GDP which for the Ninth Five Year Plan was 42.71 % and improved in Tenth Five Year Plan to 43.77%. This indicates that there has been an improvement in the small scale industrial output in Uttar Pradesh in the period under study.

Table 1: Region-wise Classification of Districts in Uttar Pradesh

Sl. No.	Economic Regions	Number of Districts	Names of Districts		
A	B	C	D		
1	Western	26	1. Saharanpur 2. Muzaffarnagar 3. Meerut 4. Ghaziabad 5. Rampur 6. Bijnore 7. Moradabad 8. Bulandshahar 9. Aligarh	10. Mathura 11. Agra 12. Ferozabad 13. Etah 14. Mainpuri 15. Badaun 16. Bareilly 17. Pilibhit 18. Shahjahanpur	19.Farrukhabad 20. Etawah 21. J.P. Nagar 22. Baghpat 23. G.B. Nagar 24. M.M. Nagar 25. Kannauj 26. Auraiya
2.	Central	10	1. Lakhimpur Kheri 2. Sitapur 3. Hardoi 4. Unnao	5. Lucknow 6. Rae Bareli 7. Kanpur (D) 8. Kanpur (N)	9. Fatehpur 10. Barabanki
3.	Bundelkhand	7	1. Jhansi 2. Lalitpur 3. Jalaun	4. Hamirpur 5. Mahoba 6. Banda	7. Chitrakoot
4.	Eastern	27	1. Pratapgarh 2. Allahabad 3. Bahraich 4. Gonda 5. Faizabad 6. Ambedkar Nagar 7. Sultanpur 8. Siddharth Nagar 9. Maharajganj	10. Basti 11. Gorakhpur 12. Kushi Nagar 13. Deoria 14. Mau 15. Azamgarh 16. Jaunpur 17. Ballia 18. Sant R.D. Nagar	19. Varanasi 20. Ghazipur 21. Mirzapur 22. Sonebhadra 23. Kaushambhi 24. Shrawasti 25. Balrampur 26. Sant Kabir Nagar 27. Chandauli
	U.P.: Combined	70			

Source: Statistical Diary, Uttar Pradesh, 2007, Economics and Statistics Division, State Planning Institute, Lucknow.

Table 2: Comparative Growth Performance of Uttar Performance in against
India w.r.t. manufacturing

Parameter	9th Plan (%) 1997-2002	10th Plan (%) 2002-2007
A	B	C
Growth rate - overall		
All India	5.50	6.24
U.P.	2.42	5.05
Share of Manufacturing in GDP		
All India	17.10	17.14
U.P.	14.87	14.42
SSI Share in Manufacturing GDP		
All India	39.84	39.45
U.P.	42.71	43.77

Estimates are calculated at 1993-94 prices and with the assumption that All
India multipliers remain same for the State of U.P. also.
Source: Chapter 7, Tenth Plan Uttar Pradesh, State Planning Department

Despite all the efforts the investment in the heavy and medium industry in Uttar Pradesh has been skewed heavily towards the Western region, where since August 1991 till March 2006 74.6 % of investment have been in Western region, 13.6 % in Central Uttar Pradesh while 9.9 percent and 1.9 percent in Eastern and Bundelkhand region, respectively. Also, majorly the allocation is clustered not only in the regions but also within few industry groups say Food processing, Textile, Metal, Chemical and Miscellaneous industries. The investment indicates the disparity in the spread of industries across the State, specifically in small scale industries. The Government of Uttar Pradesh has been aiming policies to attract investment in the industry sector for balanced growth. In the tenth plan it has provided 10% capital subsidy, 50% exemption of stamp fee for new heavy and medium industries and 50% rebate in the registration fees for industries coming up in Eastern region and Bundelkhand.

Under the circumstances it becomes necessary to evaluate the momentum of industrial investment pattern in Uttar Pradesh. Some of the parameters of the evaluation of the industrial agglomeration are on the basis of the level of employment generated in the industry, output value added, number of units, etc. They all seem to be primitive and simple to relate the extent of industrial concentration. But somehow all these parameters fail to justify the extent of private initiative in terms of the force of investment intention required in a particular sector in a region. The output value added does not define the pattern of concentration of the small scale industries at the regional or state level, while employment and productivity are affected by the shift factors across the sectors[12]. Also except number of units all these are the output function of the infused efforts of the general confidence in terms of the commitment of the financial resources. Therefore one of the many parameters of evaluating the agglomeration of industries is Investment as a fixed capital. Hirschman (1958) advocates, "investment in strategically selected industries or sectors of the economy will lead to new investment opportunity and would pave the way for further economic development"

Hence the pattern of investment in the small scale industries of Uttar Pradesh would provide an insight to the policy makers in terms of the kind of industries to promote as per the inclination of the investment in the post reform period where the economy is more of market and capital driven.

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THE RESEARCH METHODOLOGY
 The objective of the paper is to analyse the concentration of investment in the regions of Uttar Pradesh over the specified period of 1997 and 2007 that may describe the status of investment in small scale industries during the post reform period. Since the study is in reference to the reorganised state of Uttar Pradesh during post reform period, the data of districts/zones of Uttaranchal and Hill regions in 1997 have been excluded, from the study. The data of investment in the Small Scale Industries of the various industry groups (NIC group 2 digits codes) has been collected for all the four regions of Uttar Pradesh, for the years of 1997 and 2007 as per the five year plans of Uttar Pradesh.

   It was a challenge to identify the concentration of the industries in the various regions of different size and structure. The regions of Uttar Pradesh are split in the number of non homogeneous zones and districts. Therefore the choice of one method to identify the pattern of industrial investment was to measure the regional concentration of the industrial investment was a major issue. One index that could be used to make comparison across the regions for the level and status of investment concentration in various industries in Uttar Pradesh was Balassa Index. Therefore the Balassa index for all the sectors of the industry over the two time periods i.e. 1997 and 2007 was calculated. This provided the degree of spatialization of various industries on the basis of the investment made into them. The choice of the period of 1997 till 2007 was based upon the availability of data for at least three plan periods. Also the period of economic change in terms of implication of policy needs to be at least ten years.

   The Balassa index has been extensively used in the international trade literature for cross-country comparisons, giving an indication whether a country's exports are more specialised in some category of goods than the world as a whole[13]. The index was used first by Leisner (1958) to reveal the comparative advantage in British industry but it was extensively used by Balassa B (1965;1989) to drive out the share and concentration of export of various countries for the particular industry. Porter (1979) has used the Balassa index to define the structure of industries and evaluate the comparative performance of the companies. The Balassa index has been used to show the relative spatialisation of firms belonging to the same industry on the basis of the investment made in the various heavy industries. The Balassa for each industry group here is calculated as:

$$B_{ij} = [C_{ij}/\textstyle\sum_j C_{ij}] \div [\textstyle\sum C_{ij} / \textstyle\sum_i\sum_j C_{ij}]$$

Here B_{ij} is the Balassa index, and C is the fixed capital investment in the industry i and region j. The bigger the corresponding Balassa index is the more concentrated the industrial investment will be.

ANALYSIS & DISCUSSION
The level of investment in Uttar Pradesh is highly skewed in the Western region and the growth of investment is also skewed in Western region only, followed by Eastern region. (Table 3) The percentage of gross investment in Uttar Pradesh is concentrated in the Western region with a marginal improvement in the investment attraction. However there is decrease in the percentage share of investment in the Western region over the period in 2007 from 1997. The Eastern region also reflects a marginal improvement in terms of the industrial investment over the period. Also one can see that the concentration of heavy industry investment has been insignificant in the Bundelkhand Region as well as the Central region. The Central region has been leader in terms of the industrial conglomeration in initial five year plan periods. The decrease in the participation of the

central region in terms of the attraction of the investment in the region is alarming in terms of the growth indications for the region. The technological improvements in the region have perhaps taken a back seat.

Table 3 : Region wise change in Investment Pattern of Small Scale
Industries in Uttar Pradesh during 1997-2007

(Investment in Crores)

Year		1997		2007	
Sr. No.	Region/ Industry	SSI	Total	SSI	Total
A	B	D	E	G	H
1	Western Region	2183.66 (63.82)	9982.67 (58.74)	3276.68 (55.95)	13099.29 (58.24)
2	Central Region	519.97 (15.20)	2447.23 (14.40)	1154.83 (19.72)	3195.01 (14.20)
3	Eastern Region	611.43 (17.87)	4190.55 (24.66)	1191.35 (20.34)	5697.53 (25.33)
4	Bundelkhand Region	106.55 (3.11)	373.65 (2.20)	233.71 (3.99)	500.87 (2.23)
5	All UP	3421.61	16994.1	5856.57	22492.70

Note: figures in parenthesis indicate the percentage of the all UP

The pattern of investment with reference to the Balassa index, over the period of 1997 to 2007 does not reflect a very significant change at the regional level during the post reform. (Table 3). The in the industrial sector of Uttar Pradesh has not seen any improvement in investment attraction over last ten years which has been marked as the crucial period in terms of the economic restructuring. The pattern of agglomeration in SSI in the regions is also not very dispersed during the post reform period. The most of the investment in industries have been found concentrated in the Western region in both the periods. The overall percentage growth in terms of the investment has been around 71 percent. The percentage share of investment of Western region has declined from 63.82 percent to 55.92 percent, though there has been around 50 percent growth in investment in the Western region. The level of investment has increased around 95 percent in the Eastern region along with the percentage share of the investment from 17.87 percent to 20.34 percent. There has been around more than double investment in the Central and Bundelkhand region in SSI along with the increase in the percentage share from 15.20 percent in 1997 to 19.72 percent in 2007 and 3.11 percent in 1997 to 233.71 percent in 2007, respectively. The Central and Bundelkhand region did witness the increase in the investment activity in the reference period. (Table 4).

Table 4: The Balassa index of the Investment in Small Scale Industries SSI in the Regions of Uttar Pradesh for the period 1997-2007

NIC Group	Industries\ Year	Western	Central	East ern	Bundelkhand	Western	Central	East ern	Bundelkhand
	Regions			1997				2007	
20-21	Food products	0.67	1.34	1.73	1.08	0.69	1.34	1.47	0.61
22	Beverages Tobacco and tobacco products	1.00	1.14	0.67	2.39	1.01	1.04	0.82	1.47
23	Cotton textiles	0.70	0.92	1.97	0.96	0.79	1.10	1.50	0.41
24	Wool silk and synthetic fibre textile	0.53	0.38	2.68	2.45	0.27	0.69	1.77	6.87
25	Jute, hemp Mesta Textile	1.13	0.34	1.23	0.16	0.91	1.09	1.14	0.89
26	Hosiery & Garments	0.93	0.51	1.64	0.68	1.09	0.83	0.98	0.72
27	Wood Products	1.00	0.79	1.20	0.78	1.05	0.83	1.02	0.97
28	Paper products and printing	0.89	1.37	0.87	2.20	1.02	0.86	0.94	1.51
29	Leather products	0.92	2.46	0.19	0.64	0.89	2.07	0.35	0.57
30	Rubber and Plastics	1.04	1.36	0.69	0.51	1.10	1.06	0.84	0.30
31	Chemical and chemical products	0.99	1.40	0.78	0.60	0.97	1.38	0.80	0.50
32	Non Metallic mineral products	1.00	0.93	0.74	2.94	1.06	0.73	0.89	1.97
33	Basic metal industries	1.01	1.54	0.46	1.69	1.31	0.63	0.41	1.93
34	Metal Products	1.12	0.91	0.67	1.16	1.31	0.67	0.59	0.86
35	Machinery and parts except electrical	1.41	0.52	0.24	0.09	1.51	0.58	0.32	0.31
36	Electrical machinery and Apparatus	1.38	0.47	0.36	0.26	1.31	0.91	0.46	0.46
37	Transport Equipments and parts	1.49	0.25	0.21	0.09	1.55	0.56	0.27	0.13
38	Miscellaneous Mfg.	1.14	0.44	1.03	0.80	1.03	0.73	1.16	1.00
96-97	Repairing and Servicing Industries	0.88	0.85	1.36	1.72	0.88	0.95	1.21	1.49

Source: Directorate of Industries, Uttar Pradesh, Kanpur, Gov. of UP Figures in parenthesis are the ercentage of the total

The level of agglomeration has been in the Metal products, Machinery parts except electrical, Electrical machinery and apparatus, Transport equipments and parts, and Miscellaneous Manufacturing in the Western region in both the periods. The concentration of investment in the industries decreased in Jute, hemp and Mesta products in the Western region (1.13 to 0.91). The Central region has the concentration of Food products, Leather products, Rubber and plastics, Chemical and Chemical products. It also saw a shift in the concentration in the cotton and textile products (0.92 to 1.10). However the concentration of investment in the cotton textile products has been in the Eastern region, though it saw a gradual decrease of 1.50 from 1.97 in 2007 and 1997 respectively. The concentration of SSI in Eastern region has been reported in Food products, Cotton textile products, Wool silk and synthetic fibre textile, Jute, Hemp and Mesta textile, Hosiery & garments, Wood products, and Miscellaneous products. However it is worth noting that though the level of investment and percentage share in the investment has increased in the Eastern region but on a comparative rate the concentration of industry in terms of investment in eastern region and western region has decreased considerably in all the product categories. The investment concentration based on Balassa in the SSI in Bundelkhand has higher concentration in the Wool, Silk & Synthetic fibre textile products, Non metallic mineral products, Basic metal and Repairing and Servicing Industry. (Ref table 4)

CONCLUSION

Over the period we do not witness a spurt of investment change in the small scale industries of the state of Uttar Pradesh in India. However we do mark that the concentration of investment has does marginally started shifting from the Western region to the Central and Eastern region. On the basis of Balassa index we could estimate the direction of investment in the region, though the current analysis does indicates that the level of investment in the small scale industries in various industries in Uttar Pradesh had been stationary over the two decades and till date apart from the Western region and as well as part of the Central Uttar Pradesh has seen the shift of investment in the last two decades after the reforms. Bundelkand region, the most backward region of the state does shows the reflection of the trace of investment concentration in the metallic and non metallic industries, but the rate of investment in the small scale sector still needs to be explored further.

However, the analysis based on the concentration of investment in the various regions can provide an insight to the policy makers in designing the policies to induce the investment in the regions with reference to the various industries. The index above reflects the inherent choice of the entrepreneurs as well as the government, regarding the investment in the kind of industries, in the four regions of the State. Though the choice of investment in the small scale industries does not indicates any significant improvement during the decade in terms of the removing spatial disparity. The government may further explore new avenues for inducing the investment in the backward regions in various industries. The policy for driving the entrepreneurial investment in the small scale sector, as a forward and backward linkage to the Industries of choice in a region can be derived on the basis the analysis. The paper explores the possibility of infusion of investment with a major regional balanced approach. However the above discussions need to be correlated with the regional resources, investment climate and industrial linkages at the district level. The state does reflects a trace of industrial activity at the

small scale level the balanced industrial and thereafter regional development does require an investment confidence.

Though the balassa index may not provide a complete insight to the choice of industrial investment and the factors related to it. The index needs to be extended for the extent of entrepreneurial activity both as a commitment of public as well as the private expenditure at the district level. The further inquiry with respect to the gross output produce and the employment generation capacity also needs to be explored. The balassa index for concentration of industries above does provides the standardised view of the investment at a point of time for a specified industry sector in a region. It gives the direction of industrial growth and with a comprehensive analysis this may be the initial step to explore the linkages of industrial agglomeration at the various administrative levels of the state and further strategise in terms of the strengthening the development of various industry sectors in the state at local level.

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