King Abdulaziz University

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INTEREST RATE AND INTERTEMPORAL EFFICIENCY IN AN ISLAMIC ECONOMY : ISSUE REVISITED

BY

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(A DISCUSSION PAPER)

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ABSTRACT

This work is a discussion of the paper by Dr. S.N.H. Naqvi, Director of the Institute for Development Studies, Quaid-e-Azam University, Pakistan, titled: "Interest Rate and Inter-temporal Allocative Efficiency in an Islamic Economy", which he presented at the Seminar on the Monetary and Fiscal Economics of Islam, held at Mecca, Saudi Arabia, in October, 1978.

The objective of this discussion paper is to make a critical review of Naqvi's paper in the light of an analytical frame-work of the intertemporal allocative mechanism in an Islamic economy. The paper thereby, also introduces some new concepts of the Islamic intertemporal allocative mechanism and critic-ally examines Naqvi's model and conclusions in the light of these concepts.

Interest Rate and Intertemporal Allocative Efficiency In an Islamic Economy: Issue Revisited.

Dr. Masudul Alam Choudhury*

I. Introduction

The study of the existence of a positive rate of profit in models of economic growth and resource allocation is rich in its depth and analyticity. The modern theories in this area are profoundly developed in the works of Knight(l), Lange(2), Robinson(3), Sraffa(4) Dorfman, Solow and Samuelson(5). For a review of these viewpoints on interest the reader may turn to the author's contribution elsewhere.(6)

The Western theories of interest in the context of intertemporal allocative efficiency centre around two basic premises - the roundaboutness of the mode of production in a capitalistic framework of economic growth and the opportunity cost for waiting time by capital measured by the marginal rate of time preference. In the Islamic economic framework both of these points are strongly negated. The rational for avoiding the roundaboutness of production menus is to emphasize the propensity to invest and the intemporal prefences defined

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by the investment menus. On the other hand, by a similar token the concept of the marginal rate of time preferences is totally replaced by a positive rate of profit arising out of the choice of intertemporal investment menus in an Islamic utility criterion. These two premises of the Islamic standpoint on intertemporal allocative mechanism are made the central basis of a critical discussion of Naqvi's paper titled, " Interest Rate and Interternporal Allocative Efficiency in an Islamic Economy".

II. Objective

The main objective of this paper is to critically examine the assumptions, results and arguments forwarded by Naqvi in favour of the need for a positive rate of interest for a capital scarce economy during its transition to a fully fledged Islamic state. This critical examination will be done both from a Western economic and Islamic economic viewpoints. We shall then set up and analyze an alternative resource allocation model, structured on the basis of Islamic economic assumptions and show how a discount .rate, totally independent of the interest rate, can indeed be constructed in this system for capitalizing the future stream of earnings and returns. The entire trend of argument will be with respect to an economy in the process of transition to a fully fledged Islamic state, which is what Naqvi has tried to look at.

III. The Naqvi Model

Dr. Naqvi argues in his paper that for a capital scarce economy in transition to an Islamic economy, the rate of interest must not be abolished. Rather, he maintains that if the rate of interest is abolished in a

transitional phase of the economy it will cause incalculable harm to the economy. The rate of interest, during the transitional phase of the economy, Naqvi argues performs certain " desirable functions ", which it would not be able to achieve in the absence of that rate, namely, (i) that in a static equilibrium the interest rate would be required to allocate scarce resources optimally among various sectors of the economy; (ii) in a dynamic economy a positive rate of interest is desired to account for the positive social rate of time preference, for the social cost of capital consumption resulting from its use, and for the declining real value of savings over time. All these for a real economy. For a monetary economy, Naqvi argues that interest is needed for offsetting the effect of inflationary price expectations and this would increase the marginal rate of time preference, which is an important component of the rate of interest.(7)

The above three components of a positive rate of interest according to Naqvi, would be existent in all systems of economies, namely, the capitalistic, the socialistic and the Islamic. For a capital scarce economy in transition to the Islamic state, a positive rate of interest cannot be substituted by the Islamic institution of *'Mudarabah'* a profit sharing mechanism, or by an ' administrative fiat'. The principle of *'Mudarabah'* according to Naqvi, cannot work in a modern economic management in an economy wide situation.

The following are his objections against *'Mudarabah'*:

(1) *'Mudarabah'* partnership depends on profit sharing, but profit and interest cannot duplicate each other's roles, because in a perfectly competitive market all profits are normal profits and are therefore, inadequate to perform the functions of a positive rate of interest as explained by its three components mentioned earlier with regards to Naqvi's model. (2) The allowance for profit maximization under the *'Mudarabah'* institution as opposed to *'Riba'*, *i.e.* interest transactions will lead to the growth of monopolies, and a monopolistic market would create economically inefficient allocation of resources both in a static and a dynamic market situation. On the other hand a positive rate of interest would reflect the cost of capital. (3) An optimal production situation will give rise to zero profits, and therefore, in such a situation the profit rate cannot be used to reflect the shadow price of capital, which in a dynamic economy reflects allocative efficiency resulting from an economical use of capital resources.

Having developed the analytical model to arrive at his conclusions, Naqvi then turns to a policy analysis of his results. In this respect Naqvi argues that for an economy in transition to the Islamic state, a positive rate of time preference can move towards zero only by extensive cut backs on consumption, which means that public savings will take the upper hand and less reliance would be placed on private savings. Likewise, in the case of checking the decline of the marginal utility of savings over time, the government will have to play a major role in financing savings and investment particularly in capital goods. Finally, he remarks that in fighting inflationary costs, interest income will provide

the reserve funds required to finance the monetary escalation of expenditures resulting from depreciation and new investment.

The results outlined above have been derived by Naqvi on the basis of the assumptions and models of a capitalistic economy, and are then applied to the Islamic economic framework. There however, appears to be more content and rationale in the Islamic considerations regarding the issues of investment-consumption decision, the nature of discounting future stream of income, the economic expectational hypothesis and relative price changes, the nature of risk and uncertainty in a *'Mudarabah'* partnership, than have been comprehended in Naqvi's model. The main analytical result on the interest rate arrived at in Naqvi's neoclassical growth model is then applied to analyze growth and allocation in an economy during its transitional phase to the purely Islamic state. The results are thereby, obvious. The marginal rate of time preference would characterize the subjective discounting of future expectations to the individual. It is therefore, a necessary parameter of an Islamic intertemporal system, for Naqvi argues that an Islamic system being a just one, it would be highly costly and there-fore, unjust for the present generation to bear the cost of future generation, if it did not discount the future appropriately.

Finally, in order to justify the existence of the factor offsetting the marginal disutility of future savings, Naqvi uses in defence the Ramsey analysis of savings intertemporally in order to attain the long run point of Bliss where a maximum rate of utility would be attained by the individual[(8)]. Naqvi is consistently using an ordinal utility function and a

subjective view of the future under the assumption that the individual essentially remains impatient to consume today rather than save for tomorrow.

With such arguments and economic analysis as summarized above, Naqvi arrives at his conclusion that if the rate of interest was to be abolished in an Islamic economy for the particular case where capital is scarce, then it would be tantamount to overlooking the provisions for safeguarding the individual against the costs due to a postponement of savings and preferences till a future point of time, and for offsetting the declining purchasing value of money due to inflation. Therefore, that an Islamic economy being a just one must safeguard the individual against these eventualities, and that this would necessitate the presence of interest in a dynamic capital scarce economy .

The second major conclusion that Naqvi derives through his intertemporal allocative model is in regards to the status of the rate of interest during the transition period from a capitalistic economy to an Islamic economy. He holds the view that since interest elimination is not a sufficient condition for Islamizing the economy as evidenced by the fact that a socialistic economy, which is repugnant to Islam, also functions on the basis of a zero rate of interest in financial transactions, he thereby, concludes that the abolition of interest is not a necessary first step to attain a truly Islamic state. Rather, he recommends strongly that for a capital scarce economy in transition to an Islamic state it would be illogical on grounds of his arguments presented earlier, to abolish outright the rate of interest. Naqvi therefore, holds the view that a

transitional Islamic society will have to shoulder this "necessary evil " till a truly Islamic economy is finally established, in which case of course there would not be any need for the rate of interest to exist any longer .

The second part of Naqvi's paper deals with policy recommendations in respect to abolishing interest in the transition period of an economy towards an Islamic state. Naqvi remarks that an overwhelming government interference will be necessary in creating savings, cut backs in consumptional loans, increase in real investment and so on. For example, he suggests that to achieve an interest free situation during the transitional period, corporate savings must be promoted greatly. This would however, defeat the objective of economic justice, as monopolies would tend to grow and flourish under such a policy to the utter. detriment of the small entrepreneurs. Naqvi observes that the failures of such policies aimed at abolishing the rate of interest in the transitional economic regime may lead to gross inefficiencies in the economic system.

In a monetary economy Naqvi sees the inescapable need, for greater government presence in financing the high cost of capital investment and depreciation. He suggests that this could be possible by making the tax base price elastic and by indexing the private savings with a cost of living index. This indexing of personal savings Naqvi identifies with the rate of interest factor .

In summary, Naqvi's paper strikes a bold assertion that the presence of the interest rate is a necessary evil in a capital scarce economy during its transitional phase to a fully fledged Islamic economy. If the rate of

interest is at all to be abolished during this transitional phase of the economy, then that it will lead to gross inefficiencies. Also that in the Islamic state the government "will have to adopt an increasingly greater role in financing the process of saving and investment", and this must be more pronounced in the capital goods sector in order to combat the effect of inflation.

IV. Modern Economic Critique of Naqvi's Paper

Dr. Naqvi's analysis regarding the existence of a positive rate of interest in a transitional phase of the economy to an Islamic state hinges on two components of cost, (1) the marginal rate of time preference, (2) the marginal disutility of savings over time. We shall therefore, first examine the validity of these two premises in reference to the theory of value. The fact is that these concepts used in the inter -temporal allocation of resources between consumption and savings are essentially associated with a subjective theory of value. This subjective theory of value lies at the base of the Western economic theory of interest, for in the consumption theory of interest there is no attempt to explain why present goods must necessarily bring higher satisfaction to the individual than future goods. It is not difficult to see why this idea of time preference may not be true universally. Take for example, an individual to whom a holiday next year appears to be as attractive and enjoyable as a holiday next month[(9)]. A community may be indoctrinated with the idea of thriftiness today after satisfying its basic needs .For such a community the returns from present saving obtained in the future would be more attractive and satisfying than present consumption. Many such examples

can be constructed in the real world to prove that the subjective idea of time preference is not universally true. Why is there such a notion of time preference then ? The reason is that neo-classical economists thought that human nature may be myopic with respect to the more distant future, and therefore, the notion of ordering preferences for things distributed in time is simply one of imagination - the more distant future is more dim in man's imagination than the recent future(10).

It is startling to note how such a sloppy and even fictitious conjecture could become the foundation of cost and interest theory in neo-classical economics. The concept of utility that has pervaded Western economic thought for centuries, leading individuals and societies to a false notion of intertemporal decision making, depended on one's imagination, defective rationality and ephemeral desire.

A history of religious philosophy, ethical and social value at once indicate that there is no set pattern in individual's or society's attitude towards preferring present over future consumption. Rather, the notion of over-estimating present consumption over future consumption may lead to economic hardship for a community in the long run. By doing so a community could become increasingly poorer because by becoming increasingly spendthrift it could become progressively poorer in the future, as it becomes less capable of providing for the future.

The idea of time preference could vary with the type of goods available, with the age of a person, the young being more spendthrift and the old being more prudent, with family size, with the objectives of a

collective, a company, an organization, society and so on. Therefore, in terms of such a subjective neo-classical economic creation as the time preference theory nothing definite can be postulated or predicted. In all, therefore, the theory of interest based on the idea of time preference is a totally subjective theory of value "based on a subjective estimation of things separated through time".

The subjective theory of time preference gives rise to the notion of marginal disutility of savings. This idea of the marginal disutility of savings has been mainly taken from Ramsey's work. Ramsey showed in his paper that the rate of saving multiplied by the marginal utility of consumption equals Bliss,[*] the optimum rate of enjoyment of utility, minus the actual rate of utility enjoyed. The difference between Bliss and the actual rate of enjoyment of utility represents the sacrifice that this generation makes through its savings in order to reach Bliss. The more it saves the sooner will Bliss be attained. But the more it saves to-day the less will be the actual rate of enjoyment of utility. This is the idea of the marginal disutility of savings.

The entire notion of the marginal disutility of savings founded on Ramsey's work is based on a static condition of society repeating itself over time. Such a static condition of a society is shown by the assumptions of a constant population, fixed capacity for consumptional enjoyment, fixed propensity to labour, no technological breakthrough,

[*] Given that our rate of enjoyment derived after input of labour and through consumption of the product of labour, is an increasing function of capital, it can only be true that this rate of enjoyment reaches asymptotically some finite value as capital increases. In the limit, the maximum rate of enjoyment is referred to as Ramsey's Bliss.

and the use of a subjective rate of discounting future stream of returns, consumptional or investment. Also labour, capital and different kinds of goods are assumed to homogeneous in quality. They are therefore, measured only in terms of quantity.

Such neo-classical economic concepts were used in Naqvi's paper to explain his 'main' interest equation, which Naqvi refers to as the main result of his analytical model. However, while adapting the above notions from neo-classical theory Naqvi has essentially transformed his economic system into a structurally static one, incapable of ever evolving out of this state and into a transformed state over time. Now in this structurally unchanging form of an economic regime, the individual consumption once determined initially, will forever follow a set pattern through time. Realism however, would demand that consumption habits can indeed change over time with changes in ones propensity towards thriftiness or to a higher preference for leisure over work in the future.

Now by treating leisure as consumption, the difference between Bliss and the actual rate of enjoyment of utility would for ever decline as individual's utility from the consumption of leisure increases. Thereby, Bliss will be attained at the expense of savings, a result just converse to Ramsey's. Therefore, Ramsey's conclusion based on the notion of marginal disutility of savings, that a generation of consumers must save enough now to reach Bliss is no more a valid postulate. However, in the above example, Bliss is attained by a generation of consumers of leisure with no regards to savings and habits of thriftiness. We therefore, return to the same criticism of the use of the notion of marginal disutility of

savings, as in the case of the marginal rate of time preference. That is, the use of the rate of interest in neo-classical economic theory is associated with the subjective nature of real cost. Naqvi has simply used these notions unquestionably to explain his idea of economic transition. But the fact remains that it is deceptive to expect a transition to be ever complete in this neo-classical system.

It must also be noted that as time advances in the Ramsey system the attainment of Bliss may become spuriously related to productive investment. For, beginning with an initial amount of capital, the individual chooses his consumption level and then out of the resulting savings initially, he invests part in capital goods, which produces more consumer goods in the next period of time and the process goes on(11). In such a system more and more amounts of intertemporal consumption made possible amounts of savings at the present time period, could increase the propensity to consume wore then the propensity to save. If this did not occur, then an increasing production of consumer goods would be utterly wasteful, costly and will reduce welfare, particularly in a situation where population is static as in Ramsey's paper. If such a state resulted, then the attainment of Bliss based on the notion of consumptional choice may lead to an utterly non-productive investment. Therefore by using the notion of marginal disutility of savings and considering it as an important component of the interest rate, determined intertemporally, Naqvi missed the points in question in regards to this neo-classical paradigm.

The above critique of the notion of the marginal rate of time preference and the marginal disutility of labour gives rise to another valid criticism of the neo-classical tradition - the rationale of defining felicity, individual or social, in terms of consumption levels. The question to be asked is whether this approach is the only one or the best one to explain the individual intertemporal allocation of resources, social welfare and value? To an answer for this we now turn.

The idea of marginal utility was of course a great accomplishment in the history of economic thought, particularly because it was a theory of value, which extended the scope of economics to an investigation of the condition of mind However, the approach to utility analysis undertaken by the neo-classicists explained the relationship of man to capital in the organization of the production mechanism. Thus, to the neo-classicists the important decision variable occurred to be consumption of goods and services, not the social relation-ship arising from production, such as those in the area of wage theory, intertemporal returns to capital and the allocation of resources between profits and wages. Such factors are known to play a predominant role in a capital theoretic world. Thus, the theory of marginal utility developed by the neo-classicists remained independent of the theory of production and capital.

IV.1 Investment-Based Utility

A more general look at a utility theory of value must be discovered. One such approach would be to make the social welfare function as a function of returns from investment, and thereby, of the investment flow itself, in as far as a positive monotonic transformation of the social

welfare function in investment returns to one in investment flows, would still meet all the criterion of social welfare(12). What would such a transformation from a consumption based utility to an investment based utility mean to society ? First, it would suggest that an individual does not necessarily allocate his income between consumption today and consumption tomorrow through a process of saving in the capital market, but rather he allocates his income between dated investments in order to enjoy the returns from these investments over time, partly through a consumption of these returns and partly through a reinvestment of the returns as they occur over time. Now, since the returns from investment occur in the future, the choice between investment flows, inter-temporally considered, would mean the individual's propensity to invest more at an earlier time than at a later point of time, so as to reap the fruits of investment earlier, given of course a similarity of the investment projects with respect to the cost and benefit periods.

By developing a theory of marginal utility on the basis of investment flows rather on consumption flows, a great feat can be accomplished in economic theory. For example, it would not be necessary then to introduce a subjective idea of discounting the future with such imaginative factors as the marginal rate of time preference, the marginal disutility of savings, the marginal disutility of labour, and so on. The discount rate would then become an objective rate, based totally on the risk of investment, the profit rate and the marginal efficiency of capital(13). In this framework of utility analysis there would be no need for a subjective theory of real cost in production ،and therefore, no need for an imputed cost of abstinence or waiting; known as the rate of interest.

There is still another premise for supporting this new approach to utility analysis in an Islamic framework. We have shown earlier that a consumption based utility index is ordinal, subjective in nature and not universally true in all economic systems. The consumption basis of utility theory has been claimed to be an empirical theory, that is to say, Alfred Marshall when he bequeathed to the world his neo-classical economic theory had observed and introduced into economic theory only those types of consumption which involve real sacrifices resulting from its postponement to future time, such as a man starving himself to death to provide for his children(14). However, even in such a case, life styles based on austerity, constrained household expenditure and the like will make such instances rare enough to be ignored for all practical purposes. The investment basis of utility theory on the other hand takes into consideration both the individual felicity through consumption of investment returns, as well as the individual and social felicity through investment flows, being motivated with the prospect of future enjoyment from the returns of these investment flows. All these would be achieved to explain more realistic attitude of the individual and society towards consumption and investment intertemporal without using the subjective notions of marginal utility of consumption, marginal rate of time preference and the marginal disutility of savings .

Under the new approach to intertemporal utility, social welfare will be consistent with social productivity. Intertemporal allocation of resources will now be more powerful in progressively moving a society towards Bliss in a finite span of time. Bliss would become realizable within a finite

span of time because in the absence of the notions of marginal disutility of savings or a subjective marginal rate of time preference, the actual rate of enjoyment of utility would be based on the level of investment flow and not on the level of consumption. Hence, the difference between Bliss and the actual rate of enjoyment of utility would speedily diminish and disappear over a finite span of time, depending upon the intensity of intertemporal allocation of income to real investment.

Naqvi's paper duplicates the use of these existing capitalistic notions of utility based on consumption menu. Naqvi's approach and arguments therefore, confine his conclusions only to an existing capitalistic economy, incapable of evolving in a dynamic structure, and is totally petrified over time in the citadel of neo-classicism. Thus, the transitional desirability of a positive rate of interest remains an inescapable and foregone conclusion in the neo-classical system that Naqvi has chosen. There is no possibility for Naqvi's system to ever escape from the cobweb of the neo-classical equilibrium world that he has accepted for his analysis. In it therefore, the characteristics of a truly capitalistic economy will continue on forever, and along with it will also continue the inter-temporal rate of interest.

IV.2 Problem of Economic Transition in Naqvi's Model

Let us examine more closely Naqvi's problem of an economic transition from a capitalistic to an Islamic economy. The framework of the growth analysis presented by Naqvi is not only structurally unchanging, but also one of the very long run. The production function

he has used is essentially a neo-classical one, linear homogeneous in aggregate capital and labour. What does such a production function imply in a steady state regime of economic growth ? The answer to this question is aptly covered by Joan Robinson(15). In a steady state equilibrium the rate of growth of output equals the rate of profit that was expected to prevail at that point of time, and when once determined it becomes the only unique rate prevailing for the entire planning period. With the help of this rate of profit, future receipts from investment are discounted to their present value. This present value also measures the cost of capital goods. Therefore, in a steady state equilibrium the rate of profit equals the supply price of capital. With the rate of profit being equal to the supply price of capital, the motivation to capital accumulation ceases.

Joan Robinson argues that in a steady state growth, there seems to be no a priori reason for the supply price of waiting to be positive. For example, spendthrifts may impute a negative value to this supply price, whereas the prudent would impute a positive value to it. Since there is no a priori reason for the rate of profit to be positive, therefore, there is no reason for the rate of interest to be positive either. Again a contradiction between the existence of a positive rate of interest and a negative supply price of capital in a steady state transitional path of growth in a neo-classical world. A negative supply price of capital in fact thwarts the possibility of ever reaching a steady state equilibrium .In order to circumvent this logical problem the neo-classicists imputed to a long run rate of profit a value equal to what it would be at an initial point of time.

Therefore, the futures of a neo-classical world are risk-less. There can be no uncertainty and no disturbance to the smooth constancy of capital/output ratio, capital/labour ratio, savings rate, profit rate etc. If these did occur the possibility of ever reaching a steady state equilibrium will be thwarted.

When examined from these viewpoints, Naqvi's problem of economic transition seems untenable for the following reasons: (1) Naqvi's production function is a neo-c1assical one and can therefore, reach a steady state growth characterised by smooth constancy of capital/output ratio ‹savings ratio profit rate etc., over the very long run; (2) once in this equilibrium state there is no possibility of uransition, so that Naqvi's system would become structurally static, dynamic only with respect to time; (3) during the process of reaching an equilibrium state, the profit rate, which would equal the supply price of capital may be negative, thereby exploding the possibility of a positive rate of interest due to waiting to ever occur. Thus, Naqvi's model becomes an uncritical acceptance of the assumptions, properties and workings of a neo-classical system, which are logically incapable of explaining a transitional phase of the economy, the problem which seemed to have beset him.

On the same issue of transition, let us now turn to the short run equilibrium analysis, we have shown in the foregoing discussion that the neo-classical growth model is incapable of explaining the long run adequately, and the short run totally. For, in the long run the supply price of capital is fixed, and the production function is one of labour alone. This is the type of production function used by Keynes in his analysis. In

such a short run growth world the rate of interest can no more be considered in terms of the profit rate as in a neo-classical system, for discounting future streams of earnings of capital.

A long run menu of growth can alternatively be considered as an aggregation of a series of short run menus, as in a linear input-output model or in a linear aggregation model of heterogeneous capital goods and processes over time[16]. Such an approach is adopted by policy planners as a more realistic tool of developmental planning, enabling the process of structural transition of a society from one stage of economic development to another[17]. The force of economic policies happens to be realized more fully in this type of an approach.

This brings us to the Keynesian approach to the analysis of growth and development. In the Keynesian system it is the short run and the aggregation of short run planning menus as a long run menu, that are given preference over the neo-classical long run analysis. The practicality of the short run approach lies on the use of government policies to correct mistakes of the short run and to change existing plans and programs through newer policies. For example, any change in the capital labour ratio would involve a reorganization of the methods of production and requires a change in the specifications of goods available. Policies to alter the specification of the production function will depend on the existing type of the function being used, that is whether it explains the long run or the short run growth, whether it is a neo-classical form of production function or others. The policies applied must accordingly suit the environment of the economic world that the production function

describes. Therefore, when Naqvi takes the interest rate as a necessary evil in his 'transitional' capitalistic, neo-classical economy, he logically must assume that the rate of interest must necessarily exist to explain the intertemporal allocation of resources between consumption and saving, and that it could never be abolished - not even in a steady state world.

On the other hand any policy that would tamper with it would automatically lead to a disruption of the equilibrium. Hence, in Naqvi's paper his criticism against the effectiveness of an administrative fiat, the inefficiencies introduced by the increasing interference of the state in encouraging private savings, the ineffectiveness of *'Mudarabah'*, the profit sharing system in Islam, are all foregone conclusions .

Another situation that Naqvi tacitly avoided in his linear homogeneous neo-classical production function is the presence of external economies either in production or consumption. External economies play a significant role in explaining allocative and other efficiencies, known as X-efficiencies(18)*. Consider for example, that there is external economy in the aggregate production function in the future as a result of an increase in the social product. In such a situation an individual would impute a low marginal social rate of time preference to discount the future. It may then even be negative if the effect of the external economies is so much over present economic returns that the

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* Empirical evidence shows that allocative efficiency explains only a trivial part of the total efficiency of resource allocation. There are other factors, like intra-plant motivational efficiency, partnership, good-well in business, which playa significant rate in increasing the efficiency of resource allocation. Such initially undefined efficiences resulting from factors like the above type are referred to as X-efficiences.

individual may wish to save enough today for producing at a later period of time, when due to the presence of external economy in his firm's production function the marginal cost would be lower for every unit increase in the social product of production and consumption that reduce social costs and also external diseconomies for other firms, say through taxes, subsidies and compensation, help to create technological change. These policies increase what is known as X-efficiency, and X-efficiency significantly increases social welfare intertemporally creating structural changes through technological progress. Naqvi has not considered such issues in his analytical framework. It is possible that such considerations of externalities in the production function could totally alter Naqvi's final and main result on the rate of interest. Our argument in this regard is the same as that based on the negative discounting of the future in the presence of external economies occurring in the future. Furthermore, X-efficiency involves non-market returns(19), which are known to increase social welfare substantially more than allocative efficiency. Here therefore, is another case where social welfare is increased not primarily due to allocation of income between intertemporal consumption, but rather by non-market forces creating external economies.

IV.3 Role of Interest in Naqvi's Transitional Model

Let us next examine Naqvi's claim that interest must necessarily exist in a transittpnal phase of an economy to an Islamic state, in order to offset the declining purchasing power of money due to inflation. To examine Naqvi's claim critically, one must first review the causes of inflation(20).

To outright accept the inevitability of inflation in all systems of economies and say that an interest charge protects the entrepreneur from the cost due to inflation on capital recovery resulting from depreciation is to totally ignore the specific nature of many alternative economic systems.

For instance, in the classical economic system the assumptions of perfect competition with atomistic buyers and sellers totally eliminates the need for analyzing the topic of inflation. In such an economic system causes known in the Keynesian system to lead to a cost-push inflation, demand-shift inflation and profit-push inflation do not exist due to the nature of normal profits. One can refer to the literatures on the classical macroeconomic theory for a detailed coverage of these points.

Neo-classical economics introduced the imperfect market characterized by monopolistic competition into the economic system. Along with monopolistic competition came the possibility of excessive profits resulting from an under-utilization of production capacity, which is known to be a cause of inflation trends government expenditure increases the aggregate demand for goods and services. Inflation caused by demand-pull inflation and increase in government spending may be controlled by properly diversifying the private sector with incentives to invest in capital goods, cutting back thereby aggregate expenditure in consumption goods.

IV.4 Policy Option in the Private Sector for Increasing the Propensity of Investment in Capital Goods

The policy option for the private sector to increase the propensity of investment in capital goods supports the methodology of the new approach to social welfare-welfare explained by individual intertemporal investment decisions as opposed to consumption decisions. We have referred to this approach earlier. Such policies are therefore, capable of introducing structural changes in the aggregate production function through the effectiveness of state institutions based on policies for sustaining an atomistic market, with extensive allocation of profit and risk between the public and private sectors.

Such a policy of growth and equity in the public and private sectors would be superior to the monopoly creating policies of the government suggested by Naqvi in defence of his claim for the necessity of the rate of interest. In the policy option that we have presented above s shift towards a policy of increasing the propensity to invest in capital goods in the private sector will greatly accelerate growth. However, the effect of this growth will not be capital accumulation through unconstrained profit maximization, a phenomenon to be associated with the imperfect market. Rather, the output of growth is to be used for redistributive purposes, through a policy of close coordination between the public sector supplying capital and the private sector using the capital efficiently for sustaining an atomistic market. Therefore, a policy of increasing social welfare on the basis of individual inter-temporal investment decision will at once promote growth and equity on the face of expected inflationary trends.

In a macroeconomic context the social welfare function can be taken as a function of the rate of growth of output, the price level and the unemployment rate[21]. Social welfare is maximized by optimizing the rate of growth of output, subject to constraints in minimizing price level and the unemployment rate. For a neo-classical production function we can ignore the unemployment rate and take the social welfare function as a function of the other two variables. If output consists predominantly of capital goods this will increase the productivities of labour and capital although the two will be inversely related. Now, with the growth of output of real capital goods price level will decline, resulting thus in an equality between the real and the nominal rates of interest in the limiting case. This proves that sound policies of the government to maintain an atomistic market can create a higher propensity of investment in real capital as opposed to in consumption goods, and a policy of equity and efficiency through the redistribution of resources could reduce the intensity of inflation. In such a case there will be no need for either the real or the nominal rate of interest to explain resource a11ocation in the short run.

IV.5 Naqvi's Analytical Model

Finally, in this discussion paper we turn to an analytical critique of Naqvi's model. Naqvi develops the following constrained optimization model in his paper :

$$\underset{x}{\text{Max}} \quad \int_0^T \exp(\gamma - \alpha)\, t\, \phi(x)\, dt \quad \text{.....} \quad (1)$$

$$\text{subject to, } \dot{v} = \psi(v) - x - (\gamma + \beta)\, v \quad \text{.....} \quad (2)$$

where, x denotes per capita consumption at time t,

ϕ (x) denotes the intertemporal utility function in x,

γ denotes the growth rate of labour,

α denotes the social rate of time preference,

β denotes the rate of capital depreciation,

v denotes the capital/labour ratio at time t,

ψ (v) denotes a linear homogeneous production function depending on the capital/labour ratio,

$\dot{v}$ denotes the time derivative of the capital/labour ratio.

The Hamiltonian(22) of this optimization problem is,

$$H = \exp(\gamma - \alpha)\, t\, \phi(x) + p(\psi(v) - x - (\gamma + \beta)\, v)$$

where, x is the control variable,

v is the state variable.

The canonical equations are,

$$p = \exp(\gamma - \alpha)\, t\, \phi'(x)$$
$$-\dot{p} = p(\psi'(v) - (\gamma + \beta))$$

where, p denotes the shadow price of capital .

The canonical equations yield Naqvi's 'final result' of optimal capital accumulation:

$$\psi'(v) = \alpha + \beta - (\phi''(x) / \phi'(x))\, \dot{x} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

meaning that the rate of interest given by the dynamic form of the marginal productivity of capital, $\psi'(v)$, absorbs the shocks due to, (a) the social rate of time preference, α; (b) the capital depreciation rate, β; (c) the marginal disutility of savings due to the eroding value of savings over time. This is given by the expression, $-(\phi''(x)/\phi'(x))\dot{x}$.

It is to be noted that the final form of Naqvi's model depends critically on his constraint given by equation (2). It is indeed this constraint that is subject to question. As presented in his paper, the constraint is based on a one -sector neo-classical growth model:

$$Y = F(K, L)$$

where, Y denotes the output level at time t,

K denotes the stock of capital at time t,

L denotes the labour input at time t.

Now, let us begin with the well-known constraint of a one sector neo-classical model of economic growth, namely that of the national income accounting identity written in the form:

$$F(K, L) = \dot{K} + X$$

$$\dot{K} = F(K, L) - X$$

where, all the variables have been defined earlier and taken in the aggregate form.

Let us now transform the above equation to the per capita form. We then obtain:

$$\dot{K} / L = \psi(v) - x$$

where, x and v are now per capita consumption and capital / labour ratio, respectively. The left hand side of the above expression is definitely not equal to Naqvi's $\dot{v}$. We have ignored consideration the term $(\gamma + \beta)v$, as it does not affect our conclusion at hand. There is one possibility for $\dot{K}/L$ to be equal to Naqvi's $\dot{v}$. That is by holding the labour force constant through time.

This is an absurdity, as it reduces the entire growth process to a degenerate form with zero rate of growth of capital, labour and output in a steady state equilibrium.

Naqvi's critical constraint of the optimization model therefore, appears to be incorrect. This affects his 'final' result of optimal capital accumulation, which he claims to be the basis of his further conclusions and analysis.

Note that if the labour force were to remain constant over time, then without taste and life style of the community changing, as assumed in a Ramsey type utility function, there would be no need for a change in future levels of consumption. Present generation will save only to maintain 'a replacement level of the labour force. Hence, $\dot{x} = 0$. Thus, Naqvi's last term in expression (3) will vanish.

Furtheron, with the labour force remaining constant through time, there would be no incentive on the part of the present generation to save,

except to satisfy the wants of a replacement level of the labour force. Consequently, the social rate of time preference, α , will be indefinitely large. Naqvi's growth or transitional system would become highly unproductive and unstable.

This completes our critique of Naqvi's paper in the light of a purely Western economic analysis. We now turn to a critical assessment of his paper based on the Islamic perspectives.

V. Islamic Economic Critique of Naqvi's Paper

Part of this section of the paper is a tacit surnn1ary of the analytical content of the author's paper elsewhere[23]. We shall first examine the neo-classical assumption of intertemporal consumption decision in the light of Islamic economics. While the theory of consumer behaviour based on the neo-classical utility analysis is predominantly weighed towards an intertemporal consumption menu, the Islamic approach is polar to this. The Islamic approach to intertemporal utility analysis would give more weight the empha is on an investment menu rather than on consumption menu. This of course does not mean that consumption has no role of importance in an Islamic consumer behaviour. The argument in favour of an investment based utility function are simply that, (a) the Islamic society attaches priority to the necessaries and comforts of life in this order. The consumption of luxuries is highly constrained, although not completely prohibited under Islamic law. (b) Excessive production and consumption of any type of good is not recommended, as it creates wastage of factors of production and of produced goods. (c) Savings in

the form of real investments to produce the necessaries and comforts of life and more capital goods that increase the productive capacities in the following periods of time is highly recommended. Note therefore, that these conditions in the Islamic economy provides a built in constraint to excessive consumption oriented society which is found to be the pillar of Western microeconomic theory. Thus, the rationale of an intertemporal utility function in investment menu in an Islamic economy.

The form of the intertemporal utility function in investment menu deserves recognition in its own right from the point of view of the Muslim individual's attitude towards allocating his income between consumption and investment. The Muslim individual must ideally spend his net income, no matter how large, after satisfying his essential consumption needs, comforts and spending on others through Islamic channels and fiscal measures, into real investments. If otherwise, he leaves the residual income into savings, then he has to pay *Zakah* on them. Thus, *Zakah* and investment, both bring positive effects to the economy. Therefore, we can say that paying out in *Zakah* or through the returns of real investments in an Islamic economy are both Islamically complementary activities, and both bring multiplier effects on the communities' social and economic life. Thus, the distributional and growth effects of *zakah* are passed on to society through the returns from real investments.

In an Islamic economy therefore, the Muslim individual's high propensity towards real investment intertemporally replaces the subjective private and social rates of time preference of neo-classical

economic framework, by the marginal efficiencies of capital, privately owned or socially owned, as the case may be. In the case of the social rate of return in an Islamic economy, the earlier arguments given on the investment - consumption allocation of income is still valid, for social preferences are formed by collective individual preferences. In an Islamic economy these individual preferences that make up the social preferences are essentially altruistic in nature, and are formed under given codes of the 'Shariah' that establish the relation of the individual to society(24).

The Islamic state can in fact limit the consumption expenditures on luxuries by entrusting all consumption loans transactions to government agencies consumption credit fund, cooperatives and investment banks, which will with old advances towards consumption loans and production of luxury goods and will operate on the principle of *'Mudarabah'* in real investments. The government can also restrict the importation of luxury articles.

Such constraints on consumption in an Islamic economy would weigh the externalities heavily in favour of production of capital goods. External economies in production of capital goods will increase the future stream of net social benefits by increasing productive capacities in future periods of time while also increasingly producing consumption goods for the necessaries and comforts of life.

The social rate of return must be determined by the slope of the tangent at the common point of the social indifference curve and the socially desirable investment possibility curve. This is also the point

where the marginal social productivity of investment would be a well-defined function of the marginal social productivity of private investment[25]. The notion of the social rate of time preference is therefore, again replaced by the marginal efficiency of social investment. The marginal efficiency of social investment is a weighted average of the marginal efficiency of private investment.

By approaching the problem of intertemporal allocation of income among real investment in the above mentioned way we have shown that Naqvi's subjective rate of time preference becomes unnecessary in the discounting of future returns. It is replaced by the social rate of return or the marginal efficiency of private capital, as the case may be.

V.1 An Alternative Discount Rate

It was argued earlier that for all intents and purposes Naqvi's system is trapped equilibrium system of no transition. It is dynamic only with respect to time and this in fact further aggravates the structurally static nature of his system as the economy moves progressively towards a neo-classical steady state equilibrium. The need for an interest rate to cover the cost of waiting and the marginal disutility of savings was simply the unhappy creation of that given system. Why then was it necessary for Naqvi to grope for this intertemporal rate of interest? The answer is, that Naqvi is really looking for a rate of discount to capitalize interternporal utility function, be it individual or social.

The quest for an Islamically viable discount rate could have been fulfilled if this discount rate was developed independently of the neo-

classical tradition. A discount rate totally independent of the rate of interest is indeed well-defined both for an Islamic economy as well as for an economy in transition to an Islamic state. It is shown elsewhere that such a discount rate is really the sum of the marginal efficiency of investment determined through a process of intertemporal allocation of income to real investment and of the price for risk-bearing in a *'Mudarabah'*[(26)].

Finally, in relation to the question of inflation and growth in an Islamic economy it may be said that the objective of an Islamic government is not capital accumulation per se. Rather, it is equity and efficiency achieved through the growth process. The multiplier effect of growth is felt through the intertemporal investment propensity which increases social welfare in an Islamic system. Efficiency in such an economy is achieved through an atomistic market mechanism on the basis of the principle of cooperation. Now all profits being normal profits, prices can never be exorbitant and therefore, there is no chance for cost push inflation or demand shift inflation to inhibit a transitional system. Naqvi's model overlooks these possibilities of a transitional system. The omission of such important points biases Naqvi's results to his conclusion that the Islamic allowance on profit maximization through its institution of *'Mudarabah*' partnership would lead to the growth of monopolies, and that this would introduce inequity and inefficiency in the economic system. This however, is far from truth. For although Islam allows profits as opposed to *'Riba'*, such profits are always normal profits determined through a mechanism based on the principle of cooperation and well functioning markets.

VI. Conclusion

Dr. Naqvi's paper despite all its niceties of analytical modeling suffers from a lack of recognition of the assumptions and norms that would characterize such a model during a transitional stage towards an Islamic state. Such assumptions and characteristics are namely, the Islamic institutions in controlling profit-making, keeping profits at the level of normal profits, the principle of cooperation, *'Mudarabah'* price control and subsidy to eliminate unwanted inflation, the attainment of the Islamic objectives of growth for equity and efficiency rather than for capital accumulation per se and the new framework of intertemporal welfare maximization based on the menu of investment choices rather than choices of consumption menu. Dr. Naqvi's model also suffers from the logical contradictions of the neo-classical models in regards to the structurally static form of a system repeating itself over time. It was argued in this discussion paper that such an equilibrium system is logically incapable of ever coming out of that state of equilibrium and into a transition state. Thus, Dr. Naqvi's claim that his result holds in a stage of transition only to be replaced by a truly zero rate of interest when the Islamic economy will be finally established in its true form, seems to be conceptually erroneous. Consequently, in such a petrified neo-classical steady state model, the policy conclusions for a transitional economy to the Islamic state may indeed not be the correct ones to look for towards the realization of a true Islamic economy, when the rate of interest would be obliterated.

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