



Investment and Sustainable Economic Growth: Empirical Perspective on Kuwait's Dual Challenge During the COVID-19 Pandemic and Beyond

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ABSTRACT

Endogenous economic growth theories have pointed to private investment as one of the determinants of long run, sustainable economic growth; a well-studied relationship in the development economics literature, both theoretically and empirically. One of the main reasons the Kuwaiti economy has not achieved its aspired degree of economic diversification over decades, is the relatively low level of private investment, which has eventuated in a relatively small private sector, partly due to an unimproved investment ecosystem. Like other economies, investment in Kuwait is a robust growth driver especially as a policy tool to achieve a digital, knowledge-based economy that leapfrogs on innovative technological investments, as ambitiously strategized by the Kuwait Vision 2035. The eruption of the coronavirus pandemic and the deep recession it triggered is likely to become a major hurdle in the way of spurring sufficient quality investments. With contracted GDP and collapsed oil prices, export and fiscal revenues shrink substantially, reducing investment activity and hence negatively affecting investment. This paper focuses on the role of private investment as a function of sustainable economic growth. Specifically, this paper aims to delineate the relationship between investment and economic growth in Kuwait by outlining; the determinants and impediments of investment, investment trends and behavior, innovative models of investment in Kuwait and applying a set of seven simulation-based scenarios of investment modelled as autoregressive distributed lags. By so doing, the paper elucidates the impact of critical variables including; non-oil GDP growth, interest rates management, attracting and fostering FDI inflows, as well as the recession plagued fiscal and trade balances, in order to estimate the magnitude and time-path of key policy variables on investment. The findings illustrate the rigidity of investment when recession drags GDP, FDI, exports and trade balances as well as fiscal revenues.

Keywords: Oil Surplus Economy, Kuwait Vision 2035, Diversification, Coronavirus, Simulation, Autoregressive Lag Mode

JEL Classifications: C1, C15, F, F01

1. INTRODUCTION

Before the eruption of the coronavirus pandemic and the subsequent recession it triggered, policy makers and business leaders ascribed to put Kuwait on a transformative digital economy path that is anchored on talent, innovation and technological knowledge. The eruption of the pandemic imposed an estimated 20% drop in demand for oil and hence a collapse in oil prices, which put many of the conventional and stylized economic facts under scrutiny, due to this shock. Important and vital policy considerations became questionable regarding the role of future investments and the

sufficiency of transforming Kuwait into a digital knowledge-based economy that drifts away from dependence on oil as the sole engine of growth. This paper focuses on the role of investment as a function of sustainable economic growth, a dual challenge in Kuwait. Specifically this paper aims to delineate the relationship between investment and economic growth in Kuwait by outlining; the determinants and impediments of investment, investment trends and behavior, innovative models of investment in Kuwait and applying simulation-based scenarios of investments modelled as autoregressive distributed lags. By so doing, the paper elucidates the impact of critical variables including; non-oil GDP growth,

interest rates management, attracting and fostering FDI inflows, as well as the recession plagued fiscal and trade balances, in order to estimate and graphically visualize the magnitude and time-path of key policy variables on investment, which is considered a critical driver of Kuwait's future economic growth.

One of the key determinants of an economy's rate of economic growth is the rate of investment. Economies that grow faster are essentially those that invest a considerable slice of their GDP back into their economies and the inverse being true; in that economies that do not successfully grow are those that fail to effectively invest, all else being equal (UNCTAD, 2015). This conceptual framework is partly grounded in economic theory, the basic neoclassical growth model delineated by Solow (1956) and Swan (1956) which predicts that one of the key determinants of economic growth is the rate of investment. Realizing that investment is integral to the economic growth equation, albeit not an exclusively identifiable factor that includes other equally critical components, such as institutional readiness, distribution of resources, trade and other factors.

Kuwait is a small, rich, and relatively open economy with proven crude oil reserves estimated at 10% of world reserves. Crude oil production at a current rate of 2.3 million barrels per day accounts for nearly half of the country's GDP, 95% of export revenues, and 90% of government income. Gross fixed investment is at 8% of GDP, while public debt is at 29.6% of GDP. (Al Jabsheh et al., 2018) This over-reliance on oil revenues is unsustainable, nor can it propel economic growth. Diversifying the sources of national income has been a long-sought strategic objective for the government, yet one that has not effectively materialized in spite of the authorities' particularly intensive efforts to facilitate the growth of the private non-oil sectors in Kuwait, using various tools such as subsidies and incentives.

One of the main reasons the Kuwaiti economy has not achieved the degree of diversification that policy and economic planners have aspired for is the low level of investment, particularly by the private sector, during the last four decades. In order to appreciate the implications of underinvestment in an economy, it is imperative to undertake an appreciation of "investment" itself. Investment is the lifeblood of economic growth and sustainable development. In fact, it is one of the central and critical indicators that draw the long-term trajectory of economic performance. Investment is defined in a number of ways that all reflect the same output. The Keynesian definition of investment perceives it to be a flow concept where goods are designed to be utilized to produce others, rather than intrinsically consumed. Alternatively, the financial dimension of investment focuses on the acquisition of financial assets, such as company shares. Investors are the people or the entities that hold these assets. Investment is the process of adding to stocks of real productive assets. This may mean acquiring fixed assets, such as buildings, plant, or equipment, or adding to stocks (Gross fixed investment is spending on new capital equipment; net investment is gross investment minus capital consumption, an estimate of the loss of value of capital goods through wear and tear, the passage of time, or technical obsolescence). Investments in the financial sense are often used to fund investment in the Keynesian sense. Investment is often considered in the context of savings,

since savings are eventually allocated as funds to productive private sectors (Tan and Tang, 2016).

Understanding underinvestment and more specifically the peculiarities of underinvestment in Kuwait is key to appreciating the country's economic challenges and shortcomings. A long-term relationship exists between investment and Kuwait's GDP; expenditure-side investment is a critical component of GDP, alongside private consumption, expenditure, government spending, and net exports. There are two main types and directions of investment; namely, domestic investment funds which flow from within the economy to produce in its own economic sectors and foreign investment, where funds come from outside the country.

The outflow of capital from Kuwait has been substantial, although not expanding the productivity base of the economy even though economic returns are high (UNCTAD, 2012) contrarily, increasing private investment in Kuwait is a window of great opportunity. Many barriers exist. Disincentives and barriers that include bureaucratic red tape, which unnecessarily inflate the cost of licensing requirements; labor regulations that lack flexibility; and the labor market, which remains highly segmented, persist. This is in addition to the macro issues that include inflation and the government's provision of an extensive subsidy program, in addition to the implementation of price controls through public utilities and enterprises, which have had a market distorting effect on the economy. At a time of persistent challenges, both social and environmental, employing and directing the process of economic growth for sustainable development is of primal importance. Investment is a central and pivotal driver of such growth. Utilizing investment and ensuring that it is directly relevant to the objectives of sustainable development is therefore a priority.

Many lessons were learned from resource-poor nations, like the Southeast Asian economies, that relied on development through investment which was typically coupled with expedited knowledge and technology transfers, and hence, over time economic growth. The determinants of investment have typically included locational attractiveness, access to markets, sophisticated financial tools, political stability, and transparency. The prospects of relatively high financial returns and profitability, whether in the short or long-term are undoubtedly primary determinants for private investors (Barro, 1995; Carkovic and Levine, 2002). More importantly, there was a clear recognition and a conviction on the part of policymakers in these countries that investment was critical to their economic development and growth (Mohaddes et al., 2019 and Fuinhas et al., 2019).

This has not been the experience of resource-rich, oil surplus economies like Kuwait, where to the contrary, investment has been looked at with an ambitious and entrepreneurial eye, especially if it is private. As a result, capital formation, partly a function of investment, has shown mixed performance in the GCC region, the lowest being in Kuwait, over a past ten-year spread. One of the primary functions of increasing domestic investment flows in the private sector is to create new job opportunities. The downside is that the majority of these jobs went to foreign, unskilled workers, especially in the private sector, while the great majority of nationals

remain employed in the public sector. In fact, the number of foreigners per one Kuwaiti national was 63 to 1 in 2000, and has dropped to 44 to 1 in 2018. Today, only 16% of the Kuwaiti workforce is employed in the country's private sector. (CSB, 2019) The same trend resonates in the rest of the GCC, albeit, less amplified; for every Omani working in the private sector, there are five foreign workers and in Saudi Arabia, the ratio is 9 to 1; (UNSTATS, 2019).

However, realizing Kuwait's dire need for economic diversification, the government has recognized that future economic growth will require the participation of a vital and dynamic private sector, and that foreign participation will encourage this. Therefore, in 2001 the Parliament enacted a law regulating Direct Foreign Capital Investment in Kuwait, as a step to attract foreign investment by reducing or even eliminating foreign ownership limits. This law allowed foreigners to own up to 100% of businesses in certain sectors that include infrastructure projects (water, power, wastewater treatment, or communications); investment and exchange companies; insurance companies; information technology and software development; hospitals and pharmaceuticals; air, land and sea freight; tourism; hotels; entertainment; housing projects and urban development and logistic services and environmental activities. (EU-GCC Invest Report, 2018).

2. THE ROLE OF PRIVATE INVESTMENT IN ECONOMIC GROWTH

In recent years, deliberation over the role that public and private investment play in the economic growth process of developing countries has taken center stage among policy-making and academic circles. The general consensus is that both components of investment, public, and private, have a differential and complementary impact on growth. Public investment in infrastructure and human capital is fundamentally required and may increase private capital productivity. However, public investment may also crowd out private investment by utilizing scarce resources and adversely affecting growth. Therefore, for policymakers and researchers concerned with growth in the developing world, it is not only the total level of investment that is important, but equally so is the ratio between the two.

The relationship between domestic private investment (non-government) and economic growth is a well-studied relationship in the development economics literature, both theoretically and empirically (Tawiri, 2010 and Fakraoui, 2019). Theoretically, the neoclassical framework highlights the role of savings and long-term growth performance. Stimulation of private investment occurs mainly by engaging structural reforms, particularly in the financial sector, which will in turn facilitate the mobilization of savings and the allocation of funds to productive private sectors, ensuring stable macroeconomics. Growth theory analyzes the disparity in economic growth rates between countries to identify the factors that affect output growth. Determinants differ among countries and periods. Additionally, the level of openness of an economic system also affects the impact ratio of these determinants. Research

findings indicate that there is a positive relationship between investment and economic growth. Moreover, the prevalence of domestic investment is considered to be a primary driver of economic growth. Causality tests indicated the existence of a causal relationship in the long and short terms of investment and growth (Tan and Tang, 2016). In fact, changes in investment helped explain correlative changes in economic growth. This is attributed to the underlying fundamental confirmation that increases in growth rates could lead to a notable revitalization of the economy, indicated primarily by the increase in employment opportunities. Hence, domestic private investment is expected to play an important role in stimulating economic growth. Studies have shown that private investment has a larger positive impact on growth than public investment (Tawiri, 2010).

In order to contribute to the discussion of what determines the desired capital stock for potential investments, a central motive and/or objective is to elucidate the main determinants of private investment decisions. Noteworthy classical economic mainstays in the body of empirical literature on the determinants of investment behavior are divided into two pools; time series analyses for one or several countries, and microeconomic studies using firm level data. Among the prominent in the former camp are; Lougani and Rush (1995), Bloomstrom et al. (1996), Everhart and Sumlinski (2001), Campos and Nugent (2003), and Krishna et al. (2003), while firm level analyses include among others Chrinko and Schaller (1995) and Bloom et al. (2001). Although the current tendency is toward microeconomic studies with panel data at the firm level, time series data analysis remains a mainstay for the same country analyses. The literature has proposed several hypotheses for evaluating the impact or the explanatory power of key macroeconomic variables as decisive factors in private investment behavior in a country. Samuleson (1994) and Irfan et al. (2004) elucidated the presence of a correlative relationship between investment and production, proposing the "accelerator" hypothesis; whereas, Jorgenson (1963) highlighted that the level of demand had a positive impact on the value of the capital stock for a typical firm, maintaining that the output of the country's gross domestic product (GDP) would be a good proxy for aggregate demand as a determinant of private investment (Bloomstrom et al., 1996), as well as the rate of return on investment behavior, mainly as a function of the prevalent real interest rate as representative of the cost of capital. Moreover, literature on the subject has also focused on alternate tangents of the investment framework that seemingly play a critical role in investment behavior as Fisman (2001) suggests, "that in the long-run, economies with high rates of financial development will devote relatively more resources to industries with a "natural" reliance on outside finance due to a comparative advantage in these industries" (Fisman, 2001), and that international technology transfer is increasingly playing a central role in investment decisions owing to the foreseen economic growth prospects, especially as countries progress along the development path (The World Bank 2001 and The World Bank 2016).

The relatively small size of Kuwait's private sector is partially accountable for poor productivity. Public sector investment in the 1980's was twice the size than that of the private sector, and this has continued to decline well into the 1990's and 2000's. Kuwait

private sector, as measured by its share in GDP, is about one third of the public sector and has not been increasing overtime. Today the private sector accounts for still 31% of GDP, by constant 2010 prices (CSB, 2019), the lowest in the GCC region. The bottom line is that increasing Kuwait's investment rate alone is not the key to raising economic growth rates if it is not accompanied by higher productivity. This coupling is very important. Kuwait has constantly registered a negative productivity growth rate. Studies that have investigated the determinants of TFP growth consistently show that investment growth is closely tied to improving the investment climate and institutions among other things, adopting open, outward policies, raising the quality of skilled human capital and avoiding an excessively large public sector. These are invariably the same factors that also increase per capita GDP growth rate. Therefore, boosting the TFP growth rate should be combined with fostering a policy environment that provides the right incentives for encouraging investment. The following section delves into the empirical and applied perspective of the determinants of investment using a dynamic autoregressive distributed lag model that adds much value to our understanding.

3. INVESTMENT DETERMINANTS: A DYNAMIC AUTOREGRESSIVE DISTRIBUTED LAG MODEL

This section provides empirical estimates of the response of investment to changes in two key parameters that are the focus of monetary and fiscal policy; namely GDP and interest rates. Towards that objective, we deploy a dynamic autoregressive dynamic lag model and apply simulation techniques in order to arrive at estimates of the dynamic multiplier of investment with respect to non-oil GDP and interest rates. We opt to apply two specifications of the dynamic ARDL model; one that is concisely capturing the interrelationships amongst critical variables of investment, income (GDP-Non-oil) and real interest rates. Since we aim to establish long run relationships or co-integration between these variables, we specify the first model as an error correction model which enables us to differentiate between the size of the elasticities, for example the investment elasticity with respect to income and the investment elasticity with respect to real interest rates.

Since the recession-triggered coronavirus pandemic has been deep and is likely to remain protracted over the next few quarters, our research here seeks to simulate the likely impact of key variables on the future path of domestic investment in Kuwait. Given that the Kuwaiti economy as well as almost all global economies suffer from this complex and deep fall, due to the pandemic, the research here simulates the likely impact of the witnessed economic contraction on investment and the oil price collapses that characterize the current economy. Accordingly, variants of the dynamic autoregressive and cointegration models for dynamically simulating, and for ease of evaluation the dynamic estimates, simulated over thousands of times, are then drawn up and graphed in a concise plot that combines alternative simulations of key variables such as GDP, interest rates, government expenditures, FDI and Kuwait's time variant trade balances.

In the second specification of the investment function, key variables are included to income and real interest rates as additional regressors. Deploying thousands of dynamic simulations, we graph the profound and deep impact on investment in the future years of the complex ramifications on the Kuwaiti economy, represented by these regressors. The repercussions are in terms of both direction as well as order of magnitude and the length of the protracted time of the free-fall of these variables on Kuwait's future investment. Simulated dynamic impact of the set of key variables are of enormous significance to policy makers and to the developmental trajectory that the economy is likely to follow. The underlying reason is that in the post coronavirus economy, Kuwait will be relying more on innovative investment and FDI as drivers of the future digitized, and sustainable growth economy, (Kuwait China Ref, 2018).

Additional variables include government expenditure, which has traditionally been the main driver of growth in Kuwait's context as an oil economy. The government owns the physical hydrocarbon assets, the proceeds of which are used for the provision of "consumptive" products and a suite of social and infrastructure based assets such as capital and construction of physical buildings, schools, hospitals, government offices and the like. The second expanded specification includes a variable which connotes foreign direct investment inflows gauged relative to GDP. Finally, the expanded specification incorporates trade balances as a regressor in order to test the direction and extent of influence it exerts on investment, in order to test the existence and magnitude of the causal relationship between external sector balances and domestic investment.

In general terms, the autoregressive distributed lag model can be written as (Jordan and Philips, 2018)

$$y_t, \Delta y_t = \alpha_0 + \delta T + \sum_{p=1}^p \rho_p y_{t-p} + \sum_{l=1}^l \theta_l x_{1,t-l} + \dots + \sum_{k=0}^k \theta_k x_{k,t-lk} + \sum_{l=1}^l \epsilon_l \quad (1)$$

$$M \quad Q_1 \quad Q_k$$

$$\sum_{m=1}^m \alpha_m \Delta y_{t-m} + \sum_{q_1=0}^{q_1=0} \beta_1 q_1 \Delta x_{1,t-q_1} + \dots + \sum_{q_k=0}^{q_k=0} \beta_k q_k \Delta x_{k,t-q_k} + \epsilon_t$$

$$m=1 \quad q_1=0 \quad q_k=0$$

All variables are gauged in logarithmic terms and the dependent variable is the log of investment regressed on the log of GDP-non-oil and real interest rates. Since we are interested in ascertaining the existence of an integrated relationship, the dependent variable is the in first-differences (Δy_t) while the dependent variables are gauged in level up to a maximum of 3 lags of the dependent variable, a series of lags for each of the k regressors—appearing either contemporaneously or with a lag— m lagged first-differences of the dependent variable, and contemporaneous and/or lagged first-differences of each of the regressors. In subsequent runs, using dynamic autoregressive lag model which runs thousands of simulations, we apply such combinations of contemporaneous, lagged, differences of each of the regressors (Jordan and Philips, 2018).

$$y_t = \alpha_0 + \phi_1 y_{t-1} + \theta_1 \Delta x_{1,t} + \dots + \theta_k \Delta x_{k,t} + \theta_{k+1} x_{1,t-1} + \dots + \theta_{k+1} x_{k,t-1} + \varepsilon_t \quad (2)$$

In addition to its non-stationary and cointegrating variant, which is commonly dubbed as an error-correction model

$$\Delta y_t = \alpha_0 + \phi_1 y_{t-1} + \theta_1 \Delta x_{1,t-1} + \dots + \theta_k \Delta x_{k,t-1} + \beta_1 \Delta x_{1,t} + \dots + \beta_k \Delta x_{k,t} + \varepsilon_t \quad (3)$$

In order to simplify visual appearance, the above formulation of the autoregressive distributed lag model leaves out first differences of the variables included as regressors, five in our expanded model. These can be simply inserted in the above equation but will crowd out the appearance of the equation.

3.1. Empirical Findings

Before estimating the determinants of investment utilizing the dynamic ARDL model, we performed stationarity tests using two methods, PPerron and the DFGLS on the variables. Table 1 displays the results of the tests of stationarity for key variables.

In the case of (log) of investment, the hypothesis of unit root is rejected in favor of level stationarity, using a four year lag structure. Similar tests were conducted on the other regressors which also indicated that the variables are level or first differences stationarity of I(0) or I(1). Accordingly, we proceeded to estimate the determinants of investment utilizing the dynamic autoregressive distributed lag model. Table 2 below summarizes the derived regression parameters of the error correction function. The estimates reveal the following interpretations and policy implications. First, investment in Kuwait is highly responsive to changes in non-oil GDP with the long run income elasticity in the vicinity of 0.9 (exactly 0.895). This implies that if income

increases by 1%, it triggers investment to increase by a smaller magnitude of 0.90%. While less than one, the estimated investment elasticity with respect to income, surrogated by non-oil GDP, is highly significant with the value of the t-statistic in excess of 13 and the parameter is accordingly highly significant at the 1% level. Secondly, the estimated elasticity of investment with respect to changes in real interest rates is powerful at negative 0.40. Therefore, relatively large changes in real interest rates bring about corresponding changes in investment but at smaller absolute magnitudes. Hence, from a policy perspective the long run elasticity value of (-0.40) indicates that monetary authorities can effectively apply rates' changes in order to bring about commensurately smaller changes in investment and accordingly large changes in real interest rates will be required in order to stimulate investment appreciably.

Finally, the elasticity of tradeable balances with respect to investment is positive and significant at the 5% level. The error correction term has the correct negative sign (-0.37). The value of the adjustment coefficient implies that investors adjust their expectations to the tune of 37% or alternatively, that 37% of their expectations are realized in any given period. Table 2 also shows the derived estimates of the expanded model of investment determinants using the dynamic ARDL model that can be summarized as follows: firstly, the size of the long run income elasticity is slightly higher at 0.95 in the expanded investment determinants model. Secondly, the elasticity of investment with respect to real interest rates is markedly smaller at (-0.20). Government spending has a positive impact on attracting investment. With an elasticity of 0.26, an increase in government spending by 1% is associated with an increase in investment by 0.26% signifying that government spending spurs investment in the context of the Kuwaiti economy. Historically, FDI has played an insignificant role in stimulating investment in Kuwait due to the fact that Kuwait is a capital-surplus oil economy. In fact, local investors considered FDI as a factor that competed for available business opportunities. Whether this perspective remains unchanged in future as surplus funds shrink is an open question although one leans to think that such perspective will undergo changes and FDI will be looked upon more favorably in the post-coronavirus time recovery periods.

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Table 1: The P. Perron and Dicky-fuller tests of stationarity

Variables	Z	P-value	Lags
Lninv	-1.467	0.550	4.000
Lngdpno	-2.289	0.175	4.000
Lnrinrateus	-2.107	0.242	4.000
Dfuller test results	Z	P-value	Lags
lninv	-0.104	0.949	4.000
lngdpno	-1.563	0.502	4.000
lnrinrateus	-1.507	0.530	4.000

Table 2: Regression results of the simple (1) and expanded investment (2) determinants (Model: Dynamic ARDL)

Variables	(1) Lninv	(2) lninv	(1) lninv	(2) lninv
L.lninv	-0.379*** (-3.79)	-0.611*** (-5.054)	SR:LD.lnfdiitgdp1	-0.611*** (2.855)
LR:lngdpnooil	0.895*** (13.733)	0.944*** (4.639)	SR:L2D.lnfdiitgdp1	-0.611*** (2.682)
LR:Lnrinrateus	-0.404*** (-2.976)	-0.202*** (-2.443)	SR:D.lntradebal	-0.065*** (-3.131)
LR:lngovexp		0.261 (1.568)	SR:LD.lntradebal	-0.032*** (-1.763)
LR:lnfdiitgdp1		0.206*** (-4.126)	SR:L2D.lntradebalq	-0.061*** (-3.122)
LR:lntradebal		0.073*** (2.068)	SR:_cons	0.147 (0.626)
SR:D.lnrinrateus	0.040 (0.615)	-0.000 (-0.004)		-2.345*** (-8.383)
SR:LD.lnrinrateus	0.272*** (4.344)	0.257*** (4.082)		
SR:L2D.lnrinrat-s	0.129*** (2.061)			
SR:D.lnfdiitgdp1	0.084*** (3.574)			
Obs.	40	46		
R-squared	0.556	0.474		

t-values are in parenthesis. ***P<0.01, **P<0.05, *P<0.1

in tradeable balances of 1% will trigger long run increases in investment at 0.073 indicating that investment is inelastic with respect to tradeable balances. For most of the past 50 years Kuwait has tended to realize annual surpluses in trade balances. Should the historical trend be reversed in future times, the probable decline in trade balances is expected to trigger smaller yet appreciable declines in investment.

Judged by the value of the adjusted R-squared, the log-likelihood function, the model fits the data well. The value of the error correction parameter of 0.61 implies that each year investors adjust their investment by 61% towards their desired long-run equilibrium level. Moreover, the requisite heteroscedasticity, Durbin Watson tests, serial correlation test and the Ramsey diagnostic conducted in this study, all indicated the model variables are fit to deployment in the model (for space considerations, they are not shown but are available upon request). Furthermore, the overall stability test was satisfied implying the model is stable as revealed in the outcome of the CUMSUM test of stability as shown in Figure 1 below, indicating that recursive residuals lie within the 5% critical bounds.

3.2. Dynamic Scenario Simulations Findings

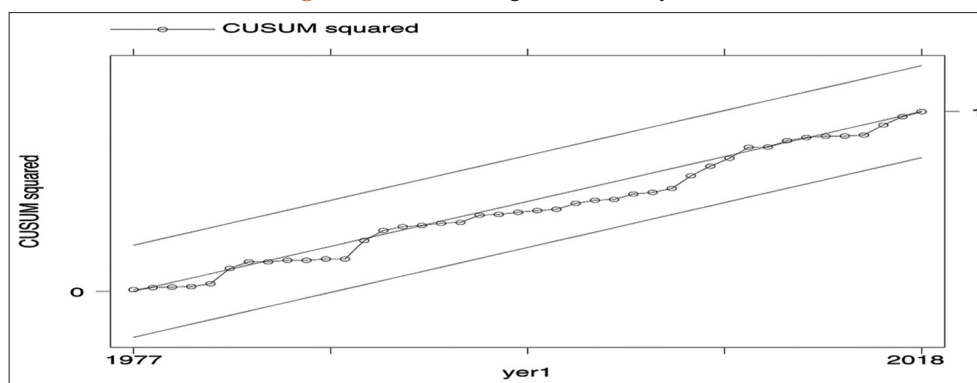
As noted above, our dynamic ARDL model of the determinants of investment in the context of Kuwait have rather complex dynamic specifications, including multiple lags, first-differences, and lagged first-differences which renders interpretation of such complex specification tedious. This makes it more difficult to interpret the effects of changes, especially short and longer-run changes in the independent investment variable. In order to surmount this, recent literature has developed a flexible dynamic simulations based program that allows users to dynamically simulate a variety of ARDL models, including the error-correction model which is deployed herein. Such dynamic simulations offer an alternative to hypothesis testing of model coefficients by instead conveying the substantive significance of the results through meaningful counterfactual scenarios. Therefore, here we test and graphically illustrate the dynamic impact on investment that result from time-specific changes in the values of each of the regressors. The selected dynamic scenarios have significant policy implications because they illustrate the damaging impact that the coronavirus triggered recession has had on one of the key policy variables, and associated instruments, that policy makers count on as transformative tools and bridges to achieving

digitized, long-term sustainable economic growth. Accordingly, the envisioned dynamic scenarios that are applied as shock triggers in the dynamic simulations are:

1. Deep recession causes massive reduction in non-oil GDP that triggers investment to dip to substantially low levels. Hence this scenario is dubbed “dynamic scenario of protracted recession and diminished investments”
2. Foreign direct investment changes markedly under economic conditions dictated by the imperatives of coronavirus pandemic. The objective is to apply dynamic simulations to investment pursuant to major shocks in FDI inflows that have been retrenched massively on the heels of the pandemic
3. Monetary authorities, i.e. Kuwait Central Bank, effectuates real interest rates in order to mitigate the dynamic time-aggravated coronavirus lockdowns and oil price collapse on business activities in Kuwait. Accordingly, the third dynamic scenario shocks real interest rates downwards in order to dynamically simulate and track repercussions on investment in the context of Kuwait
4. External trade balances are shocked quite heavily in the course of weak demand for oil and retrenched oil and other exports that reverses the long term trend of positive trade balances to substantially negative value and simulates and tracks the dynamic impact on investment; and finally
5. Fiscal policy comes to the rescue: As the pandemic lockdown continues, Kuwait government has offered a menu of supportive measures and provided cash to businesses, households, and individuals in order to mitigate the considerable economic repercussions on Kuwait's private sector businesses, SMEs and households and workers who lost their jobs or experienced wage and other income contractions as a result of the pandemic-inflicted recession. The magnitude of the fiscal support is articulated so as to maintain a necessary balance between the need to save the economy while maintaining fiscal sustainability.

The left-hand side figure in Figure 2 indicates that if the Central Bank lowers interest rates by 2 percentage points, the impact on investment will be significant over the course of time. In Figure 2, the level of investment (in logarithmic terms) will rise from its level of 7.5 in the base year 5 to nearly 7.7 in year 14 and beyond. The right-hand-side figure illustrates the impact on investment of a positive shock to GDP by 2% added on top of historical growth mean level. Since this is a sizeable increase in GDP growth, from

Figure 1: Model 2 - diagnostics stability tests



say 3% to 5%, the impact on investment level is enormous where it rises from the base level of 7.5 to the vicinity of 9.4 in logarithmic scale, a tremendous push forward that would be much needed to achieve a leapfrogging growth pattern.

Turning to our five scenarios, we find that the 5000 simulations of each produced very illuminating impact on investment induced

by the respective triggers, bearing in mind that the trigger of investment in each graph is indicated on the title of each of the seven respective graphs shown on Figure 3 below. The dynamic simulations produce investment impacts that vary in terms of magnitude, perseverance or time-protraction and the associated confidence intervals of the estimates, ranging from 1%, to 5% and 10% respectively. These are discussed briefly below.

Figure 2: Dynamic Simulations of the Five Scenarios (Model Dynamic Investment Autoregressive Distributed Lag Model 1)

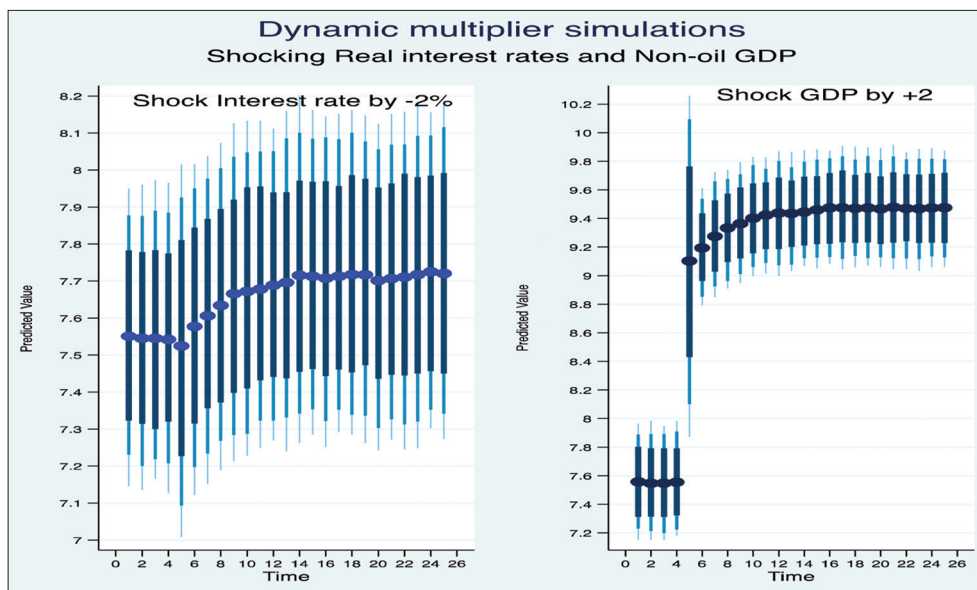
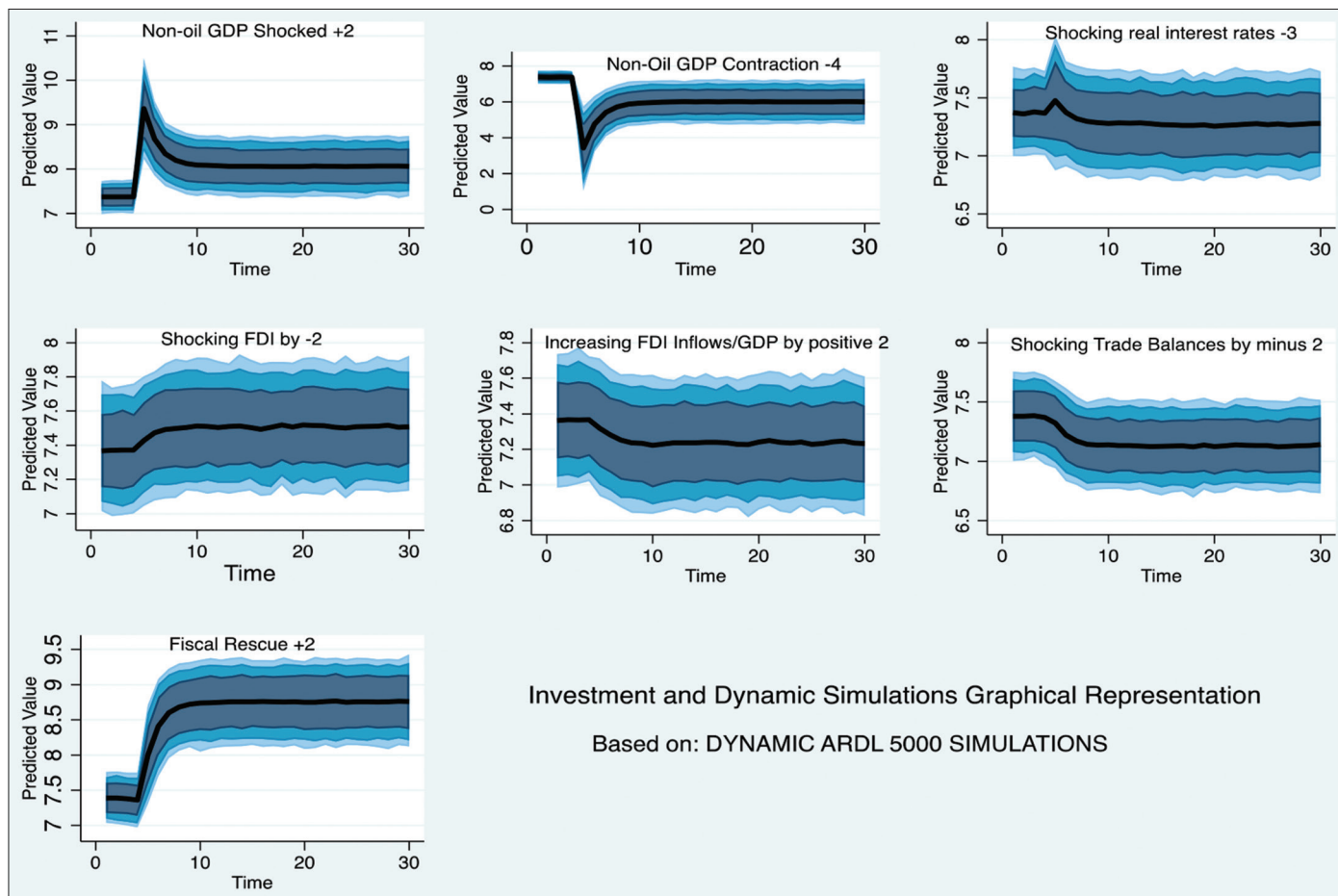


Figure 3: Model 2 - Dynamic simulations of the five scenarios (Model dynamic investment autoregressive distributed lag model)



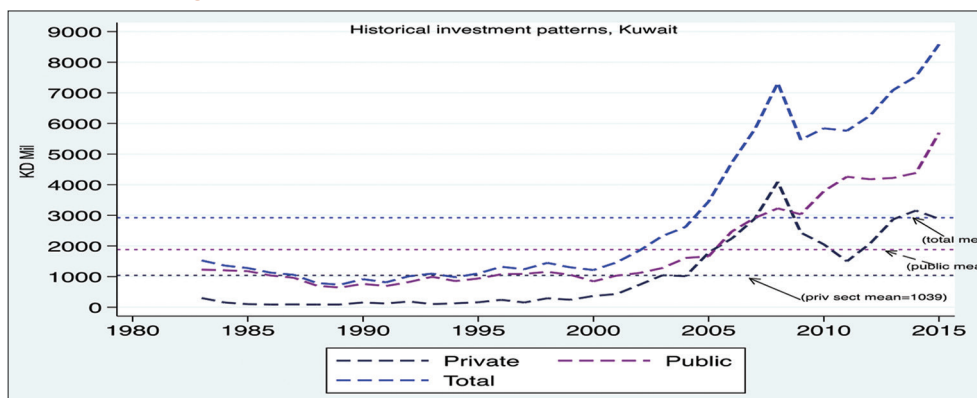
In the first upper left graph, dubbed “Non-Oil Shocked +2” a scenario is assumed whereby non-oil GDP is shocked up by 2% points above Kuwait’s long run mean economic growth. The simulated graphical effect is in terms of a rise in investment that occurs fairly quickly leading to a rise from a logarithmic value of 7.4 to nearly 9.4 but the peak reverts to a lower level of about 8.2 in logarithmic scale, which remains higher than the initial investment level. Therefore, this dynamic simulation attests to the powerful effect that income (non-oil GDP) growth exerts on investment. The second upper middle graph titled “Non-Oil GDP Contraction-4” simulates the potential effect of a recession trap that causes contracts GDP in the non-oil sector by a powerful drop of its growth by 4% below its historical mean level. The initial level of investment at 7.4 is simulated to dynamically drop to a new level of <4 in logarithmic scale. However, the recession caused drop is v-shaped and investments trend upwards to slightly <6 logarithmic scale value and the new final level protracts throughout the time horizon under consideration which attest to the agony associated with a steep dive in incomes that protract over time. The third upper right graph titled, “Shocking real interest rates by -3” illustrates the simulated dynamic impact of the CBK policy that seeks to stimulate the economy through the interest rates instrument. The upshot of dynamic simulations is in terms of a rise in investment from its initial level of 7.4 to nearly 7.5, which is mild. This indicates that changing interest rates while exerting a simulative effect does not last long, while lowering interest rates has a transitory effect on investment, which quickly reverts to initial levels or even inches downwards slightly. The fourth and fifth figures on the left-hand side and middle of the combined graphs picture elucidate the impact on investment by FDI inflows. They contrast and demonstrate the inverted impact of FDI inflows (as % of GDP) on domestic investments by businesses and other investors. The case of “Shocking FDI -2” left-hand graph in the middle of the combined graphs illustrates the impact on investment of negative shocks, or decline in FDI, as also expected by Al-Shammari, N and Halaq, S. (2016). Conversely, the FDI shock in the middle graph which is positioned in the center of the page, titled “Increasing FDI inflows to GDP by + 2” assumes declines in FDI by 2 percentage log scale -value points. Clearly, negative FDI shocks trigger increased investment whereas positive FDI inflow shock of 2 is associated with a decline in domestic investment. The inverse patterns illustrate how Kuwaiti business owners apparently prefer to go solo without foreign inflows. The sixth graph in the far-right center of the page elucidates the impact of retrenched trade balances on domestic

investment. As shown graphically, the dynamic simulations vividly portray the negative effect of reduced balances on the size and the relative fixity of investment time at the destination point where in log scale, investment drops from the initial 7.4 log scale points to 7.2 at the destination point. Lastly, the graph on the far left at the bottom of the page demonstrates the dynamic impact of an increase in fiscal spending that target to rescue the economy. As shown, an increase in fiscal expenditures by 2 log-scale points begets an immediate rise in investment from its initial status quo level of 7.4 to log-scale value that seems to exceed 8,5 log scale points. Moreover, the fiscal rescue has a permanent effect on investment as it resonates at its destination level for the foreseeable time horizon of 25 years, ceteris paribus. Accordingly, in Kuwait’s context, increased fiscal spending for developmental (and social) purposes triggers a steady positive impact on investment. It is discernable that the seven dynamic simulations are associated with differential confidence intervals. In the case of GDP simulations, the time-path of the impact on investment has a relatively narrow range of confidence intervals (1%, 5% and 10%). In contrast, simulations of the FDI inflows in the center of the page are associated with a notable larger range of confidence interval.

4. GENERAL INVESTMENT TRENDS IN KUWAIT

The domestic private investment rate in Kuwait has averaged 19% over the past decade (CSB, 2010-2019), considered moderate at best according to international standards where the global average is 25%. Moreover, regionally in the GCC the share of investment in GDP over a decade long average has been 29.5% in Oman; 27.5% in the Kingdom of Saudi Arabia, and 23.8% in the UAE and growing (Economy Watch, 2019). While lagging behind levels in other countries, private investment in Kuwait has been evolving discernibly over time. This paper suggests that its diffusion over the course of time has been crystallizing with sustained economic growth and has catalyzed particularly public investments that the government made in key sectors of the economy, notably in infrastructure and in human resources, especially health and education. Such cumulative outlays have augmented the physical and human capital bases of the economy and in the process, expanded opportunities for further private investment particularly in niches that are lucrative such as banking, retail, and wholesale trade and increasingly in communications and information

Figure 4: Trends in Private and Public Investment. Source: CSB, 20



technology, the Internet of Things (IOT). (NBK Reports, 2019) Drawn from the Central Statistical Bureau (CSB) publications on national income accounts, the demand side, investment in Kuwait has been sizeable in absolute terms running at nearly KD 8,579 million in 2015. When gauged against Kuwait's GDP however, the total investment share in GDP is rather somewhat small at 15% averaged over the period 1983-2018. Official CSB data suggested that in 2014, the share of investment in GDP dipped in Kuwait to 14.4% but recovered in the subsequent year, 2015, to 21.7% (CSB, 2019).

The research here suggests that private investors tend to be sector (and niche) selective. Investors seem to favor such sectors as wholesale and retail trade, communications, banking and finance, recreation, hotels, restaurants and real estate sector. During the long-haul, 1985-2019, private investment has represented about 25% of total investment in Kuwait and has managed to reach 45% to 50% during periods of high economic growth such as the period 2004-2008, and then retreated during times of slow growth. (CSB, 2019) Therefore, our analysis corroborates that private investment in Kuwait tends to move pro-cyclically, that is increase during boom times and recede during times of slow economic growth and unfavorable business climate. Moreover, business investments seem to increase with improved corporate governance and regulatory structure, by instituting favorable and easy-to-understand and implement rules and regulations. The policy implications of this profile should be in terms of measures that smooth out economic growth and minimize economic growth volatility.

The data produced (Al Jabsheh et al, 2018) on the time-varying share of private investment displays the trend in private and public investment showing that the evolution and time-changing patterns of private, public and total investment in Kuwait suggests that public investment has led the way and facilitated the penetration of private investment especially in sectors characterized by production and selling for the market as well as in the services sectors, notably financial, commercial and private housing, trade, restaurants and other related activities. Over the period 1983-2015, private investments grew annually at an overall growth rate of 7.1% whereas public investment grew at a slower rate, or an average rate of 4.8%, implying that over time the share of private investment was rising. Kuwait's private investors seem less prone to invest domestically during times of high risks and uncertainty; that is they tend to be risk-averse.

During much of the 1980s' sluggish years in terms of economic growth; private investment was sluggish and annual growth rates were negative. By contrast, private investment grew at resilient rates during the buoyant years of the early 2000 to 2008, as shown in Figure 4. The cyclical flip-flop annual growth rates of private investment meant high volatility of private investment relative to the volatility of public investment as shown in Figure 5, which reinforces the contention that the standard deviation of the logarithm of private investment is 0.36, while the standard deviation for public investment is 0.15. That is to say, the volatility of private investment is fivefold the value of its mean (0.36 vs. 0.071). By contrast, the volatility of public investment was threefold the mean of the sector (0.15 vs. 0.048).

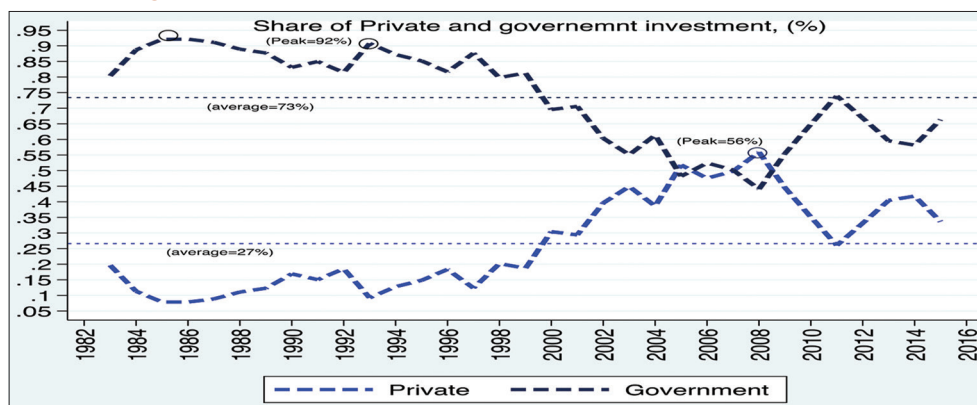
The time-varying shares of public and private investment in Kuwait shown graphically below clearly illustrate the rising tendency for private investment to partake larger shares subject to the state of the economy on the business cycle. Noteworthy is the positive association between private investment and "good economic conditions" during the period of rising oil prices and robust economic growth, 2002 and 2009, the investment share of the private sector rose steadily to reach an all-time high of 56% in 2009 as shown in the Figure 4.

This is all in line with multi-country experiences suggesting that private investments increase during boom times and to locations that have favorable business environments, and conversely flatten out during periods of mediocre productivity and adverse economic times. Noting these idiosyncrasies, countries vie to attract domestic investments by creating favorable business environments where fair, just, and efficient commercial laws prevail without intervention by opportunistic misbehavior. Investment spurs growth, and rapid growth attracts investors that inherently infuse knowledge, know-how, and technological diffusion, hence, compounding the positive effects of investment itself. Domestic investors internalize the benefits and expertise acquired, replicating this constructive experience across the board, horizontally and vertically across sectors. Know-how is critical for up-skilling and re-skilling Kuwait's human resources at current times where the fourth industrial revolution and rapid technological innovations and discoveries are affecting total factor productivity.

5. DETERMINANTS AND IMPEDIMENTS TO INVESTMENT IN KUWAIT

The lags of FDI and domestic investment in Kuwait in comparison to the region and the GCC at large, has been studied and documented by the World Bank (World Bank Report, 2018) and by economists for years (Tawiri, 2010, WB Report, 2010). The key and critical reasons for this shortfall have been clearly identified in a capstone as follows: excessive barriers to entry, restricted and limited ownership, legal implications, in addition to others, which in combination, produce an uninviting private sector for foreign investors seeking business-friendly opportunities.

Access to credit is one of the numerous factors that may impact and hence determine private investment. As a result, of the absence of future markets and long-term financing, the development of the size of credit that will eventually find its way to the private sector is potentially a good indicator of private investment behavior. Real exchange rate can also affect the evolution of private investment and the rate of return. When a country's currency depreciates in real terms, the price of assets falls and so does the nominal gain of investment. This is particularly poignant in sectors producing non-exportable goods. According to the World Economic Forum, infrastructure can make a substantial contribution to enhancing competitiveness of and GCC economies, where the challenge is dual-pronged, requiring infrastructure-based advances and institutional reforms, alongside a forward-looking economic reform agenda that serves the region's development goals; also, broadening the economic base to create more jobs and reinvest oil income in sustainable development.

Figure 5: Private Investment's Share in Total Investment. Source: CSB, 2019

Furthermore, changes in the economic environment typically affect investment decisions of both companies and workers that operate in markets with different types of regulation, or of government groups whose decisions are made in normative environments outside of market mechanisms. Here, public investment can also have differential impacts, that may include the “crowding in” or the “crowding out” effect; whereby, the state may act as a catalyst to exclude or crowd out the private sector when public investment increases in a country and competes for the appropriation of scarce (physical and financial) resources. In the case of the crowding in effect, through which, positive externalities such as investment in infrastructure and the complementarity that public investment has, occurs by propelling higher levels of private investment (Everhart and Sumlinski, 2001).

In general, the investment climate encompasses fundamental factors that could have direct or indirect impact on stimulating investment. The investment climate or ecosystem defines the barriers and impediments; being political, structural, economical, institutional or social, that have been obstructing in the past and still impeding and hampering the enhancement of investment. Economic factors essentially delineate unemployment, the availability of natural resources in addition to industrialization and overall production processes. Whereas, a good legal system is one that is effective, efficient, and characterized by its stability and clarity, thereby reducing revenue risks, and facilitating investment operations and enhancing business. Meanwhile, political factors encompass the political ecosystem the extent of its stability and flexibility of regime transition. Investment typically blossoms in the presence of a stable and democratic government that provides fiscal incentives and lays out the proper legal framework for investing and investors. On the other hand, social factors incorporate social stability that comprises work ethics, crime levels, and staff workforce performance, among others.

Economic and financial factors may be characterized by several disorders that should be addressed with urgency. First, is the prevalence of a weak economic structure that lacks diversification and is solely dependent on a single source of income, which has in effect led to the pervasiveness of a high percentage of government-owned enterprises. The preponderance of a large and overwhelming public sector, embodied in state owned enterprises and their dominance over many economic activities, has limited

the role of the private sector and has “crowded it out.” Moreover, a monopolized private sector has created barriers to entry has compounded the problem. Additional challenges include the prevalence of technically weak, uncompetitive industries that lack advanced manufacturing. A limited number of shareholders of privately owned companies; the small size of many of the financial and monetary markets; and the fact that the close relationship between banks and the government is often cited as a constraint on credit availability in addition to the fact that it lacks sufficient transparency. Moreover, the main administrative factors that act as impediments to private investment in Kuwait are lack of transparency, accountability and predictability of the public administration; red tape, bureaucracy, complicated and excessive procedures, and redundant regulations and transactions. This is in addition to favoritism in hiring, assigning, and promoting staff; limited investment opportunities and the fact that the project selection process is largely not based on sound economic feasibility studies. Lastly and most importantly are the structural challenges that are broadly defined by the reality of a small non-oil manufacturing, industrial sector in Kuwait that produces light manufactures at best, and a small, domestic market with limited capacity and investment opportunities.

6. SUSTAINABLE DEVELOPMENT: INNOVATIVE INVESTMENT MODELS IN KUWAIT

Does innovation affect investment? The shortcut answer is in the affirmative. Innovations present opportunities for differentiation of dynamic, originating, and transforming competitive enterprises and societies, and offers ways for distinction, and excellence and eventually prosperity at the enterprise and economy-wide levels. Since the onset of the first industrial revolution, humanity has benefited from scientific and engineering advances that spur new products and processes. Contemporaneously, the phenomenal growth that advances in machine learning, in computing machines and in artificial intelligence have achieved over the past few decades cause innovation to rise to the top of the agenda of policy makers at both the enterprise level as well as the overall macroeconomic level. Entrepreneurs and policy makers are increasingly relying on emerging innovations as, “the unbounded hidden source” of productivity growth. From this perspective,

innovations are becoming synonymous with excellence and competitiveness. A long series of innovations in technological-frontier sectors such as the internet and communications, in transportation, energy, financial technology in banking and investment, in schooling and learning, as well as in healthcare and medical services are taking headwinds. They stand out as triggers for enabling complex interactions amongst capital markets, as they penetrate social fabrics, expedite cultural exchanges, and cross breeding of cultures and values.

Innovations advance the pace of economic development and enhance country innovating competitiveness enabling countries to reap the rewards in terms of market shares in global trade and enhanced efficiency. Moreover, innovations impact investors and augment investments. Anecdotal evidence suggests that countries that have high innovation efficiency tend to have high investment shares in GDP because innovative societies and economies explore and generate more opportunities for profit making which investors embrace. Probing the innovation-investment nexus necessitates metrics on country differences with respect to innovation and its underlying drivers, exemplified by the Global Innovation Index (GII). Research conducted in this paper attests to the powerful effect of fiscal policy in supporting investment especially for the economy to break away from the protracted recession trap of the coronavirus pandemic. Kuwait has a robust set of business leaders that are renowned in the region and globally. As well, tech-savvy Kuwaiti youth are gradually making their way into the world of business startups dominated by innovative technology. Often these startup need business leaders and financing that fosters their growth into world-class, creative technology-dominated business startups. Likewise, the monetary authority, the Kuwait Central Bank, has been and remains active by lowering interest rates in order to alleviate potential hardships on businesses, in order to spur future investments as the economy begins to recover from the recessionary trap. One objective that needs attention is to reconcile Kuwait's past heritage of doing without foreign direct investment, especially in the private sector of the economy. Prospectively, Kuwait's authorities and businesses will have to attract large amounts of FDI; some are institutional, while others are strictly inflows through the venues of private corporations. Our simulations above demonstrated that, in the historical context, reducing FDI inflows acted like a stimulus to private sector investment by Kuwaiti entrepreneurs.

7. CONCLUDING REMARKS

Future business investment in Kuwait's post coronavirus era must be geared towards nurturing innovation, talent, and digital and innovative technologies. Towards that, policy makers should encourage, support talented and tech-savvy Kuwaitis, and help them set up innovative startups, through proper formula financing, in a rising set of niches and industries in modern high-tech import substituting and export promoting industries. Escaping the trap of low investment especially under conditions of uncertainty requires concerted efforts by business leaders and economic gatekeepers including but not restricted to Kuwait Central Bank, Ministry of Finance, the Supreme Council for Planning and Development, and the Chamber of Commerce and Industry.

Kuwait's historical investment evolution points to areas of malaise and suggest that concerted efforts are needed in order to break away from the trap of low investment rates. For instance, investment rates in Kuwait during the late 80s and through the 90s were higher than they had been in the 1960s. Nevertheless, in spite of the many attributes and advantages that Kuwait enjoys, investment levels are considered relatively low, by regional and by global standards. While the investment rate does not change much over time for most countries in the world, the growth rate is highly volatile. If investment rates do not move much across decades but growth rates do, this means that investment must have not been an important determinant of growth. In fact, what matters for growth is not the overall level of investment but the quality and efficiency of investment and the level and aspect of innovation that it brings to the fabric of the enterprise. New determinants have come into the conceptual framework of analyzing benefits and efficacy of investment today, that were absent in the past, due to the technology revolution and the added aspect of innovation that have both enriched the production possibilities of firms today.

In order to address the impediments to investment highlighted in this paper, Kuwait should work on building a constructive and appealing investment environment and institute measures tailored to attract investors to invest domestically in Kuwait. This can only be accomplished through genuine political will that embraces a strategy and an orchestrated package of policies and a set of actions to create desirable and innovative investment conditions. The investment environment could be enriched by enhancing the legislative, economic, financial, and administrative systems in the country, just as other emerging, developing economies like Malaysia, UAE and others have successfully done. Learning from the experiences of others, investment opportunities in Kuwait can be enhanced and directed by many means, highlighted by the following recommendations: Improving the 'ease of doing business' index by removing administrative barriers and updating investment laws and procedures in addition to reducing bureaucracy and red tape. More so, creating an environment that encourages entrepreneurship; legislating clear, simple, and transparent investment laws and regulations that would produce a captivating investment climate and attract investors is another major transformational step. Financially, assembling innovative financing schemes for investors in order to increase domestic production, reducing interest rates on loans and credit facilities especially for knowledge intensive and or technology intensive investments will have a multiplier value added economic and developmental impact, in addition to providing more equity-based incentives. Privatizing publicly or state owned companies and services to increase productive efficiency and productivity, reduce unemployment and increase the skilled labor force is a warranted step that will eventually lead to applying international quality standards on local manufactures and produced goods.

In a capstone, setting conditions for galvanizing the role of both the public and private sector in economic and social development processes and encouraging privatization and joint private public investments is the arch-objective and solution. By providing incentives and privileges to local investors, enhancing the performance of the investment supervisory bodies; developing

transparent, reliable, efficient, and strong legal and investment frameworks solutions to challenges are automatically unfolded. Boosting domestic investment especially by encouraging more small-and-medium-sized entrepreneurship activity will eventually significantly contribute to diversifying the economy of Kuwait and strengthening its sustainability.

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