J. Res. Islamic Econ., Vol. **3**, No. **1**, pp. 45-61 (1405/1985)

Zakah, Moderation and Aggregate Consumption in An Islamic Economy

MUNAWAR IQBAL*
Professor of Economics at the international Institute of Islamic Economics, Islamic University, Islamabad.
Presently working at the Centre for Research in Islamic Economics, King Abdulaziz University, Jeddah

ABSTRACT. A critical review of writings on this subject reveals that the effect of certain Islamic injunctions on aggregate consumption has been studied within Keynesian consumption theory, no attempt being made to come up with an alternative theory. Refuting the conclusions of some previous writers, it is established that while the effects of *zakah* and *infaq* (charitable spending) on consumption, *ceteris paribus*, are expansionary, and that of Islamic moderation contractionary, the net effect cannot be determined a *priori*. It depends on empirical values of some parameters. Sensitivity analysis performed on likely values of relevant parameters, confirms that the net effect of Islamic injunctions on the marginal propensity to consume will be neutral.

I. Introduction

Aggregate consumption is a major component of the aggregate demand in an economy and as such plays a crucial role in determining the level of income and prices. Furthermore, the value of the marginal propensity to consume (or its counter part, marginal propensity to save) is one of the major determinants of the rate of growth of national income. The stability of national income is also linked with the stability of the marginal propensity to consume through the interaction of multiplier and accelerator. Therefore, Islamic economists are genuinely interested in investigating as to how the consumption function would behave in an economy which is governed by Islamic values and injunctions as compared to secular economy. In recent years some very useful contributions have been made in this field (for example, Metwally 1981 & 1985; Khan 1984; Ahmad 1985 and Darwish & Zain 1985). The controversies arising out of these contributions are in a preliminary stage and it will take some time before some sort of consensus emerges.

The purpose of this note is twofold: (i) to clarify some of the theoretical issues in the ongoing debate, and (ii) to try to arrive at some conclusions with respect to the values of the relevant parameters and the level of aggregate consumption in an Islamic economy. Section two deals with the first point while in section three we address ourselves to the second issue. Section four gives the summary and conclusions.

2. Review and Analysis of Some Views on Consumption Function in an Islamic Economy

It is important to mention at the very beginning that most of the authors use a framework which is not significantly different from the Keynesian consumption function. It is therefore, appropriate to recount very briefly the essential elements of the Keynesian consumption function. His theory, now referred to as "absolute income hypothesis" is based on the following postulates:

(i) Current consumption is a positive and stable function of current income.
(ii) Marginal propensity to consume is greater than zero and less than one.
(iii) Average propensity to consume declines as income increases.

A simple consumption function based on these postulates is usually written as:

$$C = a + bY$$

With this background we want to show that the Islamic economists writing in this area have committed some theoretical mistakes. We would reveal some of these through the critical survey of the literature in this section.

2.1 General Observations

Before going into specifics, we would like to make some general observations which apply to almost all the writings in this area. Firstly, while the writers are genuinely interested in a theory of consumption function in an Islamic framework, what they actually do is to study the effect of certain Islamic injunctions on aggregate consumption within the Keynesian consumption theory or absolute income hypothesis. For example to say that *zakah* will increase the marginal propensity to consume does not introduce any qualitative change in the model. The size of parameters is an empirical question and is not an essential part of the Keynesian model. If Islamic teachings and values lead one to believe that the basic postulates of a theory are unIslamic then one has to attack that particular postulate(s) and come up with an alternative theory. Unless that is done, one should not claim the "new theory" to be Islamic. If one accepts the basic postulates of a theory, he can still go ahead and study the effect of Islamic teachings on the quantitative magnitudes because that will have important policy implications, but the distinction between the two cases i.e. Islamic theory and effect of Islamic teachings on a given theory must always be kept in view.

The result of this confusion is that most of the authors have "adjusted" the absolute income hypothesis for *zakah* and *israf* and have labeled the resulting consumption function as Islamic. Metwally has even laboured to "derive" consumption relationships from Islamic teachings which he says are identical to those of the Keynesian absolute income hypothesis (Metwally, 1981:6). He quotes the following two verses of the Qur'an in support of his argument:

1) "Squander not your (wealth) in the manner of a spendthrift. Verily spendthrifts are brothers of the Evil ones" (17:26-27).

2) "Make not thy hands tied (like a niggard's) to thy neck. Nor stretch it forth to its utmost reach lest you become rebuked and destitute" (17:29).

He argues that the above verses clearly indicate that Islam directs that consumption should be related to income. He further maintains that the second quotation given above clearly suggests that consumption expenditure of the believers should vary directly with their income: an increase in income leads to an increase in consumption. However, part of the increase in income will be saved. He therefore, believes (as a credit to Islam) that the postulates of the absolute income hypothesis were anticipated by Islam over 1400 years ago. All he had to do to derive an Islamic consumption function was to incorporate the effect of *zakah* on aggregate consumption.

The inference made by Metwally is obviously wrong. It better be so. Absolute income hypothesis has been heavily criticized in the recent past. Some of the postulates of the Keynesian consumption function have been shown to be wrong both empirically as well as on a *priori* grounds. Current income is no doubt one of the determinants of current consumption but there are other determinants which if excluded from the consumption function, will render it unstable and thus demolish a major plank of the Keynesian model. One such variable which is now almost universally included in the consumption function is wealth. The resulting function of course will not correspond to absolute income hypothesis.

Now we cannot see any evidence that Islam denies the effect of wealth on consumption. As a matter of fact Metwally has himself stated that the Qur'an instructs Muslims to husband their wealth and watch carefully the volume of their expenditure. The behavioral instructions contained in the verses quoted by him, do not relate consumption to current income.

Secondly, most of the writers fail to distinguish between the capitalist model and the capitalist economy. Clearly they intend to compare the capitalist "model" with the Islamic model because there is no the capitalist economy. The value of the parameters that they set out to compare will vary from one economy to the other. The only meaningful comparison can be between the implied values of the relevant "models". Therefore, while secular model and secular economy are used interchangeably, one should not forget that one is comparing "models" or ideal states and not actual economies. For example, in the ideal Islamic system consumers will be have neither as spendthrifts nor as misers. Therefore, the aggregate consumption in a secular economy will be higher than that in the Islamic economy only if the secular consumers are spendthrifts and lower only if they are misers. However, the capitalist model *assumes* that they are neither niggards nor spendthrifts. Fahim Khan rightly mentions that the secular assumption of rational behavior for utility maximization implies that the consumer will neither be a miser nor a spendthrift [Khan, 1984:2]. He spends what maximizes his utility. Unfortunately he forgets this when he goes on to compare the consumption levels implied by the secular model and the Islamic model.

The macro consumption function has a micro-foundation from which it is derived. Once that is accepted, the derivation of a macro function is more or less mechanical. If the consumer is assumed to behave "rationally", then the level of *israf* is zero by assumption. What we mean to say is that in introducing the effect of the prohibition of *israf* we have to pay attention to the underlying assumption of rationality.

We have argued elsewhere [Iqbal, M. 1985] that the conventional concept of rationality which implies a world of certainty and perfect knowledge on the part of individuals is very unrealistic. However, for the sake of comparison, let us accept that the capitalist consumer does behave according to the conventional concept of rationality. There may still be a lower level of consumption in the Islamic economy than the secular economy because of differences in individual perceptions about what constitutes *israf*. For a self-centered individual of the secular model, very little will fall in this category because he may well derive "pleasure" from lavish spending on himself and hence is quite "rational" by the definition of that model. On the other hand, the Islamic model does not assume the individual to be selfish and also warns spendthrifts of punishment in the life Hereafter which result in a very different perception about what constitutes *israf*. The individual of the Islamic model derives pleasure from fulfilling the requirements of *shari'ah* and hence from sharing his provisions with others and is happy with a simple living. These are behavioral differences which are part of the models and can be used for a comparative study.

After these general observations, let us review some of the specific results that the writers on aggregate consumption in an Islamic framework have come up with. Most of these relate to the effect of *zakah* and the prohibition of *israf* on the aggregate consumption. We discuss them in turn.

2.2 Impact of Zakah on Consumption

Both Ausaf (1985) and Metwally (1981) have concluded that the marginal (and average) propensity to consume in an Islamic economy will be higher than in the secular economy. They start from a consumption function of the Keynesian type:

$$C_S = a + bY \qquad (1)$$

for the secular economy. In order to arrive at the aggregate consumption function, they bifurcate the population into two groups i.e. *zakah* payers (Group-1) and *zakah* recipients (Group-2). Group one transfers a certain proportion (α) of their income to group two because of the compulsory levy of *zakah*.[1] The consumption function in an Islamic economy therefore, becomes:

$$C_I = a + b[BY - \alpha Y] + \delta(1 - B)Y + \alpha Y] \qquad (2)$$

where BY is income of group one, $(1-\beta)Y$ that of group two and αY is the amount of *zakah* paid. It follows from equations (1) and (2) that:

$$C_1 - C_2 = \delta(1+\alpha-\beta)Y - b(1+\alpha-\beta)Y \qquad (3)$$

$$\left(\frac{C_I}{Y}\right) - \left(\frac{C_S}{Y}\right) = (1+\alpha-\beta) - b(1+\alpha-\beta) \qquad (4)$$

$$\text{and } \left(\frac{dC_I}{dY}\right) - \left(\frac{dC_S}{\alpha Y}\right) = (1+\alpha-\beta) - b(1+\alpha-\beta) \qquad (5)$$

(1 + α - B) is obviously positive and less than one. Now they assume that the marginal propensity to consume of *zakah* receivers is higher than that of the *zakah* payers i.e. $\delta > \alpha$ and therefore, the average and marginal propensities to consume as well as the aggregate consumption in an Islamic economy will be higher than the corresponding capitalist economy.

Decomposition vs. Zakah Effect on MPC

Before going on to discuss some substantive issues, one technical mistake should be corrected. As Darwish and Zain (1984) have rightly pointed out, in order to study the effect of *zakah* one should not start with a consumption function like C = a + bY for capitalist economy and then bifurcate it for the Islamic economy because in this function "b" represents the marginal propensity to consume of both the groups. In order to have a meaningful comparison one should start with a function like:

$$C_S = a + c(\beta Y) + d(1 - \beta)Y \qquad (6)$$

where, c and d are marginal propensities to consume of group 1 and 2 respectively. The corresponding function in the Islamic economy would be:

$$C_1 = a + c[\beta Y - \alpha Y] + d[(1 - \beta)Y + \alpha Y] \qquad (7)$$

and comparing (6) and (7) one should get:

$$C_1 - C_S = (d - c)\, Y \qquad (8)$$

$$\left(\frac{C_I}{Y}\right) - \left(\frac{C_S}{Y}\right) = (d - c) \qquad (9)$$

$$\text{and, } \left(\frac{dC_I}{dY}\right) - \left(\frac{dC_S}{\alpha Y}\right) = (d - c) \qquad (10)$$

However, Metwally (1985) insists on his position on the ground that we are comparing a capitalist economy with an Islamic economy which has a *zakah* levy and not two Islamic economies, one with and the other without the *zakah* levy. In the capitalist economy the consumption function would be, C = a + bY and hence we should compare equation (1) and (2) and not (6) and (7).

Metwally's position can be easily shown to be wrong. The aggregate marginal propensity to consume in any economy is in fact a weighted average of the marginal propensities of various income groups i.e.,

$$C = a + b_1Y_1 + b_2Y_2 + b_3Y_3 + ... + b_nY_n \qquad (11)$$

where b_is are the marginal propensities to consume of the various groups and Y_is are their proportional incomes. If for analytical simplicity one considers the population to comprise of only two groups with their incomes BY and (1 - B)Y respectively, the function becomes:

$$C = a + b_1(\beta Y) + b_2(1 - \beta)Y$$

which is the same as equation (6) with $b_1 = c$ and $b_2 = d$. In other words the 'b' in Metwally's equation (1) is in fact:

$$b = \sum_{I=i}^{n} b_i w_i \qquad (12)$$

where $w_i = \left(\frac{Y_i}{Y}\right)$ and in the present case:

$$b = b_1\beta + b_2(1 - \beta) \qquad (13)$$

which gives us equation (6) If different income groups have different propensities to consume, that is so in both the capitalist and the Islamic economies. Therefore, for a meaningful comparison or to study the effect of *zakah* on aggregate consumption, one must compare equation (6) and (7). What Metwally's analysis in effect implies is that the marginal propensity to consume of *zakah* payers is equal to the *aggregate* marginal propensity to consume of the corresponding capitalist economy (both are equal to b). Now when one adds to it another group with assumed higher propensity to consume and takes an average, the aggregate marginal propensity to consume in the Islamic economy comes out to be higher than the one in the capitalist economy even if there were no *zakah* levy. Thus his results contain two effects: (i) higher aggregate marginal propensity to consume of the Islamic economy inadvertently assumed and (ii) effect of *zakah*. The two can be isolated by putting $Z(= \alpha Y) = 0$ in his equation (2) yielding:

$$C^* = a + b(\beta Y) + \delta(1-\beta)Y \qquad (14)$$

$$\left(\frac{C^*}{Y}\right) = \frac{a}{Y} + b\beta + \delta(1-\beta) \qquad (15)$$

$$\text{and, } \left(\frac{C^*}{Y}\right) = b\beta + \delta(1-\beta) \qquad (16)$$

Now comparing these with his equations (1) - (3) will give the first effect which is:

$$C^* - C_S = \delta(1-\beta)Y - b(1-\beta)Y \qquad (17)$$

$$\left(\frac{C^*}{Y}\right) - \left(\frac{C_S}{Y}\right) = \delta(1-\beta) - b(1-\beta) \qquad (18)$$

$$\left(\frac{dC^*}{dY}\right) - \left(\frac{dC_S}{dY}\right) = \delta(1-\beta) - b(1-\beta) \qquad (19)$$

Since $\delta > b$ by assumption, this effect is positive. Similarly a comparison of equations (14) - (16) with his equations (5) - (7) will yield the second effect i.e. the true effect of *zakah*. This would be equal to:

$$C_1 - C^* = (\delta - b)\alpha Y \qquad (20)$$

$$\left(\frac{C_1}{Y}\right) - \left(\frac{C^*}{Y}\right) = (\delta - b)\alpha \qquad (21)$$

$$\left(\frac{dC_1}{dY}\right) - \left(\frac{dC^*}{dY}\right) = (\delta - b)\alpha \qquad (22)$$

Again since $\delta > b$ this effect is also positive. One can easily confirm that the sum of the two effects will be equal to that arrived at by Metwally.

It should by now be clear that Metwally overestimated the effect of *zakah* on propensity to consume. However by isolating the effect of *zakah*, we can see that even though the magnitude of the effect of *zakah* on MPC and APC will be smaller, it will still be positive. But, even this result needs further examination to which we now turn.

Effect of Assumptions

The above result depends, among others, on two assumptions. First, the marginal propensity to consume of the *zakah*-receivers is higher than that of the *zakah*-payers; and second, there are always enough poor people in the Islamic country to receive *zakah*. These are the assumptions which have been challenged by Darwish and Zain (1985). Metwally (1985) is definitely right when he says that his analysis should be judged within the framework of his assumptions. However, it is also perfectly alright to analyze the effect of *zakah* on a different set of assumptions as Darwish and Zain have done. Theoretically, both are on the same plane even though their results are opposite to each other's.

In practice, the predictions of the model whose assumptions are more realistic will be more accurate. Now, it is possible that the assumptions of one model are more realistic at one time and/or place while those of the other are closer to real situation at another time and/or place. However, on a *priori* grounds, it appears to the present author that Metwally's assumptions under discussion are more reasonable. Our reasons for this preference are as follows:

The evidence on the issue of marginal propensity to consume is mixed. However, the evidence which is more relevant for the present discussion overwhelmingly support the proposition that poor people spend proportionately more on consumption than rich people. This result emerges from cross-sectional data.[2]

Almost all budget studies show that low income families typically dissave, high-income families typically spend less than income and as one moves along the distribution from lower to higher incomes, the higher the income the less the rise in consumption from a further increment of income. The MPC is positive, less than one and declines as income rises.[3]

The results of the budget studies should, however, be interpreted very carefully. While they almost clearly show that average propensities differ widely at various income levels, this may not always imply that the marginal propensities also differ to the same extent. Budget studies show how consumption differs as income differs and not how consumption *changes* as income *changes*. Therefore, while the higher average propensity to consume of lower-income groups is almost universally accepted, the opinion about higher marginal propensity to consume of the lower-income groups is divided.

The assumption of higher MPC of the poor seems more reasonable on the basis of one further consideration. The differences in the propensities to consume depend on the "degree" of inequality in the income distribution. The higher the degree of inequality, the greater the effect of transferring income from higher to lower groups. In other words, if income is transferred to people who are "relatively" poor, the "marginal" effect on aggregate consumption may not be very pronounced. However, if the income is transferred to "absolutely" poor people who are unable to fulfill even their basic needs, the effect on aggregate consumption is likely to be considerable. *Zakah*-recipients, generally speaking, fall in the category of "absolutely" poor. Therefore, when dividing the population into only two groups i.e. *zakah*-payers and *zakah*-recipients, it is quite reasonable to assume that the MPC of the latter group is higher.

As for the second assumption, it could be a rare situation that there is none to receive *zakah*. The incident quoted by Darwish and Zain is an exception and not the rule and theories are not built on exceptions. Nevertheless, the point raised by Darwish and Zain may have some validity on a different ground to which we now turn.

Gross vs. Net Transfers

The essential element in the argument of Darwish and Zain is that the total amount of *zakah* paid by the members of group-1 may not be transferred to members of income group-2. Now this in fact is true and in order this to be so one does not have to assume that there may not be enough people to receive *zakah*. Part of *zakah* will not be paid to the poor because there are some categories of *zakah* expenditure which do not involve transfers to the poor. As is well-known, *zakah* is to be spent on eight categories: (1) the poor, (2) the needy, (3) officials collecting *zakah*, (4) those whose hearts are made to incline (towards truth), (5) the (ransoming of) slaves, (6) those in debt, (7) in the way of Allah and (8) the way-farer.

How much *zakah* should be spent on each category is controversial. Some jurists including Imam Shafii, maintain that each category should get an equal share. How ever, the majority of jurists maintain that such an equality is not essential and some categories may receive more than the other according to social priorities, and most of them accord a very high priority to the poor[4] and needy, but no category that exists should be ignored altogether. Therefore, even according to the opinions most favorable to the poor, one would think that the whole amount of *zakah* will not be transferred to the poor. A percentage of gross *zakah* collected, no matter how small this percentage is, will not reach the poor. Furthermore, some of these transfer payments may be in the form of capital assets rather than income available for immediate consumption?[5]

If one uses the above explanation then the effect of *zakah* on aggregate consumption can be traced as follows:

Supposing that only a fraction (y) of the total amount of zakah ($Z = \alpha Y$) is transferred to group two, the consumption function would look like:

$$C_I = a + c[\beta - \alpha Y] + d[(1 - \beta)Y + \gamma(\alpha Y)] \qquad (23)$$

Comparing this with equation (6) one would get:

$$C_I - C_S = (d\gamma - c)\alpha Y \qquad (24)$$

$$\left(\frac{C_I}{Y}\right) - \left(\frac{C_S}{Y}\right) = (d\gamma - c)\alpha \qquad (25)$$

$$\left(\frac{dC_I}{dY}\right) - \left(\frac{dC_S}{dY}\right) = (d\gamma - c)\alpha \qquad (26)$$

On the basis of equations (25) and (26) Darwish and Zain conclude that since both d and y are less than one, their product would be a much smaller fraction than d alone and therefore, it is most likely going to fall below c. This implies that the levy of *zakah* will reduce the average and marginal propensities to consume rather than increase them.

This result would not have been so dramatic, had Darwish and Zain not made a mistake in their turn. Because of this mistake they have underestimated the effect of *zakah*. This is so because while *zakah* takes its full toll on reducing the consumption of group one, only part of this money is counted when the positive effect is calculated. This is evident from equation (23). We see that the income of group one is reduced by the amount αY but the income of group 2 is increased by only $y(\alpha Y)$ Thus, the sum of the incomes of the two groups is less than Y, [by an amount $(1 - y)\ \alpha Y$]. It is because of ignoring this amount that they get a negative impact of *zakah* on aggregate consumption. The money in fact would not disappear. It should somehow be accounted for.

As a matter of fact, part of the *zakah* money flows back to the members of group one. For example, the officials collecting *zakah* will receive part of it. Naturally they will fall in one of the two groups. Similarly, some persons in group one may receive some *zakah* money as repayment of their loans, and so on. Let us assume that a fraction ϵ of *zakah* flows back to group one.[6]

The consumption function will then become:

$$C_I = a + c[\beta Y - \alpha Y + \in (\alpha Y) + d[(1 - \beta)Y + (1 - \in)(\alpha Y)] \quad (27)$$

Now comparing this with equation (6) again, we will get:

$$C_I - C_S = (d - c)(1 - \in)(\alpha Y) \quad (28)$$

$$\left(\frac{C_I}{Y}\right) - \left(\frac{C_S}{Y}\right) = (d - c)(1 - \in)\alpha \quad (29)$$

$$\left(\frac{dC_I}{dY}\right) - \left(\frac{dC_S}{dY}\right) = (d - c)\sigma \quad \text{where } \sigma = \alpha(1 - \in) \quad (30)$$

Notice that the effect of *zakah* on aggregate consumption (as well as on propensities to consume) has been further reduced. Previously we found it to be equal to (d - c) αY (equation 8). Now the effect is smaller but it is still positive.

The above results make a lot of intuitive sense. Equation (28), for example says that the aggregate consumption will increase because of *zakah*, by an amount which is equal to the difference in the marginal propensities for consumption of the two groups times the *net* transfer to the group with higher marginal propensity to consume.

To sum up the discussion on the impact of *zakah* on aggregate consumption and the propensity to consume, it appears to us that *cetris peribus*, this effect would be positive. The magnitude of this effect would depend on the amount of *net* transfer to the poor in the form of income and not the gross amount of *zakah*. This result will hold in the framework of absolute income hypothesis and in the short run. In the long run as income increases due to the impact of *zakah* on investment, the marginal propensity to consume may or may not decline. The analysis in this paper does not go into that issue.

2.3 The Impact of Moderation on Consumption

In the previous section we have discussed the effect of *zakah*, *cetris peribus*. In order to have some idea about the overall picture we turn to the analysis of the other major determinants of the propensity to consume in the Islamic economy i.e. the effect of the prohibition of *israf* (extravagance) and *tabdhir* (squandering).[7]

There is a consensus that the Islamic injunctions against *israf* and *tabdhir* will result in a lower average (and marginal) propensity to consume compared to a capitalist economy. The differences arise about the relative strength of this effect vis-a-vis that of *zakah*. Some writers seem to consider the effect of *zakah* to be stronger. Thus, Metwally after deriving the expansionary effect of *zakah* writes, "There are, however, some Islamic teachings which discourage extravagant consumption, luxury spending and remind Muslims of the reward in the Hereafter. These teachings may offset, to some extent, the expansionary effects of *zakah* on consumption" (Metwally, 1981:50). On the other hand, other writers believe that the contractionary effect on consumption of the prohibition of *israf* will outweigh the expansionary effect of *zakah*. For example, Fahim Khan writes, "It is not very difficult to see that an Islamic economy will have a lower consumption propensity than if it were a secular economy. The most important basis for this argument is:

a) That Islamic consumer is likely to face a smaller basket of consumption to pick up from than if he were a secular consumer.
b) From within this basket he has to pick without crossing the limits of prodigality" (Khan, 1984:8)

We feel that the first reason does not carry much weight because firstly, it is not necessary that the Islamic consumer will face a significantly smaller basket of goods to choose from. (The number of prohibited consumer goods is very small and, then in secular economies also some goods are prohibited). Secondly, even if it were true, a smaller basket does not *per se* lead to a lower propensity to consume as long as the consumer has a sufficiently large number of commodities in that basket (which in fact is the case) and he is free to substitute one commodity for the other. The second reason i.e. prohibition of *israf* is in fact necessary as well as sufficient to have a negative effect on the propensity to consume.

It is very hard to decide on a priori grounds whether the effect of *zakah* will be stronger or that of moderation. It depends on the size of a number of parameters and is basically an empirical question. In order to see the likely impact of the Islamic injunction on the level of aggregate consumption we first derive the equation for measuring the net effect and then present sensitivity analysis using some plausible values of the parameters involved.

The effect of moderation reflected in the model as the elimination of *israf* as the economy is Islamized can be introduced into the analysis in a number of ways. The simplest and, at the same time the most reasonable way is to assume that the consumers in the lowest income group who are barely able to survive on their incomes are not spendthrifts. As for the higher income group, it is assumed that moderation would affect the slope of their consumption function but not the intercept because we recall that the intercept in the present model represents subsistence consumption. On the above assumptions the consumption function of the Islamic economy may be written as:

$$C_I = a + (1 - f)\, c[\beta Y - \sigma Y] + d[(1 - \beta)Y + \sigma Y)] \qquad (31)$$

where, f is the parameter representing the level of *israf* in a secular economy and its value ranges from zero to one.

If we now compare this with the consumption function in a secular economy i.e. equation (6), we will get the net effect of *zakah* and moderation. Subtracting equation (6) from equation (31) we get:

$$C_I - C_S = (d - c)\,\sigma Y - c f\,(\beta y - \sigma Y) \qquad (32)$$

$$\left(\frac{C_I}{Y}\right) - \left(\frac{C_S}{Y}\right) = (d - c)\sigma - cf\,(\beta - \sigma) \qquad (33)$$

$$\left(\frac{dC_I}{dY}\right) - \left(\frac{dC_S}{dY}\right) = (d - c)\sigma - cf\,(\beta - \sigma) \qquad (34)$$

Equation (32) gives the net effect of *zakah* and moderation on aggregate consumption while equation (34) gives the net effect on the marginal propensity to consume. Let us examine the last equation. This equation has two terms. The first term gives the effect of *zakah* and has been previously shown to be positive. The second term measures the effect of the elimination of *israf* Since (β - σ), c and f are all greater than zero and less than one, the value of the second term, cf(β - σ), would also range from zero to one. We remember that the first term has the same range. Their net effect would, therefore, depend on the relative size of the two terms. Hence $MPC_1 \gtrless MPC_s$ as:

$$(d - C)\,\sigma \gtrless cf\,(\beta - \sigma) \qquad (35)$$

3. Sensitivity Analysis for the Effect of Islamic Injunctions on Marginal Propensity to Consume

All of the parameters in equation (35) above except "f" are easily measurable. If one can estimate or approximate "f" the net effect of *zakah* and moderation in any economy can be measured. It is obvious, however, that it is an empirical question and it is not possible on a *priori* grounds to claim that the marginal propensity to consume in an Islamic economy would be higher or lower than its secular counterpart. At best one can make a conjecture. Even for making a well-informed conjecture one has to consider the likely values of the parameters in equation (35). So the best way to study the likely impact of *zakah* and moderation is to perform a sensitivity analysis upon the values of the parameters.

Before doing that, we need to make one further observation. So far we have talked about *zakah* and moderation only. Another major determinant of private consumption in an Islamic economy is *infaq* or voluntary charity. Islam does not absolve its followers of their responsibility towards other members of the society by paying *zakah* only. The Prophet, peace be upon him, has clearly ordained that:

> "There is, in property, a right (of others) over and above *zakah*". (Tirmidhi: *Kitab al zakah*)

Even though such payments are generally voluntary,[8] the Islamic moral system is so strong that the rich people will be strongly inclined to take care of the poor because unless they do that, they cannot hope to achieve the pleasure of Allah.

> "By no means shall ye attain righteousness unless ye give (freely) of that which ye love" (Qur'an, 3:92)

> "A person who eats his full while his neighbor is hungry is not a believer!" (al-Khatib al 'Umri: *Kitab al-Adab, Bab al-Shafqah*)

Therefore, it is reasonable to assume that rich Muslims will carry out some voluntary charity in addition to the obligatory levy of *zakah*.[9]

Fortunately, the model given above can easily accommodate this. In our model the expansionary effect on aggregate consumption depends on the *net* transfer of income from the rich to the poor. Therefore, all one has to do is to think of the parameter σ as the measure of *zakah* plus *infaq* i.e. the net transfer, whether compulsory or voluntary.

Turning now to the sensitivity analysis, let us consider the likely values of various parameters. For the present analysis, the parameters that interest us most are σ and f. So we use "guesstimates" of other parameters and then see how various values of σ and f affect the final outcome. It has been assumed that 90 percent income accrues to the higher income groups while 10 percent to the lowest group which comprises *zakah* recipients. In tables one to three, two values each of c and d have been used to see .the effect of alternative scenarios. While each table traces the effect of various values of σ and f, under the assumed values of other variables, on the marginal propensity to consume in an Islamic economy, a comparison across the tables reveals the effect of different scenarios. Specifically, the value of the marginal propensity to consume of the higher income group affects the net result not only as an absolute value but also as a relative one (relative to the marginal propensity to consume of the lower income group). A comparison of table one and two reflects the effect of the relative values by changing the *difference* in the propensities to consume of the two groups whereas a comparison of table one and three traces the effect of changing absolute values while keeping the difference in the propensities to consume as constant.

Table 1
Sensitivity Analysis for the Effect of *Zakah* and Moderation on the
Marginal Propensity to Consume when d = 1.0 and c = 0.8 and B = 0.9
$MPC_1 - MPC_s = (d - c)\sigma - cf(B - \sigma)$.

f \ σ	0.01	0.02	0.03	0.04
0.00	0.0020	0.0040	0.0060	0.0080
0.05	-0.0016	0.0005	0.0025	0.0046
0.10	-0.0051	-0.0030	-0.0001	0.0011
0.15	-0.0087	-0.0066	-0.0044	-0.0023
0.20	-0.0122	-0.0101	-0.0079	-0.0058

Where c is the marginal propensity to consume of group i.e. *zakah*-payers.
d is the marginal propensity to consume of group two i.e. *zakah*-recipients.
B is share of group one in total income.
f is coefficient of *israf*.
σ is net transfer to the poor as a proportion of GNP.

Table 2
Sensitivity Analysis for the Effect of *Zakah* and Moderation on the Marginal Propensity to Consume when d = 0.9 and C = 0.8

f \ σ	0.01	0.02	0.03	0.04
0.00	0.0010	0.0020	0.0030	0.0040
0.05	-0.0026	0.0015	0.0005	0.0006
0.10	-0.0061	-0.0050	-0.0040	0.0029
0.15	-0.0097	-0.0086	-0.0074	-0.0063
0.20	-0.0132	-0.0121	-0.0109	-0.0098

Table3
Sensitivity Analysis for the Effect of *Zakah* and Moderation on the Marginal Propensity to Consume when d = 0.8 and C = 0.6

f \ σ	0.01	0.02	0.03	0.04
0.00	0.002	0.004	0.006	0.008
0.05	-0.0007	0.0014	0.0034	0.0054
0.10	-0.0033	-0.0013	0.0008	0.0028
0.15	-0.0060	-0.0093	-0.0018	0.0003
0.20	-0.0087	-0.0066	-0.0044	-0.0023

The figures in the body of each table show the net effect of *zakah* and moderation on the marginal propensity to consume in an Islamic economy. A positive figure implies a higher MPC and a negative figure indicates a lower MPC in an Islamic economy as compared to its secular counterpart. The switch in the sign indicates the critical value of a variable given the value of the other variable. For example, if the level of *israf* were 10 percent, then the marginal propensity to consume in an Islamic economy will be smaller if the amount of transfer is 3 percent (of GNP) or less; but will be greater if the transfer were 4 percent or more; similarly if the level of transfer was known to be 5 percent, then the MPC in an Islamic economy will be higher unless the level of *israf* which is eliminated was 15 percent or more. Comparing across the tables one finds that a higher difference in the marginal propensities of the two groups tends to raise the marginal propensity to consume of the Islamic economy above that of its secular counterpart and vice versa. Similarly a higher absolute value of c tends to raise the marginal propensity to consume of the Islamic economy. All of these results are intuitively obvious. The readers are well aware how relieved one feels when his intuition turns out to be correct.

Even though the sensitivity analysis presented above can give the net effect for any value of the parameters, let us finish this paper by giving a quick guesstimate for the easygoing reader.

From whatever evidence that is available the estimate of α, the ratio of gross *zakah* to income would lie around 3 percent of the GNP (Awad: 1984; Zarqa: 1976). Using our theoretical discussion on the uses of *zakah* funds, we would put the value of E around 0.25 which would give us a σ value for net *zakah* transfer roughly equaling 2.25 percent. Therefore, we would think that the value of σ would be roughly 2 percent of GNP.

As for the level of *israf* and *tabdhir* any body who is familiar with the life-style of the upper income groups in the secular economies would agree that the "fat" in their consumption is very high. Considering the expenditure on drinking, smoking, gambling, conspicuous consumption, wastage etc. even the most conservative estimate of "f" would lie above 10 percent. As a matter of fact it could be much higher.

With these values the likely net effect of *zakah* and moderation would be to decrease the marginal propensity to consume. If in addition to *zakah*, some voluntary transfers (*infaq*) in excess of the level of charity in a secular economy are also made, this negative effect on MPC will be somewhat reduced. However, it would take an amount of voluntary transfers greater than the compulsory levy of *zakah* to lead to a higher marginal propensity to consume in an Islamic economy than its secular counterpart. What is more important to note is that in either case, the magnitude of change is very very small.

4. Summary and Conclusion

After reviewing various opinions about the effects of *zakah*, moderation and *infaq* on the aggregate consumption function and the propensities to consume and examining these theories critically, we tend to conclude that while the effect of *zakah* and *infaq* on consumption, *cetris paribus*, would be expansionary and that of moderation contractionary, the net effect cannot be determined unambiguously. It depends on empirical values of a number of parameters. What is even more important is the fact that the magnitude of the net effect on the marginal propensity to consume of the Islamic injunctions taken together will be very very small. Contrary to the prevalent opinions, we tend to conclude that the net effect of Islamic injunctions on the marginal propensity to consume will be neutral i.e. MPC will not be significantly different from a comparable secular economy. The sensitivity analysis performed on the likely values of the relevant parameters tends to confirm this conclusion. This is so because the expansionary and the contractionary effects of various injunctions tend to cancel out each other.

Notes

(1) Ausaf makes a distinction between compulsory transfer (α) and voluntary transfer, *Sadaqat*, (δ). However, that distinction is not crucial for the following analysis.

(2) It may be mentioned that the time series studies show that while in the short-run the average propensity to consume at low incomes is greater than at higher income levels, in the long-run the average propensity to consume is fairly constant. However, it should be noted that in the long-run, the income of all groups is increasing. Time series studies, therefore, do not give the effect of income redistribution.

(3) For example, see *Study of Consumer Expenditures, Incomes, and Savings*, Wharton School of Finance and Commerce, University of Pennsylvania, (1957).

(4) Abu Hanifa even considers "poverty" as a condition for making payments to some other categories.

(5) Islamic Jurists have held since long that *zakah* may be paid in terms of tools or other productive assets. In fact, if funds permit this would be preferable. For further discussion of this point see Qardawi (1980), pp.225-270.

(6) There is a small possibility that part of the *zakah* will flow out of the hands of these two groups i.e. to the government. However, since government is obliged to spend the *zakah* money on prescribed heads, the likelihood is fairly small and may be ignored. Moreover, for comparative purposes, the sum of the incomes of the two groups should be kept equal to the one in secular economies.

(7) *Tabdhir* refers to expenditure on forbidden things while *israf* means spending on permissible goods extravagantly.

(8) There are some payments which are obligatory such as *Nafaqat-i-wajiba*. Moreover, as an emergency measure to remove poverty, the government may impose additional taxes for this purpose.

(9) It should, however, be noted that charity is undertaken even in non-Muslim societies. Therefore, it will affect the analysis only to the extent that the level of charity in the Muslim society is greater than its level in the non-Muslim society.

References

Ahmed, Ausaf: *Income Determination in an Islamic Economy*, Jeddah, Scientific Publishing Center, King Abdulaziz University, Under Publication.

Awad, Hashim: "zakah and Economic Resources of Sudan", *al-Fikr al-Islami* (Khartoum) Vol. **1**, No. **2**, 1984, pp. 60-73.

Darwish, Ahmad Fuad and **Zain, Mahmud Siddiq**: "Effects of **Zaah** on Aggregate Consumption Function in an Islamic Economy", *Journal of Research in Islamic Economics*, Vol. **2**, No.**1**, Summer 1404H/1984, Arabic Section, pp. 52-59.

Darwish, Ahmad Fuad and **Zain, Mahmud Siddiq**: Comments on Metwally in *journal of Research in Islamic Economics*, Vol. **2**, No. **2**, Winter 1405H/1985, Arabic Section, pp. 121-130.

Iqbal, Munawar: *Economic Activity: An Islamic Perspective*, International Institute of Islamic Economics, Islamabad, Discussion Paper Series No. **1**, 1985.

Khan, M. Fahim: "Macro Consumption Function in an Islamic Framework", *Journal of Research in Islamic Economics*, Vol. **1**, No.**2**, Winter 1404H/1984, pp.1-24.

Al Khatib al 'Umri: *Mishkat al Masabih.*

Metwally, M.M.: *Macroeconomic Models of Islamic Doctrines***,** London, J.K. Publishers, 1981.

Metwally, M.M.: Rejoinder to Darwish and Zain, *Journal of Research in Islamic Economics***,** Vol. **2**, No. **2**, Winter 1405H/1985, Arabic Section, pp.143-146.

Al-Qardawi, Yusuf: "Dawr al zakah fi 'ilaj al mushkilat al iqtisadiyah" in *Al Iqtisad al Islami***,** International Centre for Research in Islamic Economics, King Abdulaziz University, Jeddah, 1980.

AI-Tirmidhi: *Sunnan.*

Wharton School Study Group: *Study of Consumer Expenditures Incomes and Savings*, Wharton School of Finance and Commerce, University of Pennsylvania, 1975.

Zarqa, M.A.: "*Macroeconomic Estimation of Zakah Proceeds and their Relationship to Economic Development*", (Mimeo), paper presented to symposium on Islam, and Development, AMSS, Tempie University, Philadelphia, April, 1976.

الزكاة، والاعتدال في الإنفاق، والاستهلاك الكلي في اقتصاد إسلامي

منوَّر إقبال

أستاذ الاقتصاد في المعهد الدولي للاقتصاد الإسلامي، الجامعة الإسلامية، إسلام أباد

ويعمل حاليًا بمركز أبحاث الاقتصاد الإسلامي، جامعة الملك عبدالعزيز، جدة

المستخلص : يظهر الاستعراض الناقد أن الكتابات السابقة في هذا الموضوع قد درست أثر توجيهات إسلامية معينة على الاستهلاك الكلي، لكن في إطار النظرية الكينزية للاستهلاك ودون محاولة لتقديم نظرية بديلة. وأخطأت بعض تلك الكتابات في أنها قارنت "اقتصاد" رأسماليًا "بنموذج" إسلامي، بينما كان عليها أن تقارن نموذجًا رأسماليًا بنموذج إسلامي.

والبحث الحاضر ينقض نتائج بعض الدراسات السابقة، ويبرهن على أن أثر الزكاة والإنفاق في سبيل الله هو أثر توسعي على الاقتصاد، بينما أثر التوجيهات الإسلامية الآمرة بالاعتدال هو أثر انكماشي، مما يجعل المحصلة الصافية لهذين الأثرين معًا غير قابلة للتحديد بصورة مسبقة، بل هي تعتمد على القيم الفعلية لبعض المعلمات (الثوابت) في الاقتصاد. ويؤكد تحليل الحساسية الذي أجريناه على القيم المحتملة لتلك المعلمات، أن المحصلة الصافية لجملة آثار التوجيهات الإسلامية ستكون حيادية لا تغير قيمة الميل الحدي للاستهلاك.