



Interrelationship between Zakat, Islamic bank and the economy

A theoretical exploration

Masudul Alam Choudhury

*Department of Economics and Finance, Sultan Qaboos University,
Muscat, Oman, and*

Sofyan Syafri Harahap

Department of Economics and Finance, Trisakti University, Jakarta, Indonesia

Abstract

Purpose – The purpose of this paper is to formalize a general equilibrium circular causation relationship model in the Islamic economic framework between wealth tax (Zakat), Islamic bank and the real economy.

Design/methodology/approach – Mathematical modeling along with explanation.

Findings – The integrative interrelationships can be formalized only under the assumption of unity of knowledge as derived from the foundation of oneness of the divine law (shari'ah) according to the Qur'an, Prophetic traditions (Sunnah) and social discourse.

Research limitations/implications – A future work would be to empirically estimate the general equilibrium model.

Practical implications – A guidance to Islamic banks on the constructive utilization of Zakat fund for productive transformation in the real economy.

Originality/value – A general equilibrium model guided by the episteme of oneness of the divine law at work, hence unity of knowledge at work in real problems of ethics and economics according to the Islamic worldview.

Keywords Banks, Islam, Epistemology, Economic theory, Equilibrium methods, Modeling

Paper type Research paper

Introduction

In this exploratory theoretical paper, we will examine the nature of circular causation relationships generated by the tripartite flows of resources, namely between Islamic banks, Zakat at source and the economy at large. Investigation of such a circular causation interrelationship brings out the dynamic input–output measurement of the Zakat-economy-institution effects in the context of a framework of relational epistemology of unity of systemic knowledge (Thayer-Bacon, 2003). This is itself the foundational groundwork of authentic knowledge and formalism in Islamic issues of world-system, particularized here to Islamic economy and finance. The complex relationships in the context of circular flows of resources bring out a valuation model of the Zakat–economy-institutional interaction that has not been taken up in the Islamic economic and finance literature. It is hoped that the arguments and formalism presented here in respect of the Zakat–economy-institution (Islamic banking) relationship will shed new conceptual light that can be pursued with data empirically.

Background axiomatization

The background of all authentic knowledge and formalism in Islamic world-system issues, particularized here to Islamic economics and finance, is the understanding of the foundation and functionality of unity of knowledge that emanates from the divine source of Tawhid, meaning oneness of God as the complete and absolute in knowledge.



From this epistemological premise are derived the knowledge-flows of the world-system in studying the pervasively complementary interrelationships between the entities of these systems. Thus, the episteme of unity of divine knowledge causes learning systems to arise from the foundation of Tawhid, and thereby, construct the intra- and inter-systemic unification of knowledge through a discursive process. Such a discursive process has a number of inherent properties through which it proceeds in a functional and regimented way to create knowledge-flows and their induced entities in the world-systems. The totality of these properties along with the epistemological foundation conveys the methodology of Tawhidi String Relation as the configuration of unity of divine knowledge in world-systems. The Tawhidi methodological formalism to begin with is explained in Figure 1.

The nature of the Tawhidi string relation (1) is that each process as shown under the bracketed expression [] (except the primal one, which remains exogenous and permanently effective in driving the whole system) is simulated by learning in the framework of unity of knowledge as derived from the fundamental epistemology mapped by S_n on to the world-system. Simulation here involves agent-institution interaction in terms of the ontology of $\{\theta\}$ -values that then give rise to interactive (I) socio-scientific variables $\{X(\theta)\}$. The objective here is to arrive at an integrative (I) value of the well-being function, $W(\theta, X(\theta))$, by simulating it over interactive values of $\{\theta, X(\theta)\}$ converging to consensual (i.e. integrative values of the same vectors). Each learning process subsequently evolves into evolutionary (E) processes of the same category. Thus, we have the interactive, integrative and evolutionary (IIE)-processes as the permanent character of the learning world-systems in unity of knowledge.

Circular causation is defined by the circular relationships between the $\{\theta, X(\theta)\}$ -vector of variables in the problem of simulating $W(\theta, X(\theta))$. Over a finite number of interaction the well-being function converges to a value $W^*(\theta^*, X^*(\theta^*))$, for a convergent interactively integrated value $(\theta^*, X^*(\theta^*))$, but not an optimal value. Only

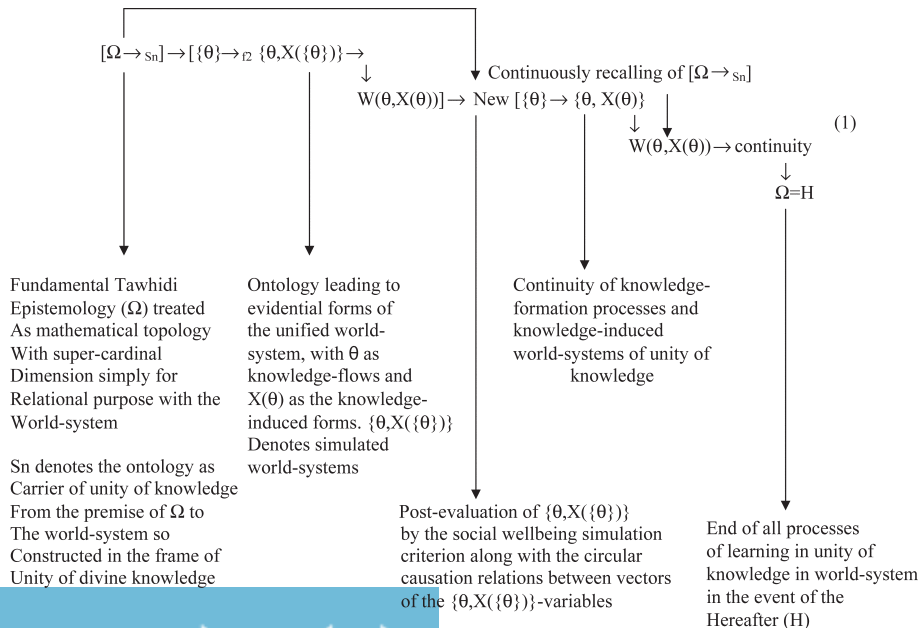


Figure 1. Formalism of the Tawhidi string relation as the foundational Islamic epistemology for studying issues of world-systems

satisficing values (Simon, 1960) are acceptable in such continuously learning domains of processes in unity of knowledge on the epistemological, ontological and “ontic” (evidential) framework (Sherover, 1972).

Particularization

We particularize the explanation of the Tawhidi string relation (1) to the case of Zakat–Islamic bank–economy circular causation interrelationship in the light of an objective criterion of the well-being function that interactively integrates these tripartite interrelationships and causes evolutionary dynamics to occur in a developmental framework.

Zakat is a levy of 2.5 per cent on net wealth and asset value existing in liquid form. Let the Zakat variable in monetary units be denoted by Z .

Let Zakat be levied on wealth and asset value at source in the Islamic bank by the consensus of shareholders. Thereby, Z is mobilized through the Islamic bank into Shari’ah compliant projects in the economy to generate Gross Domestic Product (GDP) (Y) related with those projects and related sectors.

The Islamic bank mobilizes the Zakat at source by participatory forms of development financing instruments. These are well known in Islamic economics and finance to be Qard Hasanah (interest-free grants and loans), Mudarabah (shares based on profit and loss sharing projects in which the poor can participate as shareholders by mobilizing their portion of Zakat), Trade Financing (in which projects, Zakat can be made to revolve for the benefit of the Zakat recipients). Let the vector of such development financing variables be denoted by P .

The economy variable is therefore the GDP. But, this is further disaggregated into C as consumption expenditure, I as investment expenditure, G as Government expenditure.

The question we face now is whether Z can be linearly added to the national income and expenditure accounting to explain GDP in an interactive sense between its components and the Zakat variable. If we accounted for Z in this way, the linearity of the relationship between the variable will merely be an accounting relation. It would not explain the circular causation relationships between them. Contrarily, circular causation between systemic entities in the framework of learning is the essence of Tawhidi unity of knowledge in world-systems. The interactively generated integration (consensus by convergence of interaction), followed by further regenerative knowledge formation and it’s newly cognizing entities in world-systems and in the problems under attention, form the immutable properties of the IIE-processes.

In other words, in as much as Zakat affects GDP through C, I, G variables and the development financing instrumental variables (P), so also these latter variables affect the growth and flow of Zakat. Besides, the variables $\{Z, C, I, G, P\}$ are themselves interrelated by circular causation relations in the simulation problem of the well-being function $W(Z, GDP, P) = W(Z, C, I, G, P)$. All these variables are knowledge-induced in reference to the IIE-process generated complementarities (unity of relations) between the variables, the medium of development financing and resource mobilization instruments and by the knowledge of such complementarities gained in the institutional setting of the circular Zakat–Islamic bank–GDP (economy) interrelations. Such an institutional relationship along with the epistemology and ontology of knowledge formation is referred to in the Qur’an as the Shura. The IIE-process underlying this institutional-ontology learning process in the light of the Tawhidi worldview of unity of knowledge is referred to here as the Shuratic process (Choudhury, 2003).

Hence, a linear aggregation of Zakat with the GDP relation is merely an accounting identity, not the correct way to account for the interactive contributions between the variables (Z, C, I, G, P) as generated by IIE-processes.

The dynamic input-output method of evaluating Zakat-Islamic bank-economy relationships

We note the following forms of feedback relationships that exist between the mentioned variables in order to build the dynamic input-output model interconnecting Zakat (Z), Islamic bank (policy vector " P " for generating interaction between the mentioned variables) and economy (C, I, G). The input-output model is dynamic in the sense of its learning coefficients. That is, the I-O coefficients turn out to be dynamic coefficients under the impact of learning in the IIE-process methodology emanating from the Tawhidi unity of knowledge as the relational epistemology.

Zakat causes augmentation in consumption through the amelioration of the very poor and deprived. Investment is enhanced by directing some of the Zakat funds into grassroots development projects for amelioration of the very poor. Islamic banks direct Zakat funds into Government-participated projects for the very poor and deprived. In all such project, financing Islamic banks use a mix of participatory development financing instruments. The Malaysian Government is known to have used unit trust called Amanah Saham to build grassroots shareholding. Thus the Zakat expenditure can be considered to belong to a specific sector of the economy where its activities abound. We will name the sector that directly uses portion of the Zakat Fund in servicing current needs as the ZS sector. The rest of the Zakat then goes into the consumption goods sector (CS), investment goods sector (IS), government sector (GS), where respective kinds of goods are produced and Zakat funds are used to participate in such productions.

On a feedback relation, all forms of expenditure, including C, I and G generate spending in the good things of life according to Shari'ah compliance. Such spending promotes economic growth and development in dynamic basic needs regimes of development (Choudhury and Hoque, 2004). Consequently, increasing levels of sector-specific GDP connected with projects is channeled in turn into more Zakat collection and disbursement. We will refer to the spending sector separately as the CS, IS and GS . In each of these sectors waste is avoided by selecting the proper Shari'ah compliant projects and direction of Zakat funds into dynamic regimes of life-sling goods and services.

The Islamic policy variables (P) are embedded in all such relations as means of resource mobilization. The implication is that the poor are capable of and induced into the productive relationship with others. Projects so chosen are those that complement the mainstream projects for the ultimate goal of attaining wellbeing through social and economic complementarities. A good example is the Underprivileged Children Educational Program in Bangladesh, where the once-panhandlers are taken off the streets and put in fast-track education and vocational training programs. Students of this program end up servicing certain technical outlets of mainstream enterprises and multinational companies.

With the above named sectors the input-output model interrelating the sectoral flows between them takes the form as shown in Table I.

In Table I, the variables, X_{kl} denotes the intersectoral flow of resources to generate intermediate output in the receiving the sector l from the contributing sector k ; $k, l = ZS, CS, IS, GS$. X 's are the various intersectoral variables as shown in equation (2).

V.A. denotes value added for the sectors. z denotes the value added of the direct Zakat using sector.

z denotes the residual amount of Zakat after the use of total Z intersectorally in productive projects for the appropriate recipients of Zakat (Qur'an, 2:177). There are Shari'ah rulings approving that in certain cases surplus Zakat fund can be transferred for later use. An example is the case of the use of Zakat proceeds in building Tabung Haji as a leading charitable institution in Kuala Lumpur, Malaysia.

c denotes the residual consumption spending after the intersectoral usage of C . Such residuals are known to build up stocks for future use. The idea of Takaful in foodstuff is an example.

i is the residual investment spending after its intersectoral usage in the IS. An example is of delayed developments of Zakat-related projects.

g denotes the residual government spending. An example is a postponement of G to future years in the form of foodstuff and insurance.

Now, in terms of the I-O coefficients we write

$$A_{kl} = X_{kl}/X_l \quad (2)$$

where $k, l = ZS, CS, IS, GS$. X 's are the various sectors as explained.

An example is of $A_{ZC} = Z_{ZC}/C$, denoting the proportion of Z used in the development of poor projects in the CS to the total spending in the CS pertaining to the projects. An example is of paddy production by means of Z funds as a proportion of the total in the grains production sector. This is the case of Malaysia paddy production where Zakat is used as an ameliorative input to help out poor farmers.

Since all X_{kl} and X_l as the $X(\theta)$ - vector variables are induced by the knowledge-flow variable $\{\theta\}$, therefore, all respective coefficients A_{kl} are learning coefficients. In regards to the extensively ameliorative effect of charity (Z), the Qur'an (2:261) declares: "The parable of those who spend their substance in the way of Allah is that of a grain of corn: it grows seven ears, and each ear has a hundred grains. Allah gives a manifold increase to who He pleases: and Allah cares for all and He knows all things".

Yet, the enactment of the learning process by means of $\{\theta\}$ -values simulated in the progressive IIE-processes is not automatic. It is partly intrinsic and partly guided. Learning as the experience of unifying participation and complementarities is embedded in all things according to the Qur'an. Note the "paired universes" that the Qur'an mentions about (Qur'an, 13:3). Thus all things learn, just as the human world learns in unity of knowledge in the good things of life. But there is also the central role of moral guidance in such a learning system. The policy and development financing variables denoted by P are careers of the moral transformation through the IIE-processes.

Total output	ZS	CS	IS	GS	V.A.
Z	Z_{ZZ}	Z_{ZC}	Z_{ZI}	Z_{ZG}	z
C	C_{CZ}	C_{CC}	C_{CI}	C_{CG}	c
I	I_{IZ}	I_{IC}	I_{II}	I_{IG}	i
G	G_{GZ}	G_{GC}	G_{GI}	G_{GG}	g

Table I.
Input-output table
of Zakat-Islamic bank-
economy interrelations

Notes: $Z + C + I + G =$ accounting total output; $z + c + i + g =$ national income in the Zakat-related sectors

Islamic banks thus perform a central role in resource mobilization in ways that the social and economic objectives of social wellbeing are simultaneously realized by activating the development financing instruments that are Shari'ah compliant. We also note that in the above kind of formalization regarding the economy-wide resource mobilization with intersectoral linkages with Zakat, the very nature of project-specific spending of the Zakat fund linking up with similar spending in the other sectors, reveals the microeconomic nature of the Zakat-accounting in the Zakat-Islamic bank-economy interrelationship. We thereby note that the ethical focus of the Islamic economy changes the aggregation basis of the variables into microeconomic forms.

Estimation procedure of the learning input-output coefficients

Take two particular circular causations with Zakat variables, in the forms:

$$Z = A \cdot C^\alpha \cdot I^\beta \cdot G^\gamma \cdot P^\delta \quad (3)$$

$$z = B \cdot c^q \cdot i^r \cdot g^s \cdot P^v \quad (4)$$

These are readily estimable equations along with their counterpart equations in the other variables determined by circular causation relations.

For a particular case define,

$$\Delta AZC = \left[\frac{\%Z}{\%C} \right] \cdot \Delta C = \alpha \cdot \Delta C \quad (5)$$

$$\Delta aZC = \left[\frac{\%z}{\%c} \right] \cdot \Delta c = q \cdot \Delta c \quad (6)$$

Rest of the parameters and I-O coefficients can be estimated likewise. These coefficients describe the dynamic path of sectoral linkages as a sign of unity of knowledge. It can be seen that the dynamic components of the I-O coefficients are now readily estimable in terms of the variables $\{Z, C, I, G, P\}$. A and B are learning shift-coefficients.

Since the estimated regression coefficients, even in their random forms (Bayesian probabilities), would not explain the dynamic nature of such coefficients, it is recommended to use other statistical methods for the simulation of such coefficients so as to arrive at desired simulated values vis-à-vis expressions (5) and (6). Every such desired set of estimated values of the coefficients such as ΔA_{ZC} [Δa_{ZC}] and its counterparts is policy induced by P , though this is not necessary to explicitly exhibit. Such statistical programs that were used for a similar empirical work (Choudhury *et al.*, 2003) are Statistical Package for Social Scientists (SPSS) (for estimation of regression coefficients) combined with spatial domain analysis of Geographical Information System (GIS) (to simulate a random field of the estimated I-O coefficients similar to ΔA_{ZC} [Δa_{ZC}]). The field of possible estimates of the latter was interpreted as the domain of policy-induced values of the regression coefficients. Such simulated estimates reflect interesting policy meanings in the development context.

Once the dynamic versions of the I-O are so estimated we can transform the I-O Table I into its coefficients form and then re-estimate the dynamic and policy induced

values as in Table I. This formalism is not shown here but can be seen elsewhere (Choudhury and Hossain, 2005).

The simulated well-being functions

In the end, the well-being function can be estimated as follows. Let the well-being function be in the form,

$Z/\text{GDP} = a$, a parameter simulated to 2.5 per cent, as the rate of Zakat.

Alternatively, this equation can be expressed as,

$$Z = a \cdot C^{a'} \cdot I^{b'} \cdot G^{c'} \cdot P^{d'} \quad (7)$$

The implication here is that the Islamic economy in dynamic life-fulfilling goods and services and the endogenous existence of ethical values enjoy increasing returns to scale in production. This occurs as unit cost of risk and production progressively decline with enhanced learning in complementarities generating participatory opportunities. a' , b' , c' , d' are elasticity coefficients of Z with respect to C , I , G and P , respectively. " a " is a learning shift-parameter. Other similar coefficients for the circular causation equations in the other variables can be treated in like manner.

The comprehensive well-being simulation problem interlinking the variables $\{Z, C, I, G, P\}$ in respect to their respective sectors as shown in Table I is now given by,

$$\text{Simulate}_\theta Z = a \cdot C^{a'} \cdot I^{b'} \cdot G^{c'} \cdot P^{d'}$$

with circular causation expressions (3) and (4) along with the remaining similar relations between the recursive variables $\{Z, C, I, G, P\}$.

A given range of simulation stops within a given IIE-process when Z/GDP is sufficiently near to 2.5 per cent. The nearness of this simulated value is decided by the institution of Shuratic discourse in development planning.

The above simulation model shows that two dynamics are constantly at work, namely the setting of the elasticity coefficients, $\alpha, \beta, \gamma, \delta; q, r, s, v; a', b', c', d'$ by virtue of expressions (5) and (6) using the appropriate statistical methods of dynamic simulation of these parameters. Secondly, there is continuous institutional guidance along Shari'ah compliant ways for the Shuratic process to evolve. This requires the central role of Islamic bank in resource mobilization with positive feedback with the economy sustaining along life-fulfilling regimes of development.

Conclusion

This paper introduces a new dimension in the measurement of the effects of Zakat and its related economic variables in the economy-wide sense of general systems of interrelations. The sheer accounting version of the Zakat variable along with the other spending variables does not reveal the extensively complementary effects of Zakat on and between the other variables of the GDP and vice versa. This kind of an investigation in general systems of relations between Zakat and the other spending variables in the GDP accounting relations is important to bring out the importance of Zakat in the total development process.

At the policy level, a general system analysis of Zakat and the other spending variables in the GDP relation strengthens the meaning of the participatory development financing instruments in projects that are interlinked across sectors. This kind of understanding of the participatory development financing instruments

expands the application of the Islamic financing instruments of Mudarabah, Musharakah, Murabaha and Trade Financing from the narrow limits of specific projects to all the complementary projects in the consumption goods, the investment goods and GSs.

The endogenous impact of the participatory policy and instrumental variables on the potential linkages to be gained between the Zakat and other spending variables in compliance with the Shari'ah highlight the important role of Islamic banks as direct resource mobilizing institutions toward attaining the wellbeing of a diversely complemented embedded social and economic system. This is an important point to observe in development planning.

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Corresponding author

Masudul Alam Choudhury can be contacted at: masude@squ.edu.om

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