A Quantitative Assessment of the UAE Foreign Ownership Law on Foreign Direct Investments

Radwa Radwan Said[1]

Abstract

This essay beginswith a discussion of the literature that links foreign direct investments to GDP per capita growth. Second, we reviewacademic literature on public policies, foreign direct investments and GDP per capita growth. Based on taht literatura review, we present our own quantitative analysis whichshows that foreign direct investments in the UAE has a net positive effect on output per capita growth. We further extend this analysis to show that UAE's foreign ownership law has a positive effect on foreign direct investment. By demonstrating that the foreign ownership law has affected FDI, which in turn affectedGDP per capita growth; we are able to provide the channel that connects FDI and GDP per capita growth. This implies that foreign ownership legislation is an important driver of output growth in UAE.

Keywords: FDI, public policy, macroeconomy, GCC

JEL classification codes : E50 ;J78 ; N95

I. Literature Review

I.I. Impact of Foreign Direct Investments on Economic Growth

In first step, we review the literature on impact of foreign direct investment on economic growth. In particular, we hope to examine both theoretical as well as empirical contributions that link foreign direct investments to economic growth. The emphasis will be not only on the direction of relationship but also the mechanisms connecting foreign direct investment inflows and economic development.

How does Foreign Direct Investment impact GDP per capita? Standard economic theory builds on the neoclassical theory of Solow (1956) and Cass-Koopmans (1965). These models posit that economies' growth is driven by two main forces: capital accumulation and technological growth. This strand of literature argues that if foreign direct investment (FDI) can impact total factor productivity positively and permanently, then FDI inflows can have a huge potential to raise the country's GDP per capita in the long-run.

Most of the developing countries try to invite as much FDI as possible into their economies, since they expect that FDI inflows can help the domestic investment climate and provide the requiredresources for output growth in the host countries. There are some additional reasons to support the influx of FDI in a certain country since it allows equipping a potentially laggard country with frontier technology, and enable it to embrace advanced skills, and research and development (R&D). These intangible assets are thought to be useful for host countries to stimulate productivity and economic growth (Romer, 1986). FDI may also help to access foreign markets when host countries are used as an export platform to distribute products in the region. Hence, FDI appears to offer good characteristics ranging from a high degree of stability, financial resource augmentation, positive productivity effects and access to foreign market.

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[1]PhD Student in Cracow University of Economics, Poland. E-mail:radwayo1@yahoo.com, (+971) 501642060

However, if investment by foreign countries in the host country does not involve increase of productivity thenthe recipient economy will not be able to benefit from increased Foreign Direct Investments and the economic growth rate will not be impacted. Therefore, foreign direct investment can temporarily increase GDP per capita growth in these frameworks.

Nevertheless, the shift backtoprevious steady state (due to law of diminishing returns) after an initial economic growth spurt following the foreign direct investment was considered unrealistic by many theorists. These endogenous growth theorists took Japan and South Korea as a motivating example and argued that both Japan and South Korea received a large amount of foreign direct investments and their economies continued to show a 'permanent' upward trend. These theorists inspired by Romer (1986), Lucas (1988) and Rebelo (1991) argued that economic growth models should include human capital accumulation and increasing returns to scale due to externalities. Since, foreign direct investments encourage not just increase in inputs of production but also new technology so FDI can endogenously generate productive growth. The important contribution of these line of theorists beyond the neoclassical growth theorists was a greater understanding of the channels that connect FDI and GDP per capita growth. Specifically, these endogenous growth theory models explain that foreign direct investments raise GDP per capita growth through generating spillover effects of knowledge transfers to the FDI recipient countries. These generate positive externalities as well as improve human capital accumulation and productivity growth. These second-generation models of endogenous growth theory that link human capital accumulation, externalities and innovation with the potential gains from foreign direct investment imply that increased FDI inflows can cause persistently positive impact on GDP per capita growth, consistent with the case of Japan, China and South Korea.

I.II. Impact of Public Policy on Foreign Direct Investments and Economic Growth

In the second step, we review the literature on various public policies and its impact on foreign direct investments and economic growth. The review will start from a broad survey of literature to more specific context we hope to study. Then we connect this changes in public policy to the specific foreign ownership public policy adopted to boost FDI flows and economic growth in the UAE. This will also allow us to really set up the specific contribution to the literature we hope to make.

There is a long tradition of economic policies being linked to economic growth rates. Classical economists argued for different policies to bring about improved in economic prosperity. Smith (1776) argued that economic growth can be increased through increased specialization by the economy. Ricardo (1981) on the other hand argued that increased trade with nations can improve economic growth through metal gains through trade. Keynes (1937) argued that increased government spending on large infrastructure projects can improve economic growth of a country. All these policies were argued to have a non-negligible impact on economic growth. Only more recently, have foreign direct investment as a policy being linked to greater output per capita growth. King and Rebelo (1990) calibrate a two-sector endogenous growth model to show that foreign direct investments impact output growth through greater human capital formation and productivity growth.

The literature on impact of increased foreign ownership positively impacts FDI and GDP per capita growth is limited. Until recently, the literature exists that links foreign direct investment to the change in foreign ownership laws has largely focused on China and has been largely qualitative in nature (see Buckley et al., 2010 for a review). Recent literature on OECD companies also suggests that there is an economically and statistically robust negative relationship between policy-induced frictions and productivity of a company, when there are restrictions on foreign direct investment and this is negative effect is traceable to the worsening of allocative efficiency of the firm.

Recently some important quantitative work linked Chinese foreign ownership law with its rapidly increasing foreign direct investments (Wang and Wang, 2015). We, however, hope to contribute to the literature by providing evidence from another country (the UAE) and linking the change in foreign ownership not only on foreign direct investments but also GDP per capita growth.

II. Research Questions

Question # 1: What is the impact of UAE's FDI on Economic Growth?

Question # 2: What is the impact of UAE's foreign ownership legislative change on FDI and Economic Growth?

III. Research hypotheses

The research hypothesis based on the two research questions we ask are as follows:

*Hypothesis # 1:*The UAE foreign ownership law positively impacted FDI.
Hypothesis#2: UAE's Foreign Direct Investments positivelyimpacts GDP per capita growth in the UAE.
Hypothesis # 3: UAE's foreign ownership law positively impacts GDP per capita growth in the UAE even if we control for FDI (test that channel connecting FDI and GDP per capita growth is not just the foreign ownership law).

IV. Empirical Methodology

The Autoregressive Distributive Lag Model (ARDL) model is employed to test these three hypotheses. This method is preferred due to multiple reasons. First, the ARDL models can simultaneously capture the impact of multiple variables and their past dynamic relationship in a parsimonious framework (Odhiambo, 2009; Islam, 2012) Second, ARDL models under a host of plausible assumptions can give us the overtime dynamic effect of a unit shock on outcome variable in a transparent manner(Blonigen and Piger, 2011; Shin, Yu and Greenwood-Nimmo, 2014).Third, the ARDL is flexible and can estimate macroeconomic series even with relatively small sample size. This can allow us to compute impulse response functions from a dynamic multivariate model. Lastly, the model addresses the issue of reverse causality and allows to estimate a two-way economic relationship between the two outcome variables. The ARDL model also has the advantage to give us estimates of impulse response functions from the reduced form estimations. We would use these impulse response function, to examine the impact of foreign direct investment and foreign ownership law on GDP per capita in a 10-year window. Using ARDLmodel we can determine bi- directional causality between the FDI and GDP, which in turn allows to address the same issue for GDP growth.

Model 1:

$$F_T = \delta_0 + \delta_1 A(L).L_T + \delta_2 A(L).I_T + \delta_3 A(L)L > Y_T + \delta_4 A(L).E_T + \varepsilon \ (1)$$

Where F_t is the Foreign Direct Investment, L is the Foreign Ownership Law, I_t is the investment, Y_t is the GDP growth and E_t are exports. All variables will be converted into their natural logarithms to get a percentage interpretation as in much of the literature, (Chiang,1984; Christensen, Jorgenson, and Lau, 1973) showcase the advantages of using this approach. $A(L)$, is a lag polynomial. The exact number of lags will be determined by information criteria tests (Hwang and Vehtari, 2014).

However, in the model we use foreign ownership law as a dummy variable that takes the value of 1 when the law went into effect and is zero otherwise. This approach will allow see the impact of new law on GDP using impulse response function.

Literature of this approach is well recognized,for example in Yudaeva, Kozlov, Melentieva and Ponomareva (2003) andCui and Jiang (2012). The corresponding impulse response function from the model (1) will be of interest here which are obtained from the error term observed.

It is also worth noting that(A)L is the lag polynomial as in model (1). The lag length is selected according to information criteria. We will use both Akaike (AIC) and Bayesian information criteria (BIC) to determine the optimal lag length,which is well established in literaturesee (Mehmood, 2014; Gelman, Hwang and Vehtari, 2014).
Next, to ascertain the impact of foreign ownership law and foreign direct investment on GDP per capita we estimate the following equation:

Model 2:
$$Yt = \beta_0 + \beta_1 A(L)F + \beta_2 A(L).L + \beta_3 A(L)W + \beta_4 A(L)S + \beta_5.A(L)Y_{t-1} + \varepsilon \quad (2)$$

Where, Y is the GDP growth, F is the Foreign Direct Investment, L is the Foreign Ownership Law, W is the minimum wage, S is current size of economy and Y_{t-1} is the lagged GDP. A(L) is the lag polynomial, it can be any number of lags which we will determine using information criteria. $\beta_1$captures the lagged effect FDI on GDP, β_2 captures the effect of Ownership Law on GDP, while we control for the direct impact of FDI on economic growth. However, to get their impact in a 10-year window, we will plot the estimate of the two corresponding impulse response functions.

Nevertheless, to get the one-way relationship between foreign direct investment and foreign ownership law change on GDP per capita, investments in the present case, we need to impose ordering restrictions in the ARDL model (Blanchard and Perotti, 2002). This is achieved by putting the restrictions on the D matrix in the following equation:$u_t = De_t$ (3)

From imposing restriction on Z (as in Blanchard and Perotti, 2002), we can compute the Impulse Response Functions (IRFs) that devise from the error terms of model (1) and model (2). This gives us the effect of one-way shock on the outcome of interest. Using thismodel, we first measure the impact of law change on FDI, further we will use FDI to measure the affects on GDP. For instance, (Alfaro, Chanda, Kalemli-Ozcan and Sayek, 2004; Borensztein, De Gregorio and Lee, 1998) show that FDI alone has positive effect on economic growth.This methodology will allow us to establish an association between all three variables, while controlling for number of potentially confounding factors that the model might be exposed to. We can use the second Model to test our second and third hypothesis, by showing that the value of β_1 to be positive we can confirm our 2nd hypothesis.Likewise, by using the same model we can assess the hypothesis 3 if β_2 takes a positive value.

V. Data Section

We obtain GDP per capita and Foreign Direct Investment data from the World Development indicators of the World Bank. The control variables of investment (gross fixed capital formation), exports, imports, government spending and taxes from theIMF Economic Outlook data series.Building on the work of Mankiw, Romer and Weil (1992), who argue that GDP per capita is greatly influenced by human capital accumulation, we also include primary and secondary school enrollment series, in our model (2) as control variables, which we obtain from the United Nations Institute of Statistics.Table 1 shows the summary statistics.

All these variables are converted to their natural logarithms to obtain a percentage interpretation as well as to decrease impact of outliers, non-normality and explosive roots (Romer and Romer, 2004; Wooldridge, 2010). Foreign ownership legislative change data is obtained from various news sources, such as Bloomberg. A dummy variable is used to construct from these source, the Foreign Ownership variable that takes the value of 0 for years before the legislative change took place and switches on in the year of the introduction of foreign ownership legislative change went into effect.

**Table 1: Descriptive Statistics of the variables used in the study**

Variables	Observations	Mean	Std. Dev.	Min	Max
GDP per capita	47	11.08	1.90	10.46	11.64
FDI	47	8.83	1.10	8.29	9.56
Foreign Ownership Dummy	47	0.18	0.39	0	1
Exports	47	11.04	1.69	10.78	12.82
Imports	47	11.52	2.60	10.4	12.36
Gross Investments	47	9.84	0.47	9.34	10.65
Primary Enrolment	47	6.18	0.39	5.72	7.5
Secondary Enrolment	47	4.82	0.79	4.26	5.3
Government Spending	47	10.04	0.60	9.11	10.69
Tax Revenue	47	5.41	0.71	4.67	6.2
Year	47	1993.5	5.67	1970	2017

VI.   Main Results

The estimate from the ARDL model provides us the following Impulse Response Functions (IRF) for model (1) and model (2). First, we examine the impact of the change in foreign ownership law on FDI inflows in the UAE. Therefore, we estimate Model (1) and compute the corresponding impulse response functions within a 10-year window. Second, we estimate model (2) and estimate the impact of foreign direct investments as well as foreign ownership law on GDP per capita. Again, we will present the results from underlying impulse response functions estimated from the error term of model (2).

Estimation of model (1) reveal that indeed the change in foreign ownership legislation positively impacts FDI inflows in the UAE. The results are also statistically significant. These results are presented in Figure 1: they show that 5 years onwards, the FDI inflows following the change in foreign ownership legislation is about 1% higher relative to the counterfactual of no such change in foreign ownership legislation.

Figure 1: Impact of Foreign Ownership Law on FDI
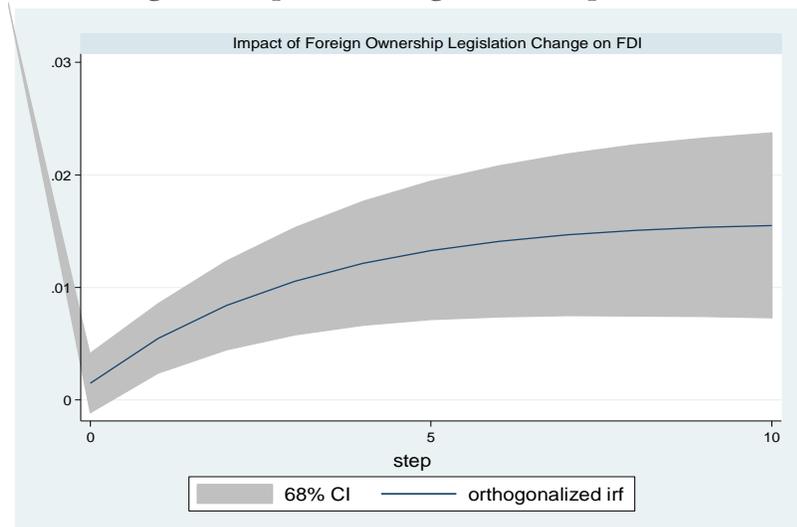
Next, we estimate model (2) where we want to ascertain the impact of the change in foreign ownership law and foreign direct investments on GDP per capita growth. The estimate from the ARDL model provides us the following Impulse Response Function (IRF) from model (2). Figure 2 present these results. We note that increased FDI inflows in UAE induces a net positive impact on GDP per capita. 5 years following a one standard deviation unit shock of increase in FDI inflows results in about a 2% increase in GDP per capita (Figure 2). Likewise, in Figure 3, Foreign ownership law also has a positive impact on GDP per capita. The foreign ownership law raises GDP per capita by about 1% 5-year onwards(Figure 3). The impact of this is persistent and the positive impact of foreign ownership law as well as foreign direct investments on GDP per capita is persistent.
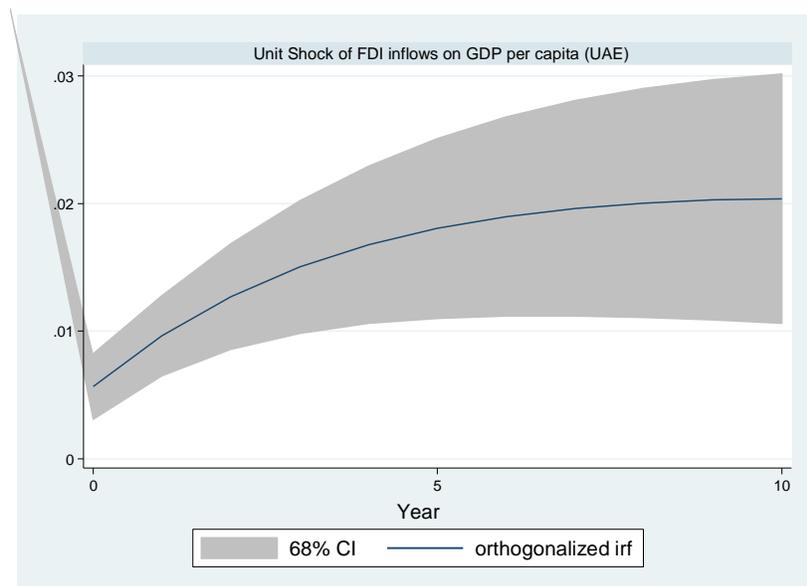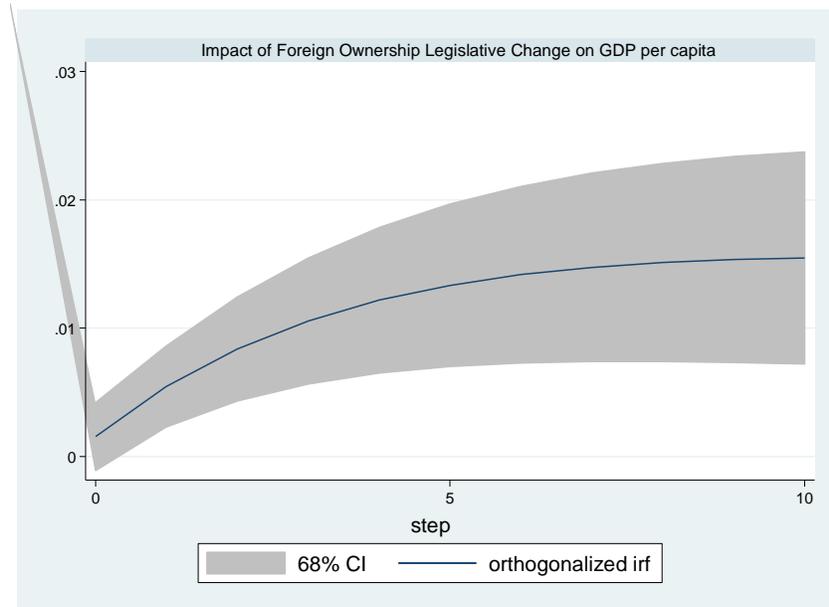
Figure 2: Impact of FDI on GDP per capita

Figure 3: Impact of Foreign Ownership Law on GDP per capita

In sum, Table 2 shows the estimated results for model (1) and model (2). According to estimate of model (1), a foreign ownership law raised the foreign direct investments by 1.12%. Likewise, estimate of model (2) imply that foreign ownership raises GDP per capita by about 1%, whereas a 10% increase in foreign direct investments increase GDP per capita by 1.95%.

Table 2: Main Results Table

DEPENDENT VARIABLES	FDI	GDP per capita
	Model (1)	Model (2)
FDI *at t-5*	-	0.195***
		(0.010)
Foreign Ownership *at t-5*	1.121***	0.989***
	(0.051)	(0.008)
Time Trends	Yes	Yes
Controls	Yes	Yes
Observations	48	48
R-squared	0.20	0.31

Robust standard errors in parentheses (Newey-West Correction). The controls are the variable presented in the descriptive statistics (See Table 1)*** $p<0.01$, ** $p<0.05$, * $p<0.1$

VII. Concluding Remarks

In this essay, we used ARDL model and its corresponding impulse response functions to estimate theimpact of change in foreign ownership law in UAE FDI and GDP per capita. We find that this change in foreign ownership law positively impacted the foreign direct investments in the UAE. Next, we linked both the change in this ownership law as well as FDI with GDP per capita. In line with our research hypothesis and academic literature, we find that foreign ownership legislative change and foreign direct investment exert a positive effect on GDP per capita. The results are significant,both qualitatively and quantitatively. The estimates of our model imply that foreign ownership law raised the FDI by 1.12%, and GDP per capita by 0.98%, whereas a 10% increase in foreign direct investments increased GDP per capita by 1.95%.

Since the results are statistically significant and have relative magnitude, policy makers can benefit from these results by notingthat foreign ownership law is a sound legislative change in UAE since it will boost both UAE's FDI as well as economic growth. Based, on this research, in the future, policy makers need to further institutionalize the legal framework for foreign entities to do business in the UAE and encourage foreign direct investments, since it will help enhance economic growth in the UAE.

Although the UAE is no exception, as this correlation is also evident in the Chinese model China, there is still a gap in research when it comes to other countries in the GCC region, particularly in Saudi Arabia, which is currently implementing a future vision aiming to boost foreign direct investment. Finally, future researchers can conduct studies in other countries and also link foreign direct investment with total factor productivity growth instead of GDP per capita.This will allow them to determine whether the positive impact of FDI and GDP per capita is coming from better knowledge transfer and productivity growth or just greater gross investments.

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