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Strictly as per the compliance and regulations of:

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Rowland E, Worlu

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I. Introduction

Science and technology are driving developments in the world. They are there in communication, education, politics, and indeed commerce. There is hardly any aspect of human existence that they have not invaded.But within the domain of these twin concepts (science and technology) comes a critical element aptly called calculus. Calculus has been responsible for the change and innovative credentials of science and technology (Otonti, 1988). This is why it has become particularly urgent to draw scholarly attention to its influence in political marketing, probably as a tribute.In pursuit of the foregoing theme, a fresh analytic tool is offered to explain how political organisations behave in response to the demands of the political marketplace. To do this effectively, we examine the concept, issues, and structure of calculus as well as the political marketing theory in order to determine the role of calculus in politics. The essence is to indicate the implications of calculus for political managers.

II. The Concept and Issues of Calculus

The calcus, as it were, is a branch of mathematics while mathematics itself is the universal language of size and numbers. (Nduka, 1988). Although, this universal language is globally spoken in one form or another; over the ages, a more complicated and more technical form of it has been developed; and it is this more technical form of the language that is being studied under such branches as algebra, geometry, trigonometry, calculus, and so on (Adedayo et al, 2006; Adewoye, 2004).According to Nduka (1988), a society's grasp of this technical language of mathematics is a fair reflection of the increasing precision of its control over nature. And in the words of Hogben (1982), the history of mathematics is the mirror of civilization.The calculus, or more strictly the infinitesimal calculus, has in its domain the differential calculus, which deals with calculating the derivatives or rates of change of functions, and integral calculus, which concerns itself with integration. Generally speaking, the calculus embraces such – concepts as functions, maximum, minimum, zero, tangent, slope of a tangent, coordinates, differentiation, integration, differential equations, etc (Ayres, 1972; Thomas and Finney, 1979). Historically, Isaac Newton and Gotfried Leibniz were each credited with the independent invention of this mathematical technique called calculus in 17th century- the century in which the scientific revolution came to a climax. The most famous and most influential figure, indeed the hero of the scientific revolution of the 16th and 17th centuries was the Cambridge mathematician – Isaac Newton. Isaac Newton propounded the famous Three Laws of Motion which established the general principles of what has since come to be termed: "Newtonia Mechanics" (Otonti, 1988). According to Basil Willey (1972), this theory was the keystone of seventeenth century science. Consequently, Newton and Leibniz, two of the ablest minds of that generation, developed the new mathematical technique, the calculus which would facilitate the calculation of rates of change, with particular reference to motion. The calculus has since then proved to be a tool of the utmost power and versatility in the development of the theoretical aspects of all the physical sciences. This could be illustrated with reference to Newton's laws of motion:

(i) Everybody continues in its state of rest or uniform motion in a straight line unless compelled by some external force to act otherwise.
(ii) The rate of change of momentum of a body is proportional to the applied force and takes place in the direction in which the force acts.
(iii) To every action there is an equal and opposite reaction.

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In the language of calculus, this becomes:

$$F = \frac{d\,(mv)}{dt} \qquad \text{(i)}$$

It may be pertinent to add that Newton's second law of motion with all its ramifications has today been accepted as one of the fundamental laws of science. In other words, calculus is the mathematics of change and motion. Where there is growth; where forces is at work producing acceleration, calculus is the right mathematical tool. It is now widely used in life sciences, environmental studies, astronomy, chemistry and economics as well as the traditional applications in engineering and physics.

In fact, calculus has invaded all spheres of human activity; it is used to predict the orbits of earth satellites; to design inertial navigation systems, cyclotrons, and radar systems; to explore problems of space travel; to test scientific theories about ocean currents and the dynamics of the atmosphere, and to model economic, social and psychological behaviour. Calculus is used increasingly to model problems in the fields, of business, biology, medicine, animal husbandry political science as well as political marketing. In a nutshell, calculus is a tool of great importance and usefulness; and is a prerequisite for further studies in nearly all branches of higher mathematics (Worlu, 1989; Ayres, 1972; Thomas & Finney, 1979). One of the greatest mathematicians of 20th century – John Von Newmann (1903-1957), wrote: The calculus was the first achievement of modern mathematics, and it is difficult to overestimate its importance. I think it defines more unequivocally than anything else the inception of modern mathematics; and the system of mathematical analysis which in its logical development, still constitutes the greatest technical advance in exact thinking.

III. Rubrics and Structure of Calculus

a) Rate of change and difference quotient

When the variable x changes from the value x_o to a new value x_i, the change is measured by the difference $x_i - x_o$. Hence, using the symbol Δ (the Greek capital delta, for 'difference') to denote the change, we write $\Delta x = x_i - x_o$.

Also needed is a way of denoting the value of the function f(x) at various values of x. The standard practice is to use the notation $f(x_i)$ to represent the value of f(x) when $x = x_i$. Thus for the function: $f(x) = 5 + x^2$, we have $f(0) = 5 + 0^2 = 5$, and similarly, $f(2) = 5 + 2^2 = 9$, etc.

When x changes from an initial value xo to a new value $(x_o + \Delta x)$, the value of the function y = f(x) changes from f(xo) to f(xo + **Δ**). The Change in y per unit of change in x can be represented by the difference quotient:

$$\frac{\Delta y}{\Delta x} = \frac{f(x_o + \Delta x) - f(xo)}{\Delta x} \qquad \text{(ii)}$$

This quotient, which measures the average rate of change of y, can be calculated if we know the initial value of x, or xo, and the magnitude of change in x, or Δx. That is, $\frac{\Delta y}{\Delta x}$ is a function of x_o and Δx.

For example,

given $y = f(x) = 3X^2 - 4$, we can write:

$$f(xo) = 3(x_o)^2 - 4 \qquad f(x_o + \Delta x) = 3(x_o + \Delta x)^2 - 4 \qquad \text{(iii)}$$

Therefore, the difference quotient is:

$$\frac{\Delta y}{\Delta x} = \frac{3(x_o + \Delta x)^2 - 4 - (3x_o^2 - 4)}{\Delta x} = \frac{6x_o\,\Delta x + 3(\Delta x)^2}{\Delta x}$$

$$= 6x_o + 3\Delta x \qquad \text{(iv)}$$

Which can be evaluated if we are given xo and Δx. So let $x_o = 3$ and $\Delta x = 4$; (v)

Then the average rate of change of y is 6 (3) + 3(4) = 30….. (vi). This means that, on the average as x changes from 3 to 7, the change in y is 30 units per unit change in x (vi)

b) The Derivative

Frequently, we are interested in the rate of change of y when Δx is very small. In such a case, it is possible to obtain an approximation of $\frac{\Delta y}{\Delta x}$ by dropping all the terms in the difference quotient involving the expression Δx. In equation iv above, for instance, if Δx is very small; we may simply take the term $6x_o$ on the right as an approximation of $\frac{\Delta y}{\Delta x}$.

The smaller the value of Δx, of course, the closer is the approximation to the true of value of $\frac{\Delta y}{\Delta x}$.

As Δx approaches zero (meaning that it gets closer and closer to, but never actually reaches, zero), $(6x_o + 3\Delta x)$ will approach the value $6x_o$, and by the same token, $\frac{\Delta y}{\Delta x}$ will approach $6x_o$ also.

Symbolically, this fact is expressed either by the statement $\frac{\Delta y}{\Delta x} \longrightarrow 6x_o$ as $\Delta x \longrightarrow 0$,

or by the equation:

$$\Delta x \longrightarrow 0 \frac{\Delta y}{\Delta x} = \Delta x \longrightarrow 0\ (6x_o + 3\Delta x) = 6x_o \quad \text{(vii)}$$

Where the symbol $\Delta x \longrightarrow 0$ is read as "The limit of ….. as Δx approaches 0".

If, as $\Delta x \longrightarrow 0$, the limit of the difference quotient $\frac{\Delta y}{\Delta x}$ indeed exists, that limit is called the DERIVATIVE of the function y = f (x).

Several points should be noted about the derivative if it exists: First, a derivative is a function. In fact, in this usage, the word derivative really means a derived function. The original function y = f(x) is a primitive function, and the derivative is another function derived from it. Whereas the difference quotient is a function of xo andΔx, it should be observed from equation (vii), for instance, that the derivative is a function of xo only. This is because Δx is already compelled to approach zero, and therefore it should not be regarded as another variable in the function. It is imperative to add that only the subscripted symbol has been used so far is order to stress the fact that a change in x must start from some specific value of x.Second, since the derivative is merely a limit of the difference quotient, which measures a rate of change of y; the derivative must of necessity also be a measure of some rate of change. In view of the fact that the change in x envisaged in the derivative concept is infinitesimal (i.e., Δx --0), the rate measured by the derivative is in the nature of an instantaneous rate of change. Third, there is the matter of notation. Derivative functions are commonly denoted in two ways. Given a primitive function y = f(x), one way of denoting its derivative (if it exists) is to use the symbol f (x), or simply f'; this notation is attributed to the mathematician Lagrange. The other common notation is $\frac{dy}{dx}$, devised by the Mathematician Leibniz. (Actually, there is a third notation,

Dy, or Df (x), but this may not be used here.

The notation f'(x), which resembles the notation for the primitive function f(x) has the advantage of conveying the idea that the derivative is itself a function of x. The reason for expressing it as f' (x) rather than, say, (x) – is to emphasize that the function f' is derived from the primitive function f. the alternative notation, $\frac{dy}{dx}$, serves instead to emphasize that the value of a derivative measures a rate of change. The letter d is the counterpart of the GreekΔ, and dy differs from $\frac{\Delta y}{\Delta x}$ chiefly in that the former is the limit of the latter as Δx approaches zero. Using these two notations, we may define the derivative of a given function y=f(x) as follows:

$$\frac{dy}{dx} = f'(x) = \Delta x \longrightarrow 0 \frac{\Delta y}{\Delta x} \qquad \text{(viii)}$$

c) *Rules of Calculus*

The calculus, as it were, is a branch of mathematics dealing with differentiation and integration of variable quantities. The rules of calculus can be examined from these two dimensions – differentiation and integration.

d) *Rules of Differentiation*

Indicated below are three elementary rules of differentiation:

Rule 1: The Constant Rule:

If h(x) = cf(x) then $h^i(x) = cf^i(x)$ for any constant c.

This rule tells you how to find the derivative of a constant multiple of a function: differentiate the function and multiply by the constant.

Rule 2: The Sum Rule

If h(x) = f(x) + g(x) then $h^i(x) = f^i(x) + g^i(x)$.

The rule tells you how to find the derivative of the sum of two functions: differentiate each function separately and add.

Rule 3: The Difference Rule

If h(x) = f(x) – g(x) then $h^i(x) = f^i(x) – g^i(x)$.

This rule tells you how to find the derivative of the difference of two functions: differentiate each function separately and subtract.

e) *Rules of Integration*

Just as there are rules of differentiation, we can also develop certain basic rules of integration. These rules are heavily dependent on the rules of derivation with which we are already familiar. From the following derivative formula for a power function:

$$\frac{d\ (x^{n+1})}{dx\ (n+1)} = x^n \ \ (n-1)$$

For instance, we see that the expression $x^{n+1}/(n+1)$ is the primitive function for the derivative function x^n ; thus, by substituting these for F(x), and f(x), we may state the result as a rule of integration.

Rule I : The Power Rule:

$$x^n \, dx = \frac{1}{n+1} x^{n+1} + C \quad (n=-1) \qquad \text{(ix)}$$

Note that the correctness of the results of integration can always be checked by differentiation; if the integration process is correct, the derivative of the integral must be equal to the integrand. The derivative formulas for simple exponential and logarithmic functions have been shown to be:

$$\frac{d}{dx} e^x = e^x \text{ and } \frac{d}{dx} \ln x = \frac{1}{x} \ (x>0) \qquad \text{(x)}$$

From these two other basic rules of integration emerge:

Rule II : the Exponential Rule:

$$e^x \, dx = e^x + C \qquad \text{(xi)}$$

and

Rule III : The Logarithmic Rule:

$$\frac{1}{x} dx = \ln x + c \ (x>0) \qquad \text{(xii)}$$

As variants of Rules II and III, we also have the following two rules.

Rule IIa :

$$f^1(x) \, e^{f(x)} dx = e^{f(x)} + C \qquad \text{(xiii)}$$

Rule IIIa :

$$\frac{f^1(x)}{f(x)} dx = \ln f(x) \ Fc \ [\ f(x)>0\ ] \qquad \text{. (xiv)}$$

$$\text{or} \quad \ln/f(x)/ + C \ [\ f(x)=>0\ ] \qquad \text{(xv)}$$

The bases for these two rules can be found in the derivatives rules.

Rule IV : The integral of a sum.

The Integral of the sum of a finite number of functions is the sum of the integrals of those functions. For the two-function case, this means that:

$$[f(x) + g(x)] \, dx = f(x) \, dx + g(x) \, dx \qquad \text{(xvi)}$$

This rule is a natural consequence of the fact that:

$$\underbrace{\frac{d}{dx}[F(x) + G(x)]}_{A} = \underbrace{\frac{d}{dx}F(x) + \frac{d}{dx}G(x)}_{B} = \underbrace{f(x) + g(x)}_{C}$$

In as much as A=C, we can write:

$$[f(x) + g(x)] \, dx = F(x) + G(x) + C$$

But, from the fact that B=C, it follows that

$$f(x) \, dx = F(x) + G \text{ and } g(x) \, dx = G(x) + C_2$$

Thus we can obtain (by addition)

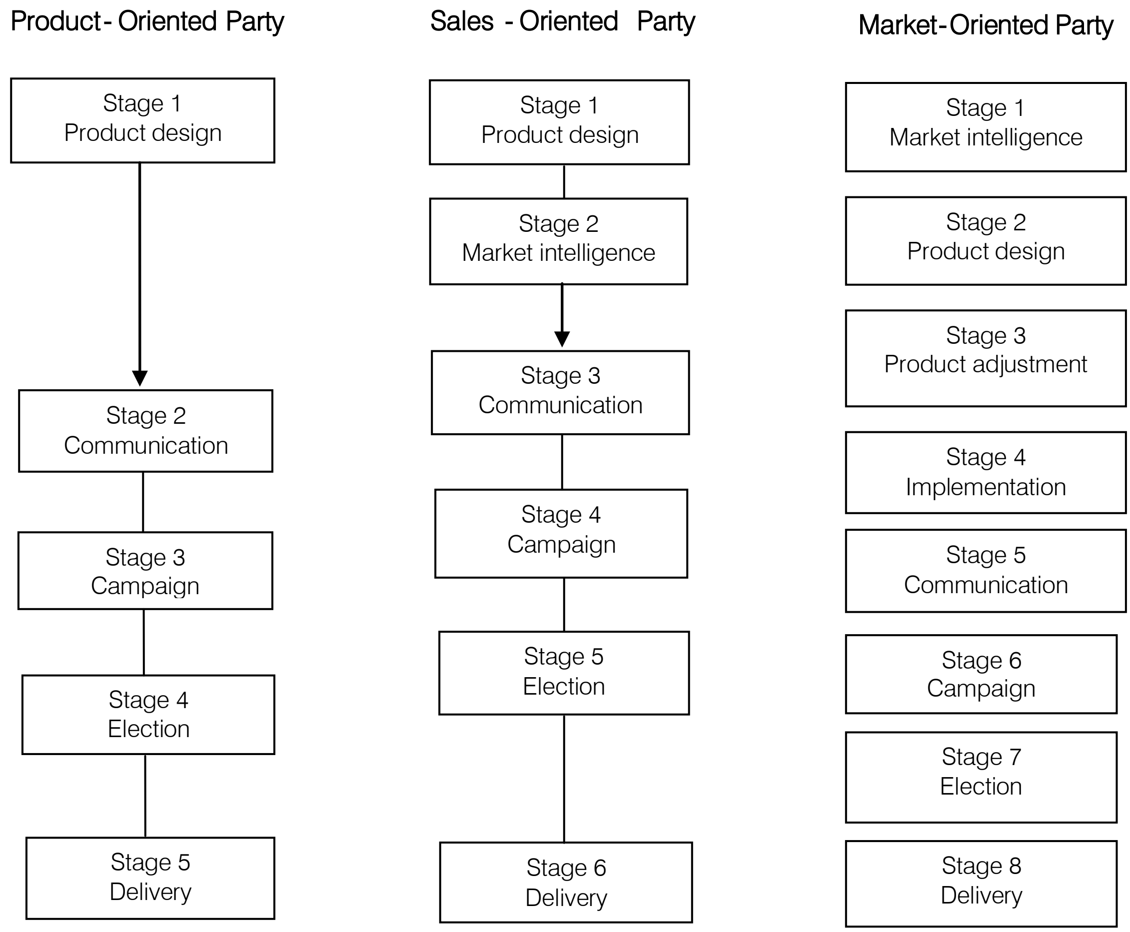
$$f(x)dx + g(x)dx = F(x) + C_1 + C_2 \qquad \text{(xviii)}$$

IV. Political Marketing Theory

Political marketing represents a marriage between political science and marketing. It draws from the techniques of political science and marketing in the implementation of party agenda. This cross-disciplinary match derives more from marketing which offers several orientations to explain business behaviour. These are product, sales and market-orientations. As will be shown later, these three orientations can be applied to party behaviour.Marketing also uses a process to depict activities, such as market intelligence which businesses engage in. these are presented as a 'marketing mix' or '4ps': product, pricing, promotion, and place. This can be formed into a chronological process consisting of various stages a party will go through within one electoral cycle. To do so, the 4Ps need to be significantly altered to create more appropriate activities. In other words, the 4Ps need considerable stretching to make much sense in politics. (Scammel, 1999). Certain stages overlap with political studies. The use of polls by parties, for example, exemplified by the stage of market intelligence, has become a notable area of study for political science. The marketing process does not leave it in isolation however, but connects it to the communication and design of behaviour. From marketing therefore we receive three new orientations, and a marketing process which if adapted to suit politics, produce a theoretical framework to develop our understanding of political behaviour.

V. Adapting the Marketing Orientations to Politics

Political parties can use political marketing to increase their chances of achieving their goal of winning general elections. They alter aspects of their behaviour, including policy, membership, leadership and organizational structure, to suit the nature and demands of their market. They can do this by being product, sales or market oriented. A product-oriented party argues for what it stands for and believes in. It assumes that voters will realize that its ideals are the right ones and therefore vote for it. This type of party refuses to change its ideas or product even if it fails to gain electoral or membership support. A sale-oriented party focuses on selling its argument to voters. It retains its pre-determined product design, but recognizes that desired supporters may not automatically want it. Using market intelligence to understand voters' response to its behaviour, the party employs the latest advertising and communication techniques to persuade voters that it is right. A sales-oriented party does not change its behaviour to suit what people want, but tries to make people want what it offers. A market-oriented party designs its behaviour to provide voter satisfaction. It uses market intelligence to identify voter demands, then designs its product to suit them. It does not attempt to change what people think, but to deliver what they need and want. A market-oriented party will not simply offer voters what they want, or simply follow opinion polls, because it needs to ensure that it can deliver the product on offer. If it fails to deliver, voters will become dissatisfied and the party will risk losing electoral support in the long term. It also needs to ensure that it will be accepted within the party and so needs to adjust its product carefully to take account of this. A market-oriented party therefore designs a product that will actually satisfy voters; demands: that meets their needs and wants, is supported and implemented by the internal organization, and is deliverable in government. To achieve these orientations, political parties engage in various activities, going through a marketing process. This is presented in figure 1. Further detail on each activity in the process is to be found in case 1. This representation of the marketing process differs significantly from marketing itself and also from previous studies of political marketing which do not always change marketing as extensively. One example is the pricing notion within the traditional marketing 4Ps. Wring includes this in studying campaigns, building on Niffernegger. But although it has some utility for campaigns (the cost of advertising for example) it has less for party behavior as a whole. This has therefore been altered considerably to 'product adjustment'. Place is also discarded because although it is appropriate for the study of campaign organization it makes less sense for party behavior as a whole. Certain aspects of marketing language are nevertheless retained. Party behavior is called 'product' to encourage parties (and scholars) to think about party behavior as a 'product' to be given to voters. This is also true with product adjustment for a market-oriented party. Stages 2 and 3 could be combined, but there is utility in keeping them separate and in order to – find out voters demands first, before thinking about internal party concerns. Swap them around and you reduce the tendency of a party to look more fully at the electorate rather than internal members. Nonetheless members, at least in the British context, could be considered, alongside the other components of stage 3. Other aspects of the process are designed to integrate similar and /or equally valuable understanding from both marketing and political science, such as the implementation stage. The standard marketing process does not include this as an actual stage, but within marketing literature there is much discussion of how important it is that those working within a business organization accept the idea of the desired orientation it is it to succeed. This is of particular relevance, if not somewhat problematic, for a political organization such as a party. Marketing literature also offers useful guidelines for introducing a market-orientation.



Source: Lees-Marshment (2001) Political studies Vol. 49,692-713.

Figure 4.6: The Marketing Process for Product, Sales and Market-Oriented Parties.

VI. The Contributions of Calculus to Political Marketing

The importance of calculus in the increasingly turbulent political market place is evident across much of the democratic world, which is largely a response to new science and technology of electioneering. Political marketing employs some of the scientific ideas and technologies built through calculus such as are find in internet campaigning; telephone canvassing, robo-calls (involving pre - recorded messages or telephone computerized auto-dialer which can contact up to eighty electors per hour; and video imaging which enables computer generate image of the candidate to be electronically inserted into television broadcasts or pictures. This is made possible by graphic design software.Political marketing uses most of the conceptual frameworks in calculus to approach most of its quantitative problems, as in the constrained optimization problems that characterize managerial decision making. In other words, the development of optimal programmes for political marketing practice is considered a vital interest of calculus.Calculus has contributed the idea of 'change' and 'rates of change' in 'strategy mix' and application. Political marketing is not a static phenomenon. The political marketer will need to formulate certain strategies for the execution of political programmes; change and variants are bound to occur in these strategies to suit the unfolding scenarios in the political market place. Calculus also provides the idea of denoting the value of these changes and variance in strategies at various points of the implementation process. Besides, calculus teaches the political marketer that a change in one strategic variable in the electioneering process leads to a corresponding change (not necessarily in equal measure) in another variable of equal premium. The implication is that political strategist must anticipate reactive response for every strategy from competition and then prepare to minimize or neutralize its impact.There is further the concept of derivative in calculus. When this is situated in political marketing, it implies that electoral success is a derivative of the political product, marketing system, and need of the electorate, strength of competition, political environments, and party resources.Furthermore, the constant rule of differential calculus underscore the fact that in political marketing, there is no permanent foe; neither is there a permanent friend. The only thing that is constant is the 'interest' of the political marketer. This explains why there are interparty and intra-party alliances and 'gang-ups'.Again the 'sum rule' of differential calculus indicates that parties and candidates may act separately in seemingly irrational and incoherent manners. But the end will justify the means if the sum of these separate actions snowballs into success. In addition, the 'difference rule' of the differential calculus posits that the political marketer should segment the issues of interest, to enable him expunge those that do not impact positively on the 'whole. This is only possible when there is regular evaluation and analysis of the political system. On the other hand, certain rules of integral calculus have helped us to appreciate some ingredients of political marketing. For instance, the 'power rule' draws our attention to the object or the whole essence of political marketing practice. Since the derivative of the 'integral' must be equal to 'integrand', it is expected that the political strategist should be mindful of the strength and credibility of the political marketing mix particularly the product, much as we know that politics is a game of number, we should not lose sight of the need to have a preponderance of men of calibre. That is people whose collective endowments (in terms of goodwill, education, financial resources, political structures, networks, character and connections) will give competitive advantage to the party.

VII. Conclusion

Political marketing practice occurs in a turbulent field environment, and an organisation embedded in a turbulent field has no model in economic theory, except being responsive to change gradients such as research and innovation. This is the basic message of calculus to political marketing. Ideologies for the political parties will vary according to the personalities that people each party. However, there must be measurable objectives by which electoral success can be ascertained using the techniques of planning, organizing, control, and management by objectives (MBO). For the avoidance of doubt, MBO is a result-oriented method of management that establishes goals, determines how these goals are to be attained, and appraise results on predetermined dates.

VIII. Managerial Implications for Political Parties

At the heart of political marketing is the 'marketing concept'. This is an approach that puts the voter at the beginning rather than the end of the democratic process. Oftentimes, parties talk about citizens enjoying some democratic dividends when certain amenities are provided after electoral success. But the political marketing philosophy says that citizens will be more satisfied with the services of government if they were involved at the start, not just the end, of the electioneering process. Thus political parties can capitalize on change dynamics espoused in calculus in this direction. New political marketing theory now contends that the digital and global best practices massively expand democratic values, thereby substantially shifting further the power balance in favour of citizens. One reason for drawing scholarly attention to the role of calculus in political marketing is to add to the mini-explosion of literature on political marketing around the globe. But more importantly, to show that political marketing now thrives on the new digital technologies developed through calculus (e.g. internet, GSM, etc). It is therefore not surprising that Nigerian President – Goodluck Jonathan has disseminated his presidential bid through the machinery of facebook; and has been sending SMS messages to GSM customers. Political strategists are expected to capitalize on this emerging trend to reach the electorate.It is further instructive for political parties to note that their officers and supporters who have contact with the electorate have a direct influence on voter perception of their products in the political markets who almost entirely are reliant on their reputation. In these circumstances, the marketing function cannot be satisfied by a specialized campaign committee alone. It extends to all officers and supporter whose activities affect voter perception. Officers and supporters, therefore, form a vital audience – an internal market, who must be persuaded by the party's ideology and brand, since their performance crucially influences external electorate perception and continued loyalty. This is what the 'constant rule' and the 'sum rule' of calculus depict in our political marketing practice. Be that as it may, it is instructive to restrict policy development and campaign strategy to "watertight professional groups" in a more complex and fast changing political environment. This means that parties, in their drive for target voters, should increase control at the centre to achieve organisational efficiency, clarity of policy, strategy and message. This is particularly urgent in Nigeria and most other democracies where public concerns are growing on the need to make every vote count at the polls. This is where integral calculus presents a model of social justice and inclusion through its power rule. Finally, since the reason adduced for the developmental standing of the advanced democracies is primarily traceable to their grasp of science and technology with the aid of mathematics, including infinitesimal calculus; political parties should note that "the pursuit of science and technology need to form a major plank of ideology that is capable of transforming our society from mediocrity to higher levels of national development.

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Corporate Governanace In India

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Abstracts - Corporate Governance is concerned with the establishment of a system whereby the directors are entrusted with responsibilities and duties in relation to the direction of corporate affairs. It is concerned with accountability of concerned persons, who are managing it towards the stakeholders. It is concerned with the morals, ethics, values, conduct and behaviors of the company and its management. This paper deals with the governance of business organization in the context of business corporate sector.

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Corporate Governanace In India

Dr. B. S. Hothi[α], Dr. S. L. Gupta[Ω], Mr. Abhishek Gupta[β]

Abstract : Corporate Governance is concerned with the establishment of a system whereby the directors are entrusted with responsibilities and duties in relation to the direction of corporate affairs. It is concerned with accountability of concerned persons, who are managing it towards the stakeholders. It is concerned with the morals, ethics, values, conduct and behaviors of the company and its management. This paper deals with the governance of business organization in the context of business corporate sector.

I. Introduction

There is inadequate research available regarding the issues of corporate governance in India. In light of the growing importance of India in the world economy as a source of intellectual capital and outsourcing possibilities, there is an urgent need to understand the governance structures in India[1], Indian corporate governance codes based on the US and UK experience do not resolve specific governance issues. "Corporate governance issues and problems in India are different from those typically encountered abroad". Despite a long corporate history, the phrase corporate governance remained unknown until the late 1990s in India. The liberalization of the Indian economy in 1991 opened up vast potential for the Indian capital market, which saw spectacular growth in its size. However, cases of fraud, malpractices and inefficiency reveal structural problems in the Indian capital market and call for better implementation of corporate governance standards in the country.[2] According to Lalita S. Som (2006) the issues in corporate governance in the Indian context arise due to (a) "ownership structure in companies", (b) "failure of boards", (c) "accounting practices and transparency". Truly independent directors are "rare" in Indian companies. Corporate governance problems also arise due to problems of (a) "surveillance and enforcement mechanisms and the court system", (b) "insufficient powers of SEBI to police violations of regulations" and (c) "lack of shareholder activism in India".[3]

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According to Vittal (2001), the need for corporate governance in India has been highlighted because of the scams we have been having almost as an annual feature ever since we had liberalisation in 1991. We had the Harshad Mehta Scam, the Ketan Parikh Scam, the UTI Scam, the Vanishing Company Scam, and the Bhansali Scam and so on. In the Indian corporate scene, we must be able to induct global standards so that at least while the scope for scams may still exist, we can reduce the scope to the minimum[4]. Vittal further feels chat the legal and administrative environment in India provides excellent scope for corrupt practices in business. The ethical temperature of any business or capital market depends on three factors. The first is the individual's sense of values. The second is the social values accepted by the business and industry. The third and perhaps the most decisive factor is the system. It is here we face the main challenge. Our system encourages the lack of corporate governance [5]. The central problem in Indian corporate governance is a conflict between the dominant shareholders and the minority shareholders. The governance structures of PSUs are incompatible with the efficient and successful operation. The Board has very little say in the selection of the CEO or in the composition of the Board. As far as audit is concerned, the dominant role is that of the Comptroller and Auditor General (CAG), many operating decisions have to be brought to the Board for decision-making, which pushes the Board into managing rather than directing[6]. Independence of non-executive directors appears to be one of the main issues of corporate governance in India; Very few such competent people are in supply. Any suitable candidate needs to have a public stature to inspire confidence in the shareholders. Ideally, they should be prominent industrialists and not friends or promoters of the manager[7]. Corporate governance structures in different countries are of two broad categories namely, the market-based system as in British and American models and the bank-based system as in Japan and Germany. The Indian situation is a "combination" of these two models. Although the financial institutions play a much bigger role in financing corporate activity, the "financial institutions in general have failed to fulfill their limited role in corporate governance[8]". "In India, enforcement of corporate laws remains the soft underbelly of the legal and corporate governance system". Boards do not monitor management effectively. There is inadequate protection for minority shareholders and creditors in India". "Nevertheless, with industry organizations and chambers of commerce themselves pushing for an improved corporate governance system, the future of corporate governance In India promises to be distinctly better than the past[9].

II. Codes of Good Corporate Governance in India

The Cadbury Code of Best Practices (1992), adopted by the London Stock Exchange as the listing requirement for companies in the UK, is the first modern corporate governance code, consisting of elements of good governance of business corporations. Following the example of the Cadbury Code, different countries and markets developed codes of best practices to be followed by their companies. By the end of the century, there were more than sixty CG codes adopted by different national economies. Numerous international codes were also issued aimed at uniformly raising the governance standards of firms in different countries in order to attract investors and reduce the cost of capital. The different CG codes prescribe appropriate management and control structures of a company and the rules relating to the relations between owners, the Board of Directors and the management led by the CEO. In its broadest sense, corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as closely as possible the interests of individuals, corporations and society[10],

III. Corporate Governance Initiatives in India

Corporate governance initiatives In India began in 1998 with the desirable Code of Corporate Governance - a voluntary code published by the Confederation of Indian Industries (CII). SEBI, the regulator of companies listed in the stock exchanges, introduced the first regulatory framework for corporate governance in the listed companies in February 2000, following the recommendations of the Kumar Manglam Birla Committee, appointed by SEBI in this regard. The Kumar Manglam Birla Committee stated that, "It is almost a truism that the adequacy and the quality of corporate governance shape the growth and future of any capital market and economy. Studies of firms in India and abroad have shown that markets and investors take notice of well-managed companies, respond positively to them, and reward such companies with higher valuations". The Narayana Murthy Committee (2003), appointed by SEBI, stated that "investment is ultimately an act of faith in the ability of a corporations management. When an investor invests money in a corporation, he expects the board and the management to act as trustees and ensure the safety of the capital and also earn a rate of return higher than the cost of capital. In this regard, investors expect management to act in their best interests at all times and adopt good corporate governance practices".

IV. Objectives of Good Corporate Governance

Good governance is integral to the very existence of a company. It inspires and strengthens the investor's confidence by ensuring the company's commitment to higher growth and profits. Corporate Governance must be based upon the principles of transparency in board processes and independence of boards, accountability to stakeholders, fairness or all stakeholders; and social, regulatory and environmental concern. Based upon the above principles, the Institute of Company Secretaries of India recommended that the Board should be properly structured with adequate number of non-executive and Independent Directors. Board procedures and practices should be transparent and decisions should be informed, independent and objective. The board should keep the shareholders informed of the relevant developments of the company. The board should monitor functioning of the management team and remain in effective control of the company[11].

V. Elements of Good Corporate Governance

According to the Institute of Company Secretaries of India (ICSI), good corporate governance requires inter alias, identification of powers and accountability of the board, CEO and Chairman of the Board, transparent and ethical management environment, an efficient and effective board consisting of competent persons appointed, following due procedure, training and continuous education of directors, appointment of sufficient number of independent directors, provision of independent legal and professional advice to directors at the company's expenses. Further, ICSI also recommended for code of conduct for all managers and its effective monitoring, long-term strategic plan for the company, corporate social responsibility, regular and accurate financial statements, regular information about financial position of the company to the shareholders, evaluation by the board of its own performance, independent Audit Committee and effective risk management plans[12].

VI. Board of Directors: Selection Process, Qualification, Tenure, Age, Legal Provision, Role & Responsibilities

In this research we have studied the selection procedure, tenure, age and qualifications for public sector boards prescribed under the legal provisions and directives and also the need for orientation of the BODs. All these decide who will become directors and what qualities to look for in directors. In selecting members, the board must assure itself of their commitment to learn the business of the BODs (and) importantly, devote the necessary time and effort (NACD Report). In case of public sector companies of India we may say that the Selection committee for BODs positions should take the above into consideration while making selections to theses to these positions whether it is executive director or non-executive director. The bottleneck is at the head of the bottle goes and old saying. No business can be better than its top management, have broader vision than its top people, or perform better than they do. A business needs a central governing organ and an organ of review and appraisal. On the quality of these two organs, which together comprise BODs, its performance, results and spirit largely depend. Therefore the selection process followed for identifying directors is an important aspect to be focused on while studying BODs.

a) Composition of the Board of Directors:

In terms of the recent developments in the area of corporate governance world over and especially after the Cadbury Code in the UK and the Blue Ribbon Committee of USA the role of the non-executive especially that of the Independent directors has come into prominence. The Confederation of Indian Industries code on Corporate Governance and the more recent SEBI recommendations based on the Kumar Mangalam Birla Committee report on Corporate Governance are important landmarks in this field in our country. In terms of the SEBI committee recommendations it is mandatory for all listed companies in India to have an optimum combination executive and non-executive director with not less than fifty percent of the board comprising the non-executive directors. The number of independent directors would depend on the nature of the chairman of the board. In case a company has a non-executive chairman, at least one third of the board should comprise of independent directors and in case a company has an executive chairman, at least half of the board should be independent. This is a mandatory recommendation for all the listed companies and these companies are to include compliance to these recommendations on corporate governance in their annual report.

The SEBI recommendations came in 1999 and it was required that all the listed companies should adopt the mandatory recommendations w.e.f. 2000-2001. Therefore all companies started analyzing these specifications and made necessary changes in their BODs executive independent directors on NAVRATNA BODs to begin with. (THE COMPOSITION OF BODs of surveyed companies in 2000-2001 is shown later on in this research.) The BODs consists of three kinds of directors – the executive directors or the functional directors responsible for the actual functioning of an organization, the non-executive directors representing majority shareholders (like the financial institutions' nominees in case of the private sector companies and the government nominees in case of the public sector companies) and the non-executive directors who are independent. Chairman of the BODs may be executive or non-executive. In our survey all the public sector companies have executive chairmen while three out of seven private companies have non-executive chairmen. In the BODs surveyed by us there are Director Finance and Director Personnel, along with a CMD, there are some Technical Directors as well depending on the business in which the company is for example ONGC has Director Exploration, director Production. HPCL have Director operations, Director Refinery and director Marketing and SAIL has Managing Directors for its four different plants and functional directors are in finance, projects, commercial, Research and development and operations. The disciplines of the executive directors in these units. It is observed that while PSEs have directors of the executive directors in these units, it is observed that while PSEs have directors specializing in particular functional areas, the private companies have general directors as inside directors as well. Their specialized requirements are met by the senior managers who may also be designated as vice president or president in particular area of operation. Government directors, referred to as part time official directors, are appointed by the administrative ministries and are officers dealing with the concerned enterprise, Usually there are two part-time official directors – a representative of the administrative ministry and financial adviser of the ministry. These directors provide a link or liaison between the enterprise and the ministry. In all of the nine NAVRATNA PSEs surveyed, at least two part-time official representative of the ministry are there. In fact in two down steam oil companies i.e. PBCL and HPCL.

b) Selection Process

The process of short listing and screening is done by the PESB in coordination with the administrative ministry and then the final list of potential candidates to be considered for selection is ready. The respondents in our survey felt that there was need to rationalize the process of screening and short listing potential

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candidates. Strong ideas were also expressed by 22 respondents regarding the first right of the insider candidates to board positions. The respondents felt that those insider candidates who have worked have worked in the organization throughout identify themselves with the organization and their loyalties and aspirations are strongly liked to organization growth and development and besides these they have better understanding of the organizational functioning having worked there at different levels and in different locations. The insiders who become directors are regarded as their own by other employees and required information and other technical inputs are other technical inputs are made available to them more easily. The PESB takes into account the performance in the interview and the track record as brought out in the confidential reports in respect of candidates from the PSEs or from organized services are concerned. For candidate from the private sector, such confidential respects are not available; if such candidates are selected, a confidential investigation is done by the Government before their appointment. Which was due to the time taken by the administrative ministry in taking clearance from the Central Vigilance Commission (CVC). Now PESB directly informs the CVC of the empanelled names at the same time as forwarding names to the administrative ministry. Meanwhile the CVC can takes its time in conveying vigilance clearance. While in the administrative ministry, the process for obtaining approval of the Appointments Committee of Cabinet and the President is commence. Once all the approvals are obtained, subject to CVC clearance, the appointment is done.

c) Weakness in the Selection Process

The process of selection of the functional directors of the PSEs has been streamlined and improved. Still the board members of the NAVRATNA public sector enterprises surveyed don't find the process very satisfactory. The respondents observed that there were some discrepancies in the selection and short listing stages of this process. For example one member from ONGC BODs mentioned that in the short listing for ONGC CMD's nominations recently, two senior mangers i.e. Group General Mangers (now Called ED) were in the list of those short listed for considered by PESB while two recently appointed directors were not considered as they had not put in one year in present post. Here just because of their elevation to BODs level these Directors lost the chance of being considered. Here what the respondents felt was we need a rational and logical process and solutions to all such situations should also be built in the system. The need for a fair and timely carried out selection exercise was emphasized by everyone. It was observed by 25 of the respondents that the process for selection to fill up the Board vacancies is not completed on time and this leads to last minutes confusion when the vacancy occurs. Here the point was made that time lag is very long between the issue of circular indicating a vacancy six months in advance and issue of actual appointment letter. There are cases where selection process began six months in advance and appointment letter was issued after the retirement of existing incumbent due to indecision or dispute. Court case has also been done by dissatisfied candidates.

d) Relevance of Qualifications

The respondents felt that qualifications matter in board level selections, as a qualified person will not only be able to take sound decisions but also command respect of subordinate (Table 18). It is normal human reaction that we give more regard to a person who is more qualified as we see him / her as an expert in his area and we presume that he is move rational and analytical in his approach and capable of taking better decisions. Only four respondents in our survey felt that there can be no link between success at BODs level and qualifications as they felt that BODs role was based more on common sense. These respondents were ex-BODs members who it was later confirmed were not highly qualified only one respondent who was himself very highly qualified felt qualifications were not relevant. Thus qualifications were given their importance by all the respondents in our survey for appointment to PSE BODs. But it was also emphasized that need is more of generalists with proven leadership skills and business acumen. In selecting the functional directors, the norms specified by the PESB are followed and therefore qualifications are given due importance. It was observed in our survey that technical and related qualifications are there in the present in position directors previous experiences may however have been different as some of the BODs members said that they had under-qualified colleagues in some disciplines and faced problems of difference in approach to some issued of organizational relevance.

e) Tenure and Age for BODs positions

The issue of tenure of BODs members is taken up with the BODs members in our survey and they all strongly agreed that the term of the BODs director should be at least five years. This is essential to provide long term stability and continuity in board functioning and strategy formulation and its implementation and monitoring. In the private sector the board term is for a forced period but normally the BODs continues to get re-elected till any real problem occurs. In fact there is a general agreement that the BODs should be allowed to continue subject to achieving acceptable level of performance. But in the public sector the decision for continuance of a BODs member at a particular level is taken based on a prescribed procedure. Here the maximum term is five years for functional directors or upto the time of superannuation whichever is earlier. All respondents in our survey agreed that minimum term of a BODs member should be 5 years.

- The respondents in our survey felt hat there was needed to rationalize the process of screening and short listing potential candidates. We need a rational and logical process in which solutions to all situations are built in the system.
- Strong ideas were also expressed by 22 respondents from PSE BODS regarding the first right of the insider candidates to board positions.
- The need for a fair and timely carried out selection exercise was emphasized by everyone. Time lag is very long between the issue of circular indicating a vacancy six months in advance and issue of actual appointment letter.
- PESB has to play a strong role and endure that concerned Ministry is not allowed to get away with any arbitrary decision and whatever it decides should be done on time to ensure a smooth transition in the company with a proper handing over and taking over.
- All respondents agreed that these selections should not be politicized at any level as it could cause great damage to company functioning, image and employee morale.
- Having non-executive directors from the private sector would be useful to the public sector it was felt by respondents. It would be good for the organization as they would provide a broad macro perspective to BODs deliberations.
- Our respondents agreed that the retirement age should not be less than 65 years.
- It is suggested that some kind of orientation for adopting a macro focus in BODs positions may be encouraged.
- The concept of orientation of non-executive official and non-official directors has not received much focus till now, not only in India but all over the world.
- An Institution of Directors could be of great use in orientation of directors and keeping them updated.

f) Role & Responsibilities of BODs : PSEs

This research focuses on the corporate governance i.e. the role of Board members. As a part of this research attempt has been made to interact with BODs of different companies and study what they perceive their role to be in the company and how they state they can fulfill it. Benchmarking with international studies and experiences has also been done in this research. The ideal role of BODs and how to achieve it has been analyzed based on our respondents views on various issued. The director responsibility on company boards should be understood at this stage of our study so that we may have some norms on which we can assess or evaluate a company Board. Directors should use their best efforts to ensure that the company is property managed and constantly improved so as to protect and enhance shareholder wealth in perpetuity and to meet the company's obligations to all parties with which the company interacts – its stakeholders.

The Director's new role requires new behaviors

Old - 20th century	New - 21st century
• Independent	• Team player
• Champion of function/area	• Sees how function fits in big picture
• Knowledge is power	• Knowledge is to be shared
• Has the answers	• Asks the right questions
• Isolated	• Communicator
• Prefers certainty	• Comfortable with ambiguity
• Super' manager	• Leader
• Tells	• Listens
• Decisive	• Facilitates others to make decisions
• Maintains the *status quo*	• Challenges the *status quo*
• Holds meetings	• Develops relationships
• Talks	• Thinks
• Can be found in his office	• Walks about
• Is the boss	• Is a role model
• Seeks agreement	• Allows loyal opposition
• Competitive - I win/you lose	• Collaborative - I win/you win
• Advises	• Coaches

VII. What the BODs must not do

The discussion on the role should also focus on what the BOD should not do. In our survey the directors agreed that the BODs must not involve itself in day to day functioning of the organization and also that governance does not involve ensuring returns in the short run. Indicates the activities, which our respondents clearly agreed, the BODs must not involve itself in. However how far they succeed at this requires discussion. Though the inside directors on the BODs agreed to this still five non-executive directors when taking of what actually happens in the BODs meetings stressed that considerable BODs time is devoted to mundane and routine matters. Actually the functional directors almost always are from within i.e. they have worked at management levels in the organization and therefore find it difficult to remain aloof from routine matters and day to day activities.

VIII. Formulation and Implementing of Strategies & Policies

In this research focus is on the actual functions of the directors to perform their role on the BODs. The role of different board members and their responsibilities as board members have already been discussed in great detail in the previous researches. In this part of out analysis an attempt is being made to understand the practices adopted by the BODs in the board room for formulation and implementation of strategies, policies and also towards ensuring compliance to relevant laws. For this purpose, the responses of BODs members, the Company Secretaries and non-executive directors have been considered and analyzed. Board of directors determines the company's strategy, appoints the corporate officers charged with implementing that strategy, supervises management, and ensures that proper information is made available to shareholders and markets concerning the company's financial position and performance, as well as any major transactions to which it is a party.

IX. Boardroom Practices in Selected PSEs

The routine and internal operational affairs of the company are normally handled by the unit heads and their team of senior managers. In each discipline this team of top mangers finally reports to a functional director who is also responsible to ensure smooth operations in his particular. The functional directors are also a part of a management committee, which takes care of the short run operations at the company level. This committee which is headed by the MD meets from time to time and takes decisions for the management of the organization. However whenever an issue of long term significance and policy implications comes up or there is a macro view required on a particular matter the management committee takes to the BODs for deliberation and decision. Sometimes in extreme emergency the management committee takes a decision and then at immediate convenience of the BODs, calls for a BODs meeting for ratification of its decision. In the business of governing the organization the BODs plays the main role and is supported by the team of senior mangers by way of furnishing adequate information to facilitate BODs decisions. In the BODs however normally the functional directors take care of the issued in their area to be brought up for discussion with the approval of the chair. At times the BODs may ask a functional director to preset some details in particular area of interest of the BODs. CMD may also raise some issues for the attention and decision of the BODs. In fact any BODs member may take up any discussion relating to the company with the approval of the Chair. It is statutory for each registered company have a company secretary who provides up to date legal and compliance related norms for the information of the BODs and also coordinates the BODs meetings. In a way the company secretary provides the infrastructure for BODs meetings and decisions.

X. Transparency and Accountability

The corporate governance focus is on transparency in operations, accountability to different stakeholders, responsibility for decisions taken and supervision of management actions. The quality of BODs deliberations and the topics discussed are confidential and in our survey the directors should not give graphic details about the same however they did indicate the areas and issues covered during the curse of these meetings. They feel that transparency in BODs decisions.

XI. Conclusion

Corporate Governance involves dual responsibility fulfilling internal organizational and meeting societal needs. The BODs is responsible for macro governance of the organization. Directors of private companies and those on boards dominated by inside directors, ranked safeguarding stakeholder interests and ratifying corporate strategy as the boards most important responsibilities. All the PSE representatives confirmed that they have formulated the corporate vision, mission and objectives in compliance with the above referred circular. It is very important for the BODs to ensure that the team of senior mangers has the desired combinations of qualities required at that level to shoulder the responsibilities placed on them, the BODs role consists of two levels one relates to setting mission objectives and policy formulation and the second level functions include monitoring management, and reviewing and controlling their activities form time to time. In our survey the directors agreed that the BODs must not involve itself in day to day functioning of the organization and also that governance does not involve ensuring returns in the short run. There should be a clear Charter of the role of the Government Director, which should recognize that he would function equally as a Director of the Company and as a representative of the Government. With such a Charter, and with a knowledge of the Government's policies and guidelines the Government director should be allowed to function freely and use his own judgment on matters coming up before the Board, without any formal system of briefing by the Ministry, before the meeting or of reporting to the Ministry after the meeting. It should be left to this judgment and discretion whether to seek a briefing or make a report. To sum up we may say that the Board holding comprehensive power over corporate management, should perform the following functions of decision making and management supervision; Setting business goals and strategies, Approving business plans and budgets; Supervising management and supervising management performance; Replacing the management and also reviewing remuneration Monitoring major capital expenditures and corporate take avers; Mediating the conflicting interests among directors, management and shareholders; Ensuring integrity of the accounting and financial reporting systems; Supervision risk management and financial control; Supervising the compliance of statutes and ethics related regulations; Monitoring effectiveness of governance practices.

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Carbon Credit: A Step Towards Green Environment

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Abstracts - In today's scenario Global Warming is costing a lot of money, so Green Environmentalist aims to promote policy and business that works for the environment. As we all know, carbon dioxide, the most important greenhouse gas produced by combustion of fuels, has become a cause of global panic as its concentration in the Earth's atmosphere has been rising alarmingly. This has created an opportunity for the trade of carbon credits both within and outside of the regulated area, thereby creating a global "carbon market". In this system of carbon trading, controls are imposed on GreenHouse Gas (GHG) emissions under the Kyoto Protocol, and the pre-decided emission limits are then allocated across countries, which have to control the greenhouse gas emissions from the various industries and commercial units operating within them. The objective of the paper is to discuss the basic concepts and importance of carbon credit. It also emphasizes on the methods used to save the environment. This paper also discusses the business opportunities in the global emissions market in Indian context.

Keywords : *Carbon Trading, Kyoto Protocol ,GreenHouse Gas(GHG) emissions.*

Classification : *GJMBR-A Classification: FOR Code: 150305, JEL Code: L 15*

CARBON CREDIT A STEP TOWARDS GREEN ENVIRONMENT

Strictly as per the compliance and regulations of:

Carbon Credit: A Step Towards Green Environment

Ms. Yuvika Gupta

Abstract : In today's scenario Global Warming is costing a lot of money, so Green Environmentalist aims to promote policy and business that works for the environment. As we all know, carbon dioxide, the most important greenhouse gas produced by combustion of fuels, has become a cause of global panic as its concentration in the Earth's atmosphere has been rising alarmingly. This has created an opportunity for the trade of carbon credits both within and outside of the regulated area, thereby creating a global "carbon market". In this system of carbon trading, controls are imposed on GreenHouse Gas (GHG) emissions under the Kyoto Protocol, and the pre-decided emission limits are then allocated across countries, which have to control the greenhouse gas emissions from the various industries and commercial units operating within them. The objective of the paper is to discuss the basic concepts and importance of carbon credit. It also emphasizes on the methods used to save the environment. This paper also discusses the business opportunities in the global emissions market in Indian context.

Keywords : Carbon Trading, Kyoto Protocol ,GreenHouse Gas(GHG) emissions.

I. Introduction

In the last few years, the reason of the sky being darkened is nothing but the lasting effects of all the carbon dioxide being thrown into the atmosphere and radically changing our climate. This continuous accumulation of carbon dioxide in the atmosphere has contributed to what is known today as ***Global Warming***. The several other causes besides burning of fossil fuel which has increased the level of carbon dioxide in the atmosphere are the systematic clearing of forests to make way for more factories and various other human structures. The growing awareness about harmful levels of Greenhouse Gases (GHG) and the resulting Worldwide Warming phenomena, has forced the government authorities and private organizations to implement systems that would help in reducing the amount of carbon dioxide in the atmosphere.

II. About Kyoto Protocol

The ***Kyoto Protocol*** was initiated by the United Nations Framework Convention on Climate Change and ratified by 181 countries and the European Union as a whole, individual entity in 1997, and was put into effect in 2005.

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This protocol was proposed by the international community to address and reduce greenhouse gas emissions that have led to global climate change. The Protocol makes it mandatory for commercial entities emitting above the permitted limit of carbon dioxide to cut down their emissions to prescribed levels, or they should buy carbon credits certificates which can be transacted in the market, or alternatively pay a charge for the emissions, which is referred to as ***carbon tax.***

III. What is Carbon Credit?

International treaties have set quotas on the amount of GHG countries can produce, which in turn set quotas for businesses. Instruments like carbon credits and carbon offset were introduced in order to improve the scenario by encouraging firms to be more environment friendly in conducting their business. One ***carbon credit*** allows one tonne of carbon dioxide or a corresponding amount of other greenhouse gases to be discharged in the air. Businesses that are over their quotas must buy carbon credits for excess emissions, while those below can sell their remaining credits. This exchange of credits between businesses has encouraged carbon trading globally. These credits can be exchanged between businesses or bought and sold in international markets at prevailing market price at two exchanges, namely the Chicago Climate Exchange and the European Climate Exchange. The Multi-Commodity Exchange of India (MCX) may soon become the third exchange in the world to trade in carbon credits. The amount of global emissions can be controlled through the buying and selling of carbon credits in the carbon trading method. It is quite simple and convenient to purchase Carbon Credits from a number of firms, just like any other monetary instrument, as they are traded in an open market. Carbon trading is used when the company's emissions exceed its quota of carbon credits, forcing it to purchase credits from other companies which have spare carbon credits. As a result, the worldwide carbon emissions stay within permissible levels, and the companies come up with ecologically sustainable ways of conducting business .The system also motivates the organisations to be more eco friendly so that they can increase their earnings by selling carbon credits. As carbon credits are freely traded in the market, they make it very easy for businesses to follow the system. There are no complex rules or procedures to adhere to, which enhances their acceptance and makes the system highly successful. Carbon credits can also be purchased even if you are not a part of any organisation in order to lower your own carbon footprint. The money that you put in this manner is routed to fund ecological projects in any region on the planet so that the emissions made as a result of your activities can be neutralized. This sale and purchase in carbon credits helps limit the unchecked emissions of greenhouse gases throughout the world. Organizations responsible for atmospheric pollution are made to pay for their acts while ones taking positive steps are rewarded. In the present scenario, the market of carbon credits has a direct impact on the firm's financial analysis. This has caused firms to actively seek ways to decrease their emissions and adopt cleaner ways of doing business. Thus, the whole system motivates companies and governments to promote environment friendly processes that reduce greenhouse gas emission. Carbon trading, also referred as emissions transacting, it is a joint effort designed to limit the amount of carbon that businesses, organizations and other entities produce over a specific period of time. The ones who are selling are companies that use clean technology and those buying are the world's polluters. In future, the menace of global warming can be effectively handled by this system.

IV. Role of India In Carbon Trading

India is emerging as a serious player in the global carbon credits market. This has prompted originator, developer and trader of carbon credits, to set up office in India. Carbon credit is very emerging domain now a days especially in India but very few corporate are aware of this emerging segment. At present it is quite essential to create awareness about this business segment .As, India's GHG emission is below the target and so, it is entitled to sell surplus credits to developed countries. India is considered to claim about 31% of the total world carbon trade, which can give $25bn by 2010.This is what makes trading in carbon credits such a great business opportunity. Foreign companies which cannot fulfil the norms can buy the surplus credit from companies in other countries. Many Indian companies have been re-rated on the stock markets on the basis of the bonanza that will accrue to them when carbon trading kicks off. SRF Ltd and Shell Trading International have entered into sale and purchase Credit Emission Reduction. Suzlon Energy and Shriram EPC have business in wind energy which is eligible for carbon credit benefits. Shree Renuka Sugars is also expected to benefit from carbon credits. Gujarat Flourochemicals was among the early companies to register for Clean Development Mechanism (CDM) project. India has emerged as the dark horse in this race as more than 200 Indian entities have applied for registering their CDM Project for availing carbon credits. The 800 million farming community in India has also a unique opportunity where they can sell Carbon Credits to developed nations. The India's Delhi Metro Rail Corporation (DMRC) has become the first rail project in the world to earn carbon credits because of using regenerative braking system in its rolling stock. DMRC has earned the carbon credits by using regenerative braking system in its trains that reduces 30% electricity consumption.

It is believed that it is not the penalty awarded to erring companies, but the rewards and recognition given to green firms is what makes this system so popular and exclusive.

This means that companies with limited emissions will devise strategies to further reduce emissions so that they can sell more carbon credits in the international market and thereby increase their profits. Thus, the system keeps on de-polluting the environment increasingly.

V. Carbon offset - Methods to save the Environment

Carbon offset is another financial solution to reduce greenhouse gas emission, which works on a similar strategy. A carbon offset credit is equivalent to reduction of one metric ton of CO_2 or equivalent greenhouse gas in the atmosphere. It immensely aids in promoting renewable and green energy options like solar energy and wind energy, and in funding projects on nature conservation and reforestation. Using cleaner and renewable energy sources like wind and tidal energy helps to achieve this crucial reduction..Even individuals are also using this method and are buying carbon offset to make the environment cleaner and to spread awareness about environment conservation. Buying carbon offset is straightforward and can be conveniently executed on the internet through one of the several carbon offset provider websites. But we must keep in mind that simply buying carbon offset does not take away our responsibilities, as all of us can play an important part in decreasing our carbon footprints by bringing small modifications to our daily lives. These small modifications can be of immense help in preventing further environmental degradation. We should adhere to certain fundamental practices like switching off lights and other electronic equipments when not needed, using low-energy bulbs and LED lighting, and opting for renewable fuels like biodiesel.According to the calculator on *westnet.com* if the average motorist does 400kms per week in a 2L petrol car then 19 trees should be planted to absorb all the CO_2 created. As the car drives, the trees grow.

Planting 19 trees will offset all your vehicle's emissions for as long as you live, as long as the trees are not felled of course. There are certain few things that we can do to greatly reduce our carbon waste like carpooling, it cuts half of the cost and saving can also be done .The another way to reduce the footprint is by eating vegetarian food because it takes much more energy to produce animal protein then vegetable protein. We can also reduce carbon waste by reducing the size of our landfills i.e. don't take anything that can not be eaten or reusable. A few simple changes can really make a difference, especially if all 6.75 billion of us started to adopt them.

VI. Conclusion

Carbon offset and carbon credit still needs to find its place in layman's vocabulary. Thus, mass awareness on the issue through widespread education is required, to provide our future generations the better cleaner environment. But still the increased demand flowing to carbon credits and the introduction of newer financial instruments for emission trading are all signs of heightened activity. It can also be concluded that India is an emerging leader for the developing countries in designing innovative strategies and portfolios for carbon trading.

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Enterpreneurship And Youth Unemployment In Nigeria: The Missing Link

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Abstracts - This paper examines youth unemployment in Nigeria and attributed the high unemployment to the disconnect between effective technical/vocational education and the development of an enterpreneurship culture. It proposed a drastic shift in policy from incremental curriculum to scientific and technical one that will promote student-centered learning with input from the private sector to reduce the present mismatch between labour demands and acquired skills. It concludes by proposing some strategies that can sustain an enterpreneural culture and reduction in youth unemployment.

Keywords : Unemployment, Youth enterpreneurship, Mismatch, Skill acquisition, Vocational/technical education.

Classification : GJMBR-A Classification: FOR Code: 150304,150305 JEL Code: L26,E24

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Strictly as per the compliance and regulations of:

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Dr. C.G.E. Salami

Abstract : This paper examines youth unemployment in Nigeria and attributed the high unemployment to the disconnect between effective technical/vocational education and the development of an enterpreneurship culture. It proposed a drastic shift in policy from incremental curriculum to scientific and technical one that will promote student-centered learning with input from the private sector to reduce the present mismatch between labour demands and acquired skills. It concludes by proposing some strategies that can sustain an enterpreneural culture and reduction in youth unemployment.

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I. Introduction

Nigeria is the most populous country in Africa and the eight in the world with a population of 150 million people. With a nominal GDP of $207.11 billion and per capita income of $1,401 it has the second largest economy in Africa. As impressive as the above figures may appear youth unemployment has been one of the major problems facing Nigeria. Youth unemployment has been attributed partly to a mismatch between inadequate educational outcomes and skill demands. The educational system must provide the skills profiles required by the labour market to enhance the employability of young people. Beyond the problem of managing mismatch is the need for the education system to provide a platform for exchange of ideas and training in skill acquisition aimed at creating employment through enterpreneurship. An enterpreneurship culture may not evolve without a corresponding shift from a wholly traditional system of education to voctaional and techical education. Technical education is that aspect of education which leads to the acquisition of skills as well as basic scientific knowledge (Dike, 2009). It is a planned program of courses and learning experiences that begins with exploration of career options, supports basic academic and life skills, and enables achievement of high academic standards, leadership, preparation for industry-defined work, and advanced and continuing education" (Washington,: Office of Superintendent of Public Instruction, 2009).

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The neglect of technical and vocational education may have contributed to the high unemployment and rising poverty among the youth because many of them lack the basic job skills. In many societies, graduates of vocational and technical institutions are highly skilled enterpreneurs, but the Nigerian society does not seem to encourage the youth to follow this route. One reason is that many policy makers perceive graduates of technical/vocational institutions as inferior to university graduates. Some employers even reflect this by their preference for regular university graduates and the pay disparity between the two categories.

II. Purpose

The purpose of this paper is to examine the potential impact of vocational/technical education in developing a culture of enterpreneurs aimed at reducing unemployment among Nigerian youths. It seeks to assess how the training and skills acquired rom vocational/technical education can provide the necessary platform to promote enterpreneurship as well as reduce unemployment. It is believed that vocational/technical education hold the key to national development. How can youths be empowered to acquire skills and ideas to reduce the present mismatch between labour demands and employability of Nigerian youths. This paper seeks to define the concept of enterpreneurship, examine some of the factors that promote unemployment, assess governments' efforts at reducing unemployment and the potential impact of vocational/technical education in promoting enterpreneurship. It concludes by proposing some strategies that can sustain an enterpreneural culture and reduction in youth unemployment.

III. Research Methodology

Data for this paper were derived from mainly secondary sources including research and analysis of scholars, government records, newspaper and journal articles related to the subject. It also involved extensive literature review on the description of the present status, problems and prospects of vocational/technical education as a veritable link or youth unemployment in Nigeria.

IV. Enterpreneurship

Enterpreneurship has been defined by various professions to mean different things (Igbo, 2006). Stevenson (2007) defines enterpreneurship as the pursuit of opportunity through innovative leverage of resources that are for the most part not controlled internally. Modern school of thought claims that the role of the enterpreneur is that of an innovator, eventhough the definition of innovation is still widely debatable. However, Kitzner (2007) suggests that the process of innovation is actually of spontaneous "undeliberate learning", meaning that the necessary characteristics of enterpreneur is alertness, and no intrinsic skills, other that of recognizing opportunities and exploring them. Through the idea that enterpreneurs are innovators is largely acceptable, it is difficult to apply this theory of enterpreneurship to less developed countries (LDCs). According to Allawadi (2007) enterpreneurs in LDCs rarely produce brand new products; rather they imitate the products and production processes that have been innovated in developed countries. He refers to this practice as "creative imitation". Creative imitation takes place when the imitators better understand how an innovation can be applied, used, or sold in their local market. Thus, the innovation process in LDCs is often that of imitating and adapting, instead of the traditional notion of new product or process discovery and development.

Some individuals apply the concept of enterpreneurhsip to the creation of any new business, while others may focus on intentions. Still, others tend to confuse managing a small business such as roadside automechanic or furniture maker as enterpreneurs. But Stevenson and Grousbeck (1999) argue that not all business managers are enterpreneurs because they don't innovate. On the otherhand, Stoner et.al. (2000) note that the function that is specific to enterpreneurs is the ability to take factors of production – land, labour and capital and use them to produce new goods and services. However, they argue that enterpreneurs perceive opportunities that other business executives do not see or care about. Allawadi (2010) tied enterpreneurship to the creation of five basic "new combinations" of introducing a new product, a new method of production, opening a new market, conquest of new source of supply and creating a new organization. Creativity and enterpreneurship promote the birth of new firms which is critical to economic development efforts. A definition which seems to fully capture the true meaning of enterpreneurship is one provided by Stevenson and Gumperts (2002) as a process in which individuals pursue opportunities, fulfilling needs and wants through innovation together with the attendant risks. Based on the above definitions, it can be concluded that enterpreneurship is the process of carefully determining an analyzing unmet needs through creatively satisfying those needs by bearing the related risks. By combining the above thoughts, can be generalized that enterpreneurs are risk bearers, coordinators, organizers, gap-fillers, leaders, and innovators or creative imitators.

V. Causes of Youth Unemployment

The situation of young people in the labour market is aggravated by the fact that the formal labour market is still very small in Africa as a whole. Young people are often at the end of the job queue because they lack adequate skills and experience, as well as efficient social networks. A significant number of young people are discouraged by an unsuccessful job search and leave the formal workforce entirely. For example, a survey by Kanyenze, et.al. (2000) revealed that 39 percent of unemployed youths have almost given up actively searching for a job and 47.1 percent gave up because they found no opportunities in their areas. Some 23.5 percent said they could not afford transportation to look for work. Although 57 percent had inquired at work places, farms and factories, only 6.9 percent had registered at employment agencies. The above statistics provide a summary of the gloomy unemployment situation in Africa.

Youth unemployment in Nigeria can be said to be a consequence of several factors including the following:

- *Population Growth.* Population growth has produced an overwhelming increase in young population. Also, the general improvement in healthcare delivery has reduced infant mortality rate thereby sustaining population growth. The result is that the growth of labour (supply) is fast outstripping the available jobs (demand).
- *Rural underemployment and urban unemployment.* Youth unemployment in urban areas is generally higher than in rural areas. In rural areas most employment is in small scale agriculture, which is why official unemployment levels are low. With incomes meagre due to low productivity, rural areas have more underemployment. In all cases rural exodus continue to be a problem. Many young people migrate to urban areas to find a job with higher remuneration, but jobs in urban areas are not easy to find. Urban employment generally accounts for only a small share of total unemployment. As the United Nations (2003) has noted many of the young people face unemployment and underemployment once in the cities. Young people are at a disadvantage on the job market due to a combination of poor economic performance and limited availability of assets such as education, experience, health and finance. According to Blanchflower and Freeman (1999) insufficient

aggregate demand, lack of skills as well as the relative size of the youth labour force are the most commonly cited causes of youth unemployment. The combination of both low economic activity and high population growth results in a scarcity of jobs, meaning that hiring is based more on experience and education, which are the very assets young people are struggling to acquire. Even in an economic upturn, lack of assets put young people at a disadvantage for new job opportunities. Also, in economic downturn, the doctrine of last-in-first out (LIFO) affect young people more.

- *Low levels of education and skills mismatch*. Investments in human capital in Nigeria and Africa in general is critical for supplying skilled workers. The low level of education of young people is a significant factor in the longer unemployment spells they face. In recent years the return to secondary education have decreased. For example, a study in Kenya reveals that between 1978 and 1995 the wages paid top workers with secondary education fell, while the direct cost of a secondary education remained the same. This secondary education is less attractive to young people. In Nigeria, secondary education as a "meal ticket" holds less attraction for young males in the Eastern part of the country where majority of the males prefer to go into apprenticeship in commercial ventures. To many of such males, the belief is that education is "unproductive".
- *Disease and illness.* The poor health status in Africa is a severe bottleneck to employment and economic growth. For example, at 45.2 years, life expectancy in sub-saharan Africa is among the lowest in the world (UNAIDS, 2004). Of 100 newborns fewer than 30 reach age 40 in Swaziland, fewer than 56 in Cameroon and more than 90 in Algeria (UNDP, 2004). Sub-Saharan Africa has the highest share of young people living with HIV. Young people who are HIV positive eventually become ill with HIV-related diseases, increasing their absence from work, reducing their productivity and lowering their chances of employment. When untreated, young people are ultimately unable to work. According to ILO (2004c), by 2005 more than 2 million workers across the world will be unable to work due to HIV, and by 2015 that figure will be more than 4 million.
- *Poor quality of education and low transition rates.* Youth unemployment in Nigeria is higher among the less educated. The practice since independence has been to tailor post-primary education largely to supply the public sector. The early education reforms towards more market-oriented economies have not been matched by the educational products (skills-mismatch), thereby indicating the lack of fractional feedback between educational institutions and the private sector. The low quality of education leads to a general lack of skills and the freed education programmes are often limited to primary education which provide only basic skills. The high dropout rates among the school age children worsen the situation. Although, out-of-school training would be required for these young people to quality for jobs, in many cases the resources for training and skill development are scarce (Liebrandt and Mlatsheni, 2004).

  In some countries including Nigeria, training activities are offered in areas such as carpentry, auto mechanics, bricklaying, among other. But Kanyenze et.al. (2000) argue that because many of such training ignored labour market demand, they lead to unemployment and low returns on investment in training.

VI. Some Consequences of Youth Unemployment

In Nigeria, the lack of job prospects and the likelihood of a desolate future for unemployed youths have contributed to socially deviant behaviours such as prostitution, armed robbery, kidnapping for ransome, drugs and so on. Schoumaker and Beauhemin (2002) have argued that one of the motivation underlying urban-rural migration is similar to the motivation underlying international migration of young people. The rapid growth in urban population has intensified competition in the urban labour market. The death rate attributable to violence in Africa is estimated at 60.9 per 100,000 people-more than twice the global rate (WHO, 2004a). Crime and violence have been increasing in many parts of Nigeria among unemployed young people. Youth gangs, which some youths view as second or substitute families, typically satisfy the economic and social needs of unemployed young people through violence. Accoridng to UN-Habitat (2004b), many young people enter the criminal world at a very young age and end up becoming victims of crime themselves. They attribute the combination of youth unemployment and availability of firearms to the trend. For example, Fleshman (2001) found that homicide, involving firearms, was the leading cause of death among young men ages 15-21 and that gun shots from all causes were the leading cause of non-natural death in South Africa. Youth unemployment has a significant social cost to the Nigerian society. In addition to the indirect health cost, youth unemployment partly contributes to illicit activity which increase insecurity. The increase in criminality in a country as a consequence of youth unemployment causes losses in foreign direct investment (FDI). For example, foreign investors cited crime as the biggest deterrent to investing in South Africa. In Nigeria, oil giant Royal Dutch/Shell is threathening to direct from Nigeria, citing insecurity as one of the major reasons.

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VII. Government Response to Youth Unemployment

The loss in GDP attributed to youth unemployment combined with the cost of mitigating the impact of criminality associated with unemployment reinforce the need to address the issue. Consequently, the identification of effective interventions as well as adequate resource allocation are crucial. Resource constraints should not deter the Nigerian policy makers from refocusing public expenditure towards young people. Increased funding to raise the educational and health status of young people should be seen as a way of prioritizing allocation within the social sector.

As nations advance into the 21st century governments are shrinking as many of them are shedding the toga of "major employer" of labour. However, the rate of cutback vary from country to country but dictated by what is perceived as political and social consequences. This partly explains why the government is the major employer of labour in developing like Nigeria. The NEEDs document (2004) states that "Human development will definitely be grossly undermined and impared without employment". Awogbenle and Iwuamadi (2010) argued that addressing the problems of mass unemployment, low productivity, high inflation and poverty will depend on how speedily it is able to develop the the millions of its labour force into knowledgeable and skilled people needed for the required change. Skill acquisition, a veritable vehicle to promote employment generation has become a part of the policy thrust of the Nigerian government. Beginning with the Directorate of Roads and Rural Infrastructure (DEFRI), National Directorate of Employment (NDE), Family Support Programme (FSP), and now the National Empowerment and Development Strategy (NEEDS), and even the establishment of the Peoples Bank of Nigeria are some of the intervention programmes that were intended to promote employment generation. At the local level, some states like Delta State have introduced "Micro-credit" schemes; a programme for which the State governor worn the Central Bank of Nigeria award (Chiejina, 2011). Most of the past intervention programmes were implemented as ad-hoc, poorly coordinated and marred by corruption and inefficiency. Consequently, rather than reduce unemployment, the reverse seem to be the case. The Nigerian Living Standard Survey (NLSS, 2006) estimate the poverty level at 54%, implying that approximately 75 million Nigerians may be unemployed. The World Bank (2002) estimate about 40 million unemployed youths between 18 and 25 years. This figure is not captured by unemployment index because they are not looking for jobs as the jobs are simply not there (Vanguard, 2010). This figure is expected to be higher when lay-offs and outright closures occassioned by the global economic meltdown since 2008 are considered.

It can be argued that the major reason why many past intervention programmes have failed to yield the desired result is what appears to be the "disconnect" between skill acquisition and skill management. In otherwors, it is not enough to acquire a skill without the capacity to manage one's self due to the lack of education. For any person to compete effectively (Hamel and Prahalad, 1994) in an emerging economy that is knowledge-driven, he or she must possess relevant job competencies, including technical, business, cultural, interpersonal and intellectual competencies which could be obtained from functional technical and vocational colleges. As Dike (2009a) has argued, technical and vocational education holds the key to Nigeria's development. Because society has conditioned the youths into believing that the only route to success is university education many applicants for the unified tertiary matriculation examination (UTME) pick universities as their first choice. This is followed by Polytechnics and then colleges of education. Policy makers at the Ministry of Education (FME) reflect this belief in the manner of allocation of funds for tertiary education with a bias towards university education in the ratio of 3:1.

VIII. Vocational/Technical Education as the Missing Link

In Nigeria, vocational/techncial education have always enjoyed low status, which perhaps explains why many youths prefer conventional universities. The emerging social and economic changes in the world appear to have forced many employers to seek employees who possess some technical skills in order to remain competitive. Despite the increasing demand for advanced technical manpower, policy makers are slow in developing appropriate strategies to promote this sector. Okoye (1999) has argued that any nation that wishes to remain politically relevant must strive to raise the standard of living of the people through scientific and technological knowledge.

Advancement in technology provides a sure way for Nigeria to exploit and transform its numerous natural resources into goods and services and create jobs in the process. Achieving technological advancement may not come cheap and would require a drastic policy shift to develop curricula that blend theory with the practcial aspects of elarning. As Vanguard (2004) noted only 1% of the resources for secondary education is chanelled towards technical/vocational education. Vocational and technical education can provide the needed platform for promoting enterpreneurship and job creation as well as reducing unemployment among youths through any or combination of the following strategies.

- *Curriculum development.* Any attempt to address the issue of enterpreneurship and youth unemployment must begin with curriculum review. There is the need to move from the present incremental or cumulative concepts to instrumental or problem solving curricula. These are the kernel of vocational/technical education. This requires a curriculum that focuses on technical and scientific subjects that is student-centered. Enterpreneural skills and workshops on how to find business ideas should be integrated in school curriculum to encourage young people to start their own business. Policy actions in this regard would include:
  1) Giving priority to mathematics and science education at all levels of education and offering incentives to science teachers.
  2) Providing adequate financing for voctaional/technical training
  3) Linking vocational and enterpreneural training with job centers to ensure that the skills profiles supplied match demand.
  4) encouraging out-of-school young people to be involved in vocational training to promote social inclusion as well as enhance employability.
- *Improve access to education.* Improving access to education is critical to unemployment reduction. This is because less-educated people have access to fewer jobs. As UNDP (2004) has noted basic education is a prerequisite for training young people. Youth unemployment is partly the result of a mismatch between inadequate educational outcomes and skills demand. The education system must provide the skills profiles required by the labour market to enhance by the labour market to enhance employability of young people.
- *Public-Private Partnership.* Public-private partnerships are essential for overcoming supply constraints in education and provide feedback from the private sector to the education system, which mitigates the problem of mismatch. Public-private partnerships can also improve the quality of education by using private sector core competencies to robustly link education with job skills. Governments should encourage private sector participation in the delivery of vocational and technical education. In the last few years, many individuals and private organizations have been granted licences to operate private universities but it is not known how many such licences have been granted for vocational and technical colleges. Government should begin to move from providing education and health to services to regulating them as well as providing enabling environments for the institutions to trive.
- *State governments should develop its own innovative strategies to promote enterpreneural activities in its area.* Although many policy makers and top government officials realize the potential of new enterprises in promoting employment growth, a centralized administration of enterpreneural activities have tended to impede their effectiveness. Government should discontinue enterpreneural policies which seem to suggest a one-size-fits-all approach. For example, the school curricula are the same across the country eventhough there is a marked differnece in academic achievement between the North and South, and even between the East and West of Nigeria. Due to the socio-cultural diveristy inherent in developing countries like Nigeria, entrepreneural policies that are unique and indigenous to the respective states should be vigorously pursued.
- *Give newcomers equal opportunity with the old.* Some leaders erroneously believe in the dictum of "oild reliable" or "tested hands" much to the discomfiture of beginners. It is believed that motivated new enterpreneurs may want to to be challenged to show success if given a chance. Past performance may not always be a good predictor for tomorrow. In otherwords, the market leaders of today may not necessarily be the market leaders of tomorrow.
- *Government should recognize and reward innovation.* Records by the American Executive Office (1983) show that new business with less than ten employees have a little less than a 75 percent chance of surving the first year, and only about one chance in three (33%) of lasting four or more years. Therefore, given the likelihood of challenges, government should offer incentives such as "tax holiday", and adequate protection from foreign comptitors, as well as patent rights to spur more desire for innovation.

IX. Conclusions

This paper has attributed the high youth unemployment in Nigeria to the disconnect between effective technical/vocational education and the development of enterpreneurship culture. It proposed a drastic shift in policy from the present incremental curriculum to scientific and technical subjects that promote student-centered learning. It argues that skill acquisition should be complemented by skills management which vocational/technical education can provide. An effective public-private interface can robustly enrich the curricula and reduce the present unemployment due to mismatch between labour market demands and acquired skills.

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The Effect Of Customer Relationship Management (CRM) On Achieving Competitive Advantage Of Manufacturing Tractor

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Abstracts - One of the requirements of competitiveness is the ability of the organizations to adjust themselves with the customer needs quickly. Increasingly competitions make the organizations have more contacts and have relationships with the customers in the world of markets.CRM is a commercial process in the B2B environment, which prepares the organizational structure to improve and survive in trading. CRM is a strategic process of support, against the competitors, providing value for the buyers and sellers, and gaining excellent benefits. This research was done in Truck making company of Tabriz in the form of case- study, and its purpose was to investigate the impact of customer relationship management in order to gain the competitive advantage in industrialized manufactures of Truck. It was done through designing four hypotheses: improving and specializing the relationships with the customers, understanding and separation of the customers, responding to the customers' complaints, and attracting and protecting the customers.The method of conducting the research is descriptive and for gathering data we used questionnaire. The results obtained from the data analysis show that all the relations are meaningful at the %5 of deviation using spearman correlation test from the managers' perspectives and the variable of understanding and separation of customers has the most impact, and the variable of attracting and protecting of customers has the least impact on the dependent variable. Also, using freedman test, the ideal position of variables in the given company from the managers' perspectives is as follows:1) Meeting customer's complaints2) Attracting and protecting customers being faithful3) Improving and specializing the relations with the customers4)understanding and separating of the customers.

Keywords : *Customer relationship management, competitive advantage, loyalty, complaints.*

Classification : *GJMBR Classification: FOR Code: 150307 JEL Code: L23*

THE EFFECT OF CUSTOMER RELATIONSHIP MANAGEMENT CRM ON ACHIEVING COMPETITIVE ADVANTAGE OF MANUFACTURING TRACTOR

Strictly as per the compliance and regulations of:

The Effect Of Customer Relationship Management (CRM) On Achieving Competitive Advantage Of Manufacturing Tractor

Case study: Iran (Tabriz) Tractor Manufacturing Co.

Mehrdad Alipour[α], Mohammad Hallaj Mohammadi[Ω]

Abstract : One of the requirements of competitiveness is the ability of the organizations to adjust themselves with the customer needs quickly. Increasingly competitions make the organizations have more contacts and have relationships with the customers in the world of markets.CRM is a commercial process in the B2B environment, which prepares the organizational structure to improve and survive in trading. CRM is a strategic process of support, against the competitors, providing value for the buyers and sellers, and gaining excellent benefits. This research was done in Truck making company of Tabriz in the form of case- study, and its purpose was to investigate the impact of customer relationship management in order to gain the competitive advantage in industrialized manufactures of Truck. It was done through designing four hypotheses: improving and specializing the relationships with the customers, understanding and separation of the customers, responding to the customers' complaints, and attracting and protecting the customers.The method of conducting the research is descriptive and for gathering data we used questionnaire. The results obtained from the data analysis show that all the relations are meaningful at the %5 of deviation using spearman correlation test from the managers' perspectives and the variable of understanding and separation of customers has the most impact, and the variable of attracting and protecting of customers has the least impact on the dependent variable. Also, using freedman test, the ideal position of variables in the given company from the managers' perspectives is as follows:1) Meeting customer's complaints2) Attracting and protecting customers being faithful3) Improving and specializing the relations with the customers4)understanding and separating of the customers .

Keywords : customer relationship management, competitive advantage, loyalty, complaints.

I. Introduction

As the traditional economy disappear competition increasingly appears in he new dimensions, customers become the main elements of all organizational activities. This new period of direction for marketing means allocating budget to improve design and production of products which are beneficial to consumers, employees, investors and other related groups. The result of this new thought is the management of relation with the customer (Alipour,2010,P.22).The concept of competitive advantage in the strategic competitive environment and in the framework of creating value is that what ever causes income to increase more than costs it manifests. Each contact is a selling opportunity for the company (Rumelt,2003,P.26).Statement of the problem and its necessity: He present research is trying to investigate the effect of CRM on gaining competitive advantage in industrialized company of truck manufactures .The management of relation with customer (CRM) as a key competitive strategy needs paying attention to the customers' needs and practicing customer- facing method in all industries(Buttle,2009,P.89). Using communicative technology of information, industries try to create long term relation with customers, so improving management relation customer has been more common(Lambert,2010,P.12). At present time, the sense of competitiveness is a key issue all over the world, and it is regarded as a means of accessing an ideal economical growth and permanent improvement (Recheld,2004,P.29).An organization has a competitive advantage when it has a better performance than that of its competitors and it meets customers' needs with the non- competitive advantage and benefits with the same cost. In summary, the following evidences can be considered as the importance and necessity of CRM (Porter,2004,P.86).

II. Review of Literature

Today's world is the world of quality and competition. The position of present world, regarding production and service is in a way that any country has a potential to produce, to serve, and meet technology in different contexts. However, their difference is in the quality of production, and idealization of the delivery of the service to customers. Nowadays, treating customers with respect is the main organizational activity and a

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necessity to their existence(Dadkhah,2009,P.13).Traditional marketing strategy involved(4P) concepts: Price, product, place, and promotion to increase market share, and their primary purpose was increasing the number of transactions between the seller and the buyer(Elahi&Heydari,2008,P.5).In this context, the amount of selling was a criterion for the performance of strategies and marketing tactics. While the management of relation with the customer the management of relation with the customer is a kind of trading strategy which goes far more than that of the amount of the transaction, and its goal is to increase the profitability, income and the pleasure of customer (Buttle,2005,P.74).To fulfill these purposes, the organization uses a wide set of tools, methods, procedures, and communications with the customers(Roland,2006,P.33).

III. Main Elements in the Chain of Trading (CRM)

Each organization begins its work with attracting the customer and develops with the specializing and solving complaints.CRM is a transfer toward the customer based economy in which the main element is a customer. In this economy, CRM helps the organization to find out which customer has the value of gaining, and which customer has the value of keeping and protecting, which one has the value of profitability, while other customers should be ignored. In order to develop, the relationship with the customer individually or through the network, to access the most valuable customer, the customers and their groups should be identified (Hoots,2005,P.13).

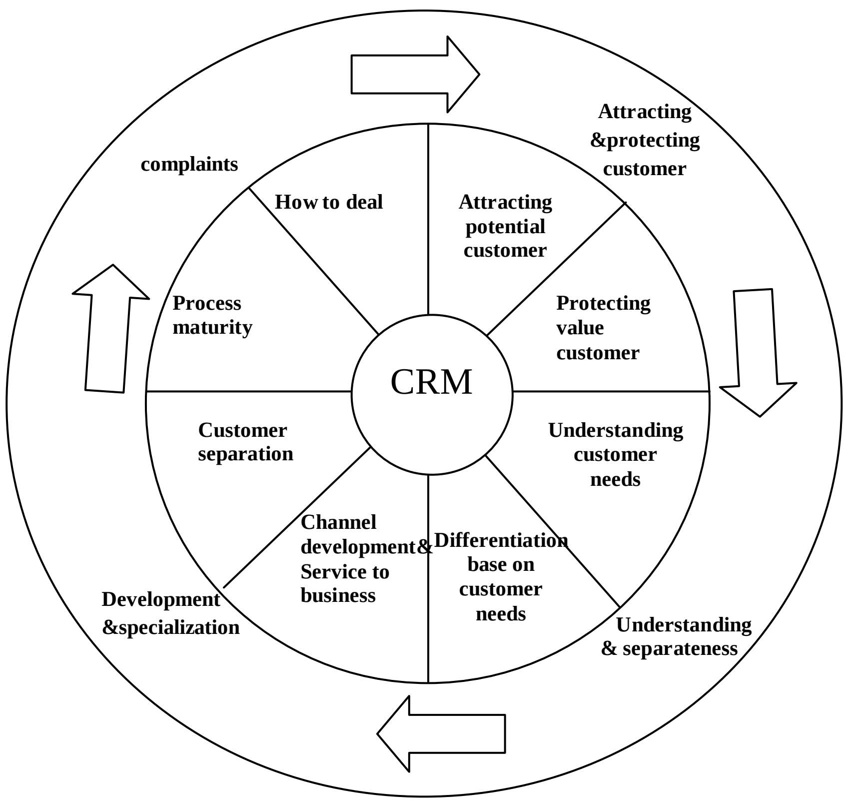

Figure 1: Hoots, 2005

IV. Understanding and Separating

Organizations cannot contact with the customers unless they understand them, and perceive their values, and know that what kinds of services are useful for them, and how or when they intend to make interactional contacts, and they prefer to buy which goods or services. Proper understanding from customer needs is the basis of the analytical elements. Various activities which are important for understanding and classification of customers are as follows: Proper understanding of population concept, pattern acquisition and distribution preferences, analysis of sensible groups and unique customers who intend to have similar behaviors in a homogeneous pattern, determining needs and attitudes of different customer classifications (Payne,2005,P.35).

V. Development and Specialization

In a customer- based world, the development of channels and products has made customers a pioneers , and the contact channels with customers have brought about the efficient implementation of CRM. Direct interactions with customers are called the contact point of customer which is: call centers, direct sale, e-mail, websites, and faxes. Also, it seems that the development of specialization is based on the offered value by the customer separation, i.e, the organization should offer the goods or services of each group of customers based on their unique needs which were identified previously. This issue can maximize the profitability of a certain group of customers (Klein, 2006,P.74).

VI. Attracting and Protecting Customer

Validity and fame of an organization in producing goods with proper and actual quality and advertisement of whatever that exists, the proper contact of employs with customers, and customer assumptions can be effective in their attraction. How to preserve successful customers is based on three main points:

1) Keeping Interaction: Don't forget to listen to the customer
2) Maintenance of efforts to offer goods and services should be on the basis of defined customer values
3) pay attention to the continuous changes of customers' needs as they differ from each other in all aspects of lives(Turban,2004,P.76).

VII. Customer's Sense of Fulfillment

Most of researches done by researchers suggest that faithful customer should be protected as a competitive property .Customer's sense of fulfillment and creating faithful customers in the trading framework is defined as a sense of fulfillment to transact with a certain organization and purchase goods and services reputedly. On the basis of studies which have been done, it is possible to design a model from customer-faithfulness, as it follows:
So, it can be sail: customer's consent results in reliability and reliability results in responsibility (Donio, 2006,P.24).

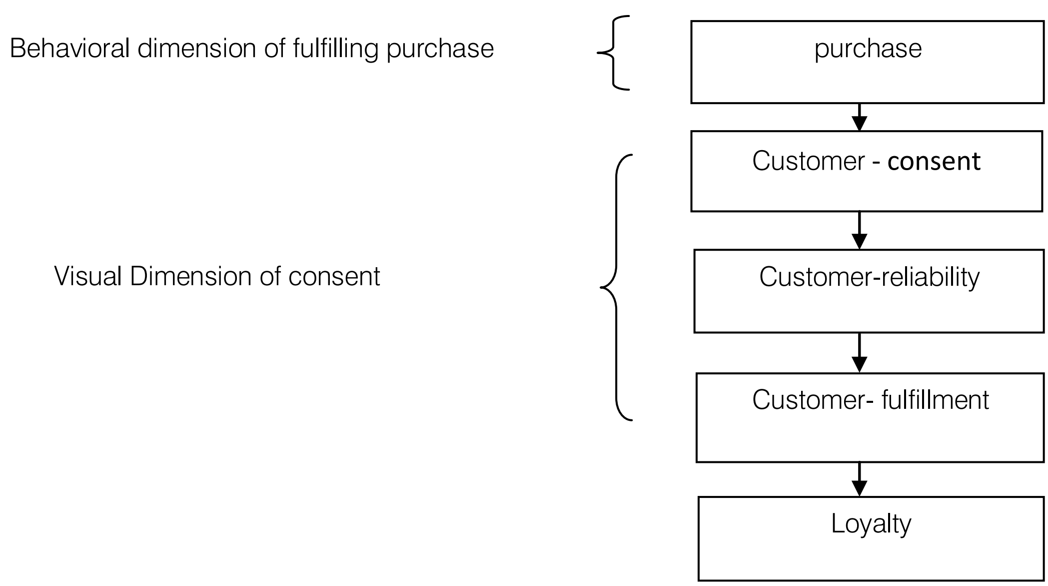

Figure 2 : (Jean Donio,2006)

VIII. Effective Response to Complaints

Making a complaint is a customer's right and sometimes people want to complain a bout your services. This is common and you should expect it and your behavior will be your success. Pay attention to the following points:

1) Ask for excuse even though you yourself have caused the problem.
2) Listen carefully so that you will find out all the facts and details
3) Try to understand the customer and show him/ her that you have listened to his/ her complaints(Rager,2006,P.45).

IX. Five Important Principles Are Given Below For The Success Of CRM

- First principle: CRM is not the same as buying a software.
- Second principle: CRM should be in accordance with the commercial preferences
- Third principle: CRM creates measurable profits.
- Fourth principle: Exactly consider the price and cost of all possession.
- Fifth principle: your trading is unique so are the choice criteria(Urbanskiene,2010,P.17).

X. CRM Marketing

There are four stages in the CRM marketing. The first stage is the recognition of customers and their identification should be in detail as much as possible. Then the marketers need to analyze them on the basis of customers' needs and their values of participation. In the third stage they should interact with the customers and to find ways to improve the productivity of the cost and effectiveness of interaction, and finally, marketers need to order some aspects of goods or services that they offer to customers. This means treating customer differently. Below the stages and offered activities are shown on the basis of their definitions (Wolf ,2007,P.451).

XI. Marketing A Competitive Advantage

An organization is competitive in the eyes of its customers, if it can offer values which are better than its competitors. In the planning of successful companies, it is important to recognize that, the cleat purpose of all strategies and businesses, is toward making competitive advantage (Lambert,2010,P.11).A company has a competitive advantage when its performance differs from that of its competitors, and meets its customers' needs with a non- competitive advantage. The competitive advantage gives the customer a motivation to select his/ her own preferred goods. The second step in improving goods. The second step in improving a competitive advantage is to turn a certain quality and capability into a distinctive advantage which is important to customers. The distinctive advantage of products that make goods unique and customers want them, separate them from other competitive products (Greenberg,2010,P.15).

XII. Dimensions Of A Competitive Advantage

The concept of competitive advantage states the dominance which results from certain ability of the combination of abilities which the dominant competitor has it uniquely when compared with its competitors. The most important features of a competitive advantage are: Durability, damage, and its value. It emphasizes more on its concept, shape, position, effect, reason, and time duration of a competitive advantage (Appelbaum,2000,P.6).

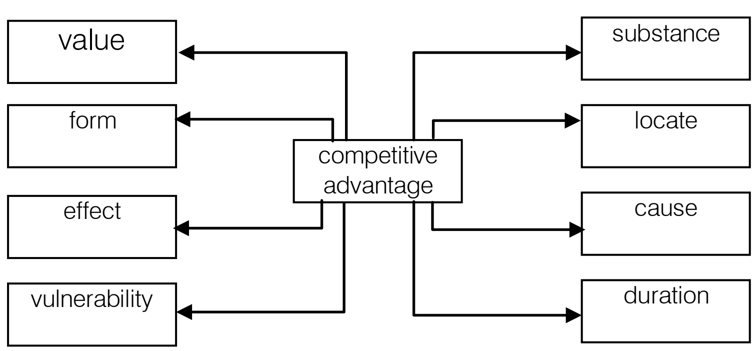

Figure 3 : (Appelbaum,2000,P.6)

The incept or substance of a competitive advantage refers to the capabilities of the organizations like: skillful employees, the dominant culture of economy in scale, access to distribution channels, flexible productivity and so on(Ibid,P.7).

The form of a competitive advantage: The shape of appearance of a competitive advantage can be tangible or intangible. The advantage of a tangible competition is observable like the strategic location of an organization.

The advantage of an intangible competition is not observable easily, like: the unique organization culture that brings about a certain competitive advantage (Antone,2000,P.23).

The location of a competitive advantage: the location of the competitive advantage can be followed in three levels of: individuals, organizations, and figures.

The effect of a competitive advantage: the effect of a competitive advantage can be absolute, relatively direct, or indirect. if a company has an advantage that can not be obtained by its competitors, then it can be said that it has a unique advantage. if a company has a few dominances, then it can be said that it has a relative advantage. The direct advantage has a direct role in gaining value for customers while an indirect advantage doesn't have a direct role or share (Rumelt,2003,P.16).

The cause of a competitive advantage: the cause of a competitive advantage can be unintentional or strategic. Non- arbitrary cause is referred to environmental changes or chances which become. The origin of advantage, while strategic causes are referred to the compilation and implementation of arbitrary strategy to gain dominance (Delvin,2000,P.13).

Duration of a competitive advantage: duration of time domain of competitive advantage refers to the length of time which is expected to remain as a permanent advantage .An advantage is temporary when its duration is for a short time when the resistance of an advantage against imitation or threatening refers to its stability. It is necessary to determine the duration of a competitive advantage on the basis of: short term (less than a year) average- term (form a year to 3 years), and long- term (more than 3 years) (Ibid, P.15).

Vulnerability of competitive advantage: vulnerability of an advantage includes the possibility for this point that competitive advantage attached, the competitive advantage is vulnerable when first competitive medium is very changeable and second tries directly for reducing the importance of competitive advantage (Turban, H, 2002, P14).

Value of Competitive Advantage: value of an advantage indicates that how having it is valuable, such value may be determined by different scales such as income, saving in the cost, capital return, quality improvement, market share, sold units, etc… (Turban, H, 2002).

XIII. Key Role of Customer Relationship Management and Achieving Competitive Advantage

The influence of customer relations management on the organizational performance is a prominent subject in most experimental studies and conducted studies indicates direct relations between both (Gank, 2000). Customer relations management is a lawful marketing process by which organization establishes a better foundation for providing the service and meeting customers' satisfaction. Organizations need stable competitive advantage in an environment full of competition. Most people believe that in markets full of modern competitive, the customer's relations management is accounted as a suitable tool for achieving the stable competitive advantage most researches for reflecting the customers relations management for achieving the competitive advantage indicates that customer's relation management fully influence on the performance and competitive power. Barney believes that four properties are critical for sources and organizational capabilities for achieving the stable competitive advantage. These properties include: rareness value, not ability to imitation and replacement. In a view point the same as Barney, Amit and Shoomakher stated that resources and capabilities of organization for achieving the advantage and economical benefit must be rare, durable and hardly imitable.

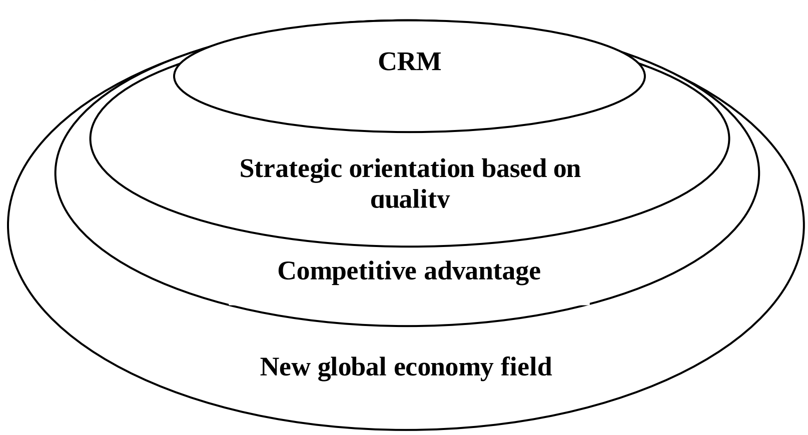

Figure 4 : The fundamental role of customer relations in achieving the competitive advantage

In order for considering the customer relations management as a competitive advantage for organization, it must be rare besides being valuable. It is obvious that rareness is located in the group of not being imitable. Customer relations management is a non imitable process. If customer relation management is conducted successfully in an organization, it may not be imitable and replicable by other organizations. Customer relations management is designed based on cultural bed and organizational background established for any special and unique organization and proportional with the same organizational background. Therefore, customer relations management will be unique and special in any organization (Curry, 2004, P.109).Customer relations management is a philosophy with a holistic view. It means the success of customer relations management is related to the undertaking to all infrastructural principles, therefore, if succeeded, one may not perceive the main reason for its success. The success of customer relations management is because of applying its infrastructure principles successfully and complicated relations between them(Yong,2006,P.43).Making value, rare and not being imitable result in introducing the customer relations management as a competitive advantage for an organization, but as mentioned by Amit and Shoomakher (1993), for an element can be introduced as a stable competitive advantage, it requires being durable(Dane,2002,P.54). One fundamental principle for customer relations management in all texts for customer relations management is the continuously improvement of a process (i.e. Jamal, 1998, Mac Adam, 2000,..) continuously improving the process and revision for recognizing the needs of customers turns it to a stable competitive advantage(Dougall,2004,P.23)

XIV. Methodology

The method of this study is of type surveying-descriptive and is an applicable research (Delavar,2007,P.89).There was used library and field method for collecting the information.For data collection there was used books, papers, thesis, and domestic and foreign magazines as well as designing a proper questionnaire based on the spectrum of Likert. Population for this study includes superior managements, and sales and marketing experts as well as exports and after-sales services. Sampling method is of simple accidental type and size of sample was calculated according to the given size of population, i.e. 150 people from managers and obtained about 82 using following formula:

$$n = \frac{NZ^2pq}{(N-1)d^2 + Z^2pq}$$

The variables of this study defined as below:

Dependent variable: achieving the competitive advantage

Independent variable: customer relation management that is under study

CRM factors that are being studied include:

(Development of making the specials, perception and separation of customer, customer attraction and maintenance, investigating to the complaints)

In order for analyzing the information there was used descriptive statistics: central indices (mean and mode) and distribution indices (variance and standard deviation).

There was used inferential statistics (i.e. single sample t tests, Spearman correlation coefficient and multi variable regression and Freedman test) for determining the priority and importance of any test hypothesis.

The data analysis, as a stage of scientific method is fundamental in any study by which all researching activities are controlled to achieve related result.

Single sample t test for testing the hypothesis related to independent variables obtained by following table1:

Table 1: Combined, for single sample T test

Test \ Hypothesis	Sample No.	Sample mean	SD	T test value	d.f	P-value	Result
Hypothesis I: development and specialization of customer relation influence on achieving the competitive advantage in industrials manufacturing companies	82	3,4583	0.5382	7.712	81	0.00	Accepted
Hypothesis II: perception and separation of customers influence on achieving the competitive advantage in industrial manufacturing companies	82	3,4187	0.9359	4.051	81	0.00	Accepted
Hypothesis III: Investigating the customer complaints influence on achieving the competitive advantage in industrial manufacturing companies	82	3,7703	0.5759	12.112	81	0.00	Accepted
Hypothesis IV: attracting and maintaining the customers (making loyalty) influence on achieving the competitive advantage in industrial manufacturing companies	82	3,4451	0.6315	6.383	81	0.00	Accepted

Because practical mean of all hypothesis is greater than theoretical mean of Likert spectrum (3), therefore, in 5% error level with p-value=0, all hypothesizes are accepted.

Following table indicates the Spearman correlation coefficients between independent and dependent variables:

Spearman correlation coefficients between independent (CRM) and dependent variables (competitive advantage) in table2

Table 2 : Correlation coefficients

	Customization	Customers separation	Complaints investigation	Making loyalty
Correlation coefficient with dependent variable	0.612	0.680	0.653	0.406
p-value	0.00	0.00	0.00	0.00

As indicated, all dependent variables have direct linear relation with response variable (i.e. by increasing the independent variables, the number of independent variables will be increased as well). All relations are significant in the error level of 5% and third independent variable (customers separation) has the maximum and fourth independent variable (making loyalty has the minimum effect on dependent variable.

Now, using the multiple linear regressions, we propose the best regression model for such variables. Multi variant regression is one of the bases and fundamental of data analysis clearly indicating the relations between statistical data. For finding the best regression model there was used Stepwise method. Following table indicates the descriptive indices of independent and dependent variables in table3.

Table 3: Descriptive indices of independent and dependent variables

Descriptive indices			Study variables	
SD	Mean	Sample size		
0.5675	3.8471	82	Dependent variable (achieving competitive advantage	
0.5382	3.4583	82	Customization	Independent variables
0.9359	3.4187	82	Customers separation	
0.5759	3.7703	82	Complaints investigation	
0.6315	3.4451	82	Making loyalty	

Applying this method, the method of variables X_2 (customers separation), X_3 (complaints investigation) and X_1 (customization) and X_4 (making loyalty) enter the regression model respectively.

A model variance analysis table including the independent variables with significant effect on the dependent variable is as below table4.

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Table 4 : Variance analysis

Changes source	Squares sum	f.d	Squares mean	F	P-value
Regression	19.504	4	4.876	57.033	0.00
Residuals	6.583	77	0.085		
Total	26.087	81			

As indicated, according to the p-value, one can state that obtained F is fully significant. This indicates that at least one of the independent variables is effective for predicting the dependent variable; therefore it is necessary to test all independent variable individually using T test.

Following table indicates indices of independent variables with index of non standardized and standardized Xs as below table5.

Table 5 : Indices of independent variables (CRM)

	Non standardized indices		Standardized index	I	p-value
	B	Std. Error	Beta		
Fixed value	0.665	0.237	--	2.802	0.006
X_2 (customers separation)	0.322	0.036	0.531	8.865	0.00
X_3 (complaints investigation)	0.470	0.088	0.477	5.378	0.00
X_1 (customization)	0.272	0.091	0.258	2.978	0.004
X_4 (making loyalty)	0.183	0.075	0.204	2.449	0.017

According to significance column (p-value), as indicated, the presence of all indices in the model in the significance level, 5% is significant.

It must be mentioned that there are used Bs indices for predicting the changes, while Beta indices are used for determining the influence of changing in an independent variables on dependent variable.

Therefore, the regression model is chosen as below:

$$Y= 0.665+ 0.322\, X_2+ 0.470X_3+ 0.272X_1+ 0.183X_4$$

On the other hand, following equation

Y= 0.665+ 0.322(customers separation)+ 0.470(complaints investigation)+ 0.272(customization)+ 0.183(making loyalty)

Multi variable linear regression equation is suitable for indicating the relations between independent and dependent variables.

In order for prioritizing and determining the importance of any hypothesis, there was used Freedman test.

As indicated, in the 5% significant level, it is accepted/ rejected the hypothesis with the same rank. Therefore, four variables may not possess the same importance. Following table indicates the rank of variables in table 6.

Table 6 : Freedman ranking (independent variables)

Title of independent variable	Ranks mean
Customization	2.34
Perception and separation of customers	1.91
Customers' complaints investigation	3.35
Making loyalty	2.39

XV. Conclusion

CRM, traditionally, is considered as a tool for relating the customers to the company by different loyalty plans. One of the most important factors in achieving the competitive advantage is the absolute concentration on the customer. The results of data analysis indicates this important and come with following cases:

Because the hypothesis of the researcher related to the effect of customer relation management in achieving the competitive advantage in industrial companies has been tested in data analysis, and all hypotheses have been accepted, therefore it can be concluded that customer relation management is effective for achieving the competitive advantage in such companies. According to the results of Spearman

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correlation test, one can state that perception and separating the customers has the maximum effect and attracting and maintaining (making loyalty) has the minimum effect in the dependent variable, i.e. achieving the competitive advantage. According to the freedman test it can be concluded that the proper situation of any customer relation management variables attended in the company is as following: complaints investigation, customization, making the loyalty, perception and customers' separation. Development of customer relation and customization of direct relation for achieving the competitive advantage of industrial companies it is recommended to launch the electronic ordering system for Tabriz tractor making company and it is needed to consider the orders based on the customer's requests and facilitated communication with organizational managements by which customers can easily communicate with managers. Perception and separation of customers is effective for achieving the competitive advantage. Along with, it is recommended to pay more attention to the promotion of products quality and reciprocal perception of customers. For investigating the customers' complaints is another factor for making the competitive advantage. For this reason, it is recommended to launch electronic systems for investigating the complaints, recognize the complainant customers and turn them to satisfied customers. Another result is that the attraction and maintenance of customers (making loyalty) is another factor for making the competitive advantage. Therefore it is recommended to promote cooperative plans in the company, provide the customers with more facilities and make efficient systems for interaction with customers.

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Basic Pricing Methodology For Islamic Profit Rate Swap

By Ravindran Ramasamy, Sahnmugam Munusamy, Mohd Hanif Mohd Helmi
Tun Abdul Razak University

Abstracts - Islamic bond market is growing at an astonishing speed without breaking the barriers and constraints set by Shariah principles advocated in Holy Quran. The present trend in Sukuk market is to price the bonds with variable profit rates linking the profit rate to Islamic interbank offered rate. Hence the financial institutions and banks face a peculiar problem in managing the funds as the durations of borrowing and lending does not match and this results in erosion of equity drastically. This problem compels the Islamic financial institutions to swap cash flows. The Commerce International Merchant Bank (CIMB) first introduced Islamic swap contract in June 2005 in Malaysia and Islamic swap market has grown in tandem with Sukuk market. Islamic swaps are based on profit rates. Pricing framework for Islamic swap is not yet available as it is in its infant stage. Islamic Interbank offered Rate (IIBOR) could form the basis for these swaps. We have attempted to prepare a basic framework without touching the probability of default to price and find out a reasonable upfront payment for these swap contracts. We hope that this framework will be considered as a basis for further debate and improvement. This framework will also provide a forum for debate and will be useful for lending organizations and academia, who can fine-tune this.

Keywords : Swap, Default risk, Floating Profit Rates, IIBOR, Basis points, Net present values, Implied yield rates.

Classification : GJMBR-B Classification: JEL Code: R32,G13

BASIC PRICING METHODOLOGY FOR ISLAMIC PROFIT RATE SWAP

Strictly as per the compliance and regulations of:

Basic Pricing Methodology For Islamic Profit Rate Swap

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Abstract : Islamic bond market is growing at an astonishing speed without breaking the barriers and constraints set by Shariah principles advocated in Holy Quran. The present trend in Sukuk market is to price the bonds with variable profit rates linking the profit rate to Islamic interbank offered rate. Hence the financial institutions and banks face a peculiar problem in managing the funds as the durations of borrowing and lending does not match and this results in erosion of equity drastically. This problem compels the Islamic financial institutions to swap cash flows. The Commerce International Merchant Bank (CIMB) first introduced Islamic swap contract in June 2005 in Malaysia and Islamic swap market has grown in tandem with Sukuk market. Islamic swaps are based on profit rates. Pricing framework for Islamic swap is not yet available as it is in its infant stage. Islamic Interbank offered Rate (IIBOR) could form the basis for these swaps. We have attempted to prepare a basic framework without touching the probability of default to price and find out a reasonable upfront payment for these swap contracts. We hope that this framework will be considered as a basis for further debate and improvement. This framework will also provide a forum for debate and will be useful for lending organizations and academia, who can fine-tune this.

Keywords : Swap, Default risk, Floating Profit Rates, IIBOR, Basis points, Net present values, Implied yield rates

I. Introduction

A swap is an agreement between two parties to exchange cash flows. The agreement specifies the cash flows and the dates when the cash flows are to be paid. The most common types of swaps are interest rate swaps, currency swaps, commodity swap, equity swap, and credit swap (Abken, 1993). Swap market participants include banks, mutual funds, and financial institutions (FIs). Intermediaries are dealers who assist in matching the parties of swap contract for a commission from both the sides. Sometimes, they themselves create an OTC (Over The Counter) market for swaps and quote bid and ask rates. There are three parties to a swap agreement, the institution which wants to buy fixed cash flows (swap buyer) by giving up floating rate cash flows. The institution, which sells the fixed cash flows by accepting floating cash flows, is the swap seller. The institution or bank which brings the parties together (the buyer and seller) and acts as an intermediary is the swap dealer. The commission paid to the swap dealer is the cost of the swap contract. The swap seller will be placed in a disadvantage over the swap buyer because the variability in cash flow is a challenge to manage. Planning and budgeting variable cash flow are difficult because the rates are determined periodically only after each installment of cash flow is swapped (Brown, 1994). The variable cash flows are computed based on interbank offered rate (plus a risk premium) (Dufreesne, 1998) prevailing at the date of swapping. In addition, the default risk is more for the swap buyer when the yield rate goes up and vice versa. In case of Islamic swap the profit rate is normally linked to Islamic Interbank Offered Rate (IIBOR), and this rate is dynamic, hence the profit rates that are to be applied to calculate the floating cash flows are known only after the first swap. The uncertainty exist in variable cash flow is to be valued and to be paid to the other party upfront by the party whose total present values of cash flow is lesser.

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II. Why Swap?

Financial Institutions (FI) and banks act as intermediaries between borrower and lenders. Lenders are the depositors who demand market rates of return for their deposits. On the other hand the borrowers of funds demand loans on fixed rates. This creates cash flow mismatch for a financial institution. Duration is a weighted average period within which a FI or bank should get ready to return the money to the deposit holders. Technically duration is the slope of price yield curve which is useful to quantify the future loss when yield rate moves up. Both assets and liabilities have duration and if duration of liability is not equal to duration of assets, (duration gap) (Jarrow, 1997) then the FI or bank will face problem of default and associated risks. For some FIs and banks the duration gap may be negative, for others it may be positive. This duration mismatch is to be managed. To adjust this duration gap, the FIs or banks exchange the cash flows resulting in swap contracts. A swap contract is illustrated below.

Company A	Company B
$D_A > D_L*k$ Swap floating cash flows for fixed cash flows Buyer of Swap	$D_A < D_L*k$ Swap fixed cash flows for floating cash flows Seller of Swap
Source of Funds (Borrowing) Long–term Liabilities like bonds and debentures	Source of Funds (Borrowing) Short–term deposits from public
Application of Funds (Investment) Short-term loans like consumer loans	Application of Funds (Investment) Long-term loans like property loans
Source and application of funds do not match	Source and application of funds do not match
Fixed cash flows purchased at X% Floating cash flows sold at IIBOR + Y%	Fixed cash flows sold at X% Floating cash flows purchased at IIBOR + Y%

D_A = Duration of assets
D_L = Duration of liabilities
K = Gearing ratio (Debt assets ratio)
X = Agreed percentage of profit or interest
Y = Risk premium

In a swap contract the fixed payer is placed in an advantageous position than the float payer. It results in zero sum game meaning that the float payer's loss is the fixed payer's profit. To avoid this win-lose situation both the parties are to be placed on equal footing by paying an upfront payment. To prevent this arbitrage profit and to exchange cash flows at arms length the following condition is to be satisfied.

$$FXCF_{pv} = (IIBOR+Y)_{pv} \qquad (1)$$

Fixed Payer PV = Floating Payer PV
FXCF = Fixed Cash Flows
Y = Risk Premium
IIBOR = Islamic interbank offered profit rate
pv = Present Values

a) Swap Risk Exposure

The swap market is mostly operating without any collateral and this causes credit risk exposure for banks and FIs which are involved in this market. The banks may even lose millions of RM if the other party defaults. Moreover, many new controversial swaps are structured by the participants who have even negative interest rate payments like 'inverse floater swaps'. The Bank for International Settlement is concerned about the risks involved in swap market, in addition to other risks, hence recommended capital adequacy norms under Basel II. To protect the parties to swap and also to minimize the legal and reputation costs the swap agreements are strictly regulated. A healthy swap market is expected to bring immense benefits for the swapping parties in the form of risk reduction.

b) Swap Market

The swap market in western countries under the conventional financing system has registered significant growth in recent years. It is the largest segment of the OTC derivative market. Across currencies, the Bank for International Settlements reports that the notional value of outstanding swaps is now over $71 trillion, with USD denominated swaps accounting for almost $24 trillion, as per International Swap Derivatives Association (ISDA) 2010 report. Collateralization has always been an important feature of the OTC swap market (Litzenberger (1992), is currently widespread and has been rapidly growing over the past five to ten years. ISDA (2010) reports that there is currently more than $719 billion worth of collateral insuring OTC derivative obligations and the amount of collateral in circulation increased by about 70% in the current decade.

c) Islamic Swap In Malaysia

On the footsteps of conventional swap agreement the Islamic swap market started emerging. The Malaysian government wishes to develop Malaysia as an international Islamic financial hub. Towards this objective it tries to link the home Islamic products with global Islamic products floated in Arabian countries, through alliances and collaborations. As such, it encourages the banks and financial institutions to develop new innovative Islamic financial products in equity and derivative markets. Already infrastructure is created in the last decade for Islamic financial products such as Sharia Board, legal and regulatory frameworks specifically in the areas of accounting, auditing, and tax. The next step is to offer products and markets to grow and sustain. The growth of the Islamic capital market is dependent on the risk management that requires derivatives that are to be Sharia compliant to meet the Islamic financial needs. In Malaysia there is no OTC market for swap. However, there exist an off market customized swap. The first Islamic profit rate swap was entered into by CIMB in June 2005 with two legs, one is fixed profit rate and the other floating profit rate leg linked to KLIBOR (Kuala Lumpur Interbank Offered Rate). According to Islamic swap, a notional asset is sold for a notional sum by a company on credit basis and will collect installments computed with variable profit rate. This creates an Islamic loan liability with floating profit rate. The floating rate cash flow is acquired by CIMB by offering fixed profit rate cash flow, which is Sharia Compliant. The Standard Chartered Bank and Bank Muamalat Malaysia Bhd entered into a second swap contract to swap US$10m in November 2006. These are the initial steps initiated by the Malaysian Sharia council to broaden the range of Islamic financial derivative products. These steps are critical for the growth and management of Islamic financial instruments to expand and to exploit opportunities exist in Islamic capital market.

Bank Islam provides specific Swap dealings as follows

Wiqa' Profit Rate Swap

An agreement to exchange profit rates between two counterparties (normally consist of a Fixed Rate Party and a Floating Rate Party)

Wiqa' Cross Currency Swap (WCCS)

An arrangement between two parties to exchange a series of profit and/or principal payments denominated in one currency, for another series of profit and/or principal payments denominated in another currency, based on a notional principal amount over agreed period.

Two major differences can be identified while comparing the conventional swap with Islamic profit rate swap. In conventional finance when default or delay occurs in repayment the lender will add the interest accrued to the principal and calculate compound interest and also will add a penal charges for the default. IN Islamic finance only penal charges will be collected independently without adding the defaulted amount with the amount lent. Secondly the profit rate charged by the Islamic swap is not like conventional interest rate, it is a markup independent of length of time. Conventional swap rate is time based while Islamic swap rate is negotiation based.

III. Review of Literature

One of the early studies on the pricing of equity swaps was made by Chance & Rich (1998). They used arbitrage-free replicating portfolios to derive pricing formulas for a number of equity swaps such as plain vanilla equity swaps, variable notional swaps, and cross currency swaps. Kijima & Muromachi (2001) have studied equity swaps in a stochastic interest rate economy. In their model, the market is driven by Wiener process and the volatilities of the interest rates and of the equity prices are assumed to be deterministic functions of time, implying a Gaussian economy. Recently, Liao & Wang (2003) have provided a generalized formula for pricing equity swaps with a constant notional principal. They extend swaps to the international capital markets, allowing the underlying equity to be foreign and the notional principal to be specified in an arbitrary currency. Liao &Wang assumes a Gaussian economy where the market is driven by a multidimensional Wiener process and the volatilities of bond prices, equity prices and exchange rates are assumed to be deterministic. Their study shows that for swaps on foreign equity markets, the swap value is dependent of both the dynamics of the equity price process and the exchange price process. The traditional approach to interest rate swap valuation views swaps as portfolios of forward contracts on the underlying interest rate (Sundaresan, 1991, Sun, Sundaresan and Wang, 1993 and Duffie and Singleton, 1997). Under specific assumptions regarding the nature of default and the credit risk of the counterparties, Duffie and Singleton (1997) prove that market swap rates are on par with bond rates of an issuer who remains at LIBOR throughout the life of the contract. This result is extremely useful in practice for extracting spot yield rates, for pricing swap derivatives and for econometric testing of spot rate models.Despite the popularity of the traditional view, market practices bring into question some of the underlying assumptions of the forwards approach. To mitigate counterparty credit risk, market participants used number credit enhancements to improve the credit quality of swap contracts. Arguably, the most important credit enhancement is the posting of collateral and the current mark-to-market value of the swap contract (ISDA, 1999).This paper has special significance as it attempts to compute the risk involved in Islamic swap using hypothetical numerical example.

IV. Methodology

One of the challenges facing modern FIs and banks is pricing a swap agreement. To satisfy arbitrage (win–win principle) (Turnbull, 1987) normally the swap is priced in the conventional swap market on total net present values. There are two parties to swap the fixed payer and float payer. The float rate borrower will find it difficult to plan cash flows, budget them and control. Moreover, his incoming cash flows may not match with the cash outflows. Hence, he initiates the swap. The bank or an investor is ready to buy these floating rate cash flows for a price and in exchange the bank or FI is willing to offer fixed cash flows. The parties to the swap contract, in principle agree to exchange cash flows and not the principal or the loan amount. In other words one party will pay the other party the net amount resulting due to the change in the underlying rate (Minton, 1997). The underlying profit rate may be KLIBOR, but in Islamic finance IIBOR is adopted. The profit rate may be linked to IIBOR as threshold and a marginal fixed percent may be added to it to cover the default risk.

V. The Challenges

The parties to the swap agreement face three important challenges while dealing in swap contracts.

- Firstly, how to compute the future cash flows for floating rate leg.
- Secondly, how to address the issue of discounting factors that are to be applied in discounting both cash flows.
- Finally, the management of the credit risk or counterparty default risk.

The first challenge is to find out expected forward rates which will accrue in the future. These forward rates are computed in three different methods under conventional finance. The first method uses term structure techniques, the second method uses Black Derman Toy (BDT) recombining tree method, and under this method we have to specify the future volatility for every year of swap. Thirdly, the Heath Jerrow Merton (HJM) bushy tree method, under this method five volatility specification techniques exist, out of which any one may be used. Out of these three techniques, our paper applies the term structure yield rate method.

VI. Spot Yield Rates

The national governments issue treasury bonds for various time maturities namely 1 year, 2-year and so on to finance projects. These bonds are priced at par at inception indicating equality between the coupon rate and the yield rate. From these par yield rates that are available for government bonds for different maturity periods, it is possible to extract the expected yield rate of future years through bootstrapping. These yield rates are technically known as term structure spot yield rates. These term structure rates are again used in a forward iteration which produces the expected forward rates for computing floating rate cash flows. We calculate first the yield rate of a bond, which matures around Dec 2010. It was difficult to find an exactly Dec 2010 maturing bond and hence as an approximation a treasury bond closely maturing to Dec 2010 was taken to find the first semiannual spot yield rate. This approximation will not distort the result because the *datenum* function in MATLAB takes exact number of days for calculating yield rate. First Treasury bond, which matures in Dec 2010, will give the first semiannual rate by solving this equation.

$$p_0 = \frac{i_1 + FV}{(1+y_1)} \text{ ......first semiannual yield rate } y_1 \qquad (2)$$

p_0 = Market price of treasury bond
i_1 = cash flow of first semi-annual
FV = Redemption payment
Y_1 = Yield rate of period one

Substituting y_1 in the following equation and taking second treasury bond that is closely maturing in the second semiannual period will give the second semiannual yield rate y_2

$$p_0 = \frac{i_1}{(1+y_1)} + \frac{i_2 + FV}{(1+y_2)^2} \text{ ....second semiannual yield rate } y_2 \qquad (3)$$

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To get n^th semiannual yield rate

$$p_0 = \frac{i_1}{(1+y_1)} + \frac{i_2}{(1+y_2)^2} + \dots\dots\dots\dots + \frac{i_n + FV}{(1+y_n)^n}$$
..... n^{th} semiannual yield rate y_n (4)

VII. Expected Forward Rates

To get the expected forward yield rates we follow forward iteration on spot yield rates, which were computed in the earlier step. The expected forward yield rate for the first semiannual period is same as yield rate y_1.

First semiannual expected forward yield = $efy_1 = y_1$ (5)

Second semiannual expected forward yield =

$$efy_2 = \frac{(1+y_2)^2}{(1+y_1)} \qquad (6)$$

Third semiannual expected forward yield =

$$efy_3 = \frac{(1+y_3)^3}{(1+y_2)^2} \qquad (7)$$

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n^{th} semiannual expected forward yield =

$$efy_n = \frac{(1+y_n)^n}{(1+y_{n-1})^{n-1}} \qquad (8)$$

The expected forward yield rates are used to compute the floating cash flows of future periods.

VIII. Discounting Factors

Spot yield rates are used in discounting expected floating cash flows which were extracted by the bootstrapping backward iteration method. While fixed cash flows are discounted at a uniform profit rate which is agreed by the fixed payer of swap. In Islamic swap contract, profit rate is used instead of interest rate. We use MATLAB software for all computations. See the appendix I for the program.

IX. Counterparty Default Risk

The credit risk in swap contract (otherwise known as counterparty default risk) is crucial because one party is placed in a disadvantageous position than the other depending up on the future movement of real yield rate. In a volatile term structure, both the parties may equally be affected by counterparty default risk (Artzner, 1990; Cooper, 1991; Solnic,1990; Sorensen, 1984). In the upward slopping yield curve, the float payer is expected to be at risk in the beginning of the swap as the net cash flows are favourable for fixed payer. However, at the tail end of the swap contract, the fixed payer will receive net cash flows from the float payer. In case, if the float payer fails to honour his commitments results in default this affects severely the fixed payer. To reduce the default risk, the fixed payer of the swap may demand collateral from the float payer, or obtain performance bond under marking-to-market principle (Rendleman, 1992).

X. Data

We collected yield rates of government Islamic bonds on the run whose maturity is closer to every semiannual end. We take 1st July 2010 as the settlement date and we try to swap the cash flows once in six months for five years commencing from 31st December 2010 until 30th June 2015. From the government Islamic bond yield rates, we computed the term structure and forward rates through backward and forward iterations. We took a hypothetical swap amount of RM100,000 to illustrate the cash flows and net payments to each party on swap dates. We also compute present values of both fixed and floating cash flows and their difference. The difference in total present values of fixed and floating cash flows is the value of the swap. The lower present value party should pay upfront the higher present value party.

XI. The Results

Table 1 shows the implied zero rates which are extracted from the on the run yield rates and also the expected forward rates computed through forward iteration. This table also shows the floating cash flows, fixed cash flows and the net cash payable by one party to the other.

Table 1: Real IIBOR computed from implied zero rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	3.13	3.13	3130	5450	-2320	3082	5366	-2284
Jun-11	3.25	3.37	3373	5450	-2077	3266	5278	-2012
Dec-11	3.45	3.86	3857	5450	-1593	3663	5177	-1514
Jun-12	3.61	4.07	4072	5450	-1378	3791	5074	-1283
Dec-12	3.86	4.84	4843	5450	-607	4402	4954	-552
Jun-13	4.1	5.31	5313	5450	-138	4705	4826	-122
Dec-13	4.27	5.34	5340	5450	-110	4605	4700	-95
Jun-14	4.51	6.18	6181	5450	731	5172	4560	612
Dec-14	4.69	6.16	6156	5450	706	4996	4423	573
Jun-15	4.97	7.49	7494	5450	2044	5864	4264	1600
	Total		49759	54500	-4742	43546	48622	-5077

The present values of floating and fixed cash flows are also given with their difference. If the on the run yield rates are stable without any change in future semi-annual periods the cash flows in the table one will accrue. While the fixed cash flows stay at RM5,450 floating cash flows start with RM3,130 and gradually increases to RM 7,494. During the first seven semi-annual periods the float payer will receive net cash. After eight semiannual the fixed payer receives net cash for three semi-annual periods. The net cash flows are not symmetrical. When the cash flow changes course, there is ample chance and motivation to the float payer to default. The present values of floating cash flow show an increasing trend from RM3,082 to RM5,864, but the fixed rate cash flows show a decreasing trend because the discounting rate is fixed. Sizeable present values are favorable to the fixed payer than the float payer in the beginning. As per the payback principle the fixed payer will be in an advantageous position initially than the float payer of the swap. The difference between the total present values is the swap value which is RM5,077 in this case. This amount is favorable to the float payer and therefore he should compensate the other party by an upfront payment of RM 5,077. This amount will equalize both the parties in terms of present values. The yield rate and the value of financial assets are inversely related. The implied yield profit rates and the implied forward profit rates computed may not accrue in real time. Hence we tried to simulate the yield rates up and down each time by 50 basis points[1] (bps) to highlight the sensitivity of the swap value. First we increase the on the run yield rate by 50 bps at a time four times till it reached 200 bps. Our intension is to highlight whether the present values move linear or curvilinear to every increase of 50 bps in yield rates.

Table 2: Real IIBOR increases by 50 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	3.63	3.63	3630	5450	-1820	3565	5353	-1788
Jun-11	3.75	3.87	3873	5450	-1577	3732	5252	-1520
Dec-11	3.95	4.36	4358	5450	-1092	4109	5139	-1030
Jun-12	4.11	4.57	4574	5450	-876	4217	5025	-807
Dec-12	4.36	5.35	5349	5450	-101	4802	4893	-91
Jun-13	4.6	5.82	5822	5450	372	5080	4756	324
Dec-13	4.78	5.85	5849	5450	399	4958	4619	338
Jun-14	5.02	6.7	6699	5450	1249	5495	4471	1024
Dec-14	5.2	6.67	6673	5450	1223	5297	4326	971
Jun-15	5.48	8.03	8028	5450	2578	6128	4160	1968
	Total		54855	54500	355	47383	47994	-611

The results of 50 bps increase in yield rates are given in the above table. These results show balanced symmetric net cash flows. The floating cash flows are now show some evenness. One could observe the net negative cash flows are approximately equal to the net positive cash flows, which indicates that the value of the swap is fair at these yield rates. The present value of floating cash flows increase from RM3,565 to RM6,128 while the fixed cash flows present values decrease from RM5,353 to RM4,160. The break even occurs exactly at the middle of the swap contract i.e. in Dec 2009, the price of the swap also at the peak at this point of time. These imply that the risk premium could be 50 bps (0.5%) for this swap contract. A closer observation will reveal that still the default risk is persisting and it is favorable to the float payer initially and favourable to fixed payer later. The float payer still faces counter party default risk, because in the initial stages the fixed payer will pay net cash to the float payer. At the end of the swap horizon the float payer may default. The final swap value comes to RM611 to be paid upfront by float payer to fixed payer.

The results of 100 bps increase in yield rates are given in the following table.

[1] One hundredth of a percentage is a basis point. In terms of ordinary number it is one in ten thousand. (1 bp = 0.01% or 0.0001). 1% is 100 basis points, 2% is 200 basis points and so on.

Table 3: Real IIBOR increases by 100 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	4.13	4.13	4130	5450	-1320	4046	5340	-1294
Jun-11	4.25	4.37	4373	5450	-1077	4194	5226	-1033
Dec-11	4.46	4.86	4860	5450	-590	4549	5101	-553
Jun-12	4.61	5.08	5077	5450	-373	4635	4976	-341
Dec-12	4.86	5.86	5855	5450	405	5193	4833	359
Jun-13	5.1	6.33	6331	5450	881	5444	4686	758
Dec-13	5.28	6.36	6359	5450	909	5298	4541	757
Jun-14	5.52	7.22	7216	5450	1766	5804	4384	1421
Dec-14	5.71	7.19	7191	5450	1741	5582	4231	1352
Jun-15	5.99	8.56	8563	5450	3113	6376	4058	2318
	Total		59955	54500	5455	51121	47376	3744

While the fixed payer of the swap pays a constant amount of RM 5,450 the float payer pays floating cash flows. The total for the fixed payer is RM54,500 whereas for the float payer it is RM 59,955 an excess of RM 5,455. The total present value for the fixed payer comes to RM47,376 but for the float payer it is RM51,121 and results in a difference of RM3,744, which is the swap price. The fixed payer should pay the float payer this amount upfront. The default risk is significant at the end to the fixed payer because the float payer has to bear higher amounts.

Table 4: Real IIBOR increases by 150 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	4.63	4.63	4630	5450	-820	4525	5327	-802
Jun-11	4.75	4.87	4874	5450	-576	4651	5201	-550
Dec-11	4.96	5.36	5361	5450	-89	4981	5064	-82
Jun-12	5.11	5.58	5579	5450	129	5044	4928	117
Dec-12	5.36	6.36	6362	5450	912	5573	4774	799
Jun-13	5.61	6.84	6841	5450	1391	5796	4618	1178
Dec-13	5.79	6.87	6869	5450	1419	5625	4463	1162
Jun-14	6.03	7.73	7734	5450	2284	6100	4298	1801
Dec-14	6.21	7.71	7709	5450	2259	5853	4138	1715
Jun-15	6.5	9.1	9098	5450	3648	6609	3959	2650
	Total		65057	54500	10557	54757	46770	7988

When the yield moves further up to 150 bps in real time, the swap value also increases. The fixed payer has to compensate the float payer more. The value of the swap is roughly around RM8,000. The float payer pays a higher amount totally to the tune of RM10,557. The default risk in the initial stages is significant to the float payer and vice versa.

Table 5: Real IIBOR increases by 200 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	5.13	5.13	5130	5450	-320	5001	5314	-312
Jun-11	5.25	5.37	5374	5450	-76	5103	5175	-72
Dec-11	5.46	5.86	5863	5450	413	5408	5027	381
Jun-12	5.61	6.08	6081	5450	631	5445	4880	565
Dec-12	5.86	6.87	6868	5450	1418	5944	4716	1227
Jun-13	6.11	7.35	7350	5450	1900	6137	4551	1587
Dec-13	6.29	7.38	7379	5450	1929	5940	4387	1553
Jun-14	6.53	8.25	8252	5450	2802	6382	4215	2167
Dec-14	6.72	8.23	8228	5450	2778	6110	4047	2063
Jun-15	7.01	9.63	9633	5450	4183	6827	3863	2965
	Total		70158	54500	15658	58297	46175	12124

A further increase in yield rate shows the same pattern of cash flows and present values, but a higher amount. The default risk also shows similar pattern like earlier, favorable to the float payer initially and favorable to the fixed payer later. When yield rate slopes upward from the computed yield rate the float payer suffers by higher payments. But the fixed payer faces enormous credit risk or default risk. The value of the swap increases by a fixed amount approximately equal to RM4,000 at each 50 bps increase. First 50 bps increase registers a value increase of RM4,466 the second 50 bps increase shows RM4, 356 as value increase, similarly the 150bps increase and 200bps increase show value addition of RM4,243 and RM4,136 respectively. The value of the swap increases when the yield rate slopes upward but at a marginally declining rate.

XII. When Yield Rates Decrease in Real Time

When yield rate drops from the expected yield rates the float payer is placed in an advantageous position. The fixed payer pays a higher amount than the float payer in total. But he receives an upfront payment from the float payer.

Table 6: Real IIBOR decreases by 50 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	2.63	2.63	2630	5450	-2820	2596	5379	-2784
Jun-11	2.75	2.87	2872	5450	-2578	2795	5304	-2508
Dec-11	2.95	3.36	3355	5450	-2095	3211	5215	-2005
Jun-12	3.11	3.57	3570	5450	-1880	3356	5125	-1768
Dec-12	3.35	4.34	4337	5450	-1114	3990	5015	-1025
Jun-13	3.59	4.80	4803	5450	-647	4317	4898	-581
Dec-13	3.77	4.83	4830	5450	-620	4238	4782	-544
Jun-14	4.00	5.66	5664	5450	214	4834	4651	182
Dec-14	4.19	5.64	5638	5450	188	4679	4523	156
Jun-15	4.46	6.96	6961	5450	1511	5584	4372	1212
	Total		44660	54500	-9841	39600	49264	-9665

The float payer pays RM44,660 but the fixed payer pays RM54,500 an excess payment of RM9,841 by the fixed payer. To compensate this excess payment the float payer must pay RM9,665, which is the difference in present value, to the fixed payer. The counter party credit risk is more for the fixed payer than the float payer of the swap contract at the end of swap contract. In the beginning, the credit risk is more for the float payer because the fixed payer has to pay a net amount.

Table 7: Real IIBOR decreases by 100 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	2.13	2.13	2130	5450	-3320	2108	5393	-3285
Jun-11	2.25	2.37	2372	5450	-3078	2320	5330	-3010
Dec-11	2.45	2.85	2854	5450	-2596	2751	5254	-2503
Jun-12	2.61	3.07	3067	5450	-2383	2913	5175	-2263
Dec-12	2.85	3.83	3830	5450	-1620	3568	5077	-1509
Jun-13	3.09	4.29	4294	5450	-1156	3917	4972	-1055
Dec-13	3.27	4.32	4320	5450	-1130	3857	4866	-1009
Jun-14	3.5	5.15	5147	5450	-303	4480	4745	-264
Dec-14	3.68	5.12	5121	5450	-329	4346	4625	-279
Jun-15	3.95	6.43	6428	5450	978	5286	4482	804
	Total		39563	54500	-14937	35546	49919	-14373

When yield rate further drops by another 50 bps the advantage for the float payer increases and the fixed payer suffers. A total amount of RM 14,937 the fixed payer pays more than the float payer. This is to be compensated by an upfront payment of RM 14,373 by the float payer to the fixed payer. Here this figure highlights the benefits enjoyed by the float payer in the case of a drop in the future yield rate.

Table 8 : Real IIBOR decreases by 150 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	1.63	1.63	1630	5450	-3820	1617	5406	-3789
Jun-11	1.75	1.87	1872	5450	-3578	1840	5356	-3517
Dec-11	1.95	2.35	2352	5450	-3098	2285	5293	-3009
Jun-12	2.1	2.57	2565	5450	-2885	2460	5227	-2767
Dec-12	2.35	3.32	3324	5450	-2126	3135	5141	-2005
Jun-13	2.59	3.78	3785	5450	-1665	3504	5046	-1542
Dec-13	2.76	3.81	3811	5450	-1639	3462	4951	-1489
Jun-14	2.99	4.63	4630	5450	-820	4111	4840	-729
Dec-14	3.17	4.6	4604	5450	-846	3996	4730	-734
Jun-15	3.44	5.9	5895	5450	445	4971	4596	376
	Total		34468	54500	-20032	31381	50586	-19205

Another 50 bps drop in the real yield rate in real time than expected yield rate will give an added advantage to the float payer. The net excess payment made by the fixed payer is RM 20,032 whose present value is RM 19,205 which is enjoyed by the float payer. The default risk for the fixed payer is almost zero but for float payer it is significant. The fixed payer may default because of higher amount payable all through the contract.

Table 9: Real IIBOR decreases by 200 bps from implied Zero profit rates

Semi annuals	Implied ZR	Implied FR	VRCF	FRCF	Net CF	Float PV	Fixed PV	Diff PV
Dec-10	1.13	1.13	1130	5450	-4320	1124	5419	-4296
Jun-11	1.25	1.37	1372	5450	-4079	1355	5383	-4028
Dec-11	1.45	1.85	1851	5450	-3599	1811	5333	-3522
Jun-12	1.6	2.06	2063	5450	-3387	1998	5279	-3281
Dec-12	1.85	2.82	2818	5450	-2632	2691	5205	-2514
Jun-13	2.08	3.28	3276	5450	-2174	3079	5122	-2043
Dec-13	2.26	3.3	3301	5450	-2149	3052	5038	-1986
Jun-14	2.49	4.11	4113	5450	-1337	3726	4937	-1211
Dec-14	2.67	4.09	4087	5450	-1363	3628	4838	-1210
Jun-15	2.93	5.36	5363	5450	-87	4637	4712	-75
	Total		29374	54500	-25127	27101	51266	-24166

Yet another drop of 50bps in yield rate further pushes the fixed payer to the corner. The fixed payer pays an excess amount of RM 25,127 which is almost equal to half of the total amount. The float payer pays RM29,374 while the fixed payer pays RM 54,500. The net present value enjoyed by the float payer of the swap is around RM24,000 which is the value of swap. The counterparty default risk for the fixed payer is almost zero, while for the float payer it is significant. The value of the swap decreases by RM4,586, RM4,708, RM4,833 and RM4,961 respectively for every 50 bps increase. The increase in swap value is negative meaning that the float payer is placed in a favourable position.

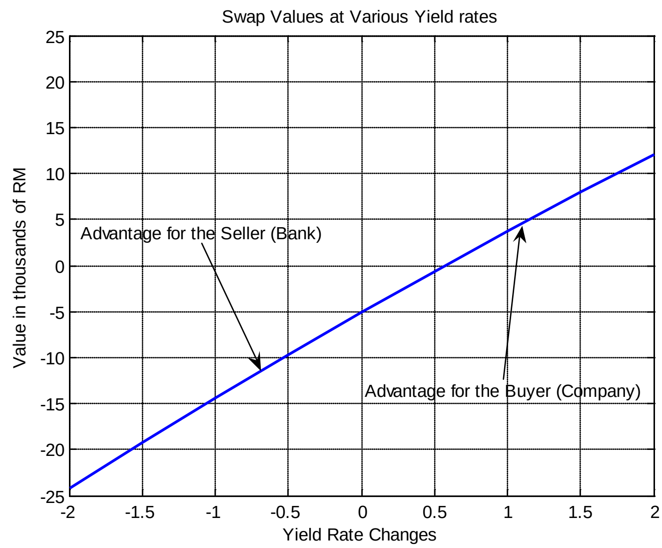

Figure 1: Swap values for every 50 basis points change in yield rates

The figure above shows the swap values at different yield rates. At the computed forward profit rate the value is RM 5,000 approximately favorable to the float payer. At the lower yield rates the advantage to the float payer is significant. It even touches RM 25,000 at drop of 2% in real yield rate. When profit rate increases by the same percentage the disadvantage to the float payer is not proportionate. The maximum disadvantage is around RM12,000 approximately. Since the fixed payer of the swap is paying a fixed amount, which has no uncertainty or risk his advantage is smaller and disadvantage is significant.

XIII. Conclusion

The Government bond yield rate maturing close to the start date and relevant rates from IIBOR were used to compute spot yield profit rates and forwards profit rates to determine an Islamic swap value. A hypothetical swap value of RM 100,000 was tested with the computed profit rates and the following facts emerge.

- The float payer charges a risk premium of 0.5% approximately on fixed paper for the default risk he faces. This is due to the volatility in floating rates, and the risk is borne by the float payer naturally the rate is not equal.
- If the fixed rate is reduced by 50 bps, the floating NPVs and fixed NPVs are equal, provided if the forward yield rates are constant. Many theories and research studies proved that the future yield rates are dynamic and follow random walk.
- The counterparty credit risk is favorable to the fixed payer in higher yield rates, but favorable to the float payer in lower yield rates.
- When yield rate rises the value of swap turns out to be favorable to the fixed payer and vice versa. But the amount of increase and decrease are not proportional. In all cases it is somewhat favorable to the float payer of the swap.
- For an increase of 200 bps of yield rate the value of the swap touches RM 24,000 favorable to the float payer, while for the same rate decrease it reaches only RM12,000 unfavorable to the float payer.

The Islamic swap float payer is placed in a favorable position when compared to the swap fixed payer, if given yield rates and other assumptions hold. Relaxing these assumptions could be a matter for discussion.

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Matlab program

```
close all
clear all
clc
format short
crate1=[.0313; .0325; .0345; .0360; .0384; .0407;
.0424; .0446; .0463;.0488];                                %Treasury bond par yield rates
settle=datenum('07-01-2010');                              % Day of swap contract
maturity=datenum(['12-31-2010';'06-30-2011';'12-31-2011';'06-30-2012'; '12-31-2012';'06-30-2013';'12-31-
2013';'06-30-2014';'12-31-2014'; ;'12-31-2015']);          %Profit dates
price=[100;100;100;100;100;100;100;100;100;100];           % face values
a1=[]; a2=[]; a3=[];

%If expected forward rates and actual forward rates are same
for i=1:5
zerorates1=zbtprice([maturity crate1], price, settle);     % Backward iteration
forwardrates1=zero2fwd(zerorates1,maturity,settle);        %forward iteration
dfs1=zero2disc(zerorates1,maturity,settle);                %discounting factors of zero rates
notional=1e5;                                              %Notional swap price
cffloat1=notional*forwardrates1;                           % Floating cash flows
cffixed1=notional*.0545;                                   % fixed cash flows
cffixed1=(ones(length(cffloat1),1))*cffixed1;              %Create one column of fixed cash flow
dif1=cffloat1-cffixed1;                                    %find difference
a1=[a1;[zerorates1 forwardrates1 cffloat1 cffixed1 dif1]]; % Table of cash flows
floatnpv1=cffloat1.*dfs1;                                  %Present values of floating cash flows
fixednpv1=cffixed1.*dfs1;                                  %Present values of fixed cash flows
sp1=floatnpv1-fixednpv1;                                   % Swap price in RM
a2=[a2;[floatnpv1 fixednpv1 sp1 cumsum(sp1)]];             % Table of cash flows
a3=[a3;(sum(fixednpv1-floatnpv1))]                         % Cumulative difference in NPVs
crate1=crate1+.005;                                        % Increase the yield rates by 0.5%
end
```

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An Empirical Study Of Japanese Market Efficiency: Comparing The Risk-Adjusted Performance Of An ETF Portfolio Versus The Topix Index.

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Abstracts - This study tests the market efficiency of the Japanese equity market. The analyses compare the performance of a portfolio consisting of exchange-traded funds (ETFs) with that of the overall market, exemplified by the Topix Index, during the period of June 30, 2008 to June 30, 2009. The ETF portfolio is constructed according to the Modern Portfolio Theory (MPT) developed by Harry Markowitz in 1952. The study concludes that an optimal ETF portfolio can outperform an overall market index when performance is measured using the Sharpe ratio, i.e., the return per unit of risk.

Classification : GJMBR-A Classification: FOR Code: 150307, JEL Code: G14,G11

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Strictly as per the compliance and regulations of:

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Pedro Kono D.B.A.[α], Pan Yatrakis Ph.D.[Ω], Sabrina Segal D.B.A.[β]

Abstract : **This study tests the market efficiency of the Japanese equity market. The analyses compare the performance of a portfolio consisting of exchange-traded funds (ETFs) with that of the overall market, exemplified by the Topix Index, during the period of June 30, 2008 to June 30, 2009. The ETF portfolio is constructed according to the Modern Portfolio Theory (MPT) developed by Harry Markowitz in 1952. The study concludes that an optimal ETF portfolio can outperform an overall market index when performance is measured using the Sharpe ratio, i.e., the return per unit of risk.**

I. Introduction

In any economy, the primary role of capital markets is the allocation of ownership of the economy's capital stock (Fama, 1970). An efficient market is one in which prices provide accurate signals for capital allocation, under the assumption that security prices at any time fully reflect all available information (Fama, 1970). Therefore, portfolio performance may best be measured relative to passive benchmarks (Fama, 1991). An exchange-traded fund (ETF) represents shares of ownership in a fund, depository receipts, or unit investment trusts that hold a pool of investments which usually tracks the performance of a specific market index. Such an index may represent the broad market, a specific industry, investment style, or non-equity instrument, such as bonds, REITs, high-yield bonds, currencies, precious metals, and other commodities. ETFs have been described as prototypes for the future evolution of the mutual fund industry (Poterba & Shoven, 1992), as they provide many benefits, such as diversification, tax efficiency, liquidity (since they trade like stocks), and a low expense ratio when compared with open or closed-end mutual funds. For example, Rompotis (2005) found that the expense ratios of 16 ETFs studied between 4/30/2001 and 11/20/2002 were significantly lower than those of mutual funds tracking the same indexes. Harper, Madura and Schnusenberg (2006) found that ETFs have higher mean returns and Sharpe ratios than closed end funds (CEFs), suggesting that passive investment strategies utilizing ETFs may outperform active strategies which rely on CEFs. Previous research on the performance of Japanese mutual funds during the period 1982 to 1992 concluded that most such funds underperformed the market benchmark by 3.6% to 10.8% per annum (Cai, Chan, and Yamada, 1997). The authors attributed this finding to the fact that many mutual funds were subsidiaries of brokerage houses, which provided no incentive fee to fund managers in return for better performance. To the contrary, these funds were susceptible to agency conflicts, prompting a high turnover of assets and resulting in high brokerage commission expenses, thereby eroding fund performance. However, since the 1990s, Japan's Ministry of Finance has imposed new regulations allowing banks and foreign companies to manage mutual funds so as to increase domestic competition. They also mandated the disclosure of commissions, thereby facilitating the comparison of performance within the mutual fund industry (Cai, et. al., 1997).

The Japanese stock market index used in this study is the Topix Index. It is the market capitalization index representing 96% of all stocks traded in Tokyo Stock Exchange (TSE). There are currently 1,600 companies listed on the TSE, and this index is therefore much more representative of the Japanese stock market than other commonly used indexes, such as the Nikkei 225. The present study applies Markowitz's (1952) Modern Portfolio Theory (MPT) to ETF securities based on market capitalization, testing the performance of an optimal ETF portfolio against that of the Topix Index. The results of this study should provide insight to practitioners and academics on the results of investing in portfolios made up of ETF securities, as compared to a passive instrument linked to the broad Japanese market, such as the Topix Index. Exchange-Traded Funds usually track security or commodity indexes in many categories and provide the most effective and least costly method of achieving the kind of

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About [Ω]*: Nova Southeast University.*
About [β]*: American Intercontinental University.*

diversification required by MPT to attain the most efficient portfolio along Markowitz's efficient frontier (Kono, Yatrakis, Simon, and Segal, 2007). The primary innovation of MPT was to recognize that risk must be measured not in terms of individual securities, but by how the risk of each security relates to those of other securities in a portfolio (Chernoff, 2002). Markowitz used a quantitative definition of risk to provide a means of calculating the price of that risk, or the amount of additional risk that must be borne in exchange for an increase in a portfolio's expected return. An appropriate portfolio diversification allows investors to: a) maximize return and minimize risk; b) maximize return for the same level of risk; and c) minimize risk for the same level of return. Diversified portfolios are efficient because they optimize the combination of input (risk) per unit of output (return), and their optimal combination forms the efficient frontier (Markowitz, 1991).

One of the pillars of MPT is the Efficient Market Hypothesis or EMH (Stewart, 2006). According to Bernstein (2006), it is the quest of portfolio managers for alpha, or excess returns, that makes markets efficient. This, in turn, leads to a great paradox, as all investors would prefer to track an index or to adopt other kinds of passive strategies. However, if all investors were to follow this strategy, the market would become less efficient, thereby creating opportunities for alpha hunters (Bersntein, 2006). Today's investors are engaged in alpha-beta separation, and the desire to increase exposure to alpha and active risk is growing (Hill, 2006). These observations indicate that investing in diversified index funds, which carry low management and transaction fees, is, according to the MPT, the most efficient investment strategy (Malkiel, 2003). The analyses conducted in this study are based on Markowitz's MPT (Markowitz, 1952, 1959). Since its formulation, MPT has revolutionized the investment world by allowing managers to quantify investment risk and expected return. The earlier focus on individual asset risk has therefore shifted to the risk of the entire portfolio. According to Fabozzi and Markowitz (2002), MPT provides a scientific and objective analysis of risks and returns, complementing the subjective art of investment management. Recent empirical research determined that a portfolio of country-specific ETFs generates efficiency gains beyond those achieved by simply investing in a global index fund (Miffre, 2007). The purpose of the present study is to determine whether a portfolio of Japanese ETFs, constructed according to MPT, provides a higher return per unit of risk than the Topix Index. The results provide insight on whether investors should diversify their portfolios with Japanese ETF securities, using the MPT to increase return per unit of risk, or simply invest in a market security tied to the Topix Index.

II. Methodology

ETF securities were introduced in Japan on July 1, 2001. As of June 10, 2008, there were 66 ETFs representing various asset classes and having a total net asset value (NAV) of ¥3,026 billion. Our analysis consisted of constructing from among these a single ETF portfolio conforming to the principles of the MPT. Only ETFs meeting strict maturity and liquidity criteria as of June 30, 2008 were included in the portfolio. The criteria are as follows: a) more than three years of existence, and b) more than ¥30 billion in net asset value.

The selected ETFs were defined as follows:

1) Asset classes: market capitalization (large, medium, and small cap); investment style (value, core, growth); industries (financials, health care, technology, industrial, material, REITs, precious metals, commodities, etc); bonds (corporate and government short-, medium-, long-term, fixed income, high-yield); and regions (U.S., international, global).
2) The returns, variances, standard deviations, correlations, and co-variances were determined from June 30, 2005 to June 30, 2008.
3) The optimal portfolio was determined from the ETF asset classes, their statistical data, an expected risk-free rate of 2.0% per annum, and a market return of 6.0 % per annum.
4) The performance of the optimal ETF portfolio was measured as the return per unit of risk from June 30, 2008 to June 30, 2009, and was compared with the performance of the Topix Index during the same period.
5) The returns per unit of risk of the ETF portfolio and market portfolio were statistically tested using correlation analysis and a one-tailed t-test.

The following null hypothesis was tested: A portfolio composed of Japanese ETFs and constructed according to the MPT provides a higher return per unit of risk than the Topix Index. The optimal ETF portfolio was determined on the basis of the ETFs' statistical data, the expected market return and risk-free rate, and the mean-variance optimization model of the MPT. Software designed to determine the optimal portfolio was utilized. The statistical results were used to calculate the Sharpe ratios, i.e., the return per unit of risk. The optimal ETF portfolio was composed of seven ETFs which complied with the maturity and liquidity criteria set for the study, and which track either the Nikkei 225 companies or groups of large, medium, and small companies within the Topix Index. The seven ETFs comprising the optimal portfolio, together with their respective weightings, are presented in Table 1, below.

Table 1 : Optimal ETF Portfolio

ETF		Exchange Code	Weight (%)
1306	–	Topix index	13
1321	–	Nikkei 225	18
1330	–	Nikkei 225	18
1320	–	Topix index	18
1308	–	Topix index	13
1305	-	Topix Index	14
1615	-	Topix Index	6
Total			100

Table 2, below, presents a comparison of returns per unit of risk for this optimal ETF portfolio and for the Topix Index over the June 30, 2008 to June 30, 2009 period.

Table 2 : Portfolios' Return per Unit of Risk

Portfolio	# of Securities	Return	Risk-free Rate	Risk	Return/Risk (*)
ETF Portfolio	7	-4.12%	-0.50%	4.81%	-0.960
Topix Index	96% of market	-4.88%	-0.50%	5.19%	-1.036

(*) p=0.0902

III. Summary and Conclusions

Our analysis concluded that the ETF portfolio had a better ratio of performance to risk, i.e., a lower negative return per unit of risk, than the overall market in Japan, as measured by the Topix Index. The beta coefficient was significant at the 0.1% confidence level, although the coefficient of the intercept was significant at just above the conventional 5% level, at 5.5% (see Table 3, below).

Table 3 : Regression Results

Regression Statistics	
Multiple R	0.994
R Square	0.988
Adj R Sq	0.987
Std Error	8E-04
Observations	52

ANOVA

	df	SS	MS	F	Signif F
Regression	1	0.002485	0.00248	4021.28	1.9224E-49
Residual	50	3.09E-05	6.2E-07		
Total	51	0.002516			

	Coeff.	Std Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	0.03	0.015284	1.96396	0.05511	-0.0006817	0.0607166	0.004402664	0.055632285
X Variable 1	0.97	0.015298	63.4136	1.9E-49	0.93937949	1.0008337	0.944468463	0.995744763

It is noteworthy that the optimal portfolio required the inclusion of only a small number of ETFs. This was as expected because ETFs are already diversified securities and the use of ETFs should therefore constitute an efficient and cost-effective way of building and rebalancing optimal portfolios (Kono et al., 2007). The results shed light on the question of whether investors in Japanese securities could increase their returns over those of the Topix Index by diversifying their portfolios using ETFs selected according to the MPT. We find that such an increase in returns is indeed possible using an optimal portfolio of ETFs which track Japanese securities. In an academic sense, this study tests the efficiency of the Japanese stock market by applying MPT to the creation of portfolios comprising a new category of index securities, the ETFs. We conclude that such an optimal ETF portfolio can outperform the most comprehensive index of stocks trading on the Tokyo Exchange. This conclusion challenges the applicability of the semi-strong form of the EMH in the Japanese market in that securities prices do not seem to reflect all the information available to investors. Our conclusion contrasts with that of a previous study evaluating the performance of international mutual funds, which found no evidence that such funds, individually or as a group, provide investors with performance that is superior to that of a broad international equity index (Cumby & Glen, 1990). A possible explanation may lie in the fact that most indexes are weighted by market capitalization, which may overweight overvalued stocks while underweighting stocks that are undervalued, thereby potentially causing a drag on capitalization-weighted indexes (Hsu, Li, Meyers and Zhu, 2007). While this effect may be most severe in less efficient markets, it may influence the performance of market indexes in more developed ones as well. The ETF market in Japan is growing rapidly in terms of both the number of funds and their net asset value, probably due to the benefits of cost effectiveness, tax efficiency, liquidity, and transparency. As more Japanese ETFs meet the maturity and liquidity criteria used in this study, it may be possible in the future to construct even more efficient ETF portfolios following the principles of MPT. Future research on Japanese ETFs could also examine the relationship between cash flows and performance, as expense ratios may vary among ETFs even though they may have the same investment objectives. For example, a previous study found that a portfolio of index funds selected on the basis of low expense ratios and high past returns outperformed portfolios of index funds selected by investors, thus questioning the rationality of investors' selection criteria (Elton, Gruber, and Busse, 2004).

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Delegations In The Presence Of Foreign Competition

By Dr. Najiba Benabess
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Abstracts - Previous research examining mixed duopoly shows that the use of an incentive contract for the public firm increases welfare and that privatization reduces welfare. This paper is built from Barros (1995) model by investigating and deriving the optimal incentive contracts when the public domestic firm competes not with domestic private firm but instead with a private foreign firm. We show that by giving the public manager an incentive contract based on linear combination of welfare and profit, welfare increases. Indeed, for less weight on profit given that the private firm is foreign instead of domestic, the optimal delegation contract is actually lower than that in the traditional duopoly (Barros 1995). On the other hand, the effect of privatization in this case is more complex, it depends on marginal cost.

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DELEGATIONS IN THE PRESENCE OF FOREIGN COMPETITION

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GLOBAL ASSOCIATION OF RESEARCH

Delegations In The Presence Of Foreign Competition

Dr. Najiba Benabess

Abstract : Previous research examining mixed duopoly shows that the use of an incentive contract for the public firm increases welfare and that privatization reduces welfare. This paper is built from Barros (1995) model by investigating and deriving the optimal incentive contracts when the public domestic firm competes not with domestic private firm but instead with a private foreign firm. We show that by giving the public manager an incentive contract based on linear combination of welfare and profit, welfare increases. Indeed, for less weight on profit given that the private firm is foreign instead of domestic, the optimal delegation contract is actually lower than that in the traditional duopoly (Barros 1995). On the other hand, the effect of privatization in this case is more complex, it depends on marginal cost.

I. Introduction

The mixed oligopolies literature has been used to examine the welfare consequences of strategic trade policies, privatization, open-door policies, and international acquisitions and location decisions (DeFraja and Delbono, 1989; Fjell and Pal, 1996; Pal and White, 1998; Matsushima and Matsumura, 2003; Dadpay and Heywood, 2006). A few previous studies integrate incentive contracts in mixed oligopoly and they deserve reconsideration. Barros (1995) examined a duopoly with a public firm and one private domestic firm. The public firm maximizes an incentive contract combining profit and sales although the results are unchanged if instead it maximizes a combination of profit and welfare. He draws two conclusions: the use of an incentive contract increases welfare and privatization of the public firm decreases welfare. We reproduce these conclusions for the duopoly by considering the public firm competes with a foreign private firm instead of domestic firm. We found out that incentive contract increases welfare even when the public firm competes with a foreign firm instead of domestic firm. More importantly, the optimal incentive contract (α) is lower than the one when the public firm competes with a domestic private firm. On the other hand, the effect of privatization on welfare is more complicated in this case than in the traditional mixed duopoly model (DeFraja and Delbono 1989). The effect of privatization depends on the marginal cost (k). This paper is motivated by the fact that in many actual cases, state-owned firms compete with foreign firms due to globalization and international integration. The next section describes the model and present equilibria. The third section compares social welfare with and without incentive contract for public firm managers; and privatization is also examined in this section. Section 4 draws conclusions.

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II. Model and Equilibria

There exists one public firm indexed by 0 competing with one private foreign firm. Private owners maximize profit and public owners maximize welfare. Managers maximize the objective function as specified in their respective incentive contracts. All firms produce homogenous goods and share the quadratic cost function typically used in the literature$C(q) = F + .5kq^2$, where $k > 0$ is a constant. As we are ignoring entry issues, we set $F = 0$ without loss of generality.

Let q_0 be the output of the public firm and q_f be the output of the private foreign firm. A linear inverse demand curve,$P = a - q_0 - q_f$, gives consumer surplus as $CS = 1/2(q0 + qf)^2$.

The private foreign firm's profit is

$$\pi_f = q_f(a - q_0 - q_f) - 0.5\ kq_f^2 \tag{1}$$

The public firm's profit is

$$\pi_0 = q_0(a - q_0 - q_f) - 0.5\ kq_0^2 \tag{2}$$

Social welfare, the sum of consumer surplus and producer surplus, is the public owner's (the government's) objective function:

$$W = CS + \pi_0 \tag{3}$$

The public owner offers its manager an incentive contract that is linear combination of welfare and the public firm's profit:

$$INC_0 = \alpha_0 W + (1 - \alpha_0)\pi_0 \tag{4}$$

There are a total of three cases: (a) public firm maximizes welfare and private foreign firm maximizes its profit; (b) the public firm provides its manager with an incentive contract; (c) the public firm maximizes its profit instead of welfare. Thus in each comparison we identify the change in social welfare that results from the public incentive contract.

The equilibrium for case a and c, without any strategic contracts, have only one stage; while for the remaining case (b), the structures of the games have two stages. The public owner and private firm owner play a game over the incentive proportions α_0 in stage one and the public and private firms play a Cournot game in quantity in stage two. Backward induction yields the subgame perfect Nash equilibrium in each case.

Equilibrium for Case a:

The optimal output for the public firm and foreign private firm are presented respectively:

$$q_0^* = \frac{a}{1+k} \qquad (5)$$

$$q_f^* = ka/(2+3k+k^2) \qquad (6)$$

The optimal welfare resulting from this case is presented as follows:

$$W^* = \frac{(k^3+6k^2+8k+4)a^2}{2(2+3k+k^2)^2} \qquad (7)$$

Equilibrium for Case b:

The equilibrium when only the public firm faces an incentive contract yields the following:

$$\alpha_f^* = \frac{(k+3)}{2k+3} \qquad (8)$$

$$q_{0inc0}^* = \frac{3a}{4k+3} \qquad (9)$$

$$q_{finc0}^* = \frac{2ka}{4k+3} \qquad (10)$$

The optimal welfare resulting from case b is presented in equation (11):

$$\mathrm{W}_{\mathrm{inc0}}^* = \mathrm{a}^2(\mathrm{k}+3)/(4\mathrm{k}+3) \qquad (11)$$

Thus, in the next section, comparing (7) and (11) yields the welfare difference associated with the public incentive contract.

Case c: Privatization

In this case, the public firm maximizes its profit instead of social welfare. The equilibrium yields:

$$q_{fpr}^* = \frac{a(1+k)}{(3+2k)} \qquad (12)$$

$$q_{0pr}^* = \frac{a}{(3+2k)} \qquad (13)$$

$$W_{pr}^* = \frac{a^2(6+5k+k^2)}{2(3+2k)^2} \qquad (14)$$

III. Comparison

This section draws comparisons across the equilibria derived above.

1. The effect of incentive contract on social welfare:

First, we compare *case (a)* with *case(b)*. The government is able to set an objective function for the public firm other than simply maximizing welfare. This ability actually results in a higher eventual welfare. The fundamental proposition follows from comparing a public firm that maximizes welfare with one that maximizes incentive contract.

PROPOSITION 1: In a mixed duopoly in which public firm competes with a foreign profit maximizing firm, the public firm can always improve welfare by using an incentive contract.

PROOF: Subtracting (7) from (11) respectively yields:

$$W^* - W_{inc0}^* = -\frac{a^2k^2(5k^2+4k+1.+k^3)}{(2+3k+k^2)^2(4k+3)} < 0$$

Next, we compare the optimal extent of incentive contract when the public firm competes with foreign firm with the one when the public firm competes with a domestic private firm. We found out that the less the weight or the emphasis on profit given that the private firm is foreign and not domestic, the optimal extent of delegation actually exceeds that of the case of Barros (1995) only when the marginal cost is lower than value one.

PROPOSITION 2: When a public firm competes with a foreign firm, the optimal extent of delegation exceeds that of the case when a public firm competes with a domestic firm but only when the marginal cost is lower than value one.

PROOF:

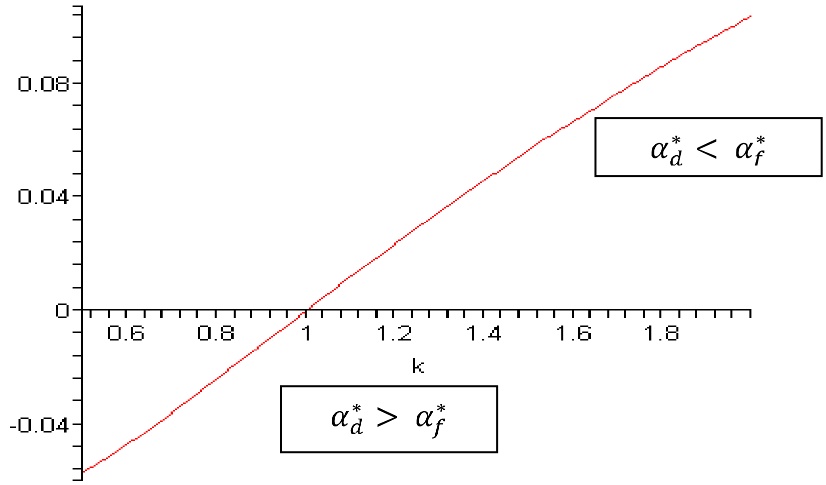
The optimal extend of delegation for the traditional mixed duopoly is as follows (Barros 1995):

$$\alpha_d^* = \frac{(k^2+2k+1)}{(k^2+3k+1} \qquad (15)$$

Subtracting (9) from (16) yields:

$$\alpha_d^* - \alpha_f^* = \frac{k(k^2+k-2)}{(k^2+3k+1)(2k+3)} = 0 \; when \; k = 1$$

Figure 1 : Shows the change of the optimal extent of delegation resulting from the cases when the public firm competes with a foreign firm and when it competes with a domestic private firm.



The figure above shows that:

- $k<1$, $\alpha_d^* < \alpha_f^*$
- $k=1$, $\alpha_d^* = \alpha_f^*$;
- $k>1$, $\alpha_d^* > \alpha_f^*$.

2. <u>The effect of privatization on welfare:</u>

Next, we determine the effect of privatization on welfare when a public firm competes with a foreign private firm. I found out that when the public firm competes with a foreign firm instead domestic one, the effect of privatization on welfare in undetermined, it depends on the marginal cost; which is in contrast with the traditional mixed duopoly in which DeFraja and Delbono (1989) showed that privatization increases welfare.

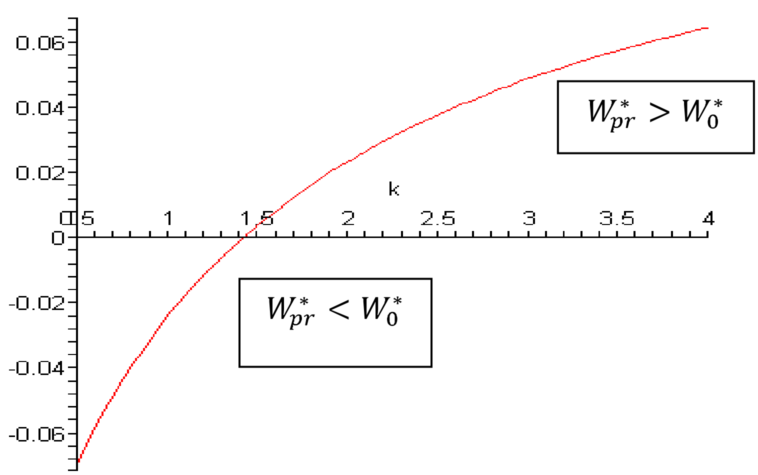
PROPOSITION 3: In mixed duopoly in which the public firm competes with a foreign private firm, privatization may increase social welfare but only if the marginal cost is sufficiently high; otherwise, if the marginal cost is low (less than k) avoiding privatization is the optimal.*

PROOF:

Subtracting equation (7) from (14) yields:

$$W_{pr}^* - W_0^* = \frac{a^2(-12 - 28k - 24k^2 + 13k^4 + 7k^5 + k^6)}{2(2k+3)^2(2+3k+k^2)^2}$$

Figure 2 : shows the effect of privatization on welfare. As this figure demonstrates, the change in welfare can be negative, zero and positive, depending on values of *k*



We conclude that, at higher *k,* it is optimal for the public firm to maximize profit instead of social welfare.

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3. Privatization versus delegation:

In this section, we compare the optimal welfare when a public firm maximizes its profit with the one when it provides its manager an incentive contract.

PROPOSITION 4*: In Mixed duopoly in which a public firm competes with a foreign private firm, privatization decreases welfare and delegation improves it.*

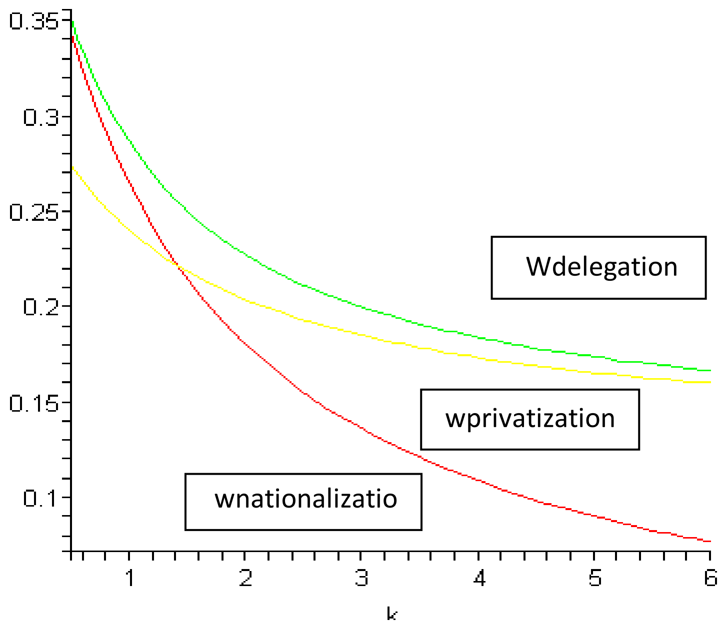
PROOF:

Subtracting equations (14) from (11) yields:

$$W^*_{inc0} - W^*_{pri} = \frac{(k^2 + 6k + 9)a^2}{(4k + 3)(2k + 3)^2} > 0$$

.

Figure 4 : Represents the three optimal welfares resulting from the three cases presented above



Green curve refers tow^*_{inc0}, the red curve is the w^*_0 and the yellow curve represents w^*_{pri}.

We conclude that the optimal welfare with incentive contract is superior to both privatization and nationalization.

IV. Conclusion

Previous work from duopoly examining public managerial incentive contracts reached unambiguous conclusions. Such contracts always improve welfare and privatization decreases welfare. This paper investigates the optimal extent of delegation when a public firm competes with a foreign private firm instead of domestic private firm. A series of important conclusions emerge. First, when only the public firm has the possibility of an incentive contract, the contract continues to increase welfare. Second, the extent of optimal delegation when a public firm competes with a domestic private firm exceeds that one resulting from the case when a public firm competes with a foreign private firm instead. Third, the effect of privatization on social welfare depends on the specifics of the market structure and the cost function.

V. Acknowledgements

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Financial Sector Development And Poverty Reduction

By Hafiz Ghufran Ali Khan, Abdul Zahid Khan, Arif Ahmad, Dr Awais E Siraj
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Abstracts - Financial sector development is an effective instrument that can bring reduction in poverty. Financial sector can be developed by four different ways, by improving efficiency of the financial sector, by increasing range of financial sector, by improving regulation of the financial sector and by increased accesses of more of the population to the financial services.For estimating effect of financial sector development on poverty we divided financial sector into four sectors, Banking sector, Insurance companies, Stock market and Bond market. Gini= f (Banking sector, Insurance companies, Stock market and Bond market) For banking sector, we used variables, central bank assets to GDP, deposits money banks assets to GDP, bank deposits, concentration, overhead costs and net interest rate. For insurance company we used variable non life insurance, to capture the effect of stock market variable stock market turnover ratio used.For bond market both market capitalization to GDP and public bond market capitalization to GDP are used.This study attempts to make analysis of the relationship between financial sector development and poverty for different countries. Growth depends on financial sector development and poverty depends on growth, here the negative relation of poverty and financial sector development tested.

Keywords : *Financial Sector, Poverty Reduction, Growth, Estimating Effects, Negative Relationship.*

Classification : *GJMBR-B Classification: JEL Code: I32,I38*

FINANCIAL SECTOR DEVELOPMENT AND POVERTY REDUCTION

Strictly as per the compliance and regulations of:

Financial Sector Development And Poverty Reduction

Hafiz Ghufran Ali Khan[α], Abdul Zahid Khan[Ω], Arif Ahmad[β], Dr Awais E Siraj[Ψ]

Abstract : Financial sector development is an effective instrument that can bring reduction in poverty. Financial sector can be developed by four different ways, by improving efficiency of the financial sector, by increasing range of financial sector, by improving regulation of the financial sector and by increased accesses of more of the population to the financial services.For estimating effect of financial sector development on poverty we divided financial sector into four sectors, Banking sector, Insurance companies, Stock market and Bond market. Gini= f (Banking sector, Insurance companies, Stock market and Bond market) For banking sector, we used variables, central bank assets to GDP, deposits money banks assets to GDP, bank deposits, concentration, overhead costs and net interest rate. For insurance company we used variable non life insurance, to capture the effect of stock market variable stock market turnover ratio used.For bond market both market capitalization to GDP and public bond market capitalization to GDP are used.This study attempts to make analysis of the relationship between financial sector development and poverty for different countries. Growth depends on financial sector development and poverty depends on growth, here the negative relation of poverty and financial sector development tested.

Keywords : Financial Sector, Poverty Reduction, Growth, Estimating Effects, Negative Relationship.

I. Introduction

Poverty is one of the most prominent problems of the whole world. Numerous measures both at macro and micro level have been taken but it is still a burning issue of not only developing countries but also of the developed world. It hurts productive capacity and there by economic growth of the economy. Financial sector development is an effective instrument that can bring reduction in poverty. Theory and evidence shows that Financial Sector Development can impart on poverty directly, to the extent that it widens access to financial services for the poor, and indirectly through its positive impact on growth, which in return help in reducing poverty. Financial sector means institutions in the economy, including all wholesale, retail, formal and informal outlets which offers financial services to consumers, businesses and other financial institutions DFID (2004). Financial sector can be developed by four different ways, to improve efficiency of the financial sector, to increase range of financial sector, to improve regulation of the financial sector and to increase accesses of more of the population to the financial services.Financial Sector Development enables the poor to borrow and invest in income enhancing assets. It generates employment, increases income and reduces poverty. It facilitates mobilizing savings for productive investments, both physical and human capital and remittances from abroad. Moreover it reduces transaction costs, helps in improving technological progress which helps in increasing productivity. It can also play an important role in reducing risk and vulnerability and increasing the accessibility of individuals to basic services like health and education.

II. Literature Review

Functions of financial intermediaries as saving mobilization risk management, acquiring information about investment opportunities, monitor borrowers and facilitating exchange of goods and services help in accumulation of capital and hence increasing rate of technological progress McKinon(1973) and hence enhancing economic growth Levine (1997). There is a strong linkage between financial sector development and economic growth. Financial sector mobilize resources and allocate it to those investment which generate high return. When the financial sector will be efficient and perform these service better the economic performance will be better and growth will be improve so its ultimate result will be less poverty.By facilitating transaction and providing the credit and other financial product to the poor for getting their basic needs help in reduction of poverty DFID,(2004). Banks also provide loans for education so it leads to human capital formation (De Gregorio, 1996). More investment, more production and more production first increase the growth level then decrease the poverty level, it is indirect impact of banking sector on poverty reduction.According to Hulme. and Mosely (1996) for sustainable development and poverty reduction we need an efficient financial sector development.More information about the investment opportunity, managed

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the risk which leads to high expected rate of return. Getting more information for an individual is very costly. But for financial intermediaries it is less costly and these institutions are also expert in investment , if an individual makes investment it will highly risky and if investment will be made through financial institutions which is less risky and more profitable Gurley and Shaw, (1967); Patrick, (1966); Greenwood and Jovanovic, (1990).For an individual it is difficult to monitor performance of an enterprise. Financial institutions monitor performance of different enterprises on behalf of different investor who makes investment on behalf of these financial institutions. By Monitoring and exerting corporate control, financial institutions can promote growth and improve the capital accumulation Bencivenga and B. Smith (1991) and the ultimate result of it gives poverty reduction. Financial sector can also play role in the form of fast payment services, more branches, improved remittance services in the field of exchange of goods between household and business that reduces transaction cost, thus it can help to promote economic growth.

Financial instability hurt individuals both directly and indirectly. Directly it hurts poor population more as compared to rich, because they are unable to diversify their risk by investing in foreign banks and as they have less power of negotiation Mc Kinnon (1973). Indirectly financial system instability hurt poor by way of growth. Financial instability reduces fund available for investment and therefore it further effect the growth rate. Financial instability also effect real exchange rate because the tradable goods (whose prices are determined by domestic demand and supply) are directly related to credit level (Guillaumont,2005).Janvry A.D.and E. Sadoulet (2000) using data of twelve counties in Latin America from 1970 to 1994, shows that economic growth depends on financial stability and poverty depends on economic growth , and further added that poor is more vulnerable to cyclical nature of growth as compare to rich and the negative impact of recession is more stronger than the positive impact of expansion on poor. Because the negative effect of growth on poor is generally outweigh the positive effect in raising income level (Deininger and Squire 1966).Economic growth facilitates the migration of funds to its best possible use. Recent literature Kirkpatrick(2000) developed another indirect link between financial development and poverty through Government intervention. Government intervention in the form of financial policies especially credit market policies which favored the borrowers to obtain credit on subsidized rate of interest, it means to adopt the financial liberalization policy (Kirk Patrick 2000).Due to Financial liberalization the economic benefits are trickle down to the lower income group and ultimately reduce the poverty.

Economic growth is necessary for poverty reduction but it must be accompanied by institutional structure and policy environment up to the extent that growth impact the poverty level Lipton and Ravallion, (1955). Economic growth is needed for poverty reduction and it further rely on financial sector development but the linkages of financial sector development and economic growth is not so simple, there is a need of another channel which could be policy intervention and policies which will create an efficient and favorable financial market for capital accumulation and technology innovation Collin Kirkpatrick, (2000).

III. Methodology

For estimating effect of financial sector development on poverty we divided financial sector into four sectors, Banking sector, Insurance companies, Stock market and Bond market. Description of this is given below:

Gini= f (Banking sector, Insurance companies, Stock market and Bond market)

For banking sector, we used variables, central bank assets to GDP, deposits money banks assets to GDP, bank deposits, concentration, overhead costs, net interest rate. For insurance company we used variable non life insurance, to capture the effect of stock market variable stock market turn over ratio used. For bond market both market capitalization to GDP and public bond market capitalization to GDP are used. Following model is prepared for estimation:

$$Gini=\beta_0+\beta_1CBA+\beta_2DMB+ \beta_3BD+ \beta_4Con+\beta_5OC+ \beta_6NI+\beta_7NLI+ \beta_8SMT+\beta_9PBM+ \beta_{10}GBM+\mu$$

Where as

CBA= Central Bank Assets to GDP
DMB= Deposits Money Bank Assets to GDP
BD= Bank Deposits
Con= Concentration
OC=Overhead Costs
NI= Net Interest rate
NLI= Non Life Insurance pene
SMT = Stock market turnover ratio
PBM =Public bond market capitalization to GDP
GBM =Private bond market capitalization to GDP

IV. Data Description

Data on Financial sector variable is taken from Thorsten Beck website http://econ.worldbank.org/staff/tbeck . Data on Gini is taken from WIID website http://www.wiid gini coefficient, .Due to non availability of time series data we take different years data (unbalanced) for different counties in which.

V. Empirical Results

Using Ordinary Least Square (OLS) method, estimated results are presented in the following table.

Dependent variable: Gini Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	40.30504	4.647075	8.673206	0
Central Bank Assets to GDP	-45.02849	14.6766	-3.068047	0.0028
Deposits Money Bank Assets to GDP	-16.00554	9.560759	-1.674087	0.0973
Bank Deposits	-17.06588	9.629179	-1.772309	0.0794
Concentration	61.61029	36.28138	1.698124	0.0926
Overhead Costs	144.9347	48.77275	2.971634	0.0037
Net Interest rate	-15.40079	3.266939	-4.714133	0
Non Life Insurance pene	4.750182	2.566572	1.850789	0.0672
Stock market turnover ratio	-6.916905	2.548054	-2.714584	0.0078
Private bond market capitalization to GDP	-36.46672	6.467128	-5.638781	0
Public bond market capitalization to GDP	6.49047	7.407687	0.87618	0.3831

Table shows that there is negative and highly significant relation between poverty and central bank assets. Coefficient of Deposits Money Bank Assets to GDP is negative.

Coefficient of concentration is positive which means more concentration more poverty. Concentration of banks reduces the number of choices with consumer and it also reduces the number of rivals in banking sector because banks merge in mega banks. So concentration inversely effect growth and its primary impact on consumer is not good (Prager, R. and T. Hannan (1998))

Coefficient of overhead cost is positive which means that as overhead cost increases poverty also increases. For improving the performance of financial institution it is necessary to fairly allocate the overhead cost such as utilities, computer usage, space and supplies, more overhead cost less will be the performance of the financial institution (Rihall, et al., 1994).

Coefficient of interst rate is negative and highly significant. Higher interst rate leads to decrease poverty because more money is distributed among the depositors. A developed financial system is one that has a secure and efficient payment system in the form of interest (Johann Scharler). Stock market turnover ratio is negative. Private bond market capitalization have negative and highly significant effect while that of government bond capitalization has positive but insignificant effect on poverty. The reason for the negative effect of private bond capitalization on poverty is that private sector raises fund through bond market mainly for the expansion of firm which leads more output more emplyment more incme and less poverty. While on the side government uses bonds for raising fund for meeting its deficit which must be repayed along with interst by the consumers in form of taxes. It will adversely effects consumers and leads to more poverty.

VI. Conclusion

This study attempts to make analysis of the relationship between financial sector development and poverty for different countries. Growth depends on financial sector development and poverty depends on growth, here the negative relation of poverty and financial sector development tested.The banking sector variable (CBA, DMB and BD) proved the negative relation of poverty and financial sector development because all the banking sector variables are negative. Like the banking sector stock market variables also show the negative relation and they are highly significant also. In bond market negative relation between public bond market capitalization to GDP and poverty found. With the improvement of the stated variables of banking, stock and bond market poverty decreased. Apart from these there are other variables like concentration and overhead cost. An empirical result shows the positive relation between concentration and overhead cost with poverty. As concentration decreases the number of rival in banking sector because different banks merge with one another and also decreases the choices with the customers, and the increase of overhead cost is also harmful for financial sector development if it is not fairly managed. All these stated factors about concentration and overhead cost hamper the financial development.

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A Comparison Of Rural And Urban Buying Of Consumer Durables

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Abstracts - India is one of the fastest growing markets of the world. The potential not only lies in the urban India but in the rural India also. The study has been carried out to differentiate the buying behaviour of rural households from that of urban households. Three durable goods from three different product categories; Television (entertainment product), Refrigerator (home appliance), and an Automobile (two-wheeler, motorcycle and car/jeep) have been selected for study. A sample of 411 (204 from urban and 207 from rural areas) households across the Punjab state (India) have been selected on the basis of non-probability convenience sampling. Overall no significant differences could be observed between rural and urban consumers in terms of their; timing of purchase, buying the same brand of other durable, number of items, and duration of planning before buying. Habitat (rural or urban) has a relation with income for the timing of buying a television, refrigerator, and automobile except in case of buying of an automobile on festive / special occasion, where the income had no relation with habitat. There is a relation between habitat and income in terms of duration of planning for different time periods before the buying of a television and refrigerator. The habitat also reveals association with income in terms of planning for months before buying an automobile. No association has been observed between habitat and income in case of planning for few days, few weeks and years before buying an automobile.

Keywords : *Rural, Urban, Need, Income, Family Size.*

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A COMPARISON OF RURAL AND URBAN BUYING OF CONSUMER DURABLES

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A Comparison Of Rural And Urban Buying Of Consumer Durables

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Abstract : India is one of the fastest growing markets of the world. The potential not only lies in the urban India but in the rural India also. The study has been carried out to differentiate the buying behaviour of rural households from that of urban households. Three durable goods from three different product categories; Television (entertainment product), Refrigerator (home appliance), and an Automobile (two-wheeler, motorcycle and car/jeep) have been selected for study. A sample of 411 (204 from urban and 207 from rural areas) households across the Punjab state (India) have been selected on the basis of non-probability convenience sampling. Overall no significant differences could be observed between rural and urban consumers in terms of their; timing of purchase, buying the same brand of other durable, number of items, and duration of planning before buying. Habitat (rural or urban) has a relation with income for the timing of buying a television, refrigerator, and automobile except in case of buying of an automobile on festive / special occasion, where the income had no relation with habitat. There is a relation between habitat and income in terms of duration of planning for different time periods before the buying of a television and refrigerator. The habitat also reveals association with income in terms of planning for months before buying an automobile. No association has been observed between habitat and income in case of planning for few days, few weeks and years before buying an automobile.

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I. Introduction

India is the world's 12th largest consumer market. By 2025, it is projected to be ahead of Germany, the fifth largest, according to a recent McKinsey (2007) survey. The biggest strength of Indian markets lies in the size, not in individual spending. With the rise in income, over 291 million people will move from desperate poverty to a more sustainable life, and India's middle class will increase incredibly by over ten times from its current size of 50 million to 583 million people. There had been a strong misperception about the rural markets. One that rural India is poor and there is a lack of adequate infrastructure. Second, rural India depends upon agriculture as a sole source of subsistence. But the reality is different. MART (2005), the specialist rural marketing and rural development consultancy agency, has found that rural India accounts for 46 per cent of soft drinks sales and 49 per cent of motorcycle sales. Out of two million BSNL mobile connections, subscription from small towns and villages accounts one-half of it. The states like Punjab and Haryana get a favourable ranking in terms of ownership of assets, consumer durables, two-wheelers, and cars in rural areas. In rural Punjab there are many families particularly from Doaba region, whose one or more family members have gone abroad. Their standard of living is even far better than many of the urban residents. According to Sinha (2005), rural India in which more than 74 per cent of the population of the country resides; generates one-third of country's GDP, and accounts for 38 per cent of two-wheelers sales of the country. All people are not engaged in agriculture; about 25 per cent have non-farm occupations. Disposable income again is not low. Per capita annual income in rural area is Rs.9481 as against Rs.19,407 of urban areas. Rural people have the advantage, as they need not to bear expenses like rent, and water bills etc. The number of middle-class households are 15.6 million in rural areas, and 16.4 million in urban. The rural market for durables is Rs. 5000 crore, for tractors and agricultural inputs Rs. 45,000 crore (1 crore = 0.1 billion) and two and four-wheelers, Rs. 8000 crore. In total, it has a potential of Rs. 1,23,000 crore. The understanding of rural behaviour, appropriate pricing and distribution may help marketers to increase its potential. The Federation of Indian Chambers of Commerce and Industry (FICCI, 2005) has carried out a comprehensive Survey of industries in the consumer durable goods sector. The survey which; is based on feedback and interaction with representatives of consumer durables industry, allied industry organizations, associations, government agencies, and public sector undertakings; reveals that the sector is poised for a wide jump due to technological improvisation, falling prices due to competition, aggressive marketing, and declining import tariffs. There is a dramatic change in the behaviour of the consumer with the increase in their disposable incomes. The consumers have started perceiving many of the luxury goods as necessities.

II. Literature Review

Consumer durable is a product that must be durable in use and must be expensive relative to income. An item may be durable for a working class family and at the same time may not necessarily be durable for upper middle class consumer. However, there is hardly any argument for items like cars and

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refrigerators and there are not many marginal items. Durable purchases by and large are group decisions for the three reasons: one it involves the considerable outlay of the family; second the user of the person may not necessarily be the one who actually pays for it; and third it is bought for the use of several members of the family. However, in certain cases unilateral decisions for the buying of durable item are taken by one member of the household, but it is not common. The buying decisions of such items are generally unique and irrevocable. These decisions are not taken frequently, rather taken very rarely, perhaps once and twice in one's life. The buying decisions of durables are by and large group decisions; complex ones; and more concentrated amongst the upper-income groups. The durable goods are mass-produced in anticipation to consumers' demand and involve huge capital cost (Downham and Treasure, 1956).

Economic reforms of 1979 brought a great change in the consumption patterns in China. Durable goods particularly experienced a great change both in variety and quantity. The possession of certain durable goods in the past has affected the possession of the same durable during the current period and the possession of certain durables has affected the purchase of other durables. Prior to the reform period, the products like washing machines and refrigerators were scarcely produced domestically. Also there were no provisions of installment plans, credit cards or any other form of consumer loans. The increased consumption of durable goods has occurred as a result of several factors including increase in per capita consumption. The data collected by Statistics Bureau, Tianjin Municipal Government in 1984 reveals that household income had a statistically significant positive effect on all consumer durables except the electronic watch. This was so because wrist-watch being low priced item did not account for a considerable share of household budget. The household size was positively related to the ownership of bicycle, electric fan and the record player. But it showed a negative effect for the purchase of television sets. Ownership of washing machine and refrigerator was also found affected by living space and the supplementary area, as these items are physically large. Age did not affect the consumption of large number of items except bicycle and transistor radios, which were relatively old-type durables. Education had a positive effect on purchases of refrigerators and record players. Most Chinese households perceived that one is enough for most durables (Hu *et al*, 1989). Indian middle class also consider these items of infrequent purchase as revealed by the study of Rahman and Bhattacharyya (2003 a). The average of kitchen refrigerator was five-and-a-half years and for a colour TV was five years as per the exploratory study conducted in the campus of Indian Institute of Technology Roorkee (Rahman and Bhattacharyya, 2003 b). It had been found that the tendency of the households toward the buying of old-type durables (e.g. bicycles, sewing machines, black and white televisions) decreased considerably than to modern ones (e.g. washing machines, colour televisions and cameras). The possession of durables reduced the probability of purchasing another one of the same type except for refrigerators and watches. The study further explores that the last period possession of a refrigerator had a positive effect on that period purchase of washing machine, but no effect on the purchase of the colour television. Similarly last purchase of washing machine increased the probability of purchase of refrigerator during the period of study, but remained neutral to the purchase of colour television. The last purchase of colour television did not affect the purchase of either refrigerator or washing machines. This implies that both washing machine and refrigerators were complimentary to each other. The current purchase of washing machine increased the probabilities of current purchases of both a refrigerator and colour television. Similar was the effect of current purchase of colour television on both refrigerator and the washing machine. But the current purchase of refrigerator was found indifferent to the current purchase of both washing machine and a colour television (Hu *et al*, 1989).

Two-wheelers have become more important particularly among middle income group of consumers in India. Consumers consider comfort, price, maintenance, fuel efficiency, appearance, durability, and resale value as important attributes while buying two-wheelers. The study carried out in Tamil Nadu (India) reveals that there was 100 per cent brand loyalty for 'Bajaj Chetak' scooter, followed by 'Hero Honda' and 'TVS Champ', in which it was 93 per cent. The brands Hero Puch and Yamaha had 83 per cent whereas 'Bullet' had 82 per cent brand loyalty. The study did not find any significant difference between source of information and income of consumers. A significant difference was observed as regards to source of information (newspaper, hoarding and posters) and the age of the respondents. The study further reveals that 53 per cent of the respondents considered only one brand ignoring all others. Factor analysis yielded five factors that motivated the consumers in their purchase decisions. These were fuel efficiency, maintenance cost, price, image and warranty. Cost, image, and service influenced the selection of motorcycles. But all variables were rated equally in case of scooters and mopeds. In terms of total satisfaction, all mobike owners were found fully satisfied with style, scooter users with durability, and moped-owners with break conditions. The job knowledge of the mechanics was the most significant consideration for selecting dealer or non-dealer service centers (Ahmed, 2001).

Socioeconomic conditions considerably affect consumer behaviour (Kim *et al*, 2002). Income affects the buying behaviour in terms of amount, type and prices of products purchased. High-income consumers put in more effort in information search. Utilitarian evaluation criterion is inversely related to income. Income is more important in the buying of low social value product (Williams, 2002). When the income of the consumer is low, the consumer largely tends to focus on price and performance attributes and with the increase in income the consumer becomes more hedonic and may start desiring goods from western nations (Kim *et al*, 2002).

There are noticeable differences in purchase decision times for new cars and major household appliances. The study was conducted on 1300 households of US who had purchased one or more products of study before August 1968. The decision times were found to vary widely. About half of the buyers took two weeks or less while a third took six months or more. The distribution for cars and major household appliances were similar. The study reveals that the purchasers satisfied with their old products were found engaged in less information seeking than those who either were not fully satisfied with their old products or did not have regular use of the product. Moreover the satisfied users were able to gather required information in less time than other types of buyers. The satisfied users, whose products had already expired their life, took less time than those satisfied users with their products in working conditions. Similarly the buyers who had extensive purchase experience in the past took less time than those who had not much experience. Even the highest income households lacking buying experience took more time than any other income group. Also the increased information seeking activity was associated with longer decision times (Newman and Staelin, 1972).

These households might have remained dependent on others for procuring information but assessed its credibility themselves. The stages in the life-cycle also play a considerable role. As families grow, size and the characteristics of the product that was last purchased, change. The average satisfied user of his old product who was giving considerably high importance of out-of-store information seeking took greater time than the average buyer who was either dissatisfied with his earlier purchases or did not have regular use of that kind product. There had been contrasting result to Ferber's hypothesis that 'larger the size of planned purchase, the longer the purchasing horizon is likely to be' as the same was not observed for cars, the average duration of which was not much longer than that for appliances. The study concludes that the decision times are not affected by traditional demographic variables, rather these depend upon condition of old product, ability to judge the product well, and prior experience (Newman and Staelin, 1971). Stages in the life-cycle also play a significant role as with the growth in the family, needs change and therefore, family may have to buy a different appliance than they earlier bought (Newman and Staelin, 1970).

Gift giving to the children is a strong feature of Christmas in the western countries. It is a unique, multifaceted, and ritualistic consumption occasion suggesting that the season is peak in consumption in western cultures and gift giving on this occasion is a hedonistic behaviour and it is a traditional Christmas ritual. The previous studies reveal that people seem to spend quite freely on the preparation and the enjoyment of the Christmas period. This period is an important occasion not only for business but for those who make purchases to participate in Christmas activities. This exploratory study measures the feelings (affect) and the evaluations (cognitions) as the valid elements of the Christmas spirit construct. Social values of the consumption objects are associated with various social and cultural aspects. The affective judgments directly and subjectively relate the person to the objects of interest more than the effects of cognitive appraisals. Some studies have pointed out that though both affective and cognitive elements act independently yet they are significantly related to actions and behavioural intentions. The other studies reveal that the differences between affect and cognition are minor and exist due to their interwoven nature. Affect include multifaceted associations about internal and primal reactions of emotions and feelings as well as emotions and moods. Cognitions on the other hand refer to thoughts, beliefs, and perceptions and is a response to the environment brought about by the evaluation of the consumption object. The basis of cognition is the utility of the consumption objects. A family ritual is a highly stylized cultural performance involving several family members and is a symbolic behaviour. Rituals artifacts communicate specific symbolic messages, guide the artifacts and identify when to use what icon or symbol. Christmas season is time of tradition and ritual. It can be personalized to create an individualized custom ritual. Christmas is a consumption object like an advertisement and there can be an upbeat, and warm feelings toward Christmas. The study concludes that the high regard or spirit does not necessarily embrace materialistic indulgence. Christmas spirit is an attitude to a season not to the materialism. However brands can be integrated with Christmas rituals, artifacts and script (Clarke, 2007).

Many companies of consumer products (both durable and non-durable) are making their efforts in rural areas. This is so because of increase in rural purchasing power over the past decade due to increase in support prices for the farm produce. Increase in infrastructure and change in lifestyle due to proliferation of television have changed the buying habits of the rural people. The study carried out in rural Pondicherry to understand the buying behaviour on two products - wristwatches and footwear reveals that rural consumers consider only one brand and visit one shop before making a purchase decision. Though buyer himself takes decision for buying watches, yet retailers and advertisements have been found important influencers. Unlike urban areas, where watches are treated as gift items, these are bought as and when necessity is felt. Brand name and price were the important considerations in buying watches. Utility and longevity (quality) were the prime considerations for footwear and no significant influence of brand was observed in this category. They used to buy both the items based on the necessity felt rather than waiting for any offer or festive season (Shivakumar and Arun, 2002).

III. Methodology

The study, which is descriptive in nature, has been carried out in Punjab state (India). Three durable goods from three different product categories Television (entertainment product), Refrigerator (home appliance), and an Automobile (two-wheeler, motorcycle and car/jeep) have been selected for study. A sample of 411 (204 from urban and 207 from rural areas) households across the state have been selected on the basis of non-probability convenience sampling. The data about current ownership or likelihood of purchases in the next 24 months on the select durable goods (television, refrigerator and any type of automobile) were obtained. In case of additional purchase/replacement or their likelihood in near future about the select items, the respondents were asked to give their responses only to the latest/likely buying. All respondents had been found possessing at least one item of each select product.
The main objectives of the study are as under:

- To compare rural and urban habitants for their; timing of purchase, buying the same brand of other durable, number of items, and duration of planning before buying.
- To analyze an association between habitat and income, and habitat and family size for the select variables.

The study has been based on both primary as well as secondary data. In-depth interviews have been conducted to look into insights of the consumers' behaviour with the help of a pre-tested bilingual questionnaire that was served to the respondents to obtain important information as regards to the prime objectives of the study. 'Buying the same brand of other durable' has been studied only for television and refrigerator. This is so because that the marketers of these products are less likely to engage in the marketing of automobiles and vice versa.

The p-values have been calculated for the select variables and on comparing with central value their significance has been checked at 95% confidence level. Similarly p-values have also been calculated to observe the significance (95% confidence level) of differences between the responses of rural and urban consumers. Discriminant analysis has also been carried out to observe the differences between rural and urban consumers in terms of their buying patterns. Chi square distribution has been used to test an association between habitat and income, and habitat and family size.

IV. Limitations of the Study

The sample size is too small to generalize the findings. Moreover only three products (only one product from three categories) have been selected. However there are large number of consumer durables such as washing machines, water purifiers, air conditioners, generator sets, and kitchen appliances etc. There is again a variety of items within a product category and they carry different utilities at different values for different strata of consumers. The study needs to be further extended in terms of other variables such as differences in the behaviours of different socio-economic groups of rural and urban consumers and other demographic considerations. Also more predictors can be added in further studies. Similarly, similarities and dissimilarities among different occupational categories of rural and urban consumers can be considered in terms of their behaviours towards consumer durables.

Also only those households have been considered for study that had either all the three items (television, refrigerators and any type of automobile) or they were likely to buy in near future. There are many households which may have not any one or more of these select items and they were also not likely to buy in near future. Some households had possessed some of the select durables for a long time. The consumers' preferences, considerations, and family life-cycle since then might have changed and the behaviour particularly as regards to the influences within the household might be different as compared to the time of acquisition of that durable. Therefore, the likely buying of next 24 months has been made the part of the study to minimize the impact of this limitation.

V. Data Presentation and Analysis

The results are summarized here as under:

a) Television

Table T 1 reveals that no significant difference could be observed between rural and urban consumers as regards to timing of buying a television (X 1). A large majority of both rural and urban consumers had preferred to buy a television in case of need. There had been significant differences between rural and urban consumers as regards to the buying of same brand of television as that of refrigerator (X 2). Eighty four per cent of the rural consumers had preferred to buy the same brand of television as that of refrigerator whereas; 69 per cent of the urban consumers preferred the same (Table T 2). This reveals that both rural and urban consumers had preference to buy the same brand of television as that of refrigerator or vice-versa.

Table T 1 : Timing of Purchase

Timing of Purchase	U (%)	R (%)	U-R	p value (two tailed)
Need	77	78	-01	0.9354
Festive season	17	14	03	0.4593
Special Occasion	06	08	-02	0.3565

Table T 2 : Same Brand as that of Refrigerator

Same Brand as that of Refrigerator	U (%)	R (%)	U-R	p value (two tailed)
Yes	69	84	-15	0.0006
No	31	16	15	0.0006

There had been significant differences between rural and urban consumers as regards to the one and two number of television sets in a household (X 3). Sixty eight per cent of the rural households had only one television set whereas; urban households with only one television set had been found to be 53 per cent. On the other side 39 per cent of the urban households had two televisionsets whereas; only 25 per cent of the rural households had the same number of television sets (Table T 3). This implies that majority of both rural and urban households had only one television set. No significant difference could be observed between rural and urban consumers as regards to three and four television sets in a household.

Table T 3 : Number of Televisions

Number	U (%)	R (%)	U-R	p value (two tailed)
1	53	68	-15	0.0012
2	39	25	14	0.0022
3	06	04	02	0.3416
4	02	03	-01	0.7787

Table T 4 : Duration of Planning before Buying

Planning before Buying	U (%)	R (%)	U-R	p value (two tailed)
Few Days	48	40	08	0.1048
Weeks	31	36	-05	0.251
Months	17	18	-01	0.7459
Years	04	06	-02	0.5235

Table T 5: Buying of Television (Discriminant Analysis)

S. No.	Variables	Standardized Canonical Discriminant Function Coefficients	Unstandardized Canonical Discriminant Function Coefficients	Structure Matrix	
1	X 1	-0.792	-1.333	X 2	0.351
2	X 2	1.157	2.759	X 3	0.241
3	X 3	1.416	1.996	X 4	-0.142
4	X 4	-1.581	-1.780	X 1	-0.034
	Constant		-1.400		

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Table T 6 : Timing of Purchase among Income Groups.

Income Groups	Urban/Rural	Timing of Purchase	
		Need	Festival/Special Occasion
Upto 2.5 lakh	U (%)	72	28
	R (%)	70	30
	U-R	02	-02
	p value (two tailed)	0.7391	0.7391
>2.5 lakh	U (%)	81	19
	R (%)	90	10
	U-R	-09	09
	p value (two tailed)	0.0932	0.0932
Chi Square (df=1)		6.37	8.78
p value (chi square)		0.0159	0.003

There had been no significant differences between rural and urban consumers as regards to the duration of planning before buying a television set (X 4). Maximum numbers of consumers have planned for few days before the buying of a television set (Table T 4). The structure matrix reveals X 2 as the most discriminating variable followed by X 3 and X 4. The classification results reveal the correct classification of 66.7 per cent of original as well as cross-validated groups (Table T 5). There had been no significant difference between rural and urban consumers of both the income groups ('upto Rs. 2.5 lakh' and '>Rs. 2.5 lakh') in terms of timing of purchase. Majority of the consumers of these groups had bought a television set at the time of need. The significant value of chi square indicates an association of the habitat (rural and urban) with income in terms of timing of buying of a television set (Table T 6). There had been significant differences between rural and urban consumers of income group 'upto Rs. 1.5 lakh' as regards to the buying the number of television sets. 56 per cent of the urban and 76 per cent of the rural consumers had only one television set. Rest of the consumers had two or more television sets. No such difference had been observed for other income groups. Majority of the consumers of all these income groups belonging to both rural and urban residents had only one television set except in case of urban consumers belonging to income group of '>Rs. 3.5 lakh', where 57 per cent of the consumers had two or more television sets. The high and significant value of chi square indicates an association of the habitat (rural and urban) with income in terms of buying the number of television sets (Table T 7).

Table T 7: Number of Televisions among Different Income Groups.

Income Groups	Urban/Rural	Number of Televisions	
		One	Two or more
Upto 1.5 lakh	U (%)	56	44
	R (%)	76	24
	U-R	-20	20
	p value (two tailed)	0.033	0.033
>1.5 to 2.5 lakh	U (%)	54	46
	R (%)	62	38
	U-R	-08	08
	p value (two tailed)	0.4111	0.4111
>2.5 to 3.5 lakh	U (%)	66	34
	R (%)	62	38
	U-R	04	-04
	p value (two tailed)	0.6701	0.6701
>3.5 lakh	U (%)	43	57
	R (%)	61	39
	U-R	-18	18
	p value (two tailed)	0.0914	0.0914
Chi Square (df=3)		31.64	18.40
p value (chi square)		<0.0001	<0.0001

Table T 8: Duration of Planning before Buying among Different Income Groups.

Income Groups	Urban/Rural	Duration of Planning before Buying		
		Few Days	Weeks	Months/Years
Upto 1.5 lakh	U (%)	38	28	34
	R (%)	47	33	20
	U-R	-09	-05	14
	p value (two tailed)	0.3649	0.6376	0.1185
>1.5 to 2.5 lakh	U (%)	38	34	28
	R (%)	12	67	21
	U-R	26	-33	07
	p value (two tailed)	0.0028	0.0009	0.4666
>2.5 to 3.5 lakh	U (%)	52	33	15
	R (%)	38	31	31
	U-R	14	02	-16
	p value (two tailed)	0.2452	0.8267	0.1118
>3.5 lakh	U (%)	59	28	13
	R (%)	58	16	26
	U-R	01	12	-13
	p value (two tailed)	0.8942	0.1848	0.0835
Chi Square (df=3)		40.64	15.08	8.39
p value (chi square)		<0.0001	<0.0001	0.0038

Table T 9 : Number of Televisions among Households of Different Family Sizes.

Family Size	Urban/Rural	Number of Televisions		
		One	Two	Three or more
Upto 4	U (%)	49	39	12
	R (%)	83	10	07
	U-R	-34	29	05
	p value (two tailed)	<0.0002	<0.0002	0.3246
>4	U (%)	56	40	04
	R (%)	60	34	06
	U-R	-04	06	-02
	p value (two tailed)	0.5419	0.3385	0.6185
Chi Square (df=1)		36.03	19.28	17.46
p value (chi square)		<0.0001	<0.0001	<0.0001

The significant differences between rural and urban consumers had only been found in the income group '>Rs. 1.5 lakh to Rs. 2.5 lakh' as regards to the duration of planning of few days, and weeks; before buying the television sets. Thirty eight per cent of the urban consumers and 12% of the rural consumers of this income group planned for few days before the buying of a television set. Thirty four per cent of the urban consumers and 67 per cent of the rural consumers of the said income group planned for few weeks before the buying of a television set. Maximum number of consumers of both the consumer groups belonging to all the income groups had planned for few days before the buying of a television set. The chi square had been found significant for all three durations indicating an association of habitat (rural and urban) with income in terms of their duration of planning before buying a television set (Table T 8). There had been significant differences between rural and urban consumers of family size 'upto 4' as regards to the one and two television sets per household. Forty nine per cent of the urban consumers and 83 per cent of the rural consumers of the said family size had only one television set. Thirty nine per cent of the urban consumers and 10 per cent of the rural consumers of the said family size had two television sets. However no difference could be observed for this family size for the three or more number of television sets per household. Also no significant difference could be observed between these consumer groups of family size 'greater than four' for any number of television sets. Majority of the consumers of all the groups of select family sizes belonging to both rural and urban residents had only one television. The chi square had been found significant for any number of television sets per household indicating an association of family size with habitat for the possession of number of television sets per household (Table T 9).

b) Refrigerator

Table R 1 reveals that no significant difference could be observed between rural and urban consumers as regards to buying a refrigerator in case of need (X 1). Eleven per cent of the rural consumers had preferred to buy a refrigerator on special occasion, which is significantly greater than the preference of only 3 per cent urban consumers. However during festive seasons, the urban consumers (16 per cent) had greater tendency to buy the same as compared to their rural counterparts (10 per cent). A large majority of both rural and urban consumers had preferred to buy a refrigerator in case of need. There had been significant differences between rural and urban consumers as regards to the buying of same brand of refrigerator as that of television (X 2). Eighty per cent of the rural consumers had preferred to buy the same brand of refrigerator as that of television whereas; 69 per cent of the urban consumers preferred the same (Table R 2). This reveals that both rural and urban consumers had preference to buy the same brand of television as that of refrigerator or vice-versa. There had been significant differences between rural and urban consumers as regards to the one and two or more number of refrigerators in a household (X 3). Eighty six per cent of the rural households had only one refrigerator whereas; urban households with only one refrigerator had been found to be 77 per cent. On the other side 23 per cent of the urban households had two or more refrigerators whereas; only 14 per cent of the rural households had the same number of refrigerators (Table R 3). This implies that majority of both rural and urban households had only one refrigerator. Table R 4 reveals that there had been no significant differences between rural and urban consumers as regards to the duration of planning before buying a refrigerator (X 4). Maximum numbers of consumers have planned for few weeks before the buying of a refrigerator. The structure matrix reveals X 2 as the most discriminating variable followed by X 3 and X 1. The classification results reveal the correct classification of 64.5 per cent of original as well as cross-validated groups (Table R 5).

Table R 1 : Timing of Purchase.

Timing of Purchase	U (%)	R (%)	U-R	p value (two tailed)
Need	81	79	02	0.6789
Festive season	16	10	06	0.0488
Special Occasion	03	11	-08	0.0017

Table R 2 : Same Brand as that of Television.

Same Brand as that of Refrigerator	U (%)	R (%)	U-R	p value (two tailed)
Yes	69	84	-15	0.0006
No	31	16	15	0.0006

Table R 3 : Number of Refrigerators.

Number	U (%)	R (%)	U-R	p value (two tailed)
1	77	86	-09	0.0184
2 or more	23	14	09	0.0184

Table R 4 : Duration of Planning before Buying.

Planning before Buying	U (%)	R (%)	U-R	p value (two tailed)
Few Days	35	31	04	0.3457
Weeks	42	43	-01	0.8634
Months	23	22	01	0.4032

Table R 5 : Buying of Refrigerator (Discriminant Analysis).

S. No.	Variables	Standardized Canonical Discriminant Function Coefficients	Unstandardized Canonical Discriminant Function Coefficients	Structure Matrix	
1	X 1	-1.440	-2.427	X 2	0.394
2	X 2	1.143	2.725	X 3	0.247
3	X 3	0.858	2.171	X 1	-0.189
4	X 4	-0.499	-0.611	X 4	-0.131
	Constant		-1.653		

There had been no significant difference between rural and urban consumers of both the income groups ('upto Rs.2.5 lakh' and '>Rs.2.5 lakh') in terms of timing of purchase. Majority of the consumers of these groups had bought the refrigerator at the time of need. The significant value of chi square indicates an association of habitat with income in terms of their timing of purchase (Table R 6). There had been significant differences between rural and urban consumers of income group 'upto Rs. 1.5 lakh' as regards to the buying of number of refrigerators. Eighty one per cent of the urban and 93 per cent of the rural consumers had only one refrigerator. Rest of the consumers had two or more refrigerators. No such difference had been observed for other income groups. Majority of the consumers of all these income groups belonging to both rural and urban residents had only one refrigerator. The higher and significant value of chi square in case of refrigerator indicates an association of consumer groups (rural and urban) with their different income groups. However in case of two or more refrigerators, the low and non-significant value of chi square indicates that income had the relation with the possession of number of refrigerators among habitant groups (Table R 7). There had been no significant difference between rural and urban consumers in any of the select income group as regards to duration of planning before buying the refrigerators. Maximum number of consumers of both the consumer groups belonging to all the income groups had planned for few weeks before the buying of a refrigerator. The chi square had been found significant for all three durations indicating an association between the habitat (rural and urban) and income in terms of their duration of planning before buying a refrigerator (Table R 8).There had been no significant differences between rural and urban consumers of any of the select family size as regards to the number of refrigerators per household. Majority of the consumers of all the groups of select family sizes belonging to both rural and urban residents had only one refrigerator. The chi square had not been found significant for any of the number of refrigerators per household, indicating that the family size had no relation with the possession of number of refrigerators among habitant groups (Table R 9).

Table R 6 : Timing of Purchase among Income Groups.

Income Groups	Urban/Rural	Timing of Purchase Need	Festival/Special Occasion
Upto 2.5 lakh	U (%)	79	21
	R (%)	72	28
	U-R	07	-07
	p value (two tailed)	0.2236	0.2236
>2.5 lakh	U (%)	81	19
	R (%)	90	10
	U-R	-09	09
	p value (two tailed)	0.0932	0.0932
Chi Square (df=1)		5.18	11.16
p value (chi square)		0.0228	0.0008

Table R 7 : Number of Refrigerators among Different Income Groups.

Income Groups	Urban/Rural	Number of Refrigerators One	Two or more
Upto 1.5 lakh	U (%)	81	19
	R (%)	93	07
	U-R	-12	12
	p value (two tailed)	0.0439	0.0439
>1.5 to 2.5 lakh	U (%)	77	23
	R (%)	86	14
	U-R	-09	09
	p value (two tailed)	0.2636	0.2636
>2.5 to 3.5 lakh	U (%)	82	18
	R (%)	81	19
	U-R	01	-01
	p value (two tailed)	0.9235	0.9235
>3.5 lakh	U (%)	73	27
	R (%)	71	29
	U-R	02	-02
	p value (two tailed)	0.8337	0.8337
Chi Square (df=3)		47.57	4.29
p value (chi square)		<0.0001	0.383

Table R 8 : Duration of Planning before Buying among Different Income Groups.

Income Groups	Urban/Rural	Planning before Buying		
		Few Days	Weeks	Months/Years
Upto 1.5 lakh	U (%)	38	47	15
	R (%)	33	48	19
	U-R	05	-01	-04
	p value (two tailed)	0.6143	0.9259	0.6213
>1.5 to 2.5 lakh	U (%)	34	37	29
	R (%)	31	38	31
	U-R	03	-01	-02
	p value (two tailed)	0.755	0.9029	0.8493
>2.5 to 3.5 lakh	U (%)	30	55	15
	R (%)	24	50	26
	U-R	06	05	-11
	p value (two tailed)	0.528	0.6958	0.2469
>3.5 lakh	U (%)	38	39	23
	R (%)	35	26	39
	U-R	03	13	-16
	p value (two tailed)	0.8196	0.1905	0.7558
Chi Square (df=3)		17.03	27.96	11.02
p value (chi square)		<0.0001	<0.0001	0.0009

Table R 9 : Number of Refrigerators among Households of Different Family Sizes.

Family Size	Urban/Rural	Number of Refrigerators	
		One	Two or more
Upto 4	U (%)	79	21
	R (%)	87	13
	U-R	-08	08
	p value (two tailed)	0.1855	0.1855
>4	U (%)	78	22
	R (%)	85	15
	U-R	-07	07
	p value (two tailed)	0.1204	0.1204
Chi Square (df=1)		3.79	0.04
p value (chi square)		0.0516	0.8415

c) Automobile

Table A 1: Timing of Purchase.

Timing of Purchase	U (%)	R (%)	U-R	p value (two tailed)
Need	79	90	-11	0.0085
Festive season	06	02	04	0.1394
Special Occasion	15	08	07	0.0386

Table A 1 reveals that there had been significant differences between rural and urban consumers as regards to timing of buying an automobile in terms of buying at the time of need and on special occasions (X 1). Seventy nine per cent of the urban consumer and 90 per cent of the rural consumers had preferred to buy their automobile at the time of need whereas; 15 per cent of the urban consumers and 8 per cent of the rural consumers had preferred to buy on special occasions.

Table A 2 : Types of Automobiles

Vehicles	U (%)	R (%)	U-R	p value (two tailed)
S only	27	27	00	0.9832
M only	08	26	-18	<0.0002
C only	*	*	*	*
S+M	11	09	02	0.4752
S+C	23	14	09	0.0184
M+C	08	12	-04	0.1521
S+M+C	22	12	10	0.0101

**negligible value*

Table A 2 reveals that there had been significant differences between rural and urban consumers as regards to number of motorcycle only, scooter plus car, and scooter plus motorcycle plus car (X 3). Twenty six per cent of rural consumers and only 8 per cent of urban consumers had motorcycle only. Twenty three per cent of urban consumers and 14 per cent of rural consumers had scooter plus car. Twenty two per cent of urban consumers and 12 per cent of rural consumers had scooter plus motorcycle plus car.

Table A 2.1: Types of Automobiles

Vehicles	U (%)	R (%)	U-R	p value (two tailed)
S	82	62	20	<0.0002
M	48	58	-10	0.0343
C	54	39	15	0.0014

Table A 3 : Duration of Planning before Buying.

Duration of Planning before Buying	U (%)	R (%)	U-R	p value (two tailed)
Few Days	21	22	-01	0.8705
Weeks	15	17	-02	0.5405
Months	49	49	00	0.9585
Years	15	12	03	0.3565

There had been significant differences between rural and urban consumers as regards to the possession of scooters, motorcycles and cars. Eighty two per cent of the urban and 62 per cent of the rural consumers had scooters whereas; 48 per cent of the urban consumers and 58 per cent of the rural consumers had motorcycles. Fifty four per cent of the urban consumers and 39 per cent of the rural consumers had cars (Table A 2.1).There had been no significant differences between rural and urban consumers as regards to the duration of planning before buying an automobile (X 4). Maximum numbers of consumers had planned for months before the buying of an automobile (Table A 3). The structure matrix reveals X 3 as the most discriminating variable followed by X 1. The classification results reveal the correct classification of only 57.7 per cent of original and 57.2 per cent of cross-validated groups (Table A 4).

Table A 4 : Buying of Automobile (Discriminant Analysis).

S. No.	Variables	Standardized Canonical Discriminant Function Coefficients	Unstandardized Canonical Discriminant Function Coefficients	Structure Matrix	
1	X 1	0.386	0.594	X 3	0.562
2	X 3	-1.732	-1.776	X 1	0.490
3	X 4	1.862	0.828	X 4	0.136
	Constant		0.685		

Table A 5 : Purchase Timing among Different Income Groups

Income Groups	Urban/Rural	Timing of Purchase: Need	Timing of Purchase: Festival/Special Occasion
Upto 2.5 lakh	U (%)	68	32
	R (%)	88	12
	U-R	-20	20
	p value (two tailed)	0.0002	0.0002
>2.5 lakh	U (%)	90	10
	R (%)	91	09
	U-R	-01	01
	p value (two tailed)	0.8792	0.8792
Chi Square (df=1)		18.93	0.13
p value (chi square)		<0.0001	0.7184

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Table A 6 : Duration of Planning before Buying among Different Income Groups.

Income Groups	Urban/Rural	Duration of Planning before Buying Few Days	Weeks	Months	Years
Upto 2.5 lakh	U (%)	19	20	42	19
	R (%)	19	22	46	13
	U-R	00	-02	-04	06
	p value (two tailed)	0.9848	0.7039	0.5458	0.208
> 2.5 lakh	U (%)	23	10	56	11
	R (%)	27	08	55	10
	U-R	-04	02	01	01
	p value (two tailed)	0.5392	0.6426	0.9633	0.7271
Chi Square (df=1)		1.65	3.19	7.91	0.71
p value (chi square)		0.199	0.0741	0.0049	0.3994

There had been significant differences between rural and urban consumers of income group 'upto Rs. 2.5 lakh' in terms of timing of purchase. Eighty eight per cent of the rural consumers and 68 per cent of urban consumers had preferred to buy an automobile at the time of need whereas; 32 per cent of urban consumers and only 12 per cent of rural consumers had preferred to buy at on special occasions / festivals.No significant differences had been observed between rural and urban consumers of income group '> Rs. 2.5 lakh' in terms of timing of purchase. Majority of the both rural and urban consumers belonging to the select income groups had bought an automobile at the time of need. The significant value of chi square indicates that the habitant groups (rural and urban) were dependent on their income levels in terms of their purchase at the time of need. The low and non-significant value of chi square indicates that the income had no relation with the buying of habitant groups on special occasion / festival (Table A 5).There had been no significant difference between rural and urban consumers in any of the select income group as regards to duration of planning before buying the automobiles. Maximum number of consumers of both the consumer groups belonging to all the income groups had planned for few months before the buying of an automobile. The chi square had been found low and non-significant for all other durations except planning few months before buying, where it had been found significant. This indicates that the income had no relation with habitat for these durations (except few months) of planning before buying an automobile (Table A 6). In the income group of 'upto Rs. 2.5 lakh', no significant differences had been observed in terms of possession of scooter only, scooter plus motorcycle, motorcycle plus car, and scooter plus motorcycle plus car. However significant differences had been observed in the possession of motorcycle only and motorcycle plus car. Thirty four per cent of the rural consumers and only 11 per cent of the urban consumers had the possession of motorcycle only. In this income group, 19 per cent of urban consumers and only 8 per cent of the rural consumers had scooter as well as car. However no such differences had been observed in the income group of '>Rs. 2.5 lakh'. The chi square had been found significant only in case of 'scooter only', revealing no relation of income with habitat for the possession of all other combinations of automobiles (Table A 7).

Table A 7 : Types of Automobiles among Different Income Groups.

Income Groups	Urban/Rural	Automobiles S only	M only	S+M	S+C	M+C	S+M+C
Upto 2.5 lakh	U (%)	39	11	14	19	05	12
	R (%)	38	34	08	08	08	04
	U-R	01	-20	06	11	-03	08
	p value (two tailed)	0.8981	<0.0002	0.0903	0.0203	0.4734	0.0506
> 2.5 lakh	U (%)	17	05	06	30	11	31
	R (%)	07	11	11	25	21	25
	U-R	10	-06	-05	05	-10	06
	p value (two tailed)	0.0564	0.127	0.215	0.4278	0.0691	0.3892
Chi Square (df=1)		8.44	2.10	0.85	0.01	0.32	0.01
p value (chi square)		0.0037	0.1473	0.3566	0.9203	0.5716	0.9203

S= Scooter, M= Motorcycle, and C= Car.

Table A 7.1: Types of Automobiles among Different Income Groups

Income Groups	Urban/Rural	Automobiles S	M	C
Upto 2.5 lakh	U (%)	83	42	35
	R (%)	58	53	21
	U-R	25	-11	14
	p value (two tailed)	<0.0002	0.1076	0.0166
> 2.5 lakh	U (%)	81	51	74
	R (%)	68	68	71
	U-R	13	-17	03
	p value (two tailed)	0.0477	0.0224	0.7002
Chi Square (df=1)		4.73	5.47	0.52
p value (chi square)		0.0296	0.0193	0.4708

In both the income groups ('upto Rs. 2.5 lakh' and '>Rs. 2.5 lakh'), there had been significant differences between rural and urban consumers as regards to the possession of scooters. In the income group of 'upto Rs. 2.5 lakh', 83 per cent of urban consumers and in the income group of '>Rs. 2.5 lakh', 81 per cent of the urban consumers had the possession of scooters. On the other side, 58 per cent and 68 per cent of the rural consumers belonging to these income groups respectively had the possession of scooters. In the income group of 'upto Rs. 2.5 lakh', there had been the significant differences between rural and urban consumers as regards to the possession of cars. Thirty five per cent of urban consumers and 21 per cent of rural consumers of this income group had cars. In the income group of '> Rs. 2.5 lakh', there had been the significant differences between rural and urban consumers as regards to the possession of motorcycles. Fifty one per cent of the urban consumers and 68 per cent of the rural consumers had been found using motorcycles. The chi square had been found significant for the possession of scooters and motorcycles, indicating an association of habitat with income. In case of possession of cars, the chi square had been found non-significant indicating independence of habitat of income (Table A 7.1).

Table A 7.2 : Types of Automobiles among Different income Groups

Income Groups	Urban/Rural	Automobiles Two-wheeler only	CAR +Two-wheeler
Upto 2.5 lakh	U (%)	65	35
	R (%)	79	21
	U-R	-14	14
	p value (two tailed)	0.0166	0.0166
>2.5 lakh	U (%)	26	74
	R (%)	29	71
	U-R	-03	-03
	p value (two tailed)	0.7002	0.7002
Chi Square (df=1)		6.16	0.52
p value (chi square)		0.0131	0.4708

There had been significant differences between rural and urban consumers belonging to income group 'upto Rs. 2.5 lakh' as regards to the type of vehicles among households. Sixty five per cent of the urban households and 79 per cent of the rural households had only two-wheelers. On the other side, 35 per cent of the urban households and 21 per cent of the rural households had both two-wheelers as well as cars. In the income group of '>Rs. 2.5 lakh', no significant differences had been found between rural and urban consumers in terms of types of vehicles. Seventy four per cent of the urban consumers and 71 per cent of the rural consumers had both 'two-wheelers' as well as 'cars'. The value of chi square had been found significant in case of possessions of 'two-wheelers only' indicating an association of habitat with income. In case of possession of both the two-wheelers and cars, the value of chi square had been observed non-significant indicating no relation of income with habitat for such possessions of automobiles (Table A 7.2).

Table A 8 : Types of Vehicles among Households of Different Family Sizes.

Family Size	Urban/Rural	Vehicles S only	M only	S+M	S+C	M+C	S+M+C
Upto 4	U (%)	20	11	09	24	11	25
	R (%)	32	30	08	08	14	08
	U-R	-12	-19	01	16	-03	17
	p value (two tailed)	0.0625	0.0014	0.6973	0.0042	0.4539	0.0027
> 4	U (%)	34	06	12	23	06	19
	R (%)	24	23	09	18	11	15
	U-R	10	-17	03	05	-05	04
	p value (two tailed)	0.0843	0.0002	0.4485	0.3396	0.1621	0.3778
Chi Square (df=1)		1.18	1.80	0.24	6.06	1.34	6.05
p value (chi square)		0.2774	0.1797	0.6242	0.0138	0.247	0.0139

In case of family size of 'upto 4', there had been significant differences between rural and urban consumers in terms of their possessions – motorcycle only, scooter plus car only, and scooter plus motorcycle plus car. Thirty per cent of the rural households and 11 per cent of the urban households of this family size had motorcycles only. Twenty four per cent of urban households and 8 per cent of rural households had scooter plus car. Twenty five per cent of urban households and 8 per cent of rural households had scooters plus motorcycles plus cars. In the family size of '>4', there had been significant differences between rural and urban consumers in terms of the possessions of motorcycles only. Twenty three per cent of the rural consumers and 6 per cent of the urban consumers had only motorcycles. The chi square had been found non-significant in the cases of possessions of scooter only, motorcycle only, scooter plus motorcycle, and motorcycle plus car. This shows no relation of family size with habitat for these possessions of vehicles. The chi square had been significant in the cases of possessions of scooter plus car, and scooter plus motorcycle plus car. This shows an association of habitat with income in these possessions (Table A 8).

Table A 8.1 : Types of Vehicles among Households of Different Family Sizes.

Family Size	Urban/Rural	Vehicles Two-wheeler only	Car +Two-wheeler
Upto 4	U (%)	39	61
	R (%)	70	30
	U-R	-31	31
	p value (two tailed)	<0.0002	<0.0002
> 4	U (%)	51	49
	R (%)	56	44
	U-R	-05	05
	p value (two tailed)	0.4654	0.4654
Chi Square (df=1)		0.06	11.3
p value (chi square)		0.8065	0.0008

There had been significant differences between rural and urban consumers of family size 'upto 4' members as regards to the types of automobiles among households. Thirty nine per cent of the urban consumers and seventy per cent of rural consumers of this family size had only two-wheelers. On the other side sixty one per cent of the urban consumers and 30 per cent of the rural consumers had both cars and two-wheelers. In case of family size '>4' members, no significant difference had been seen between rural and urban consumers. The chi square had not been found significant for the possession of two-wheelers only, indicating no relation of family size with habitat for these possessions (rural and urban). However, chi square had been found significant for the possession of both two-wheelers and cars indicating an association of habitat with their family size (Table A 8.1).

VI. Discussion and Conclusions

Overall there have been moderate differences for television and refrigerators and low differences for automobiles between rural and urban consumers in terms of timing of purchase, buying the same brand of other durable, number of items, and duration of planning before buying. A large majority of rural and urban consumers have a tendency to buy an item in case of need. There are differences between rural and urban consumers in terms of buying of a refrigerator

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during festive season and on special occasion. In the former case, the urban consumers and in the later case, the rural consumers have the greater tendencies than their other counterparts. Similarly, there are differences between rural and urban consumers in terms of buying of an automobile in case of need and on special occasion. In the former case, the rural consumers while in the later case, the urban consumers have greater tendencies than their other counterparts.The differences exist between rural and urban consumers of income group 'upto Rs. 2.5 lakh only' in terms of timing of purchase of an automobile. In case of need, rural consumers whereas; on festive or special occasions the urban consumers have greater tendencies to buy as compared to their counterparts. This is in conformity to the findings of Shivakumar and Arun (2002) that rural consumers have a tendency to buy when necessity is felt rather than waiting for a festive season. Both rural and urban consumers have a tendency to buy the same brand of television as that of refrigerator or vice versa. Such tendency is greater among rural consumers than their urban counterparts. This is so because urban consumers have relatively greater tendency to change brands for the sake of variety and novelty as compared to their rural counterparts. There are similar trends among the rural as well as urban consumers in terms of buying the number of televisions and refrigerators. The rural households exceed urban households in terms of possession of single television or refrigerator. On the other side, urban households exceed rural households in terms of possession of two or more televisions or refrigerators. This is probably due to the income disparities between rural and urban consumers. However large majority of both rural and urban households have one television or refrigerator per household. But in the income group of 'Rs. >3.5 lakh', maximum number of urban households have two or more television sets per household. There are differences between rural and urban consumers in the income group of 'upto Rs. 1.5 lakh' in terms of possession of number of televisions and refrigerators per household. Rural households exceed urban households in case of one item (television and refrigerator) per household whereas; urban households exceed rural households in case of two or more items per household. The differences between rural and urban consumers also exist in the income group of 'upto Rs. 2.5 lakh' in terms of possession of 'motorcycle only' and 'scooter plus car' per household. In the former case, rural households and in the later case, the urban households have greater possessions as compared to their counterparts. Urban households exceed rural households among all the income groups in terms of possession of scooter. The rural households of the income group '>Rs.2.5 lakh' and the urban households of income group 'upto Rs. 2.5 lakh' exceed their counterparts in terms of possessions of motorcycles and cars respectively. The differences further exist in the income group of 'upto Rs. 2.5 lakh' and family size of 'up to 4 members' in which rural households exceed urban counterparts in the possession of 'two-wheeler only' whereas; the urban households exceed rural households in terms of possession of car plus two-wheeler. This is probably because of income disparities between rural and urban consumers. In the family size of 'upto 4 members', the differences exist between rural and urban consumers in terms of possession of 'motorcycles only', 'scooters plus cars', and 'scooters plus motorcycle and car'. In the first case, the rural households exceed whereas; in the later two cases, the urban households exceed their counterparts. In the family size of '>4 members', the differences exist for possession of 'motorcycle only', in which rural households exceed the urban households. The differences exist between rural and urban consumers in terms of possessions of scooters, motorcycles, and cars. Urban consumers have greater tendency to buy scooters than rural consumers. This is so because that the urban women and urban student go to their job place or educational institution independently and urban woman and urban girl student prefer to buy scooter. On the other side, the rural households have greater tendency to buy motorcycles than urban consumers. This is probably due to bumpy roads in the rural areas and the better fuel efficiency of the motorcycles as compared to scooters. The urban households have more number of cars than their rural counterparts. The urban households exceed rural ones in terms of ownership of 'scooter plus cars' and 'scooter plus motorcycle plus car' per household'. This is probably due to income disparities between rural and urban groups. In case of ownership of televisions among both the select family sizes; maximum numbers of rural households have one television. Maximum numbers of urban households have two or more television sets in the family size of 'upto 4 members'. However in the family size of '>4 members', maximum numbers of urban households have one television. In terms of ownership of refrigerators, both rural and urban households have one refrigerator in maximum number among both the select family sizes. Maximum number of both rural and urban households plan few days before the buying of television, few weeks before the buying of a refrigerator and few months before the buying of an automobile. However in the income group of 'Rs. >3.5 lakh', maximum number of rural households have a propensity to plan few days before the buying of a refrigerator. The differences exist between rural and urban consumers of income group '> Rs. 1.5 lakh to Rs. 2.5 lakh' only in terms of buying a television. Urban consumers exceed rural consumers and rural consumers exceed urban in terms of duration of

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planning of days and weeks respectively before buying a television. No difference exists among the different income groups of rural and urban consumers as regards to duration of planning before buying an automobile.

Habitat (rural or urban) has a relation with income for the timing of buying a television, refrigerator, and automobile except in case of buying of an automobile on festive / special occasion, where the income had no relation with habitat. An association has been revealed between habitat and income, and habitat and family size in terms of numbers of televisions per household. However in case of possessions of refrigerators, select habitant groups reveal no association with the family size of the household. The possessions of two or more refrigerators also reveal no association between habitat and income. There is a relation between habitat and income in terms of duration of planning for different time periods before the buying of a television and refrigerator. The habitat also reveals association with income in terms of planning for months before buying an automobile. No association has been observed between habitat and income in case of planning for few days, few weeks and years before buying an automobile. The habitat has no relation with income in the possessions of 'motorcycles only', 'scooter plus motorcycle', 'scooter plus car', 'motorcycle plus car', 'scooter plus motorcycle plus car', 'car', and 'car plus two-wheeler'. The habitat has been found associated with income only in terms of possessions of 'scooters only', 'scooters', 'motorcycles', and 'two-wheelers only'. The habitat has no relation with family size of the household in the possessions of 'scooter only', 'motorcycle only', 'scooter plus motorcycle', 'motorcycle plus car', and 'two-wheeler only'. The habitat bears an association with family size only in terms of possessions of 'scooter plus car', 'scooter plus motorcycle plus car', and 'car plus two-wheeler'.

VII. Managerial Implications

Since both rural and urban consumers have tendencies to buy the same brand of refrigerator as that of television; therefore, the companies can offer combo offers of television and refrigerators to both these types of consumers with greater emphasis on rural consumers. These may increase the one time expenditure of rural consumers who may find difficult to buy this offer due to income constraints; therefore, financing facilities at reasonable rates may also be provided in support of the same. Though both rural and urban consumers have the tendency to buy the same brand of television as that of refrigerator or vice versa, yet rural households have greater tendency than urban households. It is a good opportunity for the organizations manufacturing both these products. Such companies must keep track of these consumers by keeping their data base of those buy any of these two products. Both rural and urban consumers take long periods to plan before buying a high value product such as an automobile. Therefore, the marketers of such products must make rigorous follow up of such potential households through sustained communications.

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The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.
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- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

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- Not at all, take in raw data or intermediate calculations in a research manuscript.

- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

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- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

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- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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