King Abdulaziz University

International Centre for Research in Islamic Economics

A BEHAVIOURAL MODEL OF AN ISLAMIC FIRM

BY

DR. M.M. METWALLY

Research Series in English No. 5

A BEHAVIOURAL MODEL

Of

AN ISLAMIC FIRM

BY

DR. M.M. METWALLY

(A DISCUSSION PAPER)

A Behavioural Model of an Islamic Firm*

A growing number of Muslin countries are expressing the desire, and in some cases (Pakistan, Saudi Arabia and Iran) are taking serious actions to turn to Islamic laws and teachings in modeling their way of life including their economic behaviour.

It is the purpose of this paper to investigate the economic implications of these laws *i.e.*, the teachings of the Holy Qur'an, the traditions of Prophet Muhammad (peace be on him) and the practices of early Muslims on the behaviour of an "Islamic firm" *i.e.*, a firm which would be ruled by Islamic laws that are enforced by both civil laws and religious beliefs.

We wish to make it clear from the outset that contemporary Muslim countries vary a great deal in the degree in which they follow the Islamic teachings. Some are much more strict than others. However there is no Muslim country, at present, which can be called an Islamic economy in the sense defined above (*i.e.*, an economy which is following the Islamic laws in a strict fashion and in which these laws are enforced by faith and civil laws). Also the experiences of early Muslim economies is not always directly applicable now since these economies were much less

* Dr. M.M. Metwally, University of Queensland, Australia.
** The author is grateful to R. Gunton, H. Higgs and B.U. Tamaschke of Queensland University and to Dr. M.A. Zarqa of the International Centre for Research in Islamic Economics (King Abdulaziz University, Jeddah, Saudi Arabia) for their comments and suggestions.

complex than those of contemporary Muslim countries. Furthermore, literature in this area is quite poor to supply us with a clear picture as to the economic characteristics of the early Muslim societies. However, an investigation of the Verses of the Holy Qur'an, the traditions of the Prophet (peace be on him) and the practices of early Muslims (*e.g.*, the administration of the Caliphate) suggest that the economic behaviour of an "Islamic firm" would most certainly be different from that of firms operating in non-Islamic economies .

A Muslim entrepreneur considers resources of various kinds as the gifts of God which have been delivered as a trust in his) the trustees) hands 1n order to utilize them in the most efficient manner to fulfil God's plan of establishing prosperity on earth and ‹more importantly, in the Hereafter - a goal to be achieved for himself and all others at the same time.

Accordingly, a Muslim entrepreneur engages in business activated by the relatively impersonal motive of filling his obligation of trust .The principle of economic trusteeship in an Islamic economy is dramatically opposed to the self-interest principle which is the corner-stone of the free-market economies of non-Islamic societies .

This clearly suggests that the object of an Islamic firm will not be profit maximisation. Rather, the firm may be satisfied to realise a "reasonable" or "fair" level of profit if that enables it to achieve the more important goal of "doing good to please God ."For a true Muslim must believe in the Qur'anic words "

> "O my Lord! grant me that I may be grateful for Thy favour which Thou hast bestowed upon me and upon both my parents, and that I may do right acceptable unto Thee. And be gracious to me in my issue. Truly have I turned to Thee and truly do I bow (to Thee) in Islam".(1)

A Muslim businessman would not seek to maximise profits for the purpose of accumulating wealth. He would know that "Wealth and sons are allurements of the life of this world; but the things that endure, Good Deeds, are best in the sight of thy Lord, as rewards, and best as (the foundation for) hopes".(2)

The Good Deeds take many forms, but basically they revolve around "charity". Spending in charity by those who possess the means is crucial in Islamic doctrine. The Qur'an says "And spend something (in charity) out of the substance which we have bestowed on you, before Death should come to any of you and he should say, '0 my Lord! why didst Thou not give me respite for a little while? I should then have given (largely) in charity and I should have been one of the doers of good."(3)

The doing of Good Deeds (or, in Arabic عمل الصالحات) was mentioned in the Holy Qur'an 62 times in 36 Chapters (out of a total of 114 Chapters).(4)

---

(1) **The Qur'an** : Chapter 46, Verse 15.
(2) **The Qur'an**: Chapter 18, Verse 46.
(3) **The Qur'an**: Chapter 63, Verse 10.
(4) We may mention Chapters 2 (35, 82, 277), 3 (57), 4 (34, 57, 122, 124, 173), 5 (19, 93), 7 (42), 10 (4, 9), 11 (11, 23), 13 (29), 14 (23), 17 (9), 18 (2, 30, 46, 107), 19 (76, 96), 20 (75, 112), 21 (94), 22 (14, 23, 50, 56), 24 (55), 26 (27), 29 (7, 9, 58), 30 (15, 48), 31 (8), 32 (19), 34 (4), 35 (7), 38 (24, 48), 40 (58), 41(8), 42 (22, 23, 26), 45 (21, 30), 47 (2, 12), 48 (29), 65 (11), 84 (25), 85 (11), 95 (6), 98 (7), 103 (3).

The above clearly suggests that the owners, managers, *etc*. of an Islamic firm would have as one major object spending on charity or Good Deeds .This object, which has no counterpart in non-Islamic free market economies, need not be without an economic meaning. Spending on Charity or Good Deeds in a society which wholeheartedly believes in it as the means to achieve God's satisfaction, must create a goodwill for the firm's products which in turn helps increase the demand for them at given prices.[5] Thus if we denote spending on Charity or Good Deeds by G. and price by P we would expect.

$$\frac{\partial P}{0\,G} > 0$$

In a sense, therefore, these expenditures in Good Deeds resemble spending on advertising. The difference is that, for a non-Islamic firm, advertising expenditure is pushed to the level which profit maximisation warrants. In an Islamic firm, spending on Good Deeds is an object which must be realised whether profits are maximised or not. In other words, an Islamic firm may state this objective in the form of a positive dictum' (*e.g.* it must spend 5 per cent of its revenue on charity) or it may be stated in a non-operational form (*e.g.* the firm may desire to be a leader in the industry or even the community in spending in Good Deeds) which will be a guide in making decisions affecting the allocation of resources. The above does not suggest that spending on Charity or Good Deeds by an Islamic firm will be a total substitute for advertising .There will always be a place for "informative" advertising but the decision to advertise or not

(5) The degree of goodwill so created would be a function of the amount spent on Charity. Thus firms which spend more are likely to benefit more from this goodwill.

(and how much should be spent on advertising) would be completely separate from that of spending on Charity or not. Naturally, as we shall see later, there will be no place for "deceptive" advertising by an Islamic firm.

The question now is: What form would spending in charity or Good Deeds take? The answer is that it can take many forms from direct payment to the poor and needy in the community to expansion in numbers employed by the firm beyond that level warranted by profit maximisation, simply to contribute towards solving the problem of unemployment (if one exists) and thus alleviating the burden of being unemployed, More frequently, Good Deeds may take the form of building hospitals and schools to cater for the relatively poor sections of the Muslim community; of building mosques to promote Islam and maintain the Islamic ideology and generally it includes all monies spent to help the poor and the needy, to fight in the cause of God, to spread Islam and to promote continually its teachings and applications .

Being a business concern, however, an Islamic firm must be able to realise a "reasonable" level of profits to maintain its business, and if a public corporation, it must be able to distribute annually a "reasonable" level of profits to its shareholders. These shareholders, being Muslims, would naturally appreciate and anticipate spending by the management on Good Deeds .

Thus, an Islamic firm would seek the maximisation of a utility function which is a function of the amount of profits and the amount of spending in charity or Goods Deeds subject to the constraint that the amount of profits would, after the payment of all imposed taxes (Zakat and other dues) be no less than a minimum level which is "safe" to keep the firm in business .

A simple mathematical model incorporating the above ideas can be developed for a single-product firm as follows:

Let the utility function of the Muslim entrepreneur be given by:

$Y = Y(F, G)$ ……………………………………………………….. (1)

where :

F = level of profits

G = expenditure on "charity" or "good deeds "

Assuming that M represents the level of actual profit, or the difference between its revenue and its production and charity costs.

we have:

$M = R - C - G$ ……………………………………………………….. (2)

where :

R = total revenue

and C = total cost

If P represents the unit price and q the quantity produced, then :

$R = pq$ .... (3)

and $C = C(q)$ .... (4)

The demand curve in this model, is assumed to be negatively sloping, but charity expenditures help increase demand for the firm's product.

Thus we have,

$$\frac{\partial p}{\partial q} < 0 \quad \text{.......} \quad (5)$$

and

$$\frac{\partial p}{\partial G} > 0 \quad \text{.......} \quad (6)$$

The relationship between F and M is given by :

$$F = M - Z - U \quad \text{.......} \quad (7)$$

where,

Z = amount of tax of Zakat paid on profits.

U = amount of additional dues paid on profits.

If we assume the rate of Zakat equals α and that of other dues equals β we have,

$$Z = \alpha M = \alpha\,(R - C - G) \quad \text{.......} \quad (8)$$

$$U = \beta M = \beta\,(R - C - G) \quad \text{.......} \quad (9)$$

Substituting (2), (8) and (9) into (7) we obtain :

$$F = (1 - \alpha - \beta)\,(R - C - G) \quad \text{.......} \quad (10)$$

The firm's aim is to maximise its utility function (1) subject to distributing a minimum acceptable level of profits π to satisfy its owners and maintain its business. In other words the objective function is:

$$\underset{q,\,G}{\text{Maximise}} \quad Y = Y\,(F, G)$$

subject to

$\psi = \pi - F \leq 0$ .... (11)

The above maximisation problem can be solved using the Kuhn Tucker conditions. We establish the Lagrangian:

$L = Y (F, G) + \lambda (\pi - F)$ .... (12)

The necessary conditions for maximisation are

$$\frac{\partial L}{\partial q} = (\frac{\partial Y}{\partial F} + \lambda) [(1 - \alpha - \beta) (\frac{\partial R}{\partial q} - \frac{\partial c}{\partial q}) \leq 0 \text{ .... (13)}$$

$$\frac{\partial L}{\partial G} = (\frac{\partial Y}{\partial G} + \lambda (1 - \alpha - \beta) (\frac{\partial R}{\partial G} - 1) \leq 0 \text{ .... (14)}$$

$$\frac{\partial L}{\partial q} q + \frac{\partial L}{\partial G} G = \{[(\frac{\partial Y}{\partial F} + \lambda) (1 - \alpha - \beta) (\frac{\partial R}{\partial q} - \frac{\partial c}{\partial q})] q +$$

$$[\frac{\partial Y}{\partial G} - \lambda (1 - \alpha - \beta) (\frac{\partial Y}{\partial G} - 1)]G \} = 0 \text{ .... (15)}$$

$q \geq 0$ .... (16)

$G \geq 0$ .... (17)

$$\frac{\partial L}{\partial \lambda} = (F - \pi) \geq 0 \text{ .... (18)}$$

$$\frac{\partial L}{\partial \lambda} \lambda = (F - \pi) \lambda = 0 \text{ .... (19)}$$

$\lambda \geq 0$ .... (20)

Under the reasonable assumptions that $q > 0$, $G > 0$, we obtain :

$$\text{(i) } (\frac{\partial R}{\partial q} - \frac{\partial c}{\partial q}) = 0 \text{ .... (21)}$$

or MR = MC

and (ii) $\dfrac{\partial R}{\partial G} = 1 - \dfrac{Y_G}{Y_F} \dfrac{1}{\lambda(1 - \alpha - \beta)}$ .... (22)

or

$\dfrac{\partial R}{\partial G} = 1 - \dfrac{r_{G,F}}{\lambda(1 - \alpha - \beta)}$ .... (23)

where

MR = Marginal revenue

MC = Marginal cost

$r_{G,F}$ = Marginal rate of substitution between expenditure on charity (or Good Deeds) and distributed profits

or $G_{G,F} = \dfrac{Y_G}{Y_F}$

Kuhn-Tucker second-order conditions would require the determinant

$$\begin{vmatrix} \dfrac{\partial^2 L}{\partial q^2} & \dfrac{\partial^2 L}{\partial q \partial G} & \dfrac{\partial \psi}{\partial q} \\ \dfrac{\partial^2 L}{\partial G \partial q} & \dfrac{\partial^2 L}{\partial G^2} & \dfrac{\partial \psi}{\partial G} \\ \dfrac{\partial \psi}{\partial q} & \dfrac{\partial \psi}{\partial G} & 0 \end{vmatrix}$$

to be positive.

However, in addition to the above conditions, Islamic teachings clearly require that the marginal rate of substitution be diminishing between any two goals and that the marginal utility of any single goal be also diminishing. This is a direct consequence of the Islamic insistence on moderation and the hierarchy it places on the levels of achieving any single goal.

Equation (21) suggests that for an Islamic firm equilibrium requires that marginal revenue equals marginal cost. This does not mean that the resulting optimal output would be the same as that of a non-Islamic profit maximising firm. For, in our case, $\partial R/\partial q$ is implicitly a function of G. Hence the optimal values of output will be different in the two cases. For an Islamic firm with similar cost structure, equilibrium output and equilibrium price will be higher than in the case of a non-Islamic firm. This can be seen from Figure I, where the DD represents the demand curve facing a non-Islamic firm while D'D' represents the demand curve facing an Islamic firm. D'D' reflects the assumption that, in an Islamic economy, $\partial P/\partial G > 0$.

Equation (23) suggests that in an Islamic economy the pro -portion of revenue devoted to charity will depend on the marginal rate of substitution between distributed profits and "Good Deeds" (r_{GF}) as well as on the rates of taxes of Zakat and dues. The higher the rate of dues on undistributed profits, the less would be the proportion of revenue devoted to "charity". This is reason -able, since it will be assumed that higher dues would be collected for the purpose of achieving higher levels of Good Deeds by the Muslim authorities.

In a non-Islamic firm, $r_{G,F} = 0$ and thus the only necessary condition for optimisation is that margina1 revenue equals marginal cost.

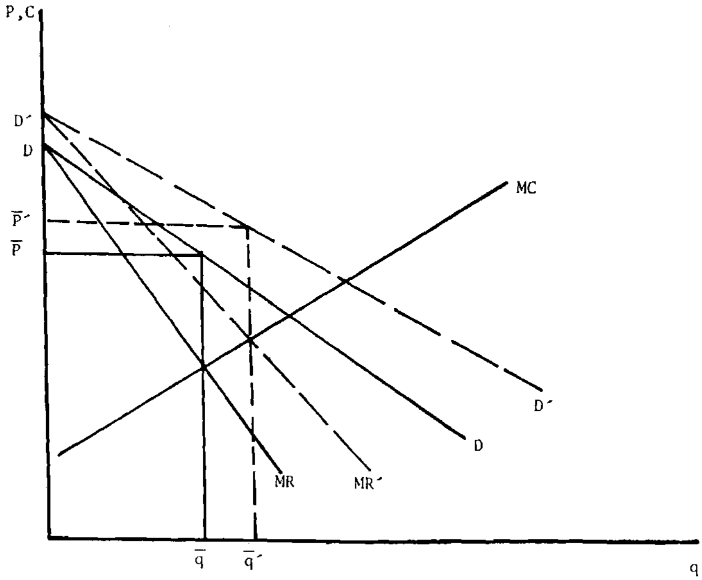

Figure 1. Equilibria of an Islamic and non-Islamic firm .

$\overline{p}$ and $\overline{q}$ represent equilibrium of a non-Islamic profit-maximising firm.

$\overline{p}$' and $\overline{q}$' represent equilibrium of an Islamic firm.

The Islamic firm would differ from non-Islamic firms not only in its goals but also in its economic policies and market strategies .In particular:

(a) An Islamic firm would not engage in any activity which is forbidden by Islam. For example, no firm in an Islamic society would be operating in the production or sale of alcoholic drinks or the production or sale of pigs, or gambling or forbidden speculation, or in lending or borrowing money at fixed 1nterest rates.(6)

---

(6) Muslims are forbidden to drink or serve alcoholic drinks and are forbidden to gamble. On this see the Qur'an [2: 219] and [5: 90,91]. Muslims are also forbidden to pay or receive usury on any type of loan (personal or otherwise). On this see the Qur'an [2: 275, 276 and 278], [3: l30], [4: 161] and [30:39], Muslims are also forbidden from eating pigs meat. On this see the Qur'an [2: 173], [5: 3 and 60], [6: 145] and [l6: 115].

(b) An Islamic firm must avoid those market strategies which result in the creation of barriers to entry and hence in monopoly.(7)

(c) An Islamic firm must follow "fair rules" in all its dealings while acting as a buyer and as a seller of goods and services.(8)

(d) An Islamic firm must refrain from the use of deceptive advertising and other deceptive market strategies which could be used to expand its market share or raise the price of its product.

(e) An Islamic firm must avoid all acts of exploitation ،discrimination and restrictive trade practices, since all these are denounced by Islam.

---

(7) It is reported that the Prophet said "The holder of a monopoly is a sinner and offender". See **I. Kashmiri**, *Prophet of Islam Muhammad and Some of his Traditions*, The Supreme Council for Islamic Affairs, Monograph No. 16, Cairo 1387-1967.

(8) It is claimed that the Prophet said "God will bless the tolerant and lenient man who sells, buys and takes his dues nicely and gently" and "Any credit merchant realises that his debtors are in straightness and asks his employees to forget about the debt seeking God's grace and blessings, God will grant him what he wants". See I. Kashmiri, *op. cit*.,

Conclusions

The study demonstrates that the objective function of a firm which operates in a society that follows Islamic laws as dictated by the teachings of the Holy Qur'an, the traditions of Prophet Muhammad and the practices of early Muslims, would be substantially different from that of firms operating in non-Islamic societies. The simple mathematical model developed to investigate the equilibrium of a single-product Islamic firm shows that the equilibrium level of output is one at which marginal cost equals marginal revenue, but that this level would be different from that obtained by a purely profit-maximising firm. It is likely that the Islamic firm achieves equilibrium at a higher level of output and price than would be obtained by a purely profit-maximising firm.

The study also shows that the economic policies and market strategies of the Islamic firm must be carefully chosen so that they will not militate against the principles of Islam. A number of cases were listed to illustrate this important difference between an Islamic firm and non-Islamic firm.

References

Ahmad, S.M. (1964) *Economics of Islam*, Sh. Muhammad Ashraf, Lahore.

Ali, A.Y. (1957) *The Meaning of the Illustrious Qur'an*, Sh. Muhammad Ashraf, Lahore.

Ansari, M.F. (1965) *The Qur'anic Foundations and Structure of Muslim Society*, Vols. **1** and **2**, Sh. Muhammad Ashraf, Lahore.

Argyris, C. (1960) *Understanding Organizational Behaviour*, Homewood, Ill. Dorsey Press.

Baldwin, W.L. (1964) "The Motives of Managers, Environmental Restraints and the Theory of Managerial Enterprise", *Quarterly Journal of Economics*, Vol. **78**, May.

Barnard, C.I. (1962) *The Functions of the Executive*, New York: Cambridge University Press.

Baumol, W.J. (1959) *Business Behaviour, Value and Growth*, New York: Macmillan.

Becker, G.S. (1962) "Irrational Behaviour and Economic Theory", *Journal of Political Economy*, Vol. **70**, February.

Cohen, K.J. and **Cyert, R.M.** (1965) *Theory of the Firm, Resource Allocation in a Market Economy*, Englewood Cliffs, N.J.: Prentice Hall, Inc.

Cole, A.H. (1959) *Business Enterprise in its Social Selling*, Cambridge: Harvard University Press, .

Cyert, R.M., Feigenbaum, E.A. and **March, J.G.** (1959) "Models in a Behavioural Theory of the Firm', Behavioural Science, **Volume 4**, April.

Cyert, R.M. and **March, J.G.** (1963) *A Behavioural Theory of the Firm*, Englewood Cliffs, N. J .: Prentice Hall, Inc.

The Holy Qur'an .

Karim, A.M.F. (1939) *Al-Hadis: Mishkat-Ul Masabih*, Calcutta.

Kashmiri, I. (1967) *Prophet of Islam Muhammad and Some of His Traditions*, The Supreme Council for Islamic Affairs, Monograph No. 16, Cairo.

McGuire, J.W. (1964) *Theories of Business Behaviour*, Englewood Cliffs, N.J :. Prentice Hall, Inc.

Machlup, F. (1967) "Theories of the Firm: Marginalist Behavioural, Managerial", *American Economic Review*, Vol. **57**, March.

Maududi, A.A. (1969) *The Islamic Law and Constitution*, Islamic Publications Ltd., Lahore.

Metwally, M.M. (1975) *Price and Non-Price Competition: Dynamics of Marketing*, Asia, London.

Metwally, M.M. (1979) *Macroeconomic Models of Islamic Doctrines,* J. K. Publishers, London.

Metwally, M.M. (1979) "General Equilibrium and Macroeconomic Policies in Islamic Economies", *Journal of Islamic Economic Studies*, Vol. **1**, No.1.

Nayler, T.H. and **Vernon, J.M.** (1969) *Microeconomics and Decision Models of The Firm,* Harcourt, Brace and World, Inc., New York, .

Rodinson, M. (1974) *Islam and Capitalism*, Burgoy, Norfolk, .

Sharif, M.R. (1963) *Islamic Social Framework*, Sh. Muhammad Ashraf: Lahore.

Sherwani, H.K. (1968) *Studies in Muslim Political Thought and Administration*, Sh. Muhammad Ashraf: Lahore, .

Simon, H.A. (1955) "A Behavioural Model of Rational Choice", *Quarterly Journal of Economics*, Vol. **69**, February .

Simon. H.A. (1962) "New Developments in the Theory of The Firm", *American Economic Review*, Vol. **52**, May .

Williamson, O.E. (1963) "Managerial Discretion and Business Behaviour", *American Economic Review*, Vol. **53**, December.

Williamson, O.E. (1964) *The Economics of Discretionary Behaviour: Managerial Objectives in a Theory of the Firm*, Englewood Cliffs, N.J.: Prentice Hall, Inc.

OTHER PUBLICATIONS IN THIS SERIES

1. Monetary and Fiscal Economics of Islam

   -An outline of some major subjects of research.

2. Contemporary Literature on Islamic Economics

   -A select classified bibliography.

   By: Dr. M.N. Siddiqi.

3. Studies in Islamic Economics.

   Edited by: Prof. Khurshid Ahmad .

4. Rationale of Islamic Banking.

   By: Dr. M.N. Siddiqi .