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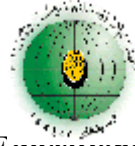
THEORETICAL FOUNDATIONS OF ISLAMIC ECONOMICS

Edited by
Habib Ahmed

*Book of Readings
No.3*



International Institute of Islamic
Thought (IIIT),
Islamabad



Islamic Educational, Scientific
and Cultural Organization
(ISESCO), Rabat



Islamic Research and
Training Institute
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King Fahd National Library Cataloging-in-Publication Data

Theoretical Foundations of Islamic Economics- edited by
Habib Ahmed – Jeddah.

192 P, 17 x 24 cm- (Book of Readings No.3)

ISBN: 9960-32-123-1

1- Islamic economy
330.121 dc

I- Ahmed, Habib (j.a.)
5532/22

Legal Deposit No. 5532/22
ISBN: 9960-32-123-1

The views expressed in this book are not necessarily those of the Islamic Research and Training Institute or of the Islamic Development Bank.

References and citations are allowed but must be properly acknowledged.

First Edition 1422H (2002)

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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Foreword

Islamic Research and Training Institute (IRTI) of the Islamic Development Bank (IDB), Islamic Educational Scientific and Cultural Organization (ISESCO), International Institute of Islamic Thought (IIIT) Islamabad and Islamic Research Institute (IRI) of the International Islamic University (IIU), Islamabad jointly organized a seminar in Islamabad on 25-27 March 2000 with two objectives in mind.

First, given the common goal of advancing the body of Islamic knowledge by the organizing institutions, the aim of the seminar was to deliberate on an important, yet relatively neglected, area in Islamic economics. In view of the nascent stage of the discipline, a good part of the earlier work on Islamic economics was focused on explaining the fundamental economic doctrines of Islam, or attempting to develop viable models for the operation of economic institutions in consonance with Islamic teachings. Not surprisingly, Islamic banking and finance received the greatest share of the Islamic economists' attention. The time now seems to have come to attend to the task of developing Islamic economics as an academic discipline. In this regard it is imperative to address the core theoretical issues of the subject as they form the foundations on which the discipline stands. The seminar was an attempt to persuade scholars from different parts of the world to address some of these pressing issues. Hopefully, this has led to some progress.

The second objective of the seminar was to generate, out of the papers read at the seminar, a Book of Readings on the "Theoretical Foundations of Islamic Economics" for use in the universities. Happily there is a growing interest to study Islamic economics and finance not only in Muslim countries, but also in many seats of higher learning in other parts of the world as well. One constraint that the educational institutions are facing in offering courses in Islamic economics is the lack of textbooks that can be used. We hope that this Book of Readings can be used to teach theoretical issues in Islamic economics at different universities across the world.

The papers presented in this Book of Readings fall in two broad areas. The first of these deals with the conceptual and *Shari'ah* related issues and the second relates to the analytical and theoretical problems. We hope that this Book of Readings will not only be useful for students of Islamic economics, but

also motivate scholars to conduct further research in this important and challenging area.

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Introduction

After the independence of Muslim nations from their colonial yokes, the later part of the 20th century witnessed the revival of Islamic institutions and polity. On the economic front, this led to, among others, the study of economic issues under the banner of Islamic economics. In a relatively short period of time, a large literature has come out on the subject. While a few countries are trying to Islamize their economies, the growth of Islamic financial institutions worldwide has been phenomenal.

The importance of Islamic economics has grown after the fall of socialism in the 1980s and the inability of development economics to alleviate poverty and deprivation in many third world countries. Islamic economic system not only stands as an alternative to the capitalist one, but it also claims to resolve the conflict between equity and growth inherent in the capitalist systems.¹ Furthermore, Islamic economists assert that the crippling debt problems affecting many developing countries and financial instability witnessed in an increasingly integrated world would be mitigated if the Islamic principles pertaining to socio-economic matters are followed (Chapra 2000b and Ahmed 2001).

Given the above, there is a growing interest to study Islamic economics and finance, not only in Muslim countries, but also in many seats of higher learning in the western world. One constraint these institutions face in offering courses in Islamic economics, however, is the lack of coherent texts that can be used. Given the nascent nature of the discipline the writings on Islamic economics have been asymmetric. While earlier work in Islamic economics focused on general issues related to the essence of the discipline, the main thrust of the later writings has moved towards Islamic banking and finance (Khan 1999). Few papers, however, address core theoretical issues of the discipline.

To fill in this gap and meet the demand from different universities, there is a need for books that examine the fundamental issues that form the theoretical foundations of Islamic economics. With this view in mind, an international seminar on the “Theoretical Foundations of Islamic Economics” was held in

¹ For a discussion on comparative analysis of the capitalist, socialist, and Islamic systems see Chapra (1992 and 2000).

Islamabad on 25-27 March 2000. The seminar was jointly organized by Islamic Research and Training Institute (IRTI) of the Islamic Development Bank (IDB), Jeddah; Islamic Educational Scientific and Cultural Organization (ISESCO), Rabat; International Institute of Islamic Thought (IIIT), Islamabad; and Islamic Research Institute (IRI) of the International Islamic University (IIU), Islamabad. One of the objectives of the seminar was to generate a Book of Readings from selected papers for use at the graduate level in the universities.

Though there are innumerable areas that need to be addressed, this book covers only a few topics. Given that Islamic economics integrates Islamic values into economics, the study of its theoretical foundations can be approached in two steps. In the first step, the philosophy, principles, and values of Islam related to economics need to be specified and understood. In the second step, these Islamic principles and values have to be incorporated in analyzing and studying specific economic problems and issues. In line with the above two steps, the contributions in this book are classified as conceptual/philosophical and analytical/theoretical. Brief outlines of papers in these parts are given below.

Conceptual and *Shari'ah*-Related Contributions

Two papers discuss conceptual and *Shari'ah*-related aspects of Islamic economics. As mentioned above, Islamic values and principles form an integral part of the philosophical foundations of the discipline. The papers in this part illuminate several important aspects of the sources and attributes of the Islamic values and principles and their relationship with the discipline. Some of the highlights of the foundational issues are given below.

- 1) The Islamic principles and rulings that form the basic parameters of Islamic economics are based on recognized sources of knowledge in Islam (the *Qur'an* and *Hadith*), *ijma* (consensus) and *qiyas* (analogy). It is the responsibility of Islamic scholars and experts (*fuqaha*) to establish these rulings for the contemporary economies and present these in clear terms.
- 2) Other than these rulings, certain Islamic concepts, maxims, and assumptions derived from *fiqh* also form an integral part of analysis in Islamic economics. For example, objectives of *Sharia'h*, assumptions of *rushd*, *israf*, *istihsan*, need to be integrated into the discipline to preserve its Islamic orientation.
- 3) Islamic economics can benefit from the body of knowledge and analysis of conventional economics. Concepts and ideas can be adopted from

conventional economics as long as they do not contradict Islamic values and principles.

- 4) The basic economic problem of relative scarcity remains in Islamic economics. The Islamic notion of scarcity, however, is qualitatively different from that of conventional economics.
- 5) The objective functions of agents in an Islamic economy would be different from those of conventional economies. Specifically, in an Islamic economy, an agent's objective would be to maximize *maslahah*. *Maslahah* is a broader concept that encompasses utility or profit with qualifications.

The first contribution is Abdel Rahman Yousri Ahmed's paper entitled "A Methodological Approach to Islamic Economics: Its Philosophy, Theoretical Construction, and Applicability". It is a comprehensive paper that covers not only the basic principles of Islam derived from its original sources (the *Qur'an* and *Sunnah*), but also outlines a scheme of developing the discipline. After giving a historical preview, Ahmed points out that Islamic economics is a distinctive blend of *Sharia'h* principles and conventional economics. In defining Islamic economics, he explains the concept of relative scarcity from an Islamic perspective. He maintains that as long as concepts and principles do not contradict Islamic principles, they can be adopted in Islamic economics. He then points out the educational and analytical aspects of conventional economics that Islamic economics can gain from. In developing the theory, he emphasizes the importance of economic history and empirical work. Ahmed then details the different stages the discipline has to go through to develop its theory. He cautions, however, that moving towards a value based Islamic system will take time.

M. Fahim Khan's paper entitled "*Fiqh* Foundations of the Theory of Islamic Economics: A Survey of Selected Contemporary Writings on Economics Relevant Subjects of *Fiqh*" discusses the Islamic rules and principles on economic issues that appeared in some contemporary literature on Islamic jurisprudence. As some of the writings surveyed are in Arabic, the paper can serve as a good source of Islamic concepts and principles for non-Arabic speaking researchers and scholars in Islamic economics. The paper starts with a discussion on the objectives of *Sharia'h*, as it forms the underlying foundations of Islamic economics. The concept of *maslahah* (preservation of the objectives of *Sharia'h*) is introduced as the objective function of individual agents in an Islamic economy. *Maslahah* is also used to clarify, among other things, the economic problem from Islamic viewpoint. After outlining the rules derived

from *fiqh* literature (legal maxims), Khan discusses other concepts like rationality, scarcity, maximizing behavior, interpersonal comparison, etc. from an Islamic perspective.

Analytical and Theoretical Contributions

The analytical/theoretical part of the book contains five papers addressing different economic issues and problems. Though the topics of these papers are varied, the main analytical/theoretical features arising from these papers are pointed out below:

1. At the micro level, an Islamic man's actions will be affected by ethical values along with mundane factors. As such, these characteristics should be included in analyzing the behavior of individual agents (consumer and producer) in an Islamic economy.
2. At the societal level, the concept of *maslahah* and classifying activities/goods into necessities, conveniences, and refinements can be used to determine the social welfare function. In cases where this is not possible, issues can be resolved through a process of consultation and consensus.
3. The analytical tools of conventional economics can be used to build and analyze theoretical models of Islamic economics. Specifically, the basic principle of marginal analysis can be used to determine choices of agents in an Islamic economy, provided the objective functions and constraints are qualified with Islamic values and principles.
4. In principle, all transactions that are not considered *haram* are allowed in an Islamic economy. Prohibitions on certain kind of transactions and behavior, however, will make the nature of an Islamic economy different from that of a conventional economy. For example, modeling *riba*-free transactions in an Islamic economy and among its agents will have wide-ranging implications in the economy.
5. While profit-sharing modes of financing are preferred, Islamic debt contracts (like *murabahah* and *bai-muajjal*) will form an integral component on an Islamic financial system and economy. These debt instruments will not only be used for credit purchases, but are also needed to develop new Islamic financial instruments.

Mabid Al-Jarhi's paper "Transactions in Conventional and Islamic Economies: A Comparison" examines the nature of transactions in an Islamic

economy and compares it with that of a conventional one. He compares the transactions costs of purchases done by borrowing on interest in a conventional economy and credit purchase in an Islamic economy. To do so, he identifies spot purchases of goods and assets as type I real transaction, a price-deferred sale of a good or asset as type II real transaction, and a price-deferred sale of a monetary asset as nominal transaction. He shows that under competitive conditions the transaction costs of a sale that includes a real transaction type I and nominal transaction (purchase of a good or asset using borrowed funds in an conventional economy) is higher than that of real transaction type II (credit purchase in an Islamic economy). With lower transaction costs in an Islamic economy, Al-Jarhi points out that there will be more resources available for consumption and investment compared to a conventional economy.

Said Hallaq's paper entitled "Individual, Society, and Social Choice in Islamic Thought" investigates the applicability of Arrow's Impossibility Theorem within the context of an Islamic society. The paper probes into the possibility of formulating a social welfare function in an Islamic economy. Hallaq classifies individual actions in an Islamic environment as *wajib* (mandatory), *mandub* (recommended), *mubah* (permissible), *makruh* (permissible but not recommended), and *haram* (prohibited). He maintains that when the choice set contains either *wajib* or *haram*, then no social choice problem exists. When the choice set, however, contains *mubah* activities then Arrow's Impossibility theorem holds, i.e., it is not possible to formulate a social welfare function based upon Arrow's axioms. Hallaq then shows that the social choice problem in an Islamic society can be mitigated by classifying activities/goods into necessities, conveniences, and refinements. When this classification is unable to resolve the social choice problem, using Buchanan's democratic choice process is suggested.

Habib Ahmed's paper "Analytical Tools of Islamic Economics: A Modified Marginalist Approach" explores the possibility of using marginalist analytical tools of conventional economics in Islamic economic analysis. Ahmed maintains that if the neoclassical tools do not contradict Islamic values and principles, then they can be adopted into Islamic economics. After discussing the importance of analytical tools in discussing the micro-foundations and developing theories in Islamic economics, the paper outlines main features of the neoclassical marginalist analytical tools. Ahmed then examines these features in the light of Islamic principles to qualify them for use in Islamic economics. He maintains that the neoclassical marginalist tools can be used in Islamic economics by integrating the Islamic values in the analysis. He outlines how this can be done by studying the behavior of a consumer and a firm in an Islamic economy.

Ken Baldwin, Humayon A. Dar and John R. Presley use contemporary theory of the firm in their paper “On Determining Moral Hazard and Adverse Selection in the Islamic Firm” to model an Islamic financial firm. The distinguishing feature of an Islamic firm is its use of profit-sharing mode to financing. After going over the contributions in contemporary theory of firm, they discuss the problems of adverse selection and moral hazard problem arising from the sharing mode of financing. They outline structure of a contract (game) where these problems can be mitigated through a punishment scheme. Implications for Islamic banks include stabilizing the returns on the deposits.

Zamir Iqbal’s paper entitled “Portfolio Choices and Asset Pricing in Islamic Framework” discusses a basic issue in financial economics by examining how the portfolio and asset allocation choices can be made in an Islamic framework. The paper maintains that while the assumptions of the Modern Portfolio Theory are compatible with Islamic principles, those of Capital Asset Pricing Model are not. Iqbal suggests designing asset backed Islamic Floating Rate Note (IFRN) from fixed-income modes of financing (like *bai-muajjal* and *murabahah*). While this proposal may raise questions from *Sharia’h* point of view, the paper introduces a model that can be used to develop IFRN². These notes can be used for financing by both private and public sectors. In doing so, the firms can create leverage and reduce the cost of its capital.

Concluding Comments

The papers in this volume include only a few topics that address some foundational aspects of Islamic Economics. There are, however, numerous topics in which research needs to be done in order to develop a comprehensive theoretical framework of a modern economy from an Islamic perspective. Clearly, more theoretical and analytical work on the economy and its agents in an Islamic setting is required. The development of theories will be irrelevant if the significance of Islamic economics to modern economies is not addressed. The ideal normative aspects of Islamic economics must have operational possibilities. To do this, Islamic economics can benefit from the developments in conventional economics.

A distinctive identity of Islamic economics, however, can only be established when Islamic philosophy and values are first comprehended and then integrated into economic theory. An important area that may be missing link

² Please see editor’s note in the beginning of Iqbal’s paper.

between theory and practice is institutional development. In this regard, Islamic economists can learn from academic discourses in New Institutional Economics and investigate topics like economics of property rights, positive political theory, institutions of governance, transaction costs theory, etc. from Islamic perspectives.³ To do so, more attention from both *fuqaha* and Islamic economists is needed on these topics.

THE EDITOR

³ For a discussion on New Institutional Economics, see Hodgson (1998) and Williamson (2000).

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**CONCEPTUAL AND *SHARI'AH*-RELATED
CONTRIBUTIONS**

Methodological Approach to Islamic Economics: Its Philosophy, Theoretical Construction and Applicability

*Abdel-Rahman Yousri Ahmed**

6. Introduction

Islamic thought in the field of Economics has ancient roots in the immense intellectual heritage that is available in *Fiqh* sources as well as literature contributed by Medieval Muslim scholars. In recent times, mainly in the latter decades of the 20th century, the revival of this thought is witnessed in “Islamic economics”, a new paradigm that has emerged and developed at a rapid pace. However, when contemporary contributions in Islamic economics are reviewed differences in concepts, assumptions, and methods of analysis among writers will be observed. Though differences in approaches and views are expected among scholars in any field, there should exist among those who belong to the same school, a consensus on the fundamental issues of the philosophy, methodology and the essence of the theoretical structure of their discipline. These basic issues, however, appear to be yet unresolved, while a consensus on them is really needed for a proper and scientific development. Needless to say that disagreement regarding the nature of the new paradigm and its methodology, if remains, would breed controversies and contradictions among Islamic economists, thus hampering the growth and progress of their science. In this paper an attempt is made to discuss and clarify these fundamental issues.

Contemporary economics is a positive secular science that belongs to non-Islamic schools of thought and philosophy. By using advanced methodology and analytical tools, it has possessed wealth of economic knowledge, theories and policies. How far Islamic economics can benefit from secular economics is also an important question. To address this question, we need to explore the relationship of Islamic economics with secular economics and identify the elements that can be adopted from the latter and those which have to be left out. To do so, it is important first to understand the nature of Islamic economics and the inter-linkages between it and Islamic legal principles

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and creed values. Once this is comprehended, a relationship with secular economics can be visualized and established on solid scientific basis.

7. Islamic Economic Science: History and Evolution

Before talking about Islamic economics and its evolution as a science, the difference between knowledge and science has to be emphasized. Knowledge is more encompassing and inclusive in meaning than science. Knowledge comprises all that which accumulate in any field of general information as well as accurate facts that are based on physical sense, material observations, philosophical contemplation or result from organized intellectual effort. Science is related only to the last type of knowledge. Science has been defined in various ways. The simplest of these is that it is refined common sense or “knowledge that has been scrutinized, purified and improved through deliberate intellectual efforts”. Another definition of science is that “any kind of knowledge that has been the object of conscious efforts to improve it. Such efforts produce habits of mind – methods or “techniques” – and a command of facts unearthed by these techniques which are beyond the range of the mental habits and factual knowledge of every day life. Science is also any field of knowledge that has developed specialized techniques of fact-finding and of interpretation or inference” (Schumpeter 1974, p.4).

The science of Islamic economics has emerged from, and built upon, Islamic economic knowledge, which is the body of knowledge established and assembled by *Fuqha* and Muslim scholars who showed interest in the economic aspects and problems of their societies. Islamic economic knowledge accumulated over many centuries extending from the beginning of Islam in the first Hijri century (7th Gregorian century). The growth of this knowledge, however, was not even. Knowledge had rapidly grown at times of social and cultural prosperity while stagnated at other times. Islamic economic science evolved over time with the growth of the Islamic economic knowledge in the fields of money, fiscal policies, trade and markets as well as financial transactions. We briefly point out some of the highlights of this evolution.

Islamic economic science developed when intellectual efforts of Muslim jurists and scholars addressed the economic problems of their communities. These scholars examined, classified, and analyzed available knowledge to find out more accurate facts on the nature of relationships between economic aspects and *Sharia'h* rules and to deduce the causes and the effects of some common economic problems. They also developed more understanding of economic and

non-economic issues.⁴ For example, Abu Yusuf (113-182H) examines the causes of price increase before giving his advice to the ruler on the pricing issue.⁵ Similarly, prior to giving his opinion on the compensation of the loss in the real value of “*fulus*” (coins made of cheap metals) he analyzes the effects of high and low prices on purchasing power in general and carefully distinguished between gold and silver coins on one hand and *fulus* on the other. Al-Ghazali (451-505H) describes the problems involved in barter exchange before explaining the benefits resulting from the use of money and describing its main functions. Understanding that the most important function of money is medium of exchange he proceeds to explain the wisdom of the prohibition of hoarding and usury in Islam.⁶ Ibn Qayim Al-Jawziya, following Ibn Taimiah, distinguishes between made and natural price.⁷ The first is set by merchants who control supply while the latter being a competitive price. Then by differentiating between the two prices he distinguishes the cases in which prices should be controlled by the ruler and those when the market is competitive and should be left free. These examples indicate that the early emergence of Islamic economics was not only based on the understanding of the economic problems within their judicial contexts, but also on intellectual efforts attempted to understand and find out the causes and the effects of these problems and lay down rules or foundations before treating them.

*Ijtihad*⁸ in Islamic economics reached pinnacle in the 7th and 8th Hijri centuries (14th and 15th Gregorian centuries). During this time, prominent scholars like Abdulrahman ibn Khaldun (1332-1466) and Taqie Aldin Al-Maqreezi (1364-1416) viewed and interpreted the economic phenomena within historical and social contexts. Ibn Khaldun provided the principles and rules that explain how the economic problems change in nature through different stages of human civilization and analyzed the main reasons affecting growth of output and population taking into consideration Islamic *Sharia'h* and creed. Al-Maqreezi submitted his interpretation of the hyperinflation which he witnessed in Egypt by drawing reasons from historical and current events. After this period, Islamic economic thought experienced a dormant stage for many centuries which was reflected in scant contributions in the field. This created an extensive intellectual gap and it appeared as if *ijtihad* was closed forever. The

⁴ See Siddiqi (1982) and Yousri (2000), Chapters 4-8.

⁵ See Abu Yusuf (1979).

⁶ See Al-Ghazali (undated).

⁷ See Ibn Qayem Al-Jawziya (undated, p. 354) and Yousri (2000, pp.76-78).

⁸ *Ijtihad*, translated as independent reasoning, is the process of arriving at new rules from the recognized sources of *Sharia'h* (Islamic Laws).

20th Gregorian century, however, witnessed the reemergence of Islamic economic thought and science when serious attempts were made to revive it. It is during this time that the term of “Islamic economics” emerged and used to describe this discipline.

The emergence of Islamic economics as a new discipline was undoubtedly motivated by the intellectual progress in secular schools of economics during the 19th century. The new discipline resonated two attributes. On the one hand, it was an expression of the historical Islamic heritage and on the other hand, it was a reflection of a desire to understand economic issues and problems of the Muslim World on modern bases. In other words, Islamic economics attempts to analyze the causes of economic problems and issues and arrive at practical solutions that suit modern Islamic societies within the context of Islamic law and values. This development is a part of modern Islamic movements aiming to revive *Sharia'h* in all walks of life and to preserve the Islamic identity.

The Muslim World suffered during the 19th and the first half of the 20th centuries from several events and strokes that triggered off modern Islamic movements. The most perilous stroke was the military, political and economic colonization of most of the Muslim world in Asia and Africa by the European powers. During this period, the Ottoman Empire, weak and disintegrated, not only collapsed but also its center (Turkey) fell in the hands of militarists and secularists. In the first half of the 20th century the world witnessed two world wars and a serious economic crises (1929-33). Though the two major wars and the severe economic depression affected the world including Muslim countries, they weakened the European powers and led to the independence of their colonies everywhere. The newly independent Muslim countries showed their keenness to restore their original identity which colonialism had certainly affected. Another event that affected the Muslim world was the emergence of a socialist state in Russia in 1917. This state was a catastrophe to the neighboring Islamic countries as it imposed its will on them by force. However, its engagement in a cold war with the Western capitalist countries that controlled the wealth of most of the Islamic world helped the latter indirectly at economic and political levels. All these events aroused a spirit of challenge in the Muslim world particularly among thinkers and leaders of the new Islamic movements who, on the economic front, wanted to rehabilitate Islamic economics in both thought and practice to achieve independence and progress for their people.

2.1. Islamic Economic Science: Definition, Essence and Nature

As a first step, we need to define Islamic economics. Taking the dictionary or linguistic definition will not help us. The meaning of the word “economics” given by most famous dictionaries is quite general and the adjective “Islamic” will not make it clear but rather more ambiguous. An operational definition which entails the precise nature and essence of Islamic economics and the use of the words in a specific sort of way is necessary. The meanings of words used in this definition would reflect what is conceived by the definer who would normally have to assert specific concept of the discipline because it is different or new concept.⁹

Islamic economics has been defined in various ways. Some of the definitions have followed the spirit of conventional economics in their emphasis on the central problem of “relative scarcity” and its logical sequences but within *Sharia’h* constraints. In other definitions conceptions and expressions are taken from the *Qur’an* and *Hadith* to assert particular nature to consumption, production earnings and social justice and to confirm the Islamic choice and orientation of the discipline. For example, the expression of “the pure and clean permissible sustenance” has been used instead of commodities, or the term of “the permissible sustenance” for real income, or “land utilization and development” instead of the exploitation of the natural resources.¹⁰ Methodologically, one must explain the meaning of every word used in the definition as long as it has a terminological dimension. Specifically, Islamic terminologies must be explained clearly to a modern reader.

The concept of relative scarcity is important and has to be included in any modern definition of Islamic economics. Yet it has to be clearly explained according to Islamic values. By doing so, we are not imitating secular economic science, but wisely benefiting from its accumulated wealth of knowledge. This is the essence of wisdom that Muslims are ordered to seek.¹¹ Any disagreement on “relative scarcity” as the prime cause of the economic problem will not only deprive us from developing the new discipline scientifically but will also deviate us from meanings mentioned in the Holy Book of Allah the Almighty.

⁹ See Simon and Burstein (1985, pp. 13-14).

¹⁰ "He asked you to develop the land" (*Qur’an* 11:61). See Al-Razi (Undated).

¹¹ Wisdom in Hadith of the Prophet (PBUH) is like a special precious thing which the believer should do his best to search for, find and to acquire from any source at any time. (Meaning of *Hadith* Ghareeb-Reported by Al Khatabi and others).

Relative scarcity as an objective concept in pure scientific sense expresses an actual fact in our world, namely that means of satisfaction i.e. (goods and services) are scarce in relation to people's needs in a given period of time. Or it expresses the scarcity of available factors of production in relation to needs to produce goods and services in a given period of time. Relative scarcity has been used in conventional economics to clearly specify the economic problem and then accurately define this science. Before this concept was introduced, definitions put forward for economics were related to one aspect or another of the economic problem or to different aspects without linking them together. For example, Adam Smith conceived that economics (political economy) is concerned with factors that affect the growth of nations' wealth. Though like other members of the classical school after Smith, Ricardo regarded growth of output is the main target, he concentrated in his definition of economics (political economy) on factors that determine the distribution of output. These factors are the main determinant of output growth in his analysis. Marshall viewed the main concern of economics (pure economics) to be how income is earned and spent.

A definition of economic science that embraces the relative scarcity concept, as given by P. Samuelson, is "Economics is the study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities and to distribute them for consumption, now or in the future, among various persons and groups in society".¹² This definition links all the aspects of the economic problems including production, distribution, consumption, and growth in the future. This definition also emphasizes the necessity of the best possible exploitation of economic resources since they are scarce relative to unlimited wants. This is an important point for the society in order to obtain the maximum quantity of goods and services that can possibly be produced in any given period of time, i.e. maximum possible level of economic welfare.

This concept of 'relative scarcity', from an Islamic perspective cannot be rejected just because it was discovered and promoted by the conventional economists. In fact the logic of this concept of relative scarcity has been indicated in the *Qur'an* centuries before conventional economics. However, before presenting the *Qur'anic* evidences concerning the concept of relative scarcity, this should be clearly distinguished from 'absolute scarcity' or what Ricardo called niggardliness of the nature. Besides, relative scarcity as understood from verses in the *Qur'an* is unique and has a theological meaning which although is different from the secular one but it explains well the cause of

¹² See Samuelson and Nordhaus (1985, p.4).

the economic problem. Let us contemplate the meanings of some of the *Qur'anic* verses to emphasize the origin of the Islamic interpretation of relative scarcity.

(19)

(21)

(20)

(*Qur'an*, 15:19-21)

[Meaning: “And the earth We (i.e. Allah) have spread out and have placed therein firm mountains, and caused to grow therein all kinds of things in due proportion (19); And We have provided therein means of living, for you and for those whom you provide not (i.e. other living creatures) (20); And We send it not down except in a known measure (21).]

The meanings of these verses as explained by various eminent Muslim scholars¹³ mean that (I) Allah who created the earth, has made it stable and suitable for us. By His Will plants and trees grow and produce all kinds of things in due balance; (ii) these natural resources Allah have made in them suitable means of living for mankind and for other living creatures that He created and He cares for their sustenance; (iii) the verses 19 and 20 inform us that Allah has created every thing in sufficient amounts to sustain all living beings, including mankind. Thus no body can talk about scarcity as such, i.e. absolute scarcity. However the meaning entailed in verse 21 is quite important as it entails the philosophical base of “relative scarcity”. Following Imam Razi (undated) all possible and potential means of living can only be realized by the Will and the Power of Allah. What Allah has destined for mankind to live on this earth is infinite” which is consistent with Him but what creatures on the earth get at any period of time is finite or limited to be consistent with the nature of our world and limited span of life. Another interpretation of verse 21 “All the wonderful gifts and energies we see in the world around us have their sources and fountainheads with Allah, the Creator and Sustainer of the worlds. And what we see or perceive or imagine is just a small portion of what exists. That portion is sent out (made available) to us and to our world according to our needs or its needs from time to time as the occasion arises. It is strictly limited according to rule and plan (of Allah). Its source is unlimited and inexhaustible”.¹⁴

¹³ See Al-Razi (undated) and Ibn Kathir (undated).

¹⁴ The Holy *Qur'an*, English translation of the meanings and commentary, p.715, Revised & Edited by the Presidency of Islamic Researchers, Ifta, Call and Guidance (Undated).

The point concerning the essence of relative scarcity should have become quite clear now. To simplify in economic language, the 'stock' of natural resources which are suitable to produce all means of living have been created in abundance, but the "flow" of actual means of living obtained from these resources at any given period of time to people is not abundant by the Will of Allah. This is His Wisdom. To make this concept more comprehensible let us examine other related verse the Qur'an

"
"
(*Qur'an* 42:27)

[Meaning: If Allah were to enlarge the provision for his servants, they would indeed transgress beyond all bounds through the earth; but He sends (it) down in due measure as He pleases. For He is with His servants well-acquainted, watchful.]

This verse means that if Allah were to enlarge the provision for the people whom He created to worship Him, they would indeed transgress beyond all bounds in this world. Thus He allows provision for them in due measures as He wisely estimates suitable for them, He knows people better than they know themselves and He sees them anywhere in this world. Some commentators explain that the enlargement of the provision and sustenance, mentioned in this verse means giving man more than his "needs". This excessive provision, according to them, will make him tyrant and transgressor. This interpretation goes rightly with what has been mentioned above, if by the word "man" mankind is meant. But we should be careful in applying it at the micro level. Man's needs, according to a *hadith* are not standardized to be equal for every one. Individuals differ in motivation, behavior and in their desires and ability to control them. It is Allah alone, however, who has perfect knowledge of what is rational for every one. Thus he expands or contracts provision accordingly for the interest of those who worship Him to guide them to the right path. This is mentioned in a *hadith qudsi* in which the Prophet (PBUH) mentions that Allah says: "Some of My worshipers are only reformed and best fitted with poverty and if I to enrich them this will spoil them, and some of My worshippers are only reformed and fitted with richness and if I to impoverish them this will spoil them". When man is left with his own choice to specify and satisfy his needs according to his desires he would expand them as much as possible. This is reflected in Allah's description of the nature of man as:

(*Qur'an* 100:8)

[Meaning: he is violent in the love of wealth]

and also:

(*Qur'an* 3:14)

[Meaning: Beautified for men is the love of things they covet; women, sons, heaped-up hoards of gold and silver, horses branded (for blood and excellence), wealth of cattle and well-tilled land.]

There is a divine wisdom inherent in the limitation of sustenance. Since man is unable to satisfy his unlimited wants according to his natural desires, in any given period of time, he will continuously work utilizing natural resources to produce more. In this pursuit of livelihood to meet his wants Allah tests his faith as is evident when He says:

(*Qur'an* 18:7)

[Meaning: that which is on the earth as an adornment for it in order to test them people as to which of them is best in deeds.]

2.1.1. A Proposed Definition of Islamic Economics

From the above discussion, it is clear that the concept of 'relative scarcity' has to be an integral element of any definition of Islamic economics. As such, Islamic economics can be defined as follows:

“Islamic economics is the science that studies the best possible use of all available economic resources, endowed by Allah, for the production of maximum possible output of *Halal* goods and services that are needed for the community now and in future and the just distribution of this output within the framework of *Sharia'h* and its intents”.

Certain words and expressions used in the definition needs clarification. Firstly, the theological dimension in the definition is emphasized by some expressions such as “Available resources endowed by Allah”, “*Halal*” goods and services”, just distribution of output, and “within the framework of *Sharia'h* and its intents. Secondly, note that the term ‘scarce economic resources’ used in the definition of conventional economics has been replaced by ‘available economic resources’. This change is done in order to reveal any misunderstanding that may arise with some Islamic writers because of describing “resources” as scarce. Relative scarcity is admitted on Islamic

grounds, as explained above, and the expression of “available resources”, by any means, does not deny it. Production of maximum possible output of goods and services that are needed by the community; in the definition, implies that available resources are not enough to produce an output which would meet all the needs of the community. This is the essence of the concept of relative scarcity.

Halal goods and services are those which are permissible by *Sharia'h*. This is to confirm that economic resources that endowed by Allah are to be only used for the satisfaction of needs which He allows. “Justice” comes at the top of *Sharia'h* tenets. Thus “a just distribution” of output should figure in any definition of Islamic economics. The expression ‘within framework of *Sharia'h* and its intents in the definition has many implications;

- (i) as we have just mentioned only *halal* goods and services will be produced,
- (ii) all economic activities will take place through contracts and transactions that are permitted by *Sharia'h*,
- (iii) the distribution of the output among Muslims will be in accordance with the requirements of ‘justice’ in *Sharia'h* and its intents¹⁵
- (iv) satisfaction of future needs i.e. growth of output, will take place within the limits of best exploitation, maintenance and development of all kinds of resources.

The expansion of needs due to the growth of population and their requirements will be met by continuous efforts to make better use of available resources in order to always ensure the strength and happiness of the Muslims.

It is also possible to define Islamic economics as “the Science which searches in the best possible use of human productive capacities and all resources, natural and man-made, in the manner that would yield maximum

¹⁵ A just distribution of output in Islam does not mean equal distribution as some forms of socialism suggest. It does not also mean adopting progressive tax systems etc. as in some free market economics. See: Munawar Iqbal (editor) "Distributive Justice and Need Fulfillment in an Islamic Economy", IIIE, International Islamic University, Islamabad (Undated). Also, Chapra, U, "Islam and The Economic Challenge," The Islamic Foundation, Markfield, Leicester, U.K., 1990.

possible *halal* earnings at present and in future, distributing and spending these earnings within the framework of *Sharia'h*". This definition is derived from a *hadith* of the Prophet (PBUH) that no one's feet will be allowed to move on the Day of Resurrection before having been questioned about four matters, one of these being: 'how he earned his income and how he spent it'. The other three questions are not less important (how he used his lifetime, how he spent his youth and what he did with knowledge bestowed upon him).¹⁶

8. The Distinctive Blend of Islamic Economics

While Islamic economics is based on *Sharia'h* and Islamic creed, it does not deny existence of common issues shared with conventional economics. However different views about this relationship exist. At one extreme, some contemporary Islamic scholars and jurists believe that *Sharia'h* principles and values related to economic transactions constitute the sum of the Islamic economic science. This approach cannot be accepted. It is just like saying that conventional economic science is a collection of laws, customs, and the moral practices that govern economic activities. In fact, the economic problem is distinct and cannot be analyzed or solved by *fiqh* rules. It is the economists' role to discover means and tools that are suitable to analyze this problem and to find out its cause(s), consequences and solutions in practical life. At the other extreme, Islamic economists who have been profoundly influenced by conventional economics believe that Islamic *Sharia'h* and values constitute a general framework which is directly relevant to Islamic economics only in few specific matters, such as *zakat* collection and *riba* prohibition. Otherwise this framework is completely neutral to economic analysis. As a result there is no need, in their opinion, to widen the gap between conventional and Islamic economics (except for the known issues of *zakat* and *riba*). This opinion cannot also be accepted as Islamic *Sharia'h* and values involve many other economic issues and not only *zakat* and *riba*.

The reality, however, is that Islamic economics is neither *Sharia'h* science nor is it a modern secular science with some major or minor exceptions. Islamic economists have to learn how to be committed to the Islamic legal frameworks as given by *Sharia'h* rules, how to take into account and inject the meanings of Islamic creed values, in their analysis and at the same time how to leave the doors open to benefit from conventional economics whenever possible. We explain how this distinctive blend of Islamic economics can be arrived at in a two-step approach below.

¹⁶ *Hadith* is reported by Al- Bayhaqi and others and narrated by Al-Turmidi from *hadith* reported by Abu Barza, that he considered sound.

9. *Adherence to Sharia'h Principles in Economic Analysis*

As mentioned above, it is incorrect to equate *Sharia'h* principles and values concerning economic transactions with Islamic economics. The *Sharia'h* rules serve as the governing principles and form the framework that bound us. We cannot overstep these principles by changing them, using our intellect to suit our purposes. Consequently, we must understand how to adhere to this framework in Islamic economic analysis.

The correct scientific approach entails transforming the *Sharia'h* principles and religious motives into axioms. That can be taken as binding in studying a problem or a phenomenon. That is, we can depend on our intellectual abilities and practical experiences to use these axioms in studying and analyzing the practical issues and problems in economics. A few examples will clarify this approach.

While studying the behavior of the Muslim consumer, there are some *Sharia'h* guidelines that would form the axioms. The food, drinks, and clothes prohibited by *Sharia'h* must be excluded from the consumer's feasible set of commodities. Some other matters have to be treated on basis of *Ijtihad*. For example, a rational Muslim consumer must not be either extravagant or miser as Allah Almighty says:

(*Qur'an* 25:67)

[Meaning: those who, when they spend, are not extravagant and not niggardly, but hold a just balance between those (extremes).]

Here, there is a job waiting for economists to formulate clear economic concepts for both extravagance and niggardliness by *ijtihad*. Once these concepts are clearly specified, they will help in formulating postulates that we have to adhere to them when analyzing the rational behavior of the Muslim consumer.

Another example is the prohibition of usury. This indisputable postulate comes from Allah Almighty's saying:

(*Qur'an* 2:275)

[Meaning: but Allah has permitted trade and forbidden usury]

In order to depend on this verse in economic analysis, we must not open the door for personal opinions or whims. We must set a clear objective economic concept that takes into consideration the practical forms of usury that are known in our time. Once this is done, we can form a postulate concerning usury to analyze financing problems and the monetary transactions on Islamic grounds.

3.2 The Scope and Limits of Benefiting from Conventional Economics

The next step is to examine the relationship between Islamic economics and conventional economics. The basic rule in this regard is that any interpretation presented by the conventional economic theory that are based on postulates or axioms derived from secular morals or values contradicting (partially or completely) Islamic *Sharia'h* and values cannot be accepted or adopted in Islamic economics. A few cases are discussed for clarification.

The first example is the Marxist theory and its modern extension (neo-Marxism). This theory is basically founded on 'materialism', i.e. that the matter is the original or the basic factor in interpreting behavior, civilization and historical development of mankind. The pure material factor is recognized as the only independent variable while any ethical values, religious ideologies or other factors are dependent variables. Ethics and religions in Marxism are not denied but their existence is dependent on human needs and production efforts to realize material targets. Religions and ethics are "man made" and their development goes in different direction with material civilization. Thus as man becomes more civilized and conscious he becomes less and less keen to keep religions and ethics that he created in his visions at an earlier stage of unconsciousness. This Marxist philosophy is utterly against the Islamic creed. Thus it is rejected and cannot be directly benefited from in constructing an Islamic economic theory. The only useful remark which can be taken from the Marxist analysis is that when the people conduct their life on purely materialistic bases, and create their own religion, they are bound to be greedy and exploitative if they are the domineering class in the society. On the other hand, they are apt to accept subordination if they are belonging to the working class. There must be an inevitable class struggle and a bloody revolution at the end carried by the subordinates i.e., the exploited workers against the domineering or the exploitative class.¹⁷ Here Marx unconsciously describes the conditions of the society that is formed by people who worship matter and which would be naturally divided between tyrants and subordinates. In the

¹⁷ See Ekelund and Hebert (1990), pp.264-266 and 278-280.

Qur'an both tyrants and their subordinates are promised to end in the hellfire in the hereafter as they both have gone astray in the world.¹⁸

Secondly, consider examples from theories that emerged in the capitalist societies within the context of the market economy. These theories were formulated by western economists who did not deny in general the role of religious values or institutions in influencing the economic behavior. Some of these economists have gone further to include religious motives, moral values and institutions in their theories. For example Adam Smith in his “Wealth of Nations” adhered on these human motivations which he explored in his “Theory of Moral Sentiments” in explaining how individuals by seeking their self-interests achieve the public interest. Due to these theological bases, some commentators call invisible hand ‘God’s invisible hand’ (Ekelund and Hebert, 1990, pp.100-103).

Another example can be taken from Max Weber to show how Christian theology and moral values have been injected in theories. Max Weber in “The Protestant Ethic and the Spirit of Capitalism” explained how the Christian reforms and the emergence of the new Protestant ethics have implied important changes in earlier catholic concepts against love of wealth and permissibility of its accumulation. The early Christian fathers treated all worldly treasures as superfluous in the Kingdom of God that is near at hand. Efforts to accumulate these treasures were regarded as an impediment to the attainment of this heavenly kingdom. Weber explained how Protestantism has made it permissible to individuals to work and accumulate wealth as long as this would benefit the others and would not entail any injustice to them. Individuals, however, have to be moderate in their consumption even though their wealth is growing. Accordingly, incomes and wealth were growing but consumption was constant or not growing by the same rates and consequently savings and investment grew at high rates. This is why capitalism had strongly emerged in the European countries that adopted Protestantism before the others which remained tied to the conventional Catholic thought.

Most of the scholars of the western economic school, however, did not include the religious and moral values in their analysis and theories. There were deliberate attempts to exclude the religious creed and the moral values from the economic analysis. Some scholars believe that conventional economics achieved scientific success by being isolated from religion and ethics. The neo-

¹⁸ The *Qur'an* (2:165-167) is very clear on this issue. Also in a *hadith*, the Prophet (PBUH) says (Sahih Al-Bukhari, Vol.6, *Hadith* No. 24) ‘Whoever dies while still invoking anything other than Allah as rival to Allah, will enter Hell (Fire)’.

classical school exaggerated its intellectual abstract stand to promote pure economic laws. But by doing this and claiming scientific neutrality, economics detached itself from other phenomena that are closely linked to it in practice. In this process, the human character is distorted and degenerated. Man is looked at as a mere economic creature that consumes, produces, obtains his share from production on purely material bases emanating from seeking his self-interest.

Methodologically, the postulates/axioms/assumptions on which the western economic theories based are either completely or mainly invalid to Islamic *Sharia'h* and values. Consequently, the interpretations of economic behavior and variables emanating from these theories are generally speaking unacceptable in Islamic economics. Yet this does not mean that doors should be closed from possible benefit from positive conventional economics. We have seen from the few examples given above that there is a possibility to benefit from the secular theory sometimes even though it may be in itself totally rejected on Islamic grounds. The areas where Islamic economics can benefit from conventional economics should be exploited, provided that this is done in a proper manner. In the context of scientific approach, the gains that may be achieved from conventional economics may be classified into educational and analytical gains.

3.2.1. Educational Gains

The educational gains would be obtained by reviewing conventional economic theories to know how they have developed in response to economic problems that transpired over time. It would be interesting to examine how these problems were discussed in the context of assumptions/postulates that reflect the secular philosophy on one hand and prevailing conditions in practice, on the other. If this is understood, then we can get some ideas of how to analyze and offer solutions to economic problems that we face today from an Islamic perspective.

Another way to benefit from conventional economics is to understand the relationship between the assumptions/postulates given in any theory and the underlying secular philosophy. Understanding this relation can be used to develop Islamic economics. Postulates/assumptions whose philosophical base or practical background do not conform with Islamic principles and values will be rejected. Other postulates/assumptions of different character or background, whose base do not contradict Islamic values may be qualified, adjusted or accepted whenever useful. Couple of examples will clarify this point.

Marx's explanation of human behavior and history within the context of dialectical materialism is totally rejected by Islam. Given the postulates of this

model, capital accumulation occurs at high rates reflecting the greedy character of the capitalists. They keep wages at their lowest limit (subsistence level) while asking for more working hours to maximize their surplus value (i.e. profit). This surplus value is the right of the working class. Capitalists invest profit in a manner that mechanizes the production process, reduces labor and thus lower wage costs, giving them more surplus value and savings. Due to continuous replacement of labor by machines, more and more workers become redundant and unemployed. On the one hand there is technological progress, growth of capital, production and income in the society and on the other hand the distribution of income continuously worsens against the workers and in favor of the capitalists. Thus while production grows at a fast rate, consumption is depressed by the continuous decline in the income share of the workers. A stage would finally come when the unemployed masses revolt and take over (restore) the means of production that reflects the value of their labor. The capitalist system collapses.

The Islamic values do not conform with this capitalist selfishness or greediness and the consequent inequality in income distribution. But the Marxist conclusion that the workers are the sole owners of capital is also rejected. Despite this, there are things that can be learnt from this theory that predicts the results of an ultra-selfish materialistic behavior of one group (i.e. capitalists) on the interests of the whole society. In this Marxian theory, class struggle in the form of confrontation between the exploiting capitalists and the exploited proletariat is a core issue that gradually disintegrates the society and finally leads to its destruction. From an Islamic perspective, this analysis can be used to demonstrate the importance of tolerance, brotherhood and rational conduct which should be based on balancing material worldly needs with the spiritual human requirements. In the *Qur'an*:

(*Qur'an*

24:37)

[Meaning: By men whom neither trade nor sale can divert them from the remembrance of Allah, nor from regular prayer, nor from paying *zakat* their (only) fear is for the Day when hearts and eyes will be turned about.]

This verse shows how Allah SW praises those men whom neither trade nor business can divert them from the remembrance of Allah or from regular prayer, or from the practice of giving *zakat*. Their apprehension is for the Day

of resurrection when people's hearts are restless and their eyes will be overturned out of fear. In another *Qur'anic* verse Allah Almighty praises those who say:

(*Qur'an* 2:201)

[Meaning: our Lord! Give us good in this world and good in the hereafter]

In any Islamic oriented growth theory these tenets should be reflected in postulates, knowing that deviation from them will lead to social disintegration. Marx's analysis has proved that his version of dialectic materialism is only consistent with a non-Islamic society that is inevitably destined to destruction.

Another example can be taken from Adam Smith's analysis of how the society's interest is achieved through individual efforts to seek their own self-interest. As mentioned, this forms the essence of the "invisible hand". Smith's analysis depends on postulates concerning the individual's moral sentiments like self-interest, and desire to accumulate wealth, kindness to others, love of work, desire to produce and exchange products. Smith tried to distinguish self-interest from "selfishness". Yet they may be just the same thing quite often unless we stress upon selflessness which Islam, however, advocates before self-interest, Islam emphasizes on "love" in business, and not only in social relations, while organizes transactions between the individuals on basis of justice. Islam does not discourage wealth and its accumulation as long as this is done by permissible means and dues (rights) of the poor and deprived people are paid out of it regularly. One way to gain some educational benefit from the Smith theory is to modify or replace its postulates with Islamic ones (e.g. selflessness instead of selfishness, desire to work and accumulate wealth from permissible sources only not purely for self-interest but also to help the others and spend periodically on the poor and the needy). Analysis can then be undertaken to see the effects of these modifications or changes on the theory's predictions.

Similarly, Weber's analysis of the correlation between the spread of Protestant ethics in Europe and the emergence of capitalism (*The Protestant Ethic and the Spirit of Capitalism*, 1930) may appear irrelevant from an Islamic perspective. However this theory also offers us ideas from which we can benefit. The factors that lead to the growth of output in Weber's analysis are increase in savings and investment due to religious motives, namely hard work and permissibility of accumulating wealth on one hand and virtue of moderate consumption on the other hand. One can find similar motives in Islamic economics despite theological differences of the principles that nurture these motives in Islam.

Islamic economics can also benefit from conventional economics by adopting some of its concepts and relations without deviation from Islamic principles and values. These economic concepts and relations are “similar to laws in pure sciences”. Among these are diminishing marginal productivity, the direct relation between price and supply and the inverse relation between price and the quantity demanded. It must be noted that Muslim scholars have discussed and explained some of the demand and supply concepts in some details before they were incorporated into conventional economics. We also find that Ibn Khaldoun (1332-1406) had explained the affects of division of labor on output in details about four centuries before Smith (1723) did. Another example is the relationship between quantity of money and price level. This phenomenon was analyzed by Al-Maqreezi (1364-1441G) centuries before the Mercantalists and the Neoclassics presented in theoretical form in the late nineteenth century.

3.2.2. Analytical Gains

Islamic economists can also benefit from studying the analytical art used in conventional economics. This art includes techniques or tools that relates to the development of skills and experiences in the ways of dealing with different economic problems, i.e. their classification, analysis, and how to measure variables. Examples of this art is the division of the economic phenomena into micro and macro, distinction between the stock and the flow, independent and dependent variables, and between endogenous and exogenous variables, etc. The analytical techniques include also the use of mathematics and statistics (quantitative analysis) to arrive at more accurate results. It is noted that these analytical techniques are ‘neutral’ by their very nature and they do not meddle with the concepts, assumptions/postulates or in formulating the hypotheses (explanatory rules). To learn these analytical techniques and to develop the ability and aptitude of using them, students of Islamic economics have to go through recent research works in conventional economics.

10. Formulation of Theory in Islamic Economics: Its Pre-conditions and Construction

All that has been mentioned above about adhering to *Sharia'h* rules and Islamic values when dealing with any economic problem on one hand, or when getting help from some conventional economic analytical tools and theories on the other hand, is essential for research in Islamic economics but not sufficient. An Islamic economic theory is indispensable for comprehensive economic analysis as well as for making sound economic policies. In fact, theory in any

discipline plays the most important role in its development. Islamic economics cannot develop a unique identity without having specialized theories capable of giving acceptable interpretation to different phenomena and discovering the causes of the problems that face the Muslim society.

Formulation of the economic theory is not an easy task. Conventional economic theory has evolved within certain philosophical contexts over a long period of time in response to economic problems and their development. The theory has also advanced with the development of analytical tools and through the contributions of many scholars and thinkers. It has not been possible for any one economist to formulate alone a theory which can resist the continuous changes in economic life or which can remain without qualification while analytical experience in the discipline advances. It is true that some scholars like Smith, Ricardo, Marx, Keynes, Hicks and Friedman had pioneering contributions to economic theory. But these contributions have been used later by other economists for more advanced theories while originally themselves were part of historical process linked to previous ideas and heritage of scientific thought. Although we need theories in Islamic economics, we have to be patient in developing them. It is a long run task as it has to go through different phases. An outline of these phases is given below.

4.1. The Preconditions

Though the formulation of the Islamic economic theory may be a long process taking a long time, we can outline in the following some preconditions governing it.

11. **The Availability of *Mujtahideen* (plural of *mujtahid*):** The existence of the *mujtahideen* is a necessary condition since no progress can be made without them. They are the gifts of Allah to the Islamic community. Doors will be opened for scientific progress as the number of *mujtahideen* increases. To contribute to Islamic economics, *mujtahideen* must have two sorts of knowledge.¹⁹ On one hand, they must have complete comprehension of the principles that rule all economic aspects, directly or indirectly, in the *Qur'an*, and *Sunnah* as well as full knowledge of the contributions of the preceding Muslim scholars and jurists. On the other hand, they should have the knowledge of conventional economics to derive

¹⁹ In this article I am depending on my definition of *mujtahid*, rather than the conventional Islamic one which will, in my opinion, make difficult, if not impossible to perform the role of *ijtihad* in Islamic economics.

elements that comply with *Sharia'h* principles and values. The *mujtahid*, in principle, is a scholar who is capable of introducing independently “new rules” or ideas that benefit the Muslims, in certain areas, places of times, but should necessarily be in conformity with original *Sharia'h* rules. Islamic economics will progress at a fast pace if *mujtahideen* are real renovators and not imitators.

2) **Favorable Islamic Climate:** The Islamic cultural, social, and political climate that guard, facilitate, and encourage the *mujtahideen* to produce new rules and ideas and develop scientific research is a necessary condition for true progress in Islamic economics in the long run. It is expected that the work in this area will not be supported or admired by those who have adopted western philosophy, culture and accepted secular systems. However the cultural and social climate must be favorable to Islamic education at all levels, and to research in Islamic economics. Islamic economics must be given due attention in the universities academic requirements and researchers should be encouraged to contribute in this new discipline. Such an environment will enhance the contributions of competent *mujtahideen* and lead to an increase in the number of sincere, faithful, and competent researchers in Islamic economics.

12. **Islamic Economic Experience:** The emergence and the growth of an Islamic economic experience, whether at the micro or macro level, is an important requirement that complements the two previous preconditions. Experience is the essence of empirical or positive science. Contemporary conventional economic theory is positive. A positive theory must be verified or tested in practice to assess its validity. This task requires collection of data on the specific economic problem or phenomenon that the theory claims to explain through its “hypothesis”. Modern Islamic economic experience, however, is scant. At the macro-level, only three Islamic countries (Pakistan, Iran, and Sudan) have announced their goal to fully implement an Islamic economic system. The implementation of this goal is, yet, incomplete.

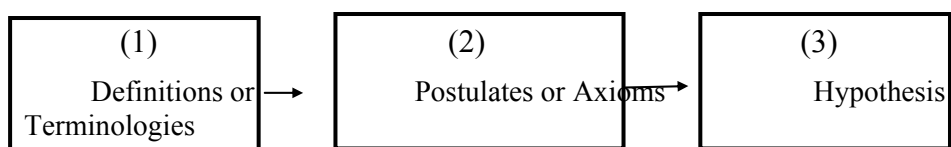
It has been argued that “the Islamic economic experience” is a necessary condition for building an “Islamic economic theory”. The exponents of this opinion are influenced by modern empirical conception of science. Whereas no one can ignore the scientific significance of empirical research, we cannot ignore the importance of the deductive method and its known role in the development of the economic theory. According to Simon and Burstein (1985),

deduction can be extremely useful method for improving our understanding of the world particularly in two situations. The first is where we believe we know the logic of some phenomenon, but have little information about it, and the second is where we have some information about something and we cannot make much sense of it (Simon and Burstein 1985, pp 196-197). The deductive method can play a very important role in the formation of an Islamic economic theory at the present stage where we have scattered Islamic economic experiences and very little information about them.

To emphasize, this does not mean that we are excluding experience in our methodology. Islamic economic theories will ultimately have to be verified on the bases of actual experience. But at the same time it is not wise to postpone the theoretical formulation of an Islamic economic theory until we can conduct empirical studies. In fact, developing this theory by deduction taking into account the Islamic ethics and rules will extremely help us to identify ‘what ought to be’ and the ways to reach targets.

4.2. Steps

Scientific theory in the field of economics (and in the other fields of science) is formed from three basic constituents: (1) definitions or terminologies, (2) postulates/axioms/assumptions, and (3) the hypothesis. The formulation of theory from these basic constituents is done in the order as shown in the figure below.



Methodological remarks on each step, from the Islamic point of view, are given below:

13. **Definitions or Terminologies:** We noted earlier that conventional economics can be of some benefit to Islamic economics. Yet, most of the definitions or terminologies used in conventional economics are closely related to the very characteristics that accompanied and

influenced the development of this science. Among the most important features of conventional economics its obsession with realism, materialistic philosophy and orientation towards abstraction, in the sense of isolating economic behavior from other human factors that affect it. Thus *ijtihad* is needed to examine and decide if the definitions of the secular theory can or cannot be used in Islamic economics. The definitions that do not contradict Islamic principles can be adopted. The following example will clarify this point.

Utility maximization is reflecting rational behavior in the neo-classical consumer's theory. 'Utility' and 'rational behavior' have linguistic meanings which are different from their economic concepts. These terms may deceive a student if he does not know their implicit or particular economic meanings. In western thought the concept of utility is developed as "good morality" related to personal interest as perceived by the individual himself. The "good" does not have universal meaning, but becomes relative to what the individual thinks in achieving his interest even if it is morally harmful or unhealthy. Rational behavior is then defined as the maximization of the individual interest. These concepts and definitions do not conform with Islamic moral values. Definitions in an Islamic economic theory must carefully select the terms on linguistic bases and then clearly define their Islamic meanings. It should be emphasized that the understanding of any theory, its consequences and usage will always depend on the definitions that are devised by its author.

(2) ***Postulates/Axioms/Assumptions:*** Postulates should reflect *Sharia'h* principles and values related to the economic problem. These postulates are then used as binding terms in the formation of hypotheses. Islamic economics embodies normative aspects and hence the postulates would be representing these. For example, an Islamic theory for the firm will include the following normative postulates:

- a) The production of goods, i.e. what to produce, is determined within the context of Islamic *Sharia'h*. Thus goods that Allah allowed will only be produced.
- b) The production target of the firm is primarily determined by private interest, but within public interest considerations. If there is any contradiction among these two interests, public interest

will be given priority.²⁰ (social functions of private ownership in Islamic creed and *Sharia'h* rules).

- c) The firm must not follow any restrictive production policy or get involved in any implicit or explicit agreement with other producers in order to limit supply and influence market prices (monopoly and monopolistic practices are absolutely forbidden).
- d) The firm must not follow any methods to affect the price indirectly by cheating on the quantity. Also, it should not lower the quality to achieve additional profits (prohibition of fraudulent behavior).
- e) The firm shall guarantee the workers' rights according to rules prevailing in the labor market and shall not follow any monopsonist methods in purchasing its production requirements (workers must be given their just wages rightly in time). Also concluding deals with sellers before reaching the main market is forbidden.

This is how *Sharia'h* principles can be expressed in postulates. The examples given above emphasize the importance of adhering to the *Sharia'h* legal injunctions in formulating the theory of the firm.

Next, we have to discuss how to formulate postulates based on actual observations and empirical data. This is important whenever there is an Islamic economic experience and the positive viewpoint has to be reflected. Should we be committed completely to these observations, as is the case in positive conventional economics? The answer to this question is vital and must be treated with caution because conditions in reality may or may not be in conflict with normative concepts that are reflected in other postulates. In an ideal situation, i.e. when an Islamic economic system is fully applied, actual observations should not contradict normative postulates derived from *Sharia'h*. This assertion, however, will

²⁰ On the bases of the concept of *Khilafa* (i.e. man is a "vicegerent" on earth by the Will of Allah – Qur'an 2:30) Muslims believe that property in the hands of any individual is a deposit like" given by Allah, the real Owner of everything. Therefore (private) property should be used according to the commandments of Allah and the orders or advices of his Messenger (PBUH) which in fact urge the individual to love the others as loving himself and to give the interest of the Muslim community priority if it comes against his interest. See Yousri (1999).

only materialize in an exceptionally ideal circumstance. In history, we find this was only achieved during the time of the Prophet (PBUH) and the four Caliphs who followed him. Future efforts in Muslim countries towards the revival of the Islamic *Sharia'h* in all aspects of life are expected to narrow the gap between what ought to be and reality.

At present, we ought to realize the gap between the normative aspects and the actual conditions in Muslim economies. This gap is large and if we depend on actual conditions in forming assumptions for our theory, most probably we shall find no difference between Islamic and conventional economics. Such gap may still however be justified on basis of '*darrora*', i.e. *Sharia'h* necessity rule, which is presumably suitable for transition when moving from a condition where *Sharia'h* is not applied, or only partially applied, to another when *Sharia'h* is completely in application. In this case of *darrora*, it is possible to reflect actual conditions as realistic assumptions along with postulates derived directly from the Islamic *Sharia'h* principles and values. The theory which is based on this mixture will be only transitionally valid and has to be evolved whenever changes in economic aspects of the society take place towards "what ought to be".

- (3) **Hypothesis:** In the empirical method a hypothesis is formed through "enumerative induction" in which it is inferred that what is true for "a number of observed cases" that are related to a certain phenomenon is true of all such cases. A hypothesis would take into account the conditions that are surrounding the phenomenon in practice through the assumptions that are based on observations, and identify the principal factors affecting it in order to explain it. Thus a hypothesis would enable us to identify the factors that would cause certain event to happen and predict its outcome.²¹ This method can be used in formulating an Islamic economic theory only when there is an actual experience wherefrom data can be collected. For example, it is possible to collect data on Islamic banks at present and to formulate a hypothesis concerning their effect on investment in limited number of cases. Similarly, information on *zakat* can be collected to study its effect on income distribution or on low-income groups' consumption. Data on *zakat* is available in very small number of cases from official sources (government) but quite frequently also from private charity and religious societies working at local level. However, due to the very limited number of cases that can be observed results that will be reached through

²¹ See Manicas and Kruger (19 pp. 232, 236, 239).

this empirical method cannot be safely or correctly generalized. In fact it will be essential to depend on deduction within the empirical work to reach some reasonable or convincing conclusions. Apart from these cases where little information is available, there are many fields of economic activities in the Muslim countries that are deviant from *Sharia'h* and as such cannot be suitable for the empirical work to fulfil the purposes of Islamic economics.

Given the above limiting factor, the importance of deduction must be emphasized. We remind those who only support the inductive method that many classical and neoclassical economists have used deduction to derive principles or rules interpreting the economic phenomena and to arrive at economic theories that still maintain their significance in literature, (e.g. Ricardo's comparative advantage theory formulated in 1817). Later on, it was possible to conduct empirical research on these theories and their validity was frequently confirmed. Passing through this phase of empirical testing at a later stage is not only necessary for Islamic economics, but also useful for its evolution in the future.

14. The Role of the Economic History in Research and Analysis

While theoretical analysis is an important tool of economic research, it is not the only one. There are other necessary and important tools. Ibn Khaldun in his brilliant work "The Introduction" used four major tools for analysis, with the logic of economic history topping the list. Economic history, whether recent or past, displays economic experiments whose results and dimensions become known facts. Economic history can be used in the analytical process by reviewing the events and their sequence over the time to understand their causes and effects. Even though economic events do not repeat themselves, yet to learn their logic as to "why events happen" circumstances that accompanied them and their consequences can be very useful in explaining other events of similar nature and making some predictions on their possible effects. This is the essence of the logic of economic history.

The study of economic problems through history also reveals the relationship between these problems and the other phenomena. In this respect, Islamic economics, as a new paradigm, stands to benefit a lot from the Islamic historical experiences in the past. The importance of the 'logic of history' in economic analysis discussed can be displayed by reviewing some of Ibn Khaldun's work. He explained the development of civilization on basis of progress of human needs and how these were met under different historical conditions. Growth of production resulted in his analysis from growth of

population and their needs, division of labor and human intellect combined with productive efforts. Thus through the historical development of communities from nomadism to agrarian and then to industrial societies, as he explains, population was growing human professions and skills were improving and the desire for perfection continued to motivate growth of production in quantity and quality. Ibn Khaldun also offered a remarkable explanation for economic growth in a political and historical context. This Khaldunian analysis is still very useful until now not only because of its scientific nature but also because it shows how economic events along history were never isolated from other political, sociological and cultural factors or from moral and religious values.

Al-Maqreezi (1364-1441G) a prominent historian and a brilliant follower of Ibn-Khaldun had also given full consideration to the historical factor in analyzing the reasons of hyperinflation that he witnessed during his life in Egypt. Using historical evidences and explaining their logic he was able to discover that natural forces had caused cyclical fluctuations in agricultural crops and consequently in their prices over the long run. He then demonstrated how monopolists had always played a serious role at different times in accentuating the effects of food supply shortages by keeping high stocks in their stores and deliberately triggering further increases in prices. By reviewing historical facts also he was able to discover how the political factor was involved in this macroeconomic phenomenon of higher prices. Rulers over some periods were lenient with monopolists due to joint interests, thus they let their hands free to control supply and prices of food staples in the market. In other periods rulers were “wise” and just therefore fought against monopoly and market prices were reduced in general. The vested interests of the rulers also encouraged corruption (taking bribery), and were behind raising their private land rental as well as increasing the supply of *fulus* (cheap metal coins) to get more purchasing power in their hands and more luxury for themselves. All these factors affected market prices directly or indirectly at the macro-level but the most serious one of them was the increase in the quantity of cheap metal coins that replaced gold and silver money in circulation. A careful reading of Al-Maqreezi’s contributions would show how the fact-finding process that he adopted depended immensely on detecting the historical events and explaining their logic (Yousri 2000, pp. 129-36).

It was not surprising, however, that Muslim scholars who read and understood the *Qur’an* were guided to the historical method of analysis. Allah Almighty, in many places, urges Muslims to study history and to contemplate and realize the logic of historical events. Allah says:

(*Qur'an* 3:137-138)

[Meaning: many were the ways of life that have passed away before you, thus travel through the world, and think of what was the end of those who rejected truth. Here is a revelation to all people, a guidance and instruction to those who are pious]

Some of the experiences of past nations that mentioned by the *Qur'an* are closely related to economic events (see for example 22:45-46; 28:58; 16:112; 34:16-19). The call to study and understand history is inseparable part of the *Qur'anic* approach. An important feature of the Islamic logic of history is revealed through the *Qur'anic* verses. In the *Qur'an*, Allah Almighty says:

(*Qur'an* 2:251)

[Meaning: and did not Allah check one set of people by means of another the earth would indeed be full of mischief: but Allah is full of bounty to all the worlds]

The explanation of this *Qur'anic* verse states that the struggle between "right" and "wrong" continued throughout the history of mankind. The forces of corruption will continue to gather and increase, but in this process evoke those people who are willing to defend "right". The latter group continues to gather their forces until they are able to overcome the corrupt people, by the help of Allah. This meaning is reflected in another *Qur'anic* verse:

(*Qur'an* 17:81)

[Meaning: And say: Truth has (now) arrived, and Falsehood perished: For falsehood is (by its nature) bound to perish]

These verses will help us always to understand that there is an inevitable struggle between right and wrong in this world. The economic world is mainly involved in this struggle because it is the one that embodies all mankind's material interests. Thus we have to understand that attempts to establish Islamic economics on bases of justice, co-operation, selflessness etc. will be received with resistance and opposition from all forces which do not appreciate these

ethical values. The nature of this opposition and the ways to deal with it has to be subject to intensive research. In fact a large part of the world which has become deeply involved in materialism and immoralities will not only resist Islamic economics but will work directly against it. However, Islamic economists have to perform a role that is destined to them in bringing back ethical values to economics. Not only Muslim countries but probably others will come to appreciate the value of Islamic economics sometimes in future.

In formulating a modern historical approach, the door is open to benefit from past and recent Islamic economic experience. Islam has fourteen centuries of history. Muslims have to study and understand how the Islamic nation (state) flourished from the 8th to 15th Gregorian centuries and then gradually declined. This can be done by reviewing historical evidences both at the micro- and macro-levels. These events need to be examined and scrutinized to seek scientific explanations and to identify the factors that determined economic progress or degeneration.²² We also have to study and evaluate modern Islamic economic experiences. To start with, work can be done on the Islamic banking experience that started in the early 1970s. Many lessons can be learnt from this experience when it is thoroughly investigated in historical context. Knowing causes of success or failure of these new institutions in the last thirty years will be very useful indeed for their present and future performance.

6. Commitment to the Scientific Approach and Applicability of Islamic Economics

Successful implementation of the Islamic economic thought in practice depends on appropriate commitment to the scientific approach that we have gone through above. Discussing the *Sharia'h* (rules) of an Islamic economy is not enough. There is a need, as have been explained to interpret and transform these rules into postulates. Economic analysis of any problem or phenomenon starts only after the basic postulates have been formed. Thinking that we can depend "directly" on *Sharia'h* to formulate successful economic policies is misleading and may not only lead to failure in resolving the economic problems but perhaps would further complicate them. A crisis would arise and handicap the development of Islamic economics if Islamic jurists (*fuqha*) think that they

²² In this context I would suggest to all researchers of Islamic economics to go through the work of Ibn Khaldun (1967) and Yousri (2000, pp. 109-117).

can play the role of the economists.²³ A couple of examples are given below for clarification.

A distinctive feature of an Islamic bank is that it would finance projects on profit-loss sharing principle instead of interest-based loans. However, necessary research concerning different modes of equity finance, the most appropriate modes of them that suit the current economic, social, and ethical conditions as well as how to face the competition from interest-based banking system has not been done. Consequently, different problems have been faced in using the profit-loss sharing modes of financing and most Islamic banks ended up using the short-term financing instrument of *murabahah*. Some quarters has criticized this financial instrument in its practical implementation (not on *Sharia'h* basis) as being close to interest-based financing. When Islamic bank managers face problems in applying the new financing techniques they try to solve them either by relying on their own experience (which is mainly gained in non-Islamic banking), or by seeking the advice of Islamic jurists who work in the *Sharia'h* boards of these banks. This advice, however, would be given in form of juristic principles that need accurate economic interpretations in order to be operational in reality. At times, the *Sharia'h* board solved some serious banking problems through new *fiqh* devices, which could not gain consensus from Muslim jurists and have been frequently criticized by Islamic economists. Such problems would not have been confronted were all Islamic banking concepts and financing modes developed and elaborated theoretically on sound scientific bases.

Another example relates to *zakat*. There is a common belief that the existing Islamic juristic principles are sufficient to allow any government in the Muslim world to successfully collect *zakat* and distribute it. This, in my opinion, is incorrect. It is true that recipients and sources of *zakat* are well defined in the *Qur'an* and *Sunnah* and that we are not allowed to make independent judgements on what is clearly stated in these sources. But before application we need to give clear economic definitions to the poor, the needy and other *zakat* recipients in modern times. We also need clear criteria for imposing *zakat* on industries, services, and other modern activities that are not mentioned in the original *Sharia'h* sources. Furthermore, the principles of

²³ Muslim jurists (*fuqha*) who are interested in economics would best benefit the new paradigm by advising the Islamic economists on *Sharia'h* rules which concern their art, reviewing their work and expressing their agreement or disagreement on the use or misuse of *Sharia'h* rules in this work. Islamic economists on the other hand should not play the role of the *fuqha*, they should stick to their profession and consult those who are interested in their work and carefully consider their advices and opinions.

organizing *zakat* collection and distribution need to be discussed extensively by Islamic economists together with Muslim jurists. They have to interpret and reformulate these principles in accordance to contemporary economic conditions and fiscal needs within *Sharia'h* framework. Scientific cooperation between Islamic economists and jurists is important. Since *zakat* is one of the instruments that concerns not only the individuals but affects the overall economic activity (income/wealth, distribution and growth).

7. Adaptability of Islamic Economics Methodology in Different Phases and Reflections on the Applicability of the New Paradigm

Given the absence of a modern Islamic economic experience before 1970s, there was no room for the researchers to use induction. As a result, Islamic economists depended heavily on deduction. In this context, research in Islamic economics was generally normative.

It is important to appreciate that scientific development of Islamic economics in the early phase (after World War II) was in need of this deductive method, i.e. deriving postulates as premises by logical inference from Islamic juristic rules and values. Then depending on these postulates as premises in analyzing economic problems of the Muslim world and deducing general rules that explain them. This methodology helped in exploring normative Islamic solutions to our economic problems and supported the call for an Islamic economics within a modern Islamic society.

Since the 1970s, however, conditions changed in many Muslim countries. Islamic banks have been established. Governments besides non-governmental institutions have been engaged in collecting and distributing *zakat* proceeds. These new developments give Islamic economists a chance to observe actual experiences and to evaluate them empirically by advancing and testing different hypotheses. Such exercise based on induction will help in building up and extending the application of Islamic economics in the Muslim and probably non-Muslim World.

Progress in positive Islamic economics and its application, however, was slow due to some unfavorable conditions. Examples of these conditions can be found in secular laws in Islamic countries that are protecting usurious (interest-based) transactions and *fatwa* of some that regard interest as equal to *Sharia'h* permissible profit. As regards to *zakat*, and its official application, governments in Muslim countries whose taxation systems based are on secular concepts have shown no interest to study alternative systems, including the Islamic one. Government circles in most Muslim countries hold an opinion that *zakat*

revenues, if collected, will be much less than tax revenues and will not cover their public expenditure that has grown considerably. Such an official opinion has never been subject to serious research.

The study of the Islamic economic experience using the inductive approach was also hampered by the lack of data on modern Islamic institutions. Available data declared in financial statements by Islamic banks is scant and sometimes difficult to get hold of. Similarly, non-governmental institutions that collect and distribute *zakat* in many of the Muslim countries keep their records confidential. These limitations, however, do not absolve researchers to conduct empirical work. They should conduct empirical studies based on whatever statistical data is available and rely objectively on approximate estimations for what is missing. For example some Islamic economic researchers have conducted empirical research to estimate expected *zakat* revenues in some localities as well as some Muslim countries. They used the inductive method but they resorted also to deduction to estimate in some of the missing facts.

As a result of the lack of a contemporary Islamic economic experience research remained focused on the 'ideal' situations and normative behavior given by Islamic rules and values. The scientific research that takes place on this basis will probably find these ideal situations inapplicable, unless there is a strong socio-political will besides economic means to bring about necessary changes and achieve these ideals. Since this is not the case till now, most of the theoretical thought given by Islamic economists could not take its way into application. A gap exists in this context and may remain or even widen. From an Islamic point of view, we need to address a serious question: is it possible to defend a scientific approach that does not have applicability in real situations.

In reality, research and analysis of problems within the context of 'what ought to be' under 'optimum Islamic conditions' is desirable and necessary as an inseparable part of an ideal Islamic economy and society. However resolving different economic problems in non-ideal circumstances is an inseparable part of the Islamic approach. Allah SW has indicated in the *Qur'an* about the natural weakness and defectiveness of man on one side and his unlimited inner power to purify himself and improve his faculties and performance in every respect at the other extreme. Allah has created the human soul with natural desires for both these extremes but laid upon man to select the right path and purify his soul (*Qur'an* 91:7-9). The *Qur'an* explains to us that the Prophets and Messengers (Peace be upon them) were sent to guide and help their communities in getting rid of their weakness, defectiveness and come back to the right path.

We have to take an account of this meaning when addressing contemporary economic problems of the Muslims. We cannot analyze these problems on ideal basis, seeking ideal solutions in non-ideal conditions and expect to get our thought through in practice. We have to think of an Islamic treatment to non-Islamic situations. Some Islamic thinkers would tend to reject this approach on ground of the *Qur'anic* verse which says:

(*Qur'an* 5:3)

[Meaning: This Day I have perfected your religion for you, completed my favor upon you, and have chosen for you Islam as your religion]

They would say that *Sharia'h* was completed since this verse was revealed. This is true but with the passage of time, the Muslim community gradually slipped in applying the laws of Allah in their lives to reach the present stage where they are in some cases completely alienated from Islamic principles. Muslims have to come back to the right path. This cannot be realized in a short period of time for many reasons.

The rectification in the application of the Islamic *Sharia'h* related to economic issues has therefore to be a gradual process. During the time of the last Prophet (PBUH) some rules were implemented gradually (like prohibition of wine and usury). This was Allah's mercy bestowed upon His slaves. Research in Islamic economics under "non ideal" current circumstances has to explain to the people how to move back towards the ideal conditions as given to us by the Creator. This requires from Islamic economists to always take the time dimension in their considerations. Thus selecting their research objectives and carrying their analysis in relation to the time phase and the conditions that concern their communities, showing how transition can be implemented gradually from one phase to the next towards "ideal" conditions.

7.1. Reflections of the Time Dimension on Analysis

As mentioned above, the current situation in most of the Muslim countries is far from the ideal situation embodied in *Sharia'h* principles and creed. The responsibility of going back to *Sharia'h* lies on all Muslims, but the scholars have a more significant role to play in this regard.

To achieve this goal, gradual movement in the correct direction towards achieving the Islamic ideals is needed. This would need a long period of time that may go beyond five or ten years. In this respect, there appears to be 'corrective forces' and opposing forces' together at work. The corrective forces

are represented, on the one hand, by a large proportion of population who want this change to happen without knowing the means and methods to achieve it in practice. On the other hand, scholars, experts, and Muslim businessmen can take the leading role to achieve the desire of the people within the framework of *Sharia'h* and its objectives. As Islamic oriented corrective forces are triggered off a gradual success in the reformation process will be achieved. This will help in paving the way for the establishment of new Islamic economic institutions that would tend to integrate and support each other with the passage of time.

Once the corrective forces start moving, however, there will be strong resistance from the opposing forces. The origins of opposing forces are many. Yet they are represented mainly by the secular economic and political institutions which are hostile to Islamic values. These opposing institutions are quite active and they enjoy high protection within the contemporary legal and cultural framework of the Muslim countries, which is in most cases contradictory or not conforming to Islamic *Sharia'h*. Besides, these opposing institutions are expected to get considerable support from the non-Muslim world which do not sympathize with the Islamic cause (sometimes quite hostile to it).

The existence of secular trend among some intellectuals in the Muslim countries and the decline in the overall level of Islamic knowledge and education among Muslim businessmen will also work against the Islamic reformation. In contemporary Muslim countries, the trend that supports the corrective Islamic movement can be witnessed. The counter-forces, however, are not absent. They have shown themselves and actively trying to retard the progress of Islamization. For example, the reaction against Islamic banks in some Muslim countries has made the image of these banks look worse than what it was when they were founded. This situation has been reflected in the flight back of some proportion of customers from Islamic banks to traditional banks.

It is quite important therefore to have a long run Islamic strategy for reformation and gradual structural adjustment. This strategy should be undertaken for implementation by all concerned Muslims to push the wagon in the right direction. The details of this strategy are not targeted in this article. What concerns us is to highlight some necessary rules for research in Islamic economics that would be carried within the framework of the said strategy. Scientific commitment to these rules would certainly help in making Islamic economic research applicable and fruitful to the Muslims.

The basic feature of the corrective strategy is its time dimension. Because it is expected to extend over a long period of time and works for

gradual changes from non-Islamic to Islamic conditions the strategy need to be divided into time phases. Theoretically we can divide the time necessary to achieve the optimum conditions targeted by the strategy into the following three time phases:

1) *Darrora* Phase

In Islamic *fiqh* some very exceptional situations may arise that would compel the Muslims to deviate from normal Islamic behavior or commitments. These very exceptional situations will call for *darrora*, i.e. necessity, rules. The *darrora* traditional cases are well-defined in Islamic *fiqh*. Here we suggest to add to these cases some critical situations which are existing in the Pre-corrective preparation phase. In this initial phase the corrective Islamic work has either not started or started but is very weak and scattered. In this phase there exist some emergency situations in which deviation from strict *Sharia'h* rules will be unavoidable if indispensable *halal* (permissible) needs or activities are to be preserved. The tasks of Islamic economic research in this phase are:

- a) To analyze the emergency cases which are claimed by people to be calling for the *darrora* rules. For this job Islamic economic researchers need to collect as many observations as possible for each case. Call for continuous consultations with the Islamic jurists and scholars will be essential so that the conditions of *darrora* in economic matters can be classified within the Islamic legal framework until the phase is over.
- b) To guide the people engaged in economic activities in case of real *darrora* to the solutions that are "nearest" to the Islamic *Sharia'h*.
- c) Since *darrora* by *Sharia'h* definition is a temporary period, and never permanent, research must determine the "time length" of this first phase. It should be clear that *darrora* phase should be terminated as soon as some better situation (not necessarily the optimum condition) has been attained from the *Sharia'h* standpoint.

Example of the *darrora* phase can be observed in Muslim countries where Islamic banks do not exist. All banks are interest based and many Islamic-oriented businessmen inquire about the legality, as per *Sharia'h* rules, of getting loans from these banks. They submit that they are aware of *riba* or interest prohibition in Islam but they assert that they have no available interest-free financial alternative. Islamic economic research has to address this case seriously and explore if any possible interest-free finance can be made available, e.g. equity finance from relatives and friends in case of small scale enterprises or by issuing shares through the stock exchange market in case of

medium or large size companies. If not possible then the question that has to be addressed is what is the nature and the size of loss that will be incurred if the required finance is not provided, because of the fear of *riba* and the sincere desire to avoid it? This "loss" has to be estimated in order to judge: whether it is negligible? Will this loss only harm the interests of the firm's owner(s)? Will it harm the interests of the workers in the firm also and will make them vulnerable to loosing their jobs? Will harm the interests of the Muslim community if it leads to closure of the firm? All these are serious possibilities that have to be searched before deciding upon *darrora*. Selection of *darrora* (as a solution) will any way fall under choosing the 'lesser evil' from the Islamic *Sharia'h* viewpoint. Furthermore, it is important to know how long the *darrora* period will last. It may be lasting for a short period of time or may take longer time. Islamic economic research must address all these issues.

Another example for a possible *darrora* case is raised by people in the context of tax payments. Does paying taxes release them from payment of *zakat*? In fact *zakat* is different from the tax systems prevailing in the modern Muslim countries. Some tax payers argue that their financial ability does not allow them to bear the burden of paying the taxes levied on them and *zakat* at the same time. If they evade tax, authorities can confiscate their properties or may imprison them. What do they do and what kind of solution Islamic economists can offer to them until the time comes and an Islamic fiscal system is installed? There are many other examples that Islamic economic research needs to address for the interest of the Muslims who are living now, and probably for ten years or more to come yet, when some better conditions will be prevailing. Ignoring research on these problems will, in fact, give support to the forces which are opposing the movements towards Islamization.

2) The Intermediate Phase

The intermediate phase is a prerequisite for implementing the structural change which is needed in the final phase of reformation. In this phase effort is concentrated on preparing a general milieu in the society that accepts and encourages the principles of the Islamic economic system. Meanwhile some activities should be established in accordance with these principles. The task of Islamic economic research in this stage consists of:

- a) Collection of precise information and statistical data on the forces opposing the application of principles of the Islamic economy. In doing so, the weakest and strongest elements of these forces should be identified in terms of specific economic activities and institutions. Actions can then be taken

to eliminate the weakest elements and keep away temporarily from the strongest forces to avoid collision.

- b) By targeting the weakest points of the opposing forces initially, methods and policies towards a gradual transformation of their economic activity from the secular patterns to the Islamic should be undertaken by researchers.
- c) There is a need to seek medium term solutions for some of the economic problems from which Muslim society suffers under conventional economic systems. These intermediary or transitional solutions must be characterized by a clear account and understanding of how a gradual transition will be carried from the behavior based on positive secular values and motives to one based on Islamic motives and values. Analytically, the transition process will be faster when people realize, and are convinced of the nature of material and religious gains that are, and would be, accomplished through the revival of Islamic values.
- d) Devoting sufficient research to identify and analyze new activities that can be established on strict Islamic economic basis. These activities will be the pillars on which the structural change process will depend in the final stage. In this context, priorities should be assigned to different activities upon careful examination of their relative importance. Factors that would be considered in doing so include the fulfillment of the current needs of the Muslims and their conformity with the development objectives of the Islamic economy in the long run (i.e., the future interests and strength of the Muslim community).
- e) Principles of the Islamic economic system have to be publicized in the mass media and taught to students particularly at secondary and post-secondary educational institutions.

A few examples will clarify the intermediate stage. A weak point of the forces that are opposing corrective movements towards an Islamic economy is represented in monopolies existing in most of the contemporary Muslim countries. It will not be difficult to collect data on these monopolies and expose them to people. The Islamic solution is to establish projects that would offer substitutes for products of the existing monopolies and supply them at competitive prices. It is important to establish these Islamic projects by the participation of a large number of individuals in order to activate the spirit of co-operation among Muslims, mobilize sufficient financial resources and establish large companies that would stand against the monopolists and compel them to be competitive. A large number of Muslims sharing in new projects

established on bases of *Sharia'h* would also provide a natural protection against the rise of new monopolies within the Islamic system in future. Economic research should be directed towards identifying the methods by which these projects may be established, financed, and operated efficiently to counter the established monopolies.

Another weak point is to be found in the inflation problem which troubles many contemporary Muslim countries. The urgent question here concerns the nature of the Islamic solution to this problem. Is it possible to find such a solution while the authorities in these countries still apply monetary and fiscal policies that are interest-based and most of the existing business institutions are not committed to *Sharia'h* rules? Certainly there would not be any ideal or final Islamic solution before eliminating all non-Islamic economic policies and practices. But in the intermediate phase towards Islamization, we have to find some temporary solution(s) that helps in curtailing inflation and lessening its burden. Such solution(s) has to be approved by *Sharia'h* and must be of transitional nature in the sense that it would pave the way towards a true Islamic solution for inflation in the long run. For example, is it possible to adopt "indexation" for this purpose? This or other suggestions must be subject to serious research work in the intermediate phase.

A third example concerns tax payments which imposes a real burden on Muslims who are faithfully committed to payment of *zakat*. Is it possible to promote a motion at the political level, supported by serious economic studies to prove that public interest will not be harmed if *zakat* payments are deducted from taxes that have to be collected? Islamic economic research should be employed in finding out the consequences of substituting taxes by *zakat*. How far this can go?

A fourth example concerns the adoption of interest-free banking financing despite the strength and dominance of the interest-based banking system. The research in the intermediate phase must be directed towards exploring the best methods for establishing Islamic banks, continuously improving their efficiency and extending their activity while avoiding direct confrontation with the conventional interest-based banks. Banking dualism will be accepted temporarily, but this should not entail imitating any financing techniques practiced by the conventional banks, a matter that is expected under dualism. At the same time research should guide the Islamic banks to all possible policies that would increase their competitiveness in the financial markets.

3) The Structural Change Phase

This is the final phase and it begins only after successful completion of the 'intermediate phase' targets. This emphasizes the importance of Islamic economic research under non-optimum conditions. The success achieved in the intermediate phase creates a favorable general climate for the establishment of more projects (other than the banking sector) based on Islamic principles. One may think that this suitable climate for application may lessen the tasks of Islamic economic research. But, on the contrary, while climate becomes favorable to application and facilitates successful implementation of Islamic economic targets, scientific research would still need stronger push. The fulfillment of complete structural change needs serious macro economic studies in the areas of optimum allocation of resources and fair distribution of income within the context of *Sharia'h*. It is also necessary in this third phase to identify the means and policies that would liquidate all economic activities and institutions that do not conform to *Sharia'h*. Liquidation should be accomplished at minimum social costs, Research should also deal with the ways of strengthening economic relations between Muslim countries as well as establishing balanced economic relations with the non-Muslim communities and countries on bases of Islamic *Sharia'h*.

8. Conclusions

Literature in Islamic economics has continued to grow at a rapid pace since the 1970s but with no consensus on the scientific nature, philosophy and targets of this new paradigm. Needless to say that disagreement regarding these major issues, if persists, would hamper the progress of the new paradigm and throw doubts on the consistency of the Islamic thought. Any new scientific discipline has to be defined. It is submitted in this article that any definition for Islamic economics must be constrained by two boundaries, commitment to Islamic *Sharia'h* and values, and endorsement of relative scarcity as the cause of the economic problem.

Islamic economics is not synonymous with *fiqh* rules of financial transactions, contracts and *zakat*, as some Muslim jurists think. Also, it is not confined only to some major issues such as *zakat* and *riba* as some economists argue. The scope of Islamic economics is much wider as it should address all the problems which originate from the problem of relative scarcity while maintaining commitment to Islamic *Sharia'h* and values. Methodologically such commitment would primarily be held by expressing *Sharia'h* rules and Islamic values in postulates or axioms. Then the treatment of any problem,

economic analysis and the formulation of any explanatory rules in Islamic economics should be based on these postulates or axioms.

Building an Islamic economic theory is indispensable for the development of the new paradigm. As Islamic economic experience is a necessary prerequisite to the formulation of an empirical theory. Yet the absence of this experience should not hinder us since the deductive approach offers a substitute. In fact a normative Islamic theory based on deduction is particularly needed in the early stage of Islamization to guide Muslims to what ought to be. Once an Islamic economic experience is available the empirical approach would be attainable while the theory which has been advocated previously can be verified, then accepted or rejected or qualified. However we have to emphasize that the deductive approach and normative postulates will always be injected in the Islamic theory even when adopting the empirical method. This is clearly due to inevitable link between Islamic economics and Islamic ethics and rules.

From purely methodological point of view any scientific theory is composed of three main constituents: definitions (or terminologies), postulates (axioms or assumptions) and the hypothesis. However, from the Islamic perspective utmost care should be taken to ensure that definitions (or terminologies) postulates (or axioms) have been carefully phrased and composed in conformity with *Sharia'h* and Islamic values. This would ensure the Islamic character of the hypothesis that culminates the theoretical work.

The historical Islamic economic experience in the past can be of great help to modern Islamic economics. Surely some lessons can be derived from this experience. Yet more important for economic analysis is to discover the logic of history from the Islamic perspective. The *Qur'an* provides an endless source of inspiration in this context. Some Muslim scholars in the past such as Ibn Khaldun had shown real skill in giving Islamic interpretation to the historical events.

The applicability of Islamic economics depends firstly upon adopting the right methodological procedures all the way in any theoretical contribution. Then in the next step on the researchers' efforts to minimize or eliminate the gap between theoretical work and the actual problems or needs of their Muslim society. In this context we have to be aware of the fact that these problems and needs will be changing over the long period of time which is necessarily needed for transition from the present day's Muslim economies to Islamization. This transitional period can be divided, as suggested, into three distinctive phases. The successful application of Islamic economics will depend on exploring the

particular problems of each phase and suggesting the right solutions to them from the Islamic perspective.

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Fiqh* Foundations of the Theory of Islamic Economics: A Survey of Selected Contemporary Writings on Economics Relevant Subjects of *Fiqh

M. Fahim Khan*

1. Introduction

Is the science of Islamic economics distinct from the conventional science of economics? The pioneers of what is now as known Islamic economics have argued in favor in several of their writings. According to Siddiqi (1989), the essentials of theory of Islamic economics are rooted in the *Qur'an* and *Sunnah* and the implications and implementation of these essentials are to be searched in other Islamic sources like *Fiqh*, *Usool Fiqh* and Islamic history. According to him, “a sincere commitment to Islamic beliefs and values changed everything in economics”. Zarqa (1976) argues that distinct and meaningful economics is not only possible but also necessary. He not only elaborates on the positive economics statements from the *Qur'an* and *Sunnah*, but also argues that even conventional economics is not innocent of value judgements as we are often led to believe. According to him, if we replace non-Islamic values by Islamic ones, and add to the economists’ stock of positive assertions, Islamic assertions, we will be able to work out a meaningful distinct science of Islamic economics¹.

Critiques of Islamic economics, however, are not convinced. They have yet to see a lot more than what has been demonstrated so far to believe that Islamic economics has a coherent and comprehensive body of scientific thought that differs from conventional economics (hereafter economics). Kuran (1995), after a review of writings on theory of Islamic economics writes, “Islamic economics does not offer a comprehensive framework for a modern economy. It fails to provide a well-defined and operational method of analysis”. Interestingly enough he quotes from one of Siddiqi’s (1994) later writings, “The

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¹ Others who have argued in favor of Islamic economics as a distinct scientific discipline are Naqvi (1981), Chapra (1992).

craving for a de novo discipline of Islamic economics is ill-conceived. No such thing is possible”.

Conventional economics, however, with its scientific approach and positive arguments has failed to solve the economic problems of humanity. As Sardar (1991) puts it, “This is because, first, neoclassical economics, being a positive discipline, does not play any active role in directing or controlling human behavior or economic events. It merely explains or rationalizes them. Second, some of its basic postulates such as inherent human selfishness, unregulated free enterprise, consumer sovereignty, the absolute freedom to earn, save, invest or waste, are instrumental in creating (various economic) problems. Solution to present-day economic problems requires a complete departure from contemporary conventional wisdom”.

It is not merely the failure to solve the economic problems, but in fact the very foundations of the theory of economics that have lately become controversial. Neoclassical paradigm that was celebrated until the mid-seventies as the "economics" lost all its grandeur when the theory of rational expectations took away all the grounds underneath it. The economists are now said to be in search of a paradigm to replace the neoclassical synthesis². As a result, different schools of thought like New Classics, New Keynesians, Post Keynesians, etc. have come up with different alternatives.

Does Islamic economics have a potential to offer a paradigm needed to replace the conventional models to address the economic problems of humanity? Does it have a potential to become a distinct discipline? The starting point to answer these questions should lie in the comparison of the roots of the Islamic economics with those of economics. While the roots of economics are clearly known and understood by the economists, that is not really the case with Islamic economics. Roots of Islamic economics should, by definition, lie in *Fiqh*³. “Islamic economics” as a distinct discipline will be justified only if we can show that *Fiqh* literature, that provides understanding of Islamic texts, leads us to different roots for understanding the economic behavior of man. There are positive statements in Islamic texts with reference

² For a quick and simple reference on this see *The Economist*, London which published a collection of School Briefs under the title *Economics: Ten Modern Classics*. The first classic in this collection titled “Paradigm Lost” concludes that “the breakdown of the new classical synthesis has affected not just macro-economics but other branches of economics too. The new stress on micro-economic foundations... is altering the character of whole subject ... no new synthesis is yet in sight”

³ *Fiqh* is the discipline of understanding the texts of *Qur'an* and *Sunnah*.

to human behavior that have implications for economic decision-making. If these statements are substantially different from those underlying the discipline of economics, then this will be a valid basis to develop a discipline that will be called Islamic economics. Economists interested in Islamic economics do not generally have access to *Fiqh* sources, mainly because *Fiqh* is a vast and very specialized discipline. The material relevant to economics is not explicitly identified in this discipline. The material that covers this discipline has to be looked for in the vast literature of *Fiqh*. This puts a serious constraint on building the edifice of Islamic economics on its own roots to make it distinct from economics.

Recently, attempts have been made to identify and present *Fiqh* material that has explicit relevance for Economists. Islamic Research and Training Institute of Islamic Development Bank has played an important catalytic role in this respect and has produced several monographs on *Fiqh* topics that have relevance for economists⁴. The Centre for Research in Islamic Economics of King Abdulaziz University is another institution involved in similar efforts. Most of this literature, however, is in Arabic language. Though the translation of this material in English and French is in process, yet it lags behind substantially, and non-Arab economists remain unaware of this literature and cannot benefit from this literature when working on Islamic economics. Presley and Sessions (1994) rightly note that “Western economists have been somewhat remiss in the last decade in failing to recognize what has the appearance of a new paradigm in economics...that of Islamic economics. This neglect is not surprising: the debate is conducted primarily in Arabic”.

This paper provides a quick but analytical survey of some selected works that specifically relate *Fiqh* to economics. It is hoped that this paper may succeed in exposing some important foundations on which the theory of Islamic economics should be developed, to make it distinct from economics. The survey has been made by major topics covered in these writings.

2. Objectives of *Sharia’h* (Islamic Law)

Objectives of *Sharia’h* form a logical starting point in the process of laying down the foundations of Islamic economics. The work (particularly *al-Muwafaqat*) of Shatibi, an Islamic *Fiqh* scholar and philosopher, has influenced modern Islamic thought. The chapters in the book relating to objectives of *Sharia’h* have received special attention as it introduces new dimensions in

⁴ These monographs are included in the Reference at the end of this paper.

understanding the *Sharia'h* concept of *maslahah*⁵ which has been instrumental in the development and the application of Islamic law to keep pace with the socioeconomic change.

According to Shatibi, primary objective of Lawgiver is the *maslahah* of the people⁶. Masud (1999) reproduces the following definition of *maslahah* from Shatibi:

“(Maslahah) concerns the subsistence of human life, the completion of man’s livelihood, and the acquisition of what his emotional and intellectual qualities require him in an absolute sense”⁷.

Maslahah refers to preservation of the objectives of *Sharia'h*, which consists of preservation of following five aspects of human existence in the world:

- i) Preservation of Life (*Nafs*)
- ii) Preservation of Property (*Ma'al*)
- iii) Preservation of Religion (*Deen*)
- iv) Preservation of Reason (*'Aql*)
- v) Preservation of Descendants/Procreation (*Nasl*)

What assures and preserves these five conditions is considered to have *maslahah* and whatever fails to preserve any one of them is *mafsadah*. The removal of *mafsadah* also constitutes *maslahah*. There are three grades or levels of *maslahah* as follows:

- i) Essential (*Darori*) Level
- ii) Complementary (*Haji*) Level
- iii) Amelioratory (*Tahsini*) Level

At essential level, *maslahah* would include all that protects the five elements (life, property, religion, reason and procreation) from destruction. Complementary level refers to strengthening or expanding the preservation of the five elements. It also includes all such things that improve the quality of preservation of five elements or removes hardships in the preservation of five

⁵ Can be interpreted to mean human welfare though literally it may mean good or goodness, benefit.

⁶ For a detailed discussion on the concept of *maslahah* see Masud (1999).

⁷ Masud (1999) quoting the definitions from Shatibi’s *Al Muwafaqat*, Volume 2.

elements (beyond the essential level). Amelioratory level would include all that helps preserving the five elements in a beautiful or in a better way⁸. It relates to aesthetic sense of human beings in achieving the five preservations mentioned above. It relates to making things better.

Level I (essentials) has priority over Level II (complementarities) and Level II has priority over Level III (amelioration). Essentials are the basic form of *maslahah*. If this is disrupted, it necessitates the disruption of complementarities and *tahsini*. This approach to objectives of *Sharia'h* has substantial implications for Islamic economic behavior and economic decision making. Not much work, however, has been done in this direction.

Masud (1999) discusses in detail Shatibi's philosophy of Islamic law but nothing related to economic behavior. Even the discussion on *maslaha* has been confined mainly to juristic discussions. Hassan's (1998) lecture at Islamic Research and Training Institute aimed at discussing the objectives of Islamic law with respect to economic life. But his discussion too remained mostly relevant for legal purposes. Though often he took examples relating to market yet confined his discussion to the legalities of sale and purchase and justifying various *Sharia'h* rulings relating to exchange.

Several implications for economic agents, however, can possibly be derived directly from the objectives of *Sharia'h* as approached by Shatibi (and Ghazali). *Maslahah* would determine whether an economic activity (like consumption or production of a good) should be pursued or not. If any activity does not have a beneficial implication corresponding to Shatibi's framework of objectives of *Sharia'h* then that activity should not be pursued (in production or consumption or exchange).

Economic agents operating in Islamic framework, thus, will seek *maslahah* instead of seeking utility in the conventional sense. *Maslahah* and utility though may often coincide but the two are entirely different concepts. Whereas utility is a subjective concept emanating purely from individual instincts, *maslahah* is amenable to objective verification on the criteria mentioned above. In the *Fiqh* terminology, seeking the conventional concept of utility will be treated as pursuing instinctive desires⁹ and Islam disallows pursuit of instinctive desires (unless they have *maslahah* as defined above). This is because if the world is left to follow the peoples' instinctive desires, it will

⁸ This would probably what the *Qur'an* has often advised to adopt *hasan* in various spheres of human activities. More on this in the section on optimization and Appendix I.

⁹ Which can be referred to as *ahwa* in Islamic terminology.

result into chaos and disorder in the world¹⁰. The concept of *maslahah* has at least two implications for an economist, one is in theoretical contest and the other is in the applied and public policy context. These are discussed below.

2.1. Nature of Economic Problem

At the theoretical level, a new perspective evolves with respect to the nature of economic problem. There is no limit to instinctive desires. Wants, in conventional economics context are unlimited. Resources are limited. The economic problem is only a problem of individual choice based on one's own instincts. This choice is independent of and insensitive to the needs of the individuals as well as of society.

Maslahah leads to the concept of fulfilling needs rather than satisfying wants. Anything that has *maslahah* for people is a need for them and should be satisfied. The economic problem is not merely a problem of choice to satisfy wants, it is a problem of meeting needs of individuals as well as the society. It is not merely a choice along an indifference curve, it is also a different type of objective function where choices result from lexicographic ordering. Furthermore, the appropriate institutional arrangements should exist¹¹ to oversee that needs and instinctive desires do not clash at the expense of the former and order is maintained in the economy.

2.2. Interpersonal Comparison

At applied and public policy level, the concept of *maslahah* provides a basis for interpersonal comparison of needs and hence can provide a basis for taking measures for social welfare which is something the conventional economics feels constrained because of the problems in making interpersonal comparisons of utility. Construction of social preferences and social welfare function with the above mentioned concept is more practical and feasible than the utility-concept based social welfare functions in conventional economics.

Hassan (1998) without going into behavioral analysis, elaborates on some aspects of objectives of *Sharia'h* that have relevance for public policy. For example, explaining the application of the theory of objectives of

¹⁰ If the Truth had been in accordance with their desires, truly the heavens and earth and all beings therein would have been in confusion and corruption (*Qur'an* 23:7).

¹¹ Ibn-Taymiyyah, an Islamic philosopher, intellectual and *Fiqh* scholar of 7th/8th century has elaborately discussed the nature and duties of such institution called by him as *hisbah*. The original work of Ibn-Taymiyyah is in Arabic but his work relating to *hisbah* can be found in English in Holland (1992).

Sharia'h, he lays down a set of axioms that have economic policy relevance. Some implications of these axioms are as below.

2.2.1. *Private Property Rights and Social Needs*

The private property rights and social needs have been defined to allow the public policy to take care of social interests when they clash with private interests or with economic freedom. For example, consider the following rule:

Rule: It is permissible to dispose off the property rights of a person if such an act is dictated by urgent need and there is no way to obtain permission of the owner (Hassan 1998).

Conventional economics teaches us if some one can be made better off without making any one worse off, then this is not an optimal¹² situation and there is room to improve social welfare. But what if economic agents refused to move to optimal situation. Islamic *Fiqh* provides ruling for public or social authority to take action to achieve the optimality.

Rule: A person should be forced to do any act that does not involve any cost or disutility to him and which if not done will result into costs or disutility to others (Hassan 1998).

2.2.2. *Rules for Factor Markets*

There are some unique rules affecting factor markets. For example,

Rule: No claim for profit without bearing the risk of loss and no (economic) benefits without (economic) costs. This has the implication not only for capital that cannot have a return unless it is subjected to risk bearing (interest income therefore is not permissible) but also for labor market and human resource mobilizations¹³.

2.2.3. *Economic Goods and Social Goods*

In economics, we deal with economic goods. Economic goods provide utility and have a positive market price. These goods can be private goods or public goods. Private goods can be owned with the possibility of excluding others to benefit from it. Goods are public when exclusion of others in consumption is not possible. Free goods provide utility but have no market value as they are abundant (unlimited supply). Free goods are of no interest and

¹² This principle is referred to as Pareto optimality in Economics.

¹³ For more discussion on this, see Khan (1985).

are not discussed in economics. We can introduce a third category of economic goods in Islamic economics. These are goods or any asset or its usufruct that can be reproduced at negligible or no cost, remains available to everyone free of cost. This defines a category of social goods.

In an Islamic economy, we thus have three categories of economic goods. Private economic goods will have *maslahah*, are costly to be produced, can be possessed (or owned), and excluding others to benefit from them (without payment) is permissible. Public economic goods have *maslahah*, involve cost of production, but exclusion from consumption is not possible. Social economic goods have *maslahah*, involve negligible or no cost of production, and exclusion is not permitted even if possible.

2.2.4. *Wasting Resources or keeping them idle not allowed*

There are a couple of other issues that can be identified from the objectives of *Sharia'h* that influence economics but have not been recognized by conventional economics. Conventional economics, for example, assumes existence of economic man. Economic man takes decisions that are rational. Some issues, however, are not addressed in economics. For example, what would make a man to behave economically? What can make people to work for improving their economic condition? How to deal with the people who prefer to remain in poverty rather than forego their leisure? How can people be forced not to waste resources and not to make their uneconomic use? Such topics may be the concern of what is called "Development Economics" which has yet to go a long way to understand and cure 'underdevelopment' or economic backwardness.

Islamic law shows clear concern to this and is reflected in various rules laid down for human behavior. Hassan's (1998) discussion on objectives of *Sharia'h* for example highlights the following rules.

Rule: To work/produce is a religious duty. Not working is not an option available to those who are able to do so. Private property rights have been defined in a way to re-enforce this.

Rule: Since it is the objective of *Shari'ah* to save property, from destruction hence property cannot be entrusted to those who lack reason to use it rationally even though they have clear private property rights in it.

The norm of rationality in this respect is different in Islamic *Shari'ah* than what 'economics' perceives (more discussion on the *Shari'ah* concept of rationality is in the later part of this paper).

2.2.5. Principle of “No Risk, No Gain”

While economics assumes competitive conditions, Islamic *Sharia*'h gives specific rules to ensure that behavior of economic agents promote competitive conditions. There are, however, differences in the Islamic approach to markets particularly with respect to operations of factor markets. The principle of no-liabilities (risk), no gain¹⁴ (no cost, no profit) does not allow malleable capital to earn a fixed rent unless it is converted into non-malleable capital. Furthermore, the conditions of renting which in fact are reflection of the principle of no liabilities no gain must also be fulfilled¹⁵. This difference might not be significant when microeconomic analysis is done under certainty. However, when uncertainty is introduced in economic analysis or these assumptions are used as foundations for macroeconomic analysis, then there would be problems because return on financial or monetary capital is not similar in nature as rent on capital in the microeconomic framework.

3. Assumptions Relevant for Economic Analysis

Al-Masri (1998) draws basic assumptions for the science of economics from the *Fiqh* literature. He identifies the Islamic counterpart of the following assumptions that, according to him, have been foundations of the development of western science of economics. These are the assumption of *rushd* as a counterpart of the concept of ‘rationality’ in economics, the assumption of ‘scarcity’, and the assumption of ‘maximization’. Several fundamental aspects of Islamic economics emerge as we go into the details of some of these assumptions identified by Masri. This is done below.

3.1. The Assumptions of *Rushd* (Rationality)

Rushd can be interpreted as sound mindedness or ability to make sound judgments. The term *rushd* has been mentioned a few times in the *Qur'an* with respect to the use of property rights on economic resources.¹⁶ Property rights

¹⁴ “*Al-Ghunm Bil Ghurm*” and “*Al-Kharaj Bi-Dhaman*” are the axioms in *Sharia*'h that require costs to be paid to earn income.

¹⁵ These conditions include (among others, the maintenance of asset remains the responsibility of owner during the renting period and the renting contract cannot allow sale of the asset to the lessee at the end of the renting period at a pre-determined price. For further discussion see Khan (1985).

¹⁶ For example, “... if then you find *rushd* (sound judgment) in them (orphans), release their property to them (*Qur'an* 4:6). "They said: O'Shuaib! Does thy (religion of) prayer command thee that we leave of the worship which our fathers practiced or that we leave off doing

on economic resources in the light of *Qur'anic* teachings are to be exercised with sound mind. The permission to exercise such rights can be denied if there is evidence that sound judgment and right mindedness with respect to use of resources are lacking¹⁷. Thus, according to Masri, economic man is a man who is *rasheed* i.e., right-minded man who applies sound judgement in the use of his property rights. Masri also points out that the application of sound judgments refers to both private and social interest as well as to observance of *Sharia'h* rules¹⁸.

Islam is not against the assertion of conventional economics that (economic) man is concerned with private interest. We see some of the positive statements made in the *Qur'an* about the human instincts relating to the use of private property rights. For example, when people of Shuaib contested that "...we leave off doing what we like with our property?" (*Qur'an* 11:87) then they were referring to their instinctive desire to use their property only for their private interest. Shuaib would not be telling them anything but to observe social or community interest in the use of their property rights that his people denied to observe.

Another verse that reflects the human instinct of evading social consideration in the use of their economic resources is in the chapter *Al-Asraa*. "Say: If ye had control of the treasures of the Mercy of my Lord, behold, you would keep them back for fear of spending them. For the man is (ever) niggardly " (*Qur'an* 27:100). The man is niggard in social interest (as he is keen to hold back no matter what and how much he gets). This is because: "Men are naturally (instinctively) tempted by the lure of women, children, treasures of gold and silver, horses of mark, cattle and plantations. These are enjoyments in the life of this world..." (*Qur'an* 3:14). The *Qur'an* then explains who among those are better men, and they include those who spend in the cause of Allah (spending for social causes) (*Qur'an* 3:17). Islam thus not only recognizes the human economic instincts but also teaches, through various legal provisions and ethical norms, how to control this instinct to save society from its adverse effect.

what we like with our property? Truly thou art the one that forebears with faults and is right minded" (*Qur'an* 11:87)

¹⁷ "To those weak of understanding, make not over your property which God has made a means of support for you..." (*Qur'an* 4:5)

¹⁸ Yousuf Ali (one of the renowned translators of the *Qur'an*) also makes similar point when explaining the verse 4:5 mentioned above. He writes: "The owner may not do just what he likes absolutely: his right is limited by the good of the community of which he is a member, and if he is incapable of understanding it, his control should be removed".

The human instinct of niggardliness, which *Qur'an* refers to as being “*qatoora*” (in 17:100) towards social interest, is ignored when the theory of economics is built up on the principle of pursuit of self-interest. Ignoring this economic aspect of human behavior is likely to have stripped economics of the ability to address several questions that could be useful not only for the science of economics but also for its application to the economy to solve the economic problems of the society.

As a result certain phenomena cannot be explained by economics. For example, why people keep on accumulating wealth (and do not spend it for social community causes) even beyond the level when they are sure that neither they nor their family will have the opportunity to spend it all? Such questions cannot be explained without incorporating elements of human behavior that the *Qur'an* refers to as being *qatoora* into economic analysis. Masri thus probably succeeded in giving an axiom *rushd*, which can be treated as the Islamic counterpart of the axiom 'rationality' of conventional economics. *Rushd* can be referred to as "rationality with element of responsibility, individual as well as social".

3.2. The Scarcity Assumption: The Economic Problem and the Definition of Economics

Masri discusses in detail the question whether resources are scarce relative to needs¹⁹. He discards the position taken by some that in the context of Islamic economics, there will be no scarcity of resources relative to needs. He argues that scarcity will remain and hence the economic problem of how to meet unlimited wants with limited resources will also remain in the context of Islamic economics. He makes reference to verses of the *Qur'an* as well as some renowned explanations of the *Qur'an* to prove his point. Basically, he concludes that Islamic economics will take scarcity as well as the definition of economic problem of man in the same perspective as conventional economics takes.

The issue of economic problem in fact does take a different and distinct approach than that of conventional economics, once we replace utility by the concept of *maslahah*, and “wants/desires” by the concept of “need” as elaborated earlier under the discussion on Objectives of *Sharia'h*. Resources may still be scarce relative to needs but the economic problem now acquires an

¹⁹ He does not distinguish between need (as implied in objectives of *Sharia'h* discussed earlier) and wants as referred to in conventional economics. Though he mentions that needs are not merely necessities but also includes complementarities and ameliorations, yet his discussion by and large is in the context of wants in conventional economics sense.

altogether different dimension than merely maximizing the utility subject to resource constraint. Consider following situations:

Situation 1: A man inherits a large amount of wealth. Utility of leisure at the margin outweighs marginal utility of everything else that he wants. If utility alone is the basis for his decision making then his wealth is enough to let him enjoy the utility of all the leisure he has. He does not have an economic problem. Extending an argument a little further he does not have to be a wealthy man. He can enjoy leisure without wealth too. He can depend on others to help survive while he enjoys the leisure. There is no problem of choice from unlimited wants using the limited resources. But society has the economic problem.

- a) Human resources are being wasted.
- b) Some one else is working to enable him to enjoy leisure.

And he has an Economic Problem too:

- a) Some of his “needs” are not being met.

There is no economic problem on grounds of scarcity. But there is economic problem in the sense of “rational” (in the meaning of *rushd*) utilizing resources to fulfill the needs. This is the type of economic problem which is visible in almost all societies in varying degrees. The scarcity axiom will not help identifying this problem. On the other hand, if *maslahah* and hence needs (as explained earlier) alone is the basis for economic decision making then the above mentioned man is obliged to fulfill all his needs and his needs would be endless, if meeting social needs is recognized as individual need.²⁰

Now the same resources become limited with respect to meeting all the needs faced by the individual. The concept of *maslahah* and needs helps us identify a problem. It is not scarcity that would identify the economic problem but it is how we define the needs that would define the economic problem. Economic problem is concerned with identifying needs and mobilizing idle resources²¹ to meet the needs.

Situation 2: A poor man has very limited resources at his disposal. He can derive utility in so many things that his wants are unlimited with respect to the resources he has. If utility is the criterion

²⁰ Other needs like those relating to property, reason, and the level of the needs from essentials to complementarities and then to amelioration can make the needs unlimited like wants are unlimited in the conventional economics.

²¹ There are several provisions in *Sharia'h* that would discourage or penalize the resources from being kept idle.

and satisfying wants (*ahwa*) is the objective, then there is a problem created by scarcity, but what is the solution? Economics only will tell what desires he will decide to be satisfied by his resources. But what will he do with respect to the rest of the desires. The resulting frustration is not the subject of economics. The problems, anxiety and even crimes that he may create in the society in frustration are beyond economics.²² Secondly what will ensure that he makes an objective rational (sound) choice, rather than a pure subjective choice. (For example, he will not prefer having drugs to feeding or educating his children). On the other hand, in the same situation if *Maslahah* alone is the basis for economic decision making, he should prioritize the needs following the order of *maslahah* as discussed earlier in the context of Objectives of *Sharia'h*.

Society comes in when his resources fail to meet his bare minimum needs.²³ There are specific injunctions making it obligatory for the society to meet such needs of the individuals who are unable to meet their needs themselves. This is not charity but a right of the have-nots in the property rights of haves.²⁴ Scarcity is still not the core of the problem. The problem is of a set-up where the needs of the have-nots are either helping them mobilize their own resources or mobilizing the resources of those who have to meet the needs of have-nots.²⁵ The two situations described above make two points:

1. Scarcity is not the only concern when economic problem is to be seen as a problem of meeting needs rather than satisfying wants. The primary concern is to make sure that the resources are being allocated to meet the needs and needs do not get ignored while meeting instinctive desires.

²² "If the Truth had been in accord with their desires, truly the heavens and the earth and all beings therein would have been in confusion (*Qur'an* 23:71)

²³ To avoid destruction of any of the aspect of his existence on earth (life, property, reason, religion, procreation).

²⁴ "And in their wealth and possessions is the right of the (needy), him who asked, and him who for some reason) was prevented (from asking)" (*Qur'an* 51:19).

²⁵ See Zarqa (1976) on the commitment of society to meet minimum need of individuals.

2. Social needs (or needs of others) are a part of the set of one's individual needs²⁶ and will be accorded a priority accordingly.

3.3. Desired Based Behavior versus Need Based Behavior

In the prescriptive approach, couple of questions have to be addressed. What will force people (a) to leave instinctive desires/wants and pursue objectively determined needs and (b) to observe their obligation to meet needs of others in the society who do not have means to do so. The answers primarily lie in the commitment of Muslims to follow *Sharia'h*. There are, however, lessons from early practice of Islam regarding the role of state and establishment of institutions to supervise the behaviour of individuals and correct the deviations if they are creating chaos and mischief (*fasad*) in the society. Islamic philosophers like Ibn-Taymiyyah have provided examples of such institutions²⁷. Islamic history provides examples of several institutions that demonstrate social needs as a part of one's individual welfare function²⁸. Investigating into the nature of such institutions needed by society to fulfill the economic objectives of *Sharia'h* for the society will be an important subject of Islamic economics. Scientific investigation into the nature of institutions and policies needed to make the behavior conform to *Sharia'h* requirements will itself be a distinct topic of research in science of Islamic economics.

3.4. Assumption of Maximizing Behavior

Masri (1998) believes that maximizing behavior (on the part of economic agents) is a valid assumption for Islamic economic analysis. He devotes bulk of his paper to justify this position and prove that this assumption is as basic and essential as it is in conventional economic analyses. Masri starts his arguments by quoting the following verses from the *Qur'an*: "And come not near to the orphan's property, except in a better way" (6:152 and 17:34); "...He (Moses) said, 'Will you exchange the better for the worse?'" (2:61).

From the discussion of *Fiqh* scholars on the responsibilities of custodians of the property of orphans, *waqf* and *bait-al-mal*, Masri generalizes the principles of selling goods at maximum price and making maximum profit when putting one's resources to commercial use. He quotes from traditions of

²⁶ This is different from recognizing interdependent utility functions. Fulfillment of needs X of person B will not be making any contribution towards fulfilling the need X of person A.

²⁷ Institution of *hisbah* (to be discussed in more detail later in the paper) is institution that actually worked to observe behavior of economic agents in the market.

²⁸ Replacement of utility by *maslahah* would replace utility function by welfare function as *maslahah* refers to well-being.

Prophet (peace be upon him), *Fiqh* literature as well as from Ibn Khaldoon to conclude that to pursue the maximization of profit in exchange (in the market) is not only permissible but required. While there may not be disagreement on Masri's assertion that maximizing behavior can be adopted as a valid assumption for explaining Islamic economics, the grounds on which he draws this conclusions leaves more clarifications.

To Masri, the reference to *ihsan* in the verses (6:152 & 17:34) is the reflection of the requirement to seek maximization (not only as a custodian of the property of orphan but in any capacity when putting resources to use). The argument is that the verse uses the term *al-ahsan* (the better) and not *al-hasan* (the good). There is no doubt that various forms of the term *al-hasan* have been used in the *Qur'an* to mean better, best, or excellent. The word, however, has also been used in many different contexts and it can hardly be understood as a term referring to maximization or optimization alone as it is used in economics. Some of the contexts in which *al-hasan* is referred to in the *Qur'an* are shown in Appendix I indicating the different shades of meaning in which these words can be interpreted.

The terms reflect a sort of style for achieving the objectives and targets rather than speaking the level of target itself. It does not refer to the matter of preferring more to less but refers to matter of preferring style (higher quality to lower quality) of doing things. The other verse ("Will you exchange the better for the worse") Masri refers to in the context of maximization assumption also has similar connotation. The interpretation though can be stretched to include maximization and optimization norms yet if we look at direct meaning of the verses then it is essentially comparing the quality of the two states. It is not comparing more to less (the phenomenon of maximizing) but it is rather comparing higher quality with lower quality, a phenomenon that essentially reflects the same meaning as is embodied in the word *hasan* discussed above.²⁹

If the objective is utility (satisfaction of desire), then maximization (more preferred to less) is a relevant concept referring to optimizing behavior. But when need fulfillment is the objective, then better way of achieving this is as important as preferring to fulfill as much needed as possible. The optimizing behavior thus is expected to be more than merely maximizing behavior when the word *al-ihsan* is referred to.

Despite the above observation, there is still no dispute with the conclusion drawn by Masri that a Muslim adopts a maximizing (or rather an optimizing behavior). This can be directly derived from the repeated commands

²⁹ *Khair* and *hasan* have similar meaning, referring to "good" or "better".

in the *Qur'an* about avoiding waste (*israf*) as testified in verse “Do not waste” (7:31) and “Verily spendthrifts are brothers of evil one’s” (17:27). Avoiding *israf* obviously implies maximization of *maslahah* (well-being) in consumption and production.

Going to complementarities or ameliorations before fulfilling essential needs relating to various aspects of living will mean sub-optimal use of resources (because fulfilling essential needs have higher level of *maslahah*-well-being relative to that of needs at complementary level) can be interpreted as one form of *israf*. An optimal allocation of income would mean to spend it on the needs in a way that any other allocation would mean lesser well-being (*maslahah*) in total. The point to note is that this type of optimizing behavior has been required not only for one’s own needs but also for spending on other’s need emphasizing that the concept of *Maslahah* is the concept governing all activities as seen in the following verses in the *Qur'an*:

“And render to the kindred due rights, as (also) to those in want and to the wayfarer, but squander not (your wealth) in the manner of spendthrift” (17:26).

“Make not thy hand tied (like niggards) to thy neck, nor stretch it forth to its utmost reach, so that thou becomes blameworthy and destitute” (17:29).

“Those who, when they spend, are not extravagant and not niggardly, but hold a just (balance) between these extremes” (25:67).

The comparison points to the sort of comparison to be made of *maslahah* at the margin. The laws based on marginal values may still hold but of course within the level of needs (essentials, complementarities and ameliorations).

When it comes to production, and firms behavior, the injunction “Do not waste” can directly be translated into minimizing input cost for a given output which is same as maximizing profit for a given resource inputs. Under some conditions, the minimization of cost may not be same as maximizing profit. The Muslim entrepreneurs in such conditions will be required to determine level of output that minimizes the cost. Minimizing cost in production (instead of maximizing profit) and maximizing *maslahah* in consumption (instead of maximizing utility) are, therefore, the objectives to be pursued in economic activities.

Masri also quotes a tradition from the Prophet (peace be upon him) to conclude that it is required to prioritize consumption so that resources are utilized rationally (i.e. with *rushd* or sound judgment to maximize gains from

consumption). According to the tradition, a man was told by the Prophet (peace be upon him) to spend his money just on his family and then on others according to his (sound) judgment. Masri uses this tradition to support his conclusion about maximizing behavior assumption, but the tradition, in fact, reinforces the following points derived from the *Qur'anic* teachings:

- i) Meeting self (and family's) needs have priority over meeting the needs of others.
- ii) Meeting others needs is part of the arguments of the objective function of an individual.
- iii) One is the best judge to include who should be the others in the list for meeting their needs (within the framework provided by teachings of *Qur'an* and *Sunnah*).

Masri also notes that early Islamic scholars pointed out before the modern economists about the invisible hand that steers the self-interest to work for the social interest. He refers to Al-Sabki and Al-Shatibi who specifically discussed the significance and priority of self-interest and why social interest lies in the pursuit of private interest. The point to note is that the priority remains to meet one's own needs, though seeking others interest has been made to be a part of self-interest. To conclude, the optimizing behavior of an economic agent influenced by Islamic teaching, thus, is supposed to have following dimensions.

- i) Maximizing *Maslahah* while meeting needs. The list of needs includes needs of others in the society.
- ii) Minimizing cost in production.
- iii) Optimizing behavior (whether in consumption or production) bordered with ethical considerations to achieve what is referred to in the *Qur'an* as *al-Ihsan*.

3.5. Prohibition of Gharar in Exchange

Gharar is prohibited in trading. It is difficult to define precisely the concept of *gharar* that makes a contract of exchange null and void. In layman's language it would generally mean leaving one or more substantive elements of the contract unclear, ambiguous, uncertain or doubtful, or concealed.

Al-Dhareer, a renowned contemporary *Fiqh* scholar, recognized particularly for his work on *Gharar*, explains in detail the concept in the context of contemporary transactions.³⁰ He identifies the concealment of following elements that creates doubt, ambiguity, or uncertainty and can cause *gharar* in the object of contract and hence make it null and void.

- i) Entity types and attributes of the object.
- ii) Quality of the object.
- iii) Time of payment in Deferred Sales.

Gharar may also enter a contract on account of:

- a) inability to deliver the object;
- b) contracting on a non-existent object; and
- c) contracting without seeing the object.

In theory, the prohibition of *gharar* in contracting exchange of goods and services in the market may not affect economic analysis. Conventional analysis may still be valid. It is the contemporary practice in the market that would distinguish Islamic market from conventional market. Several contracts of exchange currently in vogue in conventional market will cease to exist in Islamic market. Notable of these are contracts of interest, contracts of insurance, contracts of gambling, various forms of contracts of hedging, and various forms of forward trading and futures contracts. All of these contracts have *gharar* and therefore, will cease to exist.³¹ In interest based lending contract, the counter value against fixed and predetermined interest payment is unknown or uncertain. The same holds for insurance and gambling. While the market will not lose anything if gambling ceases to exist because it does not aim at adding any value, the seizure of interest contract and insurance contract would deprive the market some of the benefits. Interest for example is used for financial intermediation, which in turn has led to the emergence of financial intermediaries that have helped reduce the cost of financial intermediation and resource mobilization. Interest has also gained over time a dominant place in the monetary management of a contemporary economy.

In the absence of interest, Islamic economics has a whole new field to work on. These include how to manage financial and monetary sector economy without interest. What are possible models that can work in a contemporary set up and how the economic outcomes of these models will compare with those of

³⁰ Al-Dhareer's (1997) work is available as a lecture delivered at Islamic Research and Training Institute of IDB and published by the Institute both in English and Arabic.

³¹ Interest and gambling, however, are prohibited by *Sharia'h* besides the point that they have *gharar*.

interest based economies? If feasible models can be worked out, in theory, then how to convert a contemporary economy to this model? What will be the problems of transition and how they would be handled? Though a lot of the work in Islamic economics has been concentrated in this area during the last quarter century, a comprehensive framework is not yet available as some critiques of Islamic economics point out (Kuran 1995). It cannot be denied that there is a wide field open for economic research in Islamic economics that conventional economics may not ever go into. Islamic economists alone will have to conduct research in these areas alone.

Similarly, insurance has acquired a significant role in the operations of contemporary economies as it allows the distribution of risk in economic activity over a large number of risk bearers and hence reduces the economic risks faced by individuals. Risk is a cost and its minimization is required. Islamic economics has to address how to distribute risk without getting *gharar* elements into the contract. This again opens another wide area for economic research but which will hardly be admitted by conventional economics.

The issue of hedging and trading of futures contracts poses similar problem. These practices in the market serve some useful purposes but involve elements of *gharar* that is not acceptable in Islamic framework. How to reap the same economic benefits without getting into *gharar* is a challenging area for Islamic economic researchers alone. Besides opening the above two areas for research, the Islamic concept of *gharar* raises further issues to be resolved by those interested in applied Islamic economics. Some of these issues may require a joint work with *Sharia'h* and *Fiqh* scholars.

Though *gharar* is prohibited in contracts of exchange, yet some contracts are bound to have *gharar*.³² Some *gharar* may often be inevitable. It is often impossible to eliminate *gharar* entirely from the contract. One issue for research is how to decide the extent of *gharar* that can be tolerated in a particular contract. According to al-Dhareer (1997, p. 44) “*gharar* should be excessive or exorbitant” to render a contract of exchange invalid. But, in jurisprudence, there is no hard and fast rule or criteria to determine when a *gharar* element can be called excessive. Some *gharar* elements may obviously be small. For example, in selling a house, there is *gharar* about foundations on which house has been built. But the sale of house despite this *gharar* will remain valid.

3.5.1. Costs Versus Benefits of Gharar

³² Dhareer (1997, p. 43) quotes al-Shatibi “remove all *gharar* from contracts is difficult to achieve; besides, it narrows the scope of transactions”.

Some *gharar* elements are quite clearly exorbitant. For example, selling fruits of a tree, before the fruits actually appear is excessive *gharar* and will make the sale invalid. There are, however, a lot of possible borderline cases where *gharar* may not possibly be categorized as excessive. Some form of such *gharar* can be seen in following examples.

- i) Selling a heap of goods (there would be *gharar* in the quantity).
- ii) Using such terms as “market price” (without specifying it).
- iii) Selling an object before receiving it (there is uncertainty whether seller will be able to possess the object).
- iv) Selling a product that matures in successive phases.
- v) Share-cropping and profit-sharing (where output/profits to be shared are unknown).

There have been juristic opinions in favor as well as against whether such forms of *gharar* be treated excessive or ignorable. Jurists have given some guidelines how to decide on such borderline cases. First, *gharar* should not dominate the contract, in the sense that it characterizes the contract and becomes its hallmark (Dhareer 1997, p. 46). Second, the concept of *gharar* is applicable to contracts of exchange only. Thus *gharar* in the contracts of output or profit sharing do not fall into the category of prohibition. Third, prohibition of *gharar* should not allow a useful trade or exchange to cease to exist.

The last criterion is very important, but vague. The issue will be how to define a useful trade or exchanges. Dhareer (1997) mentions “need” as the criterion to determine whether an exchange is useful or not. Need, according to him would be the state where a person or society suffers hardship and difficulty if the trade or exchange (involving *gharar*) is not allowed. This hardship does not necessarily mean the type of the compulsion that would make *haram* activity *halal* (like in case of permitting eating of pork if one would otherwise die). According to Dhareer, hardship in this case means losing a benefit recognized by *Sharia’h*.³³ Need, thus, would not only include the “essentials” (as defined in the context of Shatibi’s discussion on objectives of *Sharia’h*) but may also include complementarities and ameliorations for allowing a *gharar* in contract, if elimination of *gharar* would mean elimination of contract. Needless to say that this relaxation with respect to accepting *gharar* will not apply if the particular need can be met adequately by alternate means.

³³ Dhareer refers to al Suyat, *Al Montaga on Al Muwatta* V.113 for this point.

Contemporary economic dealings offer many situations where such choice may be needed. Jurists often are reluctant to allow certain contemporary contracts that involve substantial *gharar* despite that the economy “needs” them. This is another unique area for Islamic economics that requires research from economists to establish the “need” of such contracts for the society. Basically it requires a cost benefit analysis to prove that the cost of eliminating *gharar* is more than the benefits of the contract.

3.6. Social Needs

Two important *Sharia'h* concepts provide a wide and flexible basis for public policy to meet social needs in an economy. These concepts are the doctrine of necessity and the concept of *maslah mursalah*. A contemporary discussion on both these concepts can be seen in Abu Sulayman (1993) and Hassan (1994) respectively. These discussions lead to the principles and criterion that can be helpful in making social choices. The social welfare function thus becomes not only definable but optimizable as well, because these principles give explicit guidelines to prioritize public interests, resolve conflict between private and public interests, and make objective interpersonal *maslahah* comparison possible.

Kamali's (1997) discussion on *istihsan* provides another potential tool for seeking new dimensions relevant for public policy on Islamic framework. According to Kamali, *Istihsan* is generic in that it takes for its scope almost the entire range of the *ahkam* both in the areas of *mu'amalat* (dealings) and *ibadat* (worship). Furthermore, it seeks to harmonize the detailed rule of *Sharia'h* in line with the broader objectives of *Sharia'h* (Kamali 1997, p. 134). He adds, “*Istihsan* is focussed on finding a better alternative to a ruling or evidence of *Sharia'h* when its application has frustrated one of the objectives of *Sharia'h* (Kamali 1997, p. 138).

His discussion provides insight to economists who study the Islamization of the economy. He quotes examples from Pakistan's experience of Islamizing the financial system where, he thinks, the principle of *istihsan* has been usefully applied. His discussion on unclaimed assets hints the possibilities of socializing certain particular types of private resources to meet social needs.

We can find several concepts discussed in various *Fiqh* literature that can provide insight into Islamic approach towards making a public choice. Other than *istihsan*, we have the concepts like *istikhara*, *istishara*, *istifta*, *isti'ana* etc. each having its own logic and authority. Whether these concepts would be superior to the concepts discussed in economic literature (including Arrows Impossibility theorem) may not necessarily be a matter of value

judgment or the matter of political choice. Public choice on Islamic principles will have its own economics within an overall Islamic economic system.

Research in this area would require economists and *Fiqh/Sharia'h* scholars to join hands. The task, however, is not easy as the two sets of scholars (economists on the one hand and *Fiqh/Sharia'h* scholars on the other) speak different languages, use different methodologies, and have different goals to pursue. A bridge building through appropriate training programs and workshops for the two groups jointly or severally is required to carry out meaningful and effective research in this area.

4. Conclusion

The science of Islamic economics can be distinguished on the following grounds:

1. It is concerned with meeting needs of human beings (defined in the light of Islamic teachings) starting from the essential level and going up to the level of amelioration within the given resources.
2. It is concerned with identifying and mobilizing idle resources and with expanding the resource base for meeting the needs not met by current resources.
3. It is concerned with integrating others' needs as a part of one's list of own needs, with a priority consistent with the Islamic norms.
4. It is concerned with mobilizing collective (social efforts) to meet minimum needs of those who cannot do so from their own resources.
5. It is concerned with identifying and establishing an institutional infrastructure that will:
 - i) monitor that individuals do not consistently pursue their instinctive desires at the cost of their *Sharia'h*-regulated needs
 - ii) monitor that individuals pay their minimum obligations to meet needs of others.
 - iii) cater to the minimum needs of the have-nots that remain unattended by individual contributions to meet these needs.

Science of Islamic economics, thus, is a discipline that studies such aspects of human and social behavior that is related to fulfillment of human needs in all aspects of human existence on earth. The job of an economist thus will have extra assignments in the following areas.

4.1. Normative Comparative Study

To develop Islamic theory that defines economic problems and identifies the means available to solve them. How would an economy, where economic agents operate in the framework of Islamic law and ethical norms, would compare with the economy of a conventional economic agents operating in the so-called *laissez-faire* framework, in terms of visualizing economic problem and the means of solving these problems.

4.2. Development of Positive Islamic Economics

After measuring the deviation of the behavior of economic agents from the norm, there is a need for corrective institutional arrangements to reduce the gap. The institutional arrangements necessary to fulfill the objectives that individual behavior is not allowing to achieve also need to be examined.

Appendix I : *Hasan* as a Norm for Human Economic Activity

Terms rooted in *hasan* (good) have repeatedly been referred to in the *Qur'an* with reference to various spheres of human activity including economic sphere. Some of them are referred to below:

1. General Principle

“God commands justice and the *doing of good* ...”(16:90).

“Our Lord! Give unto us in the World that is *good* and in the Hereafter that which is good, and guard us from the doom of fire” (2:201).

“But seek, with (the wealth) which God has bestowed on thee, the Home of the Hereafter, nor forget thy portion in the word, *but do thou good*, as God has been good to thee and seek not (occasions for) mischief in the Land” (28:77).

“Is there any reward *for good* – *other than good*”(55:60).

2. Handling Property of Orphans

“Come not near the orphan’s property except in (a way) *that is better (for it)*” (17:34 and 6:152).

3. In Dealing with Parents

“ We have enjoined upon man *to be good to his parents*” (29:8, 46:16, and 31:145).

4. In Arguing for Religion

“And dispute ye not with the people of the Book, except with *means that are better...*” (29:46).

5. In Following Matters of Religion

“And follow the *best* of the (courses) revealed ...” (39:55).

“Those who listen to the Word and follow the *best* (meaning in it)...” (39:18).

6. In seeking good in Essence and not in Appearance

“Is he, then, to whom the evil of his conduct is made alluring, so that he looks *upon it as good...*”(35:8).

“Say: shall we tell you of those who lose most in respect of their deeds? Those whose efforts have been wasted in this life, while they thought that they *were doing good* in their works” (18:104).

It will not be appropriate to interpret the terms referring to *hasan* as the terms that imply maximization/minimization in any sense as interpreted by Masri (1998). It is, however, clear that *hasan* is a norm desired in all activities and behavior. While maximizing/minimizing (as implied in the command “do not waste”) may be assumed as a valid assumption for Islamic economic behavior, such behavior however, will be required to qualify the attribute of *hasan* (goodness, decency and virtue).

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**ANALYTICAL AND THEORETICAL
CONTRIBUTIONS**

Transactions in Conventional and Islamic Economies: A Comparison

*Mabid Ali Al-Jarhi**

1. Introduction

This paper compares the transactions costs in two economies, one conventional and another Islamic. The conventional economy is characterized by borrowing as a means of financing some of the current purchases. The Islamic economy does not allow interest-based lending¹. Its banking system operates on the basis of universal banking that mixes commerce, commercial and investment banking together. It provides customers with an alternative means to finance current purchases, namely *credit purchase* (CP) arrangements. Such arrangements entail that the bank purchases the commodities and assets from their respective suppliers and resells them on credit to customers satisfying

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¹ Lending money in an Islamic economy is considered to be a philanthropic act, through which someone would provide temporary liquidity to someone else who is temporarily short of liquidity and wishes to fulfil presumably some basic needs. In such cases, loans are forwarded interest-free. Obviously, such activity would take place only at a limited scale and within special circles, e.g., relatives, friends and neighbors, where creditworthiness can easily be ascertained and debt collection can be done at low costs. The author has pointed out somewhere else that interest-free lending could take a large scale, with proper institutional arrangements (Al-Jarhi, 1983). Debt resulting from CP can be exchanged for cash and monetary assets only at face value. It can be swapped against real commodities and assets. This is tantamount to saying that debt has rather limited marketability. This would represent an implicit restraint on credit finance.

conditions of credit worthiness similar to those required by conventional banks for borrowers.

The paper uses simple calculations to compare the transactions costs in both economies. It argues that under competitive competition, *credit purchase* arrangements would carry less transactions costs than *borrow and purchase arrangements* in the conventional economy. The most important implication is that a policy that lifts entry barriers in the Islamic banking market and allows banks to combine commerce with banking activities would contribute to social welfare. The paper concludes with suggestions for further points of research.

2. Real Transactions

Real transactions are defined as the purchase of real commodities and assets against spot or future cash payment.

2.1. Spot Purchases of Commodities and Assets

Economic agents would exchange money directly for goods, services and assets. Such transactions can be termed *real transactions, type I*. Their total value is a function of output (the available flow of goods and services Y , prices $P = \{p_i\}$ as well as transactions costs².

A priori, the conduct of the above transactions will cost some resources. The cost per transaction in the i^{th} commodity is defined as $(v_i)_Y^y$ and in the i^{th} asset as $(v_i)_Y^a$. The total cost of real spot transactions can be defined as the sum of spot transactions in goods and services plus the cost of spot transactions in assets $V_Y = V_Y^y + V_Y^a$. This in turn can be written as: $V_Y = \sum_N^{i=1} (v_i)_Y^y + (v_i)_Y^a$, where N is the number of either commodities (goods and services) or assets, whichever is largest.

Total transactions of type I would be equal to the value of spot transactions in commodities T_Y^y plus the value of spot transactions in assets

² Transaction costs are the costs associated with transacting trades. They include: commissions, bid-ask spreads, impact costs associated with carrying out large transactions off market, administrative costs which include the costs of confirming, documenting, reconciling and clearing trades.
(<http://www.contingencyanalysis.com>).

T_Y^A , i.e., $T_Y = T_Y^y + T_Y^A$. Given that the value of transactions in the i^{th} commodity is equal to its price, p_i^y multiplied by its quantity, y_i ³, and the value of transactions in the i^{th} real asset is equal to its price p_i^A multiplied by its quantity a_i^y , $T_Y = \sum_{i=1}^N p_i^y y_i + p_i^a a_i^y$. Similarly, the total value of transactions in commodities can be expressed as a function of commodity current prices $P^y = \{p_i^y\}$, their expected prices $\bar{P}^y = \{\bar{p}_i^y\}$, total income PY as well as their transactions costs V_Y^y .

$$T_Y^y = T_Y^y(P^y, \bar{P}^y, PY, V_Y^y) \quad (1)$$

Similarly, the total value of transactions in assets T_Y^A can be expressed as a function of asset current prices $P^A = \{p_i^a\}$, their expected prices $\bar{P}^A = \{\bar{p}_i^a\}$, their current rates of return $\mathbf{P} = \{\rho_i\}$, their expected rates of return $\bar{\mathbf{P}} = \{\bar{\rho}_i\}$, total income PY as well as their transactions costs

$$V_Y^A \cdot T_Y^A = T_Y^A(P^A, \bar{P}^A, \mathbf{P}, \bar{\mathbf{P}}, PY, V_Y^A) \quad (2)$$

We can therefore write the total value of real transactions type I as a function of current and expected commodity as well as asset prices, current and expected rates of return on assets as well as transactions costs.

$$T_Y = T_Y(PY, P^y, P^A, \bar{P}^y, \bar{P}^A, \mathbf{P}, \bar{\mathbf{P}}, V_Y) \quad (3)$$

An increase in the flow of goods and services would lead to greater volume of this type of transactions. Lower prices imply higher quantities

³ The question arises when several transactions are made in the same commodity, each entailing a different price. The value of transactions in such a commodity would be equal to the sum of transactions values (price times quantity) at each price. For simplicity, we can assume that either the exchange time horizon allows for only one transaction in each commodity, or the value of transactions in each commodity implies already summing over each transaction at each price.

demand and more purchases, while higher prices would mean lower quantities demanded and more sales. In both cases, changes in prices, whether up or down would lead to more transactions⁴. Similarly, changes in asset rates of return would lead to more transactions. In addition, higher transactions costs imply a smaller volume of transactions.

2.2. Purchase of Commodities and Assets on Credit

In all transactions, it is possible to postpone either side of the deal: the payment of the price or the delivery of commodities. The postponement of payment is associated with buying on credit. The postponement of delivery of goods, services and real assets against spot payment would be equivalent of purchasing a real asset promising their future delivery. This has been dealt with in the above category.

2.3. Combining Commerce with Banking

Credit finance can be offered either directly by suppliers or indirectly through banks. Suppliers would offer their customers opportunities to purchase on credit, provided they fulfill certain criteria regarding creditworthiness. In an Islamic-banking environment, the same suppliers would have an incentive to offer banks standing arrangements to buy their commodities and assets for cash, most surely at a discount⁵. Obviously, the sale contracts between suppliers and banks would carry less transactions costs than the corresponding multiplicity of contracts with ordinary customers. In all cases, banks would be doing repetitive purchases, presumably to satisfy customers demands. Repetition would induce banks to make standing arrangements that would reduce transactions costs immensely. In addition, when selling to banks on credit, suppliers would incur lower transactions costs, as bank creditworthiness is cheaper to ascertain than that of an individual.

In addition, banks as information specialists are capable of ascertaining individuals' creditworthiness more cheaply than suppliers. They can also take advantage of quantity discounts when buying in bulk, as well as standing arrangements in place of repetitive contracting. This would enable banks to reduce their transactions costs of buying and then selling on credit, below that

⁴ As long as demand is not perfectly inelastic, there will be more transactions in reaction to changes in prices. The size of demand elasticity would determine quantities purchased but would not inhibit reaction to price changes.

⁵ Suppliers can offer banks the facility to provide customers with loans to finance their purchases. However, such transactions would revert back to lending then purchasing.

of purchasing on credit directly from suppliers⁶. In addition, barring barriers to entry, distributors would also compete with banks in buying in bulk and selling to the public at a discount. Banks would therefore be forced through competition to reduce their transactions costs further.

Accordingly, we can claim that the transactions costs of credit purchase through banks should generally be less than that through suppliers, although the former involves two contracts and the latter involves one. The former would ultimately dominate the latter in an Islamic-banking environment⁷.

The above logic implies that the transactions costs of CP directly from suppliers ${}^d v_y$ should be higher than that of the corresponding purchases from banks $({}^d v_y)^b$, i.e.,

$${}^d v_y > ({}^d v_y)^b \quad (4)$$

2.4. Transactions Costs of Credit Purchase

When people buy on credit, they would be receiving their purchases while providing monetary assets (promises to pay fixed sums of money at certain future times) in return. Providers of commodities and real assets on credit will require a premium over and above their spot prices, called *markup*⁸. It will depend on the demand for purchase and supply for sale of the same commodity or asset on credit as well as the repayment time schedule. Presumably, markups would also be different for different commodities⁹. The total value of such transactions ${}^d T_y$ is equal to the sum of transactions of credit purchase of both goods and services, ${}^d T_y^y$ and of assets, ${}^d T_y^A$. Both components depend on income, commodity and asset CP prices, ${}^d P^y = \{{}^d p_j^y\}$, ${}^d P^A = \{{}^d p_j^a\}$ respectively, markups on commodities and

⁶ There are other advantages of combining banking with commerce (Haubrich and Santos 1999).

⁷ Therefore, as will be seen later, we can venture to say that it would be more efficient in a conventional banking environment to allow banks to directly finance credit purchases.

⁸ The commonly known justifications for that premium include time preference and the alternative uses of the sold commodities and assets in the production process. The markup on the spot price of each good and service, $u_j^y = ({}^d p_j^y - p_j^y) / p_j^y$, and each asset $u_j^a = ({}^d p_j^a - p_j^a) / p_j^a$, is equal to the difference between the credit-purchase price and the cash price of each divided by the latter price.

⁹ It is also possible that markups on the credit sale of any particular commodity would be different for different buyers, depending on the risk element associated with each.

assets, $U^Y = \{u_j^y\}$, $U^A = \{u_h^a\}$ as well as transactions costs, ${}^dV_Y = {}^dV_Y^y + {}^dV_Y^a$. Naturally, we can expect transactions costs for the same commodity to be higher for future than spot transactions, i. e., ${}^dV_j > V_j$. We can call this type of transactions *real transactions type II*. Their total value would be defined as: ${}^dT_Y = {}^dT_Y^y + {}^dT_Y^A = \sum_D^{j=1} {}^dP_j^y y_i + {}^dP_j^a a_j^y$

Total real transactions type II can therefore be determined through the following function, which is similar to (3) above.

$${}^dT_Y = {}^dT_Y [Y, P^{\bar{Y}}, P^{\bar{A}}, P^Y, P^A, P, \bar{P}, U^Y, U^A, {}^dV_Y] \quad (5)$$

Transactions would continue to react in the same manner to income, prices and transactions costs. In addition, higher markup leads to lower level of transactions.

2.5. Real Transactions and Total Output

We can draw the following implications from (3) and (5):

- a. At times of changing price and rate of return expectations, traders would attempt to buy (sell) more of the goods whose prices are expected to rise (fall). The volume of transactions would therefore increase, requiring, either higher velocity or faster monetary growth. If both velocity and monetary growth stayed the same, the price level would tend, *ceteris paribus*, to decline. Most probably, the market would provide internal mechanisms to increase velocity in the face of higher transactions, as more transactions would mean a higher rate of turnover of money, and goods. We can therefore claim that velocity would be a function of price expectations as well as the volume of transactions¹⁰.
- b. Real transactions can be viewed as reactions to changes in demands and supplies of commodities and assets, prompted by price as well as rate-of-return expectations. They would ultimately produce a new set of prices and rates of return that would directly influence output plans. One could envision the existence of *reaction functions* operating between changes in demands and supplies, changes in transactions, and finally changes in output plans. There would therefore be a relationship between transactions

¹⁰ Obviously, this would have implications regarding the constancy of velocity and the stability of the demand function for money.

on the one hand and output of goods, services and assets on the other through those reaction functions. Such relationship could emanate from two sources.

- c) First, as commodities and assets are exchanged, additional values are created. This is because the exchange of goods and services from one individual to another would improve the allocation of resources and produce extra efficiency, which would benefit all traders in different proportions. Extra efficiency can be translated into extra output. This implies that there is a positive relationship between real transactions and output, such that

$$\frac{\partial Y}{\partial T^Y} > 0 .$$

- d) Second, transactions in commodities and assets whose demand has declined (increased) relative to their supplies would be associated with decreasing (increasing) prices which would send a signal to producers to decrease (increase) output. The greater the volume of those transactions, the stronger the intensity of such signals, and the faster resources are reallocated from decreasing- to increasing-demand commodities. Faster adjustment would produce efficiency gains in terms of better production plans and less inventories. This can also be translated into higher output, so that

$$\frac{\partial Y}{\partial T^Y} \geq 0^{11} .$$

3. Nominal Transactions

3.1. Spot Money against Monetary Assets

The act of borrowing can be viewed as a purchase of monetary assets, i.e., promises of future delivery of fixed sums of money. Here we assume that the payment of the current value of the monetary asset is done immediately¹². Such transactions could be termed *nominal transactions*. Their total value

$T_M^A = \sum_K^{k=1} a_k^m$ is a function of the current and expected rates of interest (r_0 and

r_1^* respectively) as well as their transactions costs.

¹¹ In a growing economy, an increase in transactions would lead to more signals to increase than to decrease output, as the decline in the demand for some commodities and assets would be more than offset by the increase in the demand for others.

¹² We can perceive of cases where some agents would borrow to buy monetary assets, i.e., exchanging monetary assets for monetary assets. We are excluding such possibility.

$$T_M^A = T_M^A(r_0, r_1^*, V_M^A) \quad (6)$$

As the current rate of interest rises, the amount of borrowing and consequently, T_M^m , declines. When the expected future rate of interest rises, current borrowing as well as T_M^m increases, and *vice versa*.

Comparing the Transactions Costs of Credit and Cash Purchases

- a) We notice that each real transaction on credit can be substituted for by two transactions. If one wants to buy a commodity on credit, he can make one real transaction for a direct CP. His transactions costs would be equal to ${}^d v_i^y$.¹³ To the whole society, the transactions costs of that exchange is equal to ${}^d v_i^y + {}^b v_y$, where the first term refers to the cost of the CP contract and the second refers to the cost of acquiring the commodity by the bank from its supplier. Alternatively, he can borrow through selling a nominal asset incurring transactions costs equal to v_k . Then he uses the proceeds to make *another* real transaction to purchase the desired commodity for cash, incurring transactions costs equal to v_i^y .¹⁴
- b) We turn now to compare the transactions costs of a CP contract, ${}^d v_i^y$, with that of selling a bond (borrowing), v_k . The underlying elements of ascertaining the creditworthiness of the agent who is buying on credit in the first case and borrowing in the second are the same. However, we can refer to some reasons that would bring the transactions costs of credit purchase below that of borrowing.
- In the case of purchase of real assets and other durables on credit, the commodity sold would serve as collateral subject to repossessing by the seller. In the case of lending, suitable collateral

¹³ He would pay a markup over the spot price equal to u_i , his total cost of making the exchange, over and above the current purchase value is equal to $v_i^y + u_i \cdot p_i \cdot y_i$.

¹⁴ His total costs over and above the purchase value for that exchange is equal to $(v_k + r \cdot a_k) + v_i^y$.

has to be identified separately. Conceivably, that would reduce the transaction costs involved in buying assets and durables on credit below the corresponding costs of borrowing.

- We can assume that transactions costs would depend on the ability to repay a loan which in turn would depend, among other things, on what the borrower does with it. The more such behavior is predictable, the more predictable becomes the ability to repay. In the case of CP, the debtor is certain to use the loan towards the acquisition of the commodity or asset in question. Meanwhile, in case of borrowing, there is no way of telling for certain how the loan would be spent. The ability to repay would therefore be more predictable in the case of credit finance, which would imply lower transactions costs.
- Banks in an Islamic economic system operate on the bases of universal banking, i.e., they can take equity and provide credit finance simultaneously to the same enterprise. The practice of universal banking in a world of asymmetric information is known to reduce the cost of monitoring borrowers (Aoki 1994, Boyd; 1998 Diamond, 1998). This means that the transactions costs of credit finance provided by banks to enterprises in which they take stock would be lower with universal rather than commercial

banking. This in turn would imply lower transactions costs of providing credit purchase to enterprises in which banks have stakes.

We can therefore conclude that in a world of Islamic banking, where universal banking is practiced, and especially in the case of financing the purchase of assets and durables, the transactions costs of CP tend to be lower than that of borrowing, namely ${}^d v_i^y \leq v_k$ ¹⁵.

So far, we have compared the transactions costs of a CP contract with that of making a loan of equal value. Adding the transactions costs of using the loan proceeds to make a cash purchase to the transactions costs of borrowing, and that of purchasing the commodity directly from the supplier, and noting (4) above, we obtain:

$${}^d v_i^y + {}^b v_i < (v_k + v_i^y) \quad (7)$$

This implies that under competitive conditions, purchase on credit, CP is more efficient than borrowing followed by cash purchase of the same commodities, i.e., borrowing and purchase (BAP).

3.4. Nominal Transactions and Real Output

We can look into how nominal transactions affect output from several angles.

- a. At the outset, nominal transactions provide liquidity to those who sell nominal assets, which they could use to carry out real transactions type I. To the extent that this could *not* be done through credit purchases,

¹⁵ Comparing the interest payment on borrowing, $r.a_k$ in the case of borrowing and purchase (BAP), with the markup on CP $u_i.p_i.y$ would be more complicated. The rate of interest is charged for delivering present money, in return for future money. Meanwhile, markups are charged for delivering commodities and assets also in return for future money. Both interest rates and markups would differ with loan maturities as well as the creditworthiness of borrowers. Markups may also differ with commodities and assets. Under competition, both elements should be equivalent. However, in general, imperfections are more prevalent in credit than in commodity markets, especially that the former are usually more subject to regulation. What complicates matters is that while the rate of interest reflects the rate of time preference on money, markups would reflect the rate of time preference on commodities. Their comparison would be rather difficult.

nominal transactions could influence real output through stimulating *real transactions type I*. As we have seen above, people will find it cheaper to carry out credit purchases in one step rather than to do it in two steps: borrowing and then purchasing, especially if banks were allowed to sell on credit.

- b. We can then ask why people would resort to borrowing to finance their purchases when credit purchase arrangements are available, despite the higher transactions costs of the former. One reason would be incomplete information. The calculus of transactions costs may not be as simple and straightforward to many agents. However, this would not continue in the long run, as traders would gradually gain more information through exchange. A more important source would be weaker competition in the CP markets relative to the borrowing market, thereby raising the rate of markup above the rate of interest sufficiently to counteract any savings in transactions costs¹⁶. In either case, there is a deadweight loss at the macroeconomic level. Such deadweight loss can be avoided by credit purchase.

4. Comparing Economies with and without Borrowing

Let us assume two economies of equal resources, one conventional and another Islamic. The aggregate output of each can be divided between consumption, investment, and transactions costs according to the following identity:

$$Y = C + I + V \quad (8)$$

The aggregate transactions costs in a conventional economy, with no CP arrangements through banks, would be composed of the cost of borrowing (selling monetary assets), the cost of spot purchase of commodities:

$$V_1 = V_M^A + V_Y^1 \quad (9)$$

In an economy with CP arrangements through the banking system, like the Islamic economy, aggregate transactions costs would be composed of the cost of credit purchase through banks and the cost of cash purchase of commodities by banks from suppliers:

¹⁶ This would be particularly common in countries that restrict the establishment of Islamic banks, thereby giving monopolistic advantages to the existing few.

$$V_2 = V_Y^2 + {}^d V_Y^2 \quad (10)$$

As shown in (7) above, the total of CP and cash purchase transactions costs (by banks) in (10) would be less than the corresponding total of borrowing and cash purchase transactions costs (by individuals) in (9). This implies that

$$C^2 + I^2 \succ C^1 + I^1 \quad (11)$$

We can therefore conclude under the above assumptions, that economies with CP arrangements through banks would have relatively more resources available for consumption and investment.

5. Conclusions and Further Research

The main conclusion of the above analysis is that, under competitive conditions, purchase on credit costs less than borrowing to finance spot purchases. Some observed market behavior confirms that result. Suppliers of durable goods sometimes join banks to offer financing packages to their customers, which combine borrowing and spot purchase in one deal, mimicking credit purchase arrangements.

Islamic banks usually offer credit purchase deals to their customers. In most countries conventional banks are not allowed to use similar modes of finance, while entry to the Islamic banking market is severely restricted. Some Islamic banks in such countries have the opportunity to take advantage of such monopolistic edge by charging markups, which would be higher than market rates of interest, presumably by the expected savings in transactions costs. We can therefore conclude that a policy that lifts entry barriers facing Islamic banks and allows conventional banks to combine commerce with banking activities contributes to social welfare.

As the paper shows, there are several avenues where further research is needed. Relaxing some of the assumptions, especially competition in either the commodity or credit markets would conceivably produces different results. The dynamic comparison of both Islamic and conventional economies would also be interesting. If both started with the same resources, would they end up with the same size? The Islamic economy has a fragmented credit market, as credit must be associated with the purchase of some commodity. Conventional economies have integrated credit markets. The implications of this on efficiency and stability need to be further explored. Debt created through purchase on credit is unsalable against money, i.e., it is not marketable in the usual economic sense. However, under some institutional arrangements, it can be swapped against real

assets. The effect of such swapping on debt liquidity as well as social welfare requires investigation. In addition, perhaps alternative institutional arrangement for debt swapping could be looked into. In any case, we can say that debt in an Islamic economy is of limited marketability.

A further complication relates to the pattern of behavior towards liquidity in economies with debt of limited marketability. In such economies, money defined broadly would contain a shorter list of quasi-monetary assets. In addition, credit purchase should have satisfied some “monetary needs” the resulting debt would satisfy some more, albeit within a limited scope. Analysis of the financial market in such economy would need to consider the full menu of financial assets to see to what extent people who wish to maintain a certain degree of liquidity can do so.

Finally, we have so far assumed that borrowing would be made exclusively for the purchase of commodities and real assets. It is possible though that people would borrow to finance the purchase of nominal assets. This would be mainly for speculative purposes. Here we need to know how such transactions would affect output on the one hand and whether it would have some bearing on economic stability.

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Individual, Society, and Social Choice in Islamic Thought

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1. Introduction

A society consists of entities, which may be individuals, or some other unit (like the family in some societies, the tribe in others). Whatever the entity is (I will refer to it as the individual for the moment), the society's decisions will or should be composed of its members' decisions. Each society, however, will have its own rules and requirements for making decisions: when a combination of individual decisions is given, a society's decision is reached in accordance with such rules (Murakami, 1968, p. 1, Arrow 1951). The question that arises concerns the conditions governing these rules within a given society; how closely will its decision reflect the preferences of its members? This question has been raised by Arrow (1951, pp. 2-10), wherein he discussed the construction of a "fair" rule or method that will effectively amalgamate individual choices, such that social choice is to be dependent on the individual choices and not imposed upon them independent of their preferences. Arrow (1951) has set down five seemingly innocuous requirements for "fairness" that should characterize each social welfare function; it turns out, in fact, that these can be inconsistent with one another (i.e., no welfare function exists that will satisfy all of these at the same time).

Arrow's five conditions are: (1) universal domain (that the range of the sets of individual orderings within the domain of the social welfare function will be wide enough, such that it will represent or give rise to a "true" social ordering); (2) positive association of individual values; (3) independence of irrelevant alternatives; (4) citizen's sovereignty (i.e., nonimposition of social choice); and (5) nondictatorship. However, Arrow also has proved that a community cannot construct a social welfare function without violating at least one of these reasonable conditions. Even so, Arrow has suggested that it is possible to construct an internally consistent social welfare function if we either

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restrict its domain or weaken constraints upon the range of the welfare function (i.e., if we use something weaker than a function).

This paper will examine the possibility of formulating a social welfare function within the context of an Islamic society, where individual actions might be classified in five categories: *wajib* or mandatory (i.e., prayer, fasting, paying *zakâh*). The actions that individuals *must do* will be referred to as *W*; where there is an absolute requirement or command of God in regard to these actions, and there being no choice involved for the individual under this category); *mandûb* or recommended (i.e., writing contracts when making a loan), or actions that individuals *should do*, will be designated as *Ma*, which the Divine lawgiver labels, in a non-peremptory way, such that there is no blame attached to the engagement in such activities. *Mûbah* or permissible (actions that the individuals *may do*, which will be referred to as *Mu*, there being neither blame nor reward in doing such actions); *makrûh* or undesirable (actions that individuals *should not do*, which will be referred to as *M*). *Harâm* or prohibited acts (referred to as *H* since God has prevented such actions).

If we refer to *U* as the universal set of alternatives available for an individual to choose from then [$U=U(W, M, Ma, Mu, H)$]. However, not all of these actions are allowed for the individual to make choice from if he is to be in consonance with the *Shari'âh* (i.e., prohibited and required activities). In other words, individual choice will lie only within the range of *Ma*, *Mu*, and *M*, since only these subsets of alternatives are feasible to choose from for one wishing to be consistent with the tradition (i.e., even though individuals will be giving up the reward by engaging in *M*, *Mu* activities). However, our concern in this work is with the case that elements in the choice set belongs to the *Mubâh* activities. Since this is the only part of the domain that individuals can choose freely, individuals must operate within the context of the *Shari'âh*.

The five ordinances, or *Al-Akhâm Al-Khâmsâ*, could thus be redefined using a "fuzzy sets"¹⁷ concept, as follows:

¹⁷ The concept of "fuzzy sets" refers to the argument that the elements in the sets are determined by its membership function, such that, in one case an item belongs to a certain set, while, under another set of conditions it belongs to another. If *X* is the universal set, let us assume that *x* belongs to *X*, then the fuzzy set is defined as "a fuzzy subset *A* in *X* is a set of ordered pairs $\{x, MA(x)\}$, $\forall x \in X$, where $MA: X \rightarrow M$ is a membership function which maps $x \in X$ into $MA(x)$ into a totally ordered set *M*, called the membership set, and $MA(x)$ indicates the degree of belongingness of *x* in *A*. For example, if $MA(x)=0$, then *x* does not completely belong to *A* (Leung, 1988, p. 18-19).

1. The universal set, U , including all human actions. This set would be open and unbounded, such that it could be extended to include new cases belonging to the *mubâh* or permissible domain.
2. The universal set, U , including *wajîb* (W), *makrûh* (M), *mubâh* (Mu), *mandûb* (Ma), and *harâm* (H), where W , M , Ma , and H are bounded, and which could be referred to as "Islamic ruled" (IR) such that IR is a subset of the universal set U . Mu , moreover, is not bounded (i.e., since any action that does not belong to IR is considered Mu); in other words Mu set is considered to be the complement of the universal set, U .
3. Given this, IR is a proper subset of the universal set U , with boundaries corresponding to those of M , and Ma . These boundaries, however, will in fact be fuzzy as regards Ma , and M inclusions such that, for example under M (i.e., *makrûh*), some M acts will be considered *harâm* (H), while some others will be considered *makûh* (M). In this case there is no blame attached to the engagement of these latter actions (yet the individual is nevertheless giving up the rewards that he or she expected to receive from God).
4. The universal set U contains all five of the categories. We have defined IR as consisting of $\{W, M, Ma, \text{ and } H\}$. As such, the union of IR and Mu will give us the universal set U , the complement of IR (i.e., Mu), which itself belongs to the universal set U . Mu must thus also be open and unbounded. A proof that the complement of the universal set U (i.e., Mu) is also open and unbounded could be as follows:
 - a) First, assume that we have a subset A of the universal set X ; that subset, if closed, implies that the complement must be open, i.e., $A \subset X$ is called closed when $X-A$ or X^c (i.e., the complement of the universal set) is open (Janich, 1984, p.3).
 - b) Then, since A is closed if and only if X^c is open, we must prove that X^c (i.e., the complement) is unbounded. In that regard, let us assume that X^c is bounded, and also that there exists some set G that strictly contains X^c , A being bounded. Assume next that there exists some set G' that strictly contains A , the universal set $X = X^c \cup A \subset G \cup G'$. This means that the universal set X is bounded. However, this brings about a contradiction. Thus, we should say that the complement of the universal set X is open and unbounded.

Therefore, since the complement of the universal set must be open and unbounded, one might say that, in Islam, the *mubâh* set is open and unbounded,

allowing Muslim societies to adapt relatively easily to the emergence of new issues. The issue that concerns us here is, in fact, in the area of social choice.

I will argue that, even though under an Islamic structure, where the domain of individuals is within the feasible sets of actions (i.e., restricted domain), the Arrow impossibility theorem nevertheless holds. In other words, the problem of formulating a rule by which society could formulate a social choice based on the preferences of its members still holds, and we cannot simply say that under an Islamic structure there will be no need to worry about this problem. The *Qur'an* and the *Sunnâh* have defined for Muslims the general principles of Islamic law, but if society is faced with a problem for which the *Qur'an* and *Sunnâh* provide no clear guidance, there is a need for a process by which the community can reach a solution to that problem (we need to keep in mind that this paper will be concerned with making social choices regarding secular, rather than religious, affairs that belongs to the *mubâh* activities).

Islamic law will reduce the degree of differences of opinions or dissimilarity between individuals, but it will not eliminate every kind of difference among individuals since. Even while general principles are well defined by the Shari'âh, some details are nevertheless left to the individual to decide upon in accordance with the tradition (i.e., *mubâh* actions). The primary concern regarding the derivation of social welfare functions will be with the nature of the rule used under the Islamic tradition. There is a need for a rule by which society could reach a social choice, such that this choice is grounded firmly in individual preferences and is also consistent with the tradition, thus, we can say that the nonexistence of Arrow's social welfare function does not, in fact, indicate that society could not practice the democratic process (in the Islamic sense) in reaching agreement over some certain issue. On the contrary, because inconsistencies are the case, majority voting is actually both beneficial and good. Buchanan (1954) believes that it is good and beneficial in the sense that, despite the pervasive instability of a majority-rule framework, and the stronger likelihood of voting cycles, democracy as a process can still work, where people have different interests in regard to the issue in question.

In this regard, I will show that, while mainstream or more generally Western economics has given a great deal of attention to the difficulties of obtaining a social choice that is dependent upon individual choices, the results have been inconclusive; this is so even while different approaches have been used to address this problem. These efforts include Pareto-optimum criterion (1896-7); the Bergson Welfare Function Criterion (1938); the Black criterion (which has its origin in the 18th century); the cost/benefit criterion (in the early 1960s); the compensation criterion (1939), including (i) Little's criterion (1957) (ii) the Hicks criterion (1939); (iii) the Scitovsky criterion (1941), and (iv) the consumer surplus criterion (1890). The Arrow-type welfare function (1951) and

Rawls' criterion of justice (1971) are then discussed. However, it has been shown that the results of those attempts have uniformly proven to be inconclusive. In other words, the problem still exists. I attempt to explore the problem of establishing social welfare functions based upon individual choices under an Islamic structure, such that choices are to be made dependent on individual choices consistent with the tradition. We notice that the same problem (i.e., the uncertainty) of establishing a social welfare function will hold under an Islamic structure, exactly as in the context of a Western economy. In other words, we are not able to satisfy the five requirements suggested by Arrow.

However, a new and different approach has been taken by Buchanan (1960, p. 70). According to Buchanan, instead of talking about a rule, we simply redefine the problem in terms of a process, a democratic process wherein the assumption is made that society will be able to reach an agreement and thus to obtain an amicable social choice: rather than worrying about the logical consistency of a social welfare function.

2. Arrow-Type Social Welfare Function

In this section I will describe Arrow's theorem and its relevance to the field of welfare economics. I present Arrow's theorem and its general assumptions, and the relevance of the Arrow theorem to welfare economics.

The concept of Pareto-optimality could be defined as that situation where it is impossible to make one person better off without making another worse off. However, this concept does not provide us with any clear guidance as to choices involving making some better and some worse off. In other words, we cannot specify a priori that person *X* will be made worse off and person *Y* will be made better off. Thus, the welfare criteria that I have mentioned above (i.e., the Pareto-optimal criterion, the Bergson Welfare Function criterion, etc.) provide us only with sufficient conditions for a social improvement (Ng, 1980, pp. 111-20). However, as a matter of fact, these criteria are still incomplete in two aspects, as Ng (1980) pointed out: first, if compensation presents an adequate test, then the distribution does not, or vice versa, and we have no answer. Second, the criterion (Little's) acceptability of this is based on judgments regarding the limitation of distribution, but how are we to obtain such a judgment? Thus, we need something more. We require another, specific social welfare function (SWF) with which to fill the vacuum.

2.1. Arrow's Theorem

Arrow (1951) was the first to provide us with a structuring of this problem of finding an adequate social welfare function as a deductive system. Arrow labeled his theorem the "general possibility theorem" but his answer to the question of possibility was, in fact, negative. His theorem states a rule for deriving a social ordering, from individuals' orderings of social states, such that this social ordering is to be based upon individual preferences, are requires certain axioms that every social ordering must satisfy. He continues, further, to establish that these axioms all cannot in general be found in any social ordering without creating a contradiction (Ng, 1980, p. 114). According to Arrow (1951), the objective of choices is social states to gain the following:

The most precise definition of a social state would be a complete description of the amount of type of commodity in the hands of each individual, the amount of labor to be supplied by each individual, the amount of each productive resource invested in each type of productive activity, and the amount of various types of collective activity, such as municipal services, diplomacy and its continuation by other means, and the creation of statues of famous men (p. 17).

Arrow, also, assumes that each of the individuals in the society has an ordering of all conceivable social states in terms of their desirability, and so he calls the rule or process of deriving a social ordering from individual's ordering of these social states the "social welfare function" which he defines as follows:

By a social welfare function will be meant a process or rule which, for each set of individual orderings R_1, \dots, R_n for alternative social states (one ordering for each individual), states a corresponding social ordering of alternative social states, \mathcal{R} (p. 23).

In this context, it must be noted that the individual orderings that enter as arguments into the social welfare function as defined by Arrow refer to the *values* of individuals rather than to their tastes. This implies that Arrow was considering in order to seek a truly general social welfare, that the ordering according to individual values rather than taste will include all the desires of the individual (i.e., where, for example, as Arrow (1951, p. 18) pointed out, market mechanism takes into account only the ordering according to taste). Let us put it in a different way. Arrow required a broader notion of the individual evaluation of social states, such that individual will evaluate the social state on other grounds in addition to what each individual obtained (Rothenberg, 1961, p. 30) Arrow, furthermore, restricts the social welfare function by introducing a "value judgment" that every social welfare function is to meet; he also assumes that both individual and social orderings will satisfy two axioms (i.e., we might have

$A P B$ and $B P C$, then $A P C$, or $A I B$ and $B I C$, then $A I C$), which could be classified as follows:

Axiom I:

For all X and Y , either $X R Y$ or $Y R X$. relation R , which satisfies axiom, will be said to be "connected".

Axiom II:

For all X, Y , and Z , $X R Y$ and $Y R Z$ imply $X R Z$. A relation satisfying Axiom II is said to be "transitive".

A relation satisfying both Axioms I and II is termed a "weak ordering" or sometimes simply an ordering (Arrow 1951, p. 13). The specific value judgments imposed on Arrow's welfare function are as follows:

Condition One:

Among all of the alternatives, there is a set S of three alternatives such that, for any set of individual orderings T_1, \dots, T_n of the alternatives in S , there is an admissible set of individual orderings $\{R_1, \dots, R_n\}$ of all the alternatives such that, for each individual i , $x R_i y$ if and only if $x T_i y$ for x and y in S (Arrow 1951, p. 24).

This condition stipulates, in fact, that the range of the sets of individual orderings within the domain of the social welfare function will be wide enough, such that it will represent or give rise to a "true" social ordering. Rothenberg has nicely clarified this point by arguing that this condition implies that there is at least one "free triple" among all admissible alternatives. The purpose of this condition is to ensure that the social welfare function will not be made trivial by being restricted to choices in only a few highly selected sets of possible individual preference. However, equally, this ordering must be complete and transitive since, if R is not complete, then it is possible to find some admissible alternatives from which no social choice is rendered, and, on the other hand, if R is not transitive, there will exist no unique ordering whatsoever (Rothenberg, 1961, p. 20).

Condition Two:

Let $\{R_1, \dots, R_n\}$ and $\{R'_1, \dots, R'_n\}$ be two sets of individual ordering relations, R and R' the corresponding social orderings, and \mathcal{R} and \mathcal{R}' the corresponding social preference relations. Suppose that, for each i , the two individual ordering relations are connected in the following ways: for x' and y' distinct from a given alternative X , $x' R'_i y'$ if and only if $x' R_i y'$; for all y' , $x R_i$

y' implies $x R_i' y'$; for all y' , $x P_i y'$ then, if $x P_i' y'$. Then, if $x P y$, $x P' y$ (Arrow 1951, p. 26).

Arrow refers to this condition as the "positive association of social and individual values" such that the social ordering responds positively (at least not negatively) to individual choices among alternatives in individuals. Hence, if one alternative social state either arises or remains unchanged in the ordering of every individual without any other change orderings, we would expect that it would rise, or at least does not fall (Arrow, 1951, p. 25).

Condition Three:

The independence of irrelevant alternatives: let $\{R_1, \dots, R_n\}$ and $\{R_1', \dots, R_n'\}$ be two sets of individual orderings and let $C(S)$ and $C'(S)$ be the corresponding social choice functions. If, for all individuals i and all x and y in a given environment S , $x R_i y$ if and only if $x R_i' y$, then $C(S)$ and $C'(S)$ are the same (p. 27).

This condition means that the selection of the socially most preferred alternative from a set of alternatives depends only on the ordering of these alternatives and not on the existence of, or ordering of, alternatives outside the set. Arrow refers to this condition as follows:

If we considered two sets of individual orderings such that, for each individual his ordering of these particular alternatives in a given environment is the same each time, then we required that the choice made by society from that environment be the same when individual values are given by the first set of orderings as they are when given by the second (Arrow 1951, p. 26).

In other words, only the set of alternatives inside or within the set is to be considered. This axiom, as Luce and Raiffa (1957, p. 338) have explained, implies that the selection of the most socially preferred alternatives from a set of alternatives depends only on the ordering of these alternatives and not on the existence of, or the ordering of any alternatives outside this set.

Condition Four:

The social welfare function is not to be imposed (the citizen's sovereignty); A social welfare function will be said to be imposed if, for some pair of distinct alternatives x and y , $x R y$ for any set of individual orderings R_1, \dots, R_n , where R is the social ordering corresponding to R_1, \dots, R_n (Arrow 1951, p. 28).

This condition implies that if social welfare is imposed, then there exists a pair of alternatives x, y such that x is not preferred to y regardless of the preference orderings of individuals, in other words, the citizens of the society in question do not exercise any sovereignty with respect to the pair x against y , and so we could say that society's ordering " x is not preferred to y " is imposed (Luce and Raiffa, 1957, p. 338). This condition will take us to last and fifth condition (i.e., nondictatorship). This condition has been defined as follows:

Condition Five:

Nondictatorship (i.e., the social welfare function is not to be dictatorial); a social welfare function is said to be dictatorial if there exists an individual i such that, for all x and y , $x P_i y$ implies $x P y$ regardless of ordering $\{R_1, \dots, R_n\}$ of all individuals other than i , where P is the social preference relation corresponding to $\{R_1, \dots, R_n\}$ (p. 30).

This condition implies that "there is no individual, with the property that whenever he prefers X to Y (for any X and Y) society does likewise, regardless of the preferences of other individuals" (Luce and Raiffa, 1957, p. 338). After discussing the five conditions that Arrow has suggested we take up Arrow's claim that it is not possible to construct a social welfare function that will satisfy all of these axioms without contradiction. This is what he has called "the impossibility theorem".

3. The Possibility of Constructing a Social Welfare Function Consistent With the Islamic Tradition

The role of the individual in an Islamic society can be described with centrality in two respects: first the religious aspect, where the individual is, in fact, the *raison d'être* of the society, and must be considered free yet, also and at the same time, vested with responsibility. The second aspect concerns the political structure of the Islamic society, in which the relationship between the individual and the states such that legislative sources are formulated by God, and that the state is not an end in itself, but rather a means. Its powers must be exercised according to the principles of Islamic Law, a state in which both the ruled and the ruler are bound by the *Shari'ah*.

I will initially examine the possibility of constructing a social welfare function under an Islamic society. I will also increase Arrow's impossibility theorem conditions to six, adding another axiom that will specify that, in the process of constructing a social welfare function, society must meet not only the Unrestricted Domain condition, Positive Association of Individual Preferences, Independence of Irrelevant Alternatives, and non-Dictatorship, but also must be

consistent with Islamic teachings (i.e., the *Qur'an* and the *Sunnâh*), such that whenever $\{t_o', t'\}$ alternatives, which I will refer to as: these actions that individual *must not do*, and actions that individuals *must do* respectively, appears the following must hold to maintain consistency with the *Shari'âh*, (a) when t_o' (i.e., *must not do* actions) appear in the choice set it *will not* be chosen and that (b) when t' (*must do* actions) appears in the choice set it *will* be chosen. I will refer to conditions (a) and (b) as Islamically imposed axiom.

3.1. Arrow's Impossibility Theorem with an Islamically Imposed Axiom

A social welfare function may be defined as a constitution; an arbitration scheme; a conciliation policy; an amalgamation method, or voting procedure; or simply a rule that associates each preference ordering profile (i.e., a class of R_n) with the society ordering; i.e., we write $f: A \rightarrow B$, to mean that f is a function from A to B , but f here refers to the rule that combines the profile of orderings (R_1, \dots, R_n) to yield the ordering. \mathcal{R} for the community (Luce and Raiffa, 1957, p. 332).

As mentioned above, in Islam individual actions may be classified in terms of five categories: *wajib* or mandatory (i.e., *must do* activities, W); *mandûb* or recommended (i.e., *should do activities*, Ma); *mûbah* or permissible (i.e., *may do activities*, Mu); *Makrûh* or undesirable (i.e., *should not do activities*, M); and *Harâm* or prohibited (i.e., *must not do activities*, H). Then, if we refer to U as the universal set of alternatives available for individuals to choose from, then $U = U \{W, M, Ma, H, Mu\}$; but not all of these actions are allowed for the individual to make choices from if they are to be consistent with Islamic teachings.

The axioms that Arrow has suggested that each social welfare function should satisfy, may be listed as follows:

1. Universal Domain: The domain of the rule f must include all "logically possible" individual orderings M, Mu, Ma, H and W , i.e., the Islamic universal set contains all the alternatives available for the individual to choose from.
2. Pareto Principle: For any pair x, y in X , $[\forall i: x P_i y] \rightarrow x P y$.
3. Independence of Irrelevant Alternatives: Let \mathcal{R} and \mathcal{R}' be the social binary relations determined by f corresponding to two sets of individual preferences $(R_1 \dots R_n)$ and $(R'_1 \dots R'_n)$. If, for all pairs of alternatives x, y in a subset S of X , $x R_i y \iff x R'_i y$, for all i , then $C(S, \mathcal{R})$ and $C(S, \mathcal{R}')$ are the same.

4. Islamically Imposed Condition: This condition will guarantee the consistency with the tradition in the process of formulating a social welfare function, but before proceeding the following definitions are needed;
- a) $x' \in M, Ma, Mu$, i.e., x' contains the feasible set of alternatives that individual can make choices without violating the *Shari'âh*.
 - b) $to' \in H$, i.e., to' is defined as that set of alternatives that contains actions that individuals *must not* do.
 - c) $t' \in W$, t' is defined as that set of alternatives that contains actions that individuals *must* do. Then $to', x', t' \in U$.

Based upon this definition, then out of the universal set $U = U\{H, W, M, Ma, Mu\}$ that contains all the individual actions, Islamically imposed conditions imply that the following *must* hold to maintain consistency with the tradition:

- (i) Whenever t' , is an element of the choice set $\{x', t'\}$; it will always be chosen over x .
- (ii) Whenever to' is an element of the choice set, it will never be chosen. If the choice set consists of to', \emptyset (the empty set), \emptyset is chosen.
- (iii) Whenever $t=\{to', t'\}$, that do not appear in the triple, then the Arrow argument holds.

Lemma: If the choice set is a triple, which includes to' , then it is transformed into a double. However, if the choice set is a triple that includes t' , then it is transformed into a single element in the choice set.

5. Nonimposition: the social welfare function is not to be imposed (the citizen's sovereignty) without reference to individuals' choices; a social welfare function will be said to be imposed if, for some pair of distinct alternatives x and y , $x \mathfrak{R} y$ for any set of individual orderings $R1... Rn$, where \mathfrak{R} is the social ordering corresponding to $R1... Rn$ (Arrow, 1951, p. 28.).
6. Nondictatorship: There is no individual i such that, for every element in the domain rule f , $\forall x, y \in X: x P_i y \rightarrow x P y$.

Arrow (1951, p. 59) has concluded that, if we exclude the possibility of interpersonal comparisons of utility, the only method of passing from individual to social preferences will be either imposed or dictatorial. In this case, the additional axiom Islamically imposed will provide us with the rule that, whenever to' (actions that individuals *must not*_do) appears, then to' will not be

chosen, and if a choice set consists of both to' and \emptyset , then \emptyset will be chosen over to' . On the other hand, when t' appears in the choice set it will always be chosen. However, if all alternative orderings have t' (*must do* actions) in them, no social choice problem exists, just as for an individual Muslim trying to achieve *falâh*, or the welfare of this life and the hereafter. My concern in this regard will be the following cases: (a) If we have a choice set consisting of a triple $\{to', x, \text{ and } y\}$, i.e., assuming that X and Y belong to *mubâh* activities, then the Islamically imposed axiom implies that to' will not be chosen. Therefore, the community is faced with double alternatives X, Y . (b) The second case is when all the elements in the choicest belong to *mubâh* activities, where $\{t\}$ does not occur, then the community needs to make choices from the available alternatives, in such a way that social choices should reflect the individual preferences and maintain consistency with the *Shari'âh*.

Alternatively, in these cases where the triple choice set contains to' , the choice is between two elements left in the choice set, but if t' does appear it will be chosen, then Arrow's negative results follow. On the other hand, if to' and t' elements are not in the choice set (i.e., all elements in the choice set belongs to *mubâh* activities) then Arrow's results follow in a straightforward fashion.

I conclude that it is not possible to formulate a social welfare function based upon Arrow axioms. In other words, it might be said that the Arrow impossibility theorem will hold (given Arrow's assumption), even though we are describing a community wherein certain religious values and beliefs govern both communal and individual behavior.

Different approaches have been made in an attempt to solve the problem of social choice by asking for something less than a function, starting with Black (1948), Sen (1970), and May (1952), among others. Unfortunately this weakening of the requirement (i.e., something less than a function) has been proven to give unsatisfactory results, as Sen (1969) has pointed out. I also showed that Arrow's impossibility theorem will hold even in a Muslim community. Then the question arises, what should the Muslim community do to formulate a social process, since the problem of social choice problem cannot be left unsolved? In other words, what are we to do if we are not able to find a function that meets Arrow's conditions? We cannot simply say that there is no solution to the problem of social choice.

This then implies a necessary change in my conclusion with respect to an Islamic welfare function. Since we are not able to construct a social welfare function for the Islamic society, this then will drive us into a new direction, that is as a Muslim society it is more important to focus on the process by which the community is willing to reach a social choice that is consistent with Islamic values, more than worrying about the nature of the function itself.

4. The Importance of Consensus in the Process of Collective Choice

The theory of collective choice might take political, economic, or social forms. We must attempt to explain and describe the means by which conflicting interests between individuals within any community will be reconciled. If individuals have identical interests, then there is no problem at all, but the fact that differences of interest exist means that they must be reconciled by formulating a rule by which society may choose among the alternatives. The problem is not easily settled, as differences of interest are bound to exist.

Buchanan and Tullock (1962, p. 77) argue that, even though it is assumed that it is possible to recognize constitutional¹⁸ decisions that are collective, and which may be reached under any several decision-making rules, the same issues must be dealt with at each necessarily higher level. Thus, the problem will be concerned with how the rule itself is to be chosen. Therefore, society must consider that process or that rule that will minimize if not eliminate the external cost that might be imposed upon some of its members. Buchanan and Tullock (1962, p. 99) also suggest that one means of escaping from what might appear to be unsolvable dilemma is to introduce some rules for unanimity at the constitutional level of decision making.

Then, this rule would provide a criterion against which the individual's decisions on constitutional issues might be analyzed. So that every individual in the process of his calculus of choice knows that all other individuals in the group or the community must agree before ultimate action can be taken. By doing this, it is possible to determine the outcome of the choice rule (i.e., it can be determined whether an improvement comes about by the proposed choice making or not). This could be associated through unanimous agreement among all parties in the political group in the society in question: agreement, among all the individuals in that community, over a proposal, then, becomes the only real method of "improvements". This is because only unanimity rule will insure that all external effect will be eliminated by collectivization.

It is, however, also important to note that the attainment of consensus might be "costly" and, according to Buchanan and Tullock (1962), the only case

¹⁸ Buchanan and Tullock (1962, p. 63) have used the term constitutional to refer to the argument that the individual's decision to determine that certain activities should be organized privately or collectively is based upon comparing the interdependence costs to him. The individual's final decision must rest on a comparison of those costs that he or she expected to be imposed on him or her as a result of collective organization itself.

by which society could depart from the unanimity rule is when it is too expensive to achieve a unanimous decision using this rule. They state that:

The individualistic theory of the constitution we have been able to develop assigns a central role to a single decision making rule--that of general consensus or unanimity. The other possible rules for choice-making are introduced as variants from the unanimity rule. These variants will be rationally chosen, not because they will produce "better" collective choice (they will not), but rather because on balance the sheer weight of the cost involved in reaching decision unanimously dictates some departures from the "ideal rule" (p. 96).

But, the argument here is that, is it always possible that unanimity among the members of the entire society could exist? Unfortunately, the answer to this question is negative. The reason unanimity does not always exist is that "people have different interests". Even while this does not mean that we cannot reach a consensus on a certain issue, still, some choices will involve compromise. Thus, we might have unanimity, even though there is a conflict of interests in regard to separate issues, but this does not mean, as Sen (1970, p. 20) has pointed out, that individual orderings *must*, in general, be unanimous.

A solution to a certain problem by consensus, then, will be achieved when all of the participants in the social decision making are able to "trade" among themselves (i.e., this is similar to logrolling¹⁹, or to the trading of votes). A good example is given by Buchanan and Tullock (1962, pp. 254-55). Let us assume, by way of illustration, that community *X* consists of only three individuals, *A*, *B* and *C*, where each has a mutual interest in remaining in this community. Also there is a mutual advantage expected by the individuals participating in the community effort. Based upon that, the formulation of a social contract on the basis of unanimous agreement becomes possible.

Let it be assumed also, that *A* is interested in insuring that "fishing" is collectively organized. This is because *A* likes fish and also because he realizes that the productivity of collective efforts will be higher than productivity at the individual level. It is possible to reduce the problem to a yes-or-no question: either the catching of fish will be accomplished collectively or not. This appears

¹⁹ The Logrolling process occurs when voter preferences intensities on each issue are not the same. In this case, the gains of a winning majority may be less than the minority's losses; then, to avoid this kind of problem, "intense minorities" may be engaged in logrolling or vote trading (see, for more details, Buchanan and Tullock, Chapter, 10).

to be a "mutually exclusive" alternative, and also it seems impossible that agreements between *A*, *B*, and *C* could be reached by consensus or unanimity; if we assume that individual *C*, for example, does not like fish, such that *C* does not agree to collective fishing, and if we also assume that individual *C*, for example, does not like fish, such that *C* does not agree to collective fishing, and if we also assume that individual *B*, in contrast to *A* and *C*, is really altogether more interested in something other than fish. Thus, we have a society of three individuals with different interests and preferences; it is obvious, then, that they could not achieve unanimous agreement but, as Buchanan and Tullock suggest, it is possible that a consensus might be reached if they were able to make compromises and trade among themselves. Thus, according to Buchanan and Tullock, in the process of collective choice theory, it is important to consider the possibility of trading between the participant individuals since, as we saw from the above example, in the absolute ranking of preferences of *A*, *B* and *C*, there is no way that we might reach a unanimous agreement except by such measures.

However, later in their discussion, Buchanan and Tullock (1962, p. 259) point out that "the rule of unanimity is the same as the minority rule of one: to take any action, unanimous agreement must be reached, as such if one individual objects to the action/actions in question, then that action will not be taken according to the unanimity rule, the result thus will be that the rule of unanimity is the same as the minority rule of one (i.e., the unanimity rule and the rule of one become identical). "It might, in this regard, be only one participant who will act as a dictator, blocking any action the community might want to take, since the rule of unanimity gives individuals this kind of power. Then this section may be concluded by our observing that the unanimity rule is the best rule (i.e., if it can be achieved) that any community might use for making social choices; this rule will insure that the external effect will be eliminated by collectivization. However, unfortunately, it is not always easy to obtain unanimity.

5. Social Choice in an Islamic System

Social choice in Islam is to be based upon individual preferences so as long as these lie within the permissible set of actions and are in consonance with the *Shari'ah*. In other words, any changes in social decisions, may take place only through changes in individual decisions, except in cases where matters are considered prohibited and obligatory since, within that range of the domain, individuals have no choice but to act in a certain way.

The individual plays an important role in the process of social choice, and where social choice is taken to be directly dependent on individual

preferences, and not at any point independent of what individuals prefer, assuming that these preferences belong to the *mubâh* area of activities, and consistent with the general principles of the Islamic law (i.e., the *Shari'âh*).

The role of the individual in Islam is crucial to the social choice process; the individual is free to choose as long as he or she is consistent with the tradition, but also at the same time the individual is responsible for his/her actions; in other words, the individual is a free individual vested with responsibility. This implies that the individual makes choices with adequate knowledge (with Divine guidance), aware of the consequences of his actions, in what categories these actions might lie, and their consequences.

The state in Islam is, itself, an important element within this overall structure since, according to Islamic law, sovereignty belongs only to God and humankind is nothing but His vicegerent on earth. Thereupon, the authority of the state is not absolute: it is a trust (*amânah*) from God, and it is to be exercised in accordance with the terms laid down in the *Shari'âh*. The innermost purpose of the Islamic state is, thus, to provide a political framework for Muslim unity and cooperation. The state is, nevertheless, democratic at the procedural level, such that choices regarding worldly affairs are to be based upon consultation with members of that community or their representatives; the state must reflect individual choices in social choice, again so long as these choices are consistent with *Shari'âh* (EL-Awa, 1989).

In the above discussion, I showed that there is no rule that will allow society together to construct social ordering \mathcal{R} , that is based on individual profiles, i.e., R_1, \dots, R_n , and be consistent with the axioms suggested by Arrow at the same time. Also, I showed that, even though there have been different attempts at altering Arrow's requirements, by weakening, for example, the rule required in proceeding from individual to social choice, Sen (1977), for example, in this regard, suggested that we could redefine the problem in terms of *choice functions* rather than *social orderings*; he argued that it is possible to redefine this problem by obtaining a *rule* for social choice more general than Arrow's.

According to Arrow, a rule is defined as a functional relation f that specifies one and only one social binary relation R for each set of individual orderings R_i with one R_i for each i . The social welfare function is defined as a rule f , where range is restricted to the set of orderings. However, if we are able to consider a class of rules that are not necessarily social welfare functions, but which at least indicate unambiguously the best alternatives in every choice situation (Sen, 1969; Pattaink, 1978) the problem might be solved. However, this was proven to be unsatisfactory.

According to Buchanan (1974), the non existence of Arrow's social welfare function does not indicate that society could not act democratically in reaching an agreement in regard to certain issues. On the contrary, he believes that inconsistencies of majority voting are both beneficial and good.

In short, then, all the attempts being made to solve the social choice problem have shortcomings. The question that thus arises is how the social choice process would work in the context of an Islamic social and political system. The *Qur'an* and *Sunnâh* are the main sources from which the Muslim community can derive knowledge. These main sources might be silent in a certain issue; therefore to maintain a continuous law system, there are two methods of interpretation that could be used with the context of the *Qur'an* and the *Sunnâh* (i.e., *ijmâ* and *analogy*); society will use these methods in situations in which the main sources contain no clear guidance.

The Islamic state, it was shown must reflect the voice of Muslims making that state as long as their preferences are consistent with the *Shariâh*. The head of the Islamic state also is to be obeyed by the ruled only so long as he is not in violation of Islamic teachings. In other words, the supreme values in Islam are derived from the *Shariâh*, and both the ruler and the ruled are bound by these rules.

Thus, throughout the discussion of this paper, I argued that, based upon Arrow's assumptions and also the "Islamicly Imposed" axiom that will guarantee the constancy with the *Shari'âh*, which implies that the following must hold to maintain consistency with the *Shari'âh* Arrow's results will hold, such that; (a) Whenever t' , is an element of the choice set $\{x', t'\}$, it will always be chosen over x' , (b) Whenever to' is an element of the choice set, it will never be chosen. If the choice set consists of to' , \emptyset (the empty set), then \emptyset is chosen, and (c) Whenever $t = \{to', t'\}$, that do not appear in the triple, then the Arrow argument holds.

Based upon that, I came up with the conclusion that "for a Muslim community as long as t' (*must* do actions), which belong to $\{t\}$ [i.e., $t = \{to', t'\}$ appear in the choice set, the problem of social choice becomes redundant. On the other hand *if* (1) we have a choice set consisting of a triple $(to', x, \text{and } Y)$, i.e., assuming that X and Y belong to *mubâh* activities, then the Islamically imposed axiom implies that from Islamic point of view to' will not be chosen (i.e., the community is faced with a double alternatives X, Y); and (2) if $\{t\}$ does not occur, then Arrow's argument holds".

In a Muslim community, unanimity is the only rule that will eliminate the external social cost that might be imposed upon some members of the community, but that does not imply that every social choice must be unanimous.

If something less than full consensus is reached on a public issue, the community should proceed and make choices, rather than adhere to their *status quo*. As has been shown, the objection of one individual under the unanimous rule could block the entire action, and to avoid this a Muslim community could apply the majority-rule criterion as long as consistency with the *Shariâh* is maintained.

We should emphasize in this regard, that majority-rule is to be used only in the area of *mubâh* activities, and it has to be exercised within the context of the *Shariâh*. Then before considering any activity through the majority-rule, the issue in question should be consistent with the Islamic teachings.

Zarqa (1980, p. 13) argues that the issue of the social welfare function (SWF) that modern economists long for received more than 800 year ago original formulation from two Muslim thinkers and jurists: *Al-Ghazali* (undated, died 505 H) and *Al-Shatibi* (undated, died 790 H). They came to the conclusion that social utilities in Islam may be divided into a three-level hierarchy: necessities, conveniences and refinements. *Necessities* comprise all activities and things that are essential to the preservation of the five foundations of good individual and social life according to Islam: religion, life, mind, offspring, and wealth. *Conveniences* comprise all activities and things that are not vital to the preservation of the five foundations, but rather, are needed to relieve or remove impediments and difficulties in life. *Refinements* include activities and things that go beyond the limits of conveniences (i.e., those things that complement and brighten life).

Using the same terminology used through this paper we can refer to necessities as *wajib* (i.e., *W* or must do), whereas, conveniences and refinements can be classified as *mandub* (*Ma*) and *mubah* (*Mu*) respectively. The Muslim society should classify the available alternatives according to such order. If the choice set contains refinements or conveniences along with necessities, then refinements or conveniences should be disregarded if they conflict with the necessities.

But, what if the Muslim society is faced with the following situation: *X1*, *X2* and *X3* are alternatives belong to the *mubah* areas of the universal domain. Then, we cannot expect that individual will profile their preferences in the same order, thus we need a rule by which the Muslim society can reconcile its conflicting interest. Since, Muslim individuals will not necessarily have identical interests, we must attempt to explain and describe the means by which conflicting interests between individuals in a Muslim community will be reconciled.

The reason that I think majority-rule ought to be adapted to a Muslim community (in a completely different context) as a rule by which the community could achieve a social choice, is that since we are not able to construct a social welfare function, based upon the individual preferences, and also that unanimity rule implies that one individual could act as a dictator and block actions, then this rule, even though it is not perfect, at least will allow society to make choices that belong to the *mubah* area of the domain, and not adhere to the status quo as long as the community is consistent with the *Shari'ah*.

The determination of majority-rule could thus vary; for example, it could be that, if 51 percent of the community agrees, then the proposed policy or activity should be taken, or it could be 75 percent, etc. This implies that the size of the minimal decisive set (i.e., if we remove one element of that set, then the social ordering will change) will vary. The interesting thing is that, if it is assumed that majority-rule is to be 75 percent (i.e., the minority being 25 percent), then if 74 percent agrees and 26 percent objects, nothing will happen. However, if it is assumed that compromises could be made, then social choices could be achieved.

Assume that a Muslim society is faced with a social problem (where $\{t\}$ does not appear) where the element in the choice set belongs to the *mubah* area of the domain. Society needs to make a social choice that is based on individual preferences. Assume now that we have three projects and society consists of only three individuals *A*, *B* and *C*, who need to choose from *X*, *Y*, and *Z*, where:

- X*: Society is to build a school
- Y*: Society is to build a park
- Z*: Society is to build a highway

Individual *A* prefers *X* to either *Y* or *Z*, as he has five children and he is looking forward to sending them to school. On the other hand, individual *B* prefers building a park, since he has no kids. *C*, who has bought a new car and has no kids, prefers to build a highway. Thus, if we obtain unanimous agreement among all the members of the community, this means that the external social cost will be eliminated and; therefore, there will be no external costs involved. However, let us be more reasonable and assume that the community decides to take the action based upon majority-rule, so that if two of the three agree, we will consider their choices as the social choice. If each individual maintains his or her position, nothing will happen, and none of the three projects will be undertaken. However, if they compromise, this compromise will enable them to obtain a definite social choice. I could argue that one might expect the compromises in a public issue in a Muslim

community would be easier, since therein behavior is governed by certain values and religious beliefs, such that individuals do not consider themselves an isolated unit of the community. Rather they feel that there are certain duties and obligations that both individuals and the community should maintain. Thus, this process might be helpful since, under this structure, it is reasonable to expect that the logrolling process or compromises between our three component individual could be reconciled, since the individual, under an Islamic structure, will not consider only his or her self-interests but also the impact of his actions or choices on society.

For example, individual *C* prefers society to build a highway because he bought a new car, but at the same time we assume that society will undertake only one of the available alternatives (only one of them is admissible, i.e., such as building a school). Under an Islamic structure, where dissimilarities between preferences would be assumed to be less, since the universal domain is defined by the tradition, one might expect that the possibility of logrolling or compromise might lead all individuals to agree on the *X* alternative (i.e., building a school).

Thus when dealing with an Islamic society, it should not be expected that differences in individual preferences will not occur when alternatives belong to the *mubâh* set of alternatives; otherwise, there would be no need for worrying about the social choice problem. However, the argument to be made here is that individuals, feeling themselves as part of the Muslim community, will find dissimilarities between themselves reduced, even if they will not be fully eliminated. Preferences, even so, will still be considered an important part of the process of formulating a social choice. They are important, and choices are made freely (within the context of the *Shari'âh*), but individuals are also, at the same time, responsible for their actions.

I conclude that it is not possible to construct a social welfare function in an Islamic community based upon Arrow's axioms, even with the new added Islamically Imposed axiom. This negative result has led me in the direction of Buchanan's approach that focuses on the process by which a community establishes a solution to social alternatives consistent with their values, rather than focusing on the internal consistency of the end results. However, this rule might not be perfect, but I feel that it will allow society to make choices within their values and not adhere to the *status quo*.

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Analytical Tools of Islamic Economics: A Modified Marginalist Approach

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1. Introduction

Economics as a discipline attempts to resolve what to produce and consume with limited resources at the disposal of individuals and the society. Given the scarcity of resources, the economic problem entails making choices to attain well-defined goals. One of the main contributions of the founders of the neoclassical school (Jevons, Menger, and Walras) to modern economics is outlining the principles of how choices are made in face of scarcity. In doing so, they provided the analytical tools of the choice process. Optimization under constraints by rational agents using *equi-marginal* principle describes how choices are made and forms the micro-foundations of the neoclassical economic analysis.

Islamic Economics, a nascent discipline integrates Islamic principles with economic science. It is asserted that the distinguishing feature of Islamic economics *vis-a-vis* conventional economics that while the latter is considered value-neutral, the former is value-laden.¹ The basic principle that emanates from literature on Islamic Economics is "freedom of action and collective responsibility" (Nasr 1989). Though a lot has been written on the nature and attributes of Islamic Economics, some basic issues are still unresolved. For example, how the fundamental problems of choice and scarcity are addressed analytically under the value-laden framework is obscure. Similarly, Islamic economists assert that Islamic economic system is market-based, where price is determined by the interplay of demand for and supply of a good. How are these demand and supply curves derived in Islamic economy is

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¹ For a discussion on the nature of Islamic Economics see Chapra (1985 and 1992) and Ghazali and Omar (1989).

not yet clear. If we know the underlying determinants of the individual demand and supply functions, then we will be able to analyze the characteristics of an Islamic market.

Critics of Islamic Economics point out that the discipline lacks a "well defined and operational method of analysis" (Kuran 1995, p. 170). If Islamic Economics has to develop as a discipline, it is important to clearly identify the analytical tools that can be used to discuss its theory. Analytical tools are used to analyze the fundamental issue of how choices are made and help study the micro-foundations of economic theory. In this paper, we investigate the analytical tools that can be used to analyze the behavior of agents in an Islamic economy. We argue that a modified neoclassical marginalist approach that integrates the Islamic values can be used to study Islamic economics.

The paper is organized as follows. The importance of analytical tools in examining the micro-foundations of economic theory is discussed in Section 2. Given the lack of generally accepted analytical tools in Islamic economics, we study the scope of using neoclassical (marginalist) analysis in the discipline. To do this we first identify the principles of marginalist analysis in Section 3 and then examine their compatibility with Islamic values in Section 4. We conclude that economic behavior of individuals based on Islamic principles can be modeled using modified marginalist analytical tools. In Section 5, we use these modified marginalist analytical tools to demonstrate two specific examples. First example shows a consumer's choice problem and the second one examines the behavior of a firm imbued with Islamic values. Though the neoclassical analytical tools are used in these optimization processes, consumption and production of goods (and as such resource allocation) in an Islamic economy turn out to be different from a conventional one. Section 6 concludes the paper.

2. Need for Analytical Tools

System of belief, customs, and norms form the underlying paradigm and basis of any society. Paradigm affects behavior of individuals in the economy that forms the micro-foundations of an economic system. The paradigm of the neoclassical economy is *laissez faire*. The resulting behavior of an individual, i.e., the 'economic man', gives the micro-foundations and the underlying characteristics of the neoclassical economy. The underlying paradigm of the Islamic economic system is *Sharia'h*. The behavior of an 'Islamic man' based on *Sharia'h* forms the micro-foundations of the Islamic economy (Ariff 1985).

When comparing conventional economics and Islamic economics, it is emphasized that while the former discusses the subject matter positively, the latter includes both positive and normative aspects. In neoclassical economics, as mentioned above, the optimization behavior of 'rational' economic agents

form the micro-foundations of its theory. While the normative elements of the 'Islamic man' have been discussed thoroughly, they have not been integrated in developing the micro-foundations of Islamic economic theory.

The need for the analytical tools in economics relates to very basic issues. Tools are needed to analyze the micro-foundations of an economy on which the fundamental theories are based on. In the absence of analytical tools, study of an economic system becomes perplexing. Basic issues remain unanswered and consistent analysis is not possible. Lack of tools that study the micro-foundations of Islamic economic theory has failed to provide a functional alternative to the existing systems. The result is that discussions in Islamic economics have often produced "contradictory proposals and fallacious inferences" (Kuran 1986, p. 159). The following example illustrates this point. It is emphasized that Islam believes in the market mechanism. While discussing principle of resource allocation in an Islamic economy, however, it is asserted that Shataibi's hierarchy in their use is the correct view (see Khan 1992, p.176). Accordingly, resources should be first allocated to the essentials (necessities). After needs for essentials of every one in the society are met, resources can be allotted to fulfilling the need of complementarities (conveniences) and then ameliorations (refinements). The question that can be raised is that how does the above-mentioned hierarchical allocation in consumption come about in a market economy. Are there inherent mechanisms built in the behavior of the agents based on Islamic belief system that will give the above mentioned distribution of goods?

Similarly, analytical tools are needed to clarify the implications of certain claims made in the discipline. For example, some Islamic economists maintain that a firm's objective is not to maximize profit only. Instead, it is asserted that in the Islamic framework the objective of a firm has both profit and social considerations (Al-Habshi 1992, Mannan 1991, Siddiqi 1992). For example, a producer imbued with Islamic zeal may produce a good that is beneficial to the society in larger amounts even if it yields lower profit. Such an approach raises some important questions from an analytical point of view. First, given the Islamic ethics, how can the above-mentioned result be shown by studying a firm's production decision at the micro level. It is important to analyze the issue as the firm's behavior forms the foundations of the supply side of the market. Another related question that arises is that if a firm operating under Islamic principles produces an output level that is different from the neoclassical one, is it operating at an inefficient point. Or, is there a need to define an Islamic concept of efficiency?

There appears to be two contradictory tendencies observed with respect to the analytical tools that can be used in Islamic Economics. First, there is a

realization that Islamic economics is not fundamentally different from the neoclassical economics. As such, Islamic economics can be discussed under the neoclassical framework by simply adding the Islamic values to it (Khan 1985 and Khan 1991). Such an approach has been taken by some Islamic economists who point out the differences between neoclassical and Islamic economics by using the neoclassical marginalist tools for analysis. For example Kahf (1980) uses indifference curves and budget lines to discuss a Muslim consumer's problem, while Siddiqi (1996 p. 35) maintains that the equality of marginal cost and marginal revenue should be the criteria for making decisions of how much output to produce.² These papers, however, do not explain why the neoclassical tools can be used to study the behavior of agents in an Islamic economy. This lack of explanation has led to the second view. Some maintain that a *new* tool of analysis that includes both positive and normative aspects should be developed to discuss Islamic economics (Ahmad 1992, p. 37 and Ariff 1989, p.93). Such assertions, however, are not substantiated by alternative analytical models. No unique 'Islamic' analytical tools for economics that can explain the choice and scarcity problems of agents in an Islamic economy have been developed.

The above discussion shows that there is no consensus regarding the appropriate analytical tool that can be used to study Islamic Economics. This paper addresses this issue. We explore if neoclassical marginalist analytical tool can be used to discuss theories of Islamic Economics. The answer will be in the affirmative if the basic elements of the neoclassical marginalist approach do not contradict Islamic values and principles. This approach does not contradict Islamic values.³ We argue in this paper that a modified version of the marginalist analytical tools that internalizes Islamic values can be used to study the micro-foundations of Islamic Economics. We show that even though the paradigm of an Islamic economic system is different from the neoclassical one, the basic principles of the marginalist analytical tools do not contradict Islamic principles and can be used to study the underlying behavior of agents in an Islamic system.

² Siddiqi (1996) maintains that the social factors may cause the firms to increase output and as such supply curve shifts to the right. This is, however, done in an *ad hoc* manner without integrating it in the optimization decision of the firm.

³ When Islam appeared in the 6th century, it accepted practices of the times preceding it (the days of ignorance) as long as they did not contradict Islam. For example, *mudarahab*, a profit-sharing mode of financing practiced before the advent of Islam, was accepted as it did not contradict the injunctions of Islam.

3. Neoclassical Marginalist Tools of Analysis

The origins of marginalist analytical tools can be traced back to the founders of the neoclassical school (Jevons, Menger and Walras) in the early 1870s (Walsh and Gram 1980, p. 123).⁴ Breaking the tradition of classical economists who focussed on growth and wealth accumulation, they came up with a resource allocation theory explaining economic principles in mathematical form (Blaug 1996, p. 279). The main contribution of these economists is that economic theory was viewed as "an enquiry into the conditions of maximization under given constraints" (Dasgupta 1975, p. 77). They addressed the fundamental issue of choices that individuals make as consumers and producers and the resulting allocation of scarce resources to alternative uses in the economy. This contribution was so significant that it is termed as the "marginal revolution" (Blaug 1996, p. 277 and Walsh and Gram 1980, p.161).

Jevons saw economic problem as an "optimum resource allocation" problem (Walsh and Gram 1979, p. 129). He studied allocation problem of a consumer endowed with commodities that are exchanged in the market. Individuals exchange the commodities to achieve an allocation that maximizes their objective functions. He assumed an optimizing individual with diminishing marginal utility in consumption. Note that Jevons did not specify the nature of an individual's objective function in narrow utility terms as found in contemporary writings of neoclassical economics. He asserted that the objective was personal to an individual and could have altruistic features.⁵ While Jevons contributed to the consumption side of the marginal revolution, Menger emphasized the allocation of resources in the production of goods. Menger's analysis added the allocation of resources in the production of goods along with the consumer's optimization problem. Walras, recognizing scarcity of factors of production, presented the economic theory in terms of general equilibrium. Using mathematical format, he showed how optimizing behavior of individual in the markets result in general equilibrium in the allocation of resources.

The principle dictum of the marginalists is that choices by economic agents are made to "achieve that allocation which of all feasible allocations

⁴ The contributions where the Marginalist ideas were espoused are William S. Jevons (1871), *The Theory of Political Economy*, Carl Menger (1871) *Grundsätze der Volkswirtschaftslehre (Principles of Economics)*, and Leon Walras (1874) *Elements of Pure Economics*.

⁵ Walsh and Gram (1979, p. 129) describing Jevons notion of the objective function point out that "it is quite possible that one of his (individual's) chief pleasures may be to see another person happy".

would result in the maximization of their objectives" (Walsh and Gram 1979, p. 130). The main features of the choice process of the marginalist school that laid the foundations of the neoclassical economics are given below:

- a) ***Use of Mathematics in Analysis:*** The fundamental principles of economics are given a mathematical form to make the subject more scientific (Walsh and Gram 1980, p. xi). Continuous functions were used so that calculus could be used. The maximization behavior, however, is equally applicable to discontinuous functions (Blaug 1996, p.280).
- b) ***Scarcity and Feasible Allocations:*** The concept of scarcity is derived from the dual notions of limited resources and unlimited wants. The implication of scarcity is that not all allocations are feasible.
- c) ***Optimization:*** Economic agents make their choices in order to optimize some maximand, i.e., maximize some objective function. In conventional economics, a rational consumer is said to maximize his utility and a firm maximizes profit.
- d) ***Diminishing Marginal Utility in Consumption and Diminishing Marginal Productivity in Production:*** Whereas diminishing marginal utility is a behavioral assumption, diminishing marginal productivity is a technical proposition. According to the former, as a consumer consumes more of a good in a period of time, the satisfaction derived from each additional unit declines. Similarly, in production diminishing marginal productivity states that as more of a (variable) input is added to a fixed quantity of an input, the output produced by additional units of the variable input decline. Postulation of diminishing marginal utility in consumption and diminishing marginal productivity in production is necessary for optimum solutions.
- e) ***Choices based on Marginal Analysis:*** Choices among the feasible allocations are made at the margin. Economic agent's choice decision for an additional unit results by comparing the marginal benefit and the marginal cost of the unit. The unit is chosen if its benefit exceeds its cost. With continuous functions, this implies that choices are made to the point where the value of marginal benefit is equated to the marginal cost giving the 'equi-marginal principle'.
- f) ***Efficiency:*** Efficient allocation implies that "each unit of the dividend is apportioned in such a way that the gain of transferring it to one use will just equal the loss involved in withdrawing it from another" (Blaug 1996, p. 280). Thus, if choices are made on the equi-marginal principle, the outcome is efficient. In production efficiency would imply that the marginal cost of producing an additional unit of output equals marginal

revenue it generates. In terms of input utilization it would mean that the value of marginal product of an additional unit of input equals its cost.

Neoclassical economics has used the equi-marginal principle in a wider context to explain different aspects of the market economy (Blaug 1996, p.280). In the next section, we discuss the above-mentioned marginalist principles in the light of Islamic values to determine if they can be used as analytical tools of an Islamic economy.

4. Marginalist Analytical Tools and Islamic Principles: Are they Compatible?

Given the main features of the neoclassical marginalist approach above, we examine if these can be used to study the choice process in an Islamic context. To do so, we first ascertain if these features of the neoclassical approach are compatible with Islamic values.

- a) *Use of Mathematics in Analysis:* This issue does not directly fall in the realm of Islamic values as it deals with the approach of studying the subject. Islamic principles, however, dictate that if there are benefits of using mathematical formulation in studying the subject matter, it should be used. It must be noted that the objective of mathematical modeling is to simplify the complex real world and deal with the main issues by leaving out the minor details. This approach enables systematic and consistent analysis. The use of overly complicated mathematical models that lose touch with reality can be exercises without benefit and should be avoided. Overall, given the benefits of mathematical formulations, they can be used to analyze the behavior of agents that form micro-foundations of Islamic economic theory.
- b) *Scarcity and Feasible Allocations:* Islamic economists have different views on scarcity of resources and the economic problem.⁶ One view is similar to the conventional one where scarcity of resources and unlimited wants coexist. As mentioned above, the implication of this assumption is that not all allocations are feasible. The second view among the Islamic economists is that there is no relative or absolute scarcity. Rather, the problem is that of injustice and mal-distribution. The third view takes the middle ground asserting that God has provided sufficient resources, but it is the system created by man that prevents the satisfaction of all of his needs and wants.

⁶ For a discussion on the topic, see Nomani and Rahnema (1995), pp. 83-84.

Though organization of the economic system can improve the equity problem, the basic economic problem of scarcity exists both at the micro (individual agent) and macro levels.⁷ The fact that resources and goods have positive prices (i.e., are not free) is an indication of scarcity. A Muslim's feasible allocation, however, is not only determined by the conventional resource constraint alone, but also by subjective (ethical) criterion derived from *Sharia'h* (Naqvi 1981). In the words of Nasr (1986) actions of Muslims are not only bounded by 'optimality constraint' but also by 'optimality restraint'. Thus, a Muslim consumer will not only operate under the budget constraint, but other ethical or moral constraints. Similar constraints apply to the Muslim producers.

- c) **Optimization:** As mentioned above, one of the distinguishing features of Islamic Economics compared to the neoclassical case is that the former is value-laden. As such, there will be a difference between rationality of an individual in the conventional sense (economic man) and that of God fearing Muslim (Islamic man). In other words, whereas a rational economic man's objective is based on self-interest (i.e., utility and profit), an Islamic man's objective function will include both self-interest and altruistic features.⁸ Though it is emphasized that objective function of an obedient Muslim include altruistic features along with self-interest, there are various ways in which this is specified in the literature. These are discussed below.

Some Islamic economists maintain that the overall goal of a Muslim is to attain *falah*. Islamic man knows that Allah has entrusted him with the resources. In order to attain *falah*, his rational decision regarding allocation of resources will involve making choices in accordance with the Will of Allah. Economic activities (like production and consumption) are not an end in itself, but a means to an end, i.e., to the attainment of *falah* (Ariff 1989 and Kahf 1881). As such, the rational behavior of an obedient Muslim is not only driven by individualistic considerations, but also by altruistic features derived from the belief in the punishment/reward of the Hereafter. Allocation of resources will cover both his personal (and family's) needs and well being and the wellbeing of the society (Ariff 1989, p.91). *Masalih* (utility that includes social aspects) are all activities and things that help achieve this goal (*falah*), while *mafasid* (disutilities) are

⁷ For a discussion on the scarcity in details along this argument see also paper by Fahim Khan in this volume.

⁸ A Muslim who believes in the hereafter and that altruistic acts will be rewarded in the day of judgment, will do such acts as part of his self-interest behavior. Thus, for Muslims altruism is a part of self-interested behavior. I thank the referee for pointing this out.

those which prevent individuals from attaining the goal (Zarqa 1989, p. 34). Khan (1995) asserts that *maslahah* (singular of *masalih*), rather than utility should be used to analyze the behavior of agents in Islamic economics (p. 35).

Ahmad (1992, p. 25) explains the objective of an Islamic man by indicating that an individual operates at two levels. At one level he is an *object* where self-interest is the motivating force of his actions. This is similar to the assumption of rational behavior in conventional neo-classical economics. What makes an Islamic man different from an economic man, however, is that the individual also acts as an *instrument* or *agent* (or *khalifah*). This aspect of an individual's objectives is personal and subjective and derived from his religious beliefs of what he ought to do. Morality derived from the belief system makes him to undertake certain choices that not only affects his choices (i.e., as a object) but also has other far-reaching economic consequences in the economy. The subjective normative values affect the behavior of economic agents resulting in making different choices under the same constraints. In other words, normative values have positive consequences and these should be reflected in studying the behavior of the Islamic man.

d) *Diminishing Marginal Utility in Consumption and Diminishing Marginal Productivity in Production:*

Diminishing marginal productivity is a technical factuality. This relationship exists in real production processes and, as such, does not have any ethical dimensions. Diminishing marginal utility in consumption can be discussed by examining the two components of the utility function of a Muslim consumer discussed above (i.e., as an object and as an agent). When a Muslim consumer acts as an object and is making decisions in self-interest, diminishing marginal utility appropriately describes human nature-the more a good is consumed in a given time period, the less satisfaction one derives from it. When an Islamic man takes the role of an agent, he makes decisions based on his religious beliefs. Zarqa (1992, p. 62) views that spiritual goods also observe diminishing marginal utility. He quotes a *hadith* of Saifa Salman, who was instructed by Prophet Muhammad (PBUH) when he came to know that Salman decided to spend the whole night praying and whole day fasting, "your body has a right on your own-self. Your wife has certain rights on you. Your visitors have certain rights on you. So you pray and sleep and fast". The implication of this *hadith*, according to Zarqa, is that when too much of a desirable thing is done, we usually tend to loose other desirable thing.

- e) **Choices based on Marginal Analysis:** Scarce resources imply that choices need to be made from the feasible allocations. As mentioned above, the choice process involves comparing the benefits and costs of the choice. In the neoclassical case, as long as the benefit of the marginal unit exceeds the cost, it will be chosen. We need to investigate if this rule is compatible with Islamic principles. Zarqa (1989, p. 29) points out that Islam does not claim that the prohibited are all bad and the permitted are all good. He quotes Al-Shatibi saying that actions have both desirable and undesirable effects and that Islamic rules are based on the predominant effects. For example, the injunction of banning intoxicants and gambling in the *Qur'an* (2: 219) says "They ask thee concerning wine and gambling. Say: In them is great sin, and some profit, for men; but the sin is greater than the profit". That is, wine and gambling are prohibited as the cost (sin or harm) outweighs the benefit (profit). It appears that we can use the same criterion of comparing costs and benefits in making choices of marginal units of the *halal* activities/goods without contradicting Islamic principles. Benefits and costs, however, in the Islamic worldview will include not only the narrow mundane features but also include the subjective spiritual aspects.
- f) **Efficiency:** It was noted above that choices resulting from the equi-marginal principles are efficient. As mentioned above, Islamic values do not contradict choices based on equi-marginal principle. As such, outcomes in an Islamic economy would be efficient. Benefits and costs in an Islamic context, however, embody both mundane and spiritual aspects. Efficiency would, therefore, mean equality of marginal benefit and cost entailing both elements.

The above discussion shows that the basic principles of the neoclassical analytical tools do not contradict Islamic principles and can be adopted to study the micro-foundations and choice theory of agents in an Islamic economy. In doing so, however, care has to be taken to incorporate the ethical elements from *Sharia'h* into the analysis. As such, the outcomes in an Islamic economy would be different from that of the conventional economy. Couple of examples showing the use of marginalist principles to analyze the behavior of agents imbued with Islamic values are given next.

5. Applications of Marginalist Analytical Tools in Islamic Economics: Examples

In this section, we discuss a couple of cases to show how Islamic values can be incorporated into economic analysis. First, we examine the demand side where a Muslim consumer allocates his budget to different uses. In the second

case, we deal with the supply side where decisions of a firm imbued with Islamic values are discussed.

Case 1. Consumer's Optimization Problem from an Islamic Perspective

Before examining the optimization problem of a Muslim consumer using marginalist analytical tools, we first discuss some of his features discussed in the literature. The goods in the consumption bundle of a Muslim consumer should be only those permitted by Islam, i.e., a Muslim individual consumes *halal* goods only. In other words, a Muslim consumer's consumption set includes *tayibat* (select things) (Naqvi 1981). Once the forbidden (*haram*) goods and services are eliminated, allocation of resources for consumption should follow Shatibi's hierarchy order (Khan 1992 and Zarqa 1989). Accordingly, resources should first be allocated to the essentials (necessities). If resources are left after the need for essentials of all in the society are met, they can be allotted to complementarities or conveniences (comforts) and then ameliorations or refinements (luxuries).

As mentioned above, the objective function of a Muslim consumer is the attainment of *falah* or *masalih*. This implies, as Khan (1984) postulates, that the utility of a consumer depends on spending on worldly needs (consumption of goods and services) and spending for others to earn rewards in the Hereafter. His consumption allocation is different from that of a conventional one as his utility function embodies ethical features and his constraints include both income and religious considerations. Similarly, Kahf (1980) postulates that the utility function of a Muslim consumer is a function of the money spent on himself (goods consumed) and spending on others for the sake of Allah (SWT). The allocation between worldly spending and spending for others depends on the consumer's *taqwa* (God consciousness).⁹

Given the above characteristics of a Muslim consumer we can now examine the optimization and resource allocation problem. The analysis will include the following features of a Muslim consumer:¹⁰

⁹ The referee pointed out that spending on oneself does not necessarily mean that he is not spending for the sake of *Allah* and spending on others does not mean that he is spending in the sake of *Allah*. While this depends on *nieah* (internal intention) and is between oneself and Allah, the purpose of the analysis here is understand and explain the behavior of a Muslim consumer.

¹⁰ These features assume behavior based on values derived from those afore-mentioned discussion. It does not imply that all Muslims will adopt this value system and adhere to corresponding behavioral norms.

- i) The consumption set of a Muslim will only include goods and services that are sanctioned by Islam (*halal* items). He will not spend any of his income on *haram* items.
- ii) A Muslim's income will be derived from sources that are permitted by Islam.
- iii) A consumer's objective function is the maximization of *falah* and will have both self-interest and altruistic features. The latter feature results in spending a part of the income on others.

The solutions from consumer optimization in the above framework should produce the following results:

- 1) A parameter measuring *iman* or *taqwa* (God consciousness) will affect the allocation of resources in consumption.
- 2) A Muslim consumer allocates his income on (*halal*) goods and services and also spends a part on others as charity.
- 3) The demand for comforts and luxuries will be relatively lower than that in a conventional economy.
- 4) In the aggregate, more will be spent on necessities in an Islamic economy compared to that in a conventional economy.

A Muslim consumer's problem is similar to the neoclassical counterpart with a few qualifications. A consumer allocates his (fixed) income in such a way that his objective function is maximized. Before we study the optimization process using the marginalist approach, we first qualify the feasible set and the objective function of a Muslim consumer with Islamic principles discussed above.

The feasible set of a Muslim consumer will have an ethical or moral constraint in addition to the conventional budget constraint. First, the goods that can be included in the consumption bundle have to be accepted by Islamic criteria. In the array of all n goods X_i ($i=1,2,3,\dots,n$) an obedient Muslim will filter out the ones that are forbidden (*haram*). To incorporate this in a model we can use a dummy variable d with the following characteristics:

$$d=1 \text{ if the good is } \textit{halal},$$

$$d=0 \text{ if the good is } \textit{haram}.$$

Using the dummy to n goods ($d*X_i$) will give a sub-set on m goods X_j ($m < n$) that will be included in a Muslim consumer's consumption bundle. Similarly, while studying the budget constraint of the consumer, the income Y will include wages, profit, and rent, but exclude interest earnings. It is noted

above that a Muslim will spend a part of the income on consumption of goods and give away a part as charity (Z). Assume that the prices of goods that are determined in the market and are exogenously given. Given these qualifications, we get the following feasible set for the consumer,

$$Y(=Wages + Profit + Rent) = \sum P_j X_j + Z,$$

where P_j is the price of good X_j ($j=1,2,\dots,m$).

A Muslim consumer will have both self-interest and altruistic features in his objective function. The self interest part of the objective function will be similar to the conventional counterpart, i.e., utility of the consumer is a positive function of consumption of m different goods X_i , ($i=1,2,3,\dots,m$) as shown by the utility function below,

$$V=v(X_i), \quad V'>0, V''<0;$$

V' and V'' are the first and second derivatives of the utility with respect to the goods consumed. Note that we assume diminishing marginal utility in the consumption of goods. The ethical element of the objective function is demonstrated by spending on others, i.e., giving it away as charity to the poor (Z).¹¹ This characteristic of the objective function can be represented either within the same function (multiplicative form) or in an additive format as shown below.

$$\begin{aligned} U=U(X_j, Z) \quad \text{or} \quad U= v(X_i) + w(Z), \\ (1.1) \\ U'_x>0, U'_z>0, U''_x<0, U''_z<0, \end{aligned}$$

where U' and U'' are the first and second derivatives of the utility function respectively.

Given the above framework, we can now look at a specific example to examine the resource allocation problem of a Muslim consumer. In doing so, we will be able to compare his choices with that of a conventional consumer. To keep the analysis simple, assume that the individual consumes two types of goods, necessities (X_1) and luxuries (X_2), and the utility function has a Cobb-Douglas format. The optimizing problem of a Muslim consumer is given by:

¹¹ This formulation is similar to discussions on altruistic behavior (see Bernheim and Stark 1988 and Stark 1995).

$$\begin{aligned} \text{Max}^{12} \quad U &= X_1^\alpha X_2^\beta Z^\gamma \\ \text{Subject to } Y &= P_1 X_1 + P_2 X_2 + Z \end{aligned} \quad (1.2)$$

Where α , β , and γ are constants, with γ representing the subjective motivation towards the spiritual aspects (*taqwa* or *iman* discussed above).¹³ Note that the optimization problem of a value-free economic man is a special case (i.e., when $\gamma=0$). From the first order conditions of maximization, we get the following solutions,

$$X_1 = (\alpha/\alpha+\beta+\gamma) Y/P_1, \quad (1.3)$$

$$X_2 = (\beta/\alpha+\beta+\gamma) Y/P_2, \quad (1.4)$$

and,

$$Z = (\gamma/\alpha+\beta+\gamma) Y. \quad (1.5)$$

For an Islamic man, $\gamma > 0$, so that the demand for both goods (X_1 and X_2) will be smaller than that of a conventional economic man. Furthermore, $\gamma > 0$ gives $Z > 0$; and $\delta Z/\delta \gamma > 0$ implies that as γ (i.e., *taqwa* or *iman*) increases, the amount of charity paid (Z) increases.

Equations (1.3) and (1.4) represent the demand functions for goods X_1 and X_2 respectively of an Islamic man. We observe that the demand functions not only depend on price of the good (P_i) and the income (Y), but are also affected by an ethical parameter γ . The above results have several important implications. A decrease in the demand for the luxury (X_1) and payment of charity (Z) to the poor enables them to consume necessities. This essentially means that expenditure on luxuries decreases and that on necessities increases in an Islamic economy. This transfer of expenditure from luxuries to necessities will make consumption of necessities in an Islamic economy greater than that in

¹² The objective function can be written in the additive format as shown above. Using the additive format complicates the analysis without adding anything to the qualitative results.

¹³ After the presentation of the paper at the seminar, there were some apprehensions from the participants regarding use of an index implying quantification of *iman* or *taqwa*. While the index is used in theoretical analysis to understand the behavior of consumers, it yields results that are observable in reality even though it is not directly measurable. For example, utility is an ordinal concept and also not measurable. But the demand curves derived from the utility maximization process can be verified empirically. Similarly, the implication of the inclusion of *taqwa* in the optimization problem is that it will yield demand functions in an Islamic economy that are different from the conventional ones. This can be verified empirically.

a conventional economy. The opposite will be true for luxuries. The simple model discussed above shows that marginalist analytical tools can be used to study the behavior of a Muslim consumer. The corresponding, resource allocation derived for an Islamic economy, however, will be different from that of a conventional neoclassical economy.

Case 2. Producers Optimization Problem from an Islamic Perspective

As in Case 1, we first describe the nature of a Muslim producer as discussed in the literature to identify his main characteristics. Metawally (1984) suggests that an objective function of an Islamic producer should include profit and giving charity. Iqbal (1992), among others, questions this assumption in a profit sharing mode of production. He maintains that a partner does not have the right to distribute charity out of common profit.¹⁴ One way the charity issue can be resolved is to separate the production decision from the consumption decision. The firm makes optimal decisions in production with the resulting profit distributed among the owners. The owners then make a decision regarding allocation of income in different uses, including charity, as discussed in Case 1 above.

Though it is agreed upon that the objective function of a Muslim producer will not include charity, his production decision will be influenced by the profit motive and other social factors. According to Al-Habshi (1992), the objective of an Islamic producer is to attain *falah* and will include profit and other goals. Siddiqi (1988, p. 136) maintains that the objective of an economic enterprise is to attain satisfactory profits. Satisfactory profits may be different from the profit attained by profit maximization in the neoclassical sense as social and ethical factors will affect the production decision. He asserts that a Muslim producer will not produce things that are forbidden, produce fewer luxuries and more necessities. He further asserts that more resources will be used to produce cultural goods and services (education, intellectual enlightenment, etc.) as they benefit the society. He also points out that other than profit, a Muslim producer's decision will also be affected by factors like "the desire to serve the society by producing some thing people need or something that will improve it (in material, moral or aesthetic terms)" (Siddiqi 1996, p. 28).

¹⁴ Iqbal (1992, p. 212) discusses the differences between the owner and entrepreneur (manager) of a firm and points out that traditional theories of firms leaves out the financing part of a firms decision. In this analysis, we do not discuss these issues as our objective is to discuss the Islamic counterpart of the theories of the firm as found in traditional microeconomics literature.

Similar views are expressed by Mannan (1991), who postulates that the objective function of a producer is economic welfare. A producer will be guided by Islamic ethics and as such will produce goods that increase the welfare of the people and not produce goods that are forbidden. Furthermore, he maintains that though all permitted (*halal*) goods will be produced in an Islamic economy, the production on necessities will be relatively more and luxuries relatively less than that in a conventional economy.

Given the above premises, the optimization problem of a Muslim producer should be able to show the following:

- 1) A parameter reflecting social consciousness should affect the output level produced by the firm.
- 2) The firm will not produce the forbidden (*haram*) goods and services.
- 3) If the output produced is beneficial to the society, then more of it would be produced compared to the conventional firm case, even if it involves a lower profit. Similarly, if a good is not considered beneficial (but is *halal*) then less quantity will be produced compared to the conventional case. This output level will be produced even if it yields a lower profit.

To arrive at the above results for a Muslim producer, the objective function of a neoclassical firm has to be modified by introducing a parameter that represents Islamic ethical values. Let θ denote the subjective valuation representing the social aspects of the producer, with the following features.

$\theta = -\infty$, when the good is forbidden (*haram*);

$\theta < 0$, when the good is socially undesirable;

$\theta = 0$, when the good is socially neutral;

$\theta > 0$, when the good is socially desirable.

Given the above, an Islamic firm maximizes the following objective function,

$$\Pi = (P + \theta)X - WL, \quad (2.1)$$

where P is the price of the product X produced by the firm; W is the wage rate and L is the labor employed. Prices of the good and labor are exogenously given. Note that the firm's objective function includes profit (as in the neoclassical case) along with a parameter θ . While P represents the mundane (monetary) attribute of the producer, θ represents the subjective (spiritual) aspect. Assuming a simple short-run Cobb-Douglas production function of the

format $X=L^a$, the first order conditions of profit maximization gives the following expressions.

$$a(P + \theta)L^{a-1}=W, \quad (2.2)$$

or

$$aL^{a-1}=W/(P + \theta). \quad (2.3)$$

The above conditions maintain that a firm will produce to the point where the marginal benefit of an additional unit of output equals the marginal cost. Equation (2.2) displays the nominal version i.e., value of the marginal product $[(P + \theta)aL^{a-1}]$ equals the nominal wages (W). Equation (2.3) shows the real counterpart i.e., marginal product (aL^{a-1}) equals the real wages $[W/(P + \theta)]$. Solving for L and using it in the production function gives the supply function of output (X^s) as follows,

$$X^s = [a(P + \theta)W]^{a/1-a}. \quad (2.4)$$

From the supply function given in equation (2.4), we get the following results regarding the output produced of different types of goods in an Islamic economy relative to the neoclassical economy.

- a) If the good is prohibited (*haram*), then $\theta = -\infty$, and output supplied becomes zero. The marginal benefit is negative infinity and the firm decides not to produce the good.¹⁵
- b) If the good is socially undesirable, then $\theta < 0$, and the output produced will be less than the neoclassical case.
- c) If the good is socially neutral, then $\theta = 0$, and the supply curve will be similar to that of the neoclassical case.
- d) If the good is socially desirable, then $\theta > 0$, and output supplied of the good is higher than the neoclassical case.

Note that the neoclassical supply curve becomes as a special case of the Islamic version (i.e., when $\theta=0$). In cases when a good is not socially neutral, the output produced is different from that of the neoclassical case. This raises couple of issues. First, as the neoclassical profit maximizing condition gives an output level that yields the maximum profit (in nominal value), the implication is that output levels that deviate from this neoclassical optimum level (for $\theta \neq 0$) will give lower nominal profit compared to the neoclassical case. Thus, when goods are not socially neutral, an Islamic firm will produce output quantity that

¹⁵ Output produced has a lower bound of zero as it cannot be negative.

is different from that of a neoclassical firm even if it means relatively lower profit. In particular, an Islamic firm will produce more of a socially desirable good and less of an socially undesirable good even if yields relatively lower profit.

This brings us to the second issue. Is the output produced by and Islamic firm an efficient outcome? We defined efficiency as the state where the equi-marginal condition is attained. In case of input utilization, this condition is interpreted as the equality of the marginal value product and the cost of the input. The optimization problem of a Islamic firm yields the equi-marginal condition (as shown in equations 2.2 and 2.3 above). The distinguishing factor Islamic concept of efficiency compared to the neoclassical case is that the marginal benefit expression encompasses a subjective social element (θ). This is akin to internalizing an externality by the firm. The result is that the overall social welfare increases as the more (less) socially desirable (undesirable) goods are produced in the economy.

6. Conclusion

After outlining the importance of studying the micro-foundations and appropriate analytical tools to develop Islamic economic theory, the paper argues that the neoclassical marginalist tools can be modified and used to study the behavior of Islamic man. The basic features of the neoclassical analytical tools were analyzed in light of the Islamic principles and appear not to contradict Islamic principles. A modified marginalist approach can be used to analyze the behavior of value-laden Islamic man. As a demonstration, we use these analytical tools to study the behavior of a Muslim consumer and producer. We show that the results from the analysis reflect the prognosis drawn from descriptive discussions on the subject.

Other than enabling the study of the micro-foundations of economic theory, the use of analytical tools makes a consistent discourse possible. The lack of use of analytical tools in studying Islamic Economics will impede the sound development of the subject matter as a discipline. The claims of developing new tools of analysis for Islamic economics, however, have not produced any alternative yet. This paper shows that marginalist analytical tools are not incompatible with Islamic principles and can be used to study the behavior of economic agents in an Islamic economy. By using this approach, Islamic economists can effectively contribute to and advance the theoretical discourses of Islamic Economics.

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On Determining Moral Hazard and Adverse Selection in the Islamic Firm

Ken Baldwin, Humayon A. Dar and John R. Presley*

1. Introduction

Different forms of businesses based on Islamic principles of trade and finance have emerged in recent past, more significant being emergence of Islamic banks and some Islamic firms like *mudarabah* companies in Pakistan and some other countries. However, a theory of the Islamic firm is in its nascent form, primarily emphasizing on the role of exchange in production relations and trade of resources within the firm. The emphasis on trade perhaps stems from the *Qur'anic* prohibition of interest and permissibility of trade and profit. This development coincides with the emergence of transaction cost economics and the new theory of the Islamic firm, which stress on trade and contracts in formation of the firm.

Previous attempts to theorize the behavior of the Islamic firm have been rudimentary¹. Though not directly deliberating on the theory of the firm, some Islamic economists have discussed profit sharing contracts with asymmetric information problems². In an earlier attempt Mukharjee (1984) models organization of resources within a zero-interest (or interest-free) firm. But, in general, Islamic economists have ignored the fundamental questions like the nature of the firm and how does it differ from other firms. Presley and Sessions (1994) is one significant development in this area.

This paper attempts to theorize behavior of the Islamic firm in the wake of concurrent presence of moral hazard and adverse selection problems. Given

* The authors were doctoral student, Research Fellow and Professor at Loughborough University respectively at the time of the seminar. An earlier version of this paper was presented at a Seminar on Theoretical Foundations of Islamic Economics, held in Islamabad, in March 2000, and later at the 75th Annual Conference of the Western Economic Association, held in Vancouver, in June/July 2000. We thank Habib Ahmed for useful comments.

¹ See, for example, Metwally (1981), Iqbal (1992).

² They include, among others, Khan (1985), Haque and Mirakhor (1987), and Bashir (1990).

the limited scope of the paper, we do not attempt to theorize all the behavioral aspects of the Islamic firm. While it may take a while before a complete theory of the Islamic firm takes a coherent form, this paper puts together some basic ingredients of an Islamic financial firm. We do not refer to production technology, and input and output markets. Our major concern here is on the investment strategy under moral hazard and adverse selection conditions. We then draw some implications for the practice of Islamic financial firms like Islamic banks and non-bank financial institutions. Thus, this paper may serve as an outline of the direction to be taken in further research in this area.

As said earlier, this paper studies a problem in which both moral hazard and adverse selection coexist. Moral hazard arises from the unobservability³ of effort, and adverse selection due to the pre-contractual endowment of information to the entrepreneur about the productivity of the venture with respect to effort and capital. The layout of the paper is as follows. In the next section we delineate some fundamental features of an Islamic firm, which considers the implications of liability limitations for problems of information asymmetry. We then discuss the methodology used to examine the combined problem, after which we present the model. After an analysis of optimal contracts, we collect concluding remarks in section 4.

2. The Nature of the Islamic Firm

The theory of the firm has evolved from its ‘production function’ view that says nothing about the nature of relationships, dynamics of decision-making and internal organisation of factor inputs, to transaction costs, institutional, and other approaches under the new theory of the firm. The debate on an optimum organisational structure of the firm continues. There are those who strongly believe that the days of public corporate form of organisation are over and that alternative forms like leveraged buyout organisation is the best alternative to it (Jensen, 1989). This group, however, faces an equally strong opposition from the proponents of the stakeholder theory of the firm (Blair, 1995). The dust has yet to settle.

Different views have emerged on the nature of the firm within the Western received doctrine since Coase (1937). According to Alchian and Demsetz (1972), the firm is a contractual organisation of inputs in which there is joint input production by several input owners, one of them being common in all contracts of the joint inputs and who can negotiate any input contract independently of contracts with other input owners, holds the residual claim,

³ If observable, effort must at least be unverifiable, for example by a court of law, and therefore unenforceable.

and has the right to sell his contractual residual status. The members of the organisation behave in accordance with their own different interests, i.e., each wants to capture beneficial effects of entering into contract and to escape from harmful effects. This concept of the firm is no different from Grossman and Hart (1986) who define the firm “as being composed of the assets (e.g., machines, inventories) that it owns”. Similarly, Hart and Moore (1990) take the firm as a set of non-human assets over which the owner has residual rights of control. Other views on the firm include the firm being a device to exploit the worker (Marglin, 1974), to overcome the problems of asset specificity and post-contractual opportunism (Williamson, 1975, 1985), and to reduce measurement cost in economic activity (Barzel, 1982).

The Islamic firm can be defined as a community of autonomous people (individuals) who are contractually bound to co-operate with each other to employ and account for factors of production to produce goods and services with an ultimate objective to sell and profit. This view is not different from the usual idea of an organisation in which structure of authority is defined with respect to a group of people or a set of roles (Simon, 1957; Arrow, 1975; Mirrlees, 1976). Principle assets of the Islamic firm are not its physical resources and capital but entrepreneurial skills of the individuals who make up the Islamic firm. In contrast to Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995) the Islamic firm is viewed as a set of individuals owning non-human assets to be used in production process.

Another distinguishing characteristic of the Islamic firm is that its capital structure is based on either of three sets of equity-based modes of financing, namely, profit loss sharing (PLS), profit sharing (PS), and output sharing (OS). PS is based on principle of *mudarabah*, a contractual arrangement between two or more parties in which one party provides capital to another that contributes entrepreneurship in a business to share profits according to a pre-agreed ratio. The losses are borne by the capitalist with no financial liability on the entrepreneur. PLS is employed in partnerships, known as *musharakah* wherein two or more parties wishing to start a joint venture pool their resources to be residual claimant on the income stream of the business. While the profits in a *musharakah* may be distributed in any ratio, the loss should be borne by the parties involved according to their capital shares. Many consider such sharing arrangements to be inferior (see for example, Hart and Moore, 1990). However, many of these models assume symmetry of information between transacting parties. If informational asymmetry is considered, it can be shown that a PLS-based *mudarabah* contract may serve as an efficient revelation mechanism (for details, see Presley and Sessions, 1994). Others argue that there is more discretion in PLS, which provides for unforeseen contingencies. In PLS, shares of expected profit are determined *ex ante*, while the actual rate of return on

investments is to be determined only *ex post*, on the basis of realised profits. The former is in the nature of a rule in the sense that it is predetermined at the time of the contract, while the latter is in the nature of discretion in the sense that the real rate of return is contingent upon the circumstances that take place after the contract has been signed. The argument is similar to Reid (1973) who argues that sharecropping in agriculture, which is similar to PLS, is chosen because of its flexibility vis-à-vis a fixed rent contract, which is like a debt-based contract. This characteristic of PLS offers lower adjustment costs to a contingency than in the case of debt. Uthman (1994) argues that a PLS contract may give rise to less opportunism as compared to debt finance. Referring to the use of junk bonds in corporate financing, he argues that debt financing provides a market mechanism that may invite and facilitate opportunistic tendencies⁴.

Alchian and Demsetz (1972) view PLS as appropriate for small firms, especially partnerships. There is a spectrum of business contracts in an Islamic framework making it easy to choose a partnership contract and size of the firm to determine optimal profit sharing ratios. For example, Alchian and Demsetz suggest an equal division of profits and losses between transacting parties if the optimal number of contracting parties is two. In an Islamic economic framework, there is a provision for *sharikah al-mufawada* (equal partnership) that necessitates equal partnership in capital, profit and loss, and liability. Moreover, there are a number of contractual arrangements for small-scale business including, *inter alia*, partnership in artistic or professional intellectual skills, and business based on acquisition of resources from consumers by promises of future delivery (*bai al-salam*).

3. Introducing the Model

Consider an entrepreneur wishing to start a business that requires a variety of inputs, including financial services, risk-bearing service, and decision-making. The entrepreneur does not own all these inputs rather she can own or rent land and other physical inputs. Choice between ownership and rent depends upon transaction costs, monitoring costs, opportunity costs, physical costs, and risk-attitude of the entrepreneur. Labour, being an unalienable resource, can only be hired, and capital may be acquired through debt or equity. The entrepreneur owns the risk-bearing and decision-making services. However, the entrepreneur may or may not bear the risk depending on the

⁴ IMF has showed similar concerns with respect to borrowing behaviour of the countries in crisis. It is argued that the availability of financial assistance from the international financial institutions like IMF and World Bank may weaken policy discipline in the borrowing countries. Further, it may encourage them to take greater risks in the belief that they will be bailed out by the IMF if a crisis crops up (World Economic Outlook 1998, p. 8).

choice of debt or equity. If capital is acquired on a debt basis then the entrepreneur, being a residual claimant and owner of the borrowed capital⁵, bears risk while the lender receives a fixed fee (or interest) for extending a loan. If the entrepreneur uses equity capital, then the risk is borne by the supplier of capital and the entrepreneur faces not risk but uncertainty. Both capitalist and entrepreneur share rewards. However, final decision to choose between debt and equity depends on agency costs and risk attitude of the entrepreneur.

Under PLS, distinction between ownership and control is crucial. The entrepreneur is the owner of the firm who rents usufruct rights of capital from a capitalist and rewards him with a share in profits. Using Hart and Moore's (1990) terminology, the entrepreneur has both residual control rights on the assets used and residual rights on profit-stream. On the other hand, capitalist possesses only the latter rights. The capitalist has an alternative option to invest in a perfectly competitive capital market.

The Islamic firm is thus less integrated than a conventional firm in the sense that capital, although used by the Islamic firm, is not owned by it rather it is owned by the capitalist who does not have any *ex post* control on the production process. In this sense, the entrepreneur is not an employee of the capitalist, but rather owns the enterprise that employs the capital owned by the capitalist who extends it to the former on PLS basis. Islamic economics shares this view with the Austrian school of thought⁶. This changes the whole concept of limited liability. While in the capitalist system, it is directed towards preservation of the capitalist, Islamic PLS puts all financial liability on capital and protects the entrepreneur⁷. However, limiting the liability of the entrepreneur may aggravate the problem of moral hazard. Furthermore, if the entrepreneur is risk averse, then PLS contracts become unenforceable if the pay

⁵ Legally, the capitalist maintains *ex ante* and *ex post* ownership right to his principal. But here we assume that in a debt contract, the entrepreneur behaves as if she is owner of the borrowed capital.

⁶ Parker and Stead (1991) note:
"Risk, Schumpeter claimed, is borne by the supplier of the capital, who might lose his investment if the enterprise fails – i.e., the capitalist. What the entrepreneur faces is not risk but *uncertainty* and the two concepts are quite different. Schumpeter's entrepreneur is someone who, lacking complete information and perhaps using others' funds, seeks out new products, markets and innovations. The input of enterprise is therefore carefully distinguished from the input of capital, a distinction which remains of central importance in the thinking of later 'Austrians' such as Krizner." (p. 92).

⁷ This may create an imbalance of management and control within the firm as discussed by us elsewhere (Dar and Presley, 1999).

of an agent cannot be less than zero⁸ (Holmstrom 1979, Gjesdal 1976, and Mirrlees 1974). In such a case, bonus contracts, rather than punishments, may remedy the moral problem (Lewis 1980, Innes 1990 & 1993a, Park 1995, Kim 1997, and Baldwin 2000). Bonus schemes, where the pay of an agent jumps discontinuously if realised profit exceeds a pre-specified performance target, permit the entrepreneur to retain more of the value of his (costly) marginal effort⁹. As a result, pure lump sum schemes (Park 1995, Kim 1997), and in some instances contingent share ratio schemes (Baldwin 2000)¹⁰ are an efficient way to induce greater effort from the entrepreneur with limited liability.

In this paper, we consider the moral hazard and adverse selection problems to devise an optimum contractual structure for the Islamic firm. We shall first derive the optimal pure adverse selection effort and investment contract menu parameterized by entrepreneur type. Then we shall derive a condition which is necessary for a contingent share ratio scheme to implement this contract menu when effort is unobservable, leaving both the investor and entrepreneur with expected utility equal to that which is obtained in the optimal pure adverse selection outcome.

3.1. The Model

Let $\theta \in [\underline{\theta}, \bar{\theta}]$ be a multiplicative productivity parameter known only to the entrepreneur prior to the contract, such that for capital investment $K(\theta)$, effort $e(\theta)$, and *ex ante* uncertain state of nature $\varepsilon \in [\varepsilon_0, \varepsilon_1]$, there exists a production technology $H(K(\theta), e(\theta), \varepsilon)$ which generates revenue $\theta H(K(\theta), e(\theta), \varepsilon)$. $H(K(\theta), e(\theta), \varepsilon)$ is increasing in ε , and increases in $K(\theta)$ and $e(\theta)$ at a decreasing rate, i.e. $H_i(\dots) > 0$ for $i = 1, 2, 3$, $H_{ii}(\dots) < 0$ for $i = 1, 2$, where subscripts denote partial differentiation w.r.t. the *i*th argument of $H(\dots)$. Publicly observable constant marginal opportunity cost of capital is r , and profit is

⁸ In such a case, a franchise contract may be optimal if the entrepreneur is risk neutral (Harris and Raviv 1979, Holmstrom 1979, and Shavell 1979). For these contracts, the investor is able to extract the entire rent from the relationship by making the agent sole residual claimant in exchange for an *ex ante* fee.

⁹ In fact, for the bonus element of pay, the agent receives more than 100% of the marginal value of effort.

¹⁰ For contingent share ratio schemes, the agent pay is a (linear) share of *ex post* profits, where the share ratio is higher if the profits exceed a (contractually) prespecified performance target. The reason that there exists an ambiguity in general as to the incentive effect of these contracts, is because reducing the share ratio which obtains for profits less than the target increases the discontinuous jump in pay, but decreases the agent's share of realised profits which are below the target (Baldwin 2000).

$\theta H(K(\theta), e(\theta), \varepsilon) - rK(\theta)$. Since a pay floor at zero is imposed for the entrepreneur, we assume that profit is non-negative for all θ and ε ¹¹. The investor has prior beliefs about borrower types captured by cumulative distribution $F(\theta)$, and the cumulative distribution of ε is $G(\varepsilon)$. The disutility of borrower effort $e(\theta)$ is $Q(e(\theta))$, where $Q'(e(\theta)) > 0$ and $Q''(e(\theta)) < 0$ ¹².

The game is as follows. The investor offers the entrepreneur a contract menu $\{e_A(\theta), K_A(\theta), \lambda(\theta), X_c(\theta)\} \forall \theta$ on a take-it-or-leave-it basis, where $\{e_A(\theta), K_A(\theta)\} \forall \theta$ are the incentive compatible effort and investment pair parameterised by entrepreneur type θ in the pure adverse selection problem¹³. The set $\{\lambda(\theta), X_c(\theta)\} \forall \theta$ define a contingent share ratio scheme with proportional share ratio reduction $\lambda(\theta)$ and profit target $X_c(\theta)$. The share ratio of the entrepreneur, which obtains if realised profit is no less than the performance target is π , and for realised profit less than the performance target, the share of ex post profits allocated to the entrepreneur is $\lambda(\theta)\pi$. The target $X_c(\theta)$ equals the lowest possible profit for a type θ entrepreneur who supplies effort $e_A(\theta)$ ¹⁴.

If accepted, the entrepreneur selects a contract intended for his type from the menu. The investor then sinks capital $K_A(\theta)$, after which the entrepreneur supplies effort $e_A(\theta)$, being induced to do so by the incentive pressure created by the associated contingent share ratio scheme. State of nature ε is then realised from $\varepsilon \in [\varepsilon_0, \varepsilon_1]$, after which allocations are made to the investor and to the entrepreneur from realised profits.

3.1.1. Optimal Contract Menu

This section is split into two parts. In the first sub-section we derive the optimal pure adverse selection contract menu when effort is observable. In the second sub-section, we derive an expanded contract menu for the mixed problem. This is the optimal pure adverse selection contract menu plus a contingent share ratio scheme, for which a necessary condition is derived in order that the entrepreneur is induced to supply the recommended level of effort for his type.

3.1.2. The Optimal Pure Adverse Selection Contract Menu

¹¹ This is without loss of generality.

¹² Together with $H_{22}(\cdot, \cdot, \cdot) < 0$ this ensures the existence of a unique interior solution for (entrepreneur) utility maximising effort.

¹³ Recall that this is the problem of precontractual information that the investor would face were effort instead observable.

¹⁴ That is $\theta H(K_A(\theta), e_A(\theta), \varepsilon_0) - rK_A(\theta)$

Suppose that the investor offers a contract menu $\{e(\hat{\theta}), K(\hat{\theta})\} \forall \hat{\theta} \in [\underline{\theta}, \bar{\theta}]$, such that if an entrepreneur of type θ declares his type to be $\hat{\theta}$, then for realised state of nature ε , the pay of the entrepreneur is $\varphi(\theta, \hat{\theta}, \varepsilon)$, where

$$\varphi(\theta, \hat{\theta}, \varepsilon) = \pi(\theta H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) - rK(\hat{\theta})) \quad (1)$$

The expected¹⁵ utility of a type θ entrepreneur declaring $\hat{\theta}$ is therefore $U^a(\theta, \hat{\theta})$, where

$$U^a(\theta, \hat{\theta}) = \int_{\varepsilon_0}^{\varepsilon_1} \pi(\theta H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) - rK(\hat{\theta})) dG(\varepsilon) - Q(e(\hat{\theta})) \quad (2)$$

Global incentive compatibility requires that

$$U^a(\theta, \theta) \geq U^a(\theta, \hat{\theta}) \quad \forall \theta \in [\underline{\theta}, \bar{\theta}], \forall \hat{\theta} \in [\underline{\theta}, \bar{\theta}] \quad (3)$$

This constraint ensures that the entrepreneur selects from amongst all of the contracts on offer, that contract which is intended for his type. Incentive compatible choice of a contract from the menu therefore directly reveals the entrepreneur's true type to the investor¹⁶.

Further, iff $H(K(\theta), e(\theta), \varepsilon)$ is non-decreasing in θ ¹⁷ (see Appendix) then we can instead replace the global incentive compatibility constraint (3) with the locally true condition¹⁸

¹⁵ Where the expectation is over the distribution of exogenous uncertainty ε .

¹⁶ We inherently assume that no renegotiation takes place once the entrepreneur declares his type after having accepted the contract menu. We note in passing that gains are strictly possible for both entrepreneur and investor from so doing. The investor would simply tear up the incentive compatible menu once the entrepreneur had declared his type, and then offer the full information contract. However, a consistency problem arises if ahead of time the entrepreneur anticipated such renegotiation. See Baron (1989), Hart and Tirole (1988) and Laffont and Tirole (1990) for a discussion of this issue.

¹⁷ the validity of which must be checked against the solution contract menu (to be derived) which can be used to derive expressions for $K'(\theta)$ and $e'(\theta)$.

$$\left. \frac{\partial U^a(\theta, \hat{\theta})}{\partial \hat{\theta}} \right|_{\hat{\theta}=\theta} = 0 \quad (4)$$

Now differentiating $U^a(\theta, \hat{\theta})$ totally (by the chain rule), setting $\hat{\theta} = \theta$, and applying (4), we derive the (local) incentive compatibility (truth-telling) constraint as

$$\frac{dU^a(\theta)}{d\theta} = \left. \frac{\partial U^a(\theta, \hat{\theta})}{\partial \theta} \right|_{\hat{\theta}=\theta} \quad (5)$$

From (2) this immediately yields

$$\frac{dU^a(\theta)}{d\theta} = E_{\varepsilon} \pi H(K(\theta), e(\theta), \varepsilon) \quad (6)$$

or equivalently¹⁹

$$U^a(\theta) = U^a(\underline{\theta}) + \int_{\underline{\theta}}^{\theta} E_{\varepsilon} \pi H(K(s), e(s), \varepsilon) ds \quad (7)$$

where $U^a(\theta) \equiv U^a(\theta, \theta)$ and $E_{\varepsilon}(\cdot)$ defines expectation w.r.t. ε over all $\varepsilon \in [\varepsilon_0, \varepsilon_1]$. From (7) note that participation by the borrower reduces to $U^a(\underline{\theta}) \geq \underline{U}$, where \underline{U} is the (type independent) reservation utility of the entrepreneur.

Turn now to the utility of the investor. If a type θ entrepreneur truthfully declares his type and selects a contract $(e(\theta), K(\theta))$ from the menu, the expected utility of the investor is $U^p(\theta)$, where

$$= E_{\varepsilon} \theta H(K(\theta), e(\theta), \varepsilon) - rK(\theta) - U^a(\theta) - Q(e(\theta)) U^p(\theta) \quad (8)$$

¹⁸ We also require $\left. \frac{\partial U^a}{\partial \hat{\theta}} \right|_{\hat{\theta}=\theta} < 0$ or equivalently $\left. \frac{\partial U^a}{\partial \theta} \right|_{\hat{\theta}=\theta} > 0$ for a maximum, i.e.

the monotonicity condition $dH(K(\theta), e(\theta), \varepsilon)/d\theta > 0$.

¹⁹ From (7), the information rent which higher θ types require to induce truthful revelation can be clearly seen as the second term on the right hand side.

However, faced with an entrepreneur of unknown type, the investor designs a contract menu that maximises the expectation of $U^p(\theta)$ w.r.t. the pre-contractual beliefs of the investor as captured by the distribution of possible types $F(\theta)$, subject to entrepreneur participation and truthful revelation. The programme of the investor is therefore

$$\underset{e(\theta), K(\theta)}{\text{Max}} \int_{\underline{\theta}}^{\bar{\theta}} [E_{\varepsilon} \theta H(K(\theta), e(\theta), \varepsilon) - rK(\theta) - U^a(\theta) - Q(e(\theta))] dF(\theta) \quad (9)$$

subject to $U^a(\theta)$ given by (6) and $U^a(\underline{\theta}) \geq \underline{U}$. From (6), integrating

$\int_{\underline{\theta}}^{\bar{\theta}} U^a(\theta) dF(\theta)$ by parts gives

$$= U^a(\bar{\theta}) - \int_{\underline{\theta}}^{\bar{\theta}} \pi E_{\varepsilon} H(K(\theta), e(\theta), \varepsilon) F(\theta) d\theta \int_{\underline{\theta}}^{\bar{\theta}} U^a(\theta) dF(\theta) \quad (10)$$

Finally substituting (10) into (9), point-wise optimisation gives the first order conditions for all $\theta \in [\underline{\theta}, \bar{\theta}]$ as

$$\left(\theta + \pi \frac{F(\theta)}{F_1(\theta)} \right) \int_{\varepsilon_0}^{\varepsilon_1} H_1(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) = r \quad (11)$$

$$\left(\theta + \pi \frac{F(\theta)}{F_1(\theta)} \right) \int_{\varepsilon_0}^{\varepsilon_1} H_2(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) = Q'(e_A(\theta)) \quad (12)$$

where the optimal pure adverse selection contract menu is denoted $\{e_A(\theta), K_A(\theta)\} \forall \theta \in [\underline{\theta}, \bar{\theta}]$. Note that in comparison to the full information case, in which both effort and type are observable, the optimal pure adverse selection contract menu results in over-investment and over-employment.²⁰

We are now ready to derive the remaining part of the extended contract menu. Since the pay of the entrepreneur can be no less than zero, the approach will be to derive a necessary condition which ensures implementation of the

²⁰ That is for each factor of production, being effort and capital, the marginal product exceeds the marginal factor cost.

pure adverse selection outcome,²¹ being the supply of an effort $e_A(\theta)$ by a type θ entrepreneur for capital investment $K_A(\theta)$.

3.2. Adverse selection with moral hazard

Let the target profit be $X_C(\theta) = X(K_A(\theta), e_A(\theta), \varepsilon_0)$, where $X(K_A(\theta), e_A(\theta), \varepsilon) \equiv \theta H(K_A(\theta), e_A(\theta), \varepsilon) - rK_A(\theta)$. Denote the critical realisation $\bar{\varepsilon}(e(\theta))$ of ex ante uncertain variable ε for effort $e(\theta)$ and investment $K_A(\theta)$ of a type θ entrepreneur such that

$$X_C(\theta) \equiv X(K_A(\theta), e(\theta), \bar{\varepsilon}(e(\theta))) \quad (13)$$

From (13), if type θ entrepreneur supplies effort $e(\theta)$, for $\varepsilon \geq \bar{\varepsilon}(e(\theta))$, $X \geq X_C(\theta)$, and for $\varepsilon < \bar{\varepsilon}(e(\theta))$, $X < X_C(\theta)$. Define a contingent share ratio scheme such that the share ratio of the entrepreneur is π for $\varepsilon \geq \bar{\varepsilon}(e(\theta))$, and $\lambda(\theta)\pi$ for $\varepsilon < \bar{\varepsilon}(e(\theta))$. Then the expected utility $U^a(\theta, e(\theta))$ of a type θ entrepreneur who truthfully declares his type and supplies effort $e(\theta)$ is

$$\int_{\varepsilon_0}^{\bar{\varepsilon}(e(\theta))} \lambda(\theta)\pi X(K_A(\theta), e(\theta), \varepsilon) dG(\varepsilon) + \int_{\bar{\varepsilon}(e(\theta))}^{\varepsilon_1} \pi X(K_A(\theta), e(\theta), \varepsilon) dG(\varepsilon) - Q(e(\theta)) \quad (14)$$

Differentiating (14) w.r.t. $e(\theta)$, a necessary condition for the entrepreneur to supply an effort no less than $e_A(\theta)$ is $U_e^a(\theta, e_A(\theta)) \geq 0$. This is because if $U_e^a(\theta, e(\theta)) > 0$ for $e(\theta) < e_A(\theta)$, the utility of the entrepreneur can be increased by increasing effort to $e_A(\theta)$. Also, for a entrepreneur who supplies effort $e(\theta) \geq e_A(\theta)$ thereby receiving expected utility $E_\varepsilon \pi (\theta H(K_A(\theta), e(\theta), \varepsilon) - rK_A(\theta)) - Q(e(\theta))$, there is no incentive to provide effort greater than $e_A(\theta)$ since the marginal benefits and none of the associated costs of effort are shared with the investor.

For $\{e_A(\theta), K_A(\theta)\}$ given by (11) and (12), the type θ entrepreneur therefore chooses an incentive compatible contract $(e_A(\theta), K_A(\theta))$, supplies

²¹ In contrast, when no floor exists to limit the pay of an agent which is less than zero, threats of unrestricted punishment can always (at worst asymptotically) induce the optimal pure adverse selection effort (Zou (1992)).

effort $e_A(\theta)$, and receives expected utility $E_\varepsilon \pi(\theta H(K_A(\theta), e(\theta), \varepsilon) - rK_A(\theta)) - Q(e_A(\theta))$, provided

$$\begin{aligned} & \int_{\varepsilon_o}^{\bar{\varepsilon}(e_A(\theta))} \lambda(\theta) \pi X_e(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) + \int_{\bar{\varepsilon}(e_A(\theta))}^{\varepsilon_1} \pi X_e(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) \\ & - (1 - \lambda(\theta)) \pi X_c(\theta) g(\bar{\varepsilon}(e_A(\theta))) \frac{d\bar{\varepsilon}(e_A(\theta))}{de} \geq Q'(e_A(\theta)) \end{aligned} \quad (15)$$

Also note however from (13) that $X_c(\theta) = X(K_A(\theta), e_A(\theta), \varepsilon_o) = X(K_A(\theta), e(\theta), \bar{\varepsilon}(e(\theta)))$ implies that $\bar{\varepsilon}(e_A(\theta)) = \varepsilon_o$. Therefore, (15) simplifies to

$$\int_{\varepsilon_o}^{\varepsilon_1} \pi X_e(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) - (1 - \lambda(\theta)) \pi X_c(\theta) g(\varepsilon_o) \frac{d\bar{\varepsilon}(e_A(\theta))}{de} \geq Q'(e_A(\theta)) \quad (16)$$

From (7), the expected type θ entrepreneur utility is $U^a(\theta) = \underline{U} + \int_{\underline{\theta}}^{\theta} E_\varepsilon \pi H(K(s), e(s), \varepsilon) ds$. Therefore, for a entrepreneur supplying effort $e_A(\theta)$, from (14) with $\bar{\varepsilon}(e_A(\theta)) = \varepsilon_o$, the optimal pure adverse selection allocation obtains if

$$\int_{\varepsilon_o}^{\varepsilon_1} \pi X(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) = \underline{U} + Q(e_A(\theta)) + \int_{\underline{\theta}}^{\theta} E_\varepsilon \pi H(K_A(\theta'), e_A(\theta'), \varepsilon) d\theta' \quad (17)$$

Finally, dividing (16) by (17) we obtain the necessary condition for contract menu $\{e_A(\theta), K_A(\theta), \lambda(\theta), X_c(\theta)\} \forall \theta$ to implement the best pure adverse selection outcome²²,

²² For threats of a lower share ratio $\lambda(\theta)\pi$ to induce effort greater than e ($< e_A(\theta)$), we assume that $\frac{\partial}{\partial \lambda(\theta)} \frac{\partial E_\varepsilon \varphi(\theta, e)}{\partial e} < 0$. From (14) this reduces to

$$X_c(\theta) g(\bar{\varepsilon}(e)) \frac{d\bar{\varepsilon}(e)}{de} + \int_{\varepsilon_o}^{\bar{\varepsilon}(e)} \theta H_2(K_A(\theta), e, \varepsilon) dG(\varepsilon) < 0. \text{ Note that with } X_c(\theta)$$

equal to the lowest possible profit when the entrepreneur supplies effort $e_A(\theta)$, this

$$\begin{aligned}
& \frac{\int_{\varepsilon_o}^{\varepsilon_1} X_e(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon) - (1 - \lambda(\theta)) X_C(\theta) g(\varepsilon_o) \frac{d\bar{\varepsilon}(e_A(\theta))}{de}}{\int_{\varepsilon_o}^{\varepsilon_1} X(K_A(\theta), e_A(\theta), \varepsilon) dG(\varepsilon)} \geq \\
& \frac{Q'(e_A(\theta))}{\theta} \\
& \frac{\underline{U} + Q(e_A(\theta)) + \int_{\underline{\theta}}^{\theta} E_{\varepsilon} \pi H(K_A(\theta'), e_A(\theta'), \varepsilon) d\theta'}{\theta} \tag{18}
\end{aligned}$$

where $e_A(\theta)$ and $K_A(\theta)$ are derived from (11) and (12).

This is a neat summary result. An interesting thing about it is that the investor admits to having to award the agent an informational rent given the pre-contractual information asymmetry, and can only use the threat of punishment to get the effort he wants. This informational rent causes both over-investment and over-employment, since the production function is increasing in both capital and effort. The reason for excessive investment and employment (effort) is that the investor finds that the most efficient way to reduce the cost of the information asymmetry is to award information rents that just overcome the temptation of the agent to lie. Distorting the contract takes advantage of the fact that information rents are a first order loss, whereas distortions impact loss to second order. Therefore it is beneficial to incur a second order distortion to reduce a first order loss. However, there is an optimum point at which further trade-off ceases to be efficient, and this where the actual point of over-investment and over-employment occurs.

4. Concluding Remarks

An Islamic theory of the firm is in the making. This paper formalizes some fundamental issues regarding moral hazard and adverse selection

expression reduces to $X_C(\theta) g(\varepsilon(e_A(\theta))) \frac{d\bar{\varepsilon}(e_A(\theta))}{de} < 0$ for effort is $e_A(\theta)$, which is necessarily true.

problems, which have marred the implementation of some important contracts by Islamic, and particularly financial firms. *Mudarabah* and *musharakah* contracts have been the major casualty in this divide between theory and practice. In this paper we have shown how, given a necessary condition, a *mudarabah* type contract, which defines the agent payoff to be linearly dependent on ex post realized profit²³, can be adjusted²⁴ to permit an outcome contingent share ratio which facilitates a first-best outcome²⁵. Whilst Presley and Sessions (1994) have shown how a *mudarabah* type contract may serve as a second-best revelation device, in this paper we have derived a necessary condition under which the first-best allocation of information and effort is a preferred strategy for entrepreneurs which commit to a *mudarabah* type agreement.

The results obtained here have important implications for the features of *mudarabah* type contracts in relation to pure wage agreements. Pure wage agreements engender the worst possible case scenario for effort shirking, but induce truthful revelation of relevant private information precontractually endowed to the agent²⁶ without cost to the principal²⁷. In contrast, *mudarabah* type agreements are necessarily incentive contracts, but precipitate a cost²⁸ for the principal in the inducement of the agent's (precontractual) private information. Thus in this sense, *mudarabah* type agreements simultaneously mitigate the cost of information asymmetries which exist both before (adverse selection) and during (moral hazard) the execution of a contract. However, pure wage agreements successfully mitigate the cost of one or the other type of information asymmetry, but not both simultaneously. Therefore in summary,

²³ Without loss of generality we have assumed only non-negative profit since *mudarabah* contracts award the agent no share of loss outcomes, thereby rendering redundant the incentive effects of profit outcomes which are non-positive for models admitting outcome distributions which permit losses.

²⁴ That is the piecewise linear share ratio takes one of two values depending upon the ex post attainment of a pre-specified target outcome.

²⁵ The first-best outcome with moral hazard and adverse selection is the first-best pure adverse selection outcome.

²⁶ We implicitly assume that an agent who is indifferent to the revelation of private information will reveal such information without inducement to do so.

²⁷ Assuming that the wage of agent whose venture differs according to θ can receive the same wage.

²⁸ The allocation of an information rent to induce truthful reporting by the agent (revelation principle).

mudarabah type contracts take a ‘middle road’ in the pursuit of the mitigation of costs attributed to information asymmetries.

This paper successfully argues for the use of a “mixed contract” for *mudarabah* type investments. The punishment scheme suggested in this paper may also be used by banks to offer deposits offering a minimum payment on *mudarabah*-based deposits to stabilize depositors’ income. The volatility of returns on *mudarabah* deposits is a major constraint on the use of such deposits by banks facing tight regulation from authorities. If the banks use a punishment strategy similar to the one prescribed here on the assets side, and use a “mixed contract” for *mudarabah* deposits, this will mitigate not only the inefficiencies associated with adverse selection and moral hazard, but also stabilize the depositors’ income while maintaining the true spirit of the profit and loss sharing, as prescribed by Islamic scholars. Moreover, this will pave way for the implementation of the two-tier *mudarabah* model that has for long been considered as a fundamental difference between conventional and Islamic banking. In such a scheme, depositors will receive a profit-related return from the bank with a lower bound limit. The banks in turn will receive a relatively stable income, which our punishment strategy ensures. A mapping between the lower bound limit on depositors’ return and a bonus/punishment strategy on the investment loans by banks will result in an income distribution which is more in line with the spirit of Islamic profit and loss sharing.²⁹

²⁹ The proposals of introducing a minimum return on liability side and a punishment scheme on the asset side of Islamic banks may be contrary to the rules of *mudarabah* and questionable from the *Sharia’h* point of view-The Editor.

Appendix

Global applicability of locally true incentive compatibility constraints

We will now show that $H(K(\theta), e(\theta), \varepsilon)$ non-decreasing in θ is both a necessary and sufficient condition for locally true incentive compatibility to obtain globally.

(1) Necessity:

From (3), global incentive compatibility requires

$$U^a(\theta, \theta) \geq U^a(\theta, \hat{\theta}) \quad \forall \theta \in [\underline{\theta}, \bar{\theta}], \forall \hat{\theta} \in [\underline{\theta}, \bar{\theta}] \quad (\text{A1})$$

Using (2),

$$U^a(\theta, \hat{\theta}) = U^a(\hat{\theta}, \hat{\theta}) + \int_{\varepsilon_o}^{\varepsilon_1} \pi(\theta - \hat{\theta}) H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) dG(\varepsilon) \quad (\text{A2})$$

Therefore, (A1) may be expressed as,

$$U^a(\theta, \theta) \geq U^a(\hat{\theta}, \hat{\theta}) + \int_{\varepsilon_o}^{\varepsilon_1} \pi(\theta - \hat{\theta}) H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) dG(\varepsilon) \quad (\text{A3})$$

Similarly,

$$U^a(\hat{\theta}, \theta) = U^a(\theta, \theta) + \int_{\varepsilon_o}^{\varepsilon_1} \pi(\hat{\theta} - \theta) H(K(\theta), e(\theta), \varepsilon) dG(\varepsilon) \quad (\text{A4})$$

and therefore, (A1) may also be expressed as

$$U^a(\theta, \theta) \leq U^a(\hat{\theta}, \hat{\theta}) + \int_{\varepsilon_o}^{\varepsilon_1} \pi(\theta - \hat{\theta}) H(K(\theta), e(\theta), \varepsilon) dG(\varepsilon) \quad (\text{A5})$$

Combining (A3) and (A4) yields

$$\int_{\varepsilon_o}^{\varepsilon_1} \pi(\theta - \hat{\theta}) H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) dG(\varepsilon) \leq \int_{\varepsilon_o}^{\varepsilon_1} \pi(\theta - \hat{\theta}) H(K(\theta), e(\theta), \varepsilon) dG(\varepsilon) \quad (\text{A6})$$

If global incentive compatibility obtains, then a necessary condition is that condition (A6) is satisfied, implying that $H(K(\theta), e(\theta), \varepsilon)$ is non-decreasing in θ .

(2) Sufficiency:

From locally true incentive compatibility condition (6),

$$U^a(\theta, \theta) = U^a(\underline{\theta}) + \int_{\underline{\theta}}^{\theta} \int_{\varepsilon_o}^{\varepsilon_1} \pi H(K(s), e(s), \varepsilon) ds dG(\varepsilon) \quad (\text{A7})$$

and

$$U^a(\hat{\theta}, \hat{\theta}) = U^a(\underline{\theta}) + \int_{\underline{\theta}}^{\hat{\theta}} \int_{\varepsilon_o}^{\varepsilon_1} \pi H(K(s), e(s), \varepsilon) ds dG(\varepsilon) \quad (\text{A8})$$

Substituting (A7) into (A8) gives

$$U^a(\hat{\theta}, \hat{\theta}) = U^a(\theta, \theta) + \int_{\theta}^{\hat{\theta}} \int_{\varepsilon_o}^{\varepsilon_1} \pi H(K(s), e(s), \varepsilon) ds dG(\varepsilon) \quad (\text{A9})$$

Substituting (A2) into (A9), rewriting $(\theta - \hat{\theta})H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon)$ as $\int_{\hat{\theta}}^{\theta} H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) ds$ yields

$$U^a(\theta, \theta) - U^a(\theta, \hat{\theta}) = \int_{\theta}^{\hat{\theta}} \int_{\varepsilon_o}^{\varepsilon_1} \pi [H(K(\hat{\theta}), e(\hat{\theta}), \varepsilon) - H(K(s), e(s), \varepsilon)] ds dG(\varepsilon) \quad (\text{A10})$$

which together with (A1) immediately yields the sufficiency result.

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Portfolio Choices and Asset Pricing in Islamic Framework[‡]

Zamir Iqbal*

1. Introduction

In an interest-based economic system, existence of a debt security and risk free rate greatly influence asset allocation decisions and play a pivotal role in determining the price of risk and ultimately the prices of assets. In such economy, investor's portfolio choices are closely linked to a system-wide risk-free interest rate and the arbitrage opportunities this rate offers to the investors. An Islamic economic system can be generally characterized as an equity-based system that prohibits a debt security with fixed and pre-determined return. Returns to financial assets in Islamic economic system are directly linked to the return in the real sector and therefore, portfolio choices and pricing risk largely depends on determination of a system wide rate of return on capital, which is closely linked to the return on the real sector.

The objective of this paper is to examine the analytical framework for making portfolio and asset allocation choices given the characteristics of an Islamic economic system. We argue that a linear Capital Market Line (CML) used in conventional system is not valid for pricing risk in Islamic framework.¹ The paper also discusses the possibility of designing a *Sharia'h* compatible

[‡] Editor's Note: This paper proposes a Floating Rate Note (FRN) based on a *murabahah* transaction. From the *Sharia'h* point of view, asset transacted in a *murabahah* contract is owned by the buyer and the ownership of any security issued against it will remain with the buyer. As such, the seller has no right to issue notes on the asset sold in the transaction. The *murabahah* transaction creates a debt and *Sharia'h* prohibits selling of debt. Thus, the proposed structure of creating an FRN based on *murabahah* contract is not in line with the principles of *Sharia'h*. The underlying principle of creating FRN outlined in the paper, however, may be useful to develop notes for transactions where debt is not involved.

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¹ Discussion on pricing risk and assets is sparse in Islamic economics literature. It is hoped that this paper will increase the awareness for further research in this area.

floating rate note security. Finally, assuming that a *Sharia'h* compatible floating rate note can be designed, the paper discusses creating leverage in capital structure of an Islamic firm.

The paper finds that an investor in Islamic economic system will be a risk averse investor who makes decisions under uncertainty by optimizing expected return and variance of assets. While the paper finds all the assumptions of Modern Portfolio Theory (MPT) are compatible with Islamic principles, assumptions of conventional Capital Asset Pricing Model (CAPM) are not. Particularly, assumption of unrestricted short selling does not appear to be compatible with *Sharia'h*. Further, it is argued that it may be possible to design a rolling Islamic Floating Rate Note (IFRN) based on those asset-backed Islamic instruments that are not debt instruments but are structured to result in a pre-determined and fixed rate of return similar to a debt security. More importantly, since these instruments represent the activities in the real sector of the economy, return on an efficient index of IFRNs can serve as proxy for return on real sector of the economy. IFRNs can be used both for the private and the public sector financing needs. With the acceptance of IFRNs, a firm can create limited degree of leverage to reduce its cost of capital.

Section 2 discusses determinants of portfolio choices for investors in Islamic framework. Section 3 examines Capital Asset Pricing Model (CAPM) and its compatibility with the principles of Islamic economic system. Section 4 presents a blueprint for designing a floating rate note and discusses its potential uses in private and public sector. Section 5 briefly discusses the issue of leverage and finally section 6 summarizes the finding of this paper.

2. Determinants of Portfolio Choices

An Islamic economic system can be characterized as one in which there are no risk-free assets and where all financial arrangements are based on the notion of sharing risks and returns (Mirakhor 1988). An investor's preference for different classes of assets, portfolio composition and asset allocation in such a system will be influenced by several factors. Mainly, the investor's decision to form a portfolio will be determined by the pool and diversity of instruments available in the market, attitude towards risk, opportunities of diversification and investor's preference for liquidity. In addition, degree of market completeness and information asymmetry in the market will also influence portfolio choices.

Contrary to common belief, Islamic economic system offers several instruments, which can serve as basic building blocks for a wide range of instruments with unique risk/return profiles and different maturity structures through spanning and the application of financial engineering (Iqbal 1999).

Basic building blocks can be divided into two broad categories of assets to cater needs of different investors; first category consists of 'asset-backed' securities which are backed by a real asset-- either through a sales or a lease contract whereas second category consists of financial claims and are purely based on equity partnership, e.g. *musharakah*.² These two categories also represent two ends of risk continuum in Islamic economic system from low risk to high-risk securities. The entire fabric of the *Sharia'h* is contractual in its conceptualization, content and application such that economic agents are given a wide freedom of contract. The other conditions are that the terms of the contract are not in violations of the precepts of the *Sharia'h* and is disposed to agreement based on the consent of the parties involved, so long as the shares of each are contingent upon uncertain gains (Mirakhor 1989b). A result of this freedom of contract, economic agents can apply innovative technique within the domain of *Sharia'h* to design complex securities.³ Therefore, one can infer that with the availability of basic building blocks, the freedom of contract, and application of financial engineering, investor will have access to a large set of assets with different risk/return characteristics to choose from and to construct a diversified portfolio.

Second factor influencing the choice of portfolio is investor's attitude towards risk or the degree of risk aversion or tolerance. The sharing of risks and uncertainties of the enterprise is an extremely important characteristic of Islamic economic system and scholars are in agreement that the ideal Islamic economic system is based on risk-return sharing. Islam recognizes risks in the market place and business environment and therefore emphasizes on the necessity for full disclosure of information regarding the contract and

² Technically, every security in Islamic economic system can be regarded as an 'asset-backed' security because of a direct or indirect linkage to a real asset. However securities as result of a sale contract are stronger cases of 'asset-backed' securities since these securities are collateralized by a real or tangible asset as opposed to a financial claim. Examples of strong cases of 'asset-backed' securities are *Bai-Muajjal* (deferred payment or credit sale), *Morabahah* (cost-plus or mark-up sale), *Bay' Salam* (forward contract), and *Ijara* (leasing). It is often argued that instruments in the first category resemble fixed income debt securities since rate of return is pre-determined or more certain than other instruments. Actually, in context of Islamic economic system, these instruments are not meant to be creating a debt security. In the literature, such instruments are often referred to as 'debt-like' securities which is not an appropriate description

³ Historically, *Fuqaha* (Muslim religious scholars) did not define *a priori* the various methods of *Riba*-free transactions available today. The practice was that the contracting parties would decide on a particular mode, and the *Fuqaha* would rule on its permissibility. Iqbal and Mirakhor (1999).

importance of safety and security of credit transactions.⁴ Similarly, strong prohibition of gambling and lottery are indicators of disliking of speculative behavior.

Strong preference of Islam for sharing risks and equity participation is implicit recognition of acceptance of uncertainty regarding the future events and outcomes.⁵ In fact permissibility of *mudarabah* and *musharakah* makes sense only in face of uncertainty regarding the magnitude and the probability of expected return (Mirakhor 1987). Therefore, once risks associated with information disclosure and speculative behavior are eliminated, investor will only be concerned with its exposure to risks due to uncertainty of future outcomes assuming that all business decisions-making conform to the norms of social behavior expected by Islam. Islamic economic system is regarded as a rule-based system and full benefits from a rule-based system can only be reaped by full compliance with the rules. Given the attitude of Islam towards risk and considering that a Muslim is expected to be a rational decision maker who is conscious of obligations toward individuals and society and will comply with the rules of the system, it is fair to assume that an investor in Islamic framework will be risk averse in his general behavior (Mirakhor 1987). In terms of utility analysis, investor in Islamic economic system will be risk averse who prefers less risk over more risk, and will maximize utility of wealth instead of wealth itself.

Modern Portfolio Theory (MPT) suggests that a utility maximizing risk averse investor will base his/her investment decisions only on two parameters, i.e. expected return and risk where risk is uncertainty risk, or the chance that actual returns on investments or portfolios will differ from expected, or mean returns. Markowitz's seminal work on portfolio theory showed the benefits of diversification of risk in a properly constructed portfolio and how differing responses of risky investments within a portfolio tend, in varying ways and degrees, to cancel each other out without loss of overall expected return.⁶ When

⁴ See *Qur'an* (2:82) regarding credit transactions. It is clear that risk in Islamic context is not the same as is generally understood. In fact, where there is any element of uncertainty regarding the nature of the transaction, or the products and services that are subject of the transactions, and where there is chance that either one or both parties may be defrauded, the transaction is said to contain *Gharar* (usually translated as 'risk') and not allowed. See Mirakhor (1987)

⁵ For example, see *Qur'an* (31:34) 'No soul knoweth what it will earn tomorrow'.

⁶ Although, the expected return of a portfolio equals weighted average expected return of its component securities, overall portfolio risk is proportionately less than the weighted average risk of those securities. Portfolio risk is less because individual investments rarely respond in

faced with making decisions under uncertainty in Islamic capital markets, behavior of investors will not be different from the investors in conventional capital markets who will weigh the trade-off between expected return and the variance of return on securities and will fully benefit from diversification of portfolios to match individual needs and expectations.

Time value of money is another important factor, which will influence an investor's decision on how to construct a portfolio. While it is true that the existence of a rate of time preference may be needed to determine the equilibrium consumption-saving behavior in the economy, and while its necessity or existence in an Islamic economy can not be denied, there is no strong economic-theoretic justifications for assuming that the rate of time preference is fixed, predetermined and equal to the market rate of interest. One could easily and without loss of generality assume that the rate of time preference is equal to market rate of return on equity shares (Mirakhor 1988).

It is a general misconception that removal of interest rate from the economy will lead to non-recognition of time value of money. Instead, Islam does recognize time value of money depending on the time value of resources and when and in what form this time value can actually be realized, i.e. time value can not be realized in an exchange of monetary resources such as loans but the time value can be realized in an exchange transaction of real goods and services only (Khan 1991). Where time value can be realized, it can be realized only as an implicit part of the total return from the transaction. It cannot be realized explicitly and in isolation of the other components of the return from investment.⁷ Therefore, an investor in Islamic framework will construct the portfolio to optimize its return for a given level of risk by determining expected returns and variances of future cash-flows of an asset discounted at a rate which represents time value determined by returns on the real goods and services.

Finally, degree of market completeness and information asymmetry in the market will also influence investor's decision on how to allocate funds among different classes of assets. Markets are considered incomplete when the sources of uncertainty affecting the fundamental asset/security are not spanned by traded securities. In absence of a full set of contingent claims on basic assets, pool of assets available for investor will be limited and, thus will limit

precisely the same manner and extent to any given event (McLaughlin 1998).

⁷ It is argued that acceptance of difference in spot and credit price in instruments like *bai-muajjal* and *bay-salaam* are indicative that *Sharia'h* recognizes time value of an asset. Difference in spot and future price is attributed to expected changes in future demand and supply and not on time value of money (see Khan 1991 and Khan 1994).

ability to construct securities and portfolios with unique risk/return profiles.⁸ Degree of information asymmetry will determine investor's preference for low risk 'asset-backed' securities (*murabahah, bai-muajjal, bay salaam*) over equity participation. Analytical models demonstrate that in presence of information asymmetry between lender and borrower, lender will prefer debt contract to equity contract to minimize monitoring costs (Diamond 1984). Lesser the degree of information asymmetry in the market, more incentive for investor to enter into equity partnership.⁹

Discussion in the preceding section infers that an investor in Islamic economic system will be a risk averse utility maximizing investor. He/she will have freedom of contract by *Sharia'h* will construct well diversified portfolios which minimizes expected risk for a given level of return from a pool of assets whose size is determined by the degree of market completeness and asymmetrical information.

3. Asset Pricing

How should the risk of an asset be measured and what economic forces determine the price of risk -- the additional return an investor gets for bearing additional risk-- are two of the most fundamental questions in modern financial theory (Campbell 1996). A satisfying model of risk and return must explain the magnitudes of the rewards that investors receive for bearing different kinds of risk. The primary role of asset pricing models is to specify the appropriate measure(s) of risk and the appropriate risk/return profile and to study the implications of competitive equilibrium in securities market for the pricing of risk.

Literature on Islamic economic and finance has not paid much attention to the issue of pricing risk and asset in an interest-free system. In some cases it is assumed that asset-pricing models in conventional system are applicable in Islamic system provided a risk-free security can be designed in Islamic system (Khan 1999). However, this paper argues that existence or non-existence of risk-free security is not the only issue as basic assumptions of asset pricing

⁸ It is often argued that future sustainable growth of Islamic financial markets will largely depend on innovating new securities to match investors' demand for well-diversified portfolios and securities for extreme ends of maturity structure (see Askari and Iqbal 1995, and Iqbal and Mirakhor 1999).

⁹ See Sadr (1999) and Sadr and Iqbal (2000). Evidence based on last 15 years of data from the Agricultural Bank of Iran (ABI) demonstrates that with reduction in information asymmetry and increased participation and monitoring by the lender lead to preference of equity participation over debt without sacrificing efficiency.

model of conventional system are not compatible with Islamic principles. Therefore, it is important to understand how conventional asset pricing models are appropriate in Islamic economic system. This is because first, any analytical work in context of Islamic economic system under the assumption of conventional asset pricing model will not be valid and second to recognize the need for developing a model compatible with Islamic economic system. Modern financial theory suggests several asset-pricing models including the most popular Capital Asset Pricing Model (CAPM), followed by Arbitrage Pricing Theory (APT) and Consumption Based CAPM (CCAPM). This section examines CAPM model to determine its compatibility with Islamic economic system.¹⁰ The CAPM is based on an efficient frontier as developed by Markowitz' modern portfolio theory (MPT) and two-fund separation principal of Tobin.¹¹ The model rests on eight assumptions. First five are those that underlie the efficient market hypothesis and thus underlie both MPT and CAPM. The last three assumptions are necessary to create the CAPM from MPT (Harrington 1987).

1. The investors are risk averse with an objective to maximize the utility of terminal wealth.
2. Investors make choices on the basis of risk and return.
3. Investors have homogeneous expectations of risk and return.
4. Investors have identical time horizons.
5. Information is freely and simultaneously available to investors.
6. There is a risk-free asset, and investors can borrow and lend unlimited amounts at the risk-free rate.
7. There are no taxes, transaction costs, restrictions on selling short, or other market imperfections.
8. Total asset quantity is fixed and all assets are marketable and divisible.

¹⁰ Reason for discussing CAPM only is because it is one of most rigorously discussed model and has been subject to extensive empirical research. Also, APT, under certain conditions, can be reduced to CAPM.

¹¹ Markowitz considers "efficient" frontier a portfolio that has either the highest expected return for a given risk or the lowest risk for a given expected return. Tobin demonstrated that by combining a risk free security with market portfolio, the composition of risky assets in efficient portfolio is the same for every investor.

According to CAPM, in equilibrium a linear Capital Market Line (CML) exists in the economy, which measures price of risk in terms of covariance of a portfolio's return with the return of market portfolio. As result of diversification, all unsystematic risk associated with a security can be eliminated and the only remaining risk will be systematic risk or the market risk. Each security will fall on a Security Market Line (SML) (Eq. 1) derived from CML where price of the risk is the slope of the line, the difference between a risk-free rate and the expected rate of return on the market portfolio and the quantity of risk, commonly referred to as β .

$$E(R_i) = R_f + [E(R_m) - R_f] \frac{\sigma_{i,m}}{\sigma_m^2} \quad (1)$$

$$\text{Price of Risk} = \text{Slope of Line} = [E(R_m) - R_f]$$

$$\text{Quantity of Risk} = \beta_i = \frac{\sigma_{i,m}}{\sigma_m^2} = \frac{\text{Cov}(R_m, R_i)}{\text{Var}(R_m)}$$

None of the assumptions of modern portfolio theory contradict any of expected behaviors of investors in Islamic economic system. However, two assumptions of CAPM need close examination; (i) assumption of existence of a system wide risk free interest rate (R_f) and the ability of investors to borrow and lend at an unlimited quantity, and (ii) no restriction on selling short any security. CAPM's assumptions of a risk free rate has two important implications; first, it expands the investment opportunity set for the investors and second, it results in a *linear* relationship between risk and return as risk-free interest rate simplifies the curved efficient frontier of MPT to the linear efficient frontier of the CAPM. Figure 1 shows how introduction of R_f expands investment opportunity set.

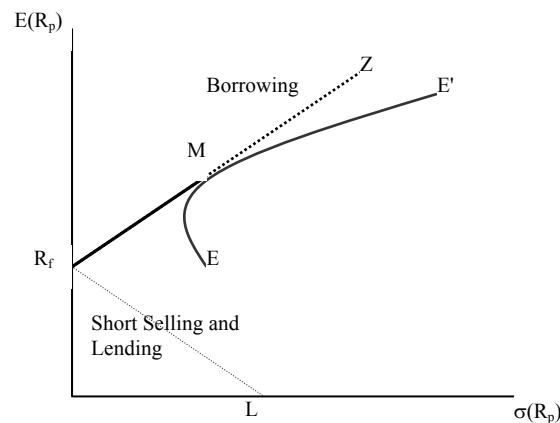


Figure 1. Capital Market Line and expanded opportunity set

By introduction of a risk-free interest rate with an efficient frontier (EE'), a linear relationship between risk free rate and market rate is developed. Line R_fM represents risk/return relationship when a portfolio consists of a risk free security and a market portfolio in different combinations. Line MZ is only possible when investor can borrow unlimited amounts at risk free rate and invest the proceeds in the market portfolio. Line MZ also offers higher return for the same level of risk as compared to the efficient frontier. Line R_fL represent the relationship when market portfolio is sold short and proceeds from short sales is invested in risk free asset at risk free rate. Since, existence of a risk free interest rate is so fundamental to derivation of CAPM, it first appears that it will not be acceptable in context of an Islamic economic system which prohibits debt instruments with pre-determined rate of return and which does not have a system-wide risk-free interest rate. However, the following discussion argues that it may not be the case.

First, the assumption of a fixed and predetermined rate of interest is not necessary either for the determination of saving-investment behavior, or for the existence of a long-run equilibrium of the economy and that therefore absence of interest bearing assets does not hamper macro-economic analysis or the workings of the economic system, in closed- or open- economy models (Mirakhor 1988). Standard macro-economic analysis can be carried out to determine the conditions that must exist for a non-interest economy to reach its equilibrium.

Second, assumption of a risk free rate of interest is not essential for asset pricing as long as there exists a risk free asset in the economy or there are ways to construct a portfolio with zero risk. Black (1972) suggested that the minimum-risk asset required for derivation of CAPM is not in fact risk free because it is subject to buffeting of inflation. Black created an alternate CAPM using short-selling as a proxy for the risk-free asset.¹² If the investors can short-sell assets, then any portfolio of risky assets can be balanced by short-sold assets, creating a riskless portfolio in any economic environment. Black's replacement for the risk-free asset was a portfolio that had no covariability with the market portfolio. Because the relevant risk in the CAPM is systematic risk, a risk-free asset would be one with no volatility relative to the market-- that is, a

¹² To short sell, the investor borrows securities and sells those securities in anticipation of replacing them later at a lower price. Black assumed that short-selling was the means that allowed market prices to be in equilibrium-- that is, to be balanced between market pessimists and market optimists, buyers and sellers (Harrington 1987).

portfolio with a beta of zero such that covariance between the portfolio and market returns is zero. All investor-preferred levels of risk could be obtained from various linear combinations of Black's zero-beta portfolio and the market portfolio (Harrington 1987). Return on an asset will be expressed as following:

$$E(R_i) = R_z + [E(R_m) - R_z] \frac{\sigma_{z,m}}{\sigma_m^2}$$

Figure 2 shows Black's version of CAPM which is similar to figure 1 except that a risk free rate R_f is replaced with the return on zero beta asset R_z (Copeland and Weston 1988). Portfolio A and B are both uncorrelated with the market portfolio M and have the same expected return. However, only one of them, portfolio A lies on the efficient frontier. It is the minimum variance zero-beta portfolio and it is unique. Portfolio B is also zero-beta portfolio but it has a higher variance and therefore does not lie on minimum variance opportunity set. Rest of relationship holds same as conventional CAPM.

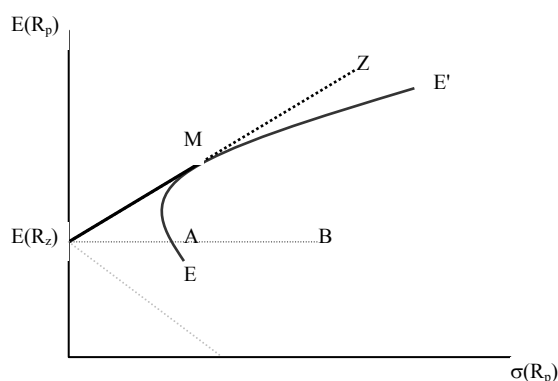


Figure 2. Capital Market Line with Zero Beta Asset (Zero covariance with market)

As Black's version of CAPM resolves the condition of risk free interest rate, it introduces another strong assumption of unlimited short selling by investors at will and requires close scrutiny. The investors exercise short selling when their perception of the market leads them to believe that security prices will decline in the future. Empirically, almost all asset returns have positive correlations which makes it impossible to construct a zero-beta portfolio composed of only long positions in Securities (Copeland and Weston 1988). Condition of short sales raises two questions: first, is borrowing a security compatible with Islamic principles and second does the act of selling security with an expectation to replace it at a cheaper price in the future an expected

behavior of a Muslim investor. As far as borrowing a security is concerned, as matter of principle, it can be argued that it is a simple *Qard* (loan) from one party to another and the contract stipulates returning of *Qard* (loan) at face value without any additional reward attached to this loan and therefore could be acceptable by *Sharia'h*. However, the act of short selling with or without permission of the owner is speculative and high risk taking behavior and is done purely on investor's own expectations of the market. Islam's position on risk taking, which prohibits speculation and taking undue risks suggests that the act of short selling will not be permissible. *Sharia'h* also does not approve short-selling arguing that it is not permissible to sell a stock which a seller does not possess at the time of sale and therefore it leads to unnecessary volatility in the market.¹³

Since Black's model depends on the assumption of unconstrained short-selling that is rejected by *Sharia'h* judgement, it will immediately invalidate the model and applicability of CAPM to Islamic economic system. As *Sharia'h* does not allow short selling, any pricing model with strong assumption of unlimited short-selling will not hold.¹⁴ Even if we assume that there exists an asset that has zero covariance with the market, a restriction on short selling will reduce the investment opportunity set and will also affect the slope, intercept and linearity of the capital market line. As a result it will be impossible to maintain linearity of CAPM for pricing assets. A non-linear Capital Market Line (CML) will emerge in form of R_zME as shown in figure 3.

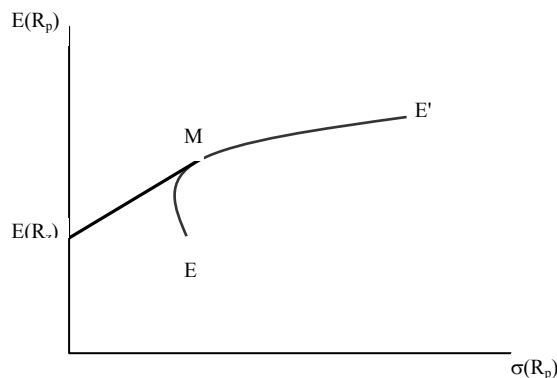


Figure 3. Capital Market Line with Zero Beta Asset and No Short Selling

¹³ *Sharia'h*, *its sources and arguments against speculation and short sales on the basis of nusuh* (legal text) as well as *maslahah* or public interest (Chapra 1985).

¹⁴ It is argued that selling an asset from one's own holding can also be viewed as a short selling, i.e. if an investor is holding an asset and decides to sell it with the expectation of buying at a lower price in the future. However, in such case short sale will not be unconstrained (a must for Black's model) and will be limited to the holdings of an investor.

Let's examine how Black's model will behave under assumptions of complete markets. When a market or economy has a complete set of state contingent claims, the markets are known to be 'complete.' In actual securities markets, we do not observe state contingent claims but rather a number of complex securities (a bundle of state contingent claims) such as common stocks of firms (Huang and Litzenberger 1988). The efficiency of equilibrium in complete markets for arbitrary preferences depends on whether or not the number of linearly independent securities equals or exceeds number of states. A large number of assets than states simple requires some assets to be perfect substitutes for portfolios of others and arbitrage ensures that the prices of these redundant assets equal the prices of those assets (or combinations of assets) to which they are equivalent (Eichberger and Harper 1997).

Under a complete market with large number of assets, a zero beta portfolio can be constructed by combining assets with different state contingencies. Although, complete markets also require ability to short-sell any security but as number of assets and contingent claims become large, impact of restricting short selling will be lesser and lesser. Therefore, it may be possible to derive a linear CAPM under assumption of complete markets with restricted short selling where investor can build a portfolio with zero beta without selling short.¹⁵ It has been argued that since Islamic economy is an equity based economy, all financial assets are contingent claims and the rate of return is contingent upon the outcome of the project for which financial resources are made available. This characteristic makes an Islamic economic model as ideal setting for application of Arrow-Debru-Diamond type analysis--foundation of the concept of complete market (Mirakhor 1988). Viewing Islamic economic system in terms of complete markets, a linear CAPM may be achievable. With the recent wave of de-regulations, less restrictive capital controls and reduced informational asymmetry in the world economies, a global set of equities can practically offer opportunities to construct a zero-beta portfolio without using short selling.

4. Islamic Floating Rate Notes (IFRNs)

A floating rate note (FRN) is an established fixed-income security which is commonly used by institutional borrowers in conventional financial markets. It is a simple instrument where interest rate on a pre-determined principal is not fixed but instead is linked to a pre-agreed interest rate index and is determined

¹⁵ Jarrow (1980) argues that in absence of assumption of short sale, asset prices will be more volatile and may be higher than under assumption of unconstrained short sales.

at the beginning of each coupon period. As compared to fixed rate bonds, FRNs offer flexibility of borrowing and investing at prevailing market rates for each coupon period. Although, Islamic economic system does not accept existence of a debt instrument in the economy, a need is felt to have an instrument where principle is exposed to less risk or volatility. Such instrument will also be attractive to risk averse investor, i.e. orphans and widows, pension funds, etc.¹⁶ Such instrument is attractive to the entrepreneur as it reduces frequent access to the market and thus saving transaction cost of raising funds.

Basic set of instruments sanctioned by *Sharia'h* includes 'asset-backed' securities, which are not debt instruments but their characteristics and payoffs are similar to a fixed income security (Khan 1998 and Khan 1999). For example, *bai muajjil* or *murabahah* transactions which are in fact 'asset-backed' securities, can result in a fixed return since profit margin or mark-up is agreed in advance.¹⁷ This does not mean that the return is always fixed since both profit and principal is exposed to final outcome of the event being financed. Critical point to understand is that in a fixed income debt security, principal and interest is exposed only to the solvency risk whereas this is not the case in *bai muajjil* or *murabahah* where each transaction is exposed to the outcome of each event, although probability or risk of uncertain outcome is low.¹⁸ Similarly, steady stream of pre-determined cash-flows from *ijara* (lease) and *bay salaam* (Forward Sale) are similar to a fixed-income security but variability of payoffs is different due to different risk exposures. In addition, freedom of contract by *Sharia'h* opens door for developing wide range of products and instruments with distinct payoffs. Following section suggests how an instrument similar to FRN may be designed in Islamic economic system with its own distinct characteristics.

¹⁶ Current expansion of equity markets in industrial countries as result of reduced regulations and information asymmetry and increased technological advancement has changed old high-risk perception of equity investments. Phenomenal growth in mutual funds industry and individual investor's access to market has changed the why 'orphans and widows' were considered to be extreme risk averse investors.

¹⁷ *Bai muajjil* is sale on credit in which the delivery of the commodity by the seller to the buyer and enabling it to possess and benefit from the commodity, with the understanding that the buyer will pay the agreed upon price at a certain future date where usually the deferred price is higher than the cash price (see Khoja and Abu Ghuddah 1995). This transaction can be converted into a security if investor buys the commodity on spot and re-sells it to the buyer at higher price.

¹⁸ In case of *murabahah*, investor does not bear risk for the entire period of the contract. The risk is only for that period in which a spot sale is made and until the goods are handed over to the client (Khan 1994)

In case of *murabahah*, due to a pre-determined profit or mark-up rate, payoffs are similar to a single period zero coupon security where investor invests a sum of money today and gets that sum of money plus a profit at the end of period. Let's assume that a firm needs to finance its working capital needs for an amount (P_0) to purchase raw materials or supplies at time (t_0). Firm enters into a *murabahah* transaction with an investor who purchases the goods for the firm, which in return agrees to pay back original investment and a profit after selling the final product at time (T).¹⁹ A profit rate or mark-up (m) is agreed between the firm and the investor such that the investor receives a sum of ($P_0 + m$) at the end of the maturity. Since initial cash outflow, mark-up and final cashflow are known at the time of contract, an internal rate of return (r) can be computed as following:

$$r = \frac{(P_0 + m)}{P_0} - 1$$

This simple contract can also be viewed as a zero coupon note where investor invests funds (P_0) at time (t_0) and receives a pre-agreed face value ($P_1=P_0+m$) which is higher than (P_0) at maturity. Figure 4a shows this simple instrument. At the maturity of this one-period *murabahah* transaction, firm will need to execute another transaction for the next cycle of production, which will require it to repeat the process of financing raw materials through a similar transaction. Instead of paying back principal and mark-up to the investor at the end of the period, both parties can agree to pay mark-up amount back to the investor and to re-invest the principle for the next cycle of production at prevailing mark-up or profit rate. In other words, both parties agree to enter into a rolling or revolving transaction which is renewed or reset with new mark-up periodically for a pre-agreed period of time such that the cash-flows will be similar to a Floating Rate Note (FRN) assuming that the rest of the requirements according to *Sharia'h*, regarding sharing other risks and explicitly defining the activity for which funds are raised are preserved.

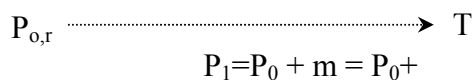


Figure 4a. Single period transaction. P_0 is invested for period T . A pre-agreed mark-up (m) is included in final redemption of principle so that lender earns a rate of return

¹⁹ Where direct purchase from the supplier is not practicable for some reason, it is allowed that the investor makes the purchaser himself agent to buy the commodity on his behalf. In this case the client first purchases the commodity on behalf of the investor and takes its possession as such. Thereafter, purchaser purchases the commodity from the investor for a deferred price (Usmani 1998)

Figure 4b shows how paying mark-up amount back to the investor at the end of each period will result in re-investment of initial principle for the next period. This will create a floating rate security, which pays back to the investor on each coupon period.

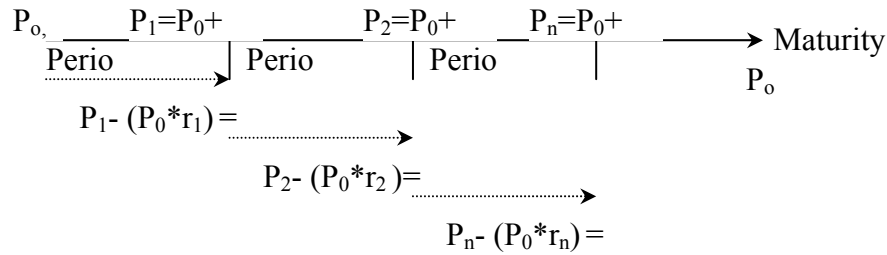


Figure 4b. Multi-period revolving transactions. At end of each period, lender is paid back pre-agreed profit or mark-up and the principle (P_0) is re-invested at pre-agreed profit or mark-up for

Alternatively, both parties can agree to re-invest principle and mark-up for the next period so that the lender does not receive mark-up amount back each period but receives a large lump sum with re-invested interim profits at the end of pre-agreed period. Figure 4c shows how a zero-coupon with periodic compounding note can be constructed by re-investing a series of small period transactions based on individual *murabahah* transactions.

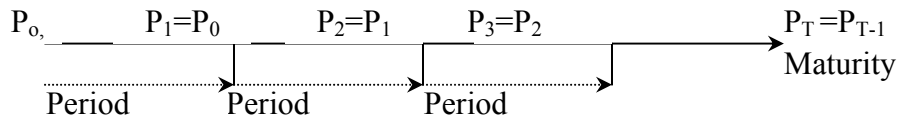


Figure 4c. Zero-coupon with periodic compounding note. At the end of each period, Principle (P_n) and profit or mark-up is re-invested in the next period at current market profit or mark-up rate resulting in different (r) for different periods. No interim profit is paid back to the investor. This process of re-investing is repeated for the duration of note. At the end of pre-agreed period for which the series of transaction is executed, investor is paid back P_n which will be equal to

Above example is a simple demonstration of constructing a floating rate note using one of the instruments allowed by *Shariah*. This concept can be extended to use other similar *Shariah* compatible 'asset-backed' instruments such as *ijara*,

bay salaam, and *istisna*. Table 1 highlights difference between a FRN in conventional system and an IFRN.

Table 1: Difference between FRN and IFRN

Factor	FRN	IFRN
Principal	Protected. Exposed only to insolvency of borrower.	Semi-exposed. Exposed only during the acquisition of asset. Once delivery is made to the entrepreneur, principal is exposed to insolvency of the borrower.
State Protection	Protected by bankruptcy law.	Protected to the extent of the value of goods being financed up to time of delivery.
Coupon Rate	Linked to interest rate.	Linked to profitability or demand and supply of goods being financed.
Exposure	Default risk	Exposure is minimized as IFRN is backed by a real asset, which can be liquidated in the market at current market prices, and proceeds can be used to recover funds.
Collateral	Firm's credit rating	Tangible asset

Once the basic instrument is developed, it can be institutionalized by extending the application to other instruments. It has been suggested that a *Modarabah* fund (trust) can be setup which serves the purpose of a financial intermediary to match entrepreneurs and investors (Khan 1998). This trust's asset side will consist of a well-diversified portfolio of Islamic Floating Rate Notes (IFRNs) and the liabilities side will contain *Modarabah* certificates issued against the investments. Since asset side will consist of low risk securities yielding a pre-agreed profit or mark-up rate, *Modarabah* will become a pass-through vehicle such that current market profit or mark-up rate will be passed through periodically to the investors after deducting nominal fees for operational costs. Such financial intermediary will also perform necessary research needed to find good investment opportunities in different sectors of the economy. In an under-developed market, new entrepreneur may not have full access to capital markets and therefore will require to go through the financial intermediary who underwrites entrepreneurs to enhance credit ratings. Figure 5 shows the operation of this intermediary.

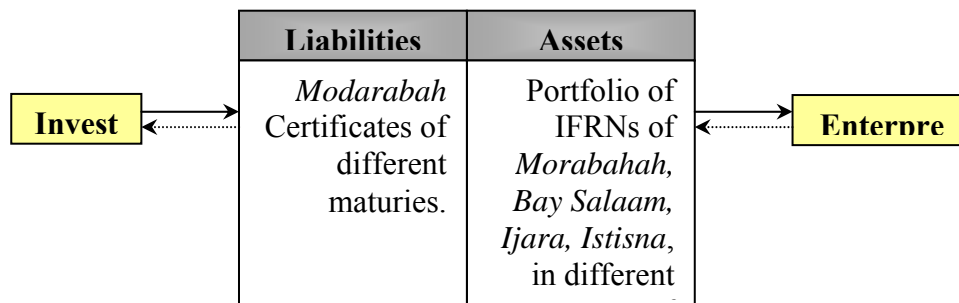


Figure 5. Structure of financial intermediary to

The most important and difficult (conceptually and practically) problem remains that securities underlying the proposed IFRN are one-off, one-time transactions and raises two concerns. First, how to determine the mark-up or the profit for each period and each transaction, and second the assumption that these transactions become "rolling" is very strong and may not hold globally. The former obstacle can be overcome by developing an index representing economy-wide return on the real sector. Instruments suggested for IFRNs are 'asset-backed' securities that represent closely the activities of the real sector of the economy. As compared to an equity instrument where principle is fully exposed to all risks of the market and the enterprise, risk in 'asset-backed' securities is localized to the risk of underlying asset-- thus reducing the uncertainty and volatility in returns. As a result, determination of the profit or mark-up will be directly linked to the current and future demand and the supply of the commodity or the product being financed in addition to a risk premium to cover credit and operational risk varying from entrepreneur to entrepreneur. Therefore, economic agents will be free to transact at a mutually agreed profit margin that is determined by the market forces of demand and supply in different sectors of the economy which in return will be passed-through to the investors, other things remaining the same.

An index ensures the proper representation of a country's underlying industry distribution and market capitalization, and allows investors to accurately compare performance across markets, regions, and sectors. With active issuance of IFRN transactions in a well-developed and liquid capital market, an index can be developed to represent a benchmark for the prevailing rate of return on economy-wide 'asset-backed' transactions. In other words, once a market for IFRNs is developed where entrepreneurs issue IFRNs of different maturities, an index can be defined to measure the relative performance of different IFRNs in different sectors. An index can be defined

from the universe of IFRNs within each country and industrial sectors by selecting securities representing major share of industry's market capitalization. The return on the index will be representative of return on transactions which are actually consists of 'asset-backed' instruments of Islamic economy and are close proxy to the activities of real sector of the economy. Therefore, it can be argued that in a well-developed market of IFRNs, return on an efficient index of IFRNs will closely represent the return on the real sector of the economy.²⁰ This return can then be used in pricing other assets and financial claims in the economy. Second concern regarding ability to "roll" transactions underlying an IFRN can be resolved if a well-developed, liquid and efficient capital market exists where a large number of investors and entrepreneurs participate compete. If these markets have high volume of transactions of different sizes and maturities, then there will be sufficient opportunities to "roll" the investor's capital for the each period. Therefore, the financial intermediary will act as a clearing agency to match demand and supply.

Applicability of IFRNs to finance government operations needs further investigation. While all of government expenditures may not allow financing through assignment of individual equity claims, public expenditures on infrastructure and development projects (resulting in asset creation), often a major element of governments' budget, can be financed by equity participation. Other government operations (non-asset generation) can be financed through taxation (Haque and Mirakhor 1999). Within development projects, financing can be separated into activities that can be financed through 'asset-backed' instruments and activities that will have to be financed through issuing equity claims. For example, procurement of raw materials for a project or import of oil can be financed through *bai' muajjil* or *murabahah*. In a market-based economy where private sector is well developed and performs economic activities more efficiently than the public sector, government size will be relatively small and majority of its activities will be out-sourced to the private sector. In such case, government can act as a financial intermediary (as suggested in figure 5) who channels funds from investors to private sector for its infrastructure and development projects.

It is suggested that under certain conditions governments will be able issue IFRNs to finance portion of its infrastructure and development projects. It is also possible that government issues an IFRN, which allocates funds to different activities at each reset period to optimize its efficiency. Government will require specifying the activities for which funds will be utilized and the investor will have full disclosure at each reset period for the activities being financed. Profit margin or mark-up for each period of the note will be

²⁰ Khan (1999) make similar suggestion but includes current rate of bank deposits for proxy of return on real sector.

determined by the market rate for IFRNs subject to adjustment for reduced credit risk of a government. Rate of return on IFRNs will be based on market rate because it is argued that in an Islamic economy, social rate of return on infrastructure and development project undertaken by the governments must be greater than, or at least equal to, the rate of return in the private sector; otherwise, there is no justification for governments to undertake these projects on financial grounds (Choudhry and Mirakhor 1997).

In order to make a government IFRN operational, an efficient index as suggested earlier can be developed in an economy which accounts for current market rates on all the contracts that qualify for IFRNs in the market and serve the purpose of a benchmark for pricing IFRNs.²¹ Haque and Mirakhor (1999) have also suggested development of an equity-based, floating-rate securities, which will pay a rate equivalent to the observed rate of return obtained in the private sector and adjusted for risk premiums in the form of National Participation Paper (NPP) whose return is linked to the performance of a broad index consisting of domestic and international markets. In case a market is developed for NNPs in an economy, return on these NPP can also be used for determining profit margin for IFRNs.

5. Leverage

Discussion in the previous section suggests that it may be possible to design a security similar to a floating debt which a firm or corporation can utilize to finance those operations which are suitable for financing through *Sharia*'s sales or 'asset-backed' instruments. If this is the case, can this be used to create a leverage in the capital structure of the firm where some operations are financed through IFRNs and others through issuing equity? By creating an optimal combination of IFRNs (I) and equity (E) capital, firm may be able to lower its weighted average cost of capital (WACC). In absence of any IFRN financing in the capital structure, weighted cost of capital will be equal to the cost of equity (k_e). With the introduction of IFRNs in capital structure (I+E), cost of capital will be based on the weights of IFRNs and equity in the capital structure as following. Since, IFRNs will be of lower risk as compared to equity financing, the resultant weighted average cost of capital will be lower.

²¹ Karsten(1982) suggests that a government bond can be linked to annual gross domestic product (GDP) growth rate. However, there are practical issues with proper measurement of GDP growth for short period of interval.

Cost of capital in absence of IFRNs

$$\text{WACC} = \text{Cost of Equity} = k_e$$

Cost of capital with IFRNs

$$\text{WACC} = k_i \frac{I}{E + I} + k_e \frac{E}{E + I}$$

Where

k_i = Cost of financing through IFRNs

I = Total portion of capital structured financed through IFRNs

k_e = Cost of equity

E = Total portion of capital structured financed through equity

Several researchers are of view that usage of instruments resembling fixed income should be limited due to *Sharia'h's* preference of equity partnership over these instruments. Whereas one group of scholars accepts 'asset-backed' or debt-like securities without any reservations, others disagree. It is argued that even among *Sharia'h* approved instruments, some can be considered strongly Islamic (in that they conform to Islamic objectives both in form and substance) and some only weakly so (in that they conform to Islamic norms in form only but not in substance). The basis for judgement as to the strength or weakness of a given instrument is the extent to which that mode contributes toward achievement of the objectives of Islamic economy. Thus, only those modes of operation which permit risk-return sharing between providers and users of financial capital can be considered as strongly Islamic (Mirakhor 1987). These scholars consider only two modes of transactions among the approved modes, namely *mudarabah* (commenda) and *musharakah* (equity participation), to be strongly Islamic. The remaining modes of operations namely *murabahab*, *bai muajjil*, *ijara* (leasing), *ijara wa iqtina* (lease-purchase), *bay' salam* (pre-purchase agreements) and *ju'alah* (service charge) are recommended only in cases where risk-sharing (i.e. *mudarabah* and *musharakah*) cannot be implemented (Mirakhor 1987). Therefore, degree of leverage that can be created through IFRNs will largely depend on the degree of acceptance to instruments qualified for IFRNs in any particular implementation of Islamic economic system.

6. Conclusion

This paper finds that investor in Islamic economic system will be a risk averse utility maximizing mean-variance optimizer who will diversify portfolios

based on mean and variance of expected returns. Investor's preference for 'asset-backed' (fixed-return) instruments over equity partnership will also be influenced by degree of market completeness and informational asymmetry. Capital Market Line (CML) in absence of a risk-free asset and unrestricted short-selling will be non-linear and its linearity will largely depend on *Sharia'h*'s acceptance or rejection of short-selling. A linear capital market like in Islamic economic system will be possible under conditions of complete markets with large number of assets.

This paper suggests a design for Islamic floating rate notes (IFRNs) based on *Sharia'h* compatible 'asset-back' (fixed income like) securities, which can be used in private and public sector to finance activities suitable for 'asset-back' Islamic instruments. With the acceptance of IFRNs, firms may be able to lower weighted average cost of capital by combining IFRNs and equity capital. However, the weight of IFRNs in cost of capital will depend on the nature of business and how much of it can be financed by IFRNs.

It is also suggested that in a well developed market of IFRNs, an efficient index of IFRNs will be representative of activities in the real sector and therefore return on index will be close proxy for the return on real sector. Further research is required to understand how risk and assets can be priced in Islamic economy if return on IFRNs index is accepted as proxy for return in the real sector.

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Glossary of Arabic Terms

<i>Adl:</i>	Justice
<i>Ayah:</i>	Verse of the <i>Qur'an</i> .
<i>Bai-muajjal:</i>	Price-deferred sale.
<i>Bai-salaam:</i>	Object-deferred sale of merchandise/agricultural goods.
<i>Bayt al-Mal:</i>	The treasury of an Islamic state.
<i>Faqih</i> <i>(pl. Fuqaha')</i>:	Jurists who give opinion on various juristic issues in the light of the <i>Quran</i> and the <i>Sunnah</i> and who have thereby led to the development of <i>fiqh</i> .
<i>Fatwa</i> <i>(pl. Fatawa)</i>	Islamic legal opinion
<i>Fiqh:</i>	Islamic jurisprudence covering all aspects of life including economic. The corpus of <i>fiqh</i> is based primarily on the <i>Qur'an</i> and the <i>Sunnah</i> and secondarily on <i>ijma</i> (consensus) and <i>qiyas</i> (analogy).
<i>Gharar:</i>	Ambiguity and uncertainty in transactions arising from events whose occurrence is subject to chance and thus not known to the parties of a transaction at the time of the contract.
<i>Hadith</i> <i>(pl. Ahadith):</i>	The saying or deed of Prophet Muhammed (PBUH) and action tacitly approved by him. It is the most important source of knowledge in Islam after <i>Qur'an</i> . Sometimes used as a synonym of <i>Sunnah</i> .
<i>Halal:</i>	Lawful/Permissible.
<i>Haram:</i>	Prohibited
<i>Hisbah:</i>	System of state inspection of markets to ensure fair practices.
<i>Ihsan:</i>	A good act.
<i>Ijarah:</i>	Contract of hiring/leasing.
<i>Ijma:</i>	Consensus of opinion among <i>fuqaha'</i> on a specific matter.
<i>Ijtihad:</i>	Scholarly reasoning through which a jurist/scholar derives Islamic rule on the basis of <i>Quran</i> , <i>Sunnah</i> , <i>ijma</i>

and *qiyas*.

<i>Infaq:</i>	Spending in the way of Allah for the public in general and for the needy and poor, in particular.
<i>Istisna:</i>	Object-deferred sale of manufactured goods.
<i>Maslahah:</i>	Literally meaning is good/goodness or benefit but can be interpreted as human welfare.
<i>Mubah:</i>	Things/acts permissible in Islamic law (neither obligatory/recommended nor forbidden).
<i>Mudarabah:</i>	A profit and loss sharing contract in which one party provides the financial capital and the other manages the enterprise. While profit is shared, loss is borne by the financier.
<i>Mujtahid:</i>	Scholar qualified to do <i>ijtihad</i> .
<i>Musharakah:</i>	Partnership contract in which two or more partners provide capital on profit and loss sharing basis.
<i>Murabahah:</i>	Cost-plus financing contract in which the bank sells a good to its client at a price that includes the bank's profit (markup).
<i>Nisab:</i>	Minimum amount of wealth liable to payment of <i>zakah</i> .
<i>Qard hasan:</i>	Loan without any return.
<i>Qiyas:</i>	Inference by analogy from the sources of knowledge for a given non-textual matter.
<i>Qur'an:</i>	The Holy Book of the Muslims composed of revelations made by <i>Allah</i> to Prophet Muhammed (PBUH).
<i>Riba:</i>	Literally meaning increase or addition. Technically it is interest in a loan transaction and disparity in the quantity or time of delivery with respect to commodity exchange.
<i>Sadaqah:</i>	Charity meant to seek the pleasure of Allah.
<i>Sharia'h:</i>	The Islamic law, derived from the divine guidance as given by the <i>Qur'an</i> and the <i>Sunnah</i> , embodying all aspects of Islamic faith including belief and practices.
<i>Sunnah:</i>	Used as a synonym of <i>hadith</i> .
<i>Surah:</i>	A chapter of the <i>Qur'an</i> .

Waqf

(pl. Awqaf):

Assets voluntarily transferred to charity or trust for the pleasure of *Allah* so that its usufruct may accrue to designated beneficiaries.

Zakat:

A compulsory levy payable to the poor and needy by a Muslim on his/her wealth (above *nisab*) as a part of religious obligation.