A Critique of Akhtar's Model of an Economic Economy

In an article entitled "Modelling the Economic Growth of an Islamic Economy,"[1] M. Ramazan Akhtar presented a mathematical model that subjects Allahs attributes to measurement and undermines the cause of the Islamization of knowledge, which he intended to serve. In his article, there are several flaws, mistakes, and inconsistencies that deserve comment and criticism. This paper has examined critically Akhtar's model and found it to be neither informative nor predictive. Before presenting the critique, however, I would like to comment on some of the general weaknesses of the article.

In the opening paragraph (p. 491), Akhtar says: "Growth depends on several factors, among them a consistent increase in the amount of physical goods and services produced over a given period of time. This is usually taken as an index of economic growth." Although economic growth is defined and measured by the increase in the amount of goods and services produced over a given period of time, it does not imply that the former depends on the latter. There is no cause and effect relationship between the two.

In his "Review of the Literature" (p. 492), Akhtar makes a general statement that Muslim economists use the terms "economic growth" and "economic development" interchangeably. The economic literature that has been produced since the early 1960s makes a clear distinction between these two terms and views economic growth as a necessary, but not a sufficient, condition for economic development (Clower 1966). Most Muslim economists hold this mainstream view. If there are still some using the terms interchangeably, they are the exceptions.

In the second paragraph on page 495, Akhtar gives an English translation of Qur'an 39:9. In fact, this is a translation of 41:10—a serious mistake and not a typographical error.

The last paragraph on page 491 reads: "The hypothesis is examined theoretically because statistical data for empirical analysis is not available." But at the end of this paragraph, he asserts: "Analytical results show that moral factors make a positive contribution to both income

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[1] This article appeared in the *American Journal of Islamic Social Sciences* 10, no. 4 (Winter 1993): 491-511.

and output growth." In his article, Akhtar presented a model in a general form. This model cannot be used for analytical purposes unless it is transformed into a specific form and contains the proper identification of its parameters and a methodology for their determination. How was Akhtar able to derive "analytical results" without data and without a specific model?

In the first paragraph on page 508, we read: "The marginal product of the bounty of God (Y_f [*faḍl Allāh*]) is defined as the difference between the total product of two equal bundles of physical inputs using similar technology but having different sociocultural and institutional environments." Economists define marginal product as a change in the total product per unit change in the input. The way Akhtar has defined marginal product does not make sense in economic terms.

There are also serious problems associated with the posited hypothesis and its mathematical formulation. His hypothesis rests on a study by Denison (1962). For references, he mentioned Branson and Livack (1981) without indicating the page number of the basic source. During the 1950s and the early 1960s, some economists examined the growth of the American economy using the conventional neoclassical constant-returns-to-scale production function.[2] They observed that a fraction of output growth could not be explained on the basis of growth in inputs (labor and capital). A summary of the findings of these empirical studies may be presented as:

$$\dot{Q} = n_k \dot{K} + n_l \dot{L}$$

where:

$\dot{Q}$ = growth rate of output
n_k = capital share in output = .25
$\dot{K}$ = growth rate of capital = .042
n_l = labor share in output = .75
$\dot{L}$ = growth rate of labor = .015

Now:

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2 For further information, consult Solomon Fabricant (1954), Moses Abramovitz (1956), John Kendrick (1956), Robert Solow (1957), Edward Denison (1962).

$$\dot{Q} = (.25)\ (.042) + (.75)\ (.015) = .023$$

But the output growth rate (Q) has been found to be .042. Hence:

$$\dot{Q} - n_k \dot{K} - n_l \dot{L} = .042 - .0105 - .0115 = .02.$$

The difference of .02 was called the "residual" and was said to represent the fraction of the output growth in the American economy that could not be explained on the basis of growth in inputs. Abramovitz (1956, 11) described this residual as a "measure of our ignorance." While some economists accepted this empirical reality as a "stylized fact," the issue of residual became a subject of further investigation and research. A number of economists, among them Nelson, Meade, Denison, Kaldor, and Tobin, made some significant contributions toward improving the growth model and advancing an explanation for the residual. It was asserted that technical progress contributes to an increase in productivity that results in the production of a larger output with the same quantity of inputs. A new factor, that of "technical change," was incorporated in the neoclassical model in a variety of ways and soon resolved the issue of the residual.[3]

Two models developed during the 1980s are presented below for expositional purposes:

Romer's model (developed in 1986): $Q = A(R)F(R,K,L)$

In this model, technical change (A) is expressed as a function of research and development (R).

Lucas' model (developed in 1988): $Q = A(H)F(K,L)$

In this model, technological progress is assumed to be dependent on human capital (H).

On the basis of his most recent study, Denison (1985) has also reached the same conclusion that the factor of technical progress must be included in the model to account for the residual found in earlier studies. The summary of the results of his new study are as follows:

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[3] It is assumed that technical change causes improvements in labor productivity (labor-embodied) or in improvement in machines (capital-embodied), or it may be reflected in organizational improvement (neutral).

The Sources of Growth in American Real Output: 1929–1982

Sources of Growth		% of Total Growth
1. Increase in Quantity of Labor		32
2. Increase in Labor Productivity		68
a) Technological Advancement	28	
b) Quantity of Capital	19	
c) Education and Training	14	
d) Economies of Scale	9	
e) Improved Resources Allocation	8	
f) Legal–Human Environment and Others	-9	
		100%

A number of articles published in the latest issues of the *American Economic Review* and the *Journal of Economic Perspectives* provide valuable information about the historical development of growth models. In the presidential address delivered at the 106th meeting held on 4 January 1994, Zvi Griliches (1994) stated that "the pioneers of this subject were quite clear that this finding of large residuals was an embarrassment, at best 'a measure of our ignorance' " (Abramovitz 1956, 11). But by attributing it to technical change and other sources of efficiency, they turned it, perhaps inadvertently, from a gap in our understanding into an intellectual asset, a method of measuring "technical change."

In light of the observations made in the preceding paragraphs, it is reasonable to conclude that Akhtar's model rests on a very weak foundation. Moreover, his assumption that secular economists deny the role of moral factors in the process of economic growth is not true. Secular economists recognize that moral factors contribute to higher productivity, but since such factors cannot be measured, they are not incorporated in growth models, which are basically designed for positive analysis. The issue of ethical values is treated as a policy issue to be resolved by the policy makers on the basis of normative analysis.

Although there is no reason to regard the neoclassical model as sacred, or to regard making any improvements to it as wrong, one must understand that introducing behavioral parameters into this model would affect severely its analytical and predictive power. The best approach would be to carry out an objective economic analysis

and then use the analytical results to formulate a policy guided by the Islamic value system.

Akhtar's model: $Y_t = (P_t , K_t , L_t , F_t)$

Where:

$Y_t =$ Output rate at time t
$P_t =$ Amount of physical assets (including land and machinery employed at time t)
$K_t =$ Amount of monetary capital at time t[4]
$L_t =$ Amount of labor at time t
$F_t =$ Level of bounty of God at time t

Again:

$$L_t = L(F_t) \quad ; \quad F_t = F(T_t) \quad ; \quad T_t = T(I_t)$$

Where:

$T_t =$ Level of *taqwā* at time t
$I_t =$ Institutional setup at time t

Treatment of labor (L_t) as a function of the bounty of God (F_t) and bounty of God as a function of God-consciousness or *taqwā* (T_t), and again *taqwā* as a function of institutional setup (I_t), has made the model messy and dogmatic.

Akhtar admits that there is problem of quantification with respect to such variables as bounty of God, *taqwā*, and institutional setup. But rather than facing the problem by providing a methodology to determine these variables, he avoids this real issue by saying that these variables are measured in ordinal units. Even if ordinal units are used, there is still an important question that must be answered: Can we (or should we) measure Allah's bounty? According to the Qur'an, Allah grants bounties without measure: "Thou are the grantor of bounties without measure" (Qur'an 3:8).

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[4] Akhtar has not provided the rationale for separating physical capital (P_t) from monetary capital (K_t).

We know of Allah's attributes through His revelations and the authentic hadith of the Prophet. As we believe in these without doubt, distortion, addition, or alteration, we cannot measure the magnitude or degree of His bounty. Our analytical techniques cannot predict His grand plan, which is based on His infinite wisdom. We do not know when He will be pleased with us and shower His blessings on us or at what rate. Allah may reward us with tranquility of mind and contentment of heart. These are real benefits that improve the quality of life, but they cannot be quantified and, due to problems associated with measuring them, they are not reflected in national income and economic growth accounts. Based upon our belief system, we need to follow the right path, ask Allah for His mercy, continue to hope, and exercise patience. This is the Islamic concept of making progress and of achieving success in this life and in the hereafter.

The idea that a certain percentage of material progress comes from physical factors and that the rest may be attributed to the bounty of Allah is simplistic. Any mathematical treatment of the bounty of Allah and *taqwā* is unnecessary and unwarranted, and comparing them in different states and under diverse situations is beyond economic estimation. In developing his metaphysical model, Akhtar pushes economic analysis too far to be of any theoretical value or practical use.

In the last paragraph on page 506, Akhtar describes the heterogenous rate of the bounty of God in Islamic and secular economies in the following words: "Another significant difference is the regularity of the bounty of God. This factor has a known and systematic relationship with the economic life of believers, as explained above. As long as they act upon Islamic values and the institutions function properly, divine bounties will be provided on a regular basis. The incidence of divine bounties as regards nonbelievers is erratic, for they increase of decrease in an unknown way." The use of the words "regular" and "erratic" to describe human behavior appear improper and unqualified when used to describe the bounty of Allah.

Akhtar claims on page 491 that his paper relies on the Qur'an and the Sunnah to support its reasoning. How far this claim is correct and whether or not his "religious innovation" has any sanction or support from these two sources is an issue for specialists in *fiqh*. Since I am not competent in this area, I will make no further comment. Even though Akhtar's intellectual efforts do not appear to make any contribution to the process of Islamization of knowledge, the spirit with which he has made them are commendable.

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