Journal of Economic Cooperation and Development, **39**, 1 (2018), 143-162

Comparative Islamic Perspectives in Money, Monetary Policy, and Social Wellbeing

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Moral and ethical context of money and monetary policy in the creation of a stable and real growth perspective of the economy and wellbeing criterion is formalized. This derivation and casting it into a generalized analytical model is premised on the cardinal Islamic ontological law of unity of knowledge. This spells out the essence of pervasive complementarities between the good things of life as the life-sustaining possibilities of maqasid as-shari'ah, the purpose and objective of shari'ah in term of its direct relationship with the ontological law of Tawhid, oneness of God spelled out in terms of the unity of knowledge and pervasive organic complementarities between the maqasid-goods. The paper thereby makes a distinct difference between the essential reference to Tawhid, thus shari'ah at-Tawhid. This primal conception and methodological worldview is distinctly contrary to the man-made vagaries of what is called 'shari'ah compliance'. Against such background this paper undertakes a comparative study of the nature of money and monetary policy. This approach leads into the model of money, finance, and real economy model and its various ramifications. An analytical approach is adopted within the comparative perspectives of money and monetary policy for the Islamic case.

Keywords: micro-money; comparative monetary theories; money and wellbeing in Islamic framework

Introduction

The history of money and monetary applications has for ever remained unsettled even to date. The reason for this unsettled state is the yet questioned interrelationship that exists between money, economy, finance, and society at large in a sustainable way. The Austrian School of Economics (Yeager, 1997) was the nearest that it came to understand

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the endogenous nature of money with the economy as a system of relationships concerning good money and its epistemological enterprise (Hayek, 1967; von-Mises, 1976). The Austrians disdained the destabilizing role that interest rate plays in economy and society at large, being the school that leaned on the views of Thomas Aquinas with regards to avoidance of interest and the social economy comprising stability, wellbeing in its distinctive composition, and sustainability over time (Schumpeter, 1961). The Austrian School comprising economic epistemologists was also a seriously analytical approach to the construction of an evolutionary learning way of explaining economic reasoning. Thereby, the role of relationship between money and the economy became foundational in the Austrian epistemological understanding of money, monetary policy, monetary organization, and the economy (Hayek, 1967; Kirzner, 1997).

Leon Walras (trans. Jaffe, 1954) thought of money as the economic numeraire in cementing the various elements of the economy and society, such as production, consumption, labour market, prices of various kinds of inputs and outputs. If the monetary numeraire was not stable; exogenously given, and well defined in Walrasian general equilibrium conception then the economic and social relationship of money and the social economy was intrinsically unstable. The general equilibrium model in a perfectly competitive market economy could not be attainable. Indeed, Walras was equally a mathematical analyst and a social thinker as he was a profound economist (Walras, L. trans. W. Jaffe, 1954). Thus the interrelationship between economy and society was deeply an analytical functioning of money and monetary organization.

In recent economic history, Keynes was predominantly a fiscalist. But his theory of money has to explain a significant relationship between price level, employment, and output in a desired framework of economic sustainability. Being a general equilibrium thinker in an economy that remains permanently in underemployment equilibrium state, Keynes inquired on the interaction between monetary and fiscal arrangements that leaves the economy in a stable state and wellbeing. The function of money was thus one of attaining macroeconomic fundamental goals. These were to allocate money and fiscal expenditure in ways so as to attain price stabilization, full-employment, economic growth, international competitiveness, and macroeconomic welfare in terms of

growth, price level, employment, and distributive justice. Such a social economy of Keynes in terms of money, fiscalism, economy, and social welfare also points to a deeply epistemological socio-ethical question with which Keynes was deeply influenced by the ethical theory of Moore (1962), O'Donnell (1989).

Contrary to Keynes as a social economist bringing to prominence the role of money, fiscal spending in economic stabilization and economic welfare, Milton Friedman (1956, 1989) was a diehard monetarist and an originator of the theory of monetarism who vouched regarding the sensitive effect of fiscalism on inflation and thereby claimed the impossibility of fiscal policy in stabilizing the economy state. This was a natural consequence of Friedman as a new classicist who stood undeterred for the establishment of a market economy. Friedman's monetarism is explained in Bordo (1989). See also Cagan (1989) on monetarism. This was contrary to Keynes' emphasis on large government to apply monetary and fiscal policies, but not at the total absence of the private sector and market economic transformation.

The problem of aggregation and attenuating to the ethical issues of a social economy surfaced in both Keynes and Friedman. Keynes' aggregate economic analysis suffered from a number of analytical problems. Firstly, morality, ethics, and the social economy are behavioural in nature, and therefore appertain to microeconomics. From the microeconomic level no sound approach is found to aggregate explanatory variables to the macroeconomic level. Equally, it is not the macroeconomic aggregates that can be disaggregated into microeconomic level. Microeconomics and macroeconomics remain to be distinct areas of analytical inquiry. The result of this anomaly is that ethics and morality, which are behavioural and epistemic concepts cannot be carried into functioning to realize socio-ethical transformation of economy with society.

Take the example of government expenditure (G) as an aggregate macroeconomic fiscal variable in Keynes. G is used by Keynes as an instrument to stabilize the economy of underemployment equilibrium into the full employment level of real output (real GDP) and full utilization of factor inputs. G is not a variable for the ethical financing of issues like poverty alleviation, microenterprises, and social security. Preference functions therefore do not exist in Keynesian

macroeconomics. Besides, the aggregate production function is not the aggregation of microeconomic production function; similarly with any of the aggregate variables in terms of their microeconomic terminologies.

Another analytical problem in Keynesian macroeconomics vis-à-vis microeconomics was the presence of exogenous variables in econometric formulation of general equilibrium. The resulting absence of endogenous relations, such as of government expenditure in terms of real output, employment, price level, and money, cannot explain social issues in terms of economic issues by continuous interrelations between the variables. Monetary policy as the rate of change in the quantity of money to be supplied by the central bank to the real economy is an exogenous variable. Consequently, Keynesian general equilibrium establishes various economic equilibrium levels by way of exogenous expansion of money and fiscal expansion. Contrarily, the rate of change in the quantity of money being a controlling policy variable of economic stabilization is not determined by the array of endogenous and exogenous variables in Keynesian general equilibrium model. The entire Keynesian general equilibrium system is thus not explained in a comprehensive way by inter-variable interrelations.

The third of many other analytical problems in Keynesian economics concerning money and monetary policy recognized in heterodox economics (Lawson, 2003; Choudhury, 2016) is the questionably explained relationship between money, interest rate, savings, and economic growth in the macroeconomic form of these variables. Central banks supply money to commercial banks by way of relaxing the statutory reserve requirement ratio. Consequently, the positive role of savings in capital accumulation in commercial bank deposits releases more money into the economy to finance economic growth. The macroeconomic output multiplier increases the effect of savings as capital accumulation turned into resource mobilization, as monetary expansion increases with relaxed monetary policy, such as lower rate of interest, lower reserve ratio, and incentive to buy bonds in exchange for money in cash balances. Yet this is not the true scenario of money and monetary policy in relation to savings and economic growth (Ventelou, 2005). The fact of economic system is that capital accumulation requires long term savings to accumulate. Thus money as released savings into the economy is perpetually divided between the opposite functions of

bank-savings by holding any increase from the spending effect in economic growth, and on the other side, not by capital accumulation but capital formation caused by savings being turned continuously into financial resource mobilization. These opposite sides denote over time the respective results, savings greater than investment (spending) for capital accumulation; savings equals investment (spending) continuously over the life of the economy.

Milton Friedman's Quantity Theory of Money runs into problems, as Laidler (1989) says, almost always. The quantity theory equation has a *post-hoc* error in terms of its indeterminacy of causal relations between prices and money supply. That is, it remains indeterminate as to which causes which – money on prices level; or price level on money; thus reducing the quantity theory of money equation of exchange into an identity, not an equation to explain money-economy relationship precisely. Now by holding the velocity of money supply constant, it can be seen that monetary policy as the rate of change in the quantity of money is determined by the contribution of each unit of output to inflationary pressure; and by the contribution of each unit of inflation to real economic growth.[2] These effects yield negative effect on the rate of change in money supply (monetary policy). Thereby, the effectiveness of increased money supply on economic growth as vouched by the monetarists and Keynesians is contradicted.

In his later version of the equation of exchange, Friedman included the financial sector along with the real output sector. According to this equation the aggregate monetary policy is divided up between the two sectors. Thereby, the optimal monetary policy indicated by $d(dM) = 0$ causes the two sectors to be perfect substitutes of each other. In such a situation any of the two sectoral effect on the relationship between money supply and economic growth can be neutralized by the other sectoral effect. This result agrees with Friedman epistemological orientation that is deeply in favour of the development of the market economy towards perfect competition, and against the presence of governments and public policy in money and growth relationship. These

2 Equation of exchange is $Mv - P.y$; M denotes quantity of money; v is the velocity of money circulation assumed to be constant; P denotes the price level; y denotes real output. This equation is written in terms of monetary policy (rate of change of money supply) as, $v.(dM) = (y.dp)^{-} + (p.dy)^{-}$.

inclinations in Friedman's new classical orientation in the quantity theory of money and prices annul a focus on the use of money and monetary policy in social wellbeing.

THE MCM model critique of neoclassical money and monetary theory

The nature of money and monetary policy as an interactive circular causality between money, financial instruments, and socioeconomic variables is explained by the process definition of the money-commodity-money model (MCM) in a dynamic evolutionary dialectical relationship. The answer to the important question on the growth of money is explained by the dynamic form of the MCM model written as (Heilbroner, 1985),

$$M_0C_0M_1 - M_1C_1M_2 - \text{etc. Over time } t=0,1,2 \qquad (1)$$

such that any two or a combination of them can be functional in the above expression:

1. The intervening **C**ommodity can denote financial interest, so that money is implied to change in respect of interest rate or its shadow rates that remain contrary to a productive way of accumulating capital, which the banks and financial sector turns into savings and a financial return of interest on bank-savings.

2. The intervening **C**ommodity can be the real productive assets, the return on which is the productive yield. Money thereby changes by the compounding effect of the yield as the productive return on capital formation, instead of the interest rate on capital accumulation via money denoting bank-savings.

3. The intervening **C**ommodity is a mix of money formed by capital accumulation by the interest rates on bank-savings; and by capital formation caused by productive investment. The implication then is that, some of the capital accumulation formed by bank-savings flows into the real productive assets. Thus real

productive capital formation is not independent of bank-savings and thereby of real rates of interest.[3]

The footnote here also explains the essential nature of monetary allocations between competing projects for the objective of optimization in neoclassical economic theory (Henderson & Quandt, 1971). The neoclassical implication is particularly borne out by the point (3) mentioned above. The inference thereby is that, the interrelationship between the rate(s) of interest and rate(s) of return in real assets explains the neoclassical idea of marginal rate of substitution (opportunity cost) between real rate of interest and real productive rate. Consequently, the switching points between the trajectories of capital accumulation (interest rate bearing bank-saving) and of capital formation (real productive rates of return) (switching points) remain to be discontinuous historical points of substitutions between speculative growth and productive growth regimes. Such discontinuities expand over space and time in the neoclassical equilibrium economic framework. Thus, sustainability and continuous resource mobilization of resources in the real productive sector are unattainable, although this is an enforced desired perspective of neoclassical economic theory (Daly, 1992).

In respect of translating the above neoclassical implications of the opposing interrelationship between real rate of interest and real productive rate of return and thus between capital accumulation and capital formation, respectively, the monetary derivation of MCM-model implies the dual use and definition of money in relation to assets, and growth. The definition of money and its use in changing regimes of assets and growth is therefore not straightforward. The definition of money is differentiated between the speculative and real productive sectors. In the speculative the structure of money is based on financial debt as is the case with interest on bank-savings. In the real productive sector the structure of money is the case of real sector resource mobilization in terms of the continuous intertemporal linkages between money, finance, and real productive assets. The Modigliani-Miller (see Jeans, 1970) theorem is an example of the neoclassical result of

3. $M_t = \int_0^T M(i,r)dt$. 'i' denotes the real rate of interest. 'r' denotes real rate of return. The compounding of these factors influences the quantity of money Mt intertemporally in terms of money formed and changed by capital accumulation and capital formation. The nature of money is accordingly explained by the interpretation of money as commodity in terms of the two forms of capital accumulation as marginalist opposites.

marginal rate of substitution between debt and equity for maximization the corporate investment utility function.

The Fundamental Islamic Methodological Worldview for Everything

The great change in money, finance, and real productive sectoral development that resolves the problems of the MCM-model in respect to points (1)-(3) has been offered in a methodological, analytical, and applied ways by the Islamic conception of money, finance, and real economy in the absence of interest rates and debt financing. This leads us to focus on the first aspect of the worldview conception that has given mankind and the world-systems distinctive ways of understanding, applying, and organizing everything in an objective framework. This because of the universal and unique methodological worldview of Tawhid as the Ontological Law of unity of knowledge derived from the Oneness of God that Islam has bestowed for the wellbeing (maslaha) objective criterion for all of mankind. The wellbeing in intra-systemic and inter-systemic and spans across the knowledge of unity, space of being and becoming, and evolution intertemporally. In this way the wellbeing criterion encompasses the non-physicalist and physicalist order in a mix of unity of knowledge within and between all (Wilson, 1998).

The fundamental methodological worldview of unity of knowledge within which all problems and issues, and thereby money and monetary policy in their concepts, applications, and organization is formalized in Figure 1.

The same generalized methodology of the Islamic worldview is particularized for the case of Islamic conception of money and monetary policy by an extension of the methodological worldview of unity of knowledge presented in Figure 1. We explain these generalized and particularized features of the methodological model in the case of money and monetary policy in Islam (Choudhury, 2016, pp. 368-402).

Figure 1: generalized multi-system scientific inquiry by the precept of unity of knowledge

1	2	3	4	5	6	7
Tawhid (monotheism) As Primalof Ontological Law	Epistemology	Formation of world-system unity of knowledge with Multi-systems	Evaluation of Wellbeing Criterion in terms of Unity of knowledge By circular causation Between the variables	simulacra of evaluation	continuity & sustainability	Hereafter
epistemic methodology		modeling, application, inferences, simulation			continuity & sustainability	Closure

Now as a particular application of the generalized methodological system model of Tawhidi worldview we take the example of money and monetary policy as a specific example of application. By the methodology explained by Figure 1 money is defined as economic contravention of unity of knowledge in the domains interactively (organismic) integrating (consensus), followed by evolutionary (dynamic creative change) learning processes over the knowledge, space, time events along the trajectory of history. Consequently, the meaning of money in Islam is based on the continuity of social and economic specie that enables and is sustained by the continuity of the learning process of historical consciousness in terms of organic relations defining unity of knowledge by inter-causal relations between money as specie, spending as financial instrumentation, and the real economy in terms of the good things of life (halal at-tayyabah). Money (nuqud) thus establishes circular causation as the explanation of ethics in terms of the Tawhidi precept of monotheistic unity of knowledge in sustainability of events described by the continuity of events marked by the embedding denoted by, $E(\theta) = \{\theta, \mathbf{X}(\theta), t(\theta)\}$, for the limiting value of knowledge-flow $\text{plim}\{\theta\} = \theta$ along the evolutionary values of such ‘θ’-values that are evaluated by the total wellbeing (maslaha) function, $W(E(\theta))$, subject to circular causation relations.

The complete Tawhidi methodological model of money-specific wellbeing model is the following one:

Evaluation $W(E(\theta)) = W(\theta, \mathbf{X}(\theta) = (M(\theta), Sp(\theta), RE(\theta)), t(\theta)\}$ (2)

(estimate 'as is' state subject to circular causation relations:

followed by simulation $M(\theta) = f1(\theta, Sp(\theta), RE(\theta))_{t(\theta)}$ (3)

In simulacra of many $Sp(\theta) = f1(\theta, M(\theta), RE(\theta))_{t(\theta)}$ (4)

'as it ought to be states} $RE(\theta) = f1(\theta, Sp(\theta), M(\theta))_{t(\theta)}$ (5)

Empirical version of $\theta = F(\mathbf{X}(\theta), t(\theta))$ (6)

The wellbeing function

The following variables are defined:

$\theta \in (M(\theta) = f1(\theta, S(\theta), RE(\theta))_{t(\theta)}, S)$: $\Omega \rightarrow_S \{\theta\}$. This is the stage of methodological derivation of knowledge from the basis of Tawhidi ontological origin, with Ω as the supercardinal domain of Qur'anic knowledge; S denotes the continuous and well-defined mapping of Ω onto the formation of knowledge and explaining the nature of the Tawhidi world-system. This mapping is defined by the sunnah of the Prophet Muhammad. The complete description of Figure 1 is given by expression (7),

Figure 1: Explanation of the monetary function in Tawhidi supermanifold of unity of knowledge and the world-system

1	2	3	4	5	6	7
$(\Omega,S) \rightarrow$ plim$\{\theta\}$ =	$\theta \rightarrow E(\theta) \rightarrow$	Evaluate $W(E(\theta))$	simulacra	continuity	Closure	
(discursive)	Episteme	s.t equation system	sustainability			

Hereafter (3-5)

Simulation by $\theta = F(\mathbf{X}(\theta), t(\theta))$ (7)

A system is defined here by the inter-causal nature of endogenously interrelating variables under the effect of knowledge induction. In the MSpRE(□)-model, the system of inter-variable

and inter-causal relations are brought together for evaluation of their complementarities, or lack of it, by using the social wellbeing function. By the inherent system of inter-causal equations between the variables, empirical evaluation of the social wellbeing function is

carried out subject to the system of circular causation relations.

Estimation evaluates the degree of prevailing inter-variable complementarities in the 'as

is' state of the financial economy. Simulation gives the way of generating the 'as it ought to

be' state of the complementary relationships between the variables. The vector of knowledge-induced variables selected is {M,Sp,RE, policy vector}[□]. Each of the variables of this

vector is induced by the knowledge-flow, □-variable. '□'-values are calculated in light of the

desired level of inter-variable complementarities.

Ordinal values are assigned to the □-variable in the light of its prorated values of economic and financial performance. An average is then taken across the ordinal assignments of □-values in respect of given observations in data in order to obtain the final □-values as ranked values. In this way, the □-values form a set of data aligning with the MSpRE(□) observations. The entire data of observations including the generated □-values now comprise the full data set required for the assessment of the evaluation model comprising the social wellbeing and its circular causation equations.

The existing state and the simulated reconstruction for complementarities between the MFRE(□)-data are explained by the numerical signs of the estimated and simulated coefficients of money, spending, and real economy interrelations with the endogenous effects

of technology. Their degrees of complementarities are explained by the coefficients of the social wellbeing function.

The social wellbeing criterion in its measurable form indicates the degrees of complementarities that exist or can be alternatively simulated in the state of inter-variable complementarities as these 'ought to be'. The empirical form of the social wellbeing function now coincides with the monotone of □-function in the vector of variables. We denote it by, □ = F(M,Sp,RE, policy vector)[□□. The system of circular causation relations between the variables of the social wellbeing function is denoted by the system (2-6). The totality of all such equations forms the circular causation system of structural regression equations. All variables of the structural equations are driven by the normative outlook of the potentially complementary systems of inter-causal and inter-variable relationships. The policy variables and the (M,Sp,RE) variables are all together endogenous variables. The endogenous relations in the form of inter-variable circular causation in the formulation of the social wellbeing function are actualized by the configuration of the 'θ'-variables for the various (M,Sp,RE, policy vector)[θ]-variables.

Monetary policy vector in Tawhidi methodological meaning

Monetary policy vector is defined as the group of financial instruments that together influence the change in the stock of money, by thus converting the stock into the flow of money. An example of this case can be deduced from the quantity theory of exchange. It explains how a quantity of money determined in terms of the relationship between the circulation of money and value of spending. This latter case is to be taken as spending in the good things of life. The transformation of stock of money into flow by means of using the various types of financial instruments forms the vector of this transformation; and thereby of policy vector.[4]

[4] Equation of exchange: $M(m_1,m_2,\ldots,m_n)*v(v_1,v_2,\ldots,v_n) = p(p_1,p_2,\ldots,p_n)*.y(y_1,y_2,\ldots,y_n)$, with various decomposition of monetary function M as $m_1,m_2,\ldots,m_n$; and correspondingly decomposition of velocity of money circulation v as $v_1,v_2,\ldots,v_n$; price function 'p' in terms of disaggregate prices $p_1,p_2,\ldots,p_n$; and the corresponding disaggregate project-wise components of y as $y_1,y_2,\ldots,y_n$. Now by logarithmic differentiation we obtain, $dM/M + dv/v = dp/p + dy/y$. Furthermore, in terms of the change in the composite vector we can write:

Because the attributes of money in Islam in the intertemporal sense (t(θ)) is based only on the unit of value, therefore, the rates of change in the variables are driven by actual changes in the stock caused by rates of change in the variables. Indirect changes such as prime rates of interest, open market operations governed by bond rates. Other attributes of money, such as, medium of exchange and store of value do not appear in the face of such direct measures of change in money and its diversities; and in terms of intertemporal indeterminacy of the quantity of money. Thus, the exclusive attribute of unit of measurement in the absence of store of value and medium of exchange make the monetary policy driving money in Islam to be the rates of changes in the modes of financing of micro-monetary related projects (Choudhury, 2017 forthcoming).

Specie flow of money through spending and real economy

The nature of attributes of money in Islam in terms of its function as a unit of value to the exclusion of medium of exchange and store of value establishes the fact that money is converted through financial instruments into a continuous regeneration of resource. Money cannot be held back such as in the form of bank-savings. The conversion of money into resource as a monetary flow via financial instruments into the real economy is equivalent to the continuous mobilization of savings into spending (e.g. investment). Besides, the prevalence of the life-sustaining regime of development implies that spending is in the participatory good things of life induced by knowledge-flows characterizing the maqasid as-shari'ah as needs (dururiyath), comforts (hajiyath), and refinements (tahsaniyath).

$\sum_{i=1}^{n}(1/M)*(\partial M/\partial m_i)*(dm_i)+ \sum_{i=1}^{n}(1/v)*(\partial v/\partial v_i)*(dv_i) = \sum_{i=1}^{n}(1/p)*(\partial p/\partial p_i)*(dp_i)+ \sum_{i=1}^{n}(1/y)*(\partial y/\partial y_i)*(dy_i)$

This expression explains that, the instruments of money circulation $\{m_i\}$, such as the participatory financial instruments, depends upon the changes in such instruments and the other factors as shown. The prices as shown can be product prices and rates of return in real and financial ventures. The output of these various ventures are denoted by $\{y_i\}$, i = 1,2,..,n. Circular causation relations are implied between the rates of change in the various variables. Monetary policy vector is thus one such circular causation relationship in terms of the other variables in the sense of inter-causal endogeneity.

We present through Figure 2 three different ways of the specie flow model between monetary flow, spending, and real economy relations of the Islamic version of MCM model with the dynamic induction of knowledge embedding. This formalism leads into actualisation of pervasive complementarities between the good things of life (halal at-tayyabah = maqasid as-shari'ah). The three cases of the monetary specie flow model are (i) perfect match between the quantity of money and the value of spending in the real economy under the condition of valuation of actual ownership of the exchange of artefacts (qabd). In this case, $Mv = p.y$. (ii) the case of excess demand for cash balances to meet the value of spending in the maqasid goods is denoted by $Mv > p.y$. (iii) the case of cash flow being higher than the quantity of money in circulation, $Mv < p.y$.

1. $Mv = p.y$, in the general case of $0 < v < 1$.

Say the starting amount of total savings is D1,000. Because of the 100 per cent reserve requirement monetary system that circulates the savings fully into the real economy through various financial instruments, there is no resulting statutory reserve requirement at the central bank. Consequently, no usual monetary policy is needed to control the quantity of money.

Now, when money flows into the real economy, the rates of return (r) on the financial instruments inject the quantity of money into spending. The increased returns on mobilization of savings cause the increase in the quantity of money in the second round of savings in the bank, and so on. That is, the nth. round of circulating savings into spending affect the real economy bringing about the increase in money.

Thus, first round of savings = M_0 yielding $M_0(1+r) \rightarrow$ RE = nominal output, $Y = Sp$ + savings $\rightarrow \ldots \rightarrow$ accumulated $Y = M_0(1+r)^n + \sum_{t=1}^{n} Sp$. Any number of additions and withdrawals can be applied. (8)

2. $Mv > p.y$

The amount of savings mobilized as money into the real economy by means of financial instruments subject to the velocity of money circulation exceeds the potential spending capacity in the RE. Thereby, the amount $(Mv – p.y) = \Delta Mv$ that is not spent, is retained in the central bank on behalf of the central bank. Its currency value is defended by a proportionate amount of gold value (G). The stock of money so protected by the Gold Standard later becomes the additionally needed spending in RE. The equivalence shown by the condition (1) above is thereby once more established both at a point of time in terms of a lower level of spending; and intertemporally by regeneration of resources in RE. In this case, there is a withdrawal by monetary contraction from the RE temporarily within the limits of a lower scale of resource mobilization. Yet no usually targeted monetary policies, such as prime rate of interest, open market operation (bond-interest based) are used. Statutory reserve requirement is not used, for this is not in the interest of any of the agencies in relation to money, finance, and real economy. A purely endogenous relationship is invoked between money, finance, and the level of real economic activity.

3. $Mv < p.y$, with $p.y – Mv = \Delta Sp$.

This is the state of an excess demand for money to finance the stability of the participatory real economy in its duration of advanced economic growth. Now the central bank lends the excess demand for money as financial resource to the Islamic commercial banks to enact a 100 percent reserve requirement monetary system to finance the real economy of maqasid-goods. In this case of monetary transmission, the central role of resource mobilization uses most centrally the role of financial instruments in establishing and sustaining an evolutionary learning nature of evolutionary participatory social and economic system. The financial instruments that effectively work as endogenous monetary policies are the rates of change in mudarabah and musharakah instruments (see footnote 3).

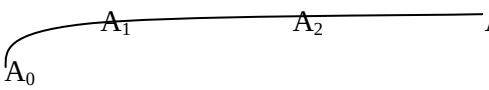
In all of the above-mentioned cases regarding the MFRE-condition (expression 8) holds. The possibility of fractional reserve requirement by way of excess reserves held at Islamic commercial banks is ruled out and replaced by endogenous forces of MFRE participation in the

monetary and real economy relations. Now to implicitly explain the endogenous relational induction of evolutionary learning in the whole system of MFRE relations, as the essential sign of complementarities in unity of knowledge, these variables become θ-induced. This relational extension is substantive in terms of formalizing the ontological Tawhidi law of organic unity of knowledge between the maqasid-goods.

The Wellbeing Criterion in MFRE-relations of the Islamic economy

The general theory of Tawhidi unity of knowledge establishes that the final goal of any analytical study is the evaluation of the Wellbeing Criterion subject to circular causation equations between the MFRE-variables and their disaggregation. Such a particular model derived from the general system-model is explained by the wellbeing relational system of expressions (2-6). Due to the knowledge-induced driving force of unity of knowledge between the variables the theoretical meaning of value of such evolutionary learning system is given by the following intertemporal knowledge-induced evaluation in terms of $E(\theta) = E\{\theta, X(\theta), t(\theta)\}$ – Figure 2:

Figure 2: Meaning of value in terms of change in Wellbeing Criterion over evolutionary learning in time



$M_0(\theta)\big|_{t=0}$ $M_1=M_0(1+r)(\theta)\big|_{t=1}$ $M_2=M_0(1+r)^2(\theta)\big|_{t=2}$ … $M_0(1+r)^n(\theta)\big|_{t=n}$ simple increase in MCM-value

$d\theta\big|_{t=0}$ $d\theta\big|_{t=1}$ $d\theta\big|_{t=2}$. $d\theta\big|_{t=n}$ change in evaluated wellbeing values at t=1,2..n. This is the true value of transaction in MFRE. See equation (6).

Conclusion

Money in Islam is micro-money. It is directly linked endogenously with project-specific monetary flows. Thereby, the circular inter-causal relations between the variables of the monetary based wellbeing function explain and measure the unity of knowledge in the money, finance, and real economic interrelationship. Such circular causation establishes the meaning of ethics in the form of organic complementarities. Micro-money being asset-based, linked with projects form also policy orientation in such microeconomic perspectives. An example of micro-money is digital money and token money. Such kinds of monetary units being asset and project linked prove to be efficient market-determined specie. The market-oriented units of money, which was indeed thought of by the Austrian School of Economics (Yeager, 1983) have the consequence of an efficient circulation of money in the face of a specific nature of monetary policy. This is to circulate money in the market economy by the activity of rates of changes in the primary financial instruments of mudarabah and musharakah. Thereby, the role of Islamic banks is advanced contrary to the aggregate policy variables of macroeconomics of money through the central bank.

The presence of Islamic Dinar as coinage is a further example of micro-money as currency (Allouche, 1994). Its role in the promotion of trade taken in its broad sense of exchanges in the good things of life (maqasid-goods) contributes to money and income multipliers in terms of the real economy as established by the circularity of the $(MCM)[\theta]_t$ model of expression (1). This model is equivalent to the MFRE-model in the form, $(M,F)\rightarrow RE)[\theta]_t\rightarrow (M,F)\rightarrow RE)[\theta]_{t+1}\rightarrow\ldots..$ The message here is clear: The inter-variable complementary nature of the MFRE-model explained by the θ-induction of unity of knowledge establishes the grand monetary implication of the wellbeing criterion of money and monetary policy.

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