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Political Economy of Institutionalism: A Qur'anic Ontological Inquiry

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Abstract

This paper builds an original theory that is derived from the methodology premised in the ontology leading to the epistemology of unity of knowledge of monotheistic oneness in its widest meaning encompassing the dynamics of creation in its generality and specificity of issues and problems. This methodology is explained in terms of pervasive participatory and organic interactive, integrative, and evolutionary learning (IIE learning) nature and logic of the generality and details of the world-system of 'everything'. Such an entirety of the diverse components of the world-system and its entities is explained by inter-causal endogenous variables and their relations in the form of algorithmic analytics.

Institutionalism as the phenomenology of such an intrinsic world-system and its inherent interactive, integrative and evolutionary learning (IIE learning processes) characteristics of the worldview of the pervasively participatory processes is taken as the widest definition of political economy. Thus, this paper studies the conceptual and applied aspects of the emergent field of political economy of the institutionalist worldview in the light of the qur'anic primal ontology of monotheistic unity of knowledge referred to as Tawhid and its methodological worldview governed by the ontology of unity of knowledge and its embedding of the world-system.

On the contrary, the prevalent view of political economy of institutionalism is one of legitimating the competition and adversarial behaviour that is transmitted to the nature of institutionalism *via* the methodological individualism nature of self and other. The pronounced difference in the theory of political economy of institutionalism in the prevalent orientation and the one presented in this paper is therefore one premised on the opposing views. These are of methodological individualism of the adversarial outlook between entities and oppositely that of participation in a methodological orientation of unity of knowledge. Even in the contrasting views of the normative theory we are constructing against the positivistic theory being extant.

The objective of this paper is to introduce an ethically constructed possibility, where there does not exist one presently. The other going idea of actor network that resembles our IIE learning methodological worldview with its ontological universality and uniqueness is of significance to understand the inter-causal relations between primal ontology of unity of knowledge, mind, machine, and sustainable inferences thus obtained. Indeed, this monotheistic quest ought to be the ultimate objective of the socio-scientific era.

Keywords: Ontology • Unity of knowledge • Onticology • Embedding

Introduction

Martin Staniland remarked in his book about the decline and rise of political economy as a field of economic study in recent time. The discontent with the existing state of economic theory and the need for its reconstruction in light of problem solving approach to real world problems has indeed been noticed in the crystallization or a new epistemological nature and logic of economic reasoning [1]. The emergent field of multidisciplinary problem contents in real world economics devoid of sheer scientific modulation has been embodied in the emerging area of an institutional approach to studying economic issues across their wider field of valuation. In this substantive area of the influence of epistemic knowledge on the emergence of evolutionary learning institutions not even North's

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classical article qualifies in respect of its neoclassical relenting and what North refers to as linear evolution of institutions. Also see North in this regard concerning the evolution of western institutional history in the light of neoclassicism [2].

Objective

The nature and logic of our new emergent field of political economy of institutionalism is defined in this paper as the transdisciplinary approach to the study of economic issues, system exchange, taken in their diversity [3]. Such diversities of multidisciplinary issues and problems find their place both in the human and non-human world systems *via* well defined explainable inter-causal relations between them and between the defining variables of the attenuating study [4]. The emergent widest scope of inter-variable and inter-entities causal relations is explained by means of system and cybernetic models that comprise the organic holistic study of the entire system problem. Our primal ontological premise in the ensuing formal derivation within the scope of philosophy of science is the Qur'an. The Qur'an ineluctably upholds the methodological worldview of monotheistic Oneness that is extended to the order of organic unity of knowledge and the world-system by generality and particulars [5].

Such an approach is characterized in this paper as the study of political economy essentially because of its scientifically modeled approach, analysis, and explanation of the social problems. The emergent methodology, derived as the generalized model, analysis and sustained consistency are premised on the nature and logic of evolutionary learning systems and cybernetic of multidisciplinary paired complementarities between explanatory relational variables that define the general system model [6]. The totality of all such inter-causal relations between the multi-variables in their system and cybernetic model is formalized in this paper as a generalized idea of behavior, organization, and evolutionary learning processes [7].

Such attributes altogether are shown in this paper to form the logic and nature of a generalized meaning of institutionalism. This is conveyed by the system and cybernetic model of multidisciplinary holism. Thereby, an emergent worldview of socio-scientific biological forms takes an evolutionary learning form with a distinctive methodology of system and cybernetic organic interrelations between variables by virtue of inter-causality between them found in the human and non-human world systems [8]. The nature and logic of the study of such institutionalist manifestations form and sustain the underlying methodology of the emergent model of generalized forms of multidisciplinary interactions leading to dynamic learning equilibriums over the knowledge, space and time domains. In such domains inter-causal interactions, integration, and evolutionary learning (IIE learning processes) between variables abide [9].

Literature Review

The methodology, model, and analysis of the above mentioned generalized system and cybernetic model of institutionalism has come to abide in the literature of symbiosis of natural science and sociological quest in social science. Such emergent methodology presents the world-system of 'everything' in the socio-scientific domain with a unique and universal, though different epistemic approaches, to view all world-systems as being unified by virtue of the inherent characteristics of interaction, integration, and evolutionary learning in the planks of moral sustainability of unity of knowledge as the primal ontological premise [10].

For some works in this area refer to the theories of 'everything'; writing on meta-science of monotheistic oneness; Heilbroner and Milberg writing on the crisis of economic theory; Yolles writing on complementarism and organizations as learning entities; Simon writing on the economics of organizational behavior; Hull writing on science as process; and the ontological framework of scientific theorizing by Whitehead; the history of socio-scientific thought by Kant and Hume. Recently, on similar ontological issues of theory construction of multidisciplinary systems and cybernetic worldview wrote Ledger and Pickard [11].

On a general discontent with economic theory within the main stream reasoning and the need for its reformation wrote Lawson and Pesaran: "When a field of study becomes marked by dissatisfaction and disillusionment, methodological analysis and debates tend to become prominent and often provide pointers to fruitful directions for the subject to move in. Economics is currently undergoing just such a period of crisis".

Generalized system definition of institutionalism

From the above summary of the nature of system and cybernetic methodology comprising unity of knowledge as the primal ontology, a generalized definition of institutionalism can be derived: Institutionalism is the philosophy of organizational behavior underlying systemic interaction, integration, and evolutionary learning phenomena across transdisciplinary and universally diverse domains and their entities. The primal ontology embodying the methodology of such relational meaning of unity of knowledge lends itself to big data analytics in data and information collectives that can be rendered to a specified form of inter-variable causality model [12].

The idea of Islamic political economy arises from the imminent complementary or participatory nature of the inter-causal relations between the systemic variables representing entities and values. Such a perspective of organically interrelated entity participatory relations emanates from the ontological origin of Islamic methodological worldview derivable for science and society at large from the Qur'an. In pure science, such a generalized definition of political economy can be inferred from the way that Erwin Schrödinger explained behavior of fundamental particles the fundamental particles are widely politicized. Such is also the nature of science as process conveyed to a system inferred understanding of socio-scientific Darwinism. Yet this idea is with subtle phenomenological difference from the methodological model of unity of knowledge [13].

If therefore, the system and cybernetic study of political economy is interfaced with the generalized definition of institutionalism as explained here by a methodological overview, then a unique and universal worldview of Islamic political economy of institutionalism can be derived from the Islamic ontology of monotheistic unity of knowledge. The emergent model forms a mathematical substance pertaining to an embedded system understanding of the most generalized form of the world system that is modeled by the primal

ontology of unity of knowledge according to the Islamic (qur'anic) monotheistic worldview [14].

Examples in multidisciplinary conception of Islamic political economy of institutionalism according to the ontology of qur'anic (Islamic) precept of monotheistic unity of knowledge as universal organic pairing.

Here are a few of a legion of examples that can be found in the transdisciplinary conception of political economy of institutionalism. We provide three examples to bring out the nature and logic of unity of knowledge underlying the exemplified disciplines. These examples are extendable to all disciplines in the framework of logical formalism of meta-science [15].

Money as process in relation to its intra and inter-system relations

To study comparatively the nature of money in the framework of political economy, Karl Marx was of the opinion that congealed labour is cumulatively induced in production [16]. This in turn is not compensated in the pricing and production of capitalist ownership to generate surpluses. Thereby, the cumulative value of money over economic functions and time undergoes the relations as to how pricing and production are generated and the institutions of capitalism are established.

This kind of Money (M), Commodities (C), Money (M) transformation is explained by the MCM model. In multimarket explanation with many prices and productions, one aspect of the MCM model is given by, $\Pi_{i=1}^{n}(MCM)_i$, with 'i' as multi-system diversities of relations between money, goods, services and values. These can be further extended and accordingly defined in respect of the Interaction (I) leading to Integration (evolutionary learning equilibriums) (I) in respect of Evolutionary learning dynamics (E) [17]. These elements together frame up the dynamic IIE learning process model with its rigorous logical formalism. For this last case, the embedded learning parameter that sustains the interactive, integrative and evolutionary learning process by way of unity of knowledge is denoted by 'θ. 'θ is substantively generated by statistical algorithm while it is ontologically invoked in the quranic monotheistic precept of unity of knowledge [18].

We thereby write the money-commodity-money type inter-causal relations in reference to the defining variables as follows: Money as process is defined by IIE learning dynamics between $M_i(p_i,q_i)$ as diverse uses of money as resource, $C_i(p_i,q_i)$, to produce more accumulative stock of money as resource, $M'_i(p'_i,q'_i)$. p's and q's denote prices and quantities, respectively. Now for any one cycle of monetary regeneration through diverse commodity linkages *via* IIE learning variables and sustainability by means of 'θ parameters we can write an evaluative process function as objective criterion. This nature and logic of money, economy, and society interrelationship is denoted by the wellbeing criterion in the light of its inter-variable participatory nature of organic causality induced by the primal ontology of monotheistic oneness in the relational form of pairing and thus unity of knowledge [19]. This feature of the evolutionary learning model with interaction and integration (IIE) as its systemic elements of inter-variable participatory causation in unity of knowledge as the extended nature of creation is derived from the Qur'an (36:36) [20].

The objective criterion and its derivation by the conjoint use of conceptualization and quantitative empiricism is explained by the following equations in respect of the Islamic political economy of money and market exchange:

$$\text{Simulate}_{\{\theta\}} W(\theta) = A(\theta)\Pi_i M_i(p_i,q_i)[\theta] \quad (1)$$

With endogenous intra and inter-systemic relations of the inherent diversity as the (i+j+k+s+1)-numbered large system model of the money-economy socially inclusive process:

$$M_i(p_i,q_i)[\theta] = f_i(M_j(p_j,q_j)[\theta]) \quad (2)$$

$$p_i(\theta) = f_s(p_j,q_i,M_i)[\theta] \quad (3)$$

$$q_i(\theta) = f_k(p_i,q_j,M_i)[\theta] \quad (4)$$

$$i,j = 1,2,\ldots, i \neq j$$

The implications of estimating and simulating the above system of 100% endogenous circular causation relationships between the variables conveying degrees of inter-variable complementary in the continuously expanding money, commodity, and money domain are deep for socio-economic arrangements by the monetary authorities. Such degrees of inter-variable and inter-causal complementarities signified by the statistical signs and inferences on the coefficients of the variables can be positive or negative between the selected variables. Such relations represented by the signs of the coefficients can be normatively simulated into desired complementary coefficient signs of relations between the endogenous variables. There are policy implications underlying such simulations. The socially inclusive implications involving money, price, production, and social wellbeing by complementarities between these variables establish the sustainable generalized form of institutionalist relations in the context of Islamic political economy with diverse entities. Yet all these are characterized by the IIE learning dynamics.

Socially inclusive treatment of health and illness by the approach of the Islamic political economy of institutionalism, a diverse system application in respect of wellbeing. The question asked at the outset is this: What ought to be the inter-relationship between the factors defining health and illness in order to increase the wellbeing of the afflicted ones in a socially inclusive sense? To address this question, we repeat the formalism of equations (1-4) for the particular case of the problem of health and illness in respect of attaining a degree of wellbeing objective criterion. We thereby write,

$$\text{The wellbeing function, } W(\theta) = W(H/L)[\theta] \quad (5)$$

Where, $H=H(x_1,x_2,\ldots,x_n)$, with $\{x\}$ as the vector of variables comprising health, economic, and social venues that together interact to sustain the health function denoted by, H(x).

It is likewise true of the illness function as, $L=L(y_1,y_2,\ldots,y_m)$, with the vector $\{y\}$ defining the variables that affect illness.

Then, the wellbeing objective criterion being defined by the relative function in the respective vectors increases, as H/L increases. This is caused by a simultaneous increase in the knowledge parameter that causes (H/L)[θ] to increase with θ increasing.

The fully institutionalized evaluative IIE learning model is now given by,

$$\text{Simulate}_{\theta}W((H/L)(x_1,x_2,\ldots,y_1,y_2\ldots,y_m))[\theta], \quad (6)$$

with circular causality in and between the x-variables and y-variables, using their structural evaluative equations. Subsequently, the policy impact remains normatively inferred by the signs and statistical analysis of the coefficients of the inter-related variables. This is then followed by the inter-variable IIE learning process with simulative implications. The system concept of political economy of generalized socio-scientific institutionalism is conveyed by the IIE learning methodology in the extensive socio-scientific sense of the problem of increasing wellbeing by raising health relative to illness in a socially inclusive situation.

The concept of Islamic political economy of institutionalism applied to the holistic worldview of psychotherapy, yet another system orientation in wellbeing: Psychotherapy is the field of a holistic study for wellness of the rehabilitative patient. Patients targeted are mainly the mentally disturbed, those in need of psychological remedies, and in general for the informed uplift by spiritual consolation as in times of personal distress. The holistic overview of psychotherapy overarches across rehabilitative therapy and clinical interventions. This makes psychotherapy a deservedly valid field of health care, medical science, cognitive psychology, psychiatry and socioeconomic studies. Furthermore, when psychotherapy as a scientific study is combined with the IIE methodological approach of health and illness, an extended and augmented field of socio-scientific modeling emerges.

Such a model can be constructed under the same ontological methodology as ordained by the Qur'an in terms of its monotheistic methodological worldview by an extension of inter-causal equations of extended vector of endogenous variables. An example here is the complementary field represented by the vector, say, $s(\theta=\{x,y,z,q\}[\theta]$. $s(\theta$ denotes selected yet expandable list of psychotherapy variables, say of spirituality ($x(\theta)$), culture ($y(\theta)$), psychiatric and psychological rehabilitation ($z(\theta)$), medicinal, clinical vector and socioeconomic vector ($q(\theta)$), etc. Each of the variables is induced by the learning parameter, 'θ, of consciousness gained by complementarities (monotheistic unity of knowledge) between the variables.

Introducing socio-economic variables in the vector of endogenous inter-relations: Likewise, the economic vector $q(\theta)$ can be selectively explained in respect of employment, finance, entitlement, poverty alleviation, and sustainability as the socio-economic variables in terms of the wellbeing objective criterion by a combination of the economic, health, illness, social and psychotherapeutic factors. There is also the important role of expansionary monetary policy that complements fiscal policy to promote all the social and economic actualizations that are interactively integrated with each other in the wellbeing objective criterion, and then evolved by simulation of the model coefficients (IIE).

Elsewhere, the most participatory form of the IIE learning model has been implied to relate with 100% reserve requirement monetary system. Thereby, an endogenous participatory interrelationship is sustained between money and the real economic and social sectors. The elements of the wellbeing index are simulated by the participatory role of the central bank and the commercial bank, and between monetary policy and fiscal policy. The ultimate impact of such a wide system of inter-causal organically unified relations causes an ever expanding stability of the aggregate demand curve and the aggregate supply curve meeting together in the limit of monetary economic transformation and its complementarity with fiscal policy. The expansion of the economy is the result. Full-employment level of real output is permanently replaced by the ever-expanding utilization of productive factors with price stability. The concept of under employment is thereby non-existent with that of full employment being eschewed under IIE impacting upon technological advancement.

The wellbeing criterion now replaces the growth and 'welfare' model of the neoclassical genre. Economic growth and industrial development are then 'derived' functions from the wellbeing criterion as the core objective criterion. All the inherent factors of the wellbeing function expressed as variables explain the circularly endogenous cause and effect recursive feedback between the variables with the objective of attaining increased though non-optimal levels of wellbeing by simulation.

Inferences of the universal and unique conception of Islamic political economy of institutionalism in and across socio-scientific system according to the qur'anic methodological worldview. Such a kind of extended sustainability of balance and complementarities between the variables ought to emerge as a critical socio-scientific element for serious consideration in the imminent fourth industrial revolution. This is yet another example of critical study in political economy of institutionalism from the Islamic viewpoint of the monotheistic model of unity of knowledge. We examine this issue briefly below.

The history of the previous industrial revolutions has proved that social justice and economic justice have not kept in coexistence as the underlying capitalist surge proceeded in the neoclassical economic outlook. This was deeply based on the negation of the postulate of marginal rate of substitution by trade-off between the goals of social justice and economic efficiency (economic growth and poverty alleviation). Thereby, if the social, moral, ethical, and spiritual factors of development are grouped with social justice; and the economic and clinical factors are grouped with economic efficiency, then marginalism between social justice and economic efficiency (economic growth and poverty alleviation) implies the same marginalist states between the variables of these two opposite groups as treated in neo-classical economic theory.

Contrarily, the emergent world-system of wellbeing in Islamic political economy at large necessitates balance and complementarities of positive contributions among the social, spiritual, moral, ethical, and economic and clinical values extended further to artefacts, machines and institutional policies. On such an extension of the endogenously interconnected worldview of unity of knowledge as the ontology of moral consciousness and its induction in all of material artefacts, wrote Michio Kaku: "Consciousness is the process of creating a model of the world using multiple feedback loops in various parameters (e.g. in temperatures, space, time, and in relation to others), in order to accomplish a goal (e.g. find mates, food, shelter)." Kaku calls this definition of phenomenological consciousness as the 'space-time theory of consciousness'. This overpowering and enabling prowess of the unified participatory development worldview is enacted by the ontology of the consciousness parameter denoted by 'θ inducing all the variables.

The defining relationship in the IIE-learning model is df (x(θ))/dθ>0; for x(θ) being monotonically related to 'θ'. The inclusion of truth and falsehood, good and bad in the same choice is untenable because of the limiting value of 'θ' parameter for such opposite categories. Thus complementarity between the opposite values of the consciousness parameter 'θ' is eschewed in the limiting opposite cases, such as of f(x'('θ') being the opposite transformation of f(x('θ')), with lim{'θ'}='θ'; lim{'θ'}='θ' across the evolutionary phases of the IIE. See expression later on.

Such an overarching cultivation of socio-scientific change ought to frame the morally inclusive model of the emergent age of the fourth industrial revolution. It has the scope of presenting a universal model centered on the ontological foundation of IIE learning worldview in the framework of continuity and sustainability of diverse world subsystems. Such IIE formed world subsystems together form a unified world system of endogenously complementary world subsystems engaging evolutionary learning with multivariables and inter-system causality by systemic interaction and integration in choices and decision making.

Linear relations are now eschewed. They are replaced by non-linear relations signifying inter-penetrable symbolic operability. The ever expanding IIE learning world system can be exemplified in our above mentioned four examples of specific world systems: Think of structural change involving participatory development between the urban sector and the rural sector. This in turn will generate flourishing integrated markets interconnecting rural goods and services with urban goods and services. The further consequence of such socio-economic development will mark the rise of innovative microenterprises within the urban and industrial development framework of unity of participatory relations between sectors, markets, and productive diversity. Greater extension of such consequential developments can be human resource development and its dissemination across the rural and urban sectors within a participatory framework of fair, equal, and life fulfilling actualization of science, society, morality, spirituality, industry and rural coexistence.

This kind of pervasive organic participation conveys the unified worldview of wellbeing as the primal objective of socio-scientific development and its life fulfilling future for the generality of all entities under a sustainable model of the fourth industrial development. The emergent model will be different from the neoclassical capitalist models of development that have thus far colored the socio-scientific paths of transformation by their episteme of methodological individualism. Science, society and humanity can be disengaged from such an individualist system outlook and cast anew in the framework of the evolutionary learning participatory socio-scientific one.

The burst of emerging data from the ever-extended diverse socio-scientific domains contributes to the virtual reality of big data analytic fed into and simulated by large data banks and emerging smart computers and artificial intelligence and algorithms. Such is the nature of the future age in which materiality gives way to non-materiality of ever expanding complementary relations explained by ontological functional relations between abstraction and positivism; between virtual reality and materiality. These creative transformations mark the recursive continuity between the normative and the positive, combining together into an ontological methodology as of monotheistic unity of knowledge. The result is a relational worldview of consciousness by unity of knowledge as the primal and pervasivedescription of reality irrespective of any particular closure by time. Only events prevail in the continuity of inter-causal relations in knowledge, space, time dimensions. Indeed, Bertrand Russell (n.d. p. 475) formalized such a concept of relational continuity: "But the causal relation itself is eternal; if A had existed at any other time, B would have existed at the subsequent moment. Thus "A causes B" has no reference to constant particular parts of time."

The compounded non-linear form of the systemic transformation is guided by IIE-learning processes of continuity and sustainability of the ontology of unity of knowledge or consciousness, 'θ', over the dimensions of knowledge, space, time. This is denoted respectively by {θ,x(θ),t(θ)}. Note the centricity of the ontology of unity of knowledge as consciousness, 'θ' embedded in 'everything'. This is true even of time, t (θ), being induced by 'θ'. The conception of Islamic political economy in the generalized system and cybernetic meaning of institutionalism is thereby unraveled by the most extensive domain of the IIE learning universe of diversity of ontic beings standing primarily upon unity of knowledge as the unique and universal consciousness of 'everything'.

The core methodology of the generalized theory of Islamic political economy of institutionalism in respect of the ontology of unity of knowledge of the IIE learning model of qur'anic genre. The generalized methodology of political economy of institutionalism as we have explained as a systemic configuration of the pervasively participatory worldview of interrelations governed by the ontology of unity of knowledge is formalized in expression.

Formalism: Discursive world-system in unity of knowledge as primal ontology-theory of IIE-learning processes.

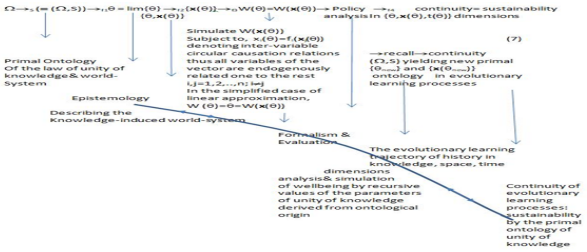

Figure 1. The derived methodology of monotheistic unity of knowledge. The participatory world-system underlying the generalized political economy of participatory institutionalism.

The form of the non-linear complex system generalized model of Islamic political economy of institutionalism by the ontology of unity of knowledge can be expressed as follows in terms of the functional transforms as shown:

Compounded objective criterion Of interdependent functions in Terms of the embedded

$$F_1(\mathbf{x},\mathbf{y},\mathbf{z})[\theta] = f_3(f_2(f_1(\mathbf{x},\mathbf{y},\mathbf{z})[\theta]) = (f_3 \bullet f_2 \bullet f_1)(\mathbf{x},\mathbf{y},\mathbf{z})[\theta] \quad (8)$$

$$F_2(\mathbf{x},\mathbf{y},\mathbf{z})[\theta] = f_6(f_5(f_4(\mathbf{x},\mathbf{y},\mathbf{z})[\theta]) = (f_6 \bullet f_5 \bullet f_4)(\mathbf{x},\mathbf{y},\mathbf{z})[\theta]$$

we denote by, $\mathbf{q} = \{\mathbf{x},\mathbf{y},\mathbf{z}\}[\theta]$ and $\{\theta\} = \{\theta, \theta_{new}, \ldots\}$,

The endogenous variables of each of the functional transforms within systems. The evolutionary learning property as of inter-system characterization by the IIE-model is implied by, $dF/d\theta = \sum_{q \in q}(\partial F/\partial q).(dq/d\theta) > 0$. This expression is monotonically true of 'θ' inducing a moral/ethical choice, and thus subsequently the good choice in this sense of the q(θ)-vector. This is true also in the oppositely complementary sense of say, (θ',q' (θ')). There is no definite mixing of the good with the bad except by way of incomplete learning in unity of knowledge. For such a case the lim{θ}=θ and lim {θ}= θ establishes well-definition of {θ,θ'} as disjoint opposite parameters.

The above mentioned compound function between diversity of problems, issues, and systems in light of the generalized institutionalist meaning that we have defined in this paper, results in the formal inter-causal endogenous relations,

$$F(\mathbf{x,y,z})[\theta] = f_3(f_2(f_1(\mathbf{x,y,z})[\theta])) = (f_3 \bullet f_2 \bullet f_1)(\mathbf{x,y,z})[\theta] = F(\mathbf{p,q,m},H/L(\mathbf{x,y}),\mathbf{s})[\theta] \quad (9)$$

In reference to our four examples given earlier the compound complex formalism is, $f_1(x,y,z)[\theta]=M(m,c,m')[\theta]=M(p,q,m)[\theta]$, as in the extensive definition of exchange underlying the definition of Money (M), Commodity (C) also represented by the vector (p,q); and Monetary growth (m').

Likewise, $f_2((H/L)(x_1,x_2,\ldots,y_1,y_2\ldots,y_m))[\theta]=f_2(H/L(x,y))[\theta]$ for the health sector;

$f_3(s(\theta))$ for the physiotherapy sector.

The compound expression (9) in diversity of issues and problems can now be formalized in reference to the methodology of the relational concept of unity of knowledge in expression (7):

$$F(\mathbf{p,q,m},H/L)(\mathbf{x,y}),\mathbf{s})[\theta] = A(\theta)^*(\mathbf{p}^{a1}*\mathbf{q}^{a2}*\mathbf{m}^{a3}*(\mathbf{H/L})^{a4}(\mathbf{x,y})*\mathbf{s}^{a5})[\theta] \quad (10)$$

The various a's are the stochastic coefficients denoting the sensitivity (partial elasticity) of F(..) relating to the various variables and their simulated coefficients as shown.

The inter-causal relations between the vectors were explained earlier to establish the generalized meaning of the institutionalist nature of inter-systemic relations by endogenous causality. Such an essential nature of the widest system and cybernetic methodological worldview was defined as the socio-scientific idea of Islamic political economy in unity of knowledge between the human world, the animate world, and the inanimate world. These together comprise the overarching definition of the socio-scientific world-system that we have used in this paper. In this light the endogenous inter-variable causality can be formalized in their requisite forms by invoking the widened system of relations by equations of the type in expressions (1-4).

Relating the complexity of IIE learning methodology to 'actor-network' theory of Bruno Latour. Bruno Latour contributed his theory of 'actor-network'. His path-breaking work in this regard is entitled, an inquiry into modes of existence, an anthropology of the moderns. It talks about agency theory as a continuous system and cybernetic form of inter-causal relations between the human and non-human entities comprising the details of the world-system. The idea so contributed came to be known as the 'actor-network' theory of Latour. In his ontology, scientific knowledge is a web of complex interdependencies. Social ontology is part of this. Science thus becomes a social process. Scientific claim to ultimate objectivity is debunked. Thereby, the evolutionary learning methodological worldview is opened up to study human and non-human network relations in entirety. Such is the idea that we have intended to explain in this paper as the Islamic political economy of institutionalism. This field explains the inter-agency network of causal relations in and between the human and non-human world-systems. The result of this kind of organic inter-causal learning is like the elements of qur'anic meta-science comprising the organic meaning of unity of knowledge as the primal ontology with its intrinsic inter-causal relations with the generality and particulars of the world-system [21].

Application of the ontological methodology of unity of knowledge to the theme of Islamic political economy of institutionalism in Islamic social capital formation called waqf. In the light of the ontological formalism followed by application of expression (7) we invoke the example of Islamic charitable institution of productive development at the grassroots, called waqf. The fact that, waqf as productive charity is central to embedding moral consciousness in the formation and growth of institutionalism and firing the intrinsic consciousness into consequential artefacts, makes the formation of capital linked with waqf as social capital [22].

Indeed, the qur'anic derivation of waqf is of productive charity rather than simply material endowment. The Qur'an (2: 261) declares: "The parable of those who spend their property in the way of Allah is as the parable of a grain growing seven ears (with) hundred grains in every ear". The meaning of charity ingrained in this verse is a bestowal of heightened productivity caused by the blessed enterprise of charity [23].

Where else can such moral, ethical, and social capital abide other than at the life-fulfilling grassroots that ameliorate microenterprise, promote empowerment and ownership, guarantee bestowal of health and human resource development, and reduce poverty? The grassroots orientation of the use of waqf carries the recipients into progressive attainment of innovations that comply with the existing and enhanced levels of managed technology, as of the microenterprises. The end result is a complementary adaptation of technology with evolutionary phases of participatory development in the broadest meaning of this participatory concept as organic unity of being and becoming. All these attributes of waqf as productive charity are sustainable over the knowledge, space and time dimensions. Expression (7) explains the progressive phenomenon by the curved evolutionary diagram shown to persist in knowledge, space, time dimensions [24]. These special attributes of waqf as productive charity are implied through the above mentioned qur'anic verse and are further extendable.

Contrarily, spending in endowments like educational, training and medical artefacts does not necessarily trickle down to the needy and thereby generating social capital. The idea of human capital is relevant here as an example. On this conception, bowles and gintis remarked that, if the net social benefit and social cost of education against the individual dividends of education were to be calculated, especially for disadvantaged communities within a national framework, the total rate of return in education may even be negative.

Thus, a distinction must be made between the qur'anic meaning of waqf as productive charity and as simply a material artefact. The meaning attached to the waqf idea as material endowment by latter Muslim generations of clergies was a mistake. The consequence then was a gradual dissolution of the institution of waqf as it fell off the unity of complementary relations that could otherwise regenerate across the extensive domain of life-fulfillment regime of development.

Discussion

One of the deleterious results of the treatment of waqf as material endowment was its private ownership by the donor rather than being a productive charitable donation for social ownership by and for all. Sometimes, as in Malaysia today, government has a high stake in activating waqf as material endowment. The result has been the growth of modern educational institutions using waqf funds. Yet these have no immediate contribution to the uplift of life-fulfilling social

goals. The Ottoman world treated waqf as similar kind of material endowments or as unproductive charity as handouts for the poor recipients.

In the light of waqf as productive charity the productive factors of the endogenously interconnecting variables of the wellbeing function are governed by the monotheistic ontology of unity of knowledge and driven by the IIE learning dynamics. Contrarily, waqf as material endowment used for the uplift of modern institutions and human resources without strong linkage with the amelioration of the grassroots misses out or generates weak complementary linkages with the critical grassroots sector that ought to be in focus for funding by productive charity [25]. Thereby, the impact of waqf as endowment in the absence of its critical meaning as productive charity remains weak on all the elements of the social contract as explained by the wellbeing function. The power of ontology of unity of knowledge is thus eschewed within the endowment specific treatment of waqf having weak linkage as spiritual and social capital [26].

Our above critical observation of waqf in dissociation with its true meaning as productive charity in relation to the life-fulfillment artifacts of the grassroots conveys a distortion of the essential qur'anic law of organic oneness between entities. The meaning of waqf as productive charity is then dislodged from its qur'anic meaning [27].

Choudhury, Pratiwi and Hoque have argued in their paper that the meaning of Tawhid as organic oneness by the monotheistic relational law of unity of knowledge between the various world-system entities is quite different from the idea of the way to understand the ontology of monotheistic oneness and its organic relational meaning in the order of waqf as material artifact [28]. Sectarian differences and human concocted interpretation of the way to understand the ultimate and most essential primal ontology of Tawhid as monotheistic oneness in the relational order with the universal entirety caused the evident separation from inculcating Tawhid as law in the order of reality.

Yet waqf as productive charity and endowment in its productive formulation can be complemented in accordance with the progressive and purposeful unity between these and the dynamic transformation of the grassroots into higher echelons of social and technological actualization [29]. This means that, every entity so influenced by the ontological purpose in its experiential higher stages of refinements applies waqf to the purposeful realization of micro-entrepreneurship, innovation and technology at every point in the knowledge, space, time dimensions [30,31].

Conclusion

In conclusion to the above section on waqf we note the essential need for reforming this institution from its otherwise mistaken ontological precept of differentiation of concepts between productive charity and material endowment. Instead, a fully bred 'actor-network' type organic causal interrelationship of Tawhidi (monotheistic) unity of knowledge with the generality and details of the world-system would establish the foundational ontology.

The Qur'an (1:2) refers to the Islamic world-system as 'a'lameen'. The result then is a study in the Islamic political economy of a universal system and cybernetic concept of 'actor network' entities. In our critical study of waqf these entities take the form of productive charity to subsequently complement with the idea of waqf as material endowment merging with productive charity.

In respect of the ontology of monotheistic unity of knowledge, this ontological invoking remains unique to all of creation. Such an imminent phenomenology is similar to the theory of flat ontology, which argues that all entities are on equal ontological footing. All diverse entities whether they are artificial or natural, symbolic or physical, individual or social possess, this same foundational monotheistic ontology applies.

The concept and formalism of the widest nature and logic of islamic political economy of institutionalism concerns synergistic participatory dynamics of diverse entities in the generality and details of the world-system. This is a subtle study in inter-penetrable symbolism of endogenous variables in the wellbeing function as the objective criterion. In it and by its ontological framework of unity of knowledge the multivariates appear in circular causation of each with the rest. This kind of formalism establishes the inter-relational framework regarding which Koizumi writes about and upon which and its similarities this paper has expanded to the animate and non-animate domains of realities with subtle applications.

Koizumi writes regarding the varied nature of systemic complementarities: "If the world is to be managed at all, it needs to be managed as a social system. This means that the world must be seen as a system consisting of the sub-systems of culture, economy and polity, which though they complement one another, nevertheless conflict one another as they are systems which address themselves to rather different sets of issues in human affairs." Some examples have been given in this paper regarding the 'actor-network' implication of epistemic methodological worldview derived from the monotheistic (Tawhid as law) origin of the qur'anic reality.

In its entirety the theme of Islamic political economy of institutionalism is explained by the ever interacting, integrating, and evolutionary learning entities of the world-system. The emergent methodological worldview marks the seeds of a scientific revolution. In reference to Tawhid as law in meta-science, the quest for the ultimate nature and logic of reality, rests on unity of knowledge and the generality and details of the world-system persisting for ever in knowledge, space and time dimensions. The Qur'an (69:1-3) declares: "The inevitable reality-what is the inevitable reality? and what can make you know what the inevitable reality is?"

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