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Abstract

The paper analyses the determinants of intra-Arab exports and FDI during the 1997-2003 period. It does that against a background of multitude of preferential trading arrangements currently under way in the Arab world. Section II presents a brief description of intra-Arab exports, their intensity, and their comparative advantage, in addition to the main features of intra-Arab FDI. Section III develops an augmented gravity model, to assess the adequacy of Arab exports and to check the efficacy of Arab free trade arrangements at the subgroup and group levels; it also presents an estimate of the tariff equivalent reduction of adopting a common currency by the GCC. Section IV applies the same gravity equation to intra-Arab FDI. And section V concludes, the main thesis of which is that the problem with Arab exports is not the dearth of Arab free trade agreements but the deficiency of Arab export capability.

JEL Classification: C1; F2; F21; R11

Key Words: Intra-Arab Exports; Intra-Arab FDI; Gravity Model; Regional Economic Integration.

I – Introduction

Does the Arab world constitute a natural trading arrangement? Or does it resemble a supernatural arrangement driven by preferential margins arising from freer trade?[1] The correct answer is that it is neither. The Arab world does not really constitute a proximate entity – it straddles two continents covering a distance of 6,370 km from Rabat on the Atlantic to Muscat on the Gulf [2]. And it has engaged since 1997 in a Greater Free Trade Area to be completed in 2005, yet intra-Arab trade remains today at less than 10%[3]. The reason usually given for such a low ratio of intra-Arab trade – if we were to exclude the imperfections of the free trade agreement – is the lack of product complementarity among the Arab countries[4]. But the interesting thing is that trade is strongest among members of Arab subgroups whose factor endowments are presumably similar: 75% of GCC's intra-Arab trade is with other GCC members, and the

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1 Natural trading blocks are those whose trade follows the "natural" lines dictated by proximity; see Krugman (1991). Supernatural trading blocs, however, are those between natural trading partners, but would be welfare reducing because of high *intra*-block preferences and low *inter*-bloc transport costs (between 10-20%); see Frankel et. al (1995).

2 To put this in perspective, the distance from Rabat to Paris is 1,814km; whereas the distance from Muscat to New Delhi is 1,940km.

3 The free trade agreement involves average annual reductions in tariffs of more than 10%. However, it does not include services and is marred by many exceptions to free trade in manufactures and agricultural goods; see AMF (2004) for more details on this agreement.

4 See Fischer (1993) and Saidi (2005).

corresponding ratio for AMU (or Maghreb) and Mashreq members' trade is 65% and 35% respectively[5]. This tends to indicate two things: first, at less than 10%, freer intra-Arab trade is not proving at all to be trade diverting and hence welfare reducing[6]; second, and perhaps more important, Arab trade integration is better approached initially at the subgroup level (and explained as an outcome of proximity and potential product diversity) and then gradually developed to encompass the whole Arab group, not dissimilar – however inapt the comparison – to EU development. Needless to say, this surely requires a strengthening of the Arab export base and steady increases in income levels – something that can be helped by capital flows especially foreign direct investment (FDI)[7].

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5 See Al-Atrash and Yousef (2000) for more on this point. The GCC is the Gulf Cooperation Council, formed in 1981, and it comprises Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE; AMU (or the Maghreb) is the Arab Maghreb Union and it consists of Algeria, Libya, Mauritania, Morocco, and Tunisia; and the Mashreq includes Egypt, Jordan, Lebanon, and Syria.

6 In this context, Frankel et. al (1995) argue that preferential trading arrangements with preferences below 100% is *superior* to free trading arrangements. This is of course in "contradiction" with GATT's article 24 that calls for 100% preferences.

7 Higher income levels encourage intra-industry trade based on product differentiation; and it represents more than 60% of trade in developed countries.

Capital flows of course represent the second pillar of integration among the Arab countries[8]. In the case of FDI, one third of the average $4.6 billion in annual FDI flowing to the Arab region during the last decade was intra-Arab – in other words, three times higher than the ratio for intra-Arab trade[9]. And the importance of FDI stems from its stability; its addition to investment; and its technological and managerial spillovers: horizontal spillovers to domestic firms in other industries and vertical spillovers to upstream and downstream firms within the industry[10]. FDI can also contribute to more trade. Initially, market-seeking FDI was seen as a substitute for exports, driven by the trade-off between additional fixed costs of an overseas plant against the trade and transport costs of servicing overseas markets from home[11]. But the recent spate of globalization trends involves, to a large extent, the "integration of trade and the disintegration of production"[12]. This means more room for efficiency-seeking FDI, stimulated by variable (labor) costs considerations, and aimed at vertical production of component parts and /or production of final goods for export

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8 A third pillar of integration is labor migration. At least in the GCC countries, Arab labor represents a quarter of the 12 million in expatriate labor, sending to their home countries more than $12 billion in remittances annually; see Yousef (2005).

9 See Bolbol and Fatheldin (2005).

10 However, in global terms, the rapid productivity growth of related domestic firms has been slow to accrue; see Mody (2004).

11 See Brainard (1997) and Markusen and Venables (1995).

12 See Feenstra (1998) for more on this issue.

destinations[13]. The end result is that FDI engenders more trade not less. This complementarity relation between FDI and trade could be of special significance to the Arab world, since translating some of its surplus/flight capital ($400 billion at a minimum) to FDI boosts both needed investment and trade[14].

What we intend to do in this paper is to provide an evaluation of the above observations through an analysis of the determinants of intra-Arab exports and FDI during the 1997-2003 period. We will do that against a background of multitude of preferential trading arrangements currently under way in the Arab world[15]. In what follows, section II presents a brief

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[13] A third type of investments is asset-seeking, which aims at investments in natural resources and infrastructures destined to serve the home and foreign markets; see Faini (2004) for more on the relation between FDI types and trade.

[14] See Bolbol and Fatheldin (2005) on the estimate of surplus/flight Arab capital.

[15] The Arab countries included in the study are members of the GCC, AMU and the Mashreq, in addition to Sudan and Yemen. As to free trade agreements besides the Greater Arab Free Trade Area, GCC and AMU, the Arab world is involved in the following: association agreements with the EU, including Algeria, Jordan, Lebanon, Tunisia, and Morocco – with pending agreements with Egypt and Syria; a free trade agreement with the US and Jordan, and yet to be ratified agreements with each of Bahrain and Morocco; the Agadir agreement, including Egypt, Jordan, Morocco, and Tunisia; and WTO membership covering Bahrain, Djibouti, Egypt, Jordan, Kuwait, Mauritania, Morocco, Oman, Qatar, Tunisia, and UAE. Among intra-Arab agreements, the GCC customs union is widely recognized as the most successful; see Hoekman and Konan (2005) for a discussion of these agreements and more.

description of intra-Arab exports, their intensity, and their comparative advantage, in addition to the main features of intra-Arab FDI. Section III develops an augmented gravity model, to assess the adequacy of Arab exports and to check the efficacy of Arab free trade arrangements at the subgroup and group levels; it also presents an estimate of the tariff equivalent reduction of adopting a common currency by the GCC. Section IV applies the same gravity equation to intra-Arab FDI. And section V concludes, the main thesis of which is that the problem with Arab exports is not the dearth of Arab free trade agreements but the deficiency of Arab export capability.

II – Intra-Arab Exports and Direct Investments

We begin by first outlining the relative importance of intra-Arab exports for each country. Table (1), part A, shows the ratio of intra-Arab exports by country to total intra-Arab exports, and it is clear that two of the largest economies, Saudi Arabia and UAE, dominate more than 50% of intra-Arab exports. Egypt, being the third largest Arab economy, has a surprisingly low ratio, at 3.7%, partly due to its more restrictive trade regime. Part B reports the ratio of intra-Arab exports to total exports for each country, and we can see that the small, clustered Mashreq countries of Jordan, Lebanon, and Syria have the highest ratios, although Oman and especially Sudan have high ratios as well. Note also the significant decline in Jordan's share (by almost half) during the period, mostly due to its trade

re-orientation towards the EU and the US as a result of its free trade agreements with each in 2002 and 2001 respectively.

But what is the export capability of the Arab countries that underlie their intra-Arab exports? A standard measure to gauge this capability is revealed comparative advantage (RCA), which measures the ratio of a country's share of world exports in a given good to the country's share of world exports in all goods[16]. An RCA > 1 and large means that the country has a strong comparative advantage in the given good and is a net exporter of it. Table (2) reveals a general weakening in Arab comparative advantage in most of the merchandise export categories over the years 1995, 2000, and 2003. Aside from food (especially important for Sudan and Syria) and fuel (naturally important for Algeria, GCC, and Yemen), there is a modest comparative advantage in ores and metals, chemicals, and textiles and clothing under other manufactures (reasonably important for Egypt, Jordan, Morocco, and Tunisia)[17]. Hence, we can roughly conceive of Arab merchandise exports as a ladder in which capital-intensive goods (chemicals) constitute the upper rung, labor-intensive goods (clothing and textiles) constitute the lower rung, and ores and

[16] In other words, RCA gives the importance of a country's exports of one good relative to all others on the world market; see Bolbol (1999) for more on its usage in the Arab context.

[17] The comparative advantage in clothing and textiles is expected to decline starting in 2005 because of the elimination of quotas under the multi-fiber agreement to the advantage of countries like China and India.

metals constitute the middle rung. As important, freer trade based on the above differences in factor intensities should increase intra-Arab exports in these product categories – because they are relatively price elastic – and occasion little trade diversion. But, no doubt, the Arab countries still have a lot of upgrading to do to their exports, so as to increase the share of manufactures in total and intra-Arab exports, especially in machinery and medium-skill technology goods[18].

What are the configurations of Arab trade intensities at the individual and subgroup levels that could act as guiding steps for eventual Arab trade integration? We can use the trade intensity index (TII) to assess the extent of Arab trade connections, which gives the ratio of the share of trade with Arab country *j* in the total trade of Arab country *i* to the share of country *j*'s trade in total Arab (world) trade. If TII > 1, then the degree of trade intensity between the two Arab countries *i* and *j* is higher than between the Arab (world) and country *j*. Tables (3) and (4) present the latest (2003) TII for the Arab countries with reference to total Arab and world trade respectively[19]. Three important findings emanate from the tables: first, trade is rather intense among AMU members; trade is more intense among GCC members (and Yemen); and trade is most intense among Mashreq

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[18] Close to 48% of intra-Arab exports are non-primary products; and close to 20% of total exports are in manufactures against a developing countries' advantage of 60%; see AMF (2004).

[19] Note that the TII in table (3) are smaller than those in table (4) because of the smaller share of country *j*'s trade in total world trade

members (and Sudan), who in turn have intensive trade with AMU and, more so, with the GCC. This means that Mashreq countries would represent the best *natural* trading partners and, perhaps already, the most viable trading arrangement (with even better prospects if Iraq is included in the future)[20]. But since they constitute the middle grounds between AMU and the GCC, they probably hold the key for a successful Arab free trade area, especially by drawing AMU more towards the Arab east.

Parallel to the movement in goods, there has been a concomitant flow of intra-Arab FDI, driven largely by oil-based surplus capital and remittances on the one hand, and fundamentals and relations on the other hand. As a means to gauge the extent of such investments, table (5) presents intra-Arab FDI for each country. The table shows that intra-Arab investments are clearly on an upward trend and their total reached about $16.8 billion during the period, equivalent to one third of aggregate foreign direct investments[21]. Also, intra-Arab investments display no fluctuations thus indicating their relative stability and hence their reliability. Given that intra-Arab investments averaged $2.4 billion annually, and considering that the estimated annual average of Arab capital outflows amounted to a minimum of $26 billion, then this shows that less than one tenth of those

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[20] The average distance among Mashreq countries is 362km; among GCC countries 625km; and among Maghreb/ AMU countries 1,092km.

[21] Interestingly, the proportion of direct intra-Arab investments in South and South-East Asia was also one third of aggregate investments in that region; see UNCTAD (1999).

outflows go to other Arab countries[22]. In value terms, as table (6) shows, Egypt, Lebanon, Saudi Arabia, Sudan, and UAE host the largest intra-Arab investments. As to countries exporting such investments, as expected, oil countries and particularly Kuwait, Saudi Arabia, and the UAE are the largest exporters, followed perhaps unexpectedly by two Mashreq countries, namely Jordan and Syria. And in terms of sectoral distribution, close to 52% go to the service sector and 38% to the industrial sector.

The preceding analysis does not provide a full picture of the relative share of each country in aggregate foreign investments compared with intra-Arab investments. The appropriate corresponding numbers are presented in table (7), which reveals the following important observations. First, the share of Lebanon, Libya, Saudi Arabia, Sudan, Syria, UAE, and Yemen in intra-Arab investments is higher than their corresponding shares in aggregate foreign investments. But the opposite is true for the group of other countries which includes Algeria, Bahrain, Egypt, Jordan, Morocco, and Qatar. This demonstrates that the determinants of direct investments vary with the latter's identity since the determinants of foreign investments are mostly governed by economic fundamentals, whereas the determinants of intra-Arab investments are mostly driven by factors related to proximity and relationships. Second, the share of GCC countries (except for Bahrain and UAE) in intra-Arab investments is lower than

[22] See Bolbol and Fatheldin (2005) for more on these estimates.

their respective GDP shares in aggregate Arab GDP. By comparison, the shares of the other Arab countries (except for Egypt, Jordan, Algeria, Libya, and Morocco) in intra-Arab investments is higher than their respective shares in aggregate Arab GDP. Obviously, this is due to the fact that the GCC countries are more exporters than hosts of intra-Arab investments. Third, except for Algeria, Jordan, and Oman, there is a modest correlation between the share of each country in intra-Arab investments and its share in intra-Arab exports.

III – Gravity Model: Intra-Arab Exports

A careful analysis of intra-Arab exports and the implications for the different configurations of Arab trade intensities requires a more rigorous empirical study. The workhorse for such studies has been the gravity model. When initially applied, the model lacked a theoretical structure[23]. What follows is a brief note that captures the theoretical background to the gravity equation and prepares it for estimation.

Define exports of a country i to country j, X_{ij}, as the fraction, S_{ij}, of country j's income, Y_j, that is spend on goods from country i. Hence:

$$(1) \qquad X_{ij} = S_{ij} Y_j$$

[23] See Evenett and Keller (2002) for issues related to the development of the gravity model.

If preferences are identical and homothetic, and if world markets are integrated with frictionless trade, then Deardorff (1998) has shown that S_{ij} is equal to the share of country *i*'s GDP, Y_i, in world output, Y_w. However, these conditions are yet to be observed in the world economy, and trade flows as a result are restricted by a set of restraining factors, t_{ij}. As a result:

$$(2) \qquad S_{ij} = (Y_i / Y_w) / t_{ij}$$

Replacing (2) in (1) and taking natural logarithm, we get:

$$(3) \qquad \ln X_{ij} = \ln (Y_i Y_j / Y_w) - \ln t_{ij}$$

We formulate an augmented version of (3) that includes an economic freedom index, EF, which indicates market friendliness and openness; a set of dummy variables, δ_k, which reflects the adequacy of trade intensities among subgroups; a proxy for t, traditionally expressed by bilateral distance, d; and, naturally, Y_i and Y_j which reflect, respectively, supply and demand factors in the country of origin and destination (see Appendix I for data sources and definitions). Specifically:

$$(4) \qquad \ln X_{ij} = c + \ln Y_j + \ln Y_j - \ln d_{ij} - EF_i - EF_j + \sum_k \delta_{kij}$$

We estimate the model with two data sets, one for trade among the Arab countries and one for trade with their major world trading partners (see Appendix I for country coverage). The model utilizes a panel data

approach, covering the Arab countries under study over the 1997-2003 period and with fixed-year effects. In models 1-4 we introduce a dummy for each of the GCC, Maghreb (MAG), and Mashreq (MAS) subgroups; a dummy for each one of the them with the other; and a dummy for each of GCC and Yemen (YEM) and for Sudan (SUD) alone. The results are very interesting, and the prominent ones are as follows. First, the basic variables of the gravity model (Y and d) carry the expected sign. However, with income elasticities at less than one, Arab exports seem to be characterized by limited product differentiation[24]. Second, economic freedom as a stimulus for intra-Arab exports seem to matter more in the origin country, which highlights the importance of unilateral, *home* reforms. Third, of all the three Arab subgroups, intra-Arab exports of the Mashreq countries seem to be just about right or as determined by the natural fundamentals of the gravity model. However, intra-Arab exports of the GCC and AMU are more than warranted by the gravity model – especially for the GCC which trades more than two times as much (exp 0.76 = 2.13), no doubt a result of its deliberate policy towards establishing a customs union by 2003. It also makes sense for the GCC to incorporate Yemen into its trading arrangement in the future, given that Yemen's exports with the GCC is as active as the GCC's intra-exports (exp 0.77 = 2.16). Fourth, and more important, Mashreq-Maghreb and GCC-Maghreb intra-exports are *more* than expected within the Arab set, but *less* than

[24] See Feenstra et. al (2001) on the relation between income elasticities and product differentiation.

expected within the world set. This indicates that policies designed to enhance exports among members of each subgroup will accomplish that *without* trade diversion from the rest of the world but *with* meaningful trade creation. In this respect, strengthening Mashreq-Maghreb intra-exports is crucial for solidifying the Arab free trade area, given the already active Mashreq-GCC intra-exports. Fifth, although Sudan's intra-Arab exports are more than warranted within the Arab set, they are less so once trade is opened to the world set. This is in fact not surprising, given that most of Sudan's northern, north-western, and north-eastern trade routes are all in neighboring Arab countries – and, hence, it is expected to trade more with them.

In models 5 and 6 in table (8), we assess trade adequacies at the regional grouping level and check their implications for freer trade. To this end, we introduce new dummy variables that include a dummy for the Arab world; the Arab world and its subgroups with each of the US, EU, and Asia; the EU and Tunisia (TUN), the latter being the country with the oldest free trade agreement with the EU since 1997; and the US and Jordan (JOR), because Jordan is the only *effective* free trade agreement between the US and an Arab country. Two results emerge from models 5 and 6. First, the Arab countries do not export enough among themselves – in fact, they export close to four times less than what they should (exp 1.35 = 3.85); and this inadequacy is driven largely by limited trade between Maghreb-GCC and Maghreb-Mashreq. Second, the same is even more true between

Arab-EU exports, partly an outcome of the EU's increasing orientation towards Eastern Europe[25]. As a result, Arab free trade agreements and association partnerships with the EU are bound to be trade creating – although, as the negative coefficient for the EU-Tunisia dummy indicates, this is going to take long and be difficult.

And to check whether there has been an improvement over the years in the export deficiencies reported above, table (9) presents the coefficients for ARAB, TUN-EU, and JOR-US based on annual cross-sectional runs of model 5 (of table (8)). Since its inception in 1997, the Arab free trade area has contributed to a noticeable reduction in the deficiency of intra-Arab exports (smaller negative ARAB coefficient). But that is not the case for the EU association agreement with Tunisia, as reflected by the insignificant changes in the TUN-EU coefficient and the stable ratio of Tunisian exports to the EU. The interesting result, however, relates to the JOR-US coefficient. The year the agreement took effect in 2001, the coefficient turned significant and larger and the ratio of Jordan's exports to the US doubled to 21.5% – not withsatnding the resulting possibility of trade diversion, however[26].

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[25] These results agree with the results obtained by Al-Atrash and Yousef (2000) and Mehanna (2002).

[26] The same is true for trade ratios. Tunisia's trade ratio with the EU stayed at 70%, while Jordan's with the US increased from 8 to 22%.

The last thing that is worth looking at in this section is the expected effect of the GCC's currency union, scheduled to begin in 2010[27].Of course, we can not calculate these effects in a direct way because the currency union is yet to materialize, but Anderson and van Wincoop (2003) develop a model where we can estimate the tariff equivalent of trade and monetary barriers (see Appendix II for full details of the model). Table (10) reports the results of the model, estimated using exports to the world data set and country-fixed effects. As per the model, the coefficient for the GCC dummy 0.67 is equal to $(\sigma-1) \ln b$. Hummel (2000) provides a reasonable estimate of $\sigma = 5$; hence, $b = 1.18$ and $b-1 = 0.18$. With the GCC currently in the customs union stage of its economic integration, this means that the customs union effect is equivalent to a tariff reduction of 18% among its members. Rose and van Wincoop (2001) estimate the global currency union effect at 26% tariff reduction equivalence. So, if we assume that the currency union is the next stage of economic integration, then we can reasonably argue that its marginal effect on GCC intra-exports is equivalent to an additional 8% in tariff reductions.

[27] Currency unions among different countries can increase trade by close to three times more than expected, according Glick and Rose (2002); and by more than twenty times among provinces of the same country, according to McCallum (1995).

IV – Gravity Model: Intra-Arab FDI

Concomitant with the global increase in exports at 6% annually over the last decade, there has been a parallel increase in FDI at the same rate. Both were also driven by largely the same forces and shared some common features: income growth, trade and capital account liberalization, vertical production methods; and more intensity between countries with similarly high income levels. Given this common evolution, the gravity equation may be useful in modeling intra-FDI flows as well.

There is however no formal theory that can derive the basic gravity model for FDI[28]. But we can postulate a positive relation with home country income because of the more available investable capital that higher income engenders; and a positive relation with host country income due to the incentive to serve the richer overseas market. The relation with distance however could go either way: positive if FDI substitutes for exports because of higher transport costs, and negative if longer distances breed unfamiliarity with local cultures and incur higher operational costs.

Accordingly, we use equation (4) to estimate a similar model for intra-Arab FDI (ln FDI_{ij}), but for flows among the Arab countries only[29]. The

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[28] See Markusen (2002) for analytical background; and see Brenton et. al (1999) and Frankel and Wei (1996) for applications.

[29] Data availability necessitates using the Arab set only.

estimation is also for a panel data over the same countries and time period and with fixed-year effects. The results are presented in table (11). Income elasticities are as expected positive for both the home and host countries, but smaller than those for intra-Arab exports. Distance comes with a negative coefficient, indicating the importance of proximity and familiarity with the investment climate[30]. Economic freedom is no longer significant, primarily because of the importance of relationships and connections for these flows, not simply fundamentals. Of the dummies, only the ones involving the GCC with each of the Mashreq and Maghreb are positive and significant, and not surprisingly reflecting the deep pockets of GCC investors. What is surprising, though, is that the large positive coefficient for Sudan – Arab FDI to Sudan is more than six times what it should be.

An interesting question is, what sort of relation exists between intra-Arab FDI and exports? Theoretically, market-seeking FDI reduces home country exports and efficiency-seeking FDI increases its imports – thus imposing the onus of FDI-induced trade adjustments on the home country. However, almost all the evidence indicates that home country exports increase because of higher exports of intermediate goods and complementary final products, and because of efficiency improvements

[30] It could also be due to the lower transport costs in the re-export of goods produced back to the home country.

ala better alignment of comparative advantage[31]. So how well does the available evidence corroborate with the Arab experience? We check that using two methodologies. First, we include the logarithm of the stock of FDI (ln $SFDI_{ij}$) as an independent variable in equation (4), and we can see from table (12) that the effect is significant but weak – a doubling of FDI stock increases intra-Arab exports by 7% only. Second, we assume that if intra-Arab FDI and exports are complementary, then exports should be higher than normal – as determined by the gravity model – whenever FDI is higher than normal as well. Hence, we should expect using this approach that the coefficient of the FDI residuals (RES_{ij}), as an independent variable in the gravity equation (4) for exports, to be positive[32]. Table (13) provides the estimation results, and the residuals coefficient is positive but small and insignificant. This means that, though intra-Arab FDI could be more than predicted, it does not generate a meaningful corresponding increase in intra-Arab exports. The main reason behind this result is that the majority of intra-Arab FDI is in the non-tradable service sector, in addition to the paucity of Arab multinationals involved in vertical production networks.

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[31] See Fontagne (1999).

[32] See Brenton et. al (1999) and Graham (1996) for more on this methodology.

V – Conclusion

Intra-Arab exports are currently a modest 10% or less, double what they were two decades ago. Put in perspective, perhaps this might be ok: after all, it took the EU twice the time to double its ratio to 60%, a union that had managed to dismantle all trade barriers among its members and had a rich economic base to start with. But the Arab countries should do better. Intra-Arab exports are below normal, and Arab free trade agreements could increase exports without the risk of trade diversion. And for these agreements to be worth more than the ink on their paper, they need commitment, persistence, and follow-up towards their full fruition. The deficiency in intra-Arab exports mainly arises from the lack of enough exports between the GCC-Maghreb and Maghreb-Mashreq countries. So efforts to integrate the *Maghreb* more towards the Arab economic center are essential, and in this respect trade agreements among these Arab subgroups like the Agadir agreement are a welcome necessity.

Not only intra-Arab exports are less than expected, but the same is true for EU-Arab exports. Hence, the EU partnerships could similarly prove to be trade creating. But what these results tend to imply is that the problem does not lie in the dearth of free trade agreements and preferential openness, but in the deficiency of Arab export capability. The latter seem to depend primarily on internal reforms that better align and nurture the country's incentives and structure with its international comparative

advantage. Interestingly, free trade agreements with the US are showing signs of substantial trade creation, facilitated by preferential industrial zones. In this respect, free trade agreements between the US and each of Bahrain and Morocco are worth the attempt.

As to intra-Arab FDI, it can be explained as well by the fundamentals of the gravity model. But, it is also driven by relationships, and emanates primarily from the GCC. It has contributed to intra-Arab exports but not significantly, due to its dominance in the service sector. This implies that what matters more in terms of FDI is its efficiency and type. Solving this matter, however, is surely not easy: it needs an entrepreneurial class of Arab investors that have to be more creative with surplus capital, move it easily across borders, and ship it to the world in the form of more and better diversified exports – in other words, perhaps nothing short of a small but doable miracle.

Tables

Table (1): Intra-Arab Exports

Part A: Ratio of Intra-Arab Exports for Each Country to Total Intra-Arab Exports (%)								
	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**Average**
Algeria	1.21	0.85	1.46	1.77	3.23	2.51	2.73	**1.97**
Bahrain	3.03	3.84	3.60	3.24	3.16	3.26	3.24	**3.34**
Egypt	3.25	3.84	2.99	4.29	3.19	3.99	4.19	**3.68**
Jordan	3.98	3.67	3.42	2.84	3.33	3.57	3.36	**3.45**
Kuwait	2.14	2.21	2.99	2.63	2.88	2.79	2.81	**2.64**
Lebanon	2.34	2.51	2.03	1.92	2.19	2.15	2.13	**2.18**
Libya	2.43	3.41	2.50	2.90	3.11	2.75	2.78	**2.84**
Morocco	2.26	1.63	2.21	1.54	1.51	1.61	1.48	**1.75**
Oman	6.91	8.35	7.80	8.41	7.56	8.11	6.37	**7.64**
Qatar	1.68	1.94	1.95	4.72	3.01	4.37	3.54	**3.03**
Saudi Arabia	45.92	36.08	37.67	34.62	32.62	32.07	32.56	**35.93**
Sudan	1.19	1.55	1.65	1.25	1.26	1.22	3.68	**1.69**
Syria	4.81	6.07	5.42	4.93	8.98	7.66	7.57	**6.49**
Tunisia	2.83	2.69	3.11	3.21	3.34	3.51	3.42	**3.16**
UAE	15.51	20.30	20.08	20.50	19.50	18.53	18.28	**18.96**
Yemen	0.51	1.07	1.11	1.24	1.11	1.91	1.84	**1.26**
Part B: Ratio of Intra-Arab Exports to Total Exports for Each Country (%)								
Algeria	1.25	1.12	1.53	1.33	2.90	2.37	2.23	**1.82**
Bahrain	6.88	7.86	7.35	6.60	6.42	6.79	6.40	**6.90**
Egypt	11.77	15.90	11.29	10.53	12.66	9.97	10.38	**11.79**
Jordan	42.27	39.23	36.97	34.14	23.90	22.54	22.43	**31.64**
Kuwait	2.05	2.85	3.14	2.16	2.90	3.06	2.96	**2.73**
Lebanon	46.56	46.39	40.14	41.48	36.57	37.81	36.74	**40.81**
Libya	3.59	7.48	4.20	3.51	4.49	4.83	4.14	**4.61**
Morocco	6.24	4.64	3.62	3.19	3.50	3.40	3.22	**3.97**
Oman	13.06	20.52	14.69	12.16	11.64	12.75	12.65	**13.93**
Qatar	4.32	5.28	4.20	6.28	4.55	6.96	5.44	**5.29**
Saudi Arabia	10.72	12.31	10.30	7.25	7.87	8.41	7.76	**9.23**
Sudan	33.10	37.81	31.34	12.53	11.26	10.81	29.04	**23.70**
Syria	9.36	27.74	20.93	16.03	24.11	20.76	24.87	**20.54**
Tunisia	6.95	6.18	5.72	7.52	6.91	7.62	7.35	**6.89**
UAE	7.02	10.39	9.55	7.79	8.10	8.36	7.57	**8.40**
Yemen	2.92	9.45	6.07	4.68	5.44	10.23	8.51	**6.76**
Total	**8.03**	**10.33**	**8.47**	**6.74**	**7.57**	**7.98**	**7.52**	**8.09**

Source: International Monetary Fund, *Direction of Trade Statistics* (2004).

Table (2): Revealed Comparative Advantage

	Food	Agricultural Raw Materials	Fuels	Ores & Metals	Manufactured Goods	Manufactured Goods of which:		
						Chemicals	Machinery & Transport Equipment	Other
Part A: 1995								
Algeria	0.13	0.04	12.69	0.42	0.04	0.12	0.01	0.05
Bahrain	0.31	0.04	6.97	21.58	0.26	0.63	0.04	0.44
Egypt	1.09	2.26	4.97	5.33	0.54	0.60	0.02	1.32
Jordan	2.48	0.67	0.00	16.50	0.74	2.74	0.34	0.60
Kuwait	0.03	0.00	12.63	0.25	0.06	0.21	0.04	0.05
Lebanon	..	..	..	..	..	..	..	..
Morocco	3.49	1.26	0.29	9.58	0.69	2.14	0.08	1.07
Oman	0.53	0.00	10.48	1.50	0.19	0.04	0.25	0.15
Qatar	0.04	0.00	10.69	0.17	0.26	1.15	0.03	0.26
Saudi Arabia	0.10	0.04	11.57	0.50	0.16	0.87	0.03	0.09
Sudan	4.81	17.07	0.04	0.33	0.08	0.00	0.00	0.24
Syria	1.37	2.59	8.33	0.67	0.23	0.06	0.02	0.62
Tunisia	1.09	0.22	1.13	1.42	1.07	1.23	0.25	2.26
Yemen	0.30	0.22	12.57	0.42	0.03	0.01	0.02	0.03
Part B: 2000								
Algeria	0.03	0.05	9.62	0.30	0.02	0.08	0.00	0.02
Bahrain	0.13	0.05	7.11	16.00	0.14	0.26	0.02	0.29
Egypt	1.18	0.63	6.24	5.80	0.28	0.82	0.00	0.56
Jordan	1.94	0.32	0.00	11.10	0.99	2.30	0.46	1.38
Kuwait	0.04	0.05	9.17	0.20	0.08	0.46	0.02	0.03
Lebanon	2.56	0.95	0.02	6.90	0.88	1.42	0.29	1.68
Morocco	2.99	1.05	0.36	8.70	0.86	1.29	0.27	1.70
Oman	0.50	0.00	8.09	0.90	0.17	0.09	0.20	0.14
Qatar	0.01	0.00	8.77	0.10	0.14	0.57	0.03	0.15
Saudi Arabia	0.08	0.05	8.97	0.10	0.10	0.58	0.02	0.06
Sudan	2.31	2.47	6.54	0.50	0.10	0.01	0.13	0.09
Syria	1.22	2.42	7.49	0.70	0.10	0.03	0.00	0.31
Tunisia	1.21	0.37	1.19	1.50	1.03	1.12	0.32	2.22
Yemen	0.29	0.21	9.46	0.10	0.01	0.03	0.01	0.01
Part C: 2003								
Algeria	0.03	0.00	9.51	0.36	0.02	0.08	0.00	0.02
Bahrain	0.13	0.06	6.87	15.27	0.15	0.28	0.06	0.26
Egypt	1.12	3.78	4.18	2.82	0.41	0.68	0.02	0.92
Jordan	1.88	0.17	0.02	11.45	0.88	1.80	0.27	1.49
Kuwait	..	..	..	..	..	..	..	..
Lebanon	1.99	0.78	0.02	6.73	0.70	0.78	0.32	1.29
Morocco*	2.87	0.89	0.38	8.09	0.85	1.06	0.31	1.67
Oman	0.73	0.00	7.49	0.73	0.21	0.11	0.23	0.21
Qatar*	0.01	0.00	8.93	0.10	0.17	0.57	0.04	0.19
Saudi Arabia*	0.12	0.11	8.82	0.30	0.17	0.77	0.04	0.11
Sudan*	2.34	2.95	7.10	0.30	0.04	0.02	0.04	0.06
Syria*	1.75	1.89	7.41	0.79	0.10	0.04	0.01	0.27
Tunisia	1.01	0.50	0.83	1.36	1.09	0.86	0.41	2.33
Yemen	..	..	..	..	..	..	..	..

* RCA reported for year 2002.

Source: World Trade Organization, *International Trade Statistics* (2004).

Table (3): Intra-Arab Export Intensity Indices, 2003 (relative to Arab world trade)[1]

From *i* \ To *j*	Jordan	UAE	Bahrain	Tunisia	Algeria	Saudi Arabia	Sudan	Syria	Oman	Qatar	Kuwait	Lebanon	Libya	Egypt	Morocco	Yemen
Jordan	*	2.91	0.69	0.77	9.78	5.70	5.28	14.93	0.80	4.59	2.71	4.80	2.41	1.56	0.14	1.63
UAE	0.67	*	0.34	0.16	0.55	1.20	0.89	0.53	4.61	2.01	1.22	0.35	0.22	0.47	0.12	2.18
Bahrain	0.56	1.20	*	0.29	1.10	2.04	0.68	0.25	0.40	1.18	1.30	1.90	0.12	0.31	0.14	0.74
Tunisia	0.47	0.05	0.08	*	6.69	0.33	0.04	0.19	0.00	0.02	0.01	0.13	17.46	0.62	1.76	0.01
Algeria	0.33	0.01	0.00	1.80	*	0.00	0.00	0.17	0.00	0.00	0.14	0.14	0.16	1.34	1.81	0.00
Saudi Arabia	0.82	0.94	2.73	0.43	0.18	*	1.47	0.86	0.32	1.19	1.38	0.71	0.02	1.64	1.87	1.00
Sudan	3.55	4.12	1.71	0.26	0.03	18.64	*	3.09	0.10	0.31	0.18	2.04	0.68	4.26	0.04	0.00
Syria	6.97	5.78	0.29	0.32	10.69	3.66	1.18	*	0.00	1.94	2.49	18.27	2.26	1.73	0.67	0.38
Oman	2.48	5.96	0.24	0.19	0.05	2.07	0.97	0.57	*	1.54	0.90	0.11	1.47	0.15	0.03	1.32
Qatar	0.26	2.11	0.31	0.03	0.08	1.60	0.08	0.96	0.15	*	0.52	0.09	0.03	0.32	0.16	0.05
Kuwait	0.42	0.42	0.11	0.23	0.03	0.55	0.09	0.61	0.18	0.41	*	0.30	0.00	0.54	0.08	1.91
Lebanon	19.15	7.60	0.84	1.58	11.69	8.11	2.46	15.53	0.44	4.41	5.31	*	2.31	4.39	1.98	0.80
Libya	0.09	0.03	0.00	9.51	0.08	0.00	0.04	1.06	0.02	0.00	0.05	0.25	*	0.59	1.56	0.00
Egypt	3.47	0.95	0.04	2.09	3.73	2.21	6.49	4.39	0.09	0.32	0.48	2.58	2.47	*	1.12	1.33
Morocco	0.78	0.08	0.01	1.87	1.00	0.83	0.00	1.00	0.02	0.00	0.07	0.25	2.79	0.62	*	0.07
Yemen	0.16	1.66	0.45	0.07	0.10	2.54	0.28	0.12	0.64	0.05	5.44	0.03	0.00	0.73	0.02	*

1) Defined as $(X_{ij} / X_i) / (X_{Aj} / X_A)$, where X_{ij} is exports from Arab country *i* to Arab country *j*; X_i is total exports of country *i*; X_{Aj} is exports of the Arab countries to *j*; and X_A is total Arab exports.

Source: Same as table (1).

Table (4): Intra-Arab Export Intensity Indices, 2003 (relative to world trade)[1]

From *i* \ To *j*	Jordan	UAE	Bahrain	Tunisia	Algeria	Saudi Arabia	Sudan	Syria	Oman	Qatar	Kuwait	Lebanon	Libya	Egypt	Morocco	Yemen
Jordan	*	5.50	7.79	1.63	10.02	10.20	24.63	37.54	7.21	12.92	9.51	18.00	8.23	3.60	0.28	14.27
UAE	1.76	*	3.81	0.35	0.56	2.14	4.16	1.32	41.76	5.64	4.30	1.33	0.76	1.08	0.23	19.09
Bahrain	1.47	2.27	*	0.61	1.13	3.65	3.19	0.62	3.65	3.32	4.57	7.13	0.40	0.73	0.27	6.53
Tunisia	1.23	0.09	0.91	*	6.85	0.58	0.20	0.49	0.04	0.04	0.04	0.49	59.48	1.44	3.46	0.10
Algeria	0.87	0.01	0.00	3.78	*	0.00	0.00	0.43	0.00	0.00	0.50	0.52	0.53	3.10	3.57	0.00
Saudi Arabia	2.15	1.77	30.55	0.90	0.19	*	6.85	2.17	2.91	3.33	4.85	2.66	0.06	3.80	3.69	8.73
Sudan	9.34	7.78	19.13	0.55	0.03	33.37	*	7.76	0.89	0.87	0.64	7.65	2.32	9.85	0.08	0.00
Syria	18.34	10.93	3.27	0.68	10.95	6.54	5.52	*	0.00	5.45	8.74	68.46	7.71	3.99	1.31	3.33
Oman	6.52	11.26	2.70	0.41	0.05	3.71	4.51	1.44	*	4.33	3.16	0.41	5.00	0.34	0.05	11.58
Qatar	0.69	3.98	3.44	0.05	0.08	2.86	0.40	2.40	1.37	*	1.82	0.33	0.10	0.74	0.31	0.44
Kuwait	1.12	0.78	1.28	0.48	0.03	0.99	0.41	1.53	1.61	1.16	*	1.12	0.00	1.25	0.16	16.71
Lebanon	50.43	14.37	9.45	3.33	11.98	14.52	11.46	39.07	4.00	12.40	18.65	*	7.87	10.14	3.89	7.04
Libya	0.25	0.05	0.00	20.01	0.08	0.00	0.19	2.68	0.19	0.00	0.16	0.95	*	1.37	3.08	0.00
Egypt	9.14	1.79	0.48	4.40	3.82	3.96	30.30	11.05	0.79	0.91	1.69	9.65	8.43	*	2.21	11.69
Morocco	2.06	0.15	0.14	3.93	1.02	1.48	0.00	2.51	0.14	0.00	0.23	0.93	9.51	1.44	*	0.61
Yemen	0.41	3.13	5.05	0.15	0.10	4.55	1.32	0.30	5.75	0.15	19.10	0.12	0.01	1.68	0.05	*

1) Defined as $(X_{ij} / X_i) / (X_{Wj} / X_W)$, where X_{ij} is exports from Arab country *i* to Arab country *j*; X_i is total exports of country *i*; X_{Wj} is total exports to country *j*; and X_W is total world exports.

Source: Same as table (1).

Table (5): Intra-Arab FDI ($ millions)

	1997	1998	1999	2000	2001	2002	2003	Total	Average	Intra-Arab FDI/ GDP [1] (%)
Jordan	6	3	14	14	9	12	8	**66**	**9**	**0.11**
UAE	0	380	176	196	215	218	650	**1,835**	**262**	**0.40**
Bahrain	0	16	14	0	0	160	192	**381**	**54**	**0.64**
Tunisia	135	290	506	669	56	75	39	**1,771**	**253**	**1.27**
Algeria	0	122	86	87	319	54	65	**732**	**105**	**0.19**
Saudi Arabia	26	198	82	77	626	625	562	**2,197**	**314**	**0.17**
Sudan	143	70	152	331	538	542	391	**2,166**	**309**	**2.13**
Syria	328	212	224	191	44	47	39	**1,084**	**155**	**0.90**
Oman	19	42	46	0	0	0	0	**107**	**15**	**0.10**
Qatar	0	0	58	61	66	69	10	**263**	**38**	**0.23**
Kuwait	0	0	0	0	0	0	0	**0**	**0**	**0.00**
Lebanon	312	400	500	350	225	650	850	**3,287**	**470**	**2.79**
Libya	0	0	0	56	60	58	0	**175**	**25**	**0.10**
Egypt	495	372	258	113	68	79	103	**1,488**	**213**	**0.25**
Morocco	48	39	22	22	9	13	672	**825**	**118**	**0.28**
Yemen	10	20	16	68	4	139	126	**382**	**55**	**0.55**
Total	**1,522**	**2,164**	**2,153**	**2,235**	**2,238**	**2,739**	**3,706**	**16,757**	**..**	**..**

1) Average for 1997 - 2003 period.

Source : Inter-Arab Investment Guarantee Corporation, *Investment Climate in Arab Countries* (2003).

Table (6): Stock of Intra-Arab FDI, 1997-2003 ($millions)

Source Countries	Host Countries																Total
	Jordan	UAE	Bahrain	Tunisia	Algeria	Saudi Arabia	Sudan	Syria	Oman	Qatar	Kuwait	Lebanon	Libya	Egypt	Morocco	Yemen	
Jordan	*	0	15	98	102	433	398	70	12	8	0	47	0	75	0	50	**1,309**
UAE	7	*	10	226	65	440	401	186	30	88	0	771	99	137	433	14	**2,906**
Bahrain	0	23	*	2	33	52	0	12	9	0	0	8	0	23	16	0	**179**
Tunisia	0	0	0	*	24	3	0	0	0	0	0	0	6	0	6	2	**40**
Algeria	0	0	0	18	*	0	0	0	0	0	0	0	0	0	6	0	**25**
Saudi Arabia	26	743	48	518	20	*	648	363	15	55	0	1,603	64	607	327	276	**5,312**
Sudan	0	0	0	0	0	17	*	2	0	5	0	0	0	10	0	0	**34**
Syria	10	0	0	2	26	431	164	*	0	0	0	96	0	83	2	6	**820**
Oman	0	90	0	0	0	0	0	0	*	0	0	0	0	4	2	2	**97**
Qatar	4	239	1	15	25	65	279	16	3	*	0	150	0	96	2	5	**901**
Kuwait	2	740	293	438	26	142	50	290	1	107	*	613	0	387	30	9	**3,127**
Lebanon	7	0	14	1	20	263	75	140	0	0	0	*	0	20	1	9	**550**
Libya	2	0	0	380	262	0	47	2	0	0	0	0	*	44	0	1	**738**
Egypt	6	0	1	1	117	234	96	2	0	0	0	0	6	*	0	7	**470**
Morocco	0	0	0	72	0	8	0	0	0	0	0	0	0	0	*	0	**81**
Yemen	0	0	0	0	11	110	9	0	36	0	0	0	0	2	0	*	**168**
Total	**66**	**1,835**	**381**	**1,771**	**732**	**2,197**	**2,166**	**1,084**	**107**	**263**	**0**	**3,287**	**175**	**1,488**	**825**	**382**	**16,757**

Source: Inter-Arab Investment Guarantee Corporation, *Investment Climate in Arab Countries* (2003).

Table (7): Selected Indicators of FDI and Exports (1997-2003)

	Average FDI by Country to Average Total FDI	Average Intra-Arab FDI by Country to Average Total Intra-Arab FDI	Average Intra-Arab FDI by Country to Average Total Arab Capital Outflows	Exports to Average Total Exports By Country	Average GDP by Country to Average Total GDP
Jordan	5.2	0.4	0.0	28.8	1.4
UAE	3.6	10.9	1.0	8.2	10.5
Bahrain	5.1	2.3	0.2	6.8	1.2
Tunisia	9.6	10.6	0.9	6.9	3.5
Algeria	11.0	4.4	0.4	1.9	8.9
Saudi Arabia	10.3	13.1	1.2	8.9	29.3
Sudan	9.3	12.9	1.2	20.2	2.2
Syria	2.6	6.5	0.6	19.7	3.1
Oman	1.1	0.6	0.1	13.4	3.0
Qatar	5.9	1.6	0.1	5.5	2.5
Kuwait	0.2	0.0	0.0	2.7	5.5
Lebanon	4.2	19.6	1.8	40.2	2.7
Libya	0.1	1.0	0.1	4.4	4.8
Egypt	13.6	8.9	0.8	11.3	14.1
Morocco	19.5	4.9	0.4	3.8	5.9
Yemen	-1.2	2.3	0.2	6.7	1.5

Source : Inter-Arab Investment Guarantee Corporation, *Investment Climate in Arab Countries* (2003); International Monetary Fund, *Direction of Trade Statistics* (2004); Bolbol and Fatheldin (2005).

Table (8): Regression Results: Gravity Model for Exports (ln X_{ij})

	Arab Data Set		World Data Set			
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
GDP_i	0.83 (22.02) *	0.84 (22.09) *	0.74 (45.71) *	0.69 (39.61) *	0.76 (38.43) *	0.69 (34.10) *
GDP_j	0.61 (16.48) *	0.63 (17.01) *	0.52 (29.12) *	0.54 (28.79) *	0.51 (26.12) *	0.54 (26.37) *
DIST	-1.36 (-14.87) *	-1.37 (-14.25) *	-0.58 (-13.89) *	-0.60 (-14.05) *	-1.27 (-34.06) *	-1.27 (-32.91) *
EF_i		-0.39 * (-6.53)		-0.27 (-8.07) *		-0.39 (12.77) *
EF_j		-0.10 (-1.60)		0.07 (2.04) **		-0.03 (-0.94)
GCC	1.04 (4.19) *	0.57 (2.19) **	0.81 (7.16) *	0.76 (6.34) *		
MAG	0.95 (3.34) *	0.92 (3.30) *	0.28 (1.45)	0.40 (2.09) **		
MAS	-0.16 (-0.57)	-0.36 (-1.27)	0.08 (0.60)	0.08 (0.58)		
GCC-MAG	1.06 (4.99) *	0.72 (3.54) *	-0.81 (-8.50) *	-0.81 (-8.56) *		
GCC-MAS	1.44 (6.93) *	1.07 (5.19) *	0.30 (3.63) *	0.29 (0.09) *		
GCC-YEM	1.66 (5.80) *	1.63 (6.03) *	0.59 (2.81) *	0.77 (3.96) *		
MAS-MAG	1.30 (6.43) *	1.17 (6.11) *	-0.20 (-2.51) **	-0.11 (-1.27)		
SUD	0.83 (3.66) *	1.03 (4.18) *	-1.04 (-12.57) *	-0.93 (8.35) *		
ARAB					-1.51 (-8.49) *	-1.35 (-7.53) *
ARAB-ASIA					-0.23 (-1.52)	-0.15 (-0.98)
ARAB-EU					-2.07 (-12.43) *	-1.87 (-10.87) *
ARAB-US					0.35 (1.22)	0.45 (1.56)
GCC-EU					0.95 (9.44) *	0.62 (5.34) *
GCC-US					1.89 (5.34) *	1.68 (4.72) *
MAG-EU					1.30 (12.21) *	1.21 (10.49) *
MAS-EU					0.31 (2.81) *	0.12 (1.01)
TUN-EU					-0.84 (-6.76) *	-0.97 (-7.69) *
JOR-US					0.42 (0.55)	0.20 (0.26)
N	1461	1346	7299	6901	7299	6901
Adj. R^2 (%)	56.08	58.42	29.76	29.76	34.98	35.78

* and ** refer to 1% and 5% significance levels. Figures between parentheses are *t*-statistics.

Table (9): Model 5 Estimated Coefficients from Annual Data; Export Ratios

	Selected Coefficients			Export Ratios	
	ARAB	**TUN-EU**	**JOR-US**	$X_{TUN\ EU}$	$X_{JOR\ US}$
1997	-1.52 (-3.17) *	-0.85 (-2.46) **	-0.37 (-0.34)	76.44	0.52
1998	-0.91 (-1.94) ***	-1.03 (-3.44) *	-0.37 (-0.36)	79.88	0.64
1999	-0.65 (-1.39)	-0.96 (-3.27) *	-0.40 (-0.44)	81.34	1.06
2000	-1.03 (-2.17) **	-1.05 (-3.17) *	0.51 (0.78)	77.98	4.93
2001	-0.68 (-1.45)	-0.96 (-3.02) *	1.21 (2.31) **	79.77	10.25
2002	-0.68 (-1.48)	-1.05 (-3.75) *	1.39 (2.29) **	79.55	15.59
2003	-1.26 (-2.77) *	-0.89 (-2.68) *	1.63 (3.18) *	80.60	21.52

*, **, *** refer to 1%, 5% and 10% levels of significance, respectively.

Figures between parentheses are *t*-statistics.

$X_{TUN\ EU}$ is the ratio of Tunisian exports to the EU to total Tunisian exports.

$X_{JOR\ US}$ is the ratio of Jordanian exports to the US to total Jordanian exports.

Table (10): Regression Results:

Gravity Model for GCC Exports

Dependent Variable: Ln(X_{ij})	
	Model
GDP_i	0.69 (15.40) *
GDP_j	0.81 (23.44) *
GCC	0.67 (3.07) *
N	3357
Adj. R^2 (%)	65.48
F - Ratio	77.69 *

* refers to a 1% level of significance.

Figures between parentheses are *t*-statistics.

Table (11): Regression Results:
Gravity Model for Intra-Arab FDI

Dependent Variable: Ln(FDI_{ij})		
	Model 1	**Model 2**
GDP_i	0.44 (5.30) *	0.38 (4.10) *
GDP_j	0.75 (7.41) *	0.79 (8.05) *
DIST	-0.89 (-4.65) *	-0.98 (-4.91) *
EF_i		-0.03 (-0.17)
EF_j		0.22 (1.41)
GCC	0.22 (0.46)	0.33 (0.55)
MAG	0.07 (0.15)	0.10 (0.22)
MAS	-0.76 (-1.38)	-0.89 (-1.41)
GCC-MAG	1.50 (3.86) *	1.66 (4.05) *
GCC-MAS	1.26 (3.48) *	1.35 (3.23) *
GCC-YEM	0.68 (1.46)	0.67 (1.37)
MAS-MAG	-0.22 (-0.53)	-0.14 (-0.34)
SUD	2.13 (5.55) *	1.88 (4.23) *
N	506	460
Adj. R^2 (%)	32.46	34.91
F - Ratio	15.27 *	13.95 *

* refers to a 1% level of significance.

Figures between parentheses are *t*-statistics.

Table (12): Regression Results: Gravity Model for Intra-Arab Exports and Stock of FDI

Dependent Variable: Ln(X_{ij})			
	Model 1	**Model 2**	**Model 3**
GDP_i	0.80 (19.98) *	0.76 (19.85) *	0.78 (19.16) *
GDP_j	0.59 (15.42) *	0.55 (13.71) *	0.55 (13.71) *
DIST	-1.00 (-23.67) *	-1.15 (-12.47) *	-1.17 (-12.07) *
SFDI	0.07 (4.44) *	0.08 (4.91) *	0.08 (4.32) *
EF_i			-0.24 (-3.45) *
EF_j			-0.23 (-3.33) *
GCC		0.45 (2.06) **	0.03 (0.109)
MAG		0.48 (1.81) ***	0.47 (1.75) ***
MAS		-0.80 (-3.21) *	-0.93 (-3.63) *
GCC-MAG		0.46 (2.21) **	0.17 (0.79)
GCC-MAS		0.66 (3.63) *	0.36 (1.80) ***
GCC-YEM		0.72 (2.40) **	0.85 (2.88) *
MAS-MAG		0.49 (2.69) *	0.40 (2.13) **
SUD		0.10 (0.46)	0.30 (1.24)
N	1124	1112	1021
Adj. R^2 (%)	52.36	56.04	57.30
F - Ratio	124.56 *	79.69 *	69.44 *

*, **, *** refer to 1%, 5% and 10% levels of significance, respectively.
Figures between parentheses are *t*-statistics.

Table (13): Regression Results: Gravity Model for Intra-Arab Exports and FDI Residuals

Dependent Variable: Ln(X_{ij})	
	Model
GDP_i	0.92 (17.38) *
GDP_j	0.50 (9.26) *
DIST	-0.81 (-13.53) *
EF_i	-0.18 (-1.79)
EF_j	-0.16 (-1.61)
RES	0.01 (0.44)
N	443
Adj. R^2 (%)	52.10
F - Ratio	41.06 *

* refers to 1a 1% level of significance.

Figures between parentheses are *t*-statistics.

Appendices

Appendix I

Data Sources:

- Data regarding total exports between trade partners was obtained from the IMF, *Direction of Trade Statistics Yearbook* (2004).

- Data regarding the structure of merchandise exports for individual Arab countries was obtained from the UNCTAD*, Handbook of Statistics* (2004), while data regarding the structure of world merchandise exports was obtained from the WTO, *International Trade Statistics* (2004).

- Data regarding intra-Arab FDI was obtained from the Inter-Arab Investment Guarantee Corporation, *Investment Climate in Arab Countries* (various issues).

- Data regarding the gross national product of Arab countries was obtained from the AMF, *Unified Economic Report* (various issues), while data regarding the gross national product of non-Arab countries was obtained from the IMF*, International Financial Statistics Yearbook* (2004).

- Data for the Economic Freedom Index was obtained from the *2005 Index of Economic Freedom: The Link Between Economic Opportunity and Prosperity* by Marc A. Miles, Edwin J. Feulner and Mary Anastasia O'Grady, and can be found online at: http://www.heritage.org.

  The index for each country measures the average score on a list of 50 independent variables grouped into the following 10 categories: trade policy, fiscal burden of government, government intervention in the economy, monetary policy, capital flows and foreign investment, banking and finance, wages and prices, property rights, regulation, and informal market activity. The index ranges from 1 to 5, with a higher score indicating a greater the level of government interference in the economy and a lower level of economic freedom.

- Data for the distance between countries (measured as the distance in kilometers between the capital cities) was obtained from the following website of the US government: http://www.wcrl.ars.usda.gov/cec/java/capitals.htm.

- Zero entries for exports and FDI were not included in the estimations.

Country Coverage:

- The intra-Arab data set includes pair-wise exports and FDI between the following Arab countries: Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.

- The World data set includes pair-wise intra-Arab exports as well as pair-wise exports between each of the Arab countries and the following countries: the United States; Japan; the EU – Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom; and Asia – China, Hong Kong, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, and Taiwan.

Appendix II

Anderson and van Wincoop Model:

Using a model that relies on the assumptions of complete specialization in production and constant elasticity of substitution in preferences, typical of theoretical models in the gravity literature, Anderson and van Wincoop (2003) obtain the following equation:

(1) $x_{ij} = (y_i\, y_j / y_w)\, (t_{ij} / P_i\, P_j)^{1-\sigma}$

where x_{ij} is exports from country *i* to county *j*, y_i is GDP of country *i*, y_j is GDP of country *j*, y_w is world GDP, σ is the elasticity of substitution between the countries' goods, t_{ij} is the gross price markup due to trade costs, and P_i is *i*'s multilateral trade resistance – a price index that depends positively on trade barriers between *i* and all of its trading partners and can be solved as a function of all bilateral trade barriers t_{ij}. The latter is modeled as:

(2) $t_{ij} = b_{ij}\, d_{ij}^{\rho}$

where d_{ij} is bilateral distance, b_{ij} is equal to one plus the tariff equivalent of the trade barrier, and ρ is the elasticity of trade barrier costs with

respect to distance. Replacing (2) in (1) and taking the logarithm of the resulting equation:

$$(3)\ \ln x_{ij} = c_0 + \ln y_i + \ln y_j + (1-\sigma)\,\rho \ln d_{ij} + (1-\sigma) \ln b_{ij} - (1-\sigma) \ln P_i - (1-\sigma) \ln P_j$$

In the two-country model, $b_{ij} = b^{1-\delta ij}$ where b-1 represents the tariff-equivalent of the trade barrier and δ_{ij} is a dummy variable equal to 1 if *i* and *j* are in the same "country" and zero otherwise. Replacing the expression for b_{ij} in (3), we get:

$$(4)\ \ln x_{ij} = c_1 + \ln y_i + \ln y_j + (1-\sigma)\,\rho \ln d_{ij} + (\sigma-1) \ln b\, \delta_{ij} - (1-\sigma) \ln P_i - (1-\sigma) \ln P_j$$

We follow Anderson and van Wincoop (2003) and Rose and van Wincoop (2001) by estimating (4) with country-pair fixed effects c_{ij}, in place of the country-specific multilateral resistance terms P_i and P_j. This also subsumes distance within the country-fixed effects; as a result, the estimable equation becomes:

$$(5)\ \ln x_{ij} = c_{ij} + \ln y_i + \ln y_j + (\sigma-1) \ln b\, \delta_{ij}$$

We apply (5) to the GCC case within a "two-country" model – GCC and the rest of the world. In effect, the coefficient (σ-1) ln b is estimated and

b-1 is then calculated as the tariff equivalent of the trade barriers that the GCC countries have been able to dismantle among themselves.

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