

**The Economic Integration of Arab Countries:
An Intra-Capital Flows Approach**

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ABSTRACT

The dismantling of restrictions and the elimination of economic impediments have become common features in the economic integration across diverse economies in the world, in which globalization enforces economies to be more cooperatative. Although many countries in several regions in the world have increased their intra-region capital flows, investment among Arab countries has been a relatively small portion of their total foreign direct investment (FDI). The reasons for the weakness in intra-Arab FDI are divided into two parts: economic and political. Based on the fundamentals of the gravity model and using panel data fixed effects regression, this paper analyses the determinants of intra-Arab FDI during the 1985-2005 period. Despite the potential expansion of intra-Arab FDI, this paper argues that the possibility for expansion needs - in addition to other factors – a harmonization of economic policies and investment procedures among the Sub-Regional Unions of Arab countries. Furthermore, diminishing the gap between per capita GDP of the Arab countries is important for enhancing intra-Arab FDI and hence promoting economic integration amongst the Arab countries.

Key words: Economic Integration; Capital Flows; Intra-Arab FDI; Gravity Model.

INTRODUCTION

The dismantling of restrictions and the elimination of economic obstacles have become common characteristics among economies pursuing economic integration, particularly during the globalization era when many countries become more collaborative than in the past. Although many countries in several regions of the world have increased their intra-capital flows, investment among Arab countries has been a relatively small portion of their total foreign direct investment (FDI). The reasons for the weakness of intra-Arab FDI are divided into economic and political reasons. Based on the theory of gravity models, the model applied in this paper analyses the determinants of intra-Arab FDI during the 1985-2005 period. Although intra-Arab FDI has been expanding, it is argued that the possibility of further expansion requires, in addition to other factors, a harmonization of the economic policies and procedures for investment among sub-regional unions of Arab countries. Furthermore, diminishing the gap between per capita GDP of the Arab countries is important for enhancing the intra-Arab FDI and hence promoting economic integration.

Capital flows have played a vital role in economic integration among countries in several regions in the world. Indeed with the proliferation of trade agreements throughout various regions, the world has been experiencing a dramatic surge in capital flows. The Arab region is one such region, with intra-capital flows amongst Arab countries enhancing the economic development process through augmenting domestic investment. The Arab countries have made attempts to increase intra-Arab capital flows through agreements on the free movement of investment and capital (in 1970). With the increasing oil revenues after 1973 (oil boom), the capital flows among Arab countries further increased. This paper provides an empirical analysis based on recent studies by contributors such as Bolbol and Fatheldin (2005) who have attempted to model aspects of intra-Arab trade and FDI flows using the gravity model

approach. The empirical evidence emerging from this study uses panel data covering the 1985-2005 period and lends support to the argument that intra-Arab FDI increases both with the GDP of the *source* country and the per-capita GDP of the *receiving* country. Political stability also plays a key role, while sub-regional union through the Gulf Cooperation Council (GCC) or Arab Maghreb Union (AMU) represents a significant obstacle to intra region FDI flows. On the other hand, variables such as inflation and purchasing power parity of the receiving country do not appear to play a significant role in influencing intra-Arab FDI. The remainder of this paper is organised as follows: The next section, provides the characteristics of capital flows; with following section examining INTRA-ARAB CAPITAL FLOWS. The section which subsequently follows provides a historical review of intra-Arab capital flows with the following section presenting THE FEATURES OF FDI IN THE ARAB REGION. The specification of the gravity model of intra-Arab FDI follows, with next section dealing with THE PANEL APPROACH. The last section comprises the results of the regression analysis and the conclusions.

CHARACTERISTICS OF CAPITAL FLOWS

Capital flows arise as official flows, such as grants and concessional loans, whether provided by multilateral or bilateral sources. On the other hand, private capital flows comprise foreign direct investment, portfolio investment and bank debts. Capital flows bring benefits, such as an improvement in the efficient allocation of investment and savings, the introduction of new technologies embodied in capital equipment, dissemination of good corporate governance, reduction of risk due to diversification, and may even constrain governments from pursuing inappropriate economic policies. On the other hand, capital flows have disadvantages including profit remittances that leave the host country. Furthermore, erratic capital flows present problems for monetary policy and exchange rate policy and can be associated with

financial crisis. This is particularly so in the case of short-run speculative flows, which in the case of countries that have fixed or managed float exchange rate regimes, may require the implementation of sterilisation policies to offset the effects on the domestic money supply as well as to alleviate pressures on exchange rates themselves. Capital flows also have an impact on bank credit i.e. see (Hermes and Lensink, 2003). Moreover, Sadik and Bolbol (2003), using Arab countries in their panel data set, obtained a similar result to that provided by Hermes and Lensink (2003), namely that to be able to benefit from FDI flows, the domestic credit provided by the banking sector in the host country needs to be sufficient to facilitate commercial operations. An indicative figure is that it should be more than 12 percent of GDP.

INTRA-ARAB CAPITAL FLOWS

The Arab countries were the first group amongst developing countries to establish an economic integration agreement by addressing capital flow issues when the members of the Arab League signed the Agreement of Arab Economic Unity in 1957. Two of the principles of this agreement were the guarantee of freedom of movement of capital and the guarantee of freedom to perform economic activities within the Arab region. In 1970, the members of the Arab Economic Unity (AEU) adopted an agreement on free movement of Arab capital within the region. Based on this agreement, the members granted preferential treatment for Arab capital. In addition, AEU members agreed that Arab members should not give treatment that is more favourable to FDI received from outside the Arab region. Investors were given rights of transfer payments related to their investments. Furthermore, they were given rights of residency in the countries in which they invested. As a result, investors became residents. These rights encouraged investors to invest more inside the Arab region. In 1971, in order to boost intra-Arab investment, the Arab countries established the Intra-Arab Investment Guarantee Corporation. This organization is concerned with investments within the region,

provides the required facilities for intra-Arab investment, and also accords an insurance guarantee to capital flowing between Arab countries.

The processes of regional integration are likely to cause an increase in intra-regional FDI in the Arab region, as well as in countries that are not members of the region. The responses of economies to integration depend mostly on the changes in environment and location advantages brought about by regional economic integration. The most positive impact of FDI arises when regional economic integration is accompanied by domestic liberalization and macroeconomic stabilization in the member countries. In order to encourage and guarantee investments in the 1990s, more than 280 bilateral agreements were signed among Arab countries with 61 of these agreements being among Arab countries where one half of these agreements were linked to the countries of Egypt, Libya, Morocco and Tunisia. However, some multilateral agreements were signed by Arab countries, for example with the International Centre for the Settlement of Investment Disputes and the Arab Investment Guarantee. Since the Arab region does not receive sufficient FDI from outside the region, and most of the investment of the Arab countries tends to go outside the Arab region, Arab countries need to create incentives and provide a suitable business environment in the Arab region in order to enhance intra-Arab FDI.

Intra-Arab investment flows are estimated to have significantly increased by \$2.4 billion in 2001, which is more than half of the total FDI inflows to the Arab region in 2000 (Eid and Paua, 2002). Intra-Arab investment is cumulatively estimated to have been \$17 billion during the period 1985-2001, which represents a small portion of total foreign Arab investment, this implying a significant potential for expansion. It is also noteworthy that of the significant amounts of outward FDI flows and stock in the Arab region, at least four countries have more

than \$1 billion in outward FDI stock. These countries are Bahrain, Libya, Kuwait and Saudi Arabia, which reveals the importance of FDI for the growth and economies of the Arab countries. It is notable that Kuwait registered a higher outward FDI stock (\$1.98 billion) than an inward FDI stock (\$527 million).

Krogstrup and Matar (2005) emphasizes the idea of Eid and Paua (2002) that growth and development can be affected by foreign direct investment through its contribution to gross fixed capital formation. FDI has been highly unstable in some Arab countries, such as members of the GCC compared to FDI flows to the other Arab countries characterized by more diversification, such as Morocco, Egypt, Tunisia and Jordan. Krogstrup and Matar (2005) emphasized that Tunisia, Jordan and Morocco are the only Arab countries that have been able to attract significant world FDI inflows. Although since 1990 foreign direct investment inflow to developing countries has increased significantly, FDI has only been weakly attracted to the Arab countries. After the global economic slowdown of 2001, FDI became the most important source of foreign financing in most of the developing countries. Krogstrup and Matar (2005) evaluated whether the Arab countries should expect to gain from increased FDI inflows. Their evaluation of the Arab countries was dependent on the selected measures of absorptive capacity for these countries, and also on the particular Arab country evaluated. Krogstrup and Matar (2005) concluded that both in absolute terms and relative to GDP, Arab countries receive a small portion of total FDI relative to other developing countries. Of the Arab countries, only Jordan and recently both Tunisia and Morocco were seen to have performed well in terms of attracting FDI flows. A further conclusion of this study was that FDI inflows to the Arab region did not improve during the 1990s. Consequently, Arab countries have significantly lagged behind in attracting FDI during the period of high worldwide FDI.

Changes in commodities flows and intra-Arab FDI flows have been largely driven by several factors such as oil-based surplus capital and remittances (Bolbol and Fatheldin, 2005). In total, intra-Arab investments have been increasing (see Table 1), and no major fluctuations in intra-Arab investment have been observed. Accordingly, the relative stability and reliability of intra-Arab investment can be assessed. Over the 1990s decade, global exports increased by 6 per cent annually with a parallel increase in FDI at an approximately equivalent rate. Bolbol and Fatheldin (2005) stated that both exports and FDI were almost driven by the same factors, such as proximity, investment environment and economic openness. Some common features were also shared by exports and FDI, such as income growth and vertical production methods. Bolbol and Fatheldin (2005) explained that there is no formal theory that can be used to derive the basic gravity model for FDI. However, they have also stated that the gravity equation may be useful for modelling intra-Arab FDI flows. It can be presumed that there is a positive relationship between FDI and the national income of the home country, such that greater availability of capital enhances the growth of national income. Likewise, we would expect FDI to also have a positive relationship with the income of the host country because it augments domestic investment.

The relationship between FDI and distance can be positive if FDI substitutes for exports due to higher transport costs, and the relationship can be negative if a longer distance is associated with unfamiliarity with local cultures and also gives rise to higher operational costs. Bolbol and Fatheldin (2005) used panel data for the Arab countries with fixed-year effects. From their estimation of a gravity equation, they concluded from the main results that (i) income elasticity is positive for both countries (home and host); (ii) the coefficient of the distance variable is negative which reveals that vicinity and familiarity with the investment

environment are important; (iii) positive and significant dummies only involve the GCC with the Maghreb and Mashreq region, which may result from the special relationships between these regions and the GCC investors; and (iv) Sudan-Arab FDI has a large positive coefficient that is more than six times its predicted value. An important point made by Bolbol and Fatheldin (2005) was that intra-Arab exports did not increase as a response to a higher level of intra-Arab investment. The main reason for this unresponsiveness was that most of the intra-Arab investments were made in non-tradable sectors. The weakness of trade between the GCC-Maghreb and Maghreb-Mashreq countries is the main reason for the deficiency in intra-Arab exports. Bolbol and Fatheldin (2005) concluded that intra-Arab FDI can be explained by the fundamentals of the gravity model.

Table 1 represents intra-Arab investment based on host countries during the period 1995-2005. Intra-Arab investment registered approximately US\$38,01 million in 2005 compared with US\$5,958 million in 2004, revealing that intra-Arab investment increased by US\$32049 million. From Table 1 it can be seen that intra-Arab investment has increased since 2000. In every year from 2000 to 2005, intra-Arab investment increased, and for some of these years the increase was highly significant. It can also be seen from Table 1 that Saudi Arabia has received the highest total Arab investments (US\$31,837.2) during the 1995-2005 period, followed by Lebanon (US\$6,524.6), Sudan (US\$6,102.2), Egypt (US\$4,045.4), Syria (US\$3,641.4), Morocco (US\$3,215.8), UAE (US\$2,359.7), Tunisia (US\$1,623.8), and Algeria (US\$1,568). It is noteworthy that the first five countries (Saudi Arabia, Lebanon, Sudan, Egypt, and Syria) represented about 80.5 per cent of total intra-Arab investment during 1995-2005.

**Table 1: Intra-Arab Investments According to Host Countries 1995-2005
(US\$ Millions)**

Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Jordan	35.7	13.5	10.6	12.7	24.2	26.2	27.6	21.0	17.6	27.0	302.2	518.3
UAE	..	..	..	380.0	176.0	196.0	215.0	217.5	650.2	525.0	..	2,359.7
Bahrain	13.0	..	..	16.0	14.0	..	217.4	159.6	191.7	274.2	..	885.9
Tunisia	54.7	70.2	135.0	290.0	506.0	49.1	69.1	75.0	67.4	107.3	200.0	1,623.8
Algeria	3.5	..	..	122.0	85.8	347.5	350.0	54.6	80.4	263.3	260.6	1,567.6
Saudia	12.2	20.6	27.0	198.0	82.0	76.8	651.4	716.9	297.3	958.0	28,797	31,837.2
Sudan	38.8	554.0	142.5	70.3	151.7	414.6	554.9	567.4	610.0	657.0	2,341	6,102.2
Syria	333.5	303.0	328.0	212.0	224.0	8.7	43.5	46.5	42.4	427.2	1,673	3,641.4
Oman	4.2	24.0	18.7	42.0	45.8	..	..	..	..	62.6	..	197.3
Qatar	..	..	..	54.4	58.0	61.8	65.5	68.5	10.0	..	..	318.2
Lebanon	157.8	250.0	312.0	400.0	500.0	350.0	225.0	650.0	850.0	1,050	1,780	6,524.6
Libya*	..	..	..	..	..	80.4	85.0	82.0	102.0	23.0	500	875.1
Egypt	455.0	711.0	532.0	390.0	277.0	113.0	96.5	100.4	125.5	418.0	827	4,045.4
Morocco	59.8	61.2	48.0	48.6	22.2	24.8	39.5	12.8	672.1	1,105	1,121	3,215.8
Yemen	11.9	86.0	11.0	22.2	16.7	68.5	6.5	139.4	126.4	58.8	204	751.3
Total	1,430	2,094	1,590	2,314	2,183	1,817	2,647	2,912	3,844	5,958	38,01	64,795

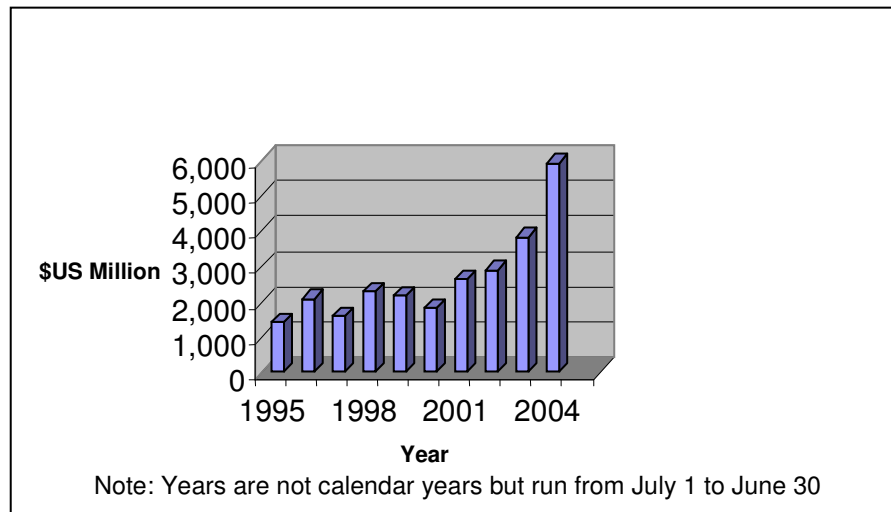
*Data are not available for period of 1995-1999 due to the Siege sanctions.

Source: The Inter-Arab Investment Guarantee Corporation, 2006.

Figure 1 depicts that intra-Arab investments based on host countries from 1995 to 1999 has fluctuated. An interesting dimension is that this variable was slightly low in 1995 then increased in 1996 after which it decreased again in 1997. This fluctuation can be attributed to the political instabilities that the Arab world suffered during 1990s, especially the GCC region as a result of Gulf Wars I and II which yielded conflict and inconsistent relationships among Arab countries. In 1998, the intra-Arab investments increased again which is most likely due to the attraction and facilitation of intra-Arab investments by mainly four Arab countries, Lebanon, Egypt United Arab Emirates and Tunisia. In 1999, intra-Arab investments declined again, with the decline becoming more pronounced in 2000. This was fundamentally due to a decline in intra-Arab investments among most of the Arab countries, especially Syria,

Tunisia, Egypt and Saudi Arabia. On the other hand, since 2001 intra-Arab investments has registered increasing especially in 2004.

**Figure 1: Intra-Arab Investments Based on Host Countries 1995-2005
(US\$ Millions)**



It is remarkable that the services sector has continuously represented the greatest proportion of intra-Arab investments. In 2005, it accounted for about 84.5 per cent of these investments. This is attributable to large infrastructure investments. In addition, some intra-Arab investments have been made in communications, financial services, and the tourism sector. In contrast, the industry sector represented only 6.1 per cent of total investments in 2005, followed by the agricultural sector which represents less than one per cent, and the other sectors representing about 9.4 per cent.

THE FEATURES OF FDI IN THE ARAB REGION

Several features distinguished the Arab region in terms of foreign direct investment flows (FDI) during the period extending from the 1980s to the early 2000s. The first feature relates to the relationship between FDI flows into the Arab region and world FDI flows. The Arab region has been unable to match the rate of increase in world FDI flows. The concentration of

FDI flows is another feature, with most Arab FDI going only to a few Arab countries and being concentrated in specific sectors. One caveat is that intra-Arab investment is likely to be understated in some international FDI statistics. In fact, intra-Arab investment may include a significant proportion of unrecorded FDI flows, at least for some Arab countries or sub-groups.

Arab and World FDI Flows

Although FDI flows into the Arab region have increased, these flows have not kept pace with world FDI flows. World FDI flows increased from US\$180.0 billion in the 1985-1995 decade to US\$1.27 trillion in 2000 (UNCTAD, 2001). This growth in global FDI flows was attributed mainly to increased flows amongst advanced countries rather than the developing ones. Although, FDI flows into the Arab region increased over the same period, they did not increase in the same percentage terms as world FDI flows (see Table 2). The percentage increase in FDI flows to developing countries over the period 1985-1995 was about 373.3 percent, whereas the Arab region FDI inflows registered a growth rate of 109.1 percent over the same period (Eid and Paua, 2002). Thus, the percentage of world FDI flows going to the Arab countries declined from 1.2 percent in the 1985-1995 decade, to less than 1 percent in the years 1996, 1999, 2000, 2002 which represent 0.9 percent, 0.2 percent, 0.4 percent and 0.86 percent respectively (see Table 2). Since Arab countries receive a very small proportion of FDI from the rest of the world, it might be argued that they should try to increase and boost their intra-FDI. However, not attracting more international capital flows may at times be a blessing. This is particularly the case if these flows are erratic and associated with economic instability, and primarily driven by speculation and a herd-mentality approach to investing. We need to distinguish between real capital flows (investment, technology, management expertise) and financial flows primarily motivated by expected changes in interest rates and

exchange rates and often associated with global hedge funds. With that caution in mind, the percentage of the total FDI flows, Arab countries compared to the developing countries in general ranged from only 1.41 percent in 1999, to a maximum of 4.90 percent in 2001, over the period 1985-2003.

Table 2: FDI Flows, 1985-2003 (US\$ million)

Region/year	1985-1995	1996	1997	1998	1999	2000	2001	2002	2003
Arab region	2.185	3.309	6.825	7.481	2.221	4.570	10.76	5.87	8.33
All developing countries	50.745	152.495	187.352	188.371	222.010	240.167	219.72	157.61	172.03
World	180.300	384.910	477.918	692.554	1075.049	1270.764	817.57	678.75	559.58
Arab as % of flows to developing countries	4.3	2.2	3.6	4.0	1.41	1.9	4.90	3.72	4.84
Arab as % to total world FDI flows	1.2	0.9	1.4	1.1	0.2	0.4	1.32	0.86	1.49

Source: UNCTAD, various issues.

Regional Disparities

The Arab region has received relatively less FDI flows compared with other regions. During the 1995-1999 period the percentage of FDI flows into Arab countries registered one to four percent of the total FDI to the developing countries. In 2000, FDI flows to the Arab region registered 1.9 percent of FDI flows to developing countries, which represents a slightly higher percentage than that going to European developing countries in the same year (about 0.8 percent). On the other hand, all other regions such as Latin America and the Caribbean registered significantly higher shares compared to the Arab region; in 2000 FDI flows to the

Americas and Caribbean regions registered about 35.9 percent of total FDI to the developing regions of the world. In addition, FDI to the Asia-Pacific region registered about 58.9 percent of total inflows to developing countries in 2000, which equals about thirty-one times the corresponding percentage for Arab countries. It is therefore clear that Arab FDI inflows have accounted for a relatively low percentage of FDI to developing countries.

Sector Concentration

FDI flows to Arab countries are concentrated on a few Arab countries and in particular sectors. Thus, over the late 1990s-early 2000s period, more than 80 percent of Arab FDI stocks were concentrated in Saudi Arabia, Egypt, Bahrain, Tunisia and Morocco. About 70 percent of total FDI stock was in the first three of these countries. It is remarkable that both Saudi Arabia and Egypt have more than 50 percent of the total FDI stock in the Arab region.

Intra-Arab Investment

Intra-Arab investment represents a significant proportion of FDI flows in the Arab region. Comparing 2001 with 2000, intra-Arab investment increased significantly by about US\$2.4 billion. The aggregate stock of intra-Arab investment in the 1985-2001 period registered about US\$17 billion (Eid and Paua, 2002). This is a small amount compared to total Arab investment outside the Arab region. It reveals that there is a potential for expansion of intra-Arab investments. According to UNCTAD, in 2000 outward Arab FDI came mainly from Kuwait, Saudi Arabia and Bahrain from the GCC sub-region, and from Libya from the AMU. For instance Kuwait in 2000 had the highest outward FDI stock of US\$1.98 billion, and an inward FDI stock of US\$527 million. Table 3 presents annual intra-FDI amongst some Arab countries during the 1985-2005 period. It can be seen that intra-Arab FDI significantly increased during the 1990s and 2000s for almost all Arab countries, with the exception of the

early 1990s period, which showed a significant decrease for almost all Arab countries. The decline in intra-Arab FDI during the early 1990s is associated with the political and economic instability in the Arab region, especially the GCC region (i.e. due to the Gulf War).

Table 3: Intra-Arab FDI Based on the Host Country 1985-2005 (US\$ Million)*

Year/country	Algeria (%GDP)	Bahrain (%GDP)	Egypt (%GDP)	Jordan (%GDP)	Lebanon (%GDP)	Morocco (%GDP)	Oman (%GDP)	Saudia (%GDP)	Sudan (%GDP)
1985	0.167 (3.842)	23.049 (6.214)	6.902 (1.291)	8.136 (1.499)	0.108 (1.502)	7.459 (3.465)	2.009 (1.850)	2.227 (1.829)	169.384 (2.948)
1986	10.207 (2.339)	106.95 (2.850)	96.205 (1.753)	5.234 (9.011)	0.476 (7.101)	36.822 (1.580)	0.236 (2.130)	2.223 (1.737)	16.533 (2.730)
1987	14.283 (3.296)	36.672 (8.851)	31.680 (5.632)	41.725 (6.981)	0.963 (1.231)	38.047 (1.675)	1.841 (1.721)	0.428 (3.484)	41.827 (6.046)
1988	17.00 (3.963)	3.436 (7.751)	51.856 (8.754)	6.797 (1.1590)	8.942 (7.738)	38.863 (1.549)	1.250 (1.103)	11.362 (8.545)	17.156 (2.488)
1989	17.60 (3.929)	14.159 (3.182)	77.787 (1.251)	8.380 (1.651)	16.922 (2.545)	8.405 (3.273)	0.856 (6.757)	92.649 (6.964)	0.709 (9.440)
1990	18.00 (3.987)	74.092 (1.594)	92.047 (1.401)	6.805 (1.327)	14.916 (1.773)	52.787 (1.976)	0.342 (2.703)	80.815 (5.607)	6.764 (9.527)
1991	13.078 (2.9319)	8.447 (1.634)	6.512 (9.802)	14.37 (2.753)	13.578 (1.1676)	3.337 (1.168)	19.20 (1.431)	15.962 (1.0151)	10.801 (1.415)
1992	9.798 (2.158)	1.805 (3.273)	3.633 (5.236)	8.877 (1.433)	11.349 (9.339)	9.895 (3.610)	19.50 (1.340)	20.217 (1.229)	17.530 (2.155)
1993	7.530 (1.694)	2.757 (4.429)	10.450 (1.464)	19.292 (2.977)	177.883 (1.368)	15.374 (5.667)	12.38 (8.024)	2.981 (1.812)	28.744 (3.379)
1994	6.019 (1.366)	8.902 (1.434)	277.18 (3.736)	29.136 (4.282)	188.888 (1.345)	42.029 (1.404)	7.472 (4.662)	8.512 (5.138)	34.777 (4.047)
1995	3.50 (7.654)	13.00 (2.015)	455.00 (5.859)	35.70 (4.941)	250.00 (1.672)	59.80 (2.138)	4.20 (2.496)	12.20 (7.349)	38.80 (4.26)
1996	46.16 (9.697)	14.08 (2.096)	711.00 (8.719)	2.81 (3.810)	250.00 (1.607)	61.20 (1.95)	24.00 (1.393)	20.60 (1.201)	554.00 (5.743)
1997	74.60 (1.550)	14.80 (2.137)	532.00 (6.184)	10.60 (1.391)	312.00 (1.929)	48.00 (1.564)	18.70 (1.017)	27.00 (1.534)	142.50 (1.389)
1998	122.00 (2.412)	16.00 (2.205)	390.00 (4.267)	11.50 (1.465)	400.00 (2.401)	39.20 (1.186)	42.00 (2.226)	198.00 (1.094)	70.30 (6.438)
1999	85.80 (1.644)	14.00 (1.850)	277.00 (2.856)	24.20 (2.982)	500.00 (3.024)	22.20 (6.724)	45.80 (2.43)	82.00 (4.563)	151.70 (1.307)
2000	98.40 (1.841)	136.04 (1.707)	112.00 (1.096)	20.50 (2.424)	350.00 (2.099)	21.70 (6.510)	47.977 (2.415)	76.80 (4.076)	330.50 (2.673)
2001	350.00 (6.382)	217.40 (2.608)	88.20 (8.337)	27.60 (3.099)	225.00 (1.293)	8.60 (2.427)	49.428 (2.317)	721.20 (3.806)	554.90 (4.229)
2002	54.60 (9.563)	159.60 (1.819)	100.40 (9.196)	21.00 (2.231)	650.00 (3.639)	12.80 (3.501)	51.848 (2.385)	716.90 (3.779)	567.40 (4.064)
2003	80.40 (1.312)	191.70 (2.038)	125.50 (1.115)	17.60 (1.796)	850.00 (4.536)	672.10 (1.742)	55.88 (2.538)	297.30 (1.456)	610.00 (4.138)
2004	260.50 (4.042)	274.20 (2.765)	1.109 (9.455)	41.00 (3.886)	1.050 (5.270)	374.40 (9.309)	62.60 (2.757)	1.297 (6.032)	657.00 (4.236)
2005	260.60 (3.840)	356.70 (3.365)	827.00 (6.722)	302.20 (2.672)	1.779 (8.840)	1.121 (2.744)	67.32 (2.965)	28.797 (1.257)	2.341 (1.398)

Source: Intra-Arab Investment Guarantee Corporation, 1985-2005.

* The percentage has been calculated by the author.

THE PANEL APPROACH

Panel data analysis may be used to study several economic fields over time, such as trade, investment and labour. When observations of enough cross-sections are repeated, the panel data analysis permits the researcher to examine the dynamics of change with short time series. In some studies, using only time series or cross-section data methods would be impossible. Therefore, both the quality and quantity of data can be enhanced by a combination of time series with cross-sections. The spatial dimension pertains to a set of cross-sectional units of observations, such as countries. On the other hand, the temporal dimension is related to periodic observations of particular variables characterizing these cross-sectional units over a particular time concerned. Using panel data generates several advantages, such as allowing control of the unobservable time-invariant country-specific effects.

Panel Model Types

Panel data can be analysed using several types of models, including constant coefficients models, fixed effects models and random effects models. Among these types of models are dynamic panel, robust and covariance structure models. A brief explanation of some of these models is provided below.

The Constant Coefficient Model

This panel model type has constant intercepts and slope coefficients. In the case that there is neither significant country nor significant temporal effects, the data could be pooled and the model estimated by ordinary least squares. Although quite often there are either country or temporal effects, there are some occasions when neither of these is statistically significant. Sometimes this model is named the pooled regression model.

The Fixed Effects Model

Fixed effects regression allows for differing cases and constant terms over time.

As [Green, 2008: 193-194] notes, the fixed effects model arises from the assumption that the omitted effects, C_i in the general model:

$$y_{it} = x'_{it} \beta + c_i + \varepsilon_{it} \quad (1)$$

are correlated with the included variables in the vector X_i that is:

$$E(c_i / x_i) = h(x_i) \quad (2)$$

Because the conditional mean is the same in every period, we can write the model as

$$y_{it} = x'_{it} \beta + h(X_i) + \varepsilon_{it} + [c_i - h(X_i)] \quad (3)$$

$$= x'_{it} \beta + \alpha_i + \varepsilon_{it} + [c_i - h(X_i)] \quad (4)$$

By construction, the bracketed term is uncorrelated with X_i . Therefore, the model can be written as:

$$y_{it} = x'_{it} \beta + \alpha_i + \varepsilon_{it} \quad (5)$$

A further assumption is that $\text{var}(c_i / X_i)$ is constant. In this case, equation (5) forms a conventional linear regression model. Thus, equation (2) implies the fixed effects model. The fixed effects model supposes that the differences between sections can be considered purely in terms of differences in the constant (intercept) term, such that each α_i is considered as a parameter to be estimated.

In the case where the fixed effect estimators depend only on deviations from the group means, they are sometimes known as within-group estimators (Davidson and MacKinnon, 1993). The fixed effects regression allows the researcher to use the changes in variables over time with the aim of estimating the effects of the independent variables on the dependent variable. In

addition, the fixed effects regression has commonly been the main technique used for analysis of panel data. While there are no significant temporal effects, the significant differences amongst countries can be investigated using this type of model. The fixed effects model helps to lessen the potential of heteroscedasticity problems arising from possible differences between countries.

The fixed effects model is used in this study since one of its main aims is to investigate which explanatory variables most affect intra-Arab trade, intra-Arab FDI and intra-Arab labour flows over time. In addition, the Arab countries are distinguished by different levels of economic development, technology, openness and capital sources. Therefore, fixed effects regression is very appropriate because it allows us to focus on how the differences in country characteristics affect intra-Arab trade, intra-Arab FDI and intra-Arab labour flows. There is another type of fixed effects model, which has constant slope coefficients on one hand, and intercepts that differ based on time on the other hand. In such a case, it might be that there are no significant country differences in the model. However, autocorrelation of disturbances due to time-lagged temporal effects might be present in such cases.

Although fixed effects models have advantages in terms of regression performance, they also have some drawbacks. It is quite often that fixed effects models may include too many cross-sectional units that need many dummy variables for their specification. With regard to the power of statistical tests, numerous dummy variables may cause a weakness of the model in terms of an insufficient number of degrees of freedom. In addition, when many variables are included in a model, problems of multicollinearity may lead to high estimated standard errors. Furthermore, parameter estimation may be precluded if some variables that do not vary within the groups contained in model.

The basic model specification assumes disturbances are homogeneous and normally distributed. However, there is a possibility of country-specific heteroskedasticity or autocorrelation over time. This may lead to additional nuisance estimation. On the other hand, in fixed effects models, the error terms can be correlated with the individual effects and this can be considered as one of the advantages of such models.

SPECIFICATION OF THE MODEL AND THE EMPIRICAL RESULTS

The gravity model has previously been applied to investigate bilateral trade flows. Limam and Abdalla (1989) evaluated the potential success of various Arab Free Trade Area (AFTA) agreements. They used the gravity model to explore intra-Arab exports and imports with industrial and developing countries. Al-Atrash and Yousef (2000) estimated a gravity model to address the issue of whether intra-Arab trade was too little. Bolbol and Fatheldin (2005) used an extended gravity model for analysing intra-Arab exports. Their model was estimated with two types of data: data on intra-Arab trade and Arab trade with their major world partners. They also applied their gravity model to estimate intra-Arab FDI. Their panel data fixed effects estimation over the 1997-2003 period for the Arab countries was based on the following model:

$$FDI_{ijt} = \alpha_0 + \alpha_1 Y_{it} + \alpha_2 Y_{jt} + \alpha_3 D_{ij} \quad (6)$$

Where:

FDI_{ij} is FDI flows from country i to country j .

α_0 is constant.

Y_i is real GDP of country i .

Y_j is real GDP of country j .

D_{ij} is the distance between the capital cities of country i and country j .

(t represents the period).

The model applied in this paper is also based on the gravity model. It has been developed to investigate intra-Arab FDI over the 1985-2005 period. Based on data availability, only 12 Arab countries have been included in this investigation. These countries are Algeria, Bahrain, Egypt, Jordan, Lebanon, Morocco, Oman, Saudi Arabia, Sudan, Syria, Tunisia and the United Arab Emirates.

The model to estimate takes the following form:

$$FDI_{ijt} = \alpha_0 + \alpha_1 gdp_{it} + \alpha_2 pc_{jt} + \alpha_3 inf_{jt} + \alpha_4 ppp_{jt} + \alpha_5 dum_{1jt} + \alpha_6 dum_{2jt} + \varepsilon_{ijt} \quad (7)$$

Where:

FDI_{ijt} is the FDI flows from Arab country i to Arab country j .

α_0 is a constant.

gdp_{it} represents GDP of country i in period t .

pc_{jt} represents per capita GDP of country j in period t .

inf_{jt} is the inflation rate of country j in period t .

ppp_{jt} is the power purchasing parity of country j in period t .

dum_1 represents political stability. It takes value of one if the country j is politically stable in period t , and takes the value of zero otherwise.

dum_2 represents sub-regional union in the Arab region. It takes value of one if the receiving FDI country j is a member of the GCC or AMU in period t , and takes a zero value otherwise.

The empirical results show that overall the performance of the model considered is quite good, in which R-squared is approximately 0.34; Adjusted R-squared is approximately 0.29 and Durban-Watson is approximately 2.02. As expected, the empirical results (see Tables 4 and 5) show that intra-Arab FDI significantly increases with both GDP of the source country and GDP per capita of the host country, which are both positive and significant at 1 per cent (see table 5). This reveals that when GDP of FDI source countries increases, they are able to invest more in other countries. Consequently, intra-Arab FDI increases. Likewise, as GDP per capita of the host country increases, its ability to absorb more investment increases. On the other hand, it can be seen that there is a significant negative relationship at 1 per cent between both political instability (dummy 1) and sub-regional union (dummy 2) of the host country and intra-Arab FDI. Thus, if the receiving FDI country is politically unstable, the other Arab countries (source countries) tend not to send their investment to this particular Arab country. Hence, intra-Arab FDI decreases with political instability.

Intra-Arab FDI also declines with sub-regional union (GCC, AMU). Thus, if the host country is a member of the GCC or AMU, its opportunity to receive more Arab FDI decreases due to the intra-preferential treatment between members of the relevant sub-regional union. In addition, the results show that neither inflation nor power purchasing parity of the host country affect intra-Arab FDI.

As noted previously, the Arab region have faced an unstable political and economic period since the early 1990s, including Gulf Wars I and II, developments in Iraq, the UN sanctions on Libya, and the unstable circumstances in Sudan. These events obviously affected intra-Arab FDI in the period mentioned. One noteworthy point is that the Gulf region is a very important region for most of the Arab countries as it represents a significant source of FDI.

Likewise, Libya is a very important source country of FDI, especially for the AMU countries, Sudan and Egypt. Sudan represents a vital host country of intra-Arab FDI. The unstable circumstances in the Arab region have affected GDP and GDP per capita of Arab countries, with the result that their intra-movements of capital flows have been affected.

Table 4: The Regression Results of Intra-Arab FDI, Panel Least Squares (FDI_{ij})

Dependent Variable: FDI				
Method: Panel Least Squares				
Sample: 1985 2005				
Cross-sections included: 12				
Total panel (unbalanced) observations: 245				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.64E+08	44595305	3.676653	0.0003
GDPI	1497.917	472.5952	3.169557	0.0017
PCJ	6145.268	2521.195	2.437443	0.0156
INJ	-493024	614386.6	-0.80247	0.4231
PPPJ	-4.5E+07	35792978	-1.25649	0.2102
DUM1	-8.6E+07	28163759	-3.04839	0.0026
DUM2	-6.6E+07	26222793	-2.53102	0.0121
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.337166	Mean dependent var		1.13E+08
Adjusted R-squared	0.287527	S.D. dependent var		1.77E+08
S.E. of regression	1.50E+08	Akaike info criterion		40.55817
Sum squared resid	5.09E+18	Schwarz criterion		40.81541
Log likelihood	-4950.38	F-statistic		6.792299
Durbin-Watson stat	2.019012	Prob(F-statistic)		0

Table 5: Regression Result (Panel Least Squares) Intra-Arab FDI (FDI_{ij})

Variables	<u>Significant Variables</u>	Variables	<u>Insignificant Variables</u>
	Coefficient (t-statistics)		Coefficient (t-statistics)
GDP_i	1497.917 (3.169)***	In_j	-4930 (-0.802)
PC_j	6145.268 (2.437)***	PPP_j	-4497 (-1.256)
$Dum1$	-85854 (-3.048)***		
$Dum2$	-6637 (-2.531)***		
R-Squared	0.337		
Adjusted R-Squared	0.287		
Log Likelihood	-4950		
Durbin-Watson stat	2.019		
F-statistic	6.792		

(*) indicates a significant at 10 per cent, (**) indicates a significant at 5 per cent, and (***) indicates a significant at 1 per cent.

CONCLUSION

This paper has examined intra-Arab FDI during the period 1985-2005. Since there are FDI flows between Arab countries, there is some interdependence between them. In other words, the Arab countries economically complement each other. Therefore, intra-Arab FDI can enhance Arab economic integration. Arab countries can further organize their investment

policies and procedures to provide a more conducive environment for foreign investment while being careful to avoid destabilizing capital flows (commonly referred to as "hot money"). In addition, they should improve their FDI flow systems, in particular among sub-unions members such as the GCC, AMU and Mashreq countries. Since the Arab countries receive a relatively small proportion of FDI from outside the Arab region, they should actively encourage their intra-FDI to boost economic development and hence their economic integration.

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