Manufactured Exports and FDI
in Southern Mediterranean Countries:
Evolution, determinants and prospects

Khalid Sekkat

Abstract

This paper investigates the evolution and determinants of manufactured exports and foreign direct investment (FDI) in 11 southern Mediterranean countries over the period 1985–2009, as well as their prospects under different scenarios pertaining to the development of the determinants. The econometric analysis confirms the role of exchange rate depreciation, the openness of the economy and the quality of institutions and infrastructure in fostering manufactured exports and FDI inflows in the region. The assessment of the prospects suggests that a scenario of deeper integration with the EU entails superior performance for manufactured exports and FDI compared with either the status quo or less integration with the EU but greater integration within the region.

Contents

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1.   Introduction

For a long time, a majority of the 11 countries of the southern Mediterranean (MED-11)[1] have been weakly integrated with the world economy. In the early 1980s, the region's ratio of manufactured exports to GDP[2] was lowest (2.68%) compared with all other regions except Latin America & the Caribbean (2.50%).[3] Early research identified restrictive trade and exchange rate policies as among the reasons for the low integration of developing countries with the world economy. For instance, Sachs and Warner (1995) found that more liberalised economies tend to adjust more rapidly from primary-intensive to manufacture-intensive exports. Sekkat and Varoudakis (2002) focused specifically on some MED-11 countries and investigated whether trade policy reforms have increased the share of manufactured exports in GDP. Their results showed that trade policy reforms did. A similar conclusion was reached by Achy and Sekkat (2003) regarding the impact of exchange rate policy in the region. International evidence, however, suggests that such reforms might not be sufficient and companion policies would be needed to further strengthen the investment climate. These include the provision of adequate infrastructure (Wheeler and Mody, 1992) and good quality economic and political institutions (Schneider and Frey, 1985; Henisz, 2000a, b). Méon and Sekkat (2004) and Sekkat and Véganzonès (2007) confirmed the importance of these factors for the region.

Initiated in the mid-1980s and accelerated during the 1990s, major changes in economic strategy were adopted in many MED-11 countries. Their aim was to put the economies on a path of higher efficiency, and hence foster growth and development. Moving from an 'import substitution' strategy, these countries gradually lowered trade barriers, privatised many firms and reformed the foreign exchange market. Other reforms aimed at improving the business climate were also implemented.

Recent figures show a significant improvement in terms of integration with the world economy for many MED-11 countries (see Figure 2). The region is now doing better than many others (see Figures 1 and 3). In terms of manufactured exports, it ranks third (15% of GDP) after the euro area (26%) and East Asia & the Pacific (30%) and before Europe & Central Asia (12%), Sub-Saharan Africa (10%), South Asia (9%) and Latin America & the Caribbean (11%). It also shows the most important increase in the share of total manufactured exports to GDP (around 5 percentage points), similar to that of East Asia & the Pacific. There are, however, notable differences among countries. Algeria is far behind all countries; manufactured exports as a share of GDP are less than 1%. Meanwhile Jordan, Israel and Tunisia are leading at more than 25%. These are also the countries that have experienced the greatest progress over the period (between 6 and 13 percentage points). The developments in Algeria and Egypt have been mediocre.

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[1] These are Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Syria, Tunisia, West Bank and Gaza, and Turkey.

[2] See World Development Indicators, World Bank (2011).

[3] In terms of foreign direct investment (FDI), the picture is less clear owing to the high volatility of such flows compared with manufactured exports.

This paper investigates the link between the evolution of the region's integration with the world economy and the reforms implemented (or not). It focuses on manufactured exports and foreign direct investment (FDI). Drawing on the literature, the paper seeks to disentangle the contributions of trade policy, exchange rate policy, governance quality and the availability of infrastructure. The analysis is conducted on a panel of 17 countries[4] over the period 1985–2009.

The rest of the paper is organised in three sections. Section 2 reviews the literature on the determinants of manufactured exports and FDI with special emphasis on the MED-11. The objective is to underpin the subsequent quantitative analysis. Section 3 presents the quantitative analysis. For both manufactured exports and FDI, it offers first an estimation of the impacts of the determinants discussed above on the variable of interest, and second an assessment of the evolution of these variables of interest under different scenarios pertaining to the development of the determinants. Section 4 concludes.

2. The determinants of manufactured exports and FDI

2.1 Manufactured exports

Most recent papers explain the level of trade between two countries in terms of the sizes of the respective economies (the GDPs of the two countries) and the distance between them. Trade is assumed to depend positively on the sizes of the two economies and negatively on the distance. They also include indicators for common language, existence of a border between trading partners, direct access to a seaport and other economic, cultural, institutional and geographical variables. From a policy point of view, the variables of interest include trade policy (notably trade agreements), foreign exchange policy, business climate (together with infrastructure) and governance. When discussing the impacts of trade policy, we distinguish between multilateral trade policy and bilateral or plurilateral trade agreements.

Multilateral trade policy

As far as trade policy is concerned, the region as a whole is among the most restrictive in the world. This stems in large part from non-tariff measures (NTMs). The uniform tariff equivalent of all tariffs (ad valorem and specific) is around 12% on average and rises to 24% when NTMs are included (Table 1). The highest levels of tariff protection are in the Maghreb countries, for both manufactures and agriculture. In Egypt, Jordan and Lebanon, tariffs have been substantially reduced in recent years but NTMs remain prevalent.

The most recent application of the above-mentioned models pertaining to the MED-11 is Bhattacharya and Wolde (2010). Their analysis was conducted from two different perspectives. One concerns the total exports of various MED-11 countries, while the other relates to exports between these countries. Their data set consists of 88 countries, including 7 countries in the MED-11: Algeria, Egypt, Jordan, Lebanon, Morocco, Turkey, and the West Bank and Gaza. The variables are averages over the period 2005–07. To assess the role of multilateral trade policy, they incorporated into their model the IMF's trade restrictiveness index (TRI). The latter combines both tariff restrictiveness and non-tariff restrictiveness. As expected, the coefficients of the TRI are negative and significant for both exports and imports, meaning that restrictive policy reduces trade in the MED-11.

Sekkat and Varoudakis (2002) also investigated the impact of multilateral trade policy but at the sector level. Their sample includes annual data for Egypt, Morocco and Tunisia over the period 1970–94. They considered the three most important sectors in these countries: textiles, chemicals and food. The dependent variable is the ratio of each sector's exports to GDP. The explanatory variables include foreign demand, investment, three indicators of exchange rate policy and an indicator of trade

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[4] These are the MED-11 countries plus Cyprus, France, Greece, Italy, Malta, Portugal and Spain.

liberalisation. The latter is an extension of the IMF's, which takes account of tariff dispersion and exemptions, and of the restrictions on non-tariff barriers.

Table 1. Trade restrictiveness indices (2007) (%)

Region	Total trade	Agriculture	Manufacturing
East Asia and Pacific	**12.5**	**34.5**	**10.6**
	4.9	*8.3*	*4.7*
Europe and Central Asia	**11.3**	**41.1**	**8.5**
	5.0	*13.0*	*4.4*
Latin America and Caribbean	**13.9**	**34.1**	**12.1**
	8.0	*13.3*	*7.2*
Middle East and North Africa	**24.2**	**52.5**	**19.3**
	11.7	*18.7*	*10.5*
Maghreb	**34.1**	**73.8**	**28.8**
	18.2	*30.5*	*16.8*
Egypt, Jordan, Lebanon	**22.3**	**44.0**	**18.6**
	6.7	*9.9*	*6.2*
South Asia	**17.5**	**45.5**	**15.3**
	13.0	*20.8*	*12.8*
Sub-Saharan Africa	**19.3**	**28.9**	**20.9**
	11.8	*14.9*	*11.4*

Notes: Figures in italics solely concern tariff restrictiveness. Figures in bold include NTMs.
Source: Kee et al. (2009).

The trade policy index suggests that the three countries had restrictive trade regimes during the 1970s and the 1980s. Morocco, however, seemed to have liberalised earlier than the others. Based on achievements in trade reform by the end of the period, Egypt appeared to be a slow reformer while Morocco and Tunisia were found to be moderate reformers. The regression results show that the coefficients of the trade liberalisation indicator are always significant and positive, implying that trade liberalisation improves export performance. The level of the coefficient is highest for textiles and chemicals and lowest for food. Further calculations show that the adoption of the trade liberalisation strategy increased the ratio of sector exports to GDP by around 70% for textiles, 64% for chemicals and 36% for food.

Bilateral–plurilateral trade policy: Trade agreements

Preferential trade agreements (PTAs) are a prominent part of global trade policy. By mid-2008, over 380 PTAs had been notified to the World Trade Organization (WTO)/General Agreement on Trade and Tariffs, of which some 200 PTAs remain in force. Many involve contiguous countries but many do not.

As for Arab countries, regional integration has been pursued for decades. Efforts to integrate regionally probably began earlier than in any other developing region in the world. All countries in the region have concluded numerous PTAs. Examples of PTAs in the MED-11 are the 1957 Arab Economic Unity agreement, the 1964 attempt by Egypt, Iraq, Jordan and Syria to form an Arab Common Market, and the 1989 Arab Maghreb Union (Algeria, Libya, Mauritania, Morocco and Tunisia). The most recent initiative is the Pan-Arab Free Trade Agreement (PAFTA), launched in 1998 with the objective of removing tariffs on intra-Arab trade by January 2005. To speed up this process, Egypt, Jordan, Morocco and Tunisia signed the Agadir Agreement.

Most Arab countries around the Mediterranean have also signed different trade agreements with the European Community (EC), with the aim of eliminating tariffs on trade in goods with the EC (with the exception of agriculture). The most recent was an initiative under the Barcelona process. Moreover, a number of countries (e.g. Morocco, Tunisia and Egypt) have engaged in negotiations with the EU to liberalise investment and service flows.

Under the US–Middle East free trade initiative, Egypt, Tunisia, Algeria, Saudi Arabia, Kuwait, Yemen and Bahrain have concluded Trade and Investment Framework Agreements (TIFAs) as a first step towards a free trade agreement (FTA) with the US. Jordan concluded an FTA with the US in 2002, the first Middle Eastern country to do so, followed by Morocco in 2004. A distinct feature of the agreements that have been signed by these countries with the US is that they cover services and investment while other PTAs involving countries in the region do not.

To assess the actual gains from economic integration, the approach commonly used is based on econometric estimation of gravity models. De Wulf and Maliszewska (2009) surveyed the works focusing on the Barcelona process. They provided a qualitative and sectoral assessment of the effects on trade and investment in Egypt, Israel, Jordan, Morocco and Tunisia. The assessment indicates that the Barcelona process has contributed to increasing trade with the EU only in the cases of Egypt and Tunisia. No evidence of any impact of the process on the trade of Morocco, Jordan or Israel with the EU was found.

In addition to assessing the impact of the Barcelona process, Söderling (2005) addressed the following additional question: Are there significant unexploited export markets for the Middle East and North Africa (MENA) region? The author applied the gravity model to a panel data set covering 90 countries and about 90% of total world trade. The results suggest that several MENA countries are substantially under-exploiting the US as an export market. Moreover, the impact of integration efforts with the EU (i.e. the Barcelona process) has been moderate overall but significant in individual cases.

Cieslik and Hagemejer (2009) conducted a similar analysis to that by Söderling (2005). The main difference is that they control for the effects of other plurilateral and bilateral free trade agreements concluded by the MENA countries among themselves as well as with countries located outside the region. These include the European Free Trade Agreements (EFTAs), the Arab Maghreb Union, the Arab Cooperation Council, various bilateral agreements among MENA countries as well as bilateral agreements with the EU associated countries (now new EU member states) in Central and Eastern Europe and NAFTA[5] countries (Canada, Mexico and the US). The sample covers the period 1980–2004 and 196 trading partners of 7 MENA countries: Algeria, Egypt, Morocco, Tunisia, Israel, Jordan and Turkey. The authors found that while the new EU Association Agreements significantly increased the imports of the MENA countries from the EU, they did not contribute to the expansion of their exports to the EU markets.

Ferragina et al. (2009) provided an assessment of the relative success of the intra-European agreements (i.e. with the Central and Eastern European countries) versus the Barcelona process. They address three main questions: i) What amount of EU trade could be achieved with these two groups? ii) Is there a reduction of the gap between potential and actual trade over the two liberalisation processes? iii) What would be the timing for convergence towards the potential trade for the two areas if integration were pushed further? The results show that the ratio between potential and real trade with the MED-11 countries is constant or increasing, with the exceptions of Tunisia and Turkey (where it is weakly decreasing). This suggests that the trade potential between the EU and MED-11 area is far from being exploited and that such exploitation is diminishing. In 2002, the ratio was much higher than 1, ranging between a minimum of around 3.5 and a maximum of 5 for both exports and imports. In other words, the actual volume of trade only ranged between 20% to less than 30% of the potential level. Conversely, the Central and Eastern European countries show not only an initial ratio

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[5] NAFTA refers to the North American Free Trade Agreement.

that is much lower than the MED-11 economies (around 2), but also a marked decline of the ratio. They further close the gap. The Baltic republics and Bulgaria show the most dynamic trends.

Abedini and Péridy (2008) tried to assess the ex post impact of PAFTA. They found that the agreement resulted in a gross increase in trade of approximately 20% in the 1988–2005 period. A problem with this conclusion is that PAFTA was only implemented gradually after 1998 (in initial steps of 10%, later accelerated to 20% a year to achieve full implementation in 2005). Thus, there is an attribution/identification problem. Other events also need to be controlled for, such as expansion of the EU, the exclusion of some agricultural products from PAFTA during much of the period (e.g. agriculture is the most dynamic import for Syria) and the gradual abolition of textile quotas under the WTO during the period.

Péridy (2005) estimated the trade potential among the countries of the Agadir Agreement on free trade. The results show that trade flows remain dramatically low between these countries, as a result of high trade costs. In particular, the estimated border effects clearly reflect a significant deficit in trade integration in this area. There is also limited export potential between these countries, due to their lack of trade complementarity. The author concludes that the Agadir Agreement may only have a limited impact on trade.

Exchange rate policy

Exchange rate policy plays a crucial role in providing incentives for exporting. Yet an exchange rate policy promoting exports cannot be sustained unless monetary and fiscal policies are fully consistent with it. Mismanagement of economic policies leads to changes in the real effective exchange rate (REER), misalignment and volatility – which may be damaging to economic performance.

Therefore, in empirical works exchange rate policy is captured through three different indicators: changes in the REER, volatility and misalignment. Volatility corresponds to frequent, non-persistent changes in exchange rates. It is generally measured as the standard deviation of 12 month-to-month changes in the REER or using ARCH models. Real exchange rate misalignment is a sustained departure of the actual, real exchange rate from its equilibrium value. In the least developed countries, misalignment used to take the form of domestic currency overvaluation, which hurts tradable activities and affects economic growth. Information about the extent of misalignment requires knowledge of the equilibrium real exchange rate, which is unobservable and depends on both structural and macroeconomic factors. In general, a model-based approach drawing on Edwards (1988) is used to estimate the equilibrium real exchange rate.

Nabli and Véganzonès (2002) provided an assessment of the impact of exchange rate policy on aggregate exports (without distinctions for sectors or partners) for various MED-11 countries, i.e. Algeria, Egypt, Jordan, Morocco, Syria, Tunisia and Israel. Their entire sample covers a panel of 53 countries over the period 1970–99. The results confirm that on average the MENA countries in the sample have experienced substantial overvaluation (around 29% a year from the mid-1970s to the mid-1980s, and 22% a year from the mid-1980s to 1999). In general, the extent of overvaluation does not seem to have significantly decreased during the 1990s, contrary to the Latin American, African or Asian economies in the sample. In addition, overvaluation remains higher in the MENA than in the other regions, except CFA Africa. The estimations confirm the negative impact of exchange rate misalignment on both total and manufactured export performance in the countries studied. The coefficient is rather strong in the case of manufactured exports (-0.72) and remains significant for total exports (-0.10). For the MENA region as a whole, exchange rate policy explains losses in competitiveness and in manufactured exports. REER overvaluation has reduced, on average, the ratio of manufactured exports to GDP by 18% a year. Manufactured exports, which averaged 4.4% of GDP from 1970 to 1999, could have reached 5.2% of GDP if no overvaluation had taken place. These losses were more concentrated in the 1970s and 1980s than in the 1990s, due to the higher overvaluation of the currencies during these two sub-periods. The estimations fail, however, to show a significant impact of REER volatility on manufactured exports, as well as on the total exports of the countries studied.

Sekkat and Varoudakis (2002) examined the impact of exchange rate policy on the exports of three manufacturing sectors in Egypt, Morocco and Tunisia over the 1970–94 period. Export supply equations were estimated for textiles, chemicals and food. The results reveal that exchange rate volatility and misalignment are important determinants of the exports of these three sectors. The coefficients of misalignment are always significant with the expected negative sign. The coefficients of volatility are significant and negative for chemical and food products. Using the estimated elasticities in the export supply equation, the authors tentatively assessed losses in exports resulting from exchange rate mismanagement. The export shares to GDP of the three industries would have been 20% for textile products, 9% for chemicals and 5% for food products in the absence of misalignment. This implies an estimated total loss of export shares amounting to 14% of GDP, owing to the adverse impact of real exchange rate misalignment alone.

Achy and Sekkat (2003) performed exercises similar to those of Sekkat and Varoudakis (2002) but focused on the trade between some MED-11 countries and the EU. The investigation was conducted for 11 sectors[6] over the period 1970–97. The sample includes four North African countries (Algeria, Morocco, Tunisia and Egypt) and Turkey. Whatever the sector, the significant exchange rate variables (REER, volatility and misalignment) have the expected sign. The real exchange rate is statistically significant in all sectors. Volatility has the expected negative effect, significant in all sectors except for food and agriculture and chemicals. Finally, except for iron and steel, vehicles and electronics, misalignment of the REER exerts a significant negative impact on export performance. These findings suggest that exchange rate management plays a crucial role in providing incentives for exports from the MENA region to Europe. To draw further recommendations about exchange rate management vis-à-vis the euro, the authors combined the elasticities and the observed level of these variables.[7] The figures clearly show that misalignment is much more harmful than volatility. For textiles, the losses in the share of GDP of its exports to Europe are respectively 15.57%, 17.28% and 8.72% for Egypt, Tunisia and Turkey due to misalignment, and 1.15%, 0.18% and 1.15% due to volatility. Similarly, the losses for the electrical sector are 11.88%, 13.19% and 6.65% due to misalignment, and 2.92%, 0.47% and 2.92% due to volatility. These figures imply that policy-makers should be more concerned with misalignment than with volatility.

Business environment

Even though sound trade and exchange policies allow increasing trade, other trade-related factors – such as transport and telecommunication services, customs procedures, ports efficiency, standards, technical regulations and the flexibility of factor markets – are increasingly recognised as important components in enhancing a country's trade performance. The cost of these factors is high in many MED-11 countries, reflecting government policies and regulations that result in limited competition. For instance, public monopolies in ports and port services along with poor infrastructure for loading and storing goods increase the costs for handling and shipping containers in many of these countries. Similar findings pertain to air transportation, professional services, telecommunications and utilities (see e.g. contributions in Hoekman and Zarrouk, 2000, Hoekman and Kheir-El-Din, 2000, and Rosotto et al., 2005).

Based on a private sector survey in eight Arab countries, Zarrouk (2003) estimated that the cost of getting goods across borders averaged 10% of the value of goods shipped. Next to bureaucratic red tape, customs clearance procedures were the most important source of non-tariff trading costs, with the average company spending 95 man-days per year resolving problems with customs and other government authorities. Hoekman and Zarrouk (2009) noted that significant progress has been made since 2000 towards removing non-tariff barriers, including burdens related to customs clearance

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[6] The sectors are chemicals, electrical, electronic, energy, food, iron, mechanical, nonferrous, textiles, vehicles and wood.

[7] Because the Moroccan dirham experienced very low levels of volatility and misalignment, the rest of the analysis disregarded this country.

procedures. Dennis (2006) attempted to assess the relative importance of real trade costs using a CGE model and Zarrouk's (2003) survey results. The results confirm the significant gains to be realised in complementing trade liberalisation with trade facilitation (i.e. removing the above trade costs). The addition of trade facilitation to trade liberalisation within PAFTA increases overall welfare gains to the MENA region from $913 million to some $3 billion (a 0.1% increase to base GDP). Similarly, the welfare gains under trade liberalisation within PAFTA countries and the EU rises from $1.8 billion to $7.2 billion (a 0.82% increase to base GDP). As regards the distribution of gains, all MENA sub-regions enjoy a share of the significant welfare gains.

Bhattacharya and Wolde (2010) used their model (discussed above) to examine the effect of variables from the World Bank's Business Enterprise Survey. The latter provides a comprehensive data set on the various constraints to business performance and growth, and covers 100,000 businesses in over 100 countries. The key constraints considered by the survey include labour skills and regulations, access to finance, infrastructure, tax rates, administration, business and customs regulations, licensing, corruption and customs clearance. The authors focused on two constraints: transport and customs.

On transport costs, the MENA average is not much higher than the world average but it is a real issue in the West Bank and Gaza, Lebanon and Algeria. Customs clearance procedures are more time-consuming in the MENA compared with other regions of the world. The West Bank and Gaza, Lebanon and Algeria seem to suffer more than the rest of the region from customs functioning. By contrast, in Morocco and Jordan customs and trade regulations seem to be a less severe impediment to trade compared with the world or MENA averages.

The estimation of the model shows that the survey variables are significant in explaining the MENA's relative underperformance in trade. The coefficients of the transport constraint variable are negative and statistically significant: -0.67 for exports and -0.90 for imports. This means that reducing the transport constraint from the MENA average to the world average could raise exports by 9.5% and imports by 11.5%. The estimated coefficients of the number of days it takes to clear exports/imports through customs are negative and statistically significant: -0.88 for exports and -1.15 for imports. This suggests that enhancing the speed of customs clearance procedures could also have a large impact on trade. Finally, reducing the transport constraint and improving the efficiency of customs clearance procedures will have a stronger impact on imports than on exports.

Rosotto et al. (2005) investigated the potential impact of opening up telecommunications to competition in the MENA region on both this sector's performance and on the participation of the region in the world economy. The latter is assessed with respect to manufactured exports and intermediate good exports, which reflect participation in international production networks. The authors first computed an indicator of telecommunications' performance and then investigated the relationship between this indicator and FDI inflows. The indicator is based on four criteria of market openness and pro-competitive regulation: average degree of competition in the different segments of the fixed telephony market, average degree of competition in the analogue and digital segments of the mobile telephony market, openness to foreign direct investment in the fixed and mobile networks, and the presence of an independent regulatory body.

The computed indicator shows that progress has been uneven and there is still ample scope for liberalisation in the region. Only five countries have achieved conditions of moderate market openness, while full market openness prevails nowhere in the region. Efforts to open up the market to competition have been most ambitious in Algeria, but thanks to steady reforms, Morocco has taken the region's lead in market openness. Overall, telecommunication markets in the MENA region remain, on average, less competitive than elsewhere.

Estimation of the potential impact of improved performance in telecommunications on MENA participation in world trade is based on a panel of 37 developing countries over the period 1990–99. The results confirm that the availability of good telecommunication services foster manufactured exports. A 1% improvement of the indicator increases the ratio of manufactured exports to GDP by 0.37%. The results also suggest that the availability of good telecommunication services fosters the

exports of intermediate goods. A 1% improvement of the indicator increases the ratio of manufactured exports to GDP by 0.18%. Taking these results together implies that policy aimed at improving the performance of telecommunication services in the MENA region can lead to important gains in terms of exports and complement other policies (e.g. trade and exchange rate policies) implemented in the region.

Institutions and governance

The role of 'market friendly' institutions in fostering growth probably constitutes the most robust findings in the new empirics of growth. According to North (1990), institutions consist of formal and informal rules, along with constraints and their enforcement characteristics. From an economic point of view, institutions seek to organise and support market transactions. The quality of institutions affects growth through its impact on the protection of property rights and transaction costs, which in turn affect the incentives for private agents.

While there have been numerous studies on the relationship between FDI and institutions, there are fewer studies on the relationship between institutions and trade. The latter studies, however, are receiving increasing attention. The poor functioning of institutions can either directly affect the willingness of agents to trade abroad (by reducing the return on trading or increasing the risks associated with international transactions) or affect economic variables (e.g. investment and productivity) that may in turn lower the propensity of agents to trade.[8]

Méon and Sekkat (2004) built on these works to examine the impact of institutions on manufactured exports of the MENA. Econometric specifications of the determinants of manufactured exports are estimated, including both traditional explanatory variables (i.e. the REER, GDP growth rates of the country's main trading and investment in the manufactured goods sector over GDP) and indicators of the quality of institutions. Six indicators of institutions are considered. Three of them concern corruption: the Corruption Perception Index published by Transparency International, the corruption index provided by the World Bank and the indicator by Wei (2000). The other three cover different aspects of governance: government effectiveness, the rule of law (both drawn from Kaufmann et al., 1999a) and a broad index of the quality of governance published in the International Country Risk Guide (ICRG). The sample includes annual data (1990–99) and covers a number of countries between 34 and 107.

The results confirm that poorly functioning institutions hamper the participation of MENA countries in world trade. For instance, the estimation reveals that the elasticity of the manufactured exports to the ICRG index is 0.78. This means that if any country reduced its political risk by 1%, during any particular year, its exports ratio is expected to rise by 0.78%. To grasp the true meaning of that figure, the authors take the example of Morocco. In 1997, that country's ICRG score amounted to 68.8 and its exports of manufactures to 10.4% of its GDP. Assuming that during that year Morocco could have raised its ICRG index to Switzerland's level, the ratio of Morocco's exports of manufactures would have amounted to 12.32% (similar to Poland's) instead of 10.4%. Such an impact on the manufactured exports ratio (20%) is far from negligible. For instance, Sekkat and Varoudakis (2002) have found that the trade liberalisation programme adopted in Morocco since 1983 has resulted in an increase of the manufactured exports ratio of around 40%. Hence, the effect of improvements in the quality of institutions could be half that of 20 years of trade liberalisation. Following the same line of reasoning, Jordan might almost double its ratio of exports of manufactured goods while Egypt could raise it by a third.

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[8] See Rodrik (2002); Anderson and Marcouiller (2002); Elbadawi (1998); Brunetti and Weder (1998); Mauro (1995); Knack and Keefer (1995); Hall and Jones (1999); and Olson et al. (2000).

2.2 Foreign direct investment

Various motivations for FDI have been put forward in the literature. The eclectic theory of FDI groups them into three categories (Dunning, 1988 and 2000). First, ownership-specific advantages allow firms to compete with others in a market despite the disadvantages of being foreign. Second, transaction costs associated with trade and licensing make the internalised transactions through FDI more efficient. Third, location advantages make the chosen foreign country a more attractive site for FDI than others. This is because it either offers access to cheap factors or to protected goods markets (e.g. the 'tariff-jumping' hypothesis). Given the objective of the study, we focus on the third motivation. We group a country's advantages into two categories: economic factors and institutional factors.[9] The first one includes the difference in the rate of return on capital, portfolio diversification, the market size of the host country, the size of the markets that are 'accessible' from the host country, trade and foreign exchange policies, adequate infrastructure and the availability of human capital.[10] The second category concerns political stability, the quality of institutions and governance, as well as such aspects of the business climate as labour market institutions and customs functioning.[11]

Economic factors

Considering a large number of factors influencing FDI, Moosa (2009) applied an extreme bound analysis to the determinants of FDI inflows to 18 MENA countries. He found that FDI reacts to GDP growth rather than to its level, to the share of enrolment in tertiary education, to research and development spending, to country risk and to domestic investment. Massoud (2003) examined the role of tax incentives in attracting FDI to Egypt. The author found no clear-cut evidence of their effect on the location decision of multinational enterprises and concluded that tax incentives have resulted in inefficiencies in public spending.

Rosotto et al. (2005) investigated the potential impact of good telecommunication services on the MENA's attractiveness in terms of FDI. Such services are assumed to facilitate integration into cross-border production networks, thus creating a supportive environment for investment. The authors first computed an indicator of the telecommunications performance (see above) and then investigated the relationship between this indicator and FDI inflows. A specification was estimated relating nominal FDI inflows to GDP per capita, GDP, the growth rate of GDP and the telecommunications performance indicator. The specification was estimated using a sample of cross-section and time series data, i.e. 71 developing countries over the period 1990–99. The coefficient pertaining to telecommunications implies that the availability of good telecommunication services increases the host country's attractiveness with respect to FDI. A 1% improvement of the indicator increases FDI by 0.75%

Sekkat and Véganzonès (2007) sought to disentangle the effects of trade and exchange rate policies and the effects of other aspects of the investment climate (physical infrastructure along with political and economic risk) on MED-11 countries' attractiveness in relation to FDI. They deepen the analysis by considering both total FDI and FDI in manufacturing.

The dependent variable is the log of nominal FDI. The explanatory variables are GDP, GDP per capita, the growth rate of real GDP, an openness indicator, an indicator of human capital availability, a proxy for the availability of infrastructure and an indicator of political risk. Openness is captured through the Sachs and Warner (1995) indicator (*S-W*). Their methodology was applied to cover the years 1990–99. The indicator of human capital is the ratio of secondary school enrolment. The number

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[9] See Agarwal (1980), Hufbauer et al. (1994), Froot and Stein (1991), Cushman (1985), Goldberg and Kolstad (1995), Blonigen and Haynes (2002), Gastanaga et al. (1998) and Wheeler and Mody (1992).

[10] Note, however, that FDI may also be linked to the desire to exploit some natural resources that are location specific (e.g. oil).

[11] See Root and Ahmed (1979), Schneider and Frey (1985), Wei (2000), Henisz (2000 a, b), Javorcik and Spatareanu (2004) and Dollar et al. (2004).

of mobile phones per capita proxies the availability of infrastructure. The indicator of political risk is drawn from the ICRG. The model was estimated using a sample of 48 to 72 countries (excluding OECD and Eastern European countries) over the period 1990–99.

With total FDI, all the estimated coefficients are significant with the expected sign. The coefficient of the *S-W* indicator suggests that openness increases total FDI inflows. Its level is rather strong: one standard deviation of the *S-W* indicator leads to an increase of 0.2 points of the log of FDI. The results also confirm that a friendly investment climate complements openness in further attracting FDI. For instance, one standard deviation of improvement in physical infrastructure leads to an increase of 0.11 points of the log of FDI.

With FDI in manufacturing as the dependent variable, the liberalisation index (*S-W*) remains positive and significant. The magnitude of this coefficient is almost double that of the case of total FDI (0.9 to 1.1 compared with 0.44 to 0.64), which makes liberalisation an even more important factor for the attractiveness of a country when more productive FDI is concerned. The coefficients of mobile phones and political risk are significant and have the expected sign.

Taking East Asia as the benchmark, the authors showed that in the MENA, the relatively low level of FDI flows (1.1% of GDP) can partially be explained by the insufficient trade liberalisation and the deficient investment climate of the region. Actually, improvement in these factors to the level of East Asia would boost FDI flows by 65%.

Institutional factors

As noted earlier, Méon and Sekkat (2004) examined the impact of different dimensions of institutions on FDI to the MENA.[12] Six indicators of institutions are considered. Three of them concern corruption: the Corruption Perception Index published by Transparency International, the corruption index by the World Bank and the indicator by Wei (2000). The other three cover different aspects of governance: government effectiveness, the rule of law (both drawn from Kaufmann et al., 1999a) and a broad index of the quality of governance published in the ICRG. The sample includes around 100 countries over the period 1990–99.

The results show that a higher per-capita income and faster growth of trading partners increase FDI inflows. The coefficient of institutions is significantly and positively correlated with the FDI inflows. This suggests that political risk is a severe impediment to FDI. To provide an order of magnitude of the overall impact of political risk, the authors assessed the effect of a potential improvement of the index in the MENA. Switzerland's level was taken as a benchmark. It appeared that Tunisia and Egypt would be the chief gainers of an improvement in their political risk. They would raise their FDI ratio by more than 1 percentage point if they upgraded their risk to the level of Switzerland. The FDI ratios of Morocco, Israel and Jordan would also increase, although to a lesser extent. Finally, the case of Algeria is worth emphasising. The estimations imply that Algeria might more than double its FDI ratio if it cut down its political risk. Still, as that country attracts very little FDI, the increase measured in absolute terms is almost negligible.

Chan and Gemayel (2004) complemented Méon and Sekkat (2004) by focusing on the risks of instability. They used the economic, financial and political risk indices of the ICRG. The standard deviation and the inter-quartile range are used as measures of risk instability. The ratio of FDI inflows to GDP is explained in terms of its lagged value and measures of the risks of instability. Estimations are conducted using both fixed effects and random effects models. These models are supposed to better control for the effects of missing or unobserved variables. The results show that the estimated coefficients of the risks of instability have the expected sign and are significant irrespective of the measure of instability and of the index under consideration. It appears, therefore, that policies designed to stabilise investment risks should help MENA countries in attracting FDI. Such policies

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[12] The work by Daniele and Marani (2006) is similar.

could include measures to improve the regulatory environment, reduce currency and financial risks, and to avoid political and social instability.

3.   Empirical analysis

3.1   Descriptive analysis

Manufactured exports

Figure 1 shows manufactured exports as a share of GDP in the MED-11 and in other regions. The region does fairly well. It ranks third (15% of GDP) after the euro area (26%) and East Asia & the Pacific (30%) and before Europe & Central Asia (12%), Sub-Saharan Africa (10%), South Asia (9%) and Latin America & the Caribbean (11%). In terms of dynamics, the region scores the most important increase in the share of total manufactured exports to GDP (around 5 percentage points), similar to that of East Asia & the Pacific.

Figure 2 presents similar information to that of Figure 1 but looks at individual MED-11 countries. Within the region, there are huge differences among countries in terms of manufactured exports as a share of GDP. Algeria is far behind all the countries (less than 1%). Meanwhile Jordan, Israel and Tunisia are leading (more than 25%). These are also the countries showing the greatest progress over the period (between 6 and 13 percentage points). The evolutions in Algeria and Morocco have been mediocre.

Figure 3 presents the share of MED-11 countries' manufactured exports going to the euro area. The EU appears to be the main market for a majority of countries. Out of the ten countries in our sample, six send more than 80% of their manufactured exports to Europe. Yet, the share of the EU has been decreasing in many countries since 2000.

To summarise, the present record of the region in terms of participation in world trade, especially manufactured exports, is not too low by international standards due to the non-negligible progress that has been made over the period 1995–2009. Such progress has mainly been attributable to three countries: Jordan, Israel and Tunisia. The region is primarily oriented towards the European market for its exports, although as noted above the importance of this market has been declining since 2000.

Figure 1.
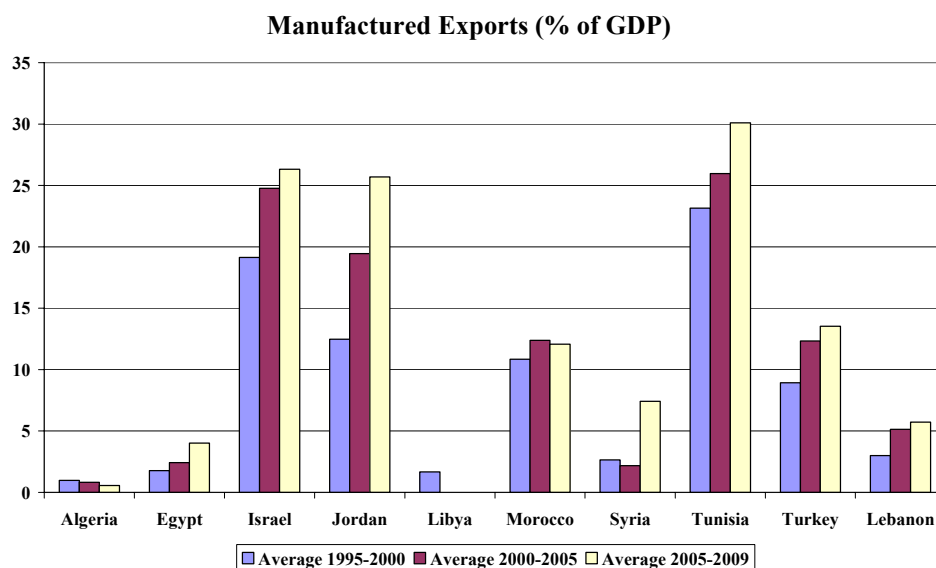
Manufactured exports (% of GDP)

Source: World Development Indicators, World Bank (2011).

Figure 2.

Manufactured Exports (% of GDP)

Source: World Development Indicators, World Bank (2011).

Figure 3.

Share of Manufactures in Total Merchandise Exports to the Euro area

Source: World Development Indicators, World Bank (2011).

Foreign direct investment

Figure 4 compares the ratio of total FDI inflows to the MED-11 as a share of GDP with the one of other regions over three periods. In the first period, the MED-11 scored the lowest ratio (1.11%) of all regions except South Asia (0.68%). In the last period, however, the region exhibited one of the highest ratios (4.19%) just behind Europe & Central Asia (4.53%) and the EU (4.65%) and far ahead of the other regions. This evolution shows the dramatic rise in the ratio of FDI to GDP in the MED-11 (3 percentage points), which equals almost twice the highest increase observed in the other regions.

Figure 4.

FDI inflows as % of GDP
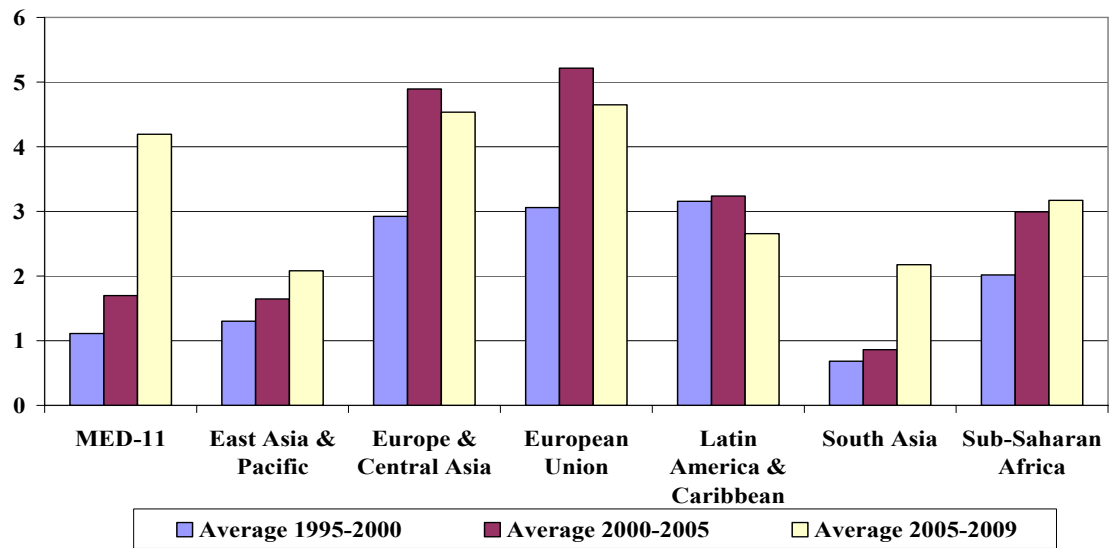
Source: UNCTAD (2009), *World Investment Report 2009* (online database).

There are nonetheless notable differences across countries (Figure 5). In the last period, Jordan and Lebanon scored the highest ratios (16.71% and 14.27% respectively) while Algeria scored the lowest ratio (1.37%). In terms of evolution, a similar picture emerges: Jordan and Lebanon show the highest increases (14 and 9 percentage points respectively) while Algeria shows the lowest increase (0.62 percentage point).

Figure 5.

FDI inflows as % of GDP
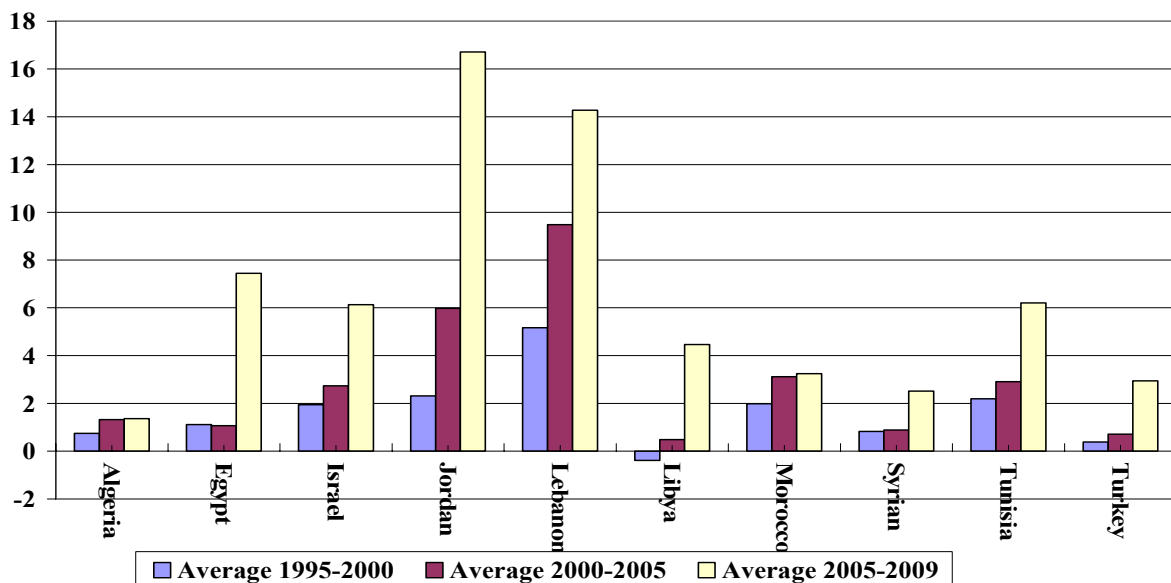
Source: UNCTAD (2009), *World Investment Report 2009* (online database).

3.2   Econometric analysis

Manufactured exports

Our basic specification is based on Sekkat and Varoudakis (2000). Assuming that the exporter is small with respect to the market for manufactures, profit maximisation leads to the following specification of exports of manufactures:

$$\text{Log}(X_{it} / GDP_{it}) = \alpha_{0i} + \alpha_{0t} + \alpha_1 * \text{Log}(Demand_{it}) + \alpha_2 * \text{Log}(REER_{it}) + \mu_{it} \tag{1}$$

where

X_{it} / GDP_{it} is the ratio of manufactured exports to gross domestic product for year t and country i;

α_{0i} is country i's fixed effect (i.e. dummy);

α_{0t} is year t's fixed effect (i.e. dummy);

$Demand_{it}$ is demand for manufactures;

$REER_{it}$ is country i's real effective exchange rate for year t, where an increase in $REER_{it}$ stands for an appreciation of the exporter's currency; and

μ_{it} is the error term

We scaled down exports by GDP to correct for the differences in countries' sizes. $Demand_{it}$ is defined as the EU's manufactured value added over its GDP. For a given country, $REER_{it}$ is defined as

$$Log\big(REER\big) = \sum_{j=1}^{j=10} \left[w_j * Log\left(e_j * \left(CPI \middle/ CPI_j \right) \right) \right] \tag{2}$$

where

CPI is the consumer price index of the country;

CPI_j is the consumer price index of the country's partner j;

e_j is the nominal bilateral exchange rate of the country as regards partner j; and

w_j is the weight of the j-th partner in the bilateral trade of the country. The weighting pattern refers to the ten largest trade partners excluding oil-exporting countries.

These explanatory variables are standard in the literature, and all have a well-defined expected impact on manufactured exports. The coefficient of the real exchange rate should be negative because an increase in $REER_{it}$ means an appreciation of the exporter's currency. We expect a positive coefficient for $Demand_{it}$. These two variables as well as the dependent are constructed using the World Bank's World Development Indicators.

As explained in the introduction, this paper seeks to disentangle the impacts of trade policy, exchange rate policy, governance quality and the availability of infrastructure on manufactured exports. There are, however, numerous indicators that can proxy each of these dimensions (see appendix 1). Some of them have to be disregarded because they consist of only one observation, or too few, per country (e.g. the World Bank's indicator for "Doing Business"). Using them would reduce dramatically the degree of freedom and the quality of the inference. This still leaves us with more than one indicator to proxy a given dimension. Introducing all of them into the same specification raises multicolinearity issues, which affect the significance of the coefficient and make it difficult to decide which variable has the best explanatory power. Moreover, since the purpose of the study is to assess the impact of different scenarios of reforms, the specification should be as parsimonious as possible (Ledolter and Abraham, 1981).

To select among the explanatory variables, our empirical strategy consists of starting with a specification that explains the variable of interest in terms of the above basic determinants, country fixed effects and time fixed effects. Such a basic specification is, actually, the one leading to the best

quality of the fit (as measured by the adjusted R^2). Then, we re-estimate the basic specification without the fixed effects but adding an indicator for each of the above-mentioned dimensions. The preferred regression is the one with the combination of indicators that leads to the closest quality of the fit to the one with fixed effects. Estimation is conducted on a panel of 17 countries over the period 1985–2009. In the regression without fixed effects, a dummy is introduced taking the value 1 if the country is from the southern Mediterranean (South-Med) and 0 otherwise.

This empirical strategy leads to the selection of the following additional explanatory variables. To gauge the impact of infrastructure, the ratio of the number of road kilometres to the surface of the country was retained. As for the degree of openness, we use the indicator published by the Economic Freedom Network (Gwartney et al., 2008) called "Freedom to Trade Internationally". It has been available annually since 2000 and every five years since 1970, and covers around 140 countries. Finally, for the quality of governance we consider the indexes developed by Kaufmann et al. (1999a). The authors classified dimensions of governance into six independent clusters and aggregated them into six indexes (government effectiveness, regulatory burden, rule of law, control of graft, voice and accountability, and lack of political violence). We use the simple average of the six indicators to assess the impact of governance. These additional indicators are defined in a way that their coefficients should be positive.

Table 2 presents the estimation results of five specifications of Equation (1). The first specification includes only the basic determinants and the country and time dummies. Specifications 2 to 4 are the same as the first but exclude the dummies and include each of the additional determinants separately. Specification 5 includes all explanatory variables but the dummies. Unsurprisingly, specification 1 has a very high quality of the fit (adjusted R^2 equals 0.93). The estimated coefficients are significant with the expected sign. None of the other specifications has a better quality of the fit than the first one but such quality increases as long as additional explanatory variables are included. This leads to specification 5, which has the highest quality of the fit (adjusted R^2 equals 0.68) after specification 1. The former is preferred over the latter, however, because of its clearer economic meaning. It is used for simulation.

Table 2. Determinants of manufactured exports

Variable	Specification 1 (Fixed effects)	Specification 2 (OLS)	Specification 3 (OLS)	Specification 4 (OLS)	Specification 5 (OLS)
Constant	–	2.132	-4.181	-2.177	-1.103
	–	**2.251**	**-4.867**	**-2.806**	**-1.308**
REER	-0.517	-0.975	-0.726	-1.254	-1.047
	-4.043	**-2.139**	**-2.613**	**-3.627**	**-3.773**
Demand	-2.102	1.778	-0.245	0.171	0.770
	-0.566	**3.316**	**-0.508**	**0.379**	**1.787**
Openness	–	3.204	–	–	1.554
	–	**11.473**	–	–	**4.488**
Governance quality	–	–	0.271	–	0.107
	–	–	**16.598**	–	**4.067**
Infrastructure	–	–	–	0.842	0.563
	–	–	–	**14.844**	**8.686**
Dummy: South-Med	–	0.209	1.433	1.725	2.087
	–	**1.496**	**9.726**	**11.331**	**11.854**
Number of observations	278	278	278	258	258
Adjusted R^2	0.93	0.36	0.52	0.47	0.64

Notes: The dependent variable is the ratio of manufactured exports to GDP. Specification 1 includes country and time dummies. All variables are in log except governance quality and dummies. Standard errors are heteroskedastic-consistent. T-statistics are in bold.

All estimated coefficients of specification 5 are significant with the expected sign. This implies that exchange rate depreciation fosters manufactured exports as do greater openness of the economy and better quality institutions or infrastructure. These results are in accordance with other findings for the region. Sekkat and Varoudakis (2002) and Ghoneim et al. (2012) found that openness has a positive impact on exports, while Nabli and Véganzonès (2002) and Achy and Sekkat (2003) revealed similar effects of exchange rate depreciation, as did Rosotto et al. (2005) regarding the availability of infrastructure and Méon and Sekkat (2004) with respect to institutions.

Foreign direct investment

Empirical studies differ with respect to FDI specifications. The differences concern both the variables to be included in the specification and their definition (nominal versus real measures and levels versus growth rates). A common specification relates the ratio of FDI over GDP to per capita GDP and the growth rate of GDP (UNCTAD, 1998):

$$\text{Log}(FDI_{it} / GDP_{it}) = \beta_{0i} + \beta_{0t} + \beta_1 * \text{Log}(GDP \ per \ capita_{it}) + \beta_2 * \text{Log}(GDP \ Growth_{it}) + \eta_{it} \quad (3)$$

where

FDI_{it} / GDP_{it} is the ratio of foreign direct investment inflows to gross domestic product for year t and country i;

β_{0i} is country i's fixed effect;

β_{0t} is year t's fixed effect; and

η_{it} is the error term.

We scaled down FDI by GDP to correct for the differences in countries' sizes. The explanatory variables are in real terms. The relationship between per capita GDP and FDI is debated in the empirical literature (Asiedu, 2002). For instance, Schneider and Frey (1985) consider GDP per capita as reflecting the wealth of the resident of the host country and then demand effectiveness. The expected sign of the corresponding coefficient is, therefore, positive. In contrast, Edwards (1990) interprets GDP per capita as the inverse of the return on capital in the host country. Then the coefficient of GDP per capita in the FDI equation is expected to be negative. A higher real per-capita income is supposed to decrease the attractiveness of FDI. The growth rate of GDP reflects the dynamism of the host country and its future market size. An increase in this growth rate characterises a dynamic economy, which may be more attractive for investors. The four variables are from the World Development Indicators published by the World Bank.

To select additional explanatory variables, we adopt the same empirical strategy as in the case of manufactured exports. Equation (3) is first estimated as it stands. Then, it is re-estimated without the fixed effects but adding an indicator for each dimension of the 'investment climate'. The same indicators as for manufactured exports are added (road infrastructure, "Freedom to Trade Internationally" and the quality of governance). Based on the findings by Borenzstein et al. (1998) and Sekkat and Véganzonès (2007), a human capital indicator is also introduced. We use the percentage of the population aged over 25 having reached secondary enrolment from Barro and Lee (2010). The expected sign of the coefficients of these explanatory variables is positive except for openness. The coefficients of "Freedom to Trade Internationally" might be positive or negative following the motive for FDI. If the motive is only to serve the host market, the coefficient should be negative because greater openness means more competition on this market. This is known as the 'tariff-jumping' motive for FDI. If the objective is to serve external markets, the coefficients should be positive since greater openness means easier access to foreign markets. Moreover, greater openness can allow cheaper access to imported inputs.

Given the high volatility of FDI over time, we kept time dummies in order to obtain a precise estimate of the coefficients of interest. The F-test confirms the necessity of having time dummies in the regressions.

Table 3 presents the estimation results of six specifications of Equation (3). The first specification includes only the basic determinants and the country and time dummies. Specifications 2 to 5 are the same as the first but exclude country dummies and include each of the additional determinants separately. Specification 6 includes all explanatory variables but the country dummies. Specification 1 has a high quality of the fit (adjusted R^2 equals 0.78). None of the other specifications has a better quality of the fit than the first one but such quality increases as long as additional explanatory variables are included. This leads to specification 6, which has the highest quality of the fit (adjusted R^2 equals 0.62) after specification 1. Still, the former is preferred over the latter because of its clearer economic meaning. It is used for simulation.

All estimated coefficients of specification 6 are significant with the expected sign except those pertaining to GDP growth and education, which are non-significant. The coefficient of the per capita GDP is significant and negative, which is coherent with the interpretation by Edwards (1990), i.e. GDP per capita as the inverse of the return on capital in the host country. The other estimated coefficients imply that greater openness of the economy, the availability of infrastructure and better quality institutions increase the attractiveness of countries with respect to FDI. Similar impacts were revealed by Rosotto et al. (2005) concerning infrastructure, Sekkat and Véganzonès (2007) regarding the effects of trade policy and Méon and Sekkat (2004) and Chan and Gemayel (2004) with respect to institutions.

Table 3. Determinants of FDI inflows

Variable	Specification 1 (Fixed effects)	Specification 2 (OLS)	Specification 3 (OLS)	Specification 4 (OLS)	Specification 5 (OLS)	Specification 6 (OLS)
Constant	–	3.7473	4.5141	-0.0188	-0.3905	5.1407
	–	**6.6947**	**7.3705**	**-0.0300**	**-0.5870**	**9.8103**
GDP per capita	-0.5826	-0.4411	-0.7278	-0.1573	-0.0947	-0.7601
	-1.3377	**-9.2963**	**-10.4115**	**-2.1537**	**-1.4421**	**-11.7014**
GDP growth	-0.7490	1.7972	-0.2233	3.0604	0.3732	-0.3311
	-0.4915	**1.1463**	**-0.1218**	**1.3957**	**0.1938**	**-0.2310**
Openness	–	2.4191	–	–	–	1.2093
	–	**6.2936**	–	–	–	**2.3748**
Governance quality	–	–	0.2618	–	–	0.2288
	–	–	**13.2800**	–	–	**9.6348**
Education	–	–	–	0.6565	–	-0.3356
	–	–	–	**1.5498**	–	**-0.9850**
Infrastructure	–	–	–	–	0.1323	0.1432
	–	–	–	–	**9.6467**	**6.8797**
Dummy: South-Med	–	-0.3536	0.5784	-0.3563	-0.1442	0.6933
	–	**-3.7938**	**4.5883**	**-3.9456**	**-1.3187**	**6.5068**
Number of observations	368	348	368	348	345	325
Adjusted R^2	0.78	0.32	0.49	0.17	0.25	0.62

Notes: The dependent variable is the ratio of FDI to GDP. Specification 1 includes country and time dummies. All other specifications contain time dummies. All variables are in log except GDP growth, education, governance quality, infrastructure and dummy. Standard errors are heteroskedastic-consistent. T-statistics are in bold.

3.3   Prospective analysis

Taking into account the estimated coefficients of specification 5, we investigate the impacts of possible evolutions of exchange rate, openness, governance quality and infrastructure on the ratio of manufactured exports to GDP. We consider four scenarios:

- *Reference scenario (i.e. the continuation of present trends)*. Future changes in the explanatory variables are assumed to be the same as between 2005 and 2009.

- *EU integration scenario (e.g. further integration with the EU)*. Future changes in the explanatory variables are assumed to be the same as in the best performing country in the MED-11 during the period 2005–09.

- *Regional integration scenario (i.e. less integration with the EU but greater integration within the region)*. Future changes in the explanatory variables are assumed to equal half the changes in the EU integration scenario.

- *Pessimistic scenario*. Future changes in the explanatory variables are assumed to be the same as in the worst performing country in the MED-11 during the period 2005–09.

Manufactured exports

Table 4 presents the results of the four scenarios for eight 'southern' MED-11 countries. It contains two panels. The first panel gives, for each country, in addition to the observed ratio of manufactured exports to GDP (on average during the period 2005–09), the expected ratios under each scenario. The second panel gives the change, with respect to the observed average. Under the reference scenario (i.e. the continuation of present trends), the ratio of manufactured exports to GDP remains almost unchanged in all countries. This implies that for the ratio to increase in the future, countries must make more concerted efforts than in the past. They need to combine further depreciation of their real effective exchange rate (to improve the price competitiveness of their exports), greater openness of their economies and better quality institutions and infrastructure. The improvement in the price competitiveness of exports (through depreciation of the real effective exchange rate) could be achieved through depreciation of the nominal exchange rate, a reduction in production costs, higher productivity or a combination of them all. The increase in openness should consider both tariff and non-tariff barriers to trade. Under the assumption that sensible improvements are achieved in these respects, the second scenario (further integration with the EU) suggests an increase in the ratio of manufactured exports to GDP in all countries but Algeria. For Algeria, the reason for this lies in its still low manufacturing basis (the ratio of value added of manufactures to GDP is 9% in Algeria, 23% in Jordan and 28% in Turkey on average over the period 2005–09), which prevents it from fully benefiting from the above-mentioned improvements. The increase is highest (above 7 percentage points) in Jordan, Israel and Tunisia. Under the third scenario (less integration with the EU but greater integration within the region), the increases are unsurprisingly less important than under the second scenario but remain economically significant in Jordan, Israel and Tunisia (around 4 percentage points). Finally, the pessimistic scenario shows a negligible deterioration in Algeria and Egypt and an economically significant deterioration in Jordan, Israel and Tunisia (around 5 percentage points). Interestingly, the deteriorations are slightly more pronounced than the improvements expected under the third scenario (less integration with the EU but greater integration within the region), but they are far greater than the changes under the first scenario (i.e. the continuation of present trends). Hence, not only are the gains high from the above-mentioned 'sensible' improvements, but also the losses from deterioration are substantial, supporting the crucial necessity of vigilance with respect to reforms.

Table 4. Observed and predicted ratio of manufactured exports to GDP across scenarios

Country	Observed (2005–09)	Reference	EU integration	Regional integration	Pessimistic
		Level (%)			
Algeria	0.57	0.56	0.74	0.64	0.44
Egypt	4.02	4.01	5.24	4.58	3.15
Israel	26.33	26.25	34.36	29.99	20.63
Jordan	25.69	25.61	33.52	29.26	20.12
Morocco	12.08	12.04	15.76	13.75	9.46
Syria	7.42	7.39	9.68	8.45	5.81
Tunisia	30.09	30.00	39.27	34.27	23.57
Turkey	13.54	13.49	17.66	15.42	10.60
		Change (percentage points)			
Algeria	–	0.00	0.17	0.08	-0.12
Egypt	–	-0.01	1.23	0.56	-0.87
Israel	–	-0.08	8.03	3.66	-5.71
Jordan	–	-0.08	7.83	3.57	-5.57
Morocco	–	-0.04	3.68	1.68	-2.62
Syria	–	-0.02	2.26	1.03	-1.61
Tunisia	–	-0.09	9.17	4.18	-6.52
Turkey	–	-0.04	4.13	1.88	-2.93

Foreign direct investment

Taking into account the estimated coefficients of Specification 6, we investigate the impacts of possible developments of the significant explanatory variables (i.e. GDP per capita, openness, governance quality and infrastructure) on the ratio of FDI to GDP. We consider the same four scenarios as for manufactured exports.

Table 5 presents the results of the four scenarios for eight 'southern' MED-11 countries. It contains two panels. The first panel gives, for each country, in addition to the observed ratio of FDI to GDP (on average during the period 2005–09), the expected ratios under each scenario. The second panel gives the change, with respect to the observed average. Under the reference scenario (i.e. the continuation of present trends), the ratio of FDI to GDP decreases slightly in all countries but Jordan, where the decrease is relatively important. Under the assumption that sensible improvements are achieved with respect to GDP per capita, openness, governance quality and infrastructure, the second scenario (further integration with the EU) suggests an increase in the ratio of FDI to GDP in all countries. The increase is highest (almost 2 percentage points) in Jordan and non-negligible in Egypt, Israel and Tunisia (above 0.6 percentage points). Under the third scenario (less integration with the EU but greater integration within the region), the increases are unsurprisingly less important than under the second scenario but remain non-negligible in Egypt, Israel and Tunisia (above 0.3 percentage points) and economically significant in Jordan (around 0.9 percentage points). Finally, the pessimistic scenario shows a clear decrease in all countries. The most affected economy is Jordan (-4 percentage points) followed by Egypt, Israel and Tunisia (around -1.5 percentage points). The deteriorations are far greater than the improvements expected under the most optimistic scenario (further integration with the EU). They are also much steeper than under the first scenario (i.e. the continuation of present trends). Hence, like for manufactured exports, the results support the crucial necessity of vigilance with respect to reforms.

Note that the increases (or decreases) in the ratio of FDI to GDP do not account for possible increases (or decreases) of the total volume of world FDI. On the one hand, there is a mechanical effect by which, all things being equal, higher world FDI translates into higher ratios of FDI inflows to GDP in each country. On the other hand, Méon and Sekkat (2012) suggest that higher world FDI might benefit countries with a weaker business climate more than those with stronger one. Thus, our simulated increases (or decreases) might be underestimated.

Table 5. Observed and predicted ratios of FDI to GDP across scenarios

Country	Observed (2005–09)	Reference	EU integration	Regional integration	Pessimistic
			Level (%)		
Algeria	1.37	1.28	1.51	1.44	1.03
Egypt	7.44	6.98	8.25	7.83	5.62
Israel	6.13	5.75	6.8	6.45	4.63
Jordan	16.71	15.68	18.53	17.6	12.63
Morocco	3.25	3.05	3.6	3.42	2.45
Syria	2.52	2.36	2.79	2.65	1.9
Tunisia	6.21	5.82	6.88	6.54	4.69
Turkey	2.94	2.76	3.26	3.1	2.22
			Change (percentage points)		
Algeria	–	-0.09	0.14	0.07	-0.34
Egypt	–	-0.46	0.81	0.39	-1.82
Israel	–	-0.38	0.67	0.32	-1.5
Jordan	–	-1.03	1.82	0.89	-4.08
Morocco	–	-0.2	0.35	0.17	-0.8
Syria	–	-0.16	0.27	0.13	-0.62
Tunisia	–	-0.39	0.67	0.33	-1.52
Turkey	–	-0.18	0.32	0.16	-0.72

4. Conclusion

This paper investigates the link between the evolution of the region's integration with the world economy and the reforms implemented (or not). It focuses on manufactured exports and FDI, and examines the trends, determinants and prospects of such integration. Drawing on the literature, the paper disentangles the contributions of trade policy, exchange rate policy, governance quality and the availability of infrastructure. For each variable of interest, the analysis offers first an estimation of the impacts of the determinants, and second an assessment of their evolution under different scenarios pertaining to the development of the determinants.

The econometric analysis confirms the role of exchange rate depreciation, the openness of the economy and the quality of institutions or infrastructure in fostering manufactured exports. Similarly, the estimations show that greater openness of the economy, the availability of infrastructure and better quality institutions increase the attractiveness of countries with respect to FDI.

Taking into account the estimated coefficients, we have investigated the impacts of possible changes to the relevant explanatory variables on the ratio of manufactured exports to GDP and on FDI to GDP. We have considered four scenarios: the continuation of present trends, deeper integration with the EU, less integration with the EU but greater integration within the region, and a pessimistic scenario where

the future changes in the explanatory variables are assumed to be the same as in the worst performing country in the MED-11 during the period 2005–09.

Unsurprisingly, the highest positive impacts on the ratio of manufactured exports to GDP and on FDI to GDP are associated with the second scenario (further integration with the EU). The ratio of manufactured exports to GDP increases in all countries but Algeria. The increase is highest (above 7 percentage points) in Jordan, Israel and Tunisia. The ratio of FDI to GDP also increases in all the countries. The increase is highest (almost 2 percentage points) in Jordan and non-negligible in Egypt, Israel and Tunisia (above 0.6 percentage points). Moreover, both ratios deteriorate under the first scenario (the continuation of present trends), and of course under the pessimistic scenario. The deteriorations are far greater than the improvements expected under the scenarios of further integration with the EU. Hence, not only are the gains substantial from improvements in exchange rate management, openness of the economy and the quality of institutions and infrastructure, but also the losses from deteriorations are significant. This finding implies that vigilance with respect to the progress in reforms is crucial.

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Appendix 1. List of variables considered

Direct investment in reporting economy (FDI inward, mn $US)

Direct investment abroad (FDI outward, mn $US)

Direct investment in reporting economy (FDI inward, mn $US)

Direct investment abroad (FDI outward, mn $US)

Tariff rate, applied, simple mean, all products (%)

Tariff rate, most favoured nation, simple mean, all products (%)

Tariff rate, applied, weighted mean, all products (%)

Tariff rate, most favoured nation, weighted mean, all products (%)

International trade tax revenues (% of trade sector)

Mean tariff rate

Taxes in international trade

Size of the trade sector, relative to expected

Black-market exchange rates

Capital controls

International capital market controls

Freedom to trade internationally

Total number of BITs in force

Total number of BITs signed

Power distance index (PDI)

Individualism (IDV)

Masculinity (MAS)

Uncertainty avoidance index (UAI)

Long-term orientation (LTO)

Indulgence versus restraint

Ease of doing business rank

Starting a business – Rank

Starting a business – Procedures (number)

Starting a business – Time (days)

Starting a business – Cost (% of income per capita)

Starting a business – Min. capital (% of income per capita)

Dealing with construction permits – Rank

Dealing with construction permits – Procedures (number)

Dealing with construction permits – Time (days)

Dealing with construction permits – Cost (% of income per capita)

Registering property – Rank

Registering property – Procedures (number)

Registering property – Time (days)

Registering property – Cost (% of property value)

Getting credit – Rank

Getting credit – Strength of legal rights index (0-10)

Getting credit – Depth of credit information index (0-6)

Getting credit – Public registry coverage (% of adults)

Getting credit – Private bureau coverage (% of adults)

Protecting investors – Rank

Protecting investors – Extent of disclosure index (0-10)

Protecting investors – Extent of director liability index (0-10)

Protecting investors – Ease of shareholder suits index (0-10)

Protecting investors – Strength of investor protection index (0-10)

Paying taxes – Rank

Paying taxes – Payments (number per year)

Paying taxes – Time (hours per year)

Paying taxes – Profit tax (%)

Paying taxes – Labour tax and contributions (%)

Paying taxes – Other taxes (%)

Paying taxes – Total tax rate (% profit)

Trading across borders – Rank

Trading across borders – Documents to export (number)

Trading across borders – Time to export (days)

Trading across borders – Cost to export ($US per container)

Trading across borders – Documents to import (number)

Trading across borders – Time to import (days)

Trading across borders – Cost to import ($US per container)

Enforcing contracts – Rank

Enforcing contracts – Procedures (number)

Enforcing contracts – Time (days)

Enforcing contracts – Cost (% of claim)

Closing a business – Rank

Closing a business – Recovery rate (cents on the dollar)

Closing a business – Time (years)

Closing a business – Cost (% of estate)

Employing workers – Difficulty of hiring index (0-100)

Employing workers – Rigidity of hours index (0-100)

Employing workers – Difficulty of redundancy index (0-100)

Employing workers – Rigidity of employment index (0-100)

Employing workers – Non-wage labour cost (% of salary)

Employing workers – Redundancy cost (weeks of salary)

Percentage of no schooling

Percentage of pop. +25 having reached secondary

Percentage of pop. +25 having completed secondary

Percentage of pop. +25 having reached tertiary

Percentage of pop. +25 having completed tertiary

Average years of total schooling among pop. +25

Average years of primary schooling among pop. +25

Average years of secondary schooling among pop. +25

Average years of tertiary schooling among pop. +25
Voice and accountability
Political stability and absence of violence
Government effectiveness
Regulatory quality
Rule of law
Control of corruption
Wages per employee (in $US)
Telephone lines
Telephone lines (per 100 persons)
Mobile and fixed-line telephone subscribers
Mobile and fixed-line telephone subscribers per employee
Mobile and fixed-line telephone subscribers (per 100 persons)
Population covered by mobile cellular network (%)
Mobile cellular subscriptions
Mobile cellular subscriptions (per 100 persons)
Fixed broadband Internet subscribers
Logistics performance index: Efficiency of customs clearance process (1=low to 5=high)
Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high)
Logistics performance index: Ease
Logistics performance index: Quality
Logistics performance index: Frequency
Logistics performance index: Track consignments
Logistics performance index: Overall
GDP (current mn $US)
GDP (constant 2000 mn $US)
GDP growth (annual %)
GDP per capita (current $US)
GDP per capita (constant 2000 $US)
GDP per capita growth (annual %)

Appendix 2. Descriptive statistics

Table A2.1 Manufactured exports equation

Variables	Mean	Std dev.	Minimum	Maximum	Median
Manufactured exports/GDP	-2.323	1.078	-6.390	-0.488	-2.017
REER	0.033	0.219	-0.437	1.464	0.000
Demand	-1.577	0.166	-1.820	-1.332	-1.626
Openness	-0.460	0.203	-1.152	-0.190	-0.422
Governance quality	2.942	4.413	-8.051	7.877	4.435
Infrastructure	-0.654	1.400	-3.294	2.270	-0.191

Note: All variables are in log except governance quality.

Table A2.2 FDI equation

Variables	Mean	Std dev.	Minimum	Maximum	Median
FDI/GDP	-1.868	1.005	-6.997	0.118	-1.845
GDP per capita	8.597	1.058	6.787	10.071	9.053
GDP growth	0.035	0.033	-0.135	0.187	0.036
Openness	-0.465	0.212	-1.152	-0.190	-0.411
Governance quality	2.194	4.503	-8.051	7.877	3.691
Education	0.289	0.134	0.046	0.587	0.292
Infrastructure	1.098	1.606	0.037	9.675	0.716

Note: All variables are in log except GDP growth, education, governance quality and infrastructure.

About MEDPRO

MEDPRO – Mediterranean Prospects – is a consortium of 17 highly reputed institutions from throughout the Mediterranean funded under the EU's 7th Framework Programme and coordinated by the Centre for European Policy Studies based in Brussels. At its core, MEDPRO explores the key challenges facing the countries in the Southern Mediterranean region in the coming decades. Towards this end, MEDPRO will undertake a prospective analysis, building on scenarios for regional integration and cooperation with the EU up to 2030 and on various impact assessments. A multi-disciplinary approach is taken to the research, which is organised into seven fields of study: geopolitics and governance; demography, health and ageing; management of environment and natural resources; energy and climate change mitigation; economic integration, trade, investment and sectoral analyses; financial services and capital markets; human capital, social protection, inequality and migration. By carrying out this work, MEDPRO aims to deliver a sound scientific underpinning for future policy decisions at both domestic and EU levels.

Title	MEDPRO – Prospective Analysis for the Mediterranean Region
Description	MEDPRO explores the challenges facing the countries in the South Mediterranean region in the coming decades. The project will undertake a comprehensive foresight analysis to provide a sound scientific underpinning for future policy decisions at both domestic and EU levels.
Mediterranean countries covered	Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia and Turkey
Coordinator	Dr. Rym Ayadi, Centre for European Policy Studies (CEPS), rym.ayadi@ceps.eu
Consortium	Centre for European Policy Studies, **CEPS**, Belgium; Center for Social and Economic Research, **CASE**, Poland; Cyprus Center for European and International Affairs, **CCEIA**, Cyprus; Fondazione Eni Enrico Mattei, **FEEM**, Italy; Forum Euro-Méditerranéen des Instituts de Sciences Economiques, **FEMISE**, France; Faculty of Economics and Political Sciences, **FEPS**, Egypt; Istituto Affari Internazionali, **IAI**, Italy; Institute of Communication and Computer Systems, **ICCS/NTUA**, Greece; Institut Europeu de la Mediterrania, **IEMed**, Spain; Institut Marocain des Relations Internationales, **IMRI**, Morocco; Istituto di Studi per l'Integrazione dei Sistemi, **ISIS**, Italy; Institut Tunisien de la Compétitivité et des Etudes Quantitatives, **ITCEQ**, Tunisia; Mediterranean Agronomic Institute of Bari, **MAIB**, Italy; Palestine Economic Policy Research Institute, **MAS**, Palestine; Netherlands Interdisciplinary Demographic Institute, **NIDI**, Netherlands; Universidad Politecnica de Madrid, **UPM**, Spain; Centre for European Economic Research, **ZEW**, Germany
Budget and Funding	Total budget: €3,088,573 EC-DG RESEARCH contribution: €2,647,330
Duration	1 April 2010 – 31March 2013 (36 months)
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