

**THE “DUBAI MODEL”: A NEW PARADIGM FOR GROWTH AND INVESTMENT STRATEGIES FOR OIL-BASED ECONOMIES - CASE STUDY EURASIA**

**Abstract**

The goal of this paper is to address the framework of the so-called “Dubai Model” and to gauge its adaptability to the Eurasian oil-rich economies. In doing so, it outlines the non-traditional growth and investment strategies and the key components necessary for the oil-rich economies to develop sustainable comparative advantage. Furthermore, it analyzes the oil-rich economies of Eurasia through the prism of the Dubai Model, to see if these Eurasian economies are employing traditional growth strategies or if they are adopting the newer non-traditional model of economic growth, such as the Dubai Model. We apply Bayesian analysis. We find the Dubai Model to be working in Qatar and UAE. Azerbaijan and Kazakhstan are seeing the merits and attempting to adopt the elements of the “Dubai Model” of sustainable economic growth, i.e., growth through private investment in the R&D-driven sectors, and instant credibility via name-branding. However, the above are interdependent with global liquidity and inward FDI flows. Given the uncertainties facing financial sectors in 2009, the Dubai Model’s strategy will require more time and liquidity to unfold than previously anticipated.

**Keywords:** Inward and outward FDI to and from emerging market economies; Competitive and comparative advantages of different emerging markets; Economic development and competitiveness in emerging market economies; Sustainable development in emerging market economies

**INTRODUCTION**

Prior to the 2008-2009 global and banking financial sector crisis, the Middle East oil-rich economies were beginning to shift as governments were beginning to feel a renewed sense of urgency in trying to reverse decades of economic and related social failure. As a result, they began an ambitious task of shifting decades-old inward and outward investment flow patterns in an attempt to try to make-up for the oil

depletion. That, with low savings and non-productive investments yielding little economic diversification, resulted in no real establishment of global or regional comparative advantage in sectors other than oil and gas (Sala-i-Martin & Artadi, 2003). This was and is still particularly true of the oil-rich Persian Gulf economies.<sup>1</sup>

In this context, during the early part of the current decade, non-traditional growth strategies began to be employed in some Persian Gulf countries, for example the United Arab Emirates (UAE).<sup>2</sup> They are non traditional in the regional sense but not in the economic sense, i.e. foreign ownership of private property, repatriation of capital. These countries were beginning to demonstrate a unique economic vision that attempted to diversify their economy and establish global competitive advantage.<sup>3</sup> The UAE in general, and Dubai in particular, have gone to great lengths and expense in an effort to develop international trade and finance free trade zones, allowing foreign ownership of private property, focusing on higher education for both men and women, and encouraging foreign private capital to invest via both Foreign Direct Investment (FDI) and portfolio capital with controlling interests (over 51% ownership; World Bank, 2000). Some might argue that this strategy is late in coming and still somewhat haphazardly being implemented, and the country's results on innovation and R&D (Arab Competitiveness Report, 2007) call for public and private investments. The UAE, nonetheless, is leading the region in terms of creating sustainable comparative advantage and sustainable economic growth for themselves using non-traditional techniques.<sup>4</sup> Their end objective is to have a steady stream of private capital flowing<sup>5</sup> into the UAE's targeted sectors<sup>6</sup> to sustain a reasonably high living standard well after their oil and gas reserves are depleted and no longer serve as the lure to foreign private investment. Two of the key building blocs of this strategy is the speed and instant name-branding. We refer to this regional non-traditional growth strategy as the "Dubai Model."<sup>7</sup>

'Dubai Model's essential tenet is "build it and they will come." The model has some basic characteristics and objectives. The goal is to rapidly develop specific non-oil sectors and attract sustainable foreign investment. This is currently being achieved by throwing massive sums of money at the problems that were created by 30 plus years of economic mismanagement. This effort is being

spreaded by massive amounts of physical construction and the use of name-branding to achieve instant credibility for targeted industries. Examples of such projects are the artificial islands in a form of Palm Island, and Dubai World, the indoor ski resort Dubai Ski Dome, the immense sport complex of Dubai Sports City as a part of the Dubailand, the world's first underwater luxury resort Hydropolis, and the world's first built-on-purpose Maritime City intended to integrate the maritime industry. Among others are Dubai Healthcare City combining hospital, medical school and life science research center in a partnership with Harvard Medical School, Boston University Institute for Dental Research and Education, and London's Moorfields Eye Hospital; Dubai Internet, Studio, Media, Textile Cities with free trade zones and 100% company ownership aimed to boost production in these industries.<sup>8</sup> The ultimate objective is to attract vast amounts of sustainable inflow of private capital in the non-oil related sector – so that sustainable growth, productivity and revenue will remain once the oil (and gas) runs out. It should be noted that, historically, most investment inflow has been oil sector/petro-industry related. To date, Dubai has been quite successful in attracting non-oil related foreign investments with construction industry 34.5%, and financial intermediation and insurance 35.38% being the main recipients of FDI in 2006.<sup>9</sup> Dubai keeps significantly contributing to the growth of the country with its non-oil GDP growing at 7.4% in a period of 1985-2003.<sup>10</sup>

We find that many oil-rich countries in the Persian Gulf region are now seeing the merit of this approach and attempting to adopt the elements of the “Dubai Model” of sustainable economic growth, i.e., growth through private investment in the R&D-driven sectors. Qatar, for example, has made its move to become a regional hub of higher education. Others, like Saudi Arabia, which have languished rudderless in terms of a planned economic growth and diversification strategy for almost 30 years, are suddenly realizing their lack of foresight and are scrambling to introduce free trade and finance zones designed to compliment each other. Examples include financial, educational and medical research centers aimed to establish profound innovation infrastructure (i.e., by attracting highly recognizable brand names such as Harvard, John Hopkins, etc., to gain instant credibility and expertise). They are following an aggressive non-oil sector development program to globalize and integrate into the world economy.<sup>11</sup>

Hence, we now see a multitude of Saudi projects, for example, the Kingdom's bid to repatriate capital and attract value-added foreign investments into its Economic Cities through the so-called "10 x 10" program to put Saudi Arabia among the world's top 10 globally competitive investment destinations by 2010.<sup>12</sup>

More importantly, these oil-rich countries comprehend the need to diversify their economies (Auty, 1993; Eifert, Gelb & Tallroth, 2002; Rice & Mahmoud, 2000; Mehdi, 2004)<sup>13</sup> and to ensure a stable source of funding for investment activities (Bisat et al., 1997) both via repatriation of capital and attraction of FDI<sup>14</sup>. The need for sustainable future foreign private investment outweighs the traditional fears associated with globalization of these economies.<sup>15</sup> This is especially true given the widely publicized bleak economic prospects of these economies if nothing is done, and done quickly.<sup>16</sup> These economies, for the first time, are attempting to either capitalize on, or create, their regional and sometimes global comparative advantage by attracting FDI into targeted sectors (other than oil and gas). A good example is Saudi Arabia's efforts to capitalize on its unique global religious comparative advantage of the "Kaaba" in building the Knowledge Economic City in Medina. The city tries to encompass multiple objectives from taking advantage of religion as a uniquely Saudi competitive advantage while encouraging globalization and economic development.<sup>17</sup> With the advent of the 2008-2009 banking and financial crisis, the urgency of the success of the Dubai model has become imperative. In fact, it is not too difficult to state that the very tenets of the Model are in serious trouble because global liquidity has dried up. Without the inward non-oil related FDI, the model is meaningless as an economic growth strategy. It is for this reason that the Persian Gulf countries are attempting to maintain oil prices by oil supply quota cuts so that they can buy time until global liquidity resumes to a level that fuels the Dubai Model.

The first part of this paper addresses the theoretical background of economic growth and competitive advantage models. Although there is a whole set of research on a relationship between foreign direct investments and economic growth<sup>18</sup>, little has been said about foreign direct investments and national competitive advantage with respect to economic growth of oil and gas-abundant countries of Middle East and Central Asia. The second part of our paper outlines the framework of the so-called "Dubai Model" and the key components necessary to develop sustainable comparative advantage for the oil-rich

economies. The third part proceeds with the methodology employed to measure the success of the “Dubai Model” in the UAE and its application to other regions. The last part of the paper brings the results and investigates the degree to which other oil and gas countries in the region (i.e. Saudi Arabia, Kuwait, Qatar, and Iran) have adopted the so-called “Dubai Model.” It also examines if the Dubai Model is being employed in the Eurasian (Central Asian) oil and gas regions of Kazakhstan, Azerbaijan, Turkmenistan and Uzbekistan. The objective is to gauge if the Eurasian economies are employing the traditional growth strategies of oil-rich non-OECD countries in managing their natural resources or are they adopting the newer, non-traditional model of economic growth, such as the “Dubai Model.”

## **THEORETICAL BACKGROUND**

In this section, we first look at the experience of Persian Gulf countries, and then follow with a current literature on economic growth, comparative advantage with a special focus on the natural resource-abundant countries.

### **Persian Gulf Experience**

A review of the economic development of the oil-rich countries in this region by Askari & Haber (1999) reveals that there has been *no real comprehensive long-term economic growth strategy* for most of these economies. Many of these countries conducted haphazard economic strategies over the last 30 years, which have yielded disastrous results. For example, failure to achieve significant economic diversification, rising joblessness among the youth, dropping standards of living, soaring government budgets, low savings, shrinking of the middle class, and other economic and related social ills.<sup>19</sup>

Declining economic growth accompanied by a quantitatively high investment rate in the Arab world within the last 30-40 years, observed by Sala-i-Martin & Artadi (2003) and Nili & Rastad (2007), suggests the low quality of investment projects to be the key determinant of growth in oil-exporting countries. According to them, the low quality of financial institutions, the excessive reliance on public investment, the dominant role of government in total investment, the weakness of the private sector and the low quality of human capital resulted in systematically unproductive investment decisions and, thus,

low economic growth. The issue of developing a sustainable comparative advantage in non-oil sectors was a non-issue in many of these governments' economic strategies, until recently.

For the most part, many of these oil-rich countries utilized the traditional growth model (Gelb, 1988; Farzi, 1993; Ascher, 1999) in that the revenue from oil and gas-related activities was utilized in essentially three ways. First, a portion was invested in the domestic economy for infrastructure, consumption and production subsidies, and non-oil (including military and internationally non-tradable) sector development. Most of these activities were conducted primarily through government spending with no real understanding and, for that matter, no emphasis on creating productivity or competitiveness. Second, a portion of the oil and gas revenue was directly invested back into the country's own oil and gas sector and related petro-industries (El-Erian & Fennel, 1997). Here, they did understand that the oil sector's development was crucial to their future oil revenue and with it the accompanying political power (and corruption that has come along with that). Finally, part of the oil and gas revenue was shifted into global (foreign) private capital market portfolios. Occasionally, the portfolios returns earned in the foreign capital markets were repatriated back home, constituting an inward flow of investments. Other than that particular brand of inward investment flow (i.e. repatriated capital), the only other major type of inward investment flows these countries experienced over the last 30 years or so were, by-and-large, foreign private investment into the domestic oil and gas sector. In many of these countries, the inward foreign private capital investment flow into non-oil and gas sectors was negligible. With respect to investments by former citizens (Diaspora), that was not the case, at least for the Persian Gulf region; these investments are mostly common among the countries of the Maghreb region.<sup>20</sup> We should mention a growing demand from Muslim immigrants for Islamic bonds governed by Islamic laws (Sharia) that, unlike Diaspora bonds, forbid paying or receiving interest, and are structured as asset-backed securities of medium-term maturity that give investors a share of the profit associated with proceeds from such issuance.<sup>21</sup>

### **Current Literature on Economic Growth and Comparative Advantage**

Classical economists (Adam Smith, 1776; Ricardo, 1817; Ramsey, 1928; Schumpeter, 1934) provided

modern theory of economic growth with the concept of diminishing returns, effects of technological progress in a form of increased specialization of labor, the notion of competitive behavior, etc. The model proposed by Solow-Swan (1956) explained a significant part of variation of economic growth across countries. It made a prediction that in the absence of technological progress, countries would inevitably face an economic decline.<sup>22</sup> To address this deficiency, it was assumed that the growth rate of an economy depends on the inputs of labor and capital, as well as exogenous technological progress in a form of increasing capital intensity, and high labor productivity. Though this very exogeneity did not provide answers to policy questions regarding the economic growth (UN, 2003).

A new class of endogenous growth models emerged to address these issues and to emphasize “know-how”, investments in R&D, entrepreneurship, development activities by firms and learning society as the key drivers of economic growth. Romer in his seminal work (1986) and later Lucas (1988) showed that economic growth can turn into being sustainable in the long run if knowledge embodied in physical or human capital is treated as an endogenous variable. Grossman and Helpman (1990) extended the theory by fully explaining the role of innovation that can grow prodigiously and affect economic growth endogenously via technology spillovers. Dynamic models of international specialization, such as East Asia Growth Development Model, Porter’s Diamond, Paul Krugman’s total factor productivity, and Globalization theory, look more deeply into the interaction of technological progress, labor, and capital and propose the idea of limitless growth as a result of perpetual know-how advancement.

### **Natural Resource Abundance and Economic Growth**

Numerous attempts to find a significant relationship between economic growth and natural resource abundance serve as an important connection between the determinants of economic growth and the measurement of sustainability. There is an extensive literature in favor of the so-called “resource curse hypothesis” claiming that resource abundance impedes economic growth. Gelb (1988) confirmed such findings in his case studies with results being later reinforced in the case studies by Karl (1997) and Auty (1999, 2001), as well as in seminal econometric studies across countries by Sachs & Warner (1995, 1997, 2001), followed by Gylfason et al. (1999) and Busby et al. (2002).

To outline the reasoning behind such a conclusion, van Wijnbergen (1984), Krugman (1987), Matsuyama (1992), Sachs & Warner (1995) and Gylfason et al. (1999) suggest that the exploitation of more natural resources “crowds out” the traded (or industrial) sector (so called “Dutch disease”) and inhibits growth in productivity and learning effects (Matsen & Torvik 2002). Later studies propose the low rates of savings and investments to be the source of a lagged economic growth. Atkinson & Hamilton (2003) indicate a combination of institutional quality and resource abundance as an explanation for low saving and investment patterns. Gylfason et al. (2002, 2006) claim that across countries heavy dependence on natural resources may hurt saving and productive investment indirectly by slowing down the development of the financial system whereas indicators of financial development are strongly associated with long-run growth (Levine & Sara 1993).

New findings in the literature suggest that the natural resources may affect economic growth through both positive and negative channels. According to Stijns (2005), the typical growth regressions do not reveal the effect of natural resources on economic growth to the full; he believes that the ability of a country to exploit its resource base depends critically on the nature of the learning process involved. Papyrakis & Gerlagh (2004), Boschini, Pettersson & Roine (2006) and Brunnschweiler (2008) carry out studies along the lines of his findings. They argue that there is a *positive relationship between natural resource abundance and economic growth* when other explanatory variables, such as types of resources possessed by the country, institutional quality, corruption, investment, openness, terms of trade, and schooling, are taken into consideration. Countries rich in minerals are cursed only if they have low quality institutions, while the curse is reversed if institutions are sufficiently good. However, if former is the case, and resources alter the quality of institutions in a detrimental way, Mehlum, Moene & Torvik (2005) believe that countries suffer a double resource curse - as the deterioration of institutions strengthens the negative effect of more natural resources. These assumptions lay down the basis for the “Dubai Model” and suggest that resource-abundant countries may succeed in their efforts to achieve sustainable development by encouraging productive and efficient investments into the non-oil competitive tradable activities and improving the quality of its institutions.

## **‘DUBAI MODEL’ FRAMEWORK**

The unique contribution of our paper is that we propose the Dubai Model as a framework to promote economic growth in the oil-exporting countries. We claim these countries may facilitate sustainable economic growth long after oil runs out by attracting high-quality productive private investments into the artificially-created innovation-intensive non-oil sectors. That will give a subsequent rise to technological spillovers and productivity, creating unique and dynamic comparative advantages and helping to ensure sustainable economic growth. Apart from transforming macroeconomic policies in a comprehensive manner, such a model will require these countries to introduce systemic changes such as liberalization, privatization and introduction of new institutions and legal frameworks to fully utilize those investment flows.

The Dubai Model’s essential tenet of “build it and they will come” is supported by the fact that the Dubai government is not financing the entire economic capacity-building with public funds (oil revenues). They are in fact attracting significant foreign investment to assist in their economic expansion and thus diversify their development risk. The model’s basic characteristics and objectives are to rapidly develop specific non-oil sectors and attract sustainable foreign investment. This is currently being achieved by the billions of dollars spent on creation of massive physical infrastructure and overnight development of industries such as tourism, financial, transportation hubs and R&D centers with the use of name branding to get instant credibility for targeted industries. Examples of such projects are Dubai Financial Center, Dubai Healthcare City with its extensive medical, science and research facilities, Maritime City, Textile, Media, Internet cities, theme parks, and numerous artificial islands, as a part of free trade zones with their tax incentives and 100% foreign ownership. The ultimate objective as stated earlier is to attract a sustainable inflow of private capital in the non-oil related sector – so that these sectors will continue to generate sustainable growth, productivity and revenue once the oil (and gas) has been depleted.

While constructing the framework to conceptualize this growth strategy, we have discovered that the “Dubai Model” serves as a framework to promote economic growth of only a very specific type of oil-

exporting country – namely only the small countries. Being small in terms of the size of the population is crucial to the success of this model. Small populations (i.e. UAE, Kuwait, and Qatar, with one to four million people) with vast oil and gas wealth allow governments to allocate capital resources in a more efficient, flexible, dynamic and less bureaucratic manner, while larger economies (i.e. Iran with its 71 million, Saudi Arabia and Iraq with 24 million people each) have budgetary restrictions and large consumption subsidies that limit their resources and flexibility. Based on this proposition, Iran, Saudi Arabia, and Iraq would need to significantly modify the Dubai Model to address the needs of their large populations. As such, we see in Saudi Arabia that although the government has employed the Dubai Model, it is using almost 100 percent of its own public resources rather than drawing foreign capital while in the development stage. It hopes to attract foreign capital after the massive build up. This is a risky strategy at best and very different from that employed by the original “Dubai Model.”

#### **METHODOLOGY OF ANALYSIS OF THE ‘DUBAI MODEL’**

The question we raise in our research is whether the investment and growth strategies employed in the Persian Gulf countries, particularly in the UAE, prove to be growth-enhancing in the long run. Such strategies involve artificially-created competitive advantages and use of innovative practices. Also, we explore whether those strategies could be applied to some other oil-exporting countries.

In our analysis we focus on the Persian Gulf countries (Iran, Kuwait, Qatar, Saudi Arabia, and UAE), and later we run the regression analysis for the Eurasian oil and gas producing countries: Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan. We apply the Bayesian approach because it allows estimating short panel datasets, makes use of all available data and provides researchers with more meaningful results.<sup>23</sup>

#### **Hypotheses**

Hypothesis 1. The Dubai Model created significant sustainable growth, as measured by GDP per capita, by attracting “high-quality” foreign investments in targeted non-oil tradable market sectors of the oil & gas rich Persian Gulf countries between 1980-2006.

Hypothesis 1a. There is expected to be a negative relationship between the foreign investments and economic growth, as measured by GDP per capita, in the oil & gas rich Persian Gulf countries between 1980-2006.

Hypothesis 2. The Dubai Model created significant sustainable growth, as measured by GDP per capita, by attracting “high-quality” foreign investments in targeted non-oil tradable market sectors of the oil & gas-rich Central Asian countries between 1990-2006.

Hypothesis 2a. There is expected to be a negative relationship between the foreign investments and economic growth, as measured by GDP per capita, in the oil & gas rich Central Asian countries between 1990-2006.

### **Variables of interest**

We consider the inflows of foreign direct investments into the region, revenues from oil and gas per capita, initial level of output, government expenditures on education, number of population, share of consumption in GDP, institutional quality, and trade openness as the main factors conditioning economic growth. Below is a rationale for choosing these variables.

According to the conceptual framework developed by OECD, the economic dimension<sup>24</sup> of sustainable development is dependent upon three resource indicators: produced assets measured as a volume of net capital stock, R&D assets as a multi-factor productivity growth rate, and financial assets possessed by country. In the case of resource-rich countries, a country may achieve and sustain a temporarily high GDP without industrializing by simply over-exploiting natural resources or by misallocating investment. But once those resources are exhausted, this high level would no longer be sustainable. Therefore, we agree with Dasgupta (2007) that GDP per capita measures current well-being rather than a sustainability of growth. However, we are still using the GDP per capita growth rate as the best available indicator for the regions of interest<sup>25</sup>. While considering R&D and financial assets as useful in measuring sustainability, we exclude them due to the lack of data in these two areas (the early data on financial assets is not available for most Central Asian countries).

In a most basic form, growth accounting is based on a variety of Cobb-Douglas production function with constant return to scale, which decomposes country's long-run growth rate into the weighted growth rates of capital, natural resources, labor, and overall efficiency:

$$y_t = A_t L_t^\alpha N^\beta K_t^{1-\alpha-\beta}, \quad (1)$$

One of the shortcomings of this approach is that the total factor productivity (TFP) variable encompasses too many public and private sector choices that might impact productivity growth. Krugman (1987) tries to highlight learning curve as a driving force behind growth productivity by saying that, once established, arbitrary patterns of specialization of countries tend to become entrenched over time; however, his model is extreme to the extent that it assumes dynamic scale economies to be the only source of specialization and comparative advantage. Since our main proposition that Dubai Model is FDI-driven, we identify FDI as our main explanatory variable of interest.

$$Growth_t = \alpha * g_{t-1} + \beta * FDI_t + \gamma * [Conditioning\ set]_t + \varepsilon_t \quad (2)$$

Log of GDP is used to investigate the dynamic properties of the data where growth is in part dependent on past performance, and past input levels (Mankiw et al., 1992; Islam, 1992; De Propris & Driffield, 2006).

When decomposing a conditioning set, we get:

$$g = \alpha + \beta_1 * \ln GDP + \beta_2 * OILREV + \beta_3 * NETGAS + \beta_4 * FDI + \beta_5 * EDU_{t-n} + \beta_6 * P + \beta_7 * C + \beta_8 * TradeOp + \varepsilon_t \quad (3)$$

where g denotes a sustainable growth measured as a GDP per capita, PPP (2005 International \$) growth rate. We expect the rate of output per capita g as a proxy for economic growth to be a decreasing function of an initial real GDP per capita, P – number of population, and C - final consumption expenditures as a percentage of GDP. Growth rate is also an increasing function of the net oil revenue per capita OILREV, NETGAS – net gas exports, FDI activity - inward foreign direct investment stock as a percentage of GDP, and TradeOp – openness to trade. Openness to trade is measured as exports plus imports relative to GDP (Carcovic & Levine, 2002). We run additional regressions to confirm the results using the inward FDI flows. We have included the lagged public expenditures on education EDU<sub>t-n</sub> to see whether the FDI

effect is dependent on human capital. We consider it to be somewhat irrelevant in the case of the UAE and other countries, where 50-80% of the workforce consists of immigrant workers but we have to consider it as Borensztein, De Gregorio, & Lee, 1998 claim that FDI impose positive effect once a certain threshold in human development has being passed. Stijns (2005) also points out that the growth regression is not complete unless the learning process is taken into consideration. Boschini (2006) claims good quality institutions help to reverse resource curse, but we had to omit that variable due to the lack of data that goes back to 1980.  $\varepsilon_{i,t}$  is a normally distributed disturbance,  $i$  represent country and  $t$  – time period, respectively.

For the Central Asian countries, where net oil revenue data was unavailable, we use an index, which is a combination of country's net exports of oil and gas and the prices of oil and gas as proxy. We also had to neglect the institutional quality and government expenditures on education in panel regressions as those were only available for a short period of time and mostly for Kazakhstan. We believe that Central Asian countries initially had relatively high levels of education and literacy level that do not considerably vary between the countries.

## **Data**

The sample countries were chosen based on the list of top world oil and gas exporters and producers from the Energy Administration Information (Official Energy Statistics from the US Government).<sup>26</sup> The sample period for the Central Asian countries is only 1990-2006, starting the year of their independence.

We take our data on GDP per capita, PPP, final consumption expenditures, and public expenditures on education from the World Bank World Development Indicators (2007) database; the data on FDI are taken from the Key Data of the UNCTAD World Investment Report (2007); the data on exports and imports relative to GDP are taken from IMF World Economic Outlook database (April 2008). The net oil revenues per capita, as well as net exports of oil and gas, are taken from the Energy Information Administration (EIA) of the US Government OPEC fact sheet. The data on oil and gas prices are taken from the British Petroleum Historical Data “Statistical Review Full Report Workbook 2007”<sup>27</sup>. Where missing, we calculated approximate government expenditures on education by using the UNICEF charts

(finding the value from percentage of GDP and dividing by number of population). The data on population is taken from AMF, National Accounts of Arab Countries, and WDI. The data on institutional quality were only available starting 1995 for most of the countries, we had to drop it.

## RESULTS

Tables 1 and 2 provide the parameter estimates for the Dubai Model in the countries of Persian Gulf and Central Asia. To test our claim, we first look at the relationship between the FDI and growth rate of GDP per capita. While UAE is said to be a “trendsetter” in the region, we find Qatar to have more of a positive relationship between inward FDI and economic growth than UAE. The estimate implies that a 1 percent-of-GDP increase in inward FDI stock, everything else equal, on average gives rise to 0.282 increase in the GDP per capita growth rate in Qatar, and 0.074 increase in UAE (Figure 3). Why so? The answer might be a reverse causality. Qatar has the third largest natural gas reserves and may become a world’s top exporter of LNG by 2010 (Rehman, 2008). The Qatar’s level of prosperity has risen significantly; its GDP per capita is, nowadays, among the highest in the world. This factor, alone, could serve as a lure to foreign investors. On the other hand, Qatar has ranked 37 in terms of “Doing Business” (2009), followed by UAE ranking of 46. Investors may find more comfort operating in Qatar, where investor protection is higher, it is easier to start a business, enforce contracts, deal with construction permits, and pay taxes. While in UAE, there is simplicity in employing workers, getting a credit or preparing paperwork to trade across the border.

Table 1. Posterior summary statistics for the Persian Gulf countries. Growth rate in GDP per capita, PPP.

Parameter	Mean	St. error	Median	95% HPD
<b>Intercept</b>				
Iran	-0.2903	3.381	-0.011	[-7.403; 5.082]
Kuwait	-0.2839	3.37	-0.00724	[-7.182; 4.851]
Qatar	0.2565	2.869	0.01203	[-4.664; 6.745]
Saudi A	0.0150	2.975	-5.42E-4	[-6.008; 6.07]
UAE	-1.004	3.697	-0.05266	[-11.43; 2.842]
<b>Beta1 - GDP per capita, PPP, constant 2005 international \$ (-)*</b>				
Iran	-0.03381	0.42	-0.00882	[-0.9624; 0.7688]
Kuwait	-0.03032	0.4664	-0.00197	[-0.861; 0.6908]
Qatar	0.0741	0.3682	0.02026	[-0.5369; 0.9527]
Saudi A	-0.00377	0.4067	-0.00177	[-0.8285; 0.7935]
UAE	-0.2233	0.4777	-0.067	[-1.503; 0.3256]

<b>Beta2 - Oil revenue per capita, 2000 \$ (+)</b>				
Iran	0.007596	0.01018	0.007549	[-0.01234; 0.02774]
Kuwait	-2.016E-5	4.421E-4	-1.622E-5	[-9.038E-4; 8.424E-4]
Qatar	-1.125E-4	3.241E-4	-1.134E-4	[-7.478E-4; 5.301E-4]
Saudi A	1.378E-4	7.385E-4	-1.37E-4	[-0.00159; 0.001315]
UAE	5.784E-4	5.152E-4	5.525E-4	[-3.614E-4; 0.00166]
<b>Beta3 - Net gas exports, bln. cubic feet (+)</b>				
Iran	3.955E-5	0.03475	2.976E-6	[-0.06891; 0.06912]
Kuwait	0.2903	0.2101	0.2869	[-0.01207; 0.6957]
Qatar	0.005532	0.008822	0.006106	[-0.01354; 0.0214]
Saudi A	3.948E-4	0.2577	6.977E-5	[-0.5264; 0.5296]
UAE	0.02301	0.01972	0.02258	[-0.01444; 0.06287]
<b>Beta4 - FDI stock as % of GDP (+)</b>				
Iran	-0.1115	0.5512	-0.01805	[-1.488; 0.6518]
Kuwait	0.00645	0.4684	0.001226	[-0.9519; 0.9998]
Qatar	0.2823	0.4084	0.1194	[0.154; 1.378]
Saudi A	-0.02039	0.1666	-0.01123	[-0.3917; 0.3243]
UAE	0.07383	0.2277	0.0316	[-0.3337; 0.6413]
<b>Beta4 - FDI inward flows, US\$ mln. (+)</b>				
Iran	-0.00847	0.009557	-0.00839	[-0.02747; 0.01008]
Kuwait	-0.00116	0.01661	-0.00114	[-0.03403; 0.03176]
Qatar	0.01242	0.006433	0.01243	[-2.457E-4; 0.02509]
Saudi A	-9.681E-5	4.769E-4	-9.809E-5	[-0.00103; 8.36E-4]
UAE	7.213E-5	7.472E-4	7.256E-5	[-0.00139; 0.00154]
<b>Beta5 - Expenditures on Education, Historic US\$ per capita, fixed 2005 exchange rate (+)</b>				
Iran	-0.09672	0.6888	-0.01485	[-1.792; 1.107]
Kuwait	0.1763	0.8337	0.03012	[-0.7622; 1.728]
Qatar	0.04001	0.5945	0.01147	[-1.046; 1.279]
Saudi A	-0.03076	0.6297	-0.00411	[-1.331; 1.163]
UAE	-0.3263	0.7557	-0.07306	[-2.347; 0.5068]
<b>Beta6 - P value, population, mln. (-)</b>				
Iran	0.03597	0.09379	0.02273	[-0.1239; 0.2617]
Kuwait	0.01507	0.3232	0.002016	[-0.4595; 0.5572]
Qatar	0.01178	0.355	0.001361	[-0.4748; 0.542]
Saudi A	0.0552	0.149	0.02598	[-0.1794; 0.443]
UAE	-0.00415	0.2969	-0.00103	[-0.5144; 0.4864]
<b>Beta7 - Consumption, % of GDP (-)</b>				
Iran	-0.03438	0.06014	-0.02671	[-0.1745; 0.06625]
Kuwait	0.01608	0.05151	0.0133	[-0.07869; 0.1245]
Qatar	-0.00393	0.05488	-0.00140	[-0.1228; 0.09748]
Saudi A	-0.01314	0.06008	-0.00948	[-0.1459; 0.0995]
UAE	-0.04432	0.07376	-0.03521	[-0.2109; 0.08177]
<b>Beta8 - Trade openness (+)</b>				
Iran	0.004578	0.08676	0.002177	[-0.1675; 0.1916]
Kuwait	-0.00480	0.03579	-0.00446	[-0.07706; 0.06617]
Qatar	-0.02962	0.05104	-0.0249	[-0.1424; 0.06279]
Saudi A	0.01352	0.07562	0.007948	[-0.129; 0.1887]
UAE	-0.00602	0.08493	-0.00313	[-0.1928; 0.1619]

\* Expected sign indicated in parentheses

Table 2. Posterior summary statistics for the Central Asian countries. Growth rate in GDP per capita, PPP.

Parameter	Mean	St. error	Median	95% HPD
<b>Intercept</b>				
Azerbaijan	-1.064	3.37	-0.06396	[-10.66; 3.373]
Kazakhstan	-0.8532	3.475	-0.04589	[-10.47; 4.355]
Turkmenistan	-1.053	3.108	-0.07134	[-9.839; 2.873]
Uzbekistan	-0.2447	3.11	-0.01341	[-7.634; 5.997]
<b>Beta1 - GDP per capita, PPP, constant 2005 international \$ (-)*</b>				
Azerbaijan	-0.2614	0.5312	-0.08609	[-1.625; 0.4665]
Kazakhstan	-0.1847	0.5441	-0.05343	[-1.53; 0.6797]
Turkmenistan	-0.2307	0.4919	-0.07789	[-1.496; 0.4741]
Uzbekistan	-0.01974	0.5097	-0.00753	[-1.113; 1.059]
<b>Beta2 – Value of net oil exports/imports , thousand barrels/day in US\$ (+)</b>				
Azerbaijan	0.002256	3.951E-4	0.002248	[0.001496; 0.003057]
Kazakhstan	7.818E-5	9.505E-5	7.796E-5	[-1.083E-4; 2.661E-4]
Turkmenistan	0.009882	0.002088	0.009844	[0.005905; 0.01411]
Uzbekistan	0.00289	0.001392	0.002896	[1.514E-4; 0.005633]
<b>Beta3 – Value of net gas exports, bln. cubic feet in US\$ (+)</b>				
Azerbaijan	0.02701	0.006764	0.02701	[0.01366 ; 0.04026]
Kazakhstan	-6.348E-4	0.003109	-6.506E-4	[-0.00670; 0.005508]
Turkmenistan	-0.00206	7.778E-4	-0.00206	[-0.00357; -5.191E-4]
Uzbekistan	0.00359	0.00226	0.003621	[-9.737E-4; 0.007956]
<b>Beta4 - FDI stock as % of GDP (+)</b>				
Azerbaijan	0.1167	0.03256	0.1171	[0.05095; 0.1793]
Kazakhstan	0.2454	0.09577	0.2458	[0.0569; 0.4329]
Turkmenistan	-0.1447	0.1847	-0.1254	[-0.5541; 0.1756]
Uzbekistan	0.0592	0.2783	0.03606	[-0.4526; 0.7045]
<b>Beta4 - FDI inward flows, US\$ mln. (+)</b>				
Azerbaijan	0.006148	0.001675	0.006159	[0.002817; 0.00941]
Kazakhstan	0.001864	0.001999	0.001862	[-0.00204; 0.005806]
Turkmenistan	-0.006148	0.01639	-0.00603	[-0.03891; 0.02578]
Uzbekistan	0.01158	0.0225	0.0108	[-0.03105; 0.05845]
<b>Beta5 - P value, population, mln. (-)</b>				
Azerbaijan	-0.09802	0.3955	-0.02564	[-1.125; 0.5355]
Kazakhstan	-0.1362	0.323	-0.0487	[-0.9822; 0.3213]
Turkmenistan	-0.05698	0.4344	-0.01177	[-1.119; 0.6952]
Uzbekistan	0.00798	0.2289	-6.375E-4	[-0.435; 0.5238]
<b>Beta6 – Consumption, % of GDP (-)</b>				
Azerbaijan	-0.0376	0.05266	-0.03777	[-0.1391; 0.0679]
Kazakhstan	-0.03569	0.06539	-0.03176	[-0.1703; 0.0885]
Turkmenistan	-0.02529	0.05141	-0.02369	[-0.1295; 0.07659]
Uzbekistan	-0.03171	0.06045	-0.02564	[-0.17; 0.07101]
<b>Beta7 – Trade openness (+)</b>				
Azerbaijan	-0.05514	0.1094	-0.03224	[-0.3411; 0.1096]
Kazakhstan	0.02371	0.07048	0.01808	[-0.1099; 0.1811]
Turkmenistan	-0.04295	0.04576	-0.03964	[-0.1409; 0.03936]
Uzbekistan	0.03692	0.1177	0.01836	[-0.1545; 0.3375]

\* Expected sign indicated in parentheses

The data shows a positive correlation between the FDI as a percentage of GDP and growth rate of GDP per capita for Azerbaijan and Kazakhstan (Table 2, and Figure 5). On average, a 1 percent-of-GDP increase in inward FDI stock, everything else equal, gives rise to 0.25 increase in the GDP per capita growth rate in Kazakhstan, and 0.11 increase in Azerbaijan. The results seem intuitive since these two countries have been known as more open to investments from abroad. Turkmenistan shows a positive coefficient too, that supports a notion that FDI may be growth enhancing in countries that just started opening their economies.

A simply positive relationship between FDI and growth rate of GDP per capita does not reveal much, though. Plus, timeframe of 27 years might be simply too short to provide us with meaningful results on a relationship between the variables of interest; the impact of the FDI in the short run can differ from that in the long run. The main question is: are these foreign investments of a “high-quality”, as we call them, and do they flow in targeted non-oil tradable sectors?

With a significant drop in the cost of labor in the late ‘80s - middle ‘90s, and a heightened import of labor since then, it seems unlikely that all Persian Gulf governments were willing to invest into human capital in that period. While Kuwait has always been known for a wide range of free public services, among them an access to high-quality education, the UAE’s investments in 1970s and 1980s, for example, were mainly focused on infrastructure and transportation projects, such as the Rashid and Jebel Ali Ports, which allowed augmenting the onshore economic activity but did not much improve the knowledge base of the country (Figures 6, 7). Those Persian Gulf governments are trying to reverse that path. The revenues from oil are now being used to develop private sector in essentially three ways. Governments provide the investors with the necessary infrastructure in a form of free zones and clusters (Economic, Media, Financial cities, etc.), privatize the state enterprises by listing them on stock exchange (monopoly telecom provider Etisalat in UAE), and co-invest in the regional publicly-listed companies (Rehman, 2008). Such an approach urges companies to become more efficient and competitive in open market and it is likely to bring in more foreign investments overtime. What’s interesting, it also encourages the multinational companies to bring in their expertise and investment too: General Electric is investing \$50

million in Technology and Learning Center in Qatar<sup>28</sup>, and Citigroup is offering a year-long internship to UAE' nationals as a way to train them.

In Saudi Arabia, as Bolbol & Sadik claim, the negative relationship between FDI and economic growth could be linked to the fact that most FDI (except some in light manufacturing and consumer goods) are tied to the Saudi Offset Program. According to it, foreign defense contractors have to reinvest part of their earnings back into the country. On the other hand, Kuwait, with its extensive non-oil income coming from foreign assets, seems to have political constraints in liberalizing its tax regime for non-oil foreign companies, as well as unwillingness of the government to introduce quality reforms to develop competitive advantages by attracting FDI into non-oil sectors.

As we can see, most of the policies, including the FDI, in the Persian Gulf region are designed centrally and imposed by the government. The investment behavior can be characterized as the one focused on infrastructure building rather than productivity growth. But, at the same time, this ability to invest into the high-cost world-class facilities, hubs for airlines, top-of-the-market resorts, etc., may help the Persian Gulf countries gain a competitive advantage that other countries in the region may not afford. We believe the invigorating reforms taking place in the UAE will need their time to unfold, especially in a light of uncertainties with global liquidity.

The entire process of attracting FDI into the Central Asian countries has taken a contradictory character starting from the date of their independence. Most of the enterprises in the early 1990's and later have been sold and resold at very cheap prices. Consider Kazakhstan, where bribery, corruption and the lack of transparency in FDI negotiations provided the base for what Peck (2004) called as "a sale of a century". Most of those FDI went into the oil and metal sectors that were falling short in infrastructure. Should those investments taken time to develop investment environment in a more planned manner, Central Asian countries could come up with a way better economic outcomes. The process was plagued with many conflicts, allegations in corruption, and subsequent renegotiations in many cases. Some governments are trying to reverse the dire consequences by introducing new reforms, i.e. Kazakhstan has been able to identify seven pilot clusters in services and machinery for oil and gas industry, construction,

metallurgical sector, textiles, tourism, transshipment and logistics, etc., to broaden its industrial base. It has also created three-tier institutions to invest millions of dollars of oil revenues to create a necessary innovation infrastructure, dedicated think-tanks and policy analysis institutions. The final aim, similar to that of the Dubai Model, is to attract a steady flow of foreign capital to develop high-value-added goods/services within those clusters. In the same way the Persian Gulf countries did, the Central Asian countries are creating Free Trade Zones to make use of duty-free imports, and offering other incentives to investors in relevant areas. Special agencies have been created to furnish the potential investors with information and to assist them. Yet, another drop in the oil prices combined with liquidity problems shows how fragile these economies are. Construction sector, which used to be the main driver behind non-oil development, has almost stalled. Substantial budget deficits and governments' expenditure commitments threaten to deplete the wealth accumulated in the oil funds. The Central Asian countries may simply not afford what Persian Gulf countries are doing. All these countries should introduce the gradual macroeconomic policies intended to curb inflation/budget deficit, and to restore balance of payments. To sustain the results over time, they have to be accompanied by systemic changes: privatization, establishment of private property rights, development of innovative product-service markets, establishment of capital and labor markets, and introduction of new institutions and legal frameworks (good corporate governance, sound accounting practices, and strong rule of law). Recently, Azerbaijan scored as a Top Global Reformer mainly for simplifying the procedures for the start up-businesses, registering property, enforcing contracts, and amending its labor laws (Doing Business 2009). In order to maintain such a ranking, it takes the government to make pessimistic oil price assumptions, and plan its policies accordingly.

We believe a further analysis on each particular cluster such as tourism, transportation hub, its interaction with other clusters, and their effect on the overall economy could be interesting. Some authors provide a complimentary analysis on financial centers existing in the Persian Gulf, the same could be done on Central Asian countries, as they have been created rather recently and it is hard to judge their performance due to a limited activity.

## **Limitations**

As we can see from the results, growth accounting equations are limited in their power to explain variations in output, particularly when combined with missing data on certain countries of the Middle East and Central Asia over time. We also believe that data, when available, are plagued with severe measurement errors. The lack of data on corruption indices to fully account for the change of quality of institutions over time (available only from 1995) contributes to the distortion of results for the Persian Gulf and Central Asia. Plus, Institutional Quality might be endogenous to the economic growth in the very long run. We may argue the institutional path dependence, such as Soviet heritage in case of Central Asia, and dependence on natural resources in case of Persian Gulf, to be the reasons for the current poor institutional environment.

Another limitation is a reverse causality issue: it might well be that other factors (changes in efficiency of government regulations, changes in skills of the workforce and so on) that positively influence a pace of economic growth in the UAE apart from the so-called Dubai Model. (We consider total inward FDI, which means they encompass the FDI into the oil sectors as well.) Since government expenditures on education, consumption and domestic investment heavily depend on revenues from oil and gas, there is an issue of endogeneity. Multinational companies might be attracted to countries that have higher productivity, more stable government and a lower risk of appropriation.

The Dubai Model is size sensitive; we believe it to be mostly applicable to the countries with a comparable population size. Saudi Arabia and Iran, unlike Central Asian countries, have 5 to 10 times the population of the UAE, and are adapting the Dubai Model with some alterations focused to raise youth employment. Heterogeneity among firms making investment decisions, as well among host countries and industries, we do not account for, leads to differences in FDI.

## **CONCLUSION**

In the aftermath of the 2008-2009 banking and financial crisis, the Persian Gulf countries have stepped up their efforts to try to artificially create comparative advantage and rapid artificial growth generated

through inward FDI and instant name-branding. The potential outcome can simply be a “house of cards.” Their efforts to fill in this house of cards with knowledge and R&D and create credibility overnight via attracting brand names such as Harvard and Princeton researchers, may be thawed by the global liquidity crunch. We don’t know if such artificially-created knowledge and economic cities will provide artificial growth and, if so, how sustainable this growth is going to be. This is especially true given the instability in the global financial markets and resulting shaken environment of investor confidence. It may take more time to see a rise in the marginal rate of return on those investments. The Persian Gulf countries may learn from the Central Asian experience, particularly from Kazakhstan, that the haphazard attempt to attract too many investments in too many different sectors, too fast, is now increasingly commonly known in the oil-countries as the “sale of a century” and reflects the desperate economic and financial conditions in these countries. Certain elements of economic development require time to build, i.e., systemic integrity. The lessons learned in economic transformation of Central Eastern Europe and Central Asia from centrally planned economies to free markets structures demonstrate that these countries will need to implement macroeconomic policies along with systemic changes. The macroeconomic policies intended to curb inflation/budget deficit, to restore balance of payments, to raise employment rates, etc. and construction of infrastructure can not be done overnight. To have these policies to sustain over a long period of time, the Persian Gulf and Central Asian countries will need to facilitate systemic reforms. These system changes will take time to build and develop core integrity. These changes include privatization, establishment of private property rights, development of innovative product-service markets, establishment of capital and labor markets, and introduction of new institutions and legal frameworks (good corporate governance, sound accounting practices, and strong rule of law). As long as those changes are not in place, prospects for growth, and what’s more important, sustainable development, will remain uncertain. The above are also interdependent with global liquidity and inward FDI flows. Given the uncertainties facing financial sectors in 2009, the Dubai Model’s strategy will require even more time and liquidity than previously anticipated.

## Appendix

**Definitions.** Sustainability is an achievement of a policy to invest the rents from resource depletion in alternative forms of wealth, which ensures that, in the aggregate, the change in the real value of assets is positive (Hartwick, 1977; Solow, 1986).

Competitive advantage is an ability of a country to attract foreign investments into the region and benefit from utilizing local comparative advantages, such as religion, ports, etc.

“High-quality” foreign investments constitute investments into the non-oil internationally tradable sectors with a purpose to increase manufactured exports. FDI into the real estate, and hotels, etc. represent FDI into the internationally non-tradable activities as this type of investment is less likely to bring in new technology or help local companies to integrate into global supply networks.<sup>29</sup> Despite that, for a country at the investment-driven stage, an extensive joint venturing and heavy investment in trade-related infrastructure (roads, telecommunications and ports) is highly present.<sup>30</sup>

**Statistical assumptions.** Prior density function for  $\beta$  conditional on  $\sigma^2$  is a multivariate normal; the prior for  $\sigma^2$  is an inverse gamma kernel.  $g(\beta) \sim N(\beta, \sigma^2)$ ,  $\sigma^2 \sim iGamma(a, b)$ . The likelihood function is given by:  $f(g|\alpha, \beta, \varepsilon, \sigma^2) = (1/2\pi \sigma^2)^{-n/2} * \exp \{- (2\sigma^2)^{-1} ||Growth-\alpha- \beta*FDI- \gamma'*[Conditioning set]- \varepsilon ||\}$   
Gelman-Rubin diagnostics for some variables, 2 chains to demonstrate convergence; with 200,000 iterations to assure “burn-in” has occurred.

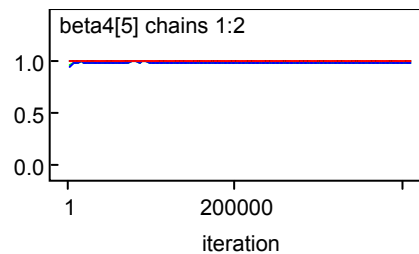
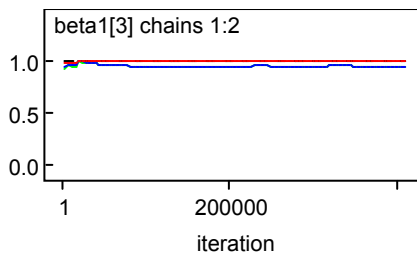
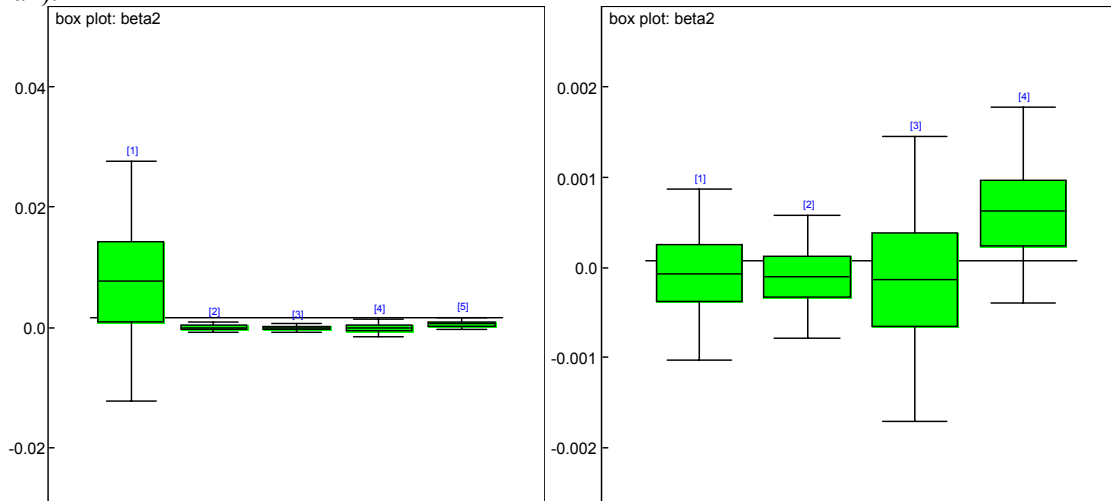
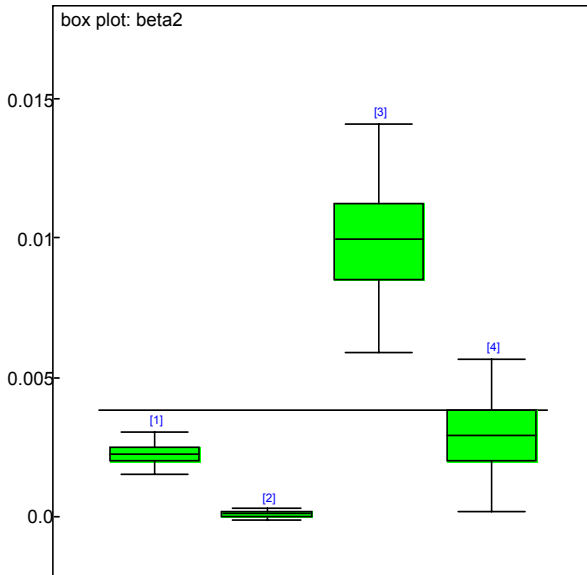


Figure 1. Beta2 – Oil revenue per capita, 2000 US\$, comparison of Persian Gulf countries (with/without Iran).\*



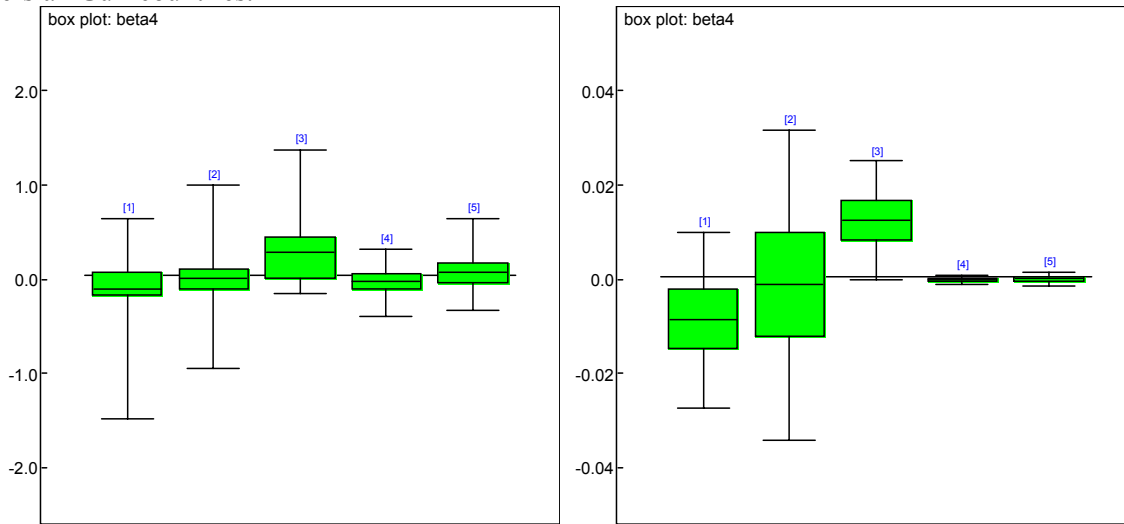
\* 1-Iran, 2- Kuwait, 3- Qatar, 4- Saudi Arabia, 5- UAE.

Figure 2. Beta2 – Value of Net oil exports/imports, thousand barrels/day in US\$, Central Asian countries.\*\*



\*\* 1- Azerbaijan, 2- Kazakhstan, 3- Turkmenistan, 4- Uzbekistan.

Figure 3. Beta4 – inward FDI stock as % of GDP, and inward FDI flows, US\$ mln., comparison of Persian Gulf countries.\*



\* 1-Iran, 2- Kuwait, 3- Qatar, 4- Saudi Arabia, 5- UAE.

Figure 4. Beta4 – density plots for inward FDI stock as % of GDP, US\$ mln., Qatar and UAE.

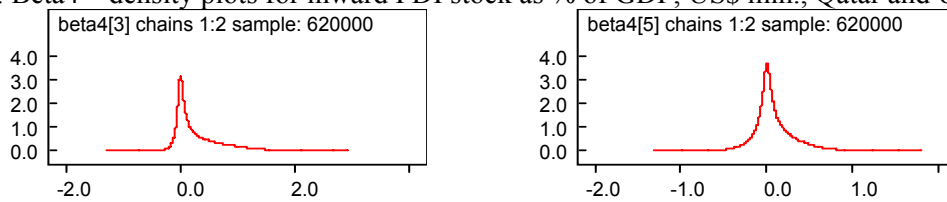
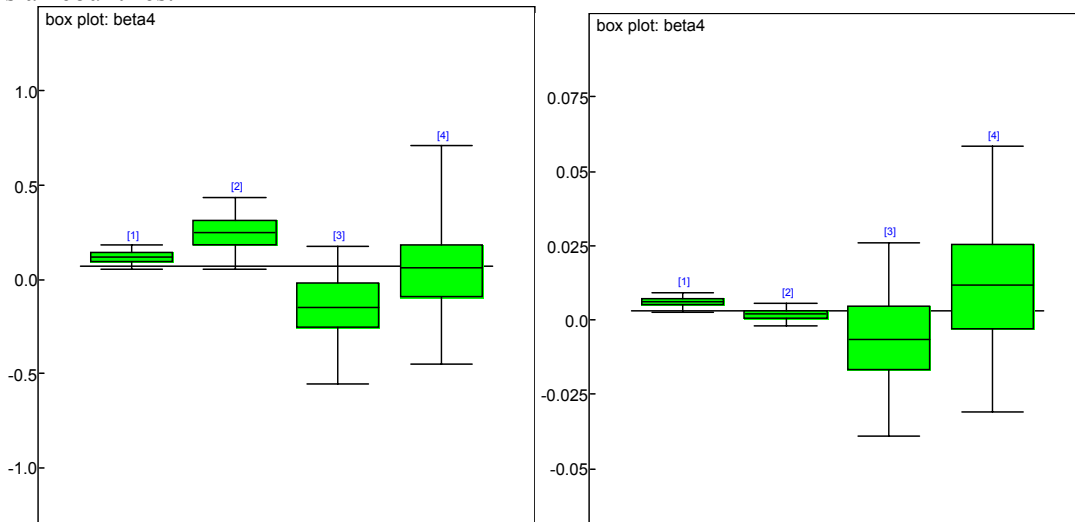


Figure 5. Beta4 – Beta4 – inward FDI stock as % of GDP, and inward FDI flows, US\$ mln., Central Asian countries.\*\*



\*\* 1- Azerbaijan, 2- Kazakhstan, 3- Turkmenistan, 4- Uzbekistan.

Figure 6. Beta5 – Government expenditures on education, Historic US\$ per capita, fixed 2005 exchange rate, Persian Gulf countries.

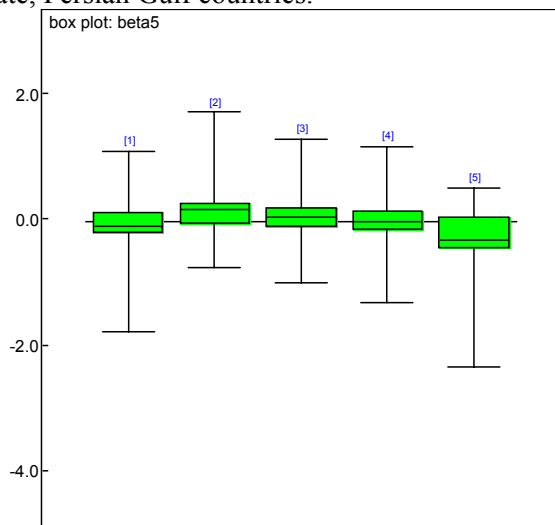
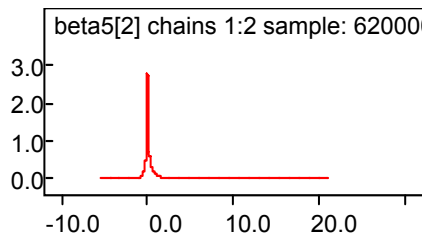


Figure 7. Beta5 – density plot for Government expenditures on education, Historic US\$ per capita, fixed 2005 exchange rate, Kuwait.



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<sup>1</sup> The Arab World Competitiveness Report 2007

<sup>2</sup> Fasano, U. With open economy and sound policies, U.A.E. has turned oil "curse" into a blessing. IMF Survey: 31(19) <http://www.imf.org/external/pubs/ft/survey/2002/102102.pdf>

<sup>3</sup> Fasano, U., Iqbal, Z. 2003. GCC Countries: From Oil Dependence to Diversification. IMF <http://www.imf.org/external/pubs/ft/med/2003/eng/fasano/index.htm#5>

<sup>4</sup> Non-oil growth has averaged 10.6% annually over the past five years, the fastest expansion in the Gulf region. <http://www.imf.org/external/pubs/ft/reo/2007/mcd/eng/mreo1007.pdf>

<sup>5</sup> Attracting Foreign Direct Investment: What needs to be done? Dubai Strategy Forum [http://www.dubaistrategy.com/program\(b1\).htm](http://www.dubaistrategy.com/program(b1).htm)

<sup>6</sup> The "Old" sectors include petroleum, oil refining, petrochemicals, fertilizers, construction, steel and aluminum industries, whereas the "New" include information communications and technology (ICT), media, tourism, aviation, portfolio asset management and healthcare, among others."

<sup>7</sup> © Copyright 2008, author.

<sup>8</sup> [http://www.projectdubai.com/projects.php?prj\\_id=37&areas=all](http://www.projectdubai.com/projects.php?prj_id=37&areas=all)

<sup>9</sup> Dubai Statistics Center <http://www.dm.gov.ae/PortalResources/DMEGOV/OSI/webreports/FDI07Eng.pdf>

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<sup>12</sup> The King Abdullah Economic City (KAEC) launched in 2005 in Rabegh and three integrated economic cities launched in 2006 (the Prince Abdul Aziz bin Mousaed Economic City in Hail, the Knowledge Economic City (KEC) in Medina, and the Jazen Economic City) are expected to attract investments worth more than SR300bn (US\$80bn) and create more than a million jobs within the next 10 to 20 years. <http://www.sagia.gov.sa/english/index.php?page=overview-of-10x10-program>

<sup>13</sup> See Al-Shamali and Denton (2000). Also, see IMF Survey Magazine: Countries & Regions, Sound Policies Behind Strong Growth, Elisa Diehl

<http://www.imf.org/external/pubs/ft/survey/so/2007/CAR066A.htm>

<sup>14</sup> IMF Survey: 30(22): <http://www.imf.org/external/pubs/ft/survey/2001/112601.pdf>

<sup>15</sup> See Yusuf (2001) for a discussion of this topic.

<sup>16</sup> [http://www2.standardandpoors.com/spf/pdf/media/Oil\\_Boom\\_Gives\\_Gulf\\_Sovereigns\\_Room.pdf](http://www2.standardandpoors.com/spf/pdf/media/Oil_Boom_Gives_Gulf_Sovereigns_Room.pdf)

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<sup>17</sup> The city will comprise various zones designed to compliment each other: a technology and knowledge-based industry zone, an advanced IT studies institute, an interactive museum on the life of Prophet Mohammad (PBUH, a center for Islamic civilization studies), a campus for medical research and life sciences, a medical services zone, a retail zone, a business district, residential zones including high rises, houses, and fully-serviced apartments, shopping malls, and a mosque with a 10,000 worshipper capacity.

<sup>18</sup> Carcovic M., Levine, R. 2002. Does Foreign Direct Investment Accelerate Economic Growth? Department of Business Finance, University of Minnesota, Working paper Series.

While some authors would argue the unconditional positive impact of FDI on growth worldwide and in the Arab context (van Pottelsberghe de la Potterie & Lichtenberg, 2001; Krogstrup & Matar, 2005; Ledyeva & Linden 2006), others (De Mello, 1997; Sadik & Bolbol, 2001; Saggi, 2000) bring the evidence of FDI to be growth-enhancing in the long-run if the conditions of technological progress and human capital accumulation are met.

<sup>19</sup> Abed G. T. 2003. Unfulfilled Promise, Finance&Development, A Quarterly Magazine of the IMF, 40:1  
<https://www.imf.org/external/pubs/ft/fandd/2003/03/abed.htm>

<sup>20</sup> Khachani M. The Maghreb Immigration in Europe: Its Impact on the Economy of the Countries of Origin.

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<http://www.egypt.ion.int/eLib/UploadedFolder/Abstracts%20of%20Research%20Papers,%20Regional%20Conference.pdf>

<sup>21</sup> Ketkar, S.L., Ratha, D. 2007. Development Finance via Diaspora Bonds. Track Record and Potential.

<http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1100792545130/Diasporabonds.pdf>

<sup>22</sup> See Barro and Sala-i-Martin (2004). This model specifies the levels of capital and output per worker as dependent upon the country's saving rate, growth rate of population, and the position of production function.

<sup>23</sup> There is no absolute evidence in the literature for FDI to be growth enhancing. The authors, perhaps due to the lack of data, often times omit the oil and gas-abundant countries of the Persian Gulf and Central Asian countries in their analysis. Several authors ((Sala-i-Martin, Doppelhofer & Miller, 2004, Fernandez, Ley & Steel, 2001, 2007, Moral-Benito, 2007) find the investment price to be among the most robust determinants of economic growth using the Bayesian approach (with results being sensitive to different prior assumptions and various data sources for international income). But Lyurodi, Papanastadiou & Vamvakidis (2004) do not find any significant relationship between FDI and economic growth in the transition economies of Central Asia and Eastern Europe through the Bayes' rule.

<sup>24</sup> Measuring Sustainable Development, September 2005. Statistics Brief, OECD.

<sup>25</sup> <http://www.un.org/esa/sustdev/natlinfo/indicators/isdms2001/isd-ms2001economicA.htm>

<sup>26</sup> <http://tonto.eia.doe.gov/country/index.cfm>

<sup>27</sup> <http://www.bp.com/statisticalreview>

<sup>28</sup> <http://www.qstp.org.qa/output/page1633.asp>

<sup>29</sup> Noland, M., Pack, H. 2008. Arab Economies at a Tipping Point. Forthcoming article in *Middle East Policy*.

<sup>30</sup> von Kirchbach, F. 2003. A Country's Competitive Advantage. International Trade Centre, International Trade Forum: 1.