Financing Super-Infrastructures Using ISTISNA-SUKUK Based Monetary POLICY for Faster Economic Development

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Most efficient and super-infrastructures are preconditions for faster economic growth for any country. Most countries often finance such project by incurring public debt and such countries must pay interest every year on public debt until the entire accumulated amount is fully paid. However, interest-based financing is not only prohibited (haram) but it also drains billions of dollars to foreign creditors every year from most of the countries that have accumulated interest-based debts over the years. This paper attempts to explore how building a most modern Airport can be financed by pursuing Istisna-Sukuk based expansionary monetary policy (MP). Central Bank (CB) can buy and sell such Sukuk in open market as tools of monetary policy. Sukuk are interest-free modes of financing. They are issued against assets, such as, the Airport, and their holders are the true owners of the Airport who derive their income from this asset instead of coupon or interest rates. Istisna-Sukuk based expansionary monetary policy does not incurring public debt nor require payments of interest. In this paper, it has been shown that Istisna-Sukuk financing will have expansionary monetary policy effects and, as such, it will increase output and employment and consequently will reduce unemployment rate. In addition, it will also eliminate public debt and interest payments for the government, and the government will have more funds available for public spending. As a result, economic expansion and prosperity will continue to flourish. Eventually, it will help prevent transfer of domestic resources as interest payments to foreign creditors.

JEL Classification: E5, F3, G2, P4

Keywords: Istisna-Sukuk; Monetary Policy; Public Debt; Infra-structure; Economic Development

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I. Introduction

Many less-developed countries (LDCs) have been suffering from shortages and outmoded infrastructures, such as modern Airports, roads and highways, power lines, schools, colleges, universities, state of the art hospitals, medical universities, latest engineering universities and research facilities for developing and reshaping new technologies. The primary reason for the above is their heavy indebtedness to the IMF, the World Bank, other national and international banks and foreign governments. These countries have already reached threshold levels of foreign debts and, as such, they cannot borrow anymore because such countries hardly receive any positive cash inflow after the regular installment payments of accumulated interest and principal amounts of debts. If they have to borrow any further from external sources, they must pay higher annual or monthly installment to foreign creditors that often they are not able to afford.

These countries have been trapped into the vicious cycles of debts and destructions. They need to break the chain of debt and poverty cycles by building and investing in essential infrastructure such as building new and most modern Airports. For debt financing, these countries must pay billions of dollars of interest annually which many of them can no longer afford. In addition, interest or *Riba* financing is prohibited or *haram* from Islamic point of view. The following verses of the Quran and *hadith* urge the Mankind not to indulge in *Riba* because it will eventually bring destruction:

"Allah destroys interest and increases charity. And Allah does not like every sinning disbeliever." **(Q 2:276).**

In the following verses, war is declared against those who continuously devour *Riba:*

"O you, who have believed, fear Allah and give up what remains [due to you] of interest, if you are believers. And if you do not, then be warned of war [against you] from Allah and His Messenger. But if you repent, you may have your principal amount – [thus] oppress not and you shall not be oppressed." **(Q 2: 278-279).**

The following verse confirms that selling and buying will be *halal* but continuously devouring *Riba* will lead to eternal fire.

***"Those who consume interest shall not stand up on the Day of Resurrection except like him whom shaytaan has driven mad by his touch. That is because they say, "Trade is [just] like interest." But Allah has permitted trade and has forbidden interest. So whoever has received an admonition from his Lord and desists may have that (amount) which has passed, and his affair rests with Allah. But whoever returns to [dealing in interest or usury] – those are the companions of the Fire; they will abide eternally therein"* (Q 2:275).**

The Prophet Muhammad, may the peace and blessing of Allah be upon him, said*,*

***"On the night of Ascension I came upon people whose stomachs were like houses with snakes visible from the outside. I asked Gabriel who they were. He replied that they were people who had received interest."* (Narrated by Ibn Majah).**

Therefore, interest-offering debt financing of an Airport is not an option even though the national Airport in many poor countries can hardly handle the increasing Air traffic and became death trap. Quite often, preventable accidents not only kill innocent lives but also many reputed and affordable airlines just simply skip such primitive Airports. As a result, the airline passengers not only find air tickets relatively expensive but also face dangers while landing and departing from such Airports.

Such heavily indebted countries are also getting poorer because billions of dollars are paid every year to foreign creditors as interest payments, though millions of people living in these countries struggle to meet their basic needs, such as, proper shelters, foods, medicines and basic education. Many of such countries cannot allocate required amount of funds for building a most modern Airport which is often an economic lifeline for the nation. If this situation persists and the heavily indebted LDCs fail to develop the most needed Airports, they will likely be isolated from many parts of the world and thus remaining in Rostow's primitive stage. Epidemics, lack of law and order, abject poverty, malnutrition, high child mortality, declining life expectancy and massive

social, economic and political upheavals engulf these countries posing threats to global security and prosperity (Rostow, 1960).

To mitigate the above problems, the current study emphasizes and makes the case why a country should build an urgently needed super-Airport with the latest technology and design by pursuing *Istisna-Sukuk* based monetary policy and create job opportunities. In *Istisna –Sukuk* based MP, the Central Bank (CB) will increase money supply for building such Airports and then CB will issue $1000 denominated *Sukuk* and sell them to public in open market as well as in the Stock Exchanges. Such financing will not incur any public debt and deficits. Moreover, it will make the *Istisna-Sukuk based* MP more effective and broad based.

Usually, CB sells Treasury Bills and other monetary policy instruments in the open market. Only commercial banks and other financial institutions can buy them. But this study proposes a change in those policies and practices. At the same time, it suggests that CB will not only buy and sell *Istisna-Sukuk* to banks and other financial institutions but will also broaden its market by directly selling in the Stock exchange of the country. Such modifications will help CB sell and buy *Istisna – Sukuk* rather faster and will make *Istisna-Sukuk* based MP relatively more effective. As a result, financing of the Airport will be easier, smoother, and faster as well as without incurring heavy extended debts from international organizations, foreign governments as well as from national and international banks. Therefore, transfers of billions of dollars in the form of interest payments to foreign lenders will not be necessary.

The rest of the paper is organized as follows: Section 2 reviews the topical literature. Section 3 presents and discusses relevant macroeconomic models. Section 4 offers conclusions.

II. Topical Literature Review

2.1 Background Theory

Istisna-Sukuk based monetary policy is founded on the twin sound and solid *Sharia-compliant* modes of financing such as Istisna and Sukuk. Selim (2015) employed Sukuk as tools of monetary policy and found that Sukuk are relatively more effective tools for open market operations.

Istisna mode of financing, on the other hand, is only supported by Hanafi School of *Fiqh* and not by other *Madhabs* or Schools of *Fiqh*. Simply, this is the case where both price or payments and delivery of the product(s) are usually delayed. Since payments are delayed, the builder may need to borrow additional funds for building and completing this huge project. Often, the builder(s) may not have sufficient funds for completing the project. As a result, the builder may need to borrow such funds. There is a possibility that the builder may borrow on *Riba* or face *Gharar* (Uncertainity) or even *Mysir* (Gamble) in case the financier may not lend the builder(s) on time. To avoid *Riba*, *Gharar* and *Mysir*, if the Airport Authority or CB finances the builder to meet the construction cost on *Qard Hasan* basis, according to the progress or work completed, then it is expected that *Istisna* supported by *Qard Hasan* will be accepted by all Schools of *Fiqh*. This is because *Istisna* is now transformed into *Salam* contract when payments are made in advance or simply buying and selling contract on spot-payment arrangements.

2.2 Previous Studies

Ahmad (2010) emphasizes that in *Istisna* contract, Islamic Bank finances the manufacturing or building of a product for the client and then the client will pay Islamic bank in deferred installments. *Istisna* is mainly practiced in the GCC countries. Khan (1997) examines how a large power plant project can be financed and a syndicate of banks and Islamic financial institutions can jointly participate in such huge project financing. Wilson (1998) argues that in less-developed countries, *Istisna* project financing can meet the growing demand for infrastructures. Zarqa (1997) is one of the pioneers exploring project financing based on *Istisna* contract. Such *Istisna* mode of financing is ideal and it can be applied for building infrastructures projects. Zarqa (1997) proposes that the government can pay the builders by issuing deferred price certificates for the debt (DPCs) and such DPCs can be traded only at face value, though people might be reluctant to buy and sell a financial asset on the basis of the face value only. In this study, this problem is resolved by converting *Istisna* project into *Sukuk* and *Sukuk* can be bought and sold in open market operations. Moreover, *Sukuk* holders can derive periodic income from the generated earnings of the Airport.

Deferred installment payments were approved by OIC *Fiqh* Academy, 6th Session, Jeddah, 1410H (1990) for *Istisna* based home building or for

any similar project. However, in such deferred installment payment, interest costs may be embedded and added to it when the builder borrows funds for constructing the project. However, this study proposes a new approach where the Islamic bank or project owner can pay builder up front for constructing the project on *Qard Hasan* basis and, as such, interest or *Riba* can be avoided. Manzoor, et al. (2017) find that *Istisna-Sukuk* has the potential to effectively finance infrastructure projects. In addition, other contracts such as *Ijara* and *Musharaka* can also be added and such modes of financing can be applied to State-owned public enterprises. Labolo (2018) finds that *Sukuk* can be issued as an alternative to financing projects for Aceh Province in Indonesia because of financial capability, accountability, and excellent financial management of the provincial government. Tariq (2007) emphasizes the growing challenge and a great potential of *Sukuk* in the mobilization of resources and further development of debt markets in emerging economies. Biancone, et al. (2018) argue that large scale, long-term infrastructure projects, especially, public utilities are facing problems to mobilize international financial resources and *Sharia-compliant* financing provides a potential opportunity for public utility companies to bridge such gap.

Zawawi, et al. (2014) argue that Islamic project financing has a better promise and an excellent chance for success for PF2 project financing because Islamic project financing is not only interest-free but also jointly shares losses and profits. Ayub (2005) argues that *Sukuk* issues may foster efficient fund management and securitization on the basis of pure Islamic criteria. They will help open up new avenues for long-term project financing to promote socio-economic development. Lee, et al. (2013) find that the *Sharia-compliant* Islamic finance industry grew faster even during the 2008-2009 worldwide financial crisis. Since Islamic finance is contributing positively in Middle Eastern construction market, Islamic project financing has also great appeal and potential in several countries beyond the Middle East and other Islamic countries. Such countries may include Mexico, USA and Europe (Alexander, 2011). Sadikot (2012) provides a comprehensive comparison between conventional project finance, and Islamic Project finance for infrastructure development. Sadikot (2012) also analyzes successful completion of Islamic finance project such as "Equate Project". This is competitive compared to conventional financing and at the same time, it is retaining the Islamic characteristics.

Chapra (2017) argues that global economy suffered unprecedented financial crisis during 2007-2008 because of rising interest on international debts, while Islamic project financing can reduce dependency on such debts. To note, *Sukuk* issuance must be consistent with *Shariah* requirements and must comply with regulatory framework. However, there are certain legal challenges from *Shariah* points of view. Alshamrani (2014) suggests a series of recommendations for overcoming those challenges. Esty (2000) examines how Kuwait National Oil Company and Union Carbide jointly pursued one of the biggest infrastructure industrial projects, based on Islamic modes of financing. Again, similar projects can be developed for economic development and prosperity. Nazar (2015) argues that for sustaining *Sukuk* development in Islamic Capital market, both *Shariah* laws and western legal system must be in harmony for governing *Sukuk* operations. Islamic Development Bank (IDB) has pursued many infrastructure projects in member countries and such projects are financed by Islamic Finance instruments. Such Islamic financial instruments are not only relatively cheaper but also less risky (Khan, 2002). The principle of project financing should be harmonized with Islamic finance instruments for reaping maximum possible benefits and for minimizing risks (McMillen, 2007). Bilal (1999) argues that Islamic finance products provide assurance to investors that profits, and losses are to be shared and there will be no panic that all the profits or even the capital will be wiped out.

Conventional expansionary monetary policy by lowering central bank interest rate only boosts profits of the commercial banks and does little to stimulate the economy (Chulho and Ryu (2017)). Since a large section of the population has no access to bank loans, economic growth stagnates despite cuts in interest rates by the Central Bank (Goodhart, 2015). *Sukuk* based expansionary monetary policy is relatively more effective compared to interest-based system (Selim, 2015). *Qard Hasan* based monetary policy can increase output and employment compared to conventional monetary policy (Selim, 2019). Mohsin (1989) attempts to explain Islamic monetary policy transmission by employing the modified version of IS-LM model. But the traditional IS-LM model is based on interest rates. Thus, it is incompatible with Islamic monetary policy. This study systematically develops and explains *Istisna-Sukuk* based expansionary monetary policy for financing a most modern Airport without debts and deficits. Islamic financial engineering is quite

likely to immensely benefit less developed countries where the needs for Airports and other key infrastructures are acute. Such mode of financing will also ease the pressure on them, as access to financial resources from international organizations and foreign countries are increasingly becoming more difficult and costly.

III. Macroeconomic Models

3.1 Methodology

Sukuk-Istisna based monetary policy model is developed below within the framework of interest free concept where profits are shared instead of fixed interest rates. To build a case for macroeconomic modeling in a proper context, let us suppose a country needs to build a modern and latest designed large Airport with sufficient runways for take-offs and landings to reduce waiting time and to minimize aviation accidents. There is high probability of accidents when the planes are not granted permission for landing because of limited capacity of the airport and too few runways. The resultant waiting period for landing often exceeds normal expected time and the planes may run out of fuel causing unfortunate preventable accidents. The excessive and unwanted waiting period for both landing and takeoff is neither good for business nor for safety record. Such waiting period can be reduced and minimized nearly to minimum by building a large modern Airport with excess capacity.

To make the case, we assume that a country needs to build a most modern and sophisticated super service-oriented airport incurring total capital expenditure (K) of $10 billion. This capital expenditure or investment is required for building a most modern airport to provide services, not only to the airline industry but also to all customers, including the valued travelers, hotels, shops and a multitude of outlets including food and restaurant services.

Now, let us suppose that the central bank (CB) pursues *Istisna-Sukuk* based expansionary monetary policy (MP) that increases money supply by $10 billion to finance the proposed state-of-the-art Airport. The CB simultaneously issues and sells 10 million *Sukuk*, not just to the large banks but to the general population at large and sells through the country's stock exchange. Once this project is announced and

advertised, it is most likely that CB will be able to sell such *Sukuk* gradually as part of the open market operations.

Conjecturally, the estimated bid-price for the project will be lower because more and more builders will be able to compete for the project where financing will not be a problem and upfront *Qard Hasan* facilities will be provided by the CB as emphasized in background theory above. In addition, the quality of construction is expected to be better because the builders will have sufficient funds for buying quality inputs. In addition, the project is expected to be completed on time.

To address the aforementioned, simple macroeconomic models in the Keynesian spirit (e.g., Hicks, 1937 and 1981; Keynes, 1936) are formulated. The models allow profit-sharing by the investors instead of accepting interest. The model is initially based on the kernel of the Keynesian Law assuming that aggregate supply is essentially determined by aggregate demand. In other words, aggregate supply considerations are shelved at the moment, pending subsequent extensions of the model for a small open economy. Initially, the following key assumptions are invoked to formulate a *Sharia-compliant* simple macroeconomic model:

1. The economy is at less-than-full employment in the short run.
2. Price level is constant in the short run.
3. There is balanced trade.
4. Fiscal revenue and government expenditure are driven by real GDP.
5. Profit-sharing is allowed and interest rate is totally prohibited.

In the light of the above highly restrictive assumptions, the base macroeconomic model in the Hicks-Keynesian spirit is structured as follows:

$$Y = C + I + G + (X - M)$$

Where, Y= national income (GDP), I = private investment, G = government expenditure,

X = export earnings and M = import payment. All these aggregate variables by assumption are in real terms.

(X – M) = net export (NX) = 0 for now, by assumption   (3).
Hence, Y = C + I + G

To specify the behavioral equations, for C, I and G respectively,

$$C = F_1, (Y); 0 < F_{1y} < 1 \qquad\qquad (1)$$

$$I = F_2 (y, п); F_{2y} > 0, F_{2п} > 0 \qquad\qquad (2)$$

Where, п = profit-sharing rate replacing interest rate and departing from
the traditional investment function.

$$G = F_3 (Y), F_{3Y} > 0 \qquad\qquad (3)$$

By total differentiation of Y = C + I + G,

$$dy = F_{1Y}dy + F_{2п}dп + F_{3Y}dy$$

Collecting terms,

$$(dy - F_{1Y}dy - F_{3Y}dy) = F_{2п}dп$$

$$(1 - F_{1Y} - F_{3Y}) dy = F_{2п}dп$$

Dividing by dп,

$$\frac{dy}{dп} = \left(\frac{F_{2п}}{1 - F_{1Y} - F_{3Y}} \right) > 0$$

This represents the slope of the modified goods market equilibrium curve
(MGMEC) on Y and п space as shown below:

$$F_{g1}$$
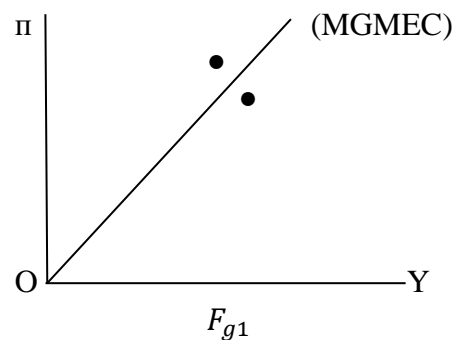
Any point above the curve shows excess demand in goods market and any point below this curve shows excess supply in goods market. Obviously, this curve is different from the negatively – sloped IS – curve due to inclusion of π in an interest – free Islamic economy. The goods market disequilibria will adjust toward equilibrium along the curve.

On the monetary side of the model, real money demand equals real money supply

($M^d = M^s = $ M). The behavioral real transaction money demand function in an interest-free Islamic economy is specified as follows:

$$M = F_4(Y, \text{π}); F_{4Y} > 0, F_{4\text{π}} < 0 \tag{4}$$

As Y rises, real transaction demand for money surges (Baumol, 1952).

IV. Results and Analysis

A rise in real *Istisna-Sukuk* financed project return will result in reduction in real money holding due to higher opportunity cost. Total differentiation of equation (4) yields,
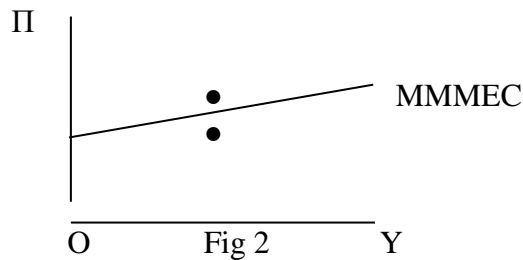
$$dM = F_{4Y}dy + F_{4\text{π}}d\text{π} = 0$$

So,

$$F_{4\text{π}}d\text{π} = -F_{4Y}dy$$

Dividing by dπ,

$$\frac{dy}{d\text{π}} = -\frac{F_{4\text{π}}}{F_{4Y}} > 0 \qquad \qquad \text{Since } F_{4\text{π}} < 0$$

Here, $\frac{dy}{d\pi}$ represents the slope of the modified money market equilibrium curve (MMMEC) on Y and π space as shown below:

Fig 2

Any point above the curve shows excess supply of money and any point below it shows excess demand for money. The money market disequilibria will adjust toward equilibrium along the curve.

For stability of general market equilibrium, it is assumed in line with Rorth – Hurwitz necessary and sufficient condition (Pippard and Dicke, 1986) that the MGMEC be relatively steeper than the MMMEC. In view of the above, the general market equilibrium and the related adjustment processes are shown below invoking (Dornbusch and Fischer, 1984):
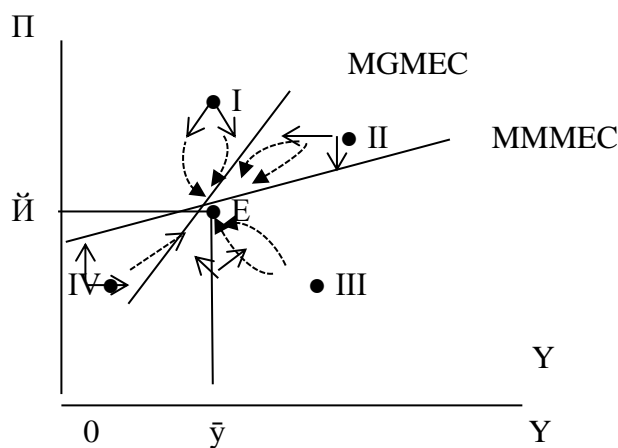

Fig. 3

Both goods market and money market reach equilibrium at the intersecting point E. The diagram has four quadrants. In each quadrant, adjustments toward E for convergence are likely to be different for in terms of Y and п. Accordingly, the following possible explanations are provided:

In quadrant I, there are excess demand for goods and excess supply of money. Excess demand for goods will be matched by manufacturers by larger production leading to a rise in real GDP(Y). Larger inflow of money into Sharia-complaint super-infrastructure projects through expanding issuance of Istisna-Sukuk, marginal productivity of capital diminishes causing a decline in entrepreneurs' profit-sharing (п).

In quadrant II, there are excess supplies in both goods and money markets. Excess supply of goods due to dwindling demand contributes to short-run stockpiling of goods. This forces manufacturers to reduce production to match shrinking demand. As a result, real national income (Y) falls. For the same reasons (as above), entrepreneurs' profit-sharing (п) declines.

In quadrant III, there are excess supply in goods market and excess demand in money market. Excess supply in goods market results from a decrease in demand for goods. This is matched by reduced output by manufacturers. As a result, real national income falls. Excess demand in money market indicates shortage of investible funds. Unless this shortage is conjecturally replenished through greater issuance of Istisna-Sukuk by pursuing expansionary MP, marginal productivity of capital rises leading to entrepreneurs' higher profit-sharing (п).

In quadrant IV, there are excess demands for goods and money in goods market and money market, respectively. To be brief, excess demand for goods leads to higher national income (Y), as explained earlier. In the case of excess money demand, entrepreneurs' profit – sharing (п) rises, as explained above.

In all cases, convergence takes place toward equilibrium at point E over time through short-run adjustments in Y and п for different reasons, as narrated above.

Next, we may add another dimension to the discussion by relaxing assumption (3) meaning $X \neq M$ to capture the trade effect via changes in exchange rate. For this purpose, we apply the augmented Quantity Theory of Money. Invoking Banerjee and Rahman (2009) to this effect, the real exchange rate (e) function is specified as follows:

$$e = f(M, Y); f_M > 0, f_Y < 0$$

Where, M = real money supply or demand and Y = real GDP. An increase in money supply by the Central Bank through injection of capital by purchasing Istisna-Sukuk causes home currency depreciation against foreign currencies. A rise in real GDP may strengthen home currency in the long run, but in the short run, the depreciation of the domestic currency may reduce imports of capital goods in local currency term, a vital need for building super-infrastructures. Furthermore, local currency depreciation promotes home country's exports to foreign countries, as they pay less in their own currencies for a given amount in an exporting country's currency to get cheaper foreign products. The converses apply to home currency appreciation even in the case of less-than-perfect international capital mobility, with in-bound and out-bound flows. If the net foreign capital inflow is adequate to pay for current account deficit, the balance of payment (BOP) is in equilibrium, as depicted by BOP - curve (BOPC). However, there are deficits and surpluses in the balance of payment. To add this dimension to the ongoing discussion, BOPC is incorporated as follows:
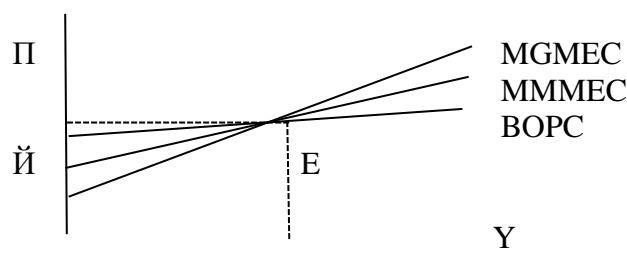

Fig. 4 $\bar{y}$

The intersection point (E) in Fig. 4 represents simultaneous equilibria in goods market, money market and balance of payment of a small open economy. To clarify, BOPC is flatter than MMMEC in presence of flexible exchange rate and less-than-perfect international mobility of capital.

An exogenous increase in money supply by the CB through purchase of Istisna-Sukuk causes local currency to depreciate against foreign currencies. Such depreciation promotes exports and reduces imports thereby net export (NX) improves. Improving NX shifts MGMEC upward (to the left) generating higher levels of Y and п. Again, the increase in money supply shifts MMMEC upward (to the left) causing higher Y and п. BOPC also shifts upward (to the left) due to improvement in current account balance under the expansionary effect of exchange rate depreciation emanating from the exogenous increase in money supply. Thus, both Y and п reach higher levels. In brief, such expansionary monetary policy positively contributes to higher national output and entrepreneurs' profit-sharing. At the same time, higher real GDP leads to additional employment and unemployment rate will fall.

Finally, similar issues are addressed in the context of AD-AS framework. In this framework, the key assumptions include the followings:

1) The economy operates at less-than-full employment (with some unused productive capacity in the short run).
2) Price level is perfectly flexible (freely moving up and down in responses to excess demand and supply, respectively in goods market).
3) Nominal wages are rigid in the short run (because of labor contracts).

In our modified model with profit- sharing, the MMMEC shifts in opposite directions as shown above. In both cases, relationship is negative between price level and national output to delineate aggregate demand (AD) curve that is downward-sloping.

In conventional notations AD function can be written as follows:

$$AD = C + I + G + (X - M) \text{ or } NX$$

As price level (P) falls, purchasing power of money goes up. This will produce consumption effect. Its effect on private investment (I) is uncertain because it will raise household investment in housing and durable goods, but business investment in plant and equipment drops since businesses prefer high-price environment for capacity expansion.

Thus, the likely net investment effect is very small. To explain trade effect, consumers buy more domestic goods and less foreign goods. Also, cheaper domestic goods lead to higher exports. As X rises and M falls, NX improves. The overall effect on national output may not be huge. Thus, the AD curve is relatively steep (not vertical).
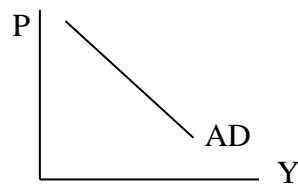
P
AD
Y
Fig. 5

On the aggregate supply (AS) side, entrepreneurs deploy labor and capital in a competitive environment to maximize profit so that

$$Y = F (K, L); F_K > 0, F_L > 0$$

$$L = f \left(\frac{w}{P}\right); f_1 < 0$$

$$K = C_u \times K_o; C_u \leq 1$$

Where, L = employment, K_o = fixed capital used, P = price level, w = fixed nominal wage as per assumption (3), Y = national output and C_u = capacity utilization.

Since both K and L complement each other, higher use of K generates additional employment. When price level (P) rises, real wage ($\frac{w}{P}$) falls. As a result, employment (L) rises. K is specific to the project and only L is mobile across sectors. As stated earlier, when price level rises, business investment rises to build additional capacity or to increase utilization of unused capacity approaching full capacity (C_u = 1). For higher C_u, K rises. In sum, as P rises, uses of both K and L rise leading to larger national output (Y). Finally, the relationship between P and Y is positive in the short run. In other words, short-run AS – curve is upward – sloping. Moreover, such project is supposed to experience increasing return to scale due to the deployment of the state-of-the-art and the most sophisticated technology. So, the AS – curve would be relatively less steep than the AD – curve in this case.
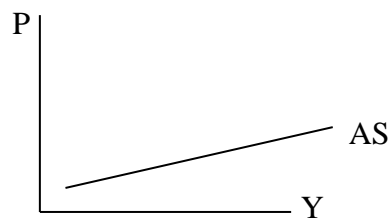
P

AS

Y

Fig. 6

In light of the aforementioned, the goods market equilibrium is presented on P and Y space as follows:
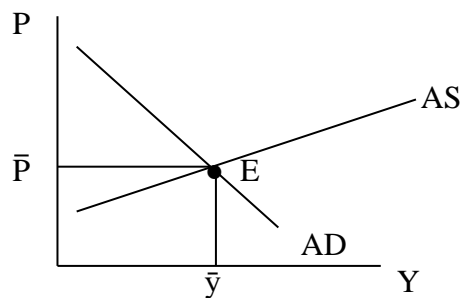
P

AS

$\bar{P}$ E

AD

$\bar{y}$ Y

Fig. 7

Initially, the goods market attains equilibrium at E with AD = AS yielding a pair of ȳ and P. Let us now consider that the Central Bank exogenously increases money supply in the hypothesized amount of $10b through buying Istisna-Sukuk . The resultant increase in money supply would partially raise autonomous business investment shifting AD curve to the right. The remaining part would raise capital stock due to higher capacity utilization or more capacity generation. Hence, larger labor supply causes AS curve to shift to the right. Since both AS curve and AD curve simultaneously shift to the right, there would be three possible outcomes with respect to P and Y. In every case, Y would rise creating additional employment. However, the effect on P is conditional upon the relative magnitudes of the shifts in AD curve and AS curve, as shown below:

<u>Comparative Shifts</u>   <u>Likely Outcomes</u>
for P and Y

$\underline{P}$

Y

i) $\Delta\,AD = \Delta\,AS$ -
          $\uparrow$

ii) $\Delta\,AD < \Delta\,AS$ $\downarrow$
          $\uparrow$

iii) $\Delta\,AD > \Delta\,AS$ $\uparrow$
          $\uparrow$

To economize space, three separate diagrams have not been drawn to demonstrate the above. However, they are quite obvious to the readers. In our study, $\Delta AD < \Delta\,AS$. So, $P\downarrow$ and $Y\uparrow$ as shown below:
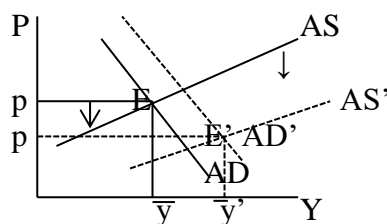

Fig. 8

In all our models, the overall likely effects of the expansionary monetary policy through purchase of Islamic Project Istisna-Sukuk by a country's Central Bank are transmitted through price channel, consumption channel, investment channel, trade channel, and exchange rate channel, as discussed earlier using different models.

V. Recommendations for Practioners, Regulators and Potential Further Research

Sukuk-Istisna based monetary policy is an innovative approach where the large infrastructure projects can be financed without much debts and deficits and at the same time full employment can be achieved. Since the completion of the large infrastructure project, such as the Airport is tied to the additional increase in money supply the fear of inflation can also be avoided because new goods and services are also produced in the form

of new Airport when money supply is increased. If the practitioners and regulators jointly monitor the increase in money supply with the works completed the additional increase in money supply will be equal to the additional increase in new goods and services and there will be no inflation. Both practitioners and regulators must be vigilant to maintain such equality and thereby avoiding inflation all together. The future research projects may focus on the degree of mismatch in coordination between the change in money supply and change in newly produced goods and services in the form of large infrastructure projects(s) and their effects on inflation.

VI. Conclusion

Istisna –Sukuk based expansionary monetary policy has the potential to finance a most modern Airport as well as large infrastructure projects without interest, debts and deficits. As soon as CB issues Sukuk against Isnista product-Airport, CB can sell such Sukuk and can expand the money supply immediately, as needed. Such Sukuk can be bought and sold using open market operations. In addition, Istisna-Sukuk based monetary policy can increase output and employment. At the same time, it can subdue inflation. Thus, Istisna-Sukuk based expansionary monetary policy creates supply-side effects shifting aggregate supply curve to the right. In sum, the size of the economy increases and outflows of billions of dollars as interest payments for accumulated debts either stall or shrink. Additionally, Istisna-Sukuk based expansionary monetary policy induces stability in the economy by lowering both unemployment and inflation rates shifting the Phillips curve toward the origin. This is what the decision makers pursuing interest-based monetary policy have struggled to achieve for years. By lowering the burden of debts and deficits, and sharing risks, it has the potential to subvert future financial crises. By adopting Istisna-Sukuk based expansionary monetary policy, many large infrastructures as well as manufacturing projects can be implemented to step forward into Rostow's stage of "TAKEOFF".

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