

# Chapter 4

## Manufactured Exports and FDI

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### 4.1 Introduction

For a long time most SEMC were weakly integrated with the world economy. In the early 1980s, the region's ratio of manufactured exports to GDP was the lowest, at 2.68 %, compared to all other regions except LAC. The region's ratio of FDI was less clear due to the volatility of such flows.

Developing countries are poorly integrated with the world economy because of restrictive trade and exchange rate policies. Sachs and Warner (1995) found that more liberalized economies shift more rapidly to the export of manufactured goods and away from exports resulting from agriculture, forestry, fishing, mining, and the production of oil and gas.

Sekkat and Varoudakis (2002) found that the trade policy reforms of some SEMC increased the share of manufactured exports in their economies. Achy and Sekkat (2003) reached a similar conclusion regarding the impact of exchange rate policy. But such reforms might not be sufficient, according to other economists. Companion policies are needed to further strengthen a given investment climate. These include the provision of adequate infrastructure (Wheeler and Mody 1992), and strong economic and political institutions (Schneider and Frey 1985; Henisz 2000a, b). Meon and Sekkat (2004) and Sekkat and Veganzones (2007) confirmed the importance of these factors for the region.

Many policymakers in SEMC began altering their economic strategies in the mid-1980s, a process which accelerated during the 1990s. Their aim was to make their economies more efficient and, hence, to foster growth and development. These countries moved away from their previous import substitution strategies. They

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lowered trade barriers, privatized state-owned firms, and reformed the foreign-exchange markets. Policymakers also introduced other reforms aimed at improving the business climates of their respective countries.

As result, SEMC became increasingly integrated with the world economy, according to 2005–2009 figures. The region’s share of manufactured exports-to-GDP, at 15 %, placed it third after the euro-area, which was at 26 %, and EAP (30 %), and before ECA (12 %), SSA (10 %), South Asia (9 %) and LAC (11 %).

There are notable differences between countries. Algeria is far behind the remaining countries in the region. Its manufactured exports as a share of GDP are less than 1 %. Jordan, Israel and Tunisia lead the pack with a ratio of more than 25 % each. These three countries’ ratios also rose the most between 1995–1999 and 2005–2009 – between 6 and 13 percentage points. The improvements in Algeria and Egypt were mediocre (Sekkat 2012).

In this chapter, we investigated whether there is a link between the evolution of the region’s integration in the world economy and the reforms implemented (or not). We focused on manufactured exports and FDI. Drawing on literature (for its survey see Sekkat 2012 and De Wulf and Maliszewska 2009), we sought to disentangle the contribution of trade policy, exchange rate policy, quality of governance and availability of infrastructure. We conducted the analysis on a set of 17 countries (Algeria, Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Libya, Malta, Morocco, Portugal, Spain, Syria, Tunisia and Turkey) over the period 1985–2009.

The rest of the chapter is organized in three sections. In Sect. 4.2, we estimated of the impact of each determinant discussed above on the variable of interest. In Sect. 4.3 we offered an assessment of the future evolution of these variables of interest under different scenarios. Sect. 4.4 concludes.

## 4.2 Empirical Analysis

### 4.2.1 *Manufactured Exports*

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

$$\begin{aligned} \text{Log}(X_{it} / \text{GDP}_{it}) = & \alpha_0i + \alpha_0t + \alpha_1 * \text{Log}(\text{Demand}_{it}) + \alpha_2 \\ & * \text{Log}(\text{REER}_{it}) + \mu_{it} \end{aligned} \quad (4.1)$$

where  $X_{it}/\text{GDP}_{it}$  was the ratio of manufactured exports to gross domestic product for year  $t$  and country  $i$ ;  $\alpha_{0i}$  was country  $i$ ’s fixed effect (i.e. Dummy);  $\alpha_{0t}$  was year  $t$ ’s fixed effect (i.e. Dummy);  $\text{Demand}_{it}$  was demand for manufactures;  $\text{REER}_{it}$  was

country  $i$ 's real effective exchange rate for year  $t$ , where an increase in  $REER_{it}$  stood for an appreciation of the exporter's currency;  $\mu_{it}$  was the error term.

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

$$\text{Log}(REER) = \sum_{j=1}^{j=10} \left[ w_j * \text{Log} \left( e_j * \left( \frac{CPI}{CPI_j} \right) \right) \right] \quad (4.2)$$

where  $CPI$  was the Consumer Price Index of the country;  $CPI_j$  was the Consumer Price Index of the country's partner  $j$ ;  $e_j$  was the nominal bilateral exchange rate of the country as regard partner  $j$ ;  $w_j$  was the weight of the  $j$ -th partner in the bilateral trade of the country. The weighting pattern referred to the ten largest trade partners excluding oil exporting countries.

These explanatory variables are standard in the literature. 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 expected a positive coefficient for  $Demand_{it}$ . We constructed these two variables as well as the dependent using the World Development Indicators of the WB.

We sought to disentangle the impact of trade policy, exchange rate policy, quality of governance, and availability of infrastructure on manufactured exports. There are indicators that can proxy each of these variables (Sekkat 2012). We had to disregard some of them because they consisted of only one observation, or too few, per country (e.g. the WB DB indicator). Using them would have reduced the degree of freedom and the quality of the inference. This still left us with more than one indicator to proxy a given variable. Introducing all of them into the same specification raised multicollinearity issues. It affected the significance of the coefficient and made it difficult to decide which variable had the best explanatory power. Since the purpose of our analysis was to assess the impact of different scenarios of reforms, the specifications had to be as parsimonious as possible (Ledolter and Abraham 1981).

To select among the explanatory variables, we started with a specification which explained the variable of interest in terms of the basic determinants mentioned above, country fixed effects and time fixed effects. Such a basic specification was the one leading to the best quality of the fit (as measured by the Adjusted  $R^2$ ). Then, we re-estimated the basic specification without the fixed effects but we added an indicator for each of the above-mentioned dimensions. The preferred regression was the one with the combination of indicators that led to the closest quality of fit to the one with fixed effects. We conducted estimations on the set of 17 countries listed in Sect. 4.1 over the period 1985–2009. In the regression without fixed effects, we introduced a dummy which took the value 1 in case of SEMC and zero otherwise.

This empirical strategy led to the selection of the following additional explanatory variables. To gauge of the level of infrastructure, we calculated the ratio of the

number of road kilometers to the surface of a given country. As a proxy for the degree of openness in a given country, we used an indicator published by Economic Freedom Network (Gwartney et al. 2008) called ‘Freedom to Trade Internationally’. It covers 140 countries and since 2000, it is published annually. From 1970 to 2000, it was published every 5 years. We used indices developed by Kaufmann et al. (1999) to quantify the quality of governance. The authors classify dimensions of governance into six independent clusters and aggregate them into six indices (government effectiveness, regulatory burden, rule of law, control of graft, voice and accountability, and lack of political violence). We used the simple average of the six indicators to assess the quality of governance. These additional indicators’ coefficients were positive.

Table 4.1 presents the estimation results of five specifications of Eq. 4.1. The first specification included only the basic determinants and the country and time dummies. Specifications 2–4 were the same as the first but excluded the dummies and included each of the additional determinants separately. Specification 5 included all explanatory variables but the dummies. Specification 1 had a high quality of the fit (Adjusted  $R^2$  equals 0.93). The estimated coefficients were significant with the expected sign. None of the other specifications had a better quality of the fit than the first but such quality increased as long as additional explanatory variables were included. Specification 5 had the highest quality of fit

**Table 4.1** Determinants of manufactured exports (From own estimation based on WBWDI and UNCTAD databases)

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

Note: 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

(Adjusted  $R^2$  equals 0.68) after Specification 1. The former was preferred over the latter because of its better economic meaning. We used it for simulation.

All estimated coefficients of Specification 5 were significant with the expected sign except the one pertaining to foreign demand which exhibited a negative sign. This coefficient was non significant because of a potential co-linearity with one of the other indicators. While it was significant with the expected sign in the first specification, it became non-significant once we introduced any of the additional explanatory variables. Since it was not a variable over which a domestic authority can have control, we disregarded the coefficient of foreign demand. The other estimated coefficients imply that exchange rate depreciation fosters manufactured exports as does a higher openness of the economy, a better quality of institutions, and better infrastructure.

## 4.2.2 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 to GDP to per capita GDP and the growth rate of GDP (UNCTAD 1998):

$$\begin{aligned} \text{Log}(FDI_{it}/GDP_{it}) = & \beta_{0i} + \beta_{0t} + \beta_1 * \text{Log}(GDP \text{ per capita}_{it}) + \beta_2 \\ & * \text{Log}(GDP \text{ Growth}_{it}) + \eta_{it} \end{aligned} \quad (4.3)$$

where  $FDI_{it}/GDP_{it}$  is the ratio of FDI inflows to GDP for year  $t$  and country  $i$ ;  $\beta_{0i}$  is country  $i$ 's fixed effect;  $\beta_{0t}$  is year  $t$ 's fixed effect;  $\eta_{it}$  is the error term.

We scaled down FDI by GDP to correct for the differences in countries' sizes. The explanatory variables used were in real terms. The relationship between per capita GDP and FDI is debated in the empirical literature (Asiedu 2002). Schneider and Frey (1985) found GDP per capita reflects the wealth of the resident of the host country and, hence, demand effectiveness. The expected sign of the corresponding coefficient is, therefore, positive. Edwards (1990) interpreted 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 a country to foreign investors. The growth rate of GDP reflects the dynamism of the host country and its future market size. An increase in this growth rate characterizes a dynamic economy which may be more attractive for investors. The four variables are from the WB's WDI.

To select additional explanatory variables, we adopted the same empirical strategy as in the case of manufactured exports. Equation 4.3 is first estimated as it stands. Then, it is re-estimated without the fixed effects but with an indicator for

each dimension of the investment climate. We added the same indicators as for manufactured exports (road infrastructure, ‘Freedom to Trade Internationally’, and the quality of governance). Based on findings of Borensztein et al. (1998) and Sekkat and Veganzones (2007), we also introduced a human capital indicator. We used the percentage of population over 25, which has reached secondary school, an indicator borrowed from Barro and Lee (2010). The expected sign of the coefficients of these explanatory variables was positive except for openness. The coefficients of ‘Freedom to Trade Internationally’ could be positive or negative, depending on the motive of the investors. If the motive was only to serve the host market, the coefficient had to be negative because openness means more competition on this market. This is known as the ‘tariff jumping’ motivation for FDI. If the objective was to serve external markets, the coefficients had to be positive since openness means easier access to foreign markets. Higher openness can give access to cheaper imported inputs.

Given the volatility of FDI over time, we kept time dummies in order to get precise estimates of the coefficients of interest. The F-test confirms the necessity of having time dummies in the regressions. Table 4.2 presents the estimation results of six specifications of Eq. 4.3.

The first specification included only the basic determinants and the country and time dummies. Specifications 2–5 were the same as the first but excluded country dummies and included each of the additional determinants separately. Specification 6 included all explanatory variables except the country dummies. Specification 1 had a high quality of the fit (Adjusted  $R^2$  equals 0.78). None of the other specifications had a better quality of the fit than the first one but such quality increased as long as additional explanatory variables were included. Specification 6 had the highest quality of the fit (Adjusted  $R^2$  equals 0.62) after Specification 1. The former was preferred over the latter because of its better economic meaning. We used it for simulation in Sect. 4.3.

All estimated coefficients of Specification 6 were significant with the expected sign except the ones pertaining to GDP growth and education which were non-significant. The coefficient of the per capita GDP was significant and negative which was coherent with the interpretation of Edwards (1990), i.e., GDP per capita as the inverse of the return on capital in the host country. The other estimated coefficients implied that a higher openness of the economy, greater availability of infrastructure, and better quality institutions increase the attractiveness of a given country to foreign investors.

### 4.3 Prospective Analysis

We considered four scenarios of future developments (until 2030) in the area of manufactured exports and FDI in SEMC:

**Table 4.2** Determinants of FDI inflows (From own estimation based on WBWDI and UNCTAD databases)

| 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                |
| GDP per capita          | -0.5826                         | <b>6.6947</b>         | <b>7.3705</b>         | <b>-0.0300</b>        | <b>-0.5870</b>        | <b>9.8103</b>         |
| GDP Growth              | <b>-1.3377</b>                  | <b>-9.2963</b>        | <b>-10.4115</b>       | <b>-2.1537</b>        | <b>-1.4421</b>        | <b>-11.7014</b>       |
| Openness                | <b>-0.7490</b>                  | 1.7972                | -0.2233               | 3.0604                | 0.3732                | -0.3311               |
| Governance quality      | <b>-0.4915</b>                  | <b>1.1463</b>         | <b>-0.1218</b>        | <b>1.3957</b>         | <b>0.1938</b>         | <b>-0.2310</b>        |
| Education               |                                 | 2.4191                |                       |                       |                       | 1.2093                |
| Infrastructure          |                                 | <b>6.2936</b>         |                       |                       |                       | <b>2.3748</b>         |
| Dummy: SEMC             |                                 |                       | 0.2618                |                       |                       | 0.2288                |
| Number of observation   | 368                             |                       | <b>13.2800</b>        |                       |                       | <b>9.6348</b>         |
| Adjusted R <sup>2</sup> | 0.78                            |                       |                       | 0.6565                |                       | -0.3356               |
|                         |                                 |                       |                       | <b>1.5498</b>         |                       | <b>-0.9850</b>        |
|                         |                                 |                       |                       |                       | 0.1323                | 0.1432                |
|                         |                                 |                       |                       |                       | <b>9.6467</b>         | <b>6.8797</b>         |
|                         |                                 | -0.3536               | 0.5784                | -0.3563               | -0.1442               | 0.6933                |
|                         |                                 | <b>-3.7938</b>        | <b>4.5883</b>         | <b>-3.9456</b>        | <b>-1.3187</b>        | <b>6.5068</b>         |
|                         | 368                             | 348                   | 368                   | 348                   | 345                   | 325                   |
|                         | 0.78                            | 0.32                  | 0.49                  | 0.17                  | 0.25                  | 0.62                  |

Note: 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

- Reference scenario, i.e., continuation of present trends: future changes in the explanatory variables were assumed to be the same as between 2005 and 2009
- EU integration scenario, i.e., further integration of SEMC with the EU: future changes in the explanatory variables were assumed to be the same as in the best performing SEMC during the period 2005–2009
- Regional integration scenario, i.e., less integration with the EU but greater intra-regional integration: future changes in the explanatory variables were assumed to equal half the changes in the EU integration scenario
- Pessimistic scenario: future changes in the explanatory variables were assumed to be the same as in the worst performing SEMC during the period 2005–2009

### 4.3.1 *Manufactured Exports*

Taking into account the estimated coefficients of Specification 5, we investigated the impacts of possible changes to exchange rates, openness, governance quality, and infrastructure density on the ratio of manufactured exports to GDP.

Table 4.3 presents the results of the four scenarios for eight SEMC. It contains two panels. The first panel gives, for each country, in addition to the observed ratio of manufactured exports to GDP (average for years 2005–2009), the expected ratios

**Table 4.3** Observed and predicted (in 2030) ratio of manufactured exports to GDP in individual prospective scenarios (From own estimation based on WBWDI and UNCTAD databases)

| Country                    | Observed (2005–2009) | Reference | EU integration | Regional integration | Pessimistic |
|----------------------------|----------------------|-----------|----------------|----------------------|-------------|
| Level (% of GDP)           |                      |           |                |                      |             |
| 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       |



under each scenario in 2030. The second panel gives the change, with respect to the observed average. Under the reference scenario, i.e., continuation of present trends, the ratio of manufactured exports to GDP remained almost unchanged in every country. This implied that for the ratio to increase in the future, policymakers in these countries must do more than in the past. They need to further improve the price competitiveness of their exports, open up their economies, strengthen their institutions, and build and maintain infrastructure. An increase in the price competitiveness of exports (through real effective exchange rate depreciation) can be achieved via nominal exchange rate depreciation, production cost reductions, productivity increases, or a combination of all of the above. Openness means lower tariffs and NTM. If policymakers achieved improvements in these respects, the second scenario (further integration with the EU) suggested an increase in the ratio of manufactured exports to GDP in every country except Algeria.

Algeria's low manufacturing base (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 2005–2009) prevented it from benefiting from the above mentioned improvements. We found the increase to be the highest (above 7 percentage points) in Jordan, Israel and Tunisia. Under the third scenario (less integration with the EU but greater intra-regional integration), the increases were less important than under the second scenario but remained economically significant in Jordan, Israel and Tunisia (around 4 percentage points).

The pessimistic scenario showed a negligible deterioration in Algeria and Egypt and a significant deterioration in Jordan, Israel and Tunisia (around 5 percentage points). The deterioration was higher than the improvement expected under the third scenario (less integration with the EU but greater regional integration) and much higher than the improvement under the first scenario, i.e., continuation of present trends. The gains from the above mentioned improvements were high but potential losses from deterioration were even more substantial, demonstrating the risk of delaying reforms.

### **4.3.2 Foreign Direct Investment**

Taking into account the estimated coefficients of Specification 6 in Table 4.2, we investigated the impact of changes to explanatory variables, i.e., GDP per capita, openness, governance quality and infrastructure, on the ratio of FDI to GDP. We considered the same four scenarios as for manufactured exports (see Sect. 4.3.1).

Table 4.4 presents the results of the four scenarios for eight SEMC. It contains two panels. The first panel shows, for each country, in addition to the observed ratio of FDI to GDP (average for years 2005–2009), the expected ratios under each scenario in 2030. The second panel shows the change with respect to the observed average. Under the reference scenario, i.e., continuation of present trends, the ratio of FDI to GDP decreased slightly in every country except Jordan where the decrease was large. If policymakers were to increase GDP per capita, openness,

**Table 4.4** Observed and predicted ratios of FDI to GDP across scenarios (From own estimation based on WBWDI and UNCTAD databases)

| Country                    | Observed (2005–2009) | Reference | EU integration | Regional integration | Pessimistic |
|----------------------------|----------------------|-----------|----------------|----------------------|-------------|
| Level (Percentages)        |                      |           |                |                      |             |
| 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       |

governance quality and infrastructure, the second scenario (further integration with the EU) suggested an increase in the ratio of FDI to GDP in every country. The increase was the 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 intra-regional integration), the increases were smaller than under the second scenario but remained non negligible in Egypt, Israel and Tunisia (above 0.3 percentage points) and significant in Jordan (around 0.9 percentage points). The pessimistic scenario showed a decrease in every country. The most affected economy is Jordan's (–4 percentage points) followed by Egypt's, Israel's and Tunisia's (around –1.5 percentage points). The deteriorations were much higher than the improvements expected under the most optimistic scenario (further integration with the EU). It was also much higher than under the first scenario, i.e., continuation of present trends. Much like for manufactured exports, the results support the necessity of reforms.

The increases (or decreases) in the ratio of FDI to GDP did not account for possible increases (or decreases) of the total volume of FDI in the world. On the one hand, there is a mechanical effect by which, other things being equal, higher world FDI translates into a higher ratio of FDI inflows to GDP in each country. On the other hand, Meon and Sekkat (2012) suggested that higher world FDI might benefit countries with weaker business climates more than those with stronger ones. Hence, we may have underestimated our simulated increase (or decreases).

## 4.4 Conclusions

In this chapter we investigated the link between the evolution of the region's integration in the world economy and the reforms implemented (or not). It focused on manufactured exports and FDI and examined the evolution, determinants and prospects of such integration. Drawing on the literature, we disentangled the contribution in terms of trade policy, exchange rate policy, governance's quality, and infrastructure availability. For each variable of interest, the analysis offered, first, an estimation of the impacts of the determinants and, second, an assessment of their future evolution under different scenarios.

Econometric analysis confirms the role of exchange rate depreciation, degree of openness of an economy, the quality of institutions, and the density of infrastructure in fostering manufactured exports. A more open economy, with availability of infrastructure and quality institutions increases the attractiveness of a country to foreign investors.

Taking into account the estimated coefficients, we investigated the impacts of possible evolutions of the relevant explanatory variables on the ratio of manufactured exports to GDP and the ratio of FDI to GDP. We considered four scenarios: continuation of present trends, deeper integration with the EU, less integration with the EU but greater intra-regional integration and a pessimistic scenario where changes in the explanatory variables were assumed to be the same as in the worst performing SEMC during the period 2005–2009.

We found further integration of SEMC with the EU would have the highest positive impact on the ratio of manufactured exports to GDP and on the ratio of FDI to GDP. The ratio of manufactured exports to GDP increased in every country except Algeria. The increase was the highest (above 7 percentage points) in Jordan, Israel and Tunisia. The ratio of FDI to GDP increased in every country. The increase was the highest (almost 2 percentage points) in Jordan and non negligible in Egypt, Israel and Tunisia (above 0.6 percentage points). Both ratios deteriorated under the first scenario, i.e., continuation of present trends and under the pessimistic scenario. The deteriorations were much higher than the improvements expected under the scenarios of further integration with the EU. The gains from improvements in exchange rate management, openness of the economy, and quality of institutions and infrastructure were found to be high but the losses from deteriorations were even more substantial. We found delaying reforms carries a high risk of deterioration.

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## Appendix: Descriptive Statistics

**Table 4.5** Manufactured exports equation (From own estimation based on WBWDI and UNCTAD databases)

| 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 4.6** FDI equation (From own estimation based on WBWDI and UNCTAD databases)

| 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

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