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Zakah , Macroeconomic Policies and Poverty Alleviation: Lessons from Simulations on Bangladesh[1]

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1. Introduction

While different policies and programs have been tried in the last few decades to mitigate poverty, it still persists extensively. Recently, there is a realization among different international world bodies that poverty has to be tackled through ambitious plans for development. United Nations organized the largest ever gathering of the heads of states in 2000 that adopted the "Millennium Development Declaration". World leaders pledged to work together to achieve the "Millennium Development Goals" by 2015 or earlier.[2] The first of these goals is to eradicate extreme poverty and hunger. Similarly, the IMF and World Bank initiated the Poverty Reduction Strategy in 1999 that outlines a comprehensive country-based strategy for poverty mitigation. Poverty Reduction Strategy Papers (PRSP) produced by low-income countries describe the structural, social, and macroeconomic plans and policies that a country would undertake to promote growth and reduce poverty.

Though there have been some progress in reducing poverty in a few countries, there is now emerging consensus that many development programs aimed at poverty reduction in the past have not achieved their intended results in many parts of the world. There is, therefore, a need to seek credible programs and strategies that can effectively mitigate poverty. In this regard, one of the important pillars of combating poverty in Muslim societies is the institution of *zakah*. *Zakah* along with other charitable institutions emerged as a result of specific emphasis of Islam on meeting the needs of less privileged members of the society. Early Islamic history demonstrates this charitable institution to be very effective in taking care of the needy sections of the population in Muslim societies. Narrations from the time of Umar bin al Khattab (13-22H) and Umar bin Abdul Aziz (99-101H) indicate that poverty was eliminated during the

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[1] The discussions in Sections 2 and 3 of the paper draw from Ahmed (2004).

[2] To see the Millennium Development Goals see UNDP (2003).

time of these two rulers, as *zakah* collected in some regions could not be disbursed due to lack of poor recipients.

While *zakah* is obligatory on Muslims fulfilling the *nisab*,[3] it is deemed to be voluntary during contemporary times and this partly explains its lower contribution and collection in many Muslim communities. Data on *zakah* collection from selected countries indicate that the total *zakah* collection varies from a meager 0.01 percent to 0.30 percent of GDP only. It is estimated, however, that the potential *zakah* collection in Muslim countries, if mobilized properly, could reach between an average range of 1.8 percent to 4.3 percent of GDP annually.[4] Apart from its collection, *zakah* distribution has also become a contentious issue in some countries. Thus, the potential of *zakah* collection and its utilization for effective poverty alleviation still remains untapped.

The objective of this paper is to examine the role of macroeconomic factors and *zakah* in influencing distribution of income and poverty alleviation. To do this, simulations are carried out for Bangladesh, a country that has high poverty rates and has good macroeconomic growth in the recent past. Using simulations, the paper explores the contribution of macroeconomic factors and *zakah* in alleviating poverty in the country over the next 20 years period. The paper is organized as follows: Section 2 discusses the macro and micro dimensions of poverty explaining the underlying causes of poverty. Section 3 outlines the role of macroeconomic policies and *zakah* in poverty reduction. While Section 4 provides some basic information on some relevant variables for Bangladesh, Section 5 outlines the basic assumptions and premises of the simulation study and presents the results. Section 6 discusses the policy implications related to using *zakah* as a vital tool for poverty alleviation. The last section concludes the paper.

2. Dimensions and Causes of Poverty

Though poverty is usually meant to be deprivation of wellbeing, there are many factors that cause it and various approaches to explain the concept.[5]

[3] Understanding the crucial importance of *zakah* as an religious obligation, Caliph Abu Bakr (r.a) even waged a war against *zakah* defaulters.

[4] Kahf (1989) estimates the range of zakah revenue in different countries to be from 0.9 percent to a high of 7.5 percent of GDP based on various assumptions. The average of the lower and higher ranges equals 1.8 and 4.3 percent of GDP. See also Ahmed (2004) for a discussion.

[5] For a discussion on various concepts of poverty and approaches see Sen (1986).

Poverty results from the way a society's economic, political, and social systems are organized. These systems create processes that interact with each other and produce deprivation among a group of people (World Bank 2001).

Often the poor are weak and vulnerable to hostile factors and events beyond their control. A characteristic of poverty is its tendency to persist in what is referred to as the vicious circle of poverty (Basu 1984). Though the concept of poverty has evolved from deprivation of material needs, education, and health to include vulnerability, exposure to risk, voicelessness and powerlessness, our focus in this paper will relate to the former notion.[6]

The most common method of measuring poverty is based on using income or consumption. A person is considered poor if his/her income/consumption level is below the 'poverty line'. Income poverty can be defined in the absolute and relative terms. Absolute poverty defines poverty line as the income or expenditure level required to purchase a pre-defined basket of basic needs goods and services. This poverty line is an income level that can sustain a minimum standard of living and separates the poor from the non-poor (World Bank 1993). Relative poverty identifies the poverty line as a fixed proportion of some standard income like the average. For example, people having an income below a certain percentage (say 50 percent) of the mean national income may be considered poor. It is possible that people who are not classified as poor in the absolute sense may be so in the relative sense. Relative poverty may exist in societies where the overall standards of living are high. In this paper, we consider the poverty defined in the absolute terms only.

In poverty research, more attention is paid to facts and definitions and relatively less emphasis is given to the causes and strategies (Wilson 1996, p.20). However, in order to arrive at policies and strategies to resolve the problem of poverty one has to comprehend the underlying causes of poverty (UNDP 2003, p. 1). In this section, we focus on the economic dimensions of poverty. After explaining what causes poverty at the macro and micro levels, we outline the various strategies that can be used to mitigate it.

2.1. Macro Dimensions of Poverty

The growth rates in output and population along with the distribution of resultant income are important determinants of the extent of poverty in any

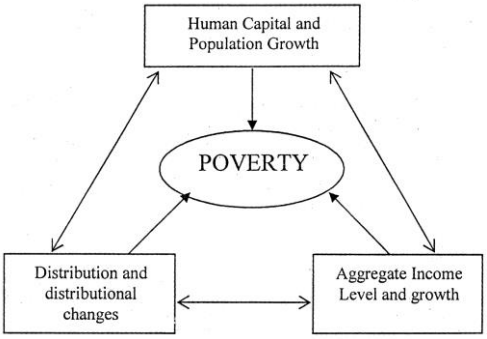
[6] World Bank (2000) discusses the broader concept of poverty in details.

society (Iqbal 2002). Bourguignon (2004) discusses the dynamics of poverty in the macroeconomic context in terms of the "poverty-growth-inequality triangle". According to this analysis, the extent of poverty depends on the growth, distribution, and changes in the distribution of incomes over time.

While overall growth in the economy can mitigate poverty, worsening of the distribution of income can aggravate it. Changes in the distribution of income is decomposed into the growth effect and the distributional effect (Datt and Ravallion 1992 and Kakwani 1993). The former is the case when distribution of income changes due to growth in the income and latter is caused by the changes in the relative income across the whole population. The interaction between income level and growth, income distribution, human capital and poverty is shown in Figure 1.

As Figure 1 shows, there are various ways in which the macroeconomic factors affect poverty. Growth of aggregate output was explained by the Neoclassical theorists (e.g. Solow 1959) by focusing on physical capital. These theories did not discuss the distribution aspects of growth but emphasized the growth possibilities in an economy. The endogenous growth theories of Romer (1986) and Lucas (1988) emphasized the role of human capital in the growth process. Investment in human capital creates externalities and economies of scale that lead to rapid productivity growth and the rise in the per-capita income. It is assumed that knowledge is embodied in both physical capital and labor. As the body of knowledge increases, the quality of both physical and human capital improves increasing the productivity of labor and overall aggregate output and income levels in the economy. An implication of this view is that countries and people are poor not only because there is scarcity of capital but because they have less knowledge (World Bank 1999).

Figure 1: Macro-determinants of Poverty



Note : Adapted from Bourguignon (2004) and Iqbal (2003)

While growth in per-capita income is an indicator of the overall economic development, the distribution of the resulting growth in output among the lower income groups will determine the effects of growth on poverty levels in an economy. To have poverty reduction in a reasonable time, distribution of income has to improve. For example, Bourguignon (2004) shows this point with an hypothetical example for Mexico where 20 percent of the population live in extreme poverty. If real income per-capita increases by 3 percent per annum without any change in the distribution of income, then poverty will reduce by 7 percent in the next 10 years. If however, the income equality reduces so that the Gini index falls from the current level of .55 to .45, then poverty rate will fall by more than 15 percentage points and will equal less than 5 percent by the end of the 10^{th} year. Without any changes in the distribution of income, this reduction in poverty would take close to 30 years.

Economic growth may, however, change the distribution of resources across sectors and population groups that may affect distribution and poverty levels. Earlier work of Kuznets (1954) and Lewis (1954) studied the relationship between growth and inequality. These theories predict that inequality of income increases during the initial stages of development. After a threshold level of per-capita income is achieved, growth in the economy brings about more equality in the income distribution. Empirical studies, however, find no systematic relationship between growth and inequality (Ferreira 1999, Dollar and Kraay 2002). While evidence shows that high growth in economies has not resulted in increases in inequalities, some studies indicate that slow growth can increase inequality over time by not providing opportunities to the population in general and the poor in particular to generate income.

The impact of growth on poverty will to some extent depend on the initial inequality in the impoverished people's access to opportunities. For example, if the inequalities in income is due to inequality in education levels, then growth in the economy will not be able to bring benefits to people who cannot get employment in the high-paying sectors of the economy due to lack of required skills. Note however, that increases in inequality does not inevitably increase poverty. There may be cases where the income levels of the poor has increased but inequality rises because the income of the rich increases at a faster rate. Similarly, there can be improvement in poverty levels with relatively less growth in the economy.

2.2. Micro Dimensions of Poverty

To understand the causes of poverty from the micro-perspective, we identify the factors that affect the income and wealth of a typical household. Ownership relationships along with the institutional arrangements determines, what Sen (1986) calls, entitlements of a household. Entitlement relationships in a market economy that affect income levels of households can be classified as follows:

a). Trade-based entitlements (E_t): Income derived from trading goods/assets with willing party. Typically, trading would involve exchange relationships in which goods/assets may be bought and sold and net income gained in the process.

b). Production-based entitlement (E_p): Income generated from producing a good or service by engaging one's own resources or hiring from other willing parties. Production can take various forms depending on the state of the economy and the position of the household in the economic class structure. For example, in rural areas, production will include both agricultural and non-agricultural activity. In the latter, many different activities ranging from traditional cottage industries to more sophisticated mechanized production may be included.

c). Own-labor entitlement(E_l): Income obtained by selling one's labor in the market. The income from labor depends on the quality and quantity of labor sold or used in productive employment. The wages earned in the labor depends on the supply and demand conditions of the labor market. The income generated will depend on the productivity of labor. As the productivity of labor is directly related to its skills and knowledge content, the market rewards these factors favorably.

d). Wealth/Income Transfer entitlement (E_i): Income can be gained from entitlements coming from transfer of either assets/wealth owned or income. The assets/wealth can be acquired or transferred though inheritance or other means. Among others, inheritance laws in a community determines the distribution of wealth and the resulting income of an household. Income can be transferred through certain income transfer scheme. For example, unemployment and social security benefits given in different countries gives individuals an income when certain well-defined conditions are met.

e). Non-entitlement transfers (E_c): This represents voluntary transfer of funds/assets/resources/ through charitable acts by members or institutions in a society to various households.

The ownership of resources and opportunities to trade them at reasonable prices will determine the total income level of an household. Factors that will affect the income level of a household will include the ability to sell labor and non-labor assets, the price at which the labor and assets can be sold, and the costs of the assets used and goods consumed. Given the above sources of income, the total income (I) derived from different entitlements by a household is given by:

$$I = E_t + E_p + E_l + E_i \quad (1)$$

Let us define the poverty line income, I^0, as the level that is needed to consume a well-defined bundle of basic needs goods. The basic consumption bundle of a household would include, among others, food, shelter, health, and education for the children. If the income of the household derived from various entitlements is less than the poverty line (i.e., $I < I^0$), then it will be considered poor.

Poor households face a number of constraints which limit their productivity of resource use and income levels. First, due to poverty and inadequate food intake nutritional levels can be low. Bliss and Stern (1978a and 1978b) and Dasgupta and Ray (1986) among others suggest that efficiency (productivity) of labor is directly related to consumption. Several empirical papers substantiate this contention (Strauss 1986, and Deolalikar 1988 for example). Second, even if income of the poor is not low so as to jeopardize nutrition, the availability of the stock of productive capital able to combine with labor is likely to be minimal. When little capital is used, labor's productivity will be low.

The income of the household during a given period of time should be sufficient to meet consumption and other economic activity related needs. The economic activity related expenditures are those incurred in either trading of production. These would include expenditures on fixed capital and working capital needs of the economic activity. For example, in trading activity the household would need funds to buy goods that are sold later. Similarly, in production activity, there is a need for funds to purchase fixed capital and intermediate inputs used in the activity. In poor households, liquid funds to

purchase intermediate inputs may be insufficient to fully utilize the available fixed capital.

3. Strategies for Poverty Reduction

Given the above discussions, we can deduce four main strategies of mitigating poverty. The first two can be inferred from the discussion on macro perspective. At the macro level, policies that can affect poverty can be broadly divided into those affecting economic growth and those that affect the distribution of opportunity and income in favor of the poor. The remaining two approaches are arrived at from the micro approach to poverty by examining the causes of poverty. First relates to the productive households that lack the means and opportunities to earn decent income levels. The second approach would be for the non-productive households that lack resources and entitlements. The role that *zakah* can play to reduce poverty will then be discussed in the light of the outlined strategies.

3.1. Macroeconomic Policies that Induce Growth

The macroeconomic strategy that facilitates economic growth and reduces poverty would constitute a mixture of policies and institutional reforms. Policies would include macroeconomic policies, incentive policies, and regulatory policies that promote growth. The growth oriented macroeconomic strategy would not only include appropriate fiscal and monetary policies, but also deal with issues like sectoral policies, debt sustainability, domestic and external financing, exchange rate policy and external vulnerability. Furthermore, financial sector reforms, trade liberalization and export promotion, investment policy and private sector development, etc. also affect growth of an economy. Provision of supportive infrastructure like power, telecommunications, communications are important complementary factors facilitating growth.

3.2. Policies of Redistribution

Distribution of opportunity and income can be improved by policies that would promote opportunity, facilitate empowerment, and enhance security for the poor (World Bank 2000). While opportunities can be promoted by facilitating growth, making markets work better for the poor, and building up their assets is key to redistribution of income in their favor. Poverty can also be reduced by policies governing human capital, financial capital, land, and environment. UNDP (2003) lists public policies that can strengthen the links between growth and poverty reduction as increasing investments in basic health, education, water and sanitation, expanding access to assets (land, credit,

skills), and promoting labor intensive industrial growth for small and medium-size enterprises. One important aspect of macroeconomic interventions that affects poverty is the government's budget allocation to various sectors. In particular, the allocation of resources to the education, health, and social services sector will be important determinants of the welfare of the poor in any country.

3.3. Capacity Building and Wealth Creation

The first micro-approach relates to the productive households. Poverty reduction for this group would involve creating opportunities to enhance the entitlements of the household or the income generating capabilities so that income levels increase not just in one period but in all the future periods. In the light of micro dimension of poverty discussed above, this can be achieved in the following ways:

a). Increasing Trade-based entitlements (E_t): Income from trading goods/assets can be increased if the household can be provided with the financial capital required to buy the necessary inputs/goods.

b). Increasing Production-based entitlement (E_p): Income from production of a good or service can be generated if the household has the necessary skills (human capital) and can be provided with the necessary financial capital to acquire the physical capital and/or intermediate inputs.

c). Increasing Own-labor entitlement (E_l): Income obtained by selling one's labor depends on the productivity of labor, which in turn depends on skills and knowledge content. The income of individuals can be increased if the human capital can be increased so that the necessary skill and knowledge that brings in higher wages can be acquired.

The analysis shows that the causes of poverty from the micro-perspective is the lack of resources in the form of human, physical, and financial capital. As such poverty alleviation would imply a mechanism through which these resources or capital can be transferred to the poor in an efficient way. If the productive groups are given small doleouts, the problem of poverty will be solved temporarily, not permanently. To remedy the persistence of poverty among the productive groups would require providing them with the means so that they can increase their human, physical, and financial capital and generate income and create wealth. Thus, the focus of poverty alleviation programs for a vast majority of the productive poor should be a plan for capacity building and wealth creation.

3.4. Income Support

As pointed out in the micro level, income and poverty level depends on the resource endowments of the household. There may be unproductive households in the sense they do not own the entitlements/resources that yields an income to sustain themselves beyond the poverty line. These would the cases with the older, sick and handicapped people and widows and other vulnerable individuals like orphans. For this group of people, there is a need to increase the income levels beyond the poverty line through non-entitlement transfers (E_c). This can be done either by transferring funds/assets/resources/ through charitable acts by members or institutions in a society, or through social security benefits from the government. The periodic stipends from these sources will sustain the non-productive members in the society with a minimum livelihood. This involves safetynet programmes and employment guarantee schemes designed and implemented by the government.

3.5. Poverty Reduction Strategies and Role of Zakah

As discussed, various strategies can be undertaken to reduce poverty. At the macro-level, the overall growth and development of an economy and the resulting distribution of income are important determinants of the extent of poverty in any society. At the micro-level, the resources available with households entitle them to income and determine the extent of impoverishment. Specifically, we examine the role of *zakah* in growth and redistribution in the macro-context, and capacity building/wealth creation and income support in the micro perspective.

Given that most of the macroeconomic policies are in the realm of the government, the role of *zakah* with regard to macroeconomic policies that induce growth will be limited. These institutions can, however, play an important role related to policies of redistribution. The main objective of the institution of *zakah* is to redistribute income in favor of the poor within a community. The areas in which *zakah* can contribute in the macro-context would be improving the human capital and specific programs for the poor and vulnerable. The latter programs can include providing education, health facilities, and social services that improve the welfare of the poor.

Zakah has a more significant role to play with regard to poverty alleviation strategies at micro-level. As pointed out, the approach to tackling poverty would depend on the type of resources and entitlements a household has. Note that *zakah* is an income transfer entitlement (E_i) as it is a right of the poor on the wealth and income of the rich. To understand how to use this transfer

entitlement to solve the problem of persistent poverty affecting a large percentage of the population, we need to discuss cases of productive and unproductive households separately.

The productive households are poor because they cannot use the full potential of their resources due to some constraints. These constraints come in the limited human, physical and financial capital to engage in an economic activity that gives the household a decent income. Thus, to solve the problem of poverty for the productive group of the population, the institution of *zakah* should be able to provide the necessary input in terms of human, physical, and financial capital. The specific programs would be to provide support for education and skill development, provision of physical capital (like a taxi, sewing machine, etc.),and making available financial capital to start a business so that the poor can be productively employed to earn a living. For the unproductive members of the population (the elderly, sick, widows, handicapped, etc.), the institution of *zakah* should be able to provide them periodic stipend that enable them to meet the basic needs. It is worth noting that if the productive group is treated as unproductive one and given periodic doleouts, the problem of poverty for this group will be resolved temporarily and will persist in the long-run.

4. *Zakah*, Macroeconomic Policies, and Poverty in Bangladesh: Background

Bangladesh had a GDP of US$ 60 billion in 2005. The latest poverty headcount ratio of population less than $1 per day was 36 percent and for less than $2 a day was 82.8 percent in 2000. With a population of 139.2 million in 2004, the number of the poor stand at 50.11 million. The average GDP growth rate was 5.4 percent and the average population growth rate was 1.9 percent during the period 2000-2005.[7] Bangladesh has made significant progress in its economy in the last decade resulting in reducing its poverty. A Household Income and Expenditure Survey (HIES) indicates reduction of poverty from 58.8 percent to 49.8 percent between 1991/92 to 2000 (GOB 2003).

The Poverty Reduction Strategy Paper (PRSP) targets achieving many of the MDGs by 2015. Among others, the social objectives of the overall development strategy includes reducing the number of people living below poverty line by 50 percent. The PRSP calls for using all routes and plans to include various policies and programs to achieve the poverty goals. These include using programs that would accelerate pro-poor economic growth (that

[7] All information was taken form World Bank (2006) and other World Bank sources.

include agricultural, rural, manufacturing and infrastructure development, ensuring macroeconomic balances, promoting good governance, and framing policies for technology and microcredit), fostering human development of the poor and women advancement, strengthening social protection, and initiating policies and institutions for reducing inequality.

While no information on the amount of *zakah* collected and disbursed in Bangladesh is available, it is safe to assume that it is very small.[8] The potential of *zakah* collection, however, is large. Different views are given with regard to the estimates of *zakah* collection at the aggregate level. These estimates vary from 2-4 percent of GDP (Salama 1982) up to 14 percent (al-Tahir 1997).[9] Potential of *zakah* collection for a sample of eight countries and their averages estimated by Kahf (1987) are reported in Table 1. Taking three opinions on the *zakah* base, Kahf estimates different *zakah* rates as a percentage of GDP for the various countries.[10] We note that the averages range from the 1.8 percent and 4.3 percent of GDP depending on the assumptions used in relation to *zakah* proceeds.

Table 1: Zakah Revenue Estimates (as a percentage of GDP) according to Different Opinions

Country	**Opinion A**	**Opinion B**	**Opinion C**
Egypt	2	3.9	4.9
Pakistan	1.6	3.5	4.4
Indonesia	1	1.7	2
Qatar	0.9	3.7	3.2
Saudi Arabia	1.2	3.7	3.4
Sudan	4.3	6.3	6.2
Syria	1.5	3.1	3.1
Turkey	1.9	4.9	7.5
Average	***1.8***	***3.9***	***4.3***

[8] In Saudi Arabia, zakah collection dropped from an average of 0.4 percent of GDP during the late 1960s to 0.1 percent during mid-1970s (Salama, 1982). The zakah collections in Pakistan is 0.08 percent only (Kahf 1993).

[9] Kahf (1999) reports some other studies that find different rates. These include 6.1 percent for Egypt, 3 percent for Sudan and Syria, 2.7 percent for Saudi Arabia, and 2.1 percent for Kuwait.

[10] The first opinion includes zakahable items as agricultural output, livestock, trade inventory, and cash holdings. The second opinion adds to the zakah base returns on fixed assets and salary and wages and the third opinion adds the capital value of fixed assets (Kahf 1987 and Kahf 1999).

5. *Zakah*, Macroeconomic Policies, and Poverty: Simulations for Bangladesh

In this section, we give the basic theoretical concepts and assumptions used in simulation exercise. As the last section indicates, the macro-factors affecting poverty include policies that lead to the changes in the total GDP, the population, and the distribution of income (see Sections 3.1 and 3.2 above). While growth rates in GDP and population (*dGDP* and *dPop* respectively) are indicators of the former two variables, income redistribution can be measured in different ways. We assume that at the beginning of the base year 0, the poverty rate is p_0 giving the number of poor P_0 as,

$$P_0 = p_0 Pop_0, \tag{2}$$

where the Pop_0 is the population in period 0. If there are no interventions in terms of macroeconomic polices or *zakah* disbursements, the poverty rate stays the same at p_0 giving the number of poor in period T as,

$$P_{BT} = p_0 Pop_T \tag{2a}$$

To keep the analysis simple, the impact of macroeconomic factors is assumed to be captured by the reduction in the poverty rate by a factor δ.[11] Thus, the impact of macroeconomic policies on redistribution of income and reducing poverty is shown by a decrease in poverty rate p by δ every period. That is, $p_{Mt} = (1-\delta)p_{Mt-1}$.

Thus, the number of the poor in period T after taking account of the impact of macroeconomic policies (P_{MT}) is given by,

$$P_{MT} = p_{MT}.Pop_T = (1-\delta)^T p_0 Pop_T \tag{3}$$

where Pop_T is the population in period T. The poverty reduction due to macroeconomic variables in period T is the difference between the poverty figure without any interventions and no decline in poverty rate (P_{BT}) and that with the decline over the years due to macroeconomic policies (P_{MT}). Thus, the number of the non-poor due to macroeconomic factors is given as,

$$NP_{MT} = P_{BT} - P_{MT} = [p_0 - (1-\delta)^T p_0]Pop_T \tag{4}$$

[11] Note that poverty rate is defined as the percentage of population living under $1.

The effect of *zakah* on poverty will depend not only on the size of collections but also on the type of transfer. As discussed above, the amount of *zakah* collected will depend on the different assumptions of the *zakah*ability of various items. Assume that a certain percentage λ of GDP will be collected as *zakah*, with a higher λ giving larger *zakah* proceeds. In line with the discussion in the previous section, we distinguish between productive and non-productive *zakah* transfers. Productive transfers are for investment purposes (Z_i) and provides the poor individual/household the necessary input in terms of human, physical, and financial capital. The non-productive *zakah* transfers (Z_c) are for consumption purposes and take the form of monthly stipend for the unproductive members of the population (the elderly, sick, widows, handicapped, etc.). We call α the transfer composition ratio defined as the proportion of *zakah* given out for consumption purposes. The components of *zakah* disbursement is shown by the following relationship:

$$Z = Z_c + Z_i = \alpha Z + (1-\alpha)Z \qquad (5)$$

Note couple of differences related to the nature and impact of the two types of *zakah* transfers. The first difference between the *zakah* given for investment and consumption purposes is that the amount given in the former is lump-sum and the payments in the later case paid in smaller installments over the year. Furthermore, the amount given for productive purposes is larger than that given for consumption purposes so that funds can be used to start a productive venture. Second, it is assumed that using *zakah* proceeds in productive income generating activity results in recipients moving out of poverty permanently and hence not needing support in the next period. This is not the case with recipients of *zakah* for consumption purposes. This vulnerable group will fall back in the poor category if continuous support is not provided in future periods. Thus, while the *zakah* transfer for consumption purposes resolves the problem of poverty in a transitory sense, *zakah* transfers for investment purposes resolves the poverty problem permanently.

As the poverty is defined as an income level of $1 per day, raising the poor out of poverty would imply increasing their income levels $365 annually. There is, however, a difference how this is done when *zakah* proceeds are given for productive (investment) and non-productive (consumption) purposes. For consumption purpose, we assume that to increase the income above the poverty line an amount of $365 from *zakah* is given out in 12 installments so that the recipients are pushed beyond a $1 per day income. Thus, if *zakah*

proceeds used for consumption is Z_{cT} in period T, then the number of poor people who can be raised above the poverty line during that period will equal,

$$NP_{ZCT} = Z_{cT}/365. \quad (6)$$

Note that the poor people will again fall into poverty in the next period if they are not given *zakah* funds for consumption again. For investment purposes, we assume that a lump-sum of twice the amount given for consumption ($730) is given to the recipients. It is assumed that the recipients use this amount in some productive venture thereby generating an income beyond $1 per day making them non-poor from that year onwards. Thus, if the amount of *zakah* used for investment purposes is Z_{it} in period t, then the number of the poor people who move out of poverty in period t, would be,

$$NP_{ZIt} = Z_{it}/730. \quad (7)$$

As it is assumed that the poor who receive *zakah* funds for investment move out of poverty permanently, the total number of non-poor in period T would be the cumulative sum of the people receiving *zakah* funds for productive purposes over the period under consideration. That is, the number of non-poor due to *zakah* used for productive purposes in period T compared to the base year is given by,

$$NP_{ZIT} = \sum_{t=0}^{T} NP_{ZIt} \quad (8)$$

Collecting the number of people out of poverty due to various factors from Equations (4), (6),and (8) gives the total number of non-poor in period T as,

$$NP_T = NP_{ZCT} + NP_{ZCT} + NP_{ZCT}, \quad (9)$$

The total number of the poor people in the economy in period T (P_T) will be the difference between total number of poor without interventions (P_{BT}) less the non-poor NP_T. Thus, the number of poor (P_T) and the poverty rate (p_T) in period T equals,

$$P_T = P_{BT} - NP_T \quad (10)$$

$$p_T = P_T/Pop_T * 100 \quad (10a)$$

The simulations use the above concepts to arrive at poverty and other related figures.

5.1. Assumptions and Data

Data of various relevant variables for Bangladesh for the latest year available was used to arrive at the values used for base year (2005). The figures for the base year and states of different variables used in the simulation are given in Table 1. As Table 1 indicates, the base year figures of GDP and population of Bangladesh stand at USD 60 billion and 139.2 million respectively. The poverty rate defined as the population earning less than $1 is 36 percent giving 50.11 million poor people in 2005.

Table 1 also shows the assumptions related to the states of different variables used for the simulations. The states of GDP growth rates (*dGDP*) are assumed to be 3 percent, 5.5 percent, and 7 percent indicating weak, moderate and robust performances. While the moderate growth rate is very close to that of the average of the past 5 years, the weak case is the growth rate experienced by many developing countries and the robust case represent the potential growth rate for the country.[12] The population growth rate (*dPop*) can take two values as 1.8 percent and 1.5 percent. The population growth rate in Bangladesh is going down over the years from 1.97 percent in 2000 to 1.86 percent in 2005 (World Bank 2006). At this rate the assumption of growth rate 1.8 is realistic and 1.5 percent is optimistic.

The states of reduction in the poverty rate δ are assumed to be 0, 0.5, and 0.75 respectively. As mentioned above, while the poverty rates measured by the people under national poverty line fell by 9 percent over a decade (56 to 44 percent from 1991-92 to 2000), the decline in poverty as measured by income less than $1 is mixed. Data on progress of Millennium Development goals indicate that percent of population living below $ 1 in Bangladesh fell from 34 percent to 29 percent from 1990-1995, but then increased to 36 percent in 2001.[13] Given this information, the assumption of poverty reduction rate of 0.5 percent is a compromise between the changes in poverty in the national poverty rates and $1 poverty rates. The. 0.75 percent poverty reduction rate is optimistic and would require major macroeconomic efforts to redistribute income. The possible cases of *zakah* variables are also three. The states of

[12] For example the average growth rates of GDP for Latin American and Carribean countries during 2000-2004 was 1.6 percent. The growth rates for some selected countries during the same period are as follows: Nepal 2.5 percent, Gabon 1.6 percent, Guinea 2.9 percent, Mexico 1.5 percent, and Togo 2.6 percent (World Bank 2006).

[13] See http://ddp-ext.worldbank.org/ext/ddpreports/ViewSharedReport?REPORT_ID=1336&REQUEST_TYPE=VIEWADVANCED

zakah collection/disbursement λ can take the values of 0, 2 percent and 3 percent of GDP and the transfer composition ratio α is assumed to take those of 1, 0.75 and 0.5.

Table 1: Base Year Values and Basic Assumptions Used for Simulations

Variables	**Base Year (2005)**	**State 1**	**State 2**	**State 3**
Macroeconomic				
GDP	USD 60 billion			
Pop	139.2 million			
Poverty Rate (p)	36 percent			
Number of Poor	50.1 million			
dGDP(percent)		3	5.5	7
dPop (percent)		1.8	1.5	
Poverty Reduction Rate (δ)		0	-0.5	-0.75
Zakah				
λ (% of GDP)		0	2	3
Transfer Composition Ratio (α)		1	0.75	0.5

Table 2: Projections of GDP, Population, and GDP Per Capita in 2025

Macroeconomic Regimes	***GDP* ($ Billion)**	***Pop* (Million)**	***GDPPC* ($)**
Weak **(***dGDP=3% dPop=1.8%)*	105.21	195.4	538.5
Moderate **(***dGDP=5.5% dPop=1.8%)*	165. 94	195.4	849.4
Robust **(***dGDP=7% dPop=1.5%)*	216.99	184.7	1174

5.2. Simulation Results

The information given in Table 1 are used for simulations of different scenarios to examine the impact of macroeconomic factors and *zakah* over the next 20 years. The simulations are carried out using simple EXCEL spreadsheets. Table 2 shows GDP and population under different growth rate assumptions and the resulting GDP per-capita (*GDPPC*) for the year 2025. The weak macro regime **(***dGDP*=3 percent and *dPop*= 1.8 percent) would increase the GDP to $105.21 billion and population to 195 million, giving a GDP per capita of $538.5 in 2025. With the same population growth rate, the moderate macro regime with a GDP growth rate of 5.5 percent will increase the GDP to $165.94 billion making GDP per capita $849.4 after 20 years. Under the robust marco-regime, the higher GDP growth rate (7 percent) and a lower population growth rate would increase the GDP per capita of Bangladesh to $1174 in 2025.

The impact of various macro regimes and *zakah* schemes on poverty are reported at two levels. First, the aggregate figures of poverty are reported for the year 2025. At the second level, the individual contribution of different factors (macro and *zakah*) on reducing poverty are shown.

5.2.1. Impact on Aggregate Poverty Levels

The impact of various macroeconomic regimes and states of *zakah* collection and disbursement schemes on poverty are shown in Table 3. The three macro-regimes are identified as A, B, and C and there are seven schemes of *zakah* collection and disbursement. Each case is identified by the associated macro-regime and *zakah* scheme by using the column and row it belongs to respectively. For example, poverty levels resulting from macro-regime B and *zakah* scheme 3 will be identified as Case B3. Table 3 reports two measures of poverty in 2025 under various scenarios. First, the total number of poor along with the percentage of population in the year 2025. Second, the change in the number of poor compared to the base-year figure of 50.1 million are also reported. The table shows that the worst case poverty scenario (Case A1) appears when macroeconomic regime is weak (low economic growth and relatively higher population growth) with no redistribution corrections (δ=0) and no *zakah* receipts. Under this case, a total of 70.3 million people (or 36 percent of the population) will earn less than a $1 a day in 2025 adding another 20.2 million to the base-year (2005) poverty figure of 50.1 million.

While the simulation results presented in Table 3 are self-explanatory, we point out some trends that appear. First, the results in Table 3 indicate a strong

negative correlation with macroeconomic performance and levels of poverty. Specifically, the poverty rates decrease with higher GDP growth rates, lower population growth rates, and higher impact of redistributive policies that reduce the poverty rates. This is apparent as the figures in column A are higher than those in column B, which are higher than the poverty figures in column C. For example, when no *zakah* is collected, the number of poor in case of macro-regime A is 70.3 million (Case A1). This reduces to 51.8 million under macro-regime B (Case B1) and further goes down to 40.2 million in case of robust macro-regime (Case C1). This trend is repeated under all other *zakah* schemes.

Second, *zakah* collection and disbursement has positive impact on reduction of poverty levels. The impact on poverty, however, depends not only on the amount collected and disbursed, but also on the type of transfer and the overall macroeconomic policies affecting poverty. Other things remaining the same, as the percentage of *zakah* collected and disbursed increases, the number of poor decreases. For example, we see that when percentage of *zakah* increases from 2 percent of GDP to 3 percent and all *zakah* is distributed for consumption purposes (Cases A2 and A5 respectively), the number of poor decreases from 64.6 million in the former to 61.7 million in the later case. In both cases, the number of poor increases compared to the base year figure (by 14.5 million and 11.6 million respectively).

Table 3: Poverty Levels under Different Macroeconomic Regimes and Zakah States: Simulation Results

Zakah Collection/ Disbursement		**Weak Growth and No Distribution (*dGDP*=3%; *dPop*=1.8%; δ=-0%)**		**Average Growth with Moderate Redistribution (*dGDP*=5.5%; *dPop*=1.8%; δ=-0.5%)**		**Robust Growth with High Redistribution (*dGDP*=7%; *dPop*=1.5%; δ=-0.75%)**	
		A		**B**		**C**	
		Total[a]	**Change[b]**	**Total**	**Change**	**Total**	**Change**
1	***λ=0% of GDP***	70.3 (36.0)	20.2	51.8 (26.5)	1.7	40.2 (21.8)	-9.9
2	***λ=2% of GDP α=1***	64.6 (33.1)	14.5	42.7 (21.9)	-7.4	28.3 (15.3)	-21.8
3	***λ=2% of GDP α=0.75***	55.0 (28.1)	4.9	30.6 (15.7)	-19.5	14.4 (7.8)	-35.7
4	***λ=2% of GDP α=0.50***	45.4 (23.2)	-4.7	18.6 (9.5)	-31.5	0.5 (0.3)	-49.6

5	***λ=3% of GDP α=1***	61.7 (31.6)	11.6	38.1 (19.5)	-12.0	22.3 (12.1)	-27.8
6	***λ=3% of GDP α=0.75***	47.3 (24.2)	-2.8	20.1 (10.3)	-30.0	1.5 (0.8)	-48.6
7	***λ=3% of GDP α=0.50***	32.9 (16.8)	-17.2	1.9 (1.0)	-48.2	0 (0)	-69.4

a-The figures show the number of persons (in millions) with income less than $1 per day. The numbers in parenthesis show the poor as a percentage of population.
b-Number of poor-50.1 million (poor in year 2005).

Third, the composition of *zakah* transfer for productive and non-productive uses is a significant determinant of its impact on poverty. The results in Table 3 indicate that as the percentage of *zakah* going for productive purposes increase, the number of people remaining poor in 2025 declines significantly. This can be seen by comparing poverty figures in rows 2, 3, and 4 (or rows 5, 6, and 7). If we consider the moderate macro-regime (Regime B), we observe that number of poor declines from 42.7 million to 30.6 million when distribution of *zakah* for productive purposes increases from 0 percent to 25 percent (Cases B2 an d B3 respectively). Similarly, if 50 percent of *zakah* proceeds go for investment purposes, the poverty decreases to 18.6 million in 2025 (Case B4).

Finally, the results indicate that poverty cannot be eliminated in the near future by using either macroeconomic policies or *zakah* in isolation. Poverty reduction is most effective with combinations of robust macro-regime and high percentage of *zakah* collections which are used for productive purposes. For example, poverty can be eliminated from Bangladesh in the next 20 years if the macroeconomic regime is robust (i.e, ($dGDP$=7 percent, $dPop$=1.5 percent, and δ=-0.75 percent) along with 3 percent of GDP collected as *zakah* of which 50 percent is used for productive purposes (Case C7). Similarly, poverty levels are very low (less than 2 million) with a combination of robust macro-regime and 25 percent of the total *zakah* collected (3 percent of GDP) is used for investment purposes (Case C6) or when the macro-regime is moderate and but *zakah* collected is 3 percent of GDP of which 50 percent is used in productive ventures (Case B7).

5.2.2. Contribution of Individual Factors in Poverty Reduction

To further analyze the impact of various factors on poverty, we breakdown the effects of individual factors on poverty (see Equation 9). To do this, we take the worst case scenario (Case A1 with weak macro regime and no *zakah* collection) as the benchmark case (see Equation 10). The logic is that

compared to this bench-mark case, if there is any change in either macro regime/*zakah* scheme, the resulting reduction in poverty levels will be due to these changed circumstances. For example, if we move from case A1 to B1, we know that the *zakah* scheme is the same, but the macro-regime has changed from A to B. Thus, the change in the poverty levels from 70.3 million to 51.8 million is due to change in macro regime. Specifically, the decrease in the later case compared to the benchmark year has occurred as δ has changed from 0 to -0.5 percent. With δ=-0.5, the poverty rate decreases by 0.5 percent every year due to the overall macroeconomic redistributive policies. Thus the resulting decrease of 18.5 million poor in Case B1 compared to the base year Case A1 can be attributed to change in the macro-regime. Results of the contributions of individual factors for a few selected cases are shown in Table 4.

Case 2 has the same moderate macroeconomic regime (*dGDP*=5.5%; *dPop*=1.8%; and δ=-0.5%) but collection of 2 percent of GDP as *zakah* all of which is distributed for consumption purposes (α=1). This new scenario will reduce the poor to 42.7 million people in 2025, which is 27.6 million less than the benchmark case. Of this 27.6 million, 18.5 million are non-poor due to macroeconomic factors and the remaining 9.1 million are due to getting *zakah* funds. The next case, B4, assumes all factors to be the same as B2, with the exception that 50 percent of the *zakah* proceeds are used for consumption purposes and the remaining 50 percent is used for productive ventures. The diversion of half of the *zakah* proceeds for productive uses reduces the poverty level by more than half to 18.6 million. Compared to the benchmark case, the number of poor is 51.7 million less. The contribution of macro-factors to this reduction is 18.5 million, *zakah* for consumption reduces poverty by 4.6 million, and productive use of *zakah* funds over the 20 years reduces poverty by 28.7 million.

Table 4: Contribution of Factors in Poverty Reduction

Cases	**Macroeconomic Variables**			***Zakah* Variables**		**Impact on Poverty (millions)**				
	***dGDP* (%)**	***dPop* (%)**	**δ (%)**	***Zakah* (% of GDP)**	**α**	**No. of Poor (P_T)**	**Non-Poor (NP_T)[a]**	**NP_{MT}**	**NP_{ZCT}**	**NP_{ZIT}**
B1	5.5	1.8	-0.5	0	0	51.8	18.5	18.5	0	0
B2	5.5	1.8	-0.5	2	1	42.7	27.6	18.5	9.1	0
B4	5.5	1.8	-0.5	2	0.5	18.6	51.7	18.5	4.6	28.7
C4	7.0	1.5	-0.75	2	0.5	0.5	69.8	30.1	5.9	33.7
C5	7.0	1.5	-0.75	3	1	22.3	48.0	30.1	18.9	0
B6	5.5	1.8	-0.5	3	0.75	20.1	50.2	18.5	10.2	21.5
C7	7.0	1.5	-0.75	3	0.5	0	(89.5)	30.1	8.9	50.5

a-NP is the number of non-poor compared to the worse case scenario benchmark case (i.e., 70.3-Pr).

The effect on poverty with the same *zakah* scheme as Case B4, but with a robust macro regime is given by Case C4. This new combination reduces the number of poor in 2025 to only 0.5 million. Robust macro-regime accounts for reduction of poverty among 30.1 million people, *zakah* given for consumption reduces the poor by 5.9 million, and the *zakah* used for productive purposes reduces poverty for 33.7 million people over the 20 years period. When the *zakah* collection increases to 3 percent of GDP under robust marco-regime, but all *zakah* proceeds are disbursed for consumption purposes (Case C5), the poverty number of poor in 2025 would be 22.3 million. Compared to the benchmark case of 70.3 million poor, this is 48 million less. The contribution of the robust macro-regime accounts for reduction of 30.1 million poor and the remaining 18.9 million are non-poor due to *zakah* proceeds disbursed for consumption purposes.

A moderate macro-regime and *zakah* collections equaling 3 percent of GDP, of which 25 percent is spent for productive purposes (Case B6) would leave 20.1 million people poor in 2025. This is a reduction of 50.2 million poor compared to the benchmark case, with 18.5 million resulting from moderate macro-regime, 10.2 million from using *zakah* for consumption purposes, and 21.5 million due to using *zakah* for investment purposes. The simulation results show that poverty can be eradicated under Case C7 when the economy has a robust macro-regime, *zakah* collection is 3 percent of GDP of which 50 percent is used for productive purposes for the next 20 years. Note, however, that while the number of poor defined according to $1 a day may be eliminated, there will still be a significant number of people who will be poor according to $2 a day poverty line. The aim of *zakah* and macroeconomic policies beyond this point would be to reduce the number of people earning below $2 a day and relative poverty.

6. Zakah as a Tool for Poverty Alleviation: Policy Implications

The simulation results for Bangladesh show the conditions under which *zakah* can play an effective role in poverty alleviation. Specifically the outcomes indicate two broad policy matters related to using *zakah* as a tool for poverty alleviation. The first relates to integrating *zakah* into the overall development strategy of individual countries and the second aspect relates to institutional development that will enable to enhance the use of *zakah* in poverty alleviation. Some aspects of these policy matters are discussed below.

6.1 Integrating Zakah into the Overall Development Strategy

The simulation results indicate that while macroeconomic policies or *zakah* can reduce poverty, relying only on one of these tools alone may not be enough to eliminate poverty. For example, the results in Table 3 shows that when the economy has a robust marco-regime which reduces the poverty rates by 0.75 every year, but no *zakah* is collected, the number of poor in 2025 will stand at 40.2 million or 21.8 percent of the population (Case C1). Similarly, a high percentage of *zakah* collected and disbursed will not be able to make a dent on poverty when the macro-regime is weak. The impact of *zakah* on poverty with weak marco-regime is particularly small when all *zakah* proceeds are given out for consumption purposes. This is illustrated by Case A5 in Table 3 which shows that even with high rates of *zakah* collections/disbursements (3 percent of GDP), the number of poor in 2025 will stand at 61.7 million, which is 11.6 million more than the base year figure of 50.1 million. Even when 50 percent of the proceeds of *zakah* collected are given out for productive purposes, the number of poor in 2025 will be 32.9 million (Case A7).

At the policy level, the simulation results indicate that both the macroeconomic environment has to be improved and the *zakah* institution has to be strengthened to make an impact on poverty. This calls for integrating the institution of *zakah* in national development strategies. The role of *zakah* in poverty alleviation has, therefore, to be studied in the perspective of PRSP of individual countries. Until now, however, very few countries including Bangladesh, have integrated *zakah* into their development programs. While the PRSP for Bangladesh calls for using all routes to eliminate poverty, the document does not include use of *zakah* to do so.

To bring *zakah* in the overall development process, there is a need to exert concerted efforts and undertake policies to strengthen this institution. At present, the *zakah* being collected by the government bodies in most countries is very small compared to the total being collected. Most of the *zakah* is paid to individuals or non-government bodies. This dispersion of *zakah* funds through individual efforts may not have the required impact when it comes to poverty alleviation. If more *zakah* can be collected and disbursed by the public *zakah* institutions in an organized manner, it will be able to make the desired impact. There is a need to improve the efficiency of *zakah* collection and disbursement of public *zakah* institution to attract a larger part of *zakah* funds. This will create confidence among the people, and as a result, they will willingly pay their *zakah* dues to the government agency. An important aspect

in building this confidence and increase collections is that the government has to prove their abilities to use these funds in an efficient way to reach the target groups.

One way in which governments can enhance the *zakah* revenues is through enacting laws that allow them to deduct *zakah* on various observable assets. While there is a need for laws that will give the governments the right to collect *zakah* from individuals and economic entities, the laws themselves will not be sufficient to ensure tapping the bulk of the *zakah* funds. For example, Pakistan, Saudi Arabia, and Sudan, have enacted laws that entitle them to collect *zakah* on various assets, but the collections appear to be very small. As mentioned above, *zakah* collection in Saudi Arabia dropped from an average of 0.4 percent of GDP percent during the late 1960s to 0.1 percent during mid-1970s (Salama, 1982).

An important tax law related issue is the treatment of *zakah* vis-à-vis taxes. People apprehend that by paying both taxes and *zakah* they are double-taxed. Therefore, individuals/businesses should be able to deduct *zakah* payments from their actual tax liabilities.[14] Malaysia has instituted tax laws that allow tax credit for *zakah* payments. Another aspect of increasing the zakah revenues is to expand the *zakah* base by expanding the assets on which *zakah* should be paid. The sources of income and wealth at contemporary times are different than those during the time of the Prophet (pbuh). In this regard, contemporary *Shariah* scholars have to come up with resolutions that add newer assets into purview of *zakah*able assets.

6.2 Strengthening Zakah Organizations

While simulation results indicate that *zakah* plays an important role in poverty alleviation, this can only be done if the *zakah* institution can effectively collect and disburse proceeds. In this regard, the *zakah* institutions should have good governance structures and management procedures. The processes of making decisions and implementing them, transparency, human resource, flexibility to introduce innovations in systems and processes, and cost efficiency in operations are important aspects of good governance and management procedures. To have desirable impact, the functions of raising and disbursing

[14] There is a difference between tax deduction and tax credit. While in the former the amount donated can be deducted from the income before calculating taxes, the latter is deducted from actual tax liabilities. Malaysia has instituted tax laws that allow tax credit for zakat payments. That is, individuals can deduct zakat payments from their actual tax liabilities.

funds should be separated. The important operational aspects of the functions of *zakah* institutions are discussed next.

6.2.1. Raising Revenues/Funds

The most essential issue related to raising charitable funds in general and the *zakah* proceeds in particular is building trust by providing the intended services. Other related issues are ease with which donors can make payments, marketing, and providing information. It is difficult for government bodies to make available these services that facilitate the collection of *zakah*. Results from a study on various organizational forms indicate that corporations are in a better position to raise funds, followed by non-profit organizations.[15] This was observed in case of some states in Malaysia where the public *zakah* bodies have established corporations to collect *zakah*. The income of corporation, that is wholly owned by the *zakah* agency, is a percentage of the *zakah* collected. Thus, the corporation uses all means to maximize the *zakah* collections by using modern management and transparent system. Furthermore, to increase the revenue the corporation uses a marketing strategy by educating people about *zakah* and making it easier for people to pay their *zakah* dues. Other than paying *zakah* at the *Zakah* Collection Offices, it can also be deducted from salaries automatically and paid to banks, post offices, and over the internet.

As mentioned above, an important factor to raise funds is the legitimacy and reputation of the organizations. In this respect, the operations of corporations are more transparent and able to build trust among the *zakah* payers. The *zakah* payers are interested to know if the funds are being used for the beneficiaries. In this sense, the revenue will depend on how the funds are disbursed.

6.2.2. Disbursement of Funds

Disbursement of funds to the right target group with the appropriate impact determines whether the social objectives of the organization is reached. To do so, a low-cost infrastructure of mainly volunteers needs to be established to identify the poor and deliver the assistance in forms that would enhance their productive capacities. The important issues in disbursement of *zakah* would be to identify the beneficiaries, establishing a delivery system, having access to volunteers, networking and coordination with other similar organizations, and disbursements to achieve the objective of poverty alleviation.

[15] See Ahmed (2004) for a detailed discussion.

While no data exists on the type of disbursements, it is safe to assume that most of the *zakah* proceeds most likely go for income support purposes and does not solve the problem of poverty in the long run. The simulation results in Section 4 indicate that in order to solve the problem of poverty, the focus of the *zakah* disbursements should be on capacity building and wealth creation instead of income support. While traditionally *zakah* payments were given out as handouts, the focus should change to provide the human, physical, and financial capital to make the households productive. Furthermore, to empower people and build capacity, there may be a need to coordinate with other welfare oriented organizations and also establish institutions that can facilitate this. *Zakah* funds can be disbursed by the public *zakah* agency to different institutions that are involved in serving the poor.

One option of using *zakah* proceeds productively is to use it in financing microenterprises. Ahmed (2002) and Kahf (2004) maintain that *zakah* and *awqaf* can be used to provide microfinancing to the poor. The returns from *awqaf* and funds from *sadaqat* can be used to finance productive microenterprises at subsidized rates. In addition, *zakah* can be given out to the poor for both investment and consumption purposes. For the poorest recipients of microfinance, consumption support will help avoid divergence of funds from productive heads. The combination of microfinancing and *zakah* funds will make it easier for the poor to break out of the poverty cycle.

6. Conclusion

The paper asserts that the causes of poverty are many and resolving the problem requires a multi-faceted approach. The paper studied the role of *zakah* and macroeconomic policies aimed at growth of income and providing opportunities to the poor in eliminating poverty. Simulation of various macro-regimes and *zakah* schemes for Bangladesh indicate that while macroeconomic policies play an important role in reducing poverty, poverty cannot be eliminated without using *zakah* in an effective way. The paper also suggests that there are certain conditions under which *zakah* will be able to make an impact on poverty. First, *zakah* has to be complimented by robust macroeconomic policies that enhance growth and also redistribute income to eliminate poverty. Second, while more *zakah* has to be collected and disbursed, the impact on poverty will only be significant when a larger percentage of *zakah* proceeds are used for productive purposes.

Given the important role of *zakah* in poverty alleviation, there is a need for countries to integrate this vital faith-based institution in the development strategy and programs of Muslim countries, including Bangladesh. *Zakah* institutions, however, will only be effective if its operational structures can produce results that build faith, reputation and trust among ordinary citizens. To do this, there is a need for further research and exchange of ideas related to the development of operational models of *zakah* organizations that can effectively be used to combat poverty during contemporary times.

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