

A Critique of Ibn Khaldun's Causality Concept

Masudul Alam Choudhury and Bayu Silvia*

Professor of Economics

Department of Economics & Finance

College of Commerce and Economics

Sultan Qaboos University, Sultanate of Oman

*and *Lecturer of Economics, Faculty of Economics*

Trisakti University Jakarta, Indonesia

masudc60@yahoo.ca

<http://www.uccb.ns.ca/mchoudhu/ipe.htm>

bayusilvia@yahoo.com

Abstract. The importance of circular causation in explaining the dynamics of learning systems that cover the entirety of human experience is pointed out. Yet despite claims, Ibn Khaldun is seen to have failed in addressing the analytical nature of this central theme of historiography. Recent authors who have contributed to the same theme in favor of Ibn Khaldun also could not comprehend the analytical learning aspects of the systems worldview of circular causation. Contrary to these developments both in Ibn Khaldun's contribution and by recent authors on Khaldunian thought, this paper develops an analytical methodology of circular causation in the light of the worldview of unity of knowledge, termed in the *Qur'an* as unity of the divine laws, *Tawhid*. This analytical conceptualization is then applied to specific issues of historiography, political economy, modernity and socio-economic development in order to bring out the dynamic learning context of circular causation as a universal methodology premised on the *Qur'anic* epistemological worldview. Comparative studies on causality as methodology in the philosophy of science in the prevalent literature are examined.

Objective

In this paper we first inquire the following question: How did Ibn Khaldun address the problem of unification of knowledge in his

dialectics of society and historiography? In the answer to this question we investigate the dialectics based on Ibn Khaldun's concept of circular causation between socio-economic activities and events. After a critique of the Khaldunian concept of dialectics in the light of causality we go on to explain the missing link of circular causality in Ibn Khaldun and its replacement by the dynamic worldview of the *Tawhidi* (oneness of divine law in the *Qur'an*) learning world-systems. We expound this epistemological methodology in detail as a critique of Ibn Khaldun's methodology to explain circular causality in the historiography model.

Introducing Ibn Khaldun's Concept of Causality in Historicism

In his magnum opus, *Muqaddimah* (Introduction to the Study of History) Ibn Khaldun did not provide a functional understanding of the *Qur'anic* principle of historicism, the philosophy of history. He also did not explain the following dialectical question: How after the early beginnings of solidarity and frugal life of the Muslim community fired by the spirit of the *Shari'ah* as its law, and its subsequent decadence in ethical life with the growth of nation, can the nation state, *umran*, once again spur a turn around to moral values? In other words, Ibn Khaldun did not explain the dynamics behind historical *cycles* that can recapacitate the most advanced technological civilizations to return to divine roots and thus to the divine laws, even in the midst of material worldly quests.

Ibn Khaldun talked of the *Shari'ah* as a science of culture in terms of its universal moral worth but succumbed to the empirical sociological analysis of social changes in North Africa during his time (Mahdi, 1964), where the *Shari'ah* was absent. Hence, Ibn Khaldun proved to be similar to Hume (1987) as an inductive reasoning social philosopher and different from Kant (trans. Paton, 1964), who was a deductive reasoning philosopher of science. In so dichotomizing analytical reasoning, Ibn Khaldun continued on treating logic as being partitioned between the deductive and inductive parts. This was a pursuit contrary to the principle of unity of knowledge as spelled out in the knowledge-induced circular causation and continuity model of the *Tawhidi* worldview. We shall expound this point below. Thus Ibn Khaldun could not invoke and articulate the *Qur'anic* law of historicism to explain the cyclical motion of civilizations between their rise and fall.

Recent Reconstruction of Ibn Khaldun's Praxis

Chapra on Ibn Khaldun's Causality

Chapra (2001) tries to uncritically praise Ibn Khaldun on the basis of the relations that he claims to be a circular causation diagram. He writes (p. 150), "If one were to express Ibn Khaldun's analysis in the form of a functional relationship, one could state that: $G = f(S, N, W, g \text{ and } j)$." In this expression, G denotes the Government variables; N denotes population; W denotes wealth, S denotes *Shari'ah*; g denotes a stage of development; j denotes social justice.

The methodological incorrectness of Chapra's analysis of circular causation in the above expression commences from his complete silence on what mobilizes the *endogenous interrelationships* among the stated variables. If S is a separate entity as shown, then note that if S influences {N, W, g and j} while all of these variables together influence S, then there must be a common factor that remains intrinsic in all these variables to affect the circular relations. Chapra is silent on what that centrally critical factor is. To resolve the issue, Chapra brings about the predominance of Government to chart the course of behavioral and social change.

This approach ignores the centrally important topic of endogenous transformation in a free market and society with an evolving endogenous developmental venue formed under the impact of ethicizing forces (Sen, 1985; North, 1981). The topic of creative behavioral change emanating from knowledge-induced dynamic preferences in agents and systems remains foreign to Ibn Khaldun. Chapra has not considered the same problem in his work.

Without the central and critical role of the common factor of unity of knowledge it is impossible to explain sustainability in the system. There exist only enforced socio-economic interrelationships. Ibn Khaldun's model thus remains a top-down approach, not an endogenous grassroots approach in explaining socio-economic transformation.

Enforcement of institutional laws, whether this is done by the *Shari'ah* or any other means enacted by powerful governments, has indeed been the background of Ibn Khaldun's theory of state and society. In such a state-society (G--N) relationship, Ibn Khaldun recommends legislation of the *Shari'ah* (S), and thereby of institutional justice (j) and state predominance in development and the economy (W, g).

This kind of politico-economic imposition has indeed caused the backwardness and bondage of Muslim nations for a long time now in understanding the knowledge-induced role of freedom, liberty, participation and collective action through dynamic preference changes. Creative thinking, fresh ideas, novelty and freedom to think and act, have all succumbed to the petrified nature of state predominance.

Chapra's delineation of Ibn Khaldun's social dynamics is made to characterize a circular relationship (p.149). The impending question in it is this: If knowledge in both its primordial *Tawhidi* essence and in its flow form is not substantively invoked in that model, then what brings about the outward evolution of the circles in the diagram used? Chapra's explanation is that the circular interrelationships among {G,S,N,W,g,j} cause the evolution to occur. Yet as noted earlier, S must have its core (*Qur'an* and *Sunnah* as epistemology and ontology, respectively) and periphery (the non-substantive *urf* and *adah*). The *core* of the *Shari'ah* does not change. The core is the essence of the divine law combined with the divinely inspired Prophetic sayings (*al-ahadith al-qudsiyah*). Hence, Chapra's circular movement is possible *only* in terms of the peripheral part of the *Shari'ah*. The core remains exogenous and a regulating imposition. Yet the periphery is not of substantive essence.

Baqir al-Sadr on Ibn Khaldun

In more contemporary times Ibn Khaldun's idea of history had a profound influence on Baqir al-Sadr of Iraq (Aziz, 1994). Baqir al-Sadr's idea of history was deeply premised on the precept of the pre-ordained universe according to the divine laws. This was cast on the declaration of the *Qur'an* that the ways of Allah remain unchangeable over space and time. Baqir al-Sadr's historical process rested on three factors. These are, first the stages of mankind's actualization of self within religious experience. Secondly, there is the stage of unity and solidarity between self and society as the essence of humanity, which is referred to as *fitra*. Thirdly, there is the stage of dispersion of the human race through conflict and self-centered egoism. Baqir al-Sadr argued that all of these take place within the domain of the divine laws as a flawless and complete entirety.

The circular causation model of unified reality differs from Baqir al-Sadr as from Ibn Khaldun's by invoking the *Qur'anic* precept of pervasive unity. Within this the manifestation of conflict and disunity in

humankind is the law of 'de-knowledge'. In the knowledge-induced worldview pronounced by *Tawhid*, convergence of the world-systems is not towards conflict, as in the 'de-knowledge' model. Rather, the convergence is towards a profound sense of systemic unity in the world-system ('*alamin*). Its fullest actualization is a cumulative process that ends up in the Hereafter. Hence in the circular causation model of unified reality the Hereafter (A) is a functional concept like *Tawhid*. The two are equivalent to each other as in an isomorphic mapping of identity, $T \leftrightarrow A$.

Within this perfect equivalence reside the knowledge-induced interactive, integrative and evolutionary processes of all world-systems. History in this sense, unlike Ibn Khaldun and Baqir al-Sadr's ideas, is a continuous movement proving the decadence of falsehood and the rise of truth. In this regard the *Qur'an* declares (10:32-34),

“Such is Allah, your real Cherisher and Sustainer: Apart from Truth, what (remains) by error? How then are you turned away? Thus is the Word of your Lord proved true against those who rebel: verily they will not believe. Say: “Of your ‘partners’, can any originate creation and repeat it?” Say: “It is Allah Who originates creation and repeats it: Then how are you deluded away (from the truth)?”

Ibn Khaldun could not establish the groundwork of *Qur'anic* historicism reflecting Islamic transformation and change. Instead, he resorted to empiricism and inductive reasoning to explain social dialectics by observing the social and economic states prevailing in North Africa during his time. Ibn Khaldun's predicament was thus similar to Adam Smith's much later on. Smith too had to abandon his profound project on human sympathy and the natural liberty law found in his *Theory of Moral Sentiments* as he moved to his magnum opus on the market theory of exchange and human nature, *The Wealth of Nation*.

How is the Knowledge-Induced Circular Causation Model of Unified Reality Explained by the *Tawhidi* Worldview?

The analytical paradigm of the *Tawhidi* worldview is a singular and emphatic advance in the functional understanding of unity of the divine law in action in learning fields. Original contributions in contemporary

times in this area that actualize the methodology and modeling of the circular causation and continuity model of unified reality may be claimed as a revolutionary opening to human inquiry in all ethical world-systems, Islamic or other. Thus the universality conception is embedded in this methodology and the underlying methods for delineation, explanation and application of circular causation to a widest class of issues and problems.

Universality of the *Tawhidi* worldview methodology arises from the fact that the simple primitive conception of the oneness of Allah or the unity of divine knowledge as expressed by the relation:

“From *Tawhid* in the primal to *Tawhid* in the Hereafter through learning in unification of knowledge in the world-systems”

The dynamics inherent in this correspondence leads to a massive field of complex analytical developments in the widest domain of socio-scientific inquiry.

At this point one notes the remark of scientific universality made by Einstein: “A theory is more impressive the greater is the simplicity of its premises, the more different are the kinds of things it relates and the more extended its range of applicability.” Leibniz too remarked in a similar way, that if a geometrical point can explain the universe then that point is as real as the universe itself. Such a point is our elementary ‘pairing’ point of knowledge. In the *Qur’an* this is the concept of origination, *Fatara* (*Qur’an*, Chapter 34).

The contributions of Mona Abul-Fadl (1989) inciting the field of *Tawhidi* episteme are worthy of note. Choudhury’s original contributions (2006) incorporate specific development of the *Tawhidi* knowledge-centered worldview in the methodology of circular causation and continuity model of unified reality in substantively meticulous details, combining in it original work and *Qur’anic* exegesis, historicism, philosophy of science, advanced mathematical methods, economic, social and scientific reasoning. The result is Choudhury’s (2006) magnum opus, *Science and Epistemology in the Qur’an* in five volumes.

How is the Process Model of Learning Explained by the *Tawhidi* Worldview?

How is the knowledge-induced circular causation and continuity model of unity of knowledge explained by the interactive, integrative and

evolutionary methodology (IIE-process) of the *Tawhidi* worldview? Note that we refer to this methodology as a worldview because of its claim of organic uniqueness of unity of knowledge as the epistemology for all the sciences.

The Formalism of the Knowledge-induced Worldview in IIE-methodology

In explaining our knowledge-induced circular causation model, Chapra's G-function is now replaced by the wellbeing function. The wellbeing function denotes the social criterion to evaluate the degree of unity of knowledge gained by complementarities between agents, variables and processes that are included in this criterion function. Because of the intrinsic unity of knowledge among agents and system variables and their relations in the wellbeing function, the knowledge-flow variable, θ , becomes the common factor in all variables. θ is derived from Ω as the central factor that augments and endogenizes the *interrelationships* among these variables, thus establishing circular causation across learning continuums.

Now let us denote the wellbeing function by,

$$W=W(\theta,G,S,N,w,g,j;\cap\geq)[\theta] \quad (1)$$

This expression means that each of the variables is *endogenously* interrelated due to the common appearance of θ as limiting value of knowledge values obtained by discourse on given issues at hand. θ is institutionally assigned by observing and interactively conceding on given ordinal values in response to the degree of relational unity of knowledge that is found to prevail and to be desired in the socio-scientific order pertaining to the problem under investigation. Determination of ordinal measures for θ -value requires institutional participation in concert with the reality presented by prevailing socio-economic conditions.

The derivation of θ from Ω -episteme encompasses the core of the *Shari'ah*. Now $\{\cap\geq\}$ signifies the participatory actions and responses leading to interaction (denoted by diversity in the *Tawhidi* model of a discursive society, the *Qur'anic shura*) and integration (denoted by the mathematical intersection, \cap). Dynamic preferences $\{\geq\}$ are augmented by knowledge-flows premised on the *Tawhidi* episteme. Thus we write, $\{\cap\geq\}[\theta]$.

Next on simulating the wellbeing function through the circular causation model of unity of knowledge with creative evolution, we obtain the circular causation relations derived from recursive relations between knowledge-flows and system-institutional interacting and integrating variables in the learning model.

The full simulation model now appears as follows:

$$\begin{aligned} &\text{Simulate } \{\theta\} W=W(\theta(A),G,S,N,w,g,j;\{\cap\geq\})[\theta(A)] & (2) \\ &\text{Subject to,} \end{aligned}$$

$$G(\theta) = f_1(\theta(A),S,N,w,g,j;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (3)$$

$$N(\theta) = f_2(\theta(A),S,G,w,g,j;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (4)$$

$$S(\theta) = f_3(\theta(A),N,G,w,g,j;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (5)$$

$$w(\theta) = f_4(\theta(A),S,G,N,g,j;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (6)$$

$$g(\theta) = f_5(\theta(A),S,G,N,w,j;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (7)$$

$$j(\theta) = f_6(\theta(A),S,G,N,w,g;W(\theta(A));\{\cap\geq\})[\theta(A)], \quad (8)$$

$$\theta = f_7(\theta, G, S, N, w, g, j; W(\theta(A)); \{\cap\geq\})[\theta(A)], \quad (9)$$

In the above system of endogenously related variables, the lagged values are indicated by the (-). Each such circular causation relation is subscripted by $\{\cap\geq\}[\theta]$. This denotes interactive and integrative learning. Interaction is signified by diversity and multiplicity of knowledge-flows. Integration between these knowledge-values is denoted by \cap . Details of such interactive and integrative learning among the agents and systems are not shown here. Evolutionary knowledge-induced preferences in the participants occur due to the evolution of $\theta(A)$ -values.

‘A’ denotes the divine attributes that are preconditions to the moral, ethical and the corresponding material transformation in the circular causation model of unified reality. They qualify the level of knowledge acquired through the process of discourse and simulation of $\theta(A)$ -values recursively across agency, variables, their relations and systems.

The attributes ‘A’ comprise the vector {Justice (*mizan*), Purpose (*maqasid*), Certainty (*yaqin*), Felicity (*falah* as wellbeing expressed as a function here), Creative Re-origination (*khalq jadid*) in the sense of self-referencing the system of actions and responses to *Allah* alone}. $A(\theta)$

denotes an immutable essence of knowledge. Individuals and society advance their understanding of these attributes and knowledge-flows by learning in the process-oriented methodology of the knowledge-induced circular causation model of unified reality. That is, humankind can both innately invoke *Tawhid* (the deductive process) and can present it consciously in the universe (*tafakkur*) to come to the realization of divine oneness (inductive). Thereafter, the motion of learning ensues in a cyclically endogenous fashion between deductive and inductive reasoning and continuously so till the Final Event of the Hereafter. The Hereafter is thus the supreme event of the unraveled completeness of knowledge in *Tawhid* (*ilm al-ma'rifah*). Hence in the Hereafter, *Tawhid* is equivalent to the knowledge completeness of the primordial knowledge stock denoted by Ω .

We also note the exogenous nature of 'A' as essence in the formation of θ -flows in the circular causation methodology. Justice as balance (*mizan*) is an attribute in 'A' in the circular causation model of unified reality.

The symbol 'j' in expression (2) is assigned ordinal values in accordance with the post-evaluation of socio-economic variables in the light of socio-economic issues such as equitable distribution, balance in inter-sectoral allocation of resources, avoidance of interest rate, development of entitlement and empowerment at the grassroots, alleviation of poverty and deprivation and many other ethical development issues.

An quantitative example on estimation of the social wellbeing function subject to the circular causations between its endogenous variables is given in the appendix. The case is for socio-economic development with alleviation of unemployment and poverty by means of the critical social perspective of national output, namely real GDP per capita and the moral spending variable of *Zakat*. *Zakat* is the Islamic take of 2.5% on the net wealth of the well-to-do for specific categories of expenditure (Qur'an 2:177; 9:60).

Ibn Khaldun's Causality Model Cast in the Circular Causation Model of *Tawhid*

Ibn Khaldun's causation model is now re-explained by the learning model of unified reality in terms of the following relational form showing circular causation:

$$\begin{array}{ccc}
 P_1 & & P_2 \dots \\
 \hline
 [\Omega \rightarrow_s \{\theta^*\}] \rightarrow_f \{\theta\} \rightarrow_f \{\theta, G, S, N, w, g, j\} [\theta] \rightarrow_w W(\theta, G, S, N, w, g, j) [\theta] \rightarrow_{New} \{\theta\} \rightarrow \text{etc.} \Omega \\
 \textit{Tawhid} & & (10)
 \end{array}$$

Core of *Shari'ah*

Consensual knowledge-flow
 by interaction
 Interaction among the
 knowledge-induced
 socio-scientific variables
 Simulated wellbeing function
 Creative evolution till *Akhira*

In the *Tawhidi* String Relation (10) (TSR), $[\Omega \rightarrow_s \{\theta^*\}]$ signifies the exogenous nature of the *core* of the *Shari'ah*. \rightarrow denotes mappings such as f, f', w etc. $P_i, i = 1, 2, \dots$, are knowledge-induced circular causation *processes* showing the endogenous nature of the knowledge-induced variables and their unifying relations across systems. It also establishes unity of knowledge in terms of the deductive and inductive logic of scientific reasoning.

It is essential to note here the difference between the precept of the *core* of *Shari'ah* and the knowledge-flows $\{\theta\}$, in which is included the *peripheral* aspect of the *Shari'ah*. Only $\{\Omega, \theta^*\}$ comprises the *core* of the *Shari'ah* and thus becomes the fundamental epistemology and ontology of the *Tawhidi* worldview. $\{\theta\}$ on the other hand, comprises discoursed rules (*ahkam*) in the socio-scientific nature of consultation, participation and hence learning. This is the Islamic *shura*. Participation in it to discover the unity of knowledge and simulate the social wellbeing criterion by recursive learning is termed here as the *shuratic* process. The *shuratic* process simulates interaction between diverse $\{\theta\}$ -values in deriving rules from fundamental epistemology (*ijtihad*) leading to consensus, and hence a limiting value of θ (*ijma*, also *qiyas* = analogy) derived from the $\{\theta\}$ -values. The θ -value thus endogenously qualifies the preferences and variables including policy variables and instruments pertaining to the socio-scientific problem under investigation.

Circular Causation

The *process* of IIE is of a *causal* nature existing in circular continuity.

In such a process, endogenously generated, repeated rounds of cause and effect are sequentially intermingled with the endogenous nature of all relations that are formed and re-generated by interrelationships between knowledge-flows and their induced forms followed by fresh and evolutionary knowledge-flows, and so on. Only the divine root of unity of knowledge of the divine laws denoted by the topology, Ω , remains exogenous at every point of commencement of a recursive learning process. This also implies the exogenous nature of the core, rather than of the variant peripheral part of the *Shari'ah* in every action and response of the Islamic world-system.

We then have a composite relation. It is formed first by the episteme of the divine laws (*Sunnat Allah*). Secondly, it is combined with the Guidance of the Prophet Muhammad (*Sunnat al-Rasul*, or *Sunnah*). These two together establish the *fundamental* episteme of unity of knowledge in the *Tawhidi* worldview. They form the immutable *core* of the *Shari'ah*. The word 'episteme' is referred to here as the totality of a theory of knowledge in the sense of Foucault (trans. Sheridan, 1972).

Subsequent discourses in furthering the interpretation and application of the *Shari'ah* to space-time contexts do not form the core. They are in the *periphery* of the *Shari'ah* -- introduced, affirmed and changed according to changing issues, problems, customs and practices in space-time contexts (*urf* and *adah*) and interpretations with the evolution of knowledge-flows. Thus the primordial episteme of knowledge becomes the only exogenous element of the otherwise extensively relational worldview of diversity, change, flux and unification. Such a feature encompasses the periphery of the *Shari'ah*.

Circular causation is thus the relational order of extensively complementary knowledge-induced world-systems premised on the *Tawhidi* unity of knowledge. Such a relational order of unity is functionally understood in terms of unification of knowledge as a process by using the interactive, integrative and creatively evolutionary methodology worldview methodology.

The process-oriented worldview of perpetual learning in the knowledge-induced world-system continuously recreates circular causation once it is derived from the primordial *Tawhidi* episteme. Prophetic guidance (*Sunnah*) is used as the transmission function for mapping the *Tawhidi* episteme to the world-system (*'alamin*). Thereby, knowledge-flows emanate and generate endogenous causal

interrelationships between themselves and their induced forms. Subsequently in the IIE-model, each such knowledge-formation and induction process is continuously regenerated by subsequent ones of the same type across diversity of agents, variables, their relations and systems. The *Qur'an* presents such continuously emanating processes through causation, circularity and continuity as the pervasive phenomenon of re-origination by the will of God. Such reflective and re-originate orders in the *Qur'an* are together referred to as the *khalq jadid*.

The terminal point of the circular causation and continuity model of unified reality is the Hereafter (*Akhirah*). Thereby, continuous search, discovery and learning are endogenously embedded in the IIE-methodology of the processual type as extensive forms of recursively generated *ijtihad*, *ijma'* and *khalq jadid*. Such processes continue on till the end of the temporal world. In this sense of the knowledge-pervasive worldview, the event of *Akhirah* (Hereafter) marks the completion of all cumulative knowledge-flows. Consequently, the realized optimal world-systems ('*alamin*) are fully actualized in their optimized knowledge-induced cognitive and experiential forms in the *Tawhidi* episteme. The final states of optimal fullness of cumulative knowledge-flows and the consequentially attained experiential orders denote the manifestations of the super-cardinal knowledge and knowledge-induced entities within *Tawhid*. The *Qur'an* terms this actualization as the supreme felicity (*falah azim*).

Ibn al-Arabi (trans. Chittick, 1989) and Imam Ghazzali (trans. Buchman, 1997) pointed out that knowledge is possible only in the framework of *Tawhid*. What is not so derived epistemologically and pursued cannot be knowledge. Thus we identify all sensations derived from rationalism as falsehood. The *Qur'an* refers to such rationalist sensations as floundering in 'floods of confusion'.

Contrasting Dynamics of 'de-knowledge' in the *Tawhidi* Worldview Methodology

Similarly, in the knowledge-induced circular causation and continuity model of unified reality the distinction between truth and falsehood is formalized in the contrasting framework of the knowledge-

centered worldview of unity and the framework of 'de-knowledge'-centered worldview of rationalism characterized by plurality, competition, alienation and methodological individualism. However, the same superstructure of the *Tawhidi* worldview explains both of these divergent systems by means of the unique methodology of the IIE-process. Here mathematical 'complementation' (opposites) between knowledge and 'de-knowledge' is used to develop the 'de-knowledge' model as an opposite reality. For details on this topic see Choudhury (2000).

An important consequence of circular causation is the way deductive and inductive reasoning are sequentially integrated. What is deductively derived from the episteme of a given set of knowledge-flows and relations to construct a state of the world-system provides new springs of knowledge-induced relations emanating from the attained states of the knowledge-induced entities and so on in the circularly sequential advance along the knowledge evolutionary path. Thus the circular causation proves another important area of integrated knowledge. This is of integration between the deductive and inductive knowledge, the dichotomy between which has seized rationalistic logic permanently.

Uniqueness of the Methodology of Interactive, Integrative and Evolutionary Worldview for all World-Systems

Substantive themes of complexity, time and knowledge, timal topology in super-cardinal topological spaces, systems and cybernetics of extensively relational type, knowledge-induced evolutionary equilibriums, simulation as opposed to optimization in the knowledge-induced fields, are to be found as some of the many new and emerging ideas that revolve round the knowledge-induced circular causation and continuity methodology of unified reality. Thus we claim that the IIE-methodology is the unique methodology for all world-systems because of its roots in *Tawhid* episteme of unity of knowledge.

As few examples taken up here, we note how the IIE-methodology of circular causation (CC)-methodology is premised on *Qur'anic* precepts of historicism. Ibn Khaldun had much to contribute to the theme of historicism. Yet his circular causation model failed to explain the learning historicism of the *Qur'an*.

***Qur'anic* Historicism**

We begin by defining the concept of *Qur'anic* historicism as the philosophy of history that marks the growth and decline of civilizations in space-time context in terms of humankind's nearness or distance from the path of *Tawhid*. In the knowledge-induced circular causation and continuity model of unified reality such a perspective on historicism is poised between the worldview of unity of knowledge and that of 'de-knowledge'. Since the IIE-methodology is endogenously causal in nature, therefore, the effects of the two organic historical changes are reflected in both the knowledge and the 'de-knowledge' planes and pervasively in their respectively induced world-systems over space and time.

Qur'anic historicism can be explained as the dialectics of civilization change oscillating between truth and error according to the knowledge or 'de-knowledge' worldviews, respectively. In this regard the *Qur'an* declares (6:6):

See they not how many of those before them we did destroy? – Generations We had established on the earth, in strength such as We have not given to you – for whom We poured out rain from the skies in abundance, and gave (fertile) streams flowing beneath their (feet); yet for their sins We destroyed them, and raised in their wake fresh generations (to succeed them).

The concept is thus embedded as much in human history as in natural and cognitive history. The latter are manifestations of equilibrium and disequilibrium dynamics based on the groundwork of logical and illogical derivations of rules.

Modernity and Development

Modernity and socio-economic development are organisms causally related with the evolutionary phenomenon of learning and unification in knowledge-induced circular causation and continuity model of unified reality. This is a derivation from the *Qur'anic* precept of organic re-origination, termed in the *Qur'an* as *khalq jadid*, the creative re-origination for both the evolutionary knowledge-induced world-systems and the final recreation in the Hereafter. It thereby extends from the human domain of interaction into interrelationships between the human

world and the non-human world with which the human world interacts with and learns.

The meaning of socio-economic development according to the knowledge-induced worldview is a changing spectrum of real world facts. These are explained and measured in terms of the growth of output, population change, production, ownership and distribution of income and wealth, utilization of productive factors, economic stabilization, inter-sectoral linkages, security and sustainability, all according to their intrinsic interrelationships in the knowledge-centered methodology of unity, complementarities and diversities and evolution. Only very recently has such an idea of modernity and development become popular through the works of Giddens (1983).

On the contrary, if the worldview of pluralism and methodological individualism are invoked, then in spite of their Darwinian type interaction between natural selection and the Popperian type refutation hypothesis, modernity as a process of re-origination and change, and socio-economic development as a study of sustainability, devolve into the 'de-knowledge' model of change by conflict. Modernity is then understood as transition according to a Eurocentric world-system concept. An example here is Fukuyama's thesis (1992) emphasizing Hegel (trans. Sibree, 1956) on civilization convergence to the dominance of Western Civilization. Modernity of this type suppresses other forms of cultural reality and inter-civilization dialogues. Such an attitude is also to be found in Schumeter's (1972) *History of Economic Analysis* due to its silence on the contribution of Islamic civilization in the emergence of economic ideas. It is also to be found in Huntington's (1993) thesis on the clash of civilization, and so on.

On the side of socio-economic development, the 'de-knowledge' model dispenses with the pervasively interactive model by adopting the neoclassical marginal substitution hypothesis in resource allocation to explain competition between productive factors, between productive sectors, between efficiency and distributive equity and results in morals and values to become exogenous in economic analysis. The consequence of marginal substitution is the end of learning and novelty in the states optimality and steady-state equilibrium of rational choice. No matter how the world development paradigm turns out today, that is, toward an endogenous growth model (Romer, 1986), to Nurkse's balanced growth (1971) model or to the ecological model of sustainable development, yet

the paradigm of complementarities and inter-systemic interaction is subduced in the neoclassical model of exogenous ethics without a unifying episteme.

Combining Sustainability and Political Economy in the Wellbeing Function

Consider the wellbeing function of sustainable socio-economic development in the context of Islamic political economy. Here the goal of economic growth is a derived relation of wellbeing criterion. Economic growth is not a primal goal. It is intertwined with other goals, all together interactively leading to the criterion of wellbeing in the IIE-sense, equivalently in the sense of circular causation. Other factors, such as population change, ownership and distribution of wealth, employment and enterprise, ecological consciousness, sectoral linkages, price stabilization and resource mobilization, *etc.* are some of the other variables that we can interactively simulate in the wellbeing function by simulating knowledge-flows and their causal interrelationships with knowledge-induced forms.

Such knowledge-flows and their induction of entities pertaining to specific problems and issues addressed are evaluated in two ways. First, there is the spontaneous action and reaction between institutions, policies and instruments by the participating and discoursing agents. We have called this kind of interrelationships between the human world and the world-systems (*'alamin*) as the *shuratic* process, deriving its substantive meaning from the *Qur'an*.

The second way to evaluate the ordinal nature of the knowledge-flows is to engineer the knowledge assignment and its induction of the world-system entities into mathematical forms that are simulated by computer algorithm and that learn continuously in self-organizing ways. Knowledge-flows are now assigned ordinal forms. Endogenously derived policies now appear through causation and learning with recursive sensations received from the real world. The total process is then post-evaluated, and thereby, institutionally simulated by circular cause and effect in concert with the world-systems under investigation. Thus, institutionally sensitive relations in the framework of the *shuratic* process are endogenized in models of socio-economic development, economic transition, change and sustainability by means of learning premised on *Tawhidi* unity of knowledge.

Conclusion

Ibn Khaldun was a *Shari'ah* scholar. Yet the endogenous nature of the circular causation process that emanates from the *Tawhidi* premise and then builds upon this continuously through interaction, integration and creative evolution, remained absent in his thought. Consequently, the theme of *Qur'anic* historicism could not find its way into Ibn Khaldun's thinking on the rise and fall of civilization.

The emergence of the universal and uniquely applicable of unity of knowledge to all problems of socio-scientific world-systems requires a model of integrated and continuous learning over space, time and knowledge-induced domains. We have formalized such a learning model of unity of knowledge and the socio-scientific world-systems in this paper. In doing so, we have brought out the contrasting approaches between the methodology of circular causation of the *Qur'anic* genre, which we identified with the *Tawhidi* episteme in terms of its ontological and ontic (evidential) parts, and the nature of causation in Ibn Khaldun's model. In recent times, the scientific research program of unity of knowledge through organically learning world-systems is occupying the frontier of knowledge. The reader may refer to some of these intellectual developments in in Primavesi (2000).

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Technical Appendix

The circular causation in a phenomenological context mentioned in the paper is now empirically illustrated. Expression (1) is a version of the ranked ordinal-valued multidimensional social wellbeing index. Measured values of social wellbeing are represented by Simulated θ -values. Estimation here is done for Muslim population in Indonesia for Year 2004 across provinces. Indonesia is the largest Muslim country; also the incidence of unemployment and poverty is the highest in this population. θ -values are calculated as ranked ordinal values of wellbeing by averaging the levels of relations between these combined variables as shown. Variable-values for the year 2004 were computed by a combination of formula and discursive approach.

$$\theta = 73.220 - 1.676 \ln X_1 - 4.605 \ln X_2 + 8.628 \ln X_3 + 0.555 \ln X_4 \quad (1)$$

t-statistics (5.309) (-0.706) (-5.097) (3.026) (0.212)
R-square = 0.852; DW = 2.056.

The social wellbeing function takes the form of a positive monotonic transformation of,

$$W(\theta) = A(\theta) \cdot X_1^{-1.676} \cdot X_2^{-4.605} \cdot X_3^{8.628} \cdot X_4^{0.555}. \quad (2)$$

- X_1 denotes unemployment of Muslim population;
 X_2 denotes population size of poor Muslims (poverty variable);
 X_3 denotes real GDP per capita, RGDPP (Rupiah);
 X_4 denotes potential *Zakat* payment (Rupiah).

The circular causation relations between the variables explain systemic complementarities by equations (2) – (5). Complementarities imply inter-systematic participation as between sectors of unemployment, poverty, and their amelioration by means of RGDPP and *Zakat* financing. The implications of privatization in these estimations are in respect of SME's. They need to be promoted strategically within a participatory framework of development in the context of simulating social wellbeing. The synergy between rural and urban sectors can thus be established.

$$\ln X_1 = -4.534 + 0.058 \ln X_2 - 1.001 \ln X_3 + 1.051 \ln X_4 \quad (2)$$

t-statistics (-6.363) (0.781) (-7.692) (16.278)
R-square = 0.963; Durbin-Watson = 1.589.

$$\ln X_2 = 6.312 + 0.398 \ln X_1 - 0.482 \ln X_3 + 0.192 \ln X_4 \quad (3)$$

t-statistics (2.315) (0.781) (-0.787) (0.338)
R-square = 0.525; Durbin-Watson = 2.034.

$$\ln X_3 = -3.392 - 0.694 \ln X_1 - 0.048 \ln X_2 + 0.847 \ln X_4 \quad (4)$$

t-statistics (-5.016) (-7.692) (-0.787) (12.324)
R-square = 0.881; Durbin-Watson = 1.467.

$$\ln X_4 = 4.182 + 0.866 \ln X_1 + 0.023 \ln X_2 + 1.008 \ln X_3 \quad (5)$$

t-statistics (6.639) (16.278) (0.338) (12.324)
R-square = 0.977; Durbin-Watson = 1.349.

The estimated coefficient-signs have the correct signs and acceptable statistical results showing goodness of fit and reliability of the estimates. The estimated equations show that higher percentage increase in RGDP increases employment and reduces poverty. This calls for a better rural and urban linkages and better distribution of income that can arise from inter-sectoral linkages. Other policy implications of this case for SME's were given in the paper.

A higher percentage increase in *Zakat* mobilization is required when percentage unemployment and poverty remain high. Community implications of such social control by means of endogenous resource mobilization (*Zakat*) remain an important feature of the microeconomics of socioeconomic development of SME's in Indonesia by regions.

The estimated coefficients of the circular causation equations show expected relations between RGDP and *Zakat*. More *Zakat* funds are circularly complemented with RGDP. Complementarities here can be realized through entitlements generated by *Zakat* funds at the community level enhancing earnings and productivity in SME's.

In the social wellbeing function in the given variables complementarities, and thereby, participatory relations between urban and rural sectors via interdependent socioeconomic effects give the following results:

Negative change in wellbeing index (θ) per unit of percentage increase in unemployment = - 1.676. Negative change in θ -value per unit of percentage increase in poverty = - 4.605. Positive change in θ -value per unit of percentage increase in RGDP = 8.628. Positive change in θ -value per unit of percentage increase in *Zakat* payment = 0.555. Of all these, RGDP holds the highest impact and enhances in turn the *Zakat* effect. These compounded effects can enhance the development of SME's in realizing socially productive unemployment and poverty reduction.

In each of the estimated equations the implications of private sector and development complementarities are implied by the use of RGDP and *Zakat* in attaining the social objectives, namely unemployment and poverty reduction. Complementarities exist between such ethical and social activities in the rural and urban sectors via RGDP and *Zakat* payment. The totality of such complementarities enhances social wellbeing in its multidimensional variables, as shown by expression (1).

The above quantitative model is an illustrative estimation of the social wellbeing index subject to circular causations between the complementary variables. A detailed estimation will involve simulation of the socio-economic variables across subsequent processes of knowledge-generation (θ -values). This will involve higher methods of simulations, such as Spatial Domain Analysis (Choudhury & Hossain, *forthcoming*) and random coefficients non-linear model estimation.

Table 1. Social Indicators for Studying the Impact of Privatization, Indonesia by Provinces, 2004.

	Provinces					Teta 1	Teta2	Teta3	Teta4	Average Teta	Rank Teta
1	NAD*	217422.1640	1125511.9630	6.545451488	18837548.83	27.4518	25.5154	5.5800	3.4300	15.4943	14
2	SUM-UT*	417476.4760	1664058.8940	6.678284474	42784327.55	25.0356	23.1965	5.7100	6.6200	15.1455	9
3	SUM-BAR*	220887.0228	430281.0642	5.745261174	21335683.45	27.4103	28.5090	4.7900	3.7600	16.1173	23
4	RIAU*	311306.1737	675606.6513	18.97502506	76622370.23	26.3273	27.4526	17.7500	11.1300	20.6650	28
5	JAMBI	97980.5428	310196.7375	4.498159996	9608641.904	28.8824	29.0260	3.5700	2.2000	15.9196	21
6	SUM-SEL*	273292.7524	1582921.8520	4.884115061	28670841.03	26.7826	23.5459	3.9500	4.7400	14.7546	8
7	BENGKULU	48284.0110	339203.1421	2.420959899	2861926.682	29.4777	28.9011	1.5400	1.3000	15.3047	12
8	LAMPUNG*	219177.4553	1432508.5810	4.213505206	20835548.93	27.4308	24.1935	3.2900	3.7000	14.6536	7
9	BA-BEL	32643.7791	84003.2290	3.025781852	2185411.352	29.6650	30.0000	2.1300	1.2100	15.7513	17
10	DKI JAKARTA	528781.0237	257150.4243	31.48585887	218183891.7	23.7224	29.2545	30.0000	30.0000	28.2442	30
11	JA-BAR*	2425830.5190	4264045.0580	6.02076604	184510824.9	1.0000	12.0013	5.0600	25.5100	10.8928	3
12	JA-TENG*	1401043.5940	6329650.0010	4.089850132	96607560.03	13.2747	3.1071	3.1700	13.7900	8.3354	1
13	D.I. YOGYA	85795.3864	630194.1734	4.750674971	11963812.04	29.0284	27.6482	3.8200	2.5100	15.7516	18
14	JA-TIM*	1567653.4250	6819001.0230	6.65281078	179035787.8	11.2790	1.0000	5.6800	24.7800	10.6848	2
15	BANTEN	526702.0369	673246.4070	7.21593658	51104036.34	23.7473	27.4628	6.2300	7.7300	16.2925	25
16	BALI	4677.4133	237405.6594	5.368977877	1022425.915	30.0000	29.3395	4.4200	1.0500	16.2024	24
17	NTB*	167481.3359	982200.4062	2.576016383	7339710.281	28.0500	26.1325	1.6900	1.9000	14.4431	5
18	KAL-BAR*	11479.7372	1067682.9030	2.212485659	614405.7696	28.8577	28.1554	1.3300	1.0000	14.5032	6
19	KAL-TENG	100048.4292	512398.6403	4.807522161	9157193.378	28.8577	28.1554	3.8700	2.1400	15.7558	19
20	KAL-TENG	31531.8156	189328.5262	4.137731019	4826534.328	29.6783	29.5465	3.2200	1.5600	16.0012	22
21	KAL-SEL	97068.5923	206560.5631	5.908519157	15836921.35	28.8934	29.4723	4.9500	3.0300	16.5864	27
22	KAL-TIM	90929.4403	332927.7774	31.06790261	66653415.08	28.9669	28.9282	29.5900	9.8000	24.3213	29
23	SUL-UT	40826.6035	186532.0656	3.974612093	2210874.463	29.5670	29.5585	3.0600	1.2100	15.8489	20
24	SUL-TENG	61475.4950	421893.5088	4.291445461	5301432.275	29.3197	28.5451	3.3700	1.6200	15.7137	16
25	SUL-SEL*	462862.4351	1122678.1110	4.158511401	24628828.15	24.5120	25.5276	3.2400	4.2000	14.3699	4
26	SUL-TEGR	75357.8169	377333.4610	3.039186279	4017667.388	29.1534	28.7370	2.1400	1.4500	15.3701	13
27	GORONTALO	36959.0788	258829.5234	1.87324759	1189882.997	29.6133	29.2472	1.0000	1.0800	15.2351	10
28	MALUKU	28870.8953	356989.5992	2.265335216	867194.23	29.7102	28.8246	1.3800	1.0300	15.2362	11
29	MALUKU-UT	26258.6333	106099.4037	2.405775188	1412482.172	29.7415	29.9049	1.5200	1.1100	15.5691	15
30	PAPUA	19451.4792	880361.5688	9.127754086	2752285.52	29.8230	26.5710	8.1000	1.2800	16.4435	26

نقد لمفهوم السببية عند ابن خلدون

مسعود العالم شودري و *بايوسيلفيا

*أستاذ الاقتصاد - جامعة السلطان قابوس - عُمان

*أستاذ الاقتصاد - جامعة تريستي - جاكورتا - إندونيسيا

المستخلص. يتم هنا توضيح أهمية السببية الدائرية في شرح ديناميكيات أنظمة التعلم التي تغطي كامل التجربة الإنسانية. وعلى الرغم من الاعتقاد السائد، فإن ابن خلدون قد فشل في التصدي للطبيعة التحليلية للفكرة المركزية لفلسفة التاريخ. كما أن المؤلفين المحدثين الذين ساهموا في نفس هذا الموضوع مؤيدين لابن خلدون أيضاً لم يستطيعوا استيعاب الجوانب التحليلية التعليمية لأنظمة النظرة الكونية للسببية الدائرية. وفي مقابل أفكار ابن خلدون والمؤلفين المحدثين، تحاول هذه الورقة تطوير منهجية تحليلية للسببية الدائرية في ضوء النظرة الكونية لوحدة المعرفة المعبر عنها في القرآن بوحدة القانون الإلهي أو التوحيد. وهذا التحليل والتوضيح للمفاهيم، يتم تطبيقه بعد ذلك على مسائل محددة في فلسفة "التاريخ الجغرافي" كالاقتصاد السياسي والتحديث (العصرنة) والتنمية الاجتماعية الاقتصادية، وذلك من أجل توضيح مفهوم التعلم الديناميكي للسببية الدائرية كمنهجية شاملة تقوم على النظرة المعرفية القرآنية الكونية. كما يتم هنا تقييم الدراسات المقارنة في مجال السببية كمنهجية في فلسفة العلوم في الأدبيات السائدة.