Export Diversification in Egypt, Lebanon, Jordan, Morocco and Tunisia

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Over the past decade, MENA countries have taken a number of actions to transition to more open and private-sector orientated economies. As part of their growth strategy resource-poor and labor-abundant countries like Egypt, Jordan, Lebanon, Tunisia, and Morocco have made much progress in the area of trade policy. The countries entered into various bilateral and regional trade agreements, reduced tariffs and other obstacles to trade such as non-tariff barriers (NTB’s) and behind-the-border constraints to foster trade liberalization. As an outcome of these efforts the countries have been rewarded with a boost in export growth, and to some degree interlinked, economic growth.

An immediate concern of policy makers in the five countries is to find ways of sustaining this growth impetus. There is an increasing recognition of the structural weaknesses of the export sector, namely a large dependence on a few, mostly traditional products and little technological progress that could lead to higher competitiveness and the development of new sustainable export industries. Yet, the ability to diversify exports is of great importance: in virtually all MENA countries traditional export sectors are losing competitiveness and sometimes disappear. Furthermore, MENA countries find themselves squeezed between low-wage competitors in poor countries who dominate mature industries and innovators in rich countries, who dominate industries undergoing rapid technological change. Exploiting unused potential for export growth and finding new export opportunities is therefore critical for MENA countries to reposition on world markets in areas in which they can build up comparative advantages.

We only have little understanding of the driving forces behind the export diversification, and especially of what might lead to the emergence of new products and services in export-orientated economies; or how firms, industries, institutions and public policy factor in the process of innovation, adaptation, imitation and technological or managerial change. Competing theories provide explanations ranging from tariff protection, information and co-ordination externalities to a lack of knowledge or poor infrastructure as constraints to the development of (new) exports. Hence, the primary objectives of this report is

- to contribute to knowledge generation by providing an in-depth analysis of issues related to the process of export diversification in MENA economies.
- to learn about the main constraints and drivers of export diversification, especially through the development of new exports
- to provide policy makers and other actors involved in the diversification process with lessons on policy formulation and instrument design distilled from the analysis and best practice.

We seek to achieve these objectives by findings answers to the following overarching questions:

1.) What is the state of play of export diversification in MENA countries?
2.) What drives and constraints export diversification and technological change?
3.) What leads to the development of new export activities?
4.) How can polices and institutions be devised to better promote export diversification?

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1 Gill, Kharas et al., 2006
The methodology applied to this work is a combination of statistic-descriptive, empirical, and qualitative analysis based on case studies of the emergence of new export activities and collected international best practice. The study focuses on export diversification of merchandised exports. Services are only covered to a limited scope given the data limitations for analysis.

The report covers five countries: Morocco, Tunisia, Egypt, Jordan and Lebanon. These countries have been selected for several reasons: First, the data situation in these countries is sufficiently good to make a deeper analysis possible. Second, the countries are similar enough in terms of country characteristics, economic reform process, and level of economic integration to allow for comparisons among each other and the world. Lebanon is in this context an outlier, though. Not only does the economic structure differ (the economy is much more service-orientated, liberalized and traditionally better integrated than the others), and the analysis suffer from a poor data coverage but the country also found itself back in conflict again while the report was being prepared. The initial idea to include Lebanon was to “test” the robustness (especially) of the qualitative analysis by examining how the results change with the country circumstances (= economic structure and institutions).

The comparator countries were selected by two criteria: First, by similarity in size and income level as well as by the fact that they are all considered star-performers in economic and export growth. The underlying rationale was to benchmark with countries that achieved goals the MENA countries desire to attain, and to measure the distance to their realization.

The audience of this report is policy makers in MENA countries, private sector institutions concerned with business and export development as well researchers within and outside the World Bank.

This is the second of three volumes of the report. It comprises all the results from the analysis. The third volume consists of the case studies on which part of the analysis is grounded. The first part is a policy note which includes the executive summary plus the country specific results and policy matrixes derived from the analysis sorted by country. This volume is divided in four chapters. Each chapter covers one of the leading questions that were outlined further above and includes an introduction which summarizes the results.
CHAPTER 1: EXPORT DIVERSIFICATION IN MENA COUNTRIES

Results from recent research suggest that export growth often coincides with economic growth spurts. Yet, we can not confirm a similar relationship between GDP growth and export growth for our MENA countries. In fact, the two variables only show weak linkages for the observed period. The reason for the lack of correlation could be related to the MENA country export structure. Hausmann, Hwang, and Rodrik (2006) demonstrate in an empirical analysis that not all good are alike in terms of their consequences for economic performance. Specializing in some products will bring higher growth than specializing in others. Hence, export structure matters. This result is also underscored by important findings from previous research which shows that diversification pattern for both, domestic production and export, diversification alters through the stages of development. According to this stream of work economies exhibit strong product concentration until they reach a threshold level of income from which on diversification increases until specialization (and concentration) occurs at very high income levels. For lower middle-income countries like the five MENA countries we would therefore expect to observe an increasing trend in diversification.

Export diversification – the main study object of this report – can take place in different forms and dimension. By changing the shares of commodities in the exiting export mix, or by including new commodities in the export portfolio, a country can attain export diversification. The biggest differentiation is made between horizontal and vertical diversification. Horizontal diversification entails alterations or balance of the export mix – more of an existing commodity is being produced to meet increased export demand for this commodity. Vertical diversification involves contriving further use for existing products by means of adding value or introducing new products for which the country had no prior export experience. Both dimensions are reflected in above index. In addition, export diversification can take place by marketing products to new destinations or increasing the export volume in previously under-served markets. All of forms and dimensions are associated with economic gains.

This chapter will examine trends in export structure, diversification and specialization in MENA countries. The objective is to provide an overview of the dynamics of structural change and assess if with the given structure and institutional parameters all potential to gain more export growth and diversification have been exploited. In particular the chapter seeks answers to the following questions:

(i.) What are the structural patterns of trade that we can observe for MENA countries? How comparable are they to fast growing economies in other regions?

(ii.) How diversified are exports? And how technology-intensive are they?

(iii.) Could the countries have achieved more export growth by a different product or market orientation? And where is unused potential?

The results indicate that the MENA countries show a relatively high level of export concentration compared to other emerging economies with only little change over the past decade. Exports are characterized by low technology intensity, possibly caused by a lack of scale economies in the production process. Moreover, we find evidence the pertinent trade structure constrained export growth. We also find and point to untapped potential for trade in existing trade relationships for both, product and market diversification.

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2 Hausmann, Pritchett and Rodrik (2005)
1.1 STRUCTURAL PATTERNS AND DIVERSIFICATION IN TRADE

MENA countries face two major development challenges: accelerating growth and fighting unemployment. The economies of the five MENA countries have been growing relatively fast over the past five years. GDP growth reached in most countries more than 4% on average, and in some peaked at rates of up to 7%. Jordan, Tunisia and Egypt are three top-growth performers among the five countries (fig. 1). However, the strong growth performance is accompanied by a critical development challenge: unemployment. Despite economic growth, unemployment rates in all countries remain high. Only Morocco – the slowest growing economy among the five countries - showed a significant reduction of over 3 p.p. between 2000 and 2005 in unemployment (fig. 2). In Jordan, on the other hand, unemployment even increased despite average growth of 5.6% in the same period. Unemployment among people with secondary or higher education is particularly severe: In all countries about a third or more of the unemployed are well-educated. The unemployment challenge will become more pertinent in the near future as the labor force grows in result of the high population growth rates of the past and increasing female labor participation. Evidently, more growth is needed and it needs to be sufficiently job-rich to absorb the high number of new entrants into the labor markets.

Moreover, some of jobs that are being created often do not match with the education skills or the preferences of laborers and result in voluntary unemployment. Jordan, for example, recorded resounding success with the creation of Qualified Industrial Zones (QIZs). Since their creation, exports from the zones surged to more than USD 1 billion by 2005 and represent today almost a quarter of total Jordanian exports. In parallel, the number of employees in QIZ-enterprises increased to more than 46 000, or almost 30% of the country’s manufacturing workforce. By all means, this can be clearly considered a success – expect that two-thirds of the workforce in the QIZs consists of foreigners who remit their earnings to their home countries. Firms in the QIZ are simply not able to attract Jordanian workers to work in the QIZ, or to achieve satisfactory productivity levels, despite massive training and many incentives granted to workers. Such experience, coupled with the high number of unemployed with higher education, demonstrate the need for jobs that promise higher job satisfaction and incite people to be more productive.

Fig. 1: GDP Growth 2000-05

![GDP Growth 2000-05](image)

Source: WDI

Fig. 2: Unemployment Rates 2000 and 2005

![Unemployment Rates 2000 and 2005](image)

Source: MENA Development Prospects 2006

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3 In 2005: Jordan (29.6%), Egypt (27.2%), Morocco (41.1) and Tunisia (53.3% in 2003). Source: WBI and MENA Economic Development Prospects 2007

4 QIZ’s are based on a trade protocol between the US, Israel, and Jordan signed in 2004 which provides quota and duty free access to US markets for products manufactured in specific industrial zones, provided 35% of the commodity’s value is manufactured in a QIZ, of which 11.7% consists of Israeli inputs. The QIZ Protocol is intended to encourage stronger economic partnerships among Jordan, Israel and the U.S. to support the Middle East Peace Process. Egypt of the second country for which such a protocol exists.

5 Economically, voluntary unemployment is not considered a problem. However, a lack of attractive job opportunities can contribute to social instability and is, therefore, a concern for policy makers, especially if international labor movement is constrained.
Average export growth has been high but did not much correspond to trends in GDP growth. Merchandises exports have been showing an increasing trend since 2000 in all countries. Average growth of exports of goods and services between 1990 and 2005 exceeded GDP growth, except in Jordan and Tunisia where the economic growth underperformed export growth. Both variables only show a weak correlation over the observed period.Measured by a simple correlation coefficient, Egypt (-0.07), Tunisia (0.05) and Morocco (0.04) show no linear relationship. Only in Jordan export and growth trends appear to be strong co-movement (0.76). In contrast, the relationship between the two variables is much more pronounced in star performing economies. The correlation coefficient for Chile (0.62), Bulgaria (0.55), Hungary (0.82), Malaysia (0.73) or Poland (0.6) points to clear positive linear relationship. The MENA countries are also still lagging behind these countries export performance, although Jordan and Egypt are catching up if the trend of the past years continues (fig. 2.3 – 2.5).

If export structure matters, then the poor ability of MENA countries to transform could explain the weak linkages between economic growth and exports. The linkages between economic growth and exports have been a long-standing issues of debate. Conventional growth theory does not support the notion that exports leads directly to higher economic growth (or vice versa). Proponents of the export-led growth hypothesis often argue through the indirect effects of exports. For instance, export sectors often use more advanced technology which result in higher productivity and better resource allocation not only of the export sector but through way of knowledge spillovers of the entire economy. Other arguments are based on the beneficial aspects of higher capacity utilization and greater economies of scale due to larger markets. The empirical evidence on the relationship between exports and economic growth is mixed. However, consensus appears to emerge more recently that the structure of exports or their diversification is crucial for such processes to materialize and show an impact on economic growth. Abu-Qarn and Abu-Bader (2004), for instance, generally rejected the export led-growth hypothesis but show in an empirical analysis that it can hold for countries with a high share in manufacturing in exports. As pointed out in the introduction, Hence, Hausmann, Hwang, and Rodrik (2006) find that a specialization in certain products does indeed lead to higher productivity levels and to higher growth within an economy. In analogy, a vast empirical literature stresses the strongly positive relationship between export diversification and growth (box 1).

**Box 1: What the literature says on the linkages between export diversification and economic growth**

Lederman and Maloney (2003) find a negative relationship between export concentration and GDP per capita growth in a cross-section and panel data regression. In fact, in related work the authors estimated that 1 percent increase in export concentration is associated with a 0.5 per cent decline in GDP per capita growth (De Ferranti, Lederman and al., 2002). Similarly, Al-Marhubi (2000), de Pineres and Ferrantino (2000) find support for a diversification-led growth hypothesis.
Country specific work for Chile by Herzer and Nowak-Lehmann (2004) shows that export diversification is strongly associated with GDP growth.

There are three channels through which export diversification can enhance growth:

First, export diversification leads to higher productivity through knowledge spillovers. New economic growth models argue that every new export variety represents an innovation which is preceded by creative effort and requires knowledge in its production. Different to goods and factors, ideas and knowledge can be freely used even if restricted by property rights. They produce externalities which economists commonly refer to as knowledge spillovers. Such spillovers help an economy to accumulate knowledge – the stock of useful ideas – which can grow without limits (Gill, Kharas et al., 2006). In terms of the classical Solow-type growth equation, ideas, knowledge, innovation, or the introduction of new technology form the ‘residual’ and determine productivity growth. Feenstra and Khee (2004) support this hypothesis and prove in a panel regression that export variety, measuring by the share of US imports on a set of goods from 34 countries, can explain 13 per cent of a country’s productivity growth. They estimate that 10 per cent increase in export variety – no matter of which industry – leads to a 1.3% increase in country productivity.

Second, export diversification into new industries increases growth by fostering output growth of other industries. Through backward and forward linkages, the production of a more diversified export structure is likely to provide a stimulus for the creation of new industries and expansion of existing industries elsewhere in the economy. This is particularly the case if diversification takes places through adding new exports to the existing export basket.

Third, export diversification reduces the volatility of export revenue. By reducing the dependence on a limited number of products that are subject to major price and volume fluctuations (agriculture, oil etc.), a country can increase export and terms of trade stability. Fewer swings in foreign exchange revenues contribute to better economic planning and sustain import capacity. More importantly, it reduces macroeconomic uncertainty which can hamper domestic investments and stifle business decisions in tradable sectors. The five MENA countries export a range of price and volume sensitive products which can be subject to volatility (e.g. agriculture, textiles etc.). Stabilizing export revenues through diversification, thus, supports the growth process.

Changes in the export structure are reflected in the degree of export diversification or concentration. Using a Hirschman-Herfindahl index (computed at 4 digit level), we observe that our MENA countries show higher levels than the comparator countries in 2004. Against the general trend in (lower) middle-income countries, not much change occurred in MENA countries. Egypt and Lebanon even increased the concentration of their export base since 1990, although the increase observed in Egypt is entirely due to a price effect from the increase in oil-price\(^6\). Jordan is the only country which shows a significant reduction in export concentration mostly triggered by the emergence of textile and clothing exports after the establishment of the QIZ’s. Some countries which recently integrated into the EU such as Hungary and Poland also show an increase in export concentration but from a much lower average level (figure 4). Besides, the restructuring process in these countries induced a desirable reallocation of productive resources to dynamic sectors with a gradual abandonment of traditional, and highly competitive sectors such as textile and clothing (Zaghini, 2003).

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\(^6\) Volume 1 of this report provides a more country-specific interpretation of the different indicators. It should, be, though, that among all countries Egypt is the only one which still has significant oil exports which explains the stark contrast to the other four MENA countries.
Other measures of export diversification confirm the lack of structural transformation. Another measure of export diversification is the product variety index measures the number of commodities exported at 3-digit SITC (Standard Industry Trade Classification). The higher the numeric value of the product variety index, the greater the diversity of in exports of the five MENA countries are confined to a relatively small number of products. The index shows that all five countries, except Lebanon, are exporting in 2004 more different products than in 1980. However, among the emerging economies of note, they are all farther away from the world average (fig. 6).

Another indicator is export similarity - computed as deviation between the shares of 3 digit SITC products in a country’s export and their corresponding share in world trade. Export similarity indicates the degree of intra-industry trade as it assumed that countries with similar product structure trade more frequently within industry. It is therefore sometimes used as a measure for horizontal diversification. The theory also predicts that similarity in trade and production eases the integration process, allows improving resource allocation and whiling requiring only small industry reallocation. The index is sets the global structure of trade as a standard and seeks to determine how closely it matches with that of world trade. A country with a similarity index of zero has an export structure that matches perfectly with world trade. Our five countries show a relatively high dissimilarity if compared to star performers such as Poland, China, Hungary or Turkey. More concerning is that all five MENA countries increased their trade dissimilarity between 1980 and 2004 (fig. 7).
The trends in export structure are in accordance with those of the production structure. Changes in the production structure between 1990 and 2005 were only marginal. Most notably, the agricultural sector lost around 5 p.p. in production of GDP in all countries. This loss marginalized the sector in Lebanon, and more pronounced, in Jordan. Without exception, the loss reflects the added value additionally produced by the service sector, which gained even more in importance. The service sector contributes between 47.4% and 60% to GDP. In Jordan and Lebanon this share reached even about 70% in 2005. The manufacturing sector—which in all countries accounts for about 1/5th of production—did not change much, other than in Jordan where it increased its share in domestic production by 5 p.p., which possibly reflects the development of the textile sector during the observed period.

Table 1: Production structure 1990 – 2005 (added value, % of GDP)

<table>
<thead>
<tr>
<th></th>
<th>Manufacturing</th>
<th>Services</th>
<th>Agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGY</td>
<td>17.76</td>
<td>18.19</td>
<td>0.43</td>
</tr>
<tr>
<td>JOR</td>
<td>14.85</td>
<td>19.22</td>
<td>4.36</td>
</tr>
<tr>
<td>TUN</td>
<td>16.89</td>
<td>18.10</td>
<td>1.21</td>
</tr>
<tr>
<td>LBN</td>
<td>11.40</td>
<td>12.30</td>
<td>0.90</td>
</tr>
<tr>
<td>MAR</td>
<td>18.44</td>
<td>16.77</td>
<td>-1.66</td>
</tr>
</tbody>
</table>

Source: World Development Indicators
Note: Date for Lebanon is 1995 instead of 1990

Further, exports are generally marked by a strong sectoral concentration. In 1995, the Top-4 largest sectors for exports accounted for more than two thirds of export earnings for Egypt, Tunisia, Jordan and Morocco (72%, 74%, 75% and 78% respectively). Lebanon’s exports were less concentrated with 57% (fig. 8)1. The difference to countries of other region was striking. The Top-4 export sectors in South East Asia countries only accounted for 57%, LAC for 52% and the new EU member states for 49% on average. In 2004 export shares in the four largest sectors show a gradual reduction and substitution from the agriculture and food sectors to petroleum and chemical (Egypt), electrical machinery and goods (Morocco and Tunisia) as well as textiles and clothing (Jordan). Noteworthy is also the fact that the sectors which the highest volume of trade are resource-based, such as agriculture and food (Morocco, Jordan), petrol and gas (Egypt and Tunisia), fertilisers (Jordan and Morocco) or labor-intensive such as clothing (Tunisia and Morocco but also Jordan).

1 See Annex A for a table with detailed information on sectoral export structure
Measures of specialisation reveal a persistent reliance of exports on resource-based and low-skilled manufacturing. The Balassa index reveals only little changes took place since 1995-1997; the five MENA countries are still mostly base their comparative advantage on natural resources (agriculture, petroleum, other mineral products such as gas and fertilizers) and labour (clothing, leather and footwear) in 2001-2003 (table1). The pattern of specialisation is quite homogenous across the five MENA countries and it clearly emerges that the international specialisation model does not differ much from that of the competitors in Eastern Europe (Bulgaria, Romania) or other emerging economies (India, China, Chile, Mexico, Turkey). In plain words, the MENA countries are specialised on products which are highly contested on international markets. The prevailing structure underlines the urgency for more export diversification. The fierce competition on world markets for certain traditional products such as textiles might lead to a contraction of these industries and some exports might even disappear. New export sectors are needed to replace those and complement the existing ones.

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8 The textile and clothing sector is a large contributor to gross domestic production in Egypt, Jordan, Tunisia and Morocco (between 3% and 9.4%). However, the success of the garment industry can be largely attributed to the privileged access to the European and US market. While part of the export success of textile and clothing is based on quality and productivity improvements, it is questionable if the countries will be able to further sustain their competitive edge over leading producers in East Asia which ceased after the end of the Multi-Fibre Agreement. Already international prices for textile and clothing have declined significantly and exports have declined by 5.8, 7.4, and 19 percent for Tunisia, Morocco and Jordan respectively. Only Egyptian exporters were able to sustain their exports and experienced only a marginal decline by 1%.
Table 1: Balassa Index of Export Specialization

<table>
<thead>
<tr>
<th></th>
<th>1995-1997</th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EGY</td>
<td>JOR</td>
<td>LEB</td>
<td>MAR</td>
<td>TUN</td>
<td>new EU 10</td>
<td>LAC</td>
<td>SEA</td>
<td>EGY</td>
<td>JOR</td>
<td>LEB</td>
<td>MAR</td>
<td>TUN</td>
<td>new EU 10</td>
<td>LAC</td>
<td>SEA</td>
</tr>
<tr>
<td>Agriculture and fish</td>
<td>1.73</td>
<td>2.08</td>
<td>1.97</td>
<td>4.91</td>
<td>0.68</td>
<td>1.14</td>
<td>4.54</td>
<td>2.01</td>
<td>1.87</td>
<td>1.79</td>
<td>1.54</td>
<td>4.46</td>
<td>0.89</td>
<td>1.46</td>
<td>6.01</td>
<td>2.06</td>
</tr>
<tr>
<td>Food industry, beverage</td>
<td>0.56</td>
<td>3.70</td>
<td>3.01</td>
<td>2.90</td>
<td>1.46</td>
<td>1.88</td>
<td>2.00</td>
<td>1.01</td>
<td>0.77</td>
<td>1.89</td>
<td>2.59</td>
<td>1.79</td>
<td>1.20</td>
<td>2.21</td>
<td>2.33</td>
<td>0.92</td>
</tr>
<tr>
<td>Petroleum and other</td>
<td>4.69</td>
<td>0.11</td>
<td>0.69</td>
<td>0.53</td>
<td>1.06</td>
<td>1.07</td>
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<td>3.66</td>
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<td>0.85</td>
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<td>0.88</td>
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<td>Chemical, pharmaceutical</td>
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<td>0.83</td>
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<td>0.96</td>
<td>1.02</td>
<td>0.53</td>
<td>0.54</td>
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<tr>
<td>Leather and leather goods</td>
<td>1.99</td>
<td>0.89</td>
<td>1.67</td>
<td>1.25</td>
<td>2.05</td>
<td>1.35</td>
<td>1.95</td>
<td>1.88</td>
<td>3.89</td>
<td>0.17</td>
<td>2.08</td>
<td>1.54</td>
<td>3.19</td>
<td>1.81</td>
<td>2.54</td>
<td>2.88</td>
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<td>Textiles</td>
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<td>0.65</td>
<td>3.29</td>
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<td>Clothing accessories</td>
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<td>2.65</td>
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<td>11.85</td>
<td>1.68</td>
<td>0.37</td>
<td>3.77</td>
</tr>
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<td>Metal and metal art</td>
<td>1.36</td>
<td>0.30</td>
<td>0.83</td>
<td>0.35</td>
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<td>1.75</td>
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<td>0.28</td>
<td>1.78</td>
<td>1.61</td>
<td>0.84</td>
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<tr>
<td>Machinery and mechanical</td>
<td>0.02</td>
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<td>0.32</td>
<td>0.04</td>
<td>0.10</td>
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<td>0.81</td>
<td>0.38</td>
<td>0.15</td>
<td>0.93</td>
</tr>
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<td>Transport means</td>
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<td>0.67</td>
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<td>0.71</td>
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<td>Wood and wooden furniture</td>
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<td>0.22</td>
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<td>1.16</td>
<td>2.08</td>
<td>0.66</td>
<td>2.68</td>
<td>0.09</td>
<td>0.54</td>
<td>1.40</td>
<td>0.67</td>
<td>0.35</td>
<td>2.93</td>
<td>0.84</td>
<td>2.33</td>
</tr>
</tbody>
</table>

Source: author’s calculation based on UNCTAD, Handbook of Statistics.

Note: The specialisation index of export by sectors was computed by dividing the share of a sector in a country’s export on total country’s export to the share of a sector’s exports on total world export. An index higher (lower) than 1 reveals a country’s specialisation (de-specialisation) in that sector. Indicator tells us whether or not a country concentrates in a particular sector (or product or geographical area) a share of its exports greater (lower) than the partner.

Exports in the five MENA countries are characterised by comparatively low technology content. Fig. 9 shows the technological structure of exports of the five MENA countries according to the Lall classification of technological intensity (2004). With 21.2% on average, all five countries fall short compared to countries in other region. LAC has a much higher proportion of high and medium tech exports (almost 37%), despite the large share of RB exports (49.5%). Exports from the EU 15, South East Asia and the new EU members have more than 55% medium or high tech content. The Asian star performers, with more depth and diversification in their industrial structures such as Korea or Taiwan export products with more than 60% of technology content (figure 8).

Box 2: Couldn’t the high degree of export concentration point to a high degree of economic specialization in products with comparative advantages?

According to the Ricardian factor-proportion model countries specialize in those goods for which resources are abundant and provide a comparative advantage over other countries. Therefore a high concentration level could indicate a high degree of specialization. Recent empirical research, however, suggests that sectoral specialization changes as income rises. At initial stages of development countries exploit their natural resources. As countries become richer the production of a country diversifies, meaning that value added is spread out more equally across sectors, in response to a growing middle-class and their desire for more product variety. At a certain income level, at the time a country is about to reach higher middle-income class, countries start to specialize again – this time in response to a greater ability to exploit economies of scale (Imbs and Wacziarg, 2004). Empirical evidence suggests that the same development pattern also holds for a countries export basket. Initially countries exploit their natural resources. With increased knowledge and technology sophistication countries undergo a “discovery stage” in which they learn in what they are good at exporting and develop new exports. Later, again as result of economies of scale, specialization in exports increases (Lederman and Klinger, 2006).

Egypt has the weakest technology structure among the five MENA countries, Jordan the highest. In 2004, nearly 80% of Egypt manufactured exports are resource based while 14% shows low technology intensity. Medium and high tech products together make up for only for 6.2% of all exports. The other four MENA have also low shares in medium and high tech exports but they are far better off than Egypt (above 25%). Lebanon has the lowest share of high tech but the highest share in medium tech exports.
which are persistent weakness in the export structure. Both, Tunisia and Jordan have a relatively higher share in high tech products (above 16 and 14% respectively) which can be explained by the relatively successful pharmaceutical export industry in both countries.

Fig. 9. Technological Structure of Exports (share of total exports in %)

Exports of the five MENA countries show a perplexing technology structure with respect to the distance of the technological frontier. Traditional trade theory would predict that developing countries have the strongest comparative advantages in low tech and the weakest in high tech products in the earlier stages of the development process. However, for the five MENA countries we can observe that the distance to the technological frontier is larger for medium tech than high tech products. How can this be explained? One possible explanation could be that medium tech products tend to be not only skill but also scale intensive (e.g. manufacturing of automobiles or machinery). Reaching world levels of competence would require long learning periods; engineering products, particularly, need strong local supplier and subcontractor bases (upstream and downstream), increasingly so with just-in-time production systems. Conversely, high tech exports, especially electronics, are often characterized by complex core production processes and product design which is either directly provided from markets of more advanced countries or imitated while final production is often labour-intensive and outsourced to developing countries.

The low level of intra-industry trade indicates a lack of economies of scale needed for the production of medium tech products. Intra-industry trade (IIT) allows countries to specialize in production chains and seek comparative advantage in specific parts of those chains. It facilitates the attainment of economies of scale with higher productivity and lower costs. Countries with higher IIT are, hence, more likely to benefit from economies of scale. The Gruber-Lloyd index in figure x measures the magnitude of intra-industry flows in total manufacturing trade. The index seems to confirm the hypotheses that an lack of economies of scale might be responsible for low share of medium tech products in the MENA countries export structure. All five MENA countries display very low levels of IIT with an index ranging from 21.9 (Morocco) to 35.7 (Tunisia) while, Chile aside (due to its strikingly low level), their comparators average at an index of around 50. On a positive note, intra-industry trade appears to be increasing (fig. 10).
The share of medium tech exports is rising in line with the increase of IIT. Yet, the general pace of structural transformation is slow. The combined share of medium and high tech products has risen by more than 23% over 1990-2004 on average, with a small rise in the share of high tech but a large one in that of medium tech products. However, the pace of structural change in other exporters, particularly the dynamic new EU members (48%), East and Southeast Asian economies (50%) and Latin America (34%), was far more impressive. In light of the rapid change in the structure of world trade and the growing importance of technology-intensive products, this slow pace of transformation can be regarded as a major weakness.

Box 3: Why technology intensity is important

There are several theoretical arguments which suggest that more export sophistication lead to more export growth. First, export markets for products with higher technology intensity have better growth prospects than others. The most dynamically growth export markets are those for complex and fast-changing technologies. Second, compared to low technology activities with low scale, skill and technology requirements, there is a lower frequency of entry by competitors. This is in part the result of the long learning curve in more sophisticated production processes. Third, technology intensive export activities have a higher learning potential and usually exhibit greater knowledge spillovers in their production which may contribute to a more efficient production of other exports.
1.2 UNUSED POTENTIAL FOR EXPORT GROWTH AND DIVERSIFICATION

Has the existing export structure been a constraint for the growth of exports? A decomposition of the countries export performance can inform about the factors which have driven export growth but also on the question whether the five MENA exporters have, on average, out- or under-performed competitors in selecting high-growth destination markets and sectors. We undertake a constant market share (CMS) analysis over the 1980-2003 which will decompose the actual variation in the aggregate export market share into a

(i.) structure effect: the hypothetical change in the aggregate export market share which would have occurred if the countries share in the world market had remained constant. It is also referred to as the demand effect.

(ii.) competitiveness effect: the difference between the actual change in the export share (total effect) and the above-mentioned structure effect.

The results needs to be treated with caution: The CMS methodology has several drawbacks. Some of the choices to be made, e.g. the level of product and market desegregation or the appropriate reference against which to judge the export performance of a country, can have a considerable impact on the value and sign of the various effects (see Annex A for methodological notes).

Overall, the CMS analysis shows that all five countries underperformed the growth of world exports until 2000 but more than outperform the world average thereafter. The results in table 5 show that export growth was significantly lower for Egypt, Jordan, and Lebanon between 1990 and 2000, whereas Morocco and Tunisia almost kept up with world growth. Egypt, Jordan and Lebanon also experienced a decline in world market from 1980 to 2000. The total effect determines the magnitude of the variation from the compounded world export growth. Egypt underperformed by 4 p.p., Morocco by 8 p.p., Tunisia by 16 p.p. and Lebanon and Jordan by 40 p.p. and 60 p.p. respectively. An enormous change took place between 2000 and 2003. Against a growth of world exports of 18%, we observe a boom of about 123%, 102% and 74% for Jordan, Egypt and Lebanon, Tunisia doubled the rate of world export growth in Tunisia, while Morocco lingered slightly above.

Improvement in competitiveness appears to be major driver for the recent export boom. The competitiveness effect can reflect both productivity and labour cost advantages. It can also include other variables such as the innovation capacity, quality improvements or increased total factor productivity. The results of the analysis imply that a lack of competitiveness was almost entirely responsible for the export performance of Lebanon, Jordan and Egypt between 1990 and 2000. In Jordan a right specialisation towards dynamic products and markets partially cushioned the highly negative competitiveness effect. In Tunisia the competitiveness of the export sector was able to partly offset the negative effect stemming from a wrong demand orientation. In contrast, improvements in productivity appeared to have played a major role for the export boom Egypt, Jordan and Lebanon between 2000 and 2003. Competitiveness constrained export growth in Morocco and did not significantly contribute to Tunisia export performance either.

A wrong demand orientation hampered export growth between 1990 and 2000. The structure effect measures, broadly speaking, to what extent the variation between the countries and the world export can be attributed to the way exporters responded to changes in global demand. One can differentiate between (i.) a product effect, which shows whether the specialisation of exports was directed towards dynamic

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9 A negative value of this component can be interpreted as a loss in export competitiveness i.e. a de facto loss in market share after deducting the structure effect. However, the results are somewhat distorted as it is not possible to completely disentangle the influence of markets and product specialisation.
products in world demand, (ii.) a market effect, which shows whether the export specialisation was directed towards dynamic export markets; and a residual which reflect effect resulting from the interaction of product and market specialisation. The results imply that an unfavourable product specialisation contributed to loss in market shares in all countries between 1990 and 2000, most significantly in Egypt and the least for Tunisia. A favourable market orientation can be noted for Jordan. In Tunisia and Morocco the competitiveness stance helped to contain the negative effect of wrong demand orientation. The situation presents itself differently in the following period. All countries benefited for a right demand orientation, most notably Jordan and Lebanon.

Table 5: Results of the Constant Market share Analysis

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Egypt</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Share of area exports in world exports</td>
<td>0.11</td>
<td>0.05</td>
<td>0.04</td>
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<td>Growth of area exports</td>
<td>-27.75</td>
<td>-7.56</td>
<td>101.92</td>
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<tr>
<td>Growth of world exports</td>
<td>69.79</td>
<td>83.68</td>
<td>17.29</td>
</tr>
<tr>
<td>Total effect</td>
<td>-1.15</td>
<td>-0.92</td>
<td>0.84</td>
</tr>
<tr>
<td>Product effect</td>
<td>-0.24</td>
<td>-0.33</td>
<td>0.09</td>
</tr>
<tr>
<td>Market effect</td>
<td>0.13</td>
<td>-0.11</td>
<td>0.03</td>
</tr>
<tr>
<td>Competitiveness effect</td>
<td>-1.04</td>
<td>-0.47</td>
<td>0.72</td>
</tr>
</tbody>
</table>

| Jordan |           |           |         |
| Share of area exports in world exports | 0.04     | 0.03     | 0.03    |
| Growth of area exports                | 85.36    | 20.78    | 123.17  |
| Growth of world exports               | 69.79    | 83.68    | 17.29   |
| Total effect                          | -0.02    | -0.63    | 1.05    |
| Product effect                        | -0.11    | -0.09    | 0.06    |
| Market effect                         | -0.06    | 0.65     | 0.09    |
| Competitiveness effect                 | 0.15     | -1.19    | 0.90    |

| Lebanon |           |           |         |
| Share of area exports in world exports | 0.04     | 0.01     | 0.01    |
| Growth of area exports                | -48.12   | 36.02    | 73.98   |
| Growth of world exports               | 69.79    | 83.68    | 17.29   |
| Total effect                          | -1.35    | -0.48    | 0.56    |
| Product effect                        | -0.08    | -0.20    | 0.04    |
| Market effect                         | 0.16     | 0.12     |         |
| Competitiveness effect                 | -0.45    | 0.40     |         |

| Morocco |           |           |         |
| Share of area exports in world exports | 0.13     | 0.13     | 0.13    |
| Growth of area exports                | 86.27    | 76.69    | 19.48   |
| Growth of world exports               | 69.79    | 83.68    | 17.29   |
| Total effect                          | -0.01    | -0.08    | 0.01    |
| Product effect                        | -0.23    | -0.18    | 0.04    |
| Market effect                         | 0.14     | -0.14    | 0.07    |
| Competitiveness effect                 | 0.08     | 0.24     | -0.09   |

| Tunisia |           |           |         |
| Share of area exports in world exports | 0.08     | 0.09     | 0.10    |
| Growth of area exports                | 172.56   | 77.56    | 30.55   |
| Growth of world exports               | 69.79    | 83.68    | 17.29   |
| Total effect                          | 0.85     | -0.07    | 0.12    |
| Product effect                        | 0.09     | -0.03    | 0.02    |
| Market effect                         | 0.13     | -0.14    | 0.09    |
| Competitiveness effect                 | 0.63     | 0.11     | 0.01    |

Source: own calculation on UNCTAD, Handbook of Statistics.
A closer look at the product effect reveals that a stronger orientation towards exports with higher technology content could have contributed to more export growth during the 1990s. A further decomposition of the product effect reveals that medium and high tech products provided a negative contribution to the product effect for all countries, broadly offset by a strong positive contribution of exports in resource based (esp. for Jordan and Lebanon) and in low-tech exports (esp. for Egypt, Tunisia and Morocco). The positive impact from the low-tech exports stems from a right demand orientation, i.e. exports in this product category were aligned with world average growth of low-tech exports. However, the result also demonstrate that the little specialization in low- and medium tech export prevented the countries from capitalizing on the strong growth in world demand for these products. The results for 2000-2003 show clear signs of a better demand orientation. Although there is more room to seize opportunities for trade of medium and high tech products, their contribution is no longer strongly negative (Fig. 11, the numeric results are included in Annex A).

**Fig. 11: Decomposition of the Product Effect**

Source: own calculation on UNCTAD, Handbook of Statistics..

A outlined above, market orientation constrained export growth for Morocco, Tunisia and Egypt in the 1990s. On contrast, Jordan and Lebanon were able to capitalize on more favorable market specialization although both missed out on some opportunities of better targeted marketing. Mainly, the countries show an under-exploitation of trade opportunities with USA and Canada, developed Asian countries, and South East Asia. More recently, China seems to be a key market that has been underutilized by exporters. Safe
for Jordan, all countries have been exploiting their trade opportunities with Europe (Fig. 12, the numeric results are included in Annex A).

**Fig. 12: Decomposition of the Market Effect**

Source: own calculation on UNCTAD, Handbook of Statistics.
Other emerging economies not only clearly outperformed the MENA countries, but their success was almost entirely based on strong competitiveness. The results of a CMS analysis for the comparator countries shows that particularly China, Malaysia, Poland, Romania and Mexico over-performing the growth of world exports over the decades 1990-2000 (see Annex A). In fact, export growth in these countries was three to ten times higher than average growth of world exports. Over 1980-2000 all were able to attain higher export market shares in world exports, with the highest increase recorded by China over the last three years, with almost two percentage points increase on the average share for the 1990s. Contrary to what we observe for the MENA countries, the competitiveness effect was highly positive for all countries and was almost entirely responsible for their gain of market shares. The only drawback in the export performance seems to be an unfavourable product orientation for some comparator countries, although more recently the countries improved their performance in this respect.

How to find opportunities for diversification within given product and market parameters? Another exercise can shed light on how the individual product and market specialisation interacted during 1995-2003 and how they responded to the demand dynamics. Such an exercise helps to depict in for which existing products and established market relationships there is still unused potential. Exploiting this potential could increase export diversification by balancing the export basket

Presently, the MENA countries are specialised in only few, dynamic commodities. Figure 13 shows that the section for exports with high dynamics is virtually empty with the exception of petroleum exports for Egypt as well as chemical and pharmaceutical exports for and Jordan and Morocco. Market shares for another strong sector of specialisation, clothing is growing exactly at the average rate of world exports for Morocco and Tunisia. Contrary to chemicals and petroleum, textiles do not play as much a role in world demand. Electronical machinery, electronics and automotive shows high dynamic in world growth and relevance in world demand but the MENA countries attain fewer market shares in those commodities on average. These represent the commodities for which further trade opportunities could be seized.

Some products for which the countries have a comparative advantage show declining demand dynamics. The commodity groups in which the countries show a comparative advantage are less dynamic in world trade are almost the same for each country: food, agriculture, leather, metal and also textiles in the case of Egypt. Since these commodities are slowing down in demand, a renewed expansion of these commodities is unlikely in the future. Export strategies might me devised towards lesser investments in these commodities. Mechanical machinery, wood and furniture are examples for which export strategies of the countries have already embraces the declining dynamics.
Source: Own calculation on UNCTAD, Handbook of Statistics.
How to read Figure 13?

The chart is divided into four sections which depict different dynamics of trade. In general, the horizontal axis refers to market share of each country attained for this export commodity. The vertical axis refers to the average change of world exports in these commodities. A third dimension is given by the size of the bubbles which indicates the share of this commodity in world trade. In combination, the upper section on the right shows products of specialisation in dynamic sectors, i.e. sectors where successful export performances picked up growing trends in world exports. The section on the lower right hand side depicts specialisation in products of lesser dynamics. The lower left section includes all commodities in which are declining in both, importance in trade for the individual country as well as the world. Finally, the upper left section indicates all dynamic commodities for which the countries share in world trade is declining.

Despite a generally, favourable market specialisation, marketing potential for other countries, especially to India and China, could be used. Figure x displays the export markets which have been driving export growth of each country due to increasing demand. Europe is for most countries the major destination and absorbs up to 70% of total exports from these countries. Only Jordan shows a stronger orientation towards the USA and Arab markets while Egypt has been stepping up its US export. Morocco and Tunisia also have a strong projection towards Europe and OPEC countries, while Jordan and Lebanon have a strong orientation towards OPEC countries but not to Europe. The strong dependence on singular markets is a weakness and more market diversification could help to reduce the risks of demand shocks. India and China show enormous import dynamics and have been growing in importance as trade partners for the five MENA countries. A stronger orientation towards India and China could unlock further export growth potential.

How to read Figure 14?

The four sections of this chart depict the different demand dynamics in export markets. In general, the horizontal axis refers to market share of each country attained in a specific export market. The vertical axis refers to the average change of world imports from the particular market. The size of the bubbles indicates the total share of each country in total world import. In combination, the upper section on the right shows each country’s specialisation in dynamic markets, i.e. markets which import more than average. The section on the lower right hand side depicts specialisation lesser dynamic markets, i.e. markets for which imports are declining. The lower left section includes all markets in which are declining in both, importance in trade for the individual country as well as the world. Finally, the upper left section indicates all dynamic markets to which exports from any given country have been declining.
**Fig. 14:** Specialization and Dynamics in Export Markets

Source: Authors calculation based on Comtrade data

Note: Europe includes EU15 plus the 10 new EU members plus Gibraltar, Iceland, Norway and Switzerland; South East Europe includes Albania, Bosnia, Croatia, Macedonia, Slovenia, former Yugoslavia; Asia developed economies include Japan and Israel; other West Asia includes Bahrain, Jordan, Lebanon, Oman, Palestinian Territories, Syria, Turkey, Yemen; other Asia includes Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, China, Hong Kong, Macao, Taiwan, India, Korea, Lao, Maldives, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Timor-Leste, Viet Nam; OPEC includes Venezuela, Iraq, Iran, Saudi Arabia, Kuwait, Qatar, Indonesia, Libya, Algeria, Nigeria, United Arab Emirates, Gabon; developing economies of America include: Argentina, Bolivia, Brazil, Chile, Columbia, Ecuador, Falkland, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados Belize Costa Rica, Bermuda, British Virgin Islands, Cayman Islands, Cuba, Dominican Republic, El Salvador, Grenada Guadeloupe, Guatemala, Haiti, Honduras, Jamaica, Martinique, Mexico, Netherlands Antilles, Nicaragua, Panama, Puerto Rico, Saint Vincent and the Grenadines, Trinidad and Tobago; other Africa: all African countries except Algeria, Libya, Nigeria, Gabon.
CHAPTER 2: THE DETERMINANTS OF EXPORT DIVERSIFICATION

The previous chapter introduced two main avenues through which export diversification can take place. The first avenue is exploiting export potential within the existing parameters of product and market orientation. The second avenue suggests to grow new exports and to explore new markets. But what exactly drives export diversification?

Intuition would suggest that the three main factors, namely macroeconomic stability, trade policy and FDI, which prerequisite export growth also influence the degree of diversification. Moreover we would expect innovation, in some form to contribute to export diversification. Per definition, innovation can involve making new products using old technology, making old products with new technology, or making new products with new technology. The development of new products and as well technology deepening and adaptation, reflected in technological change, could be two potential determinants of diversification. The main objective of this chapter is to unearth the drivers for export diversification. In particular the chapter will address the following questions:

(i.) How relevant is macroeconomic stability, trade policy and FDI for export diversification in the five MENA countries?

(ii.) What role does innovation and technology development play in the diversification process?

(iii.) Which factors constrain export diversification in the MENA countries?

This chapter will lead up to these questions by first briefly reviewing the trade incentive framework and the investment performance in the five MENA countries. Following, a regression analysis will help us to identify the relevance of these factors for export diversification. Subsequently we take a closer look at the role of innovation and technological change as well as their determinants. The analysis will conclude that trade protection is a major constraint for export diversification in Morocco, Tunisia, and to a lower extend, Jordan. Innovation on the technological frontier - the development of patentable products - is not relevant for the diversification process. We find, however, a strong correlation between export diversification and high-technology exports. In the five MENA countries technological change appears to be constrained – to different degrees - by trade protection, macro-economic volatility, the business climate (Egypt and Morocco), infrastructure, the quality of institutions, and in part by underutilized human capital.
2.1 MACRO-ECONOMIC STABILITY, TRADE INTEGRATION AND INVESTMENT

Overall, most countries have achieved a relatively high degree of macroeconomic stability over the past years. The major common characteristic of the five MENA is that they can all classified as resource-poor and labor-abundant, which means that in contrast to their oil-rich their relatively less susceptible to macro-economic fluctuations caused by external shocks. However, the five MENA countries witnessed substantial improvement in their macroeconomic indicators. Thanks to prudent macroeconomic the countries have been enjoying a relatively stable macroeconomic environment as seen in a relatively high level of GDP growth with lesser volatility, lower inflation, accumulation of foreign exchange reserves and improved fiscal balances.

Growth Volatility declined substantially in all five MENA countries. Although most emerging economies witnessed large swings in their business cycles during the 1990s, GDP growth volatility was exceptionally high for Morocco, Lebanon and Jordan. The more it is remarkable, that volatility in these countries declined to levels comparable to those of other countries. Clearly, the efforts and attention paid to the structural reforms which were started in 1990s and deepened in the past coupled of years showed a positive impact on growth stability.

Fig. 2.1: Average GDP Growth 1990-2005

![Average GDP Growth 1990-2005](image1)

Source: World Development Indicators, 2006

Fig. 2.2: GDP Volatility 1990 - 2005

![GDP Volatility 1990 - 2005](image2)

Source: World Development Indicators, 2006

Notably, the average inflation rate among the MENA countries (counting our Lebanon) fell from around 8.14% in 1990-95 to around 2.75 in 2000-05. Despite demand-pull price pressures and higher import prices related to oil price and exchange-rate developments\(^\text{10}\), inflation rates remained relatively stable in the past three years. Only Egypt’s inflation experienced an exceptionally high inflation rate in 2004 (close to 11.27%) which is an effect mainly related to the recent currency depreciation. Thanks to low food prices and tight monetary policy, Morocco achieved the lowest inflation rate among all countries with just 0.98% percent in 2005, despite two domestic fuel price hikes (figure 2.1).

\(^\text{10}\) For those countries pursing a fixed (or a managed float) exchange rate policy vis-à-vis the USD, spill-over effects from the rise of the Euro against the US dollar contributed to the rise in inflation.
In line with a better handling of macroeconomic policy instruments, external accounts and international reserves have displayed an overall improvement since 1995. Yet, a high degree of variety and volatility continues to characterise the external accounts. Strong world demand, higher commodity prices, increase in service trade and favourable exchange rate developments have helped to keep trade deficits relatively stable and to strengthen the five Mediterranean countries’ external accounts over the last few years. However, most economies still suffer from chronic large trade deficits which could worsen once the full impact of the MFA abolition on textile exports unfold. Jordan, Morocco and Tunisia already experienced a contraction of their textile exports.\textsuperscript{11} Tunisia shows the strongest external position with only minor current account deficits over the past five years. International Reserves have reached record levels since the beginning of the 1990s in Jordan, Tunisia and Morocco while Egypt is resuming its former levels after a downward swing in the previous decade (Fig. 2 and box 1).

\textsuperscript{11} Textile exports (numbers)
Box 2.1: External Stability in the five MENA countries

**Tunisia** shows the strongest external position and only experienced minor current account deficits in the past five years, about 1.8 percent of GDP. Despite rising oil prices on the international markets, stagnating demand in Europe and the expected negative impact of the expiration of the MFA, Tunisia has strengthened its external position with international reserves recording a continuous growth.

In contrast, **Jordan** had quite volatile current account and capital account balances: large trade deficit in most years, small current account surpluses in 1989 and in 2002 and a strong current account surplus of around 11% of GDP in 2003, which has been drastically reduced to around 2% of GDP in 2005 due to a further widening of the chronic trade deficit (17.7 percent of GDP). However, the erratic capital account surplus offsets the current account balance in 2005, mainly due to the inflow of workers remittances and to net capital inflows which increased to record levels in 2005, after a negative balance the year before.

Similarly, **Morocco’s** external position showed some instability. Both the current account and the balance of payments had surpluses over the last few years while the trade balance was worsening. Tourism receipts and workers’ remittances more than offset the deterioration in the trade balance. The rise in oil prices partially explains the poor outcome of the trade balance but a loss in textile and clothing exports after the MFA dismantlement explains the more recent increase in the trade deficit.

As the strongest oil-exporter among the five, **Egypt’s** also shows highly volatile current account balances. While non-oil merchandise exports have remained almost unchanged, oil and gas exports grew faster, in volume and value. However, Egypt’s current account surplus started to narrow to 1.2 percent of GDP in 2005 from 2.3 percent in 2004. This was primarily due to a decline in tourism and Suez Canal receipts. The declining trade deficit as a ratio to GDP and the increase in private transfers have partly compensated for the decline in the services balance.

Being affected by war and domestic conflicts, **Lebanon’s** macroeconomic performance stands out in this group. The chronically high current account deficit of Lebanon, exceeding 20% of GDP for most of the last decade, is exceptionally high and in view of the unsustainable public debt situation (173 percent of GDP by end-2005). Fiscal adjustment is one of the major challenges the country has to overcome to remedy its macroeconomic imbalances in the next few years.

The high external account volatility is nurtured by several factors. Firstly, the trade patterns are influenced by changes in oil price changes as countries either have significant oil and gas exports (Egypt) or are strongly dependent on petroleum imports (Jordan, Lebanon and Morocco). Secondly, in some countries agricultural trade has shown erratic swings due to hazardous weather conditions (Morocco and Tunisia). Morocco GDP patterns, for instance, continues to depend on a highly volatile agricultural sector: the decline in economic growth in 2005 (from 1.6% in 2004 to 4.2%), mainly due to a weather-induced drop in agricultural output of 15.4 percent. The dependence on agricultural exports results in sharp boom and bust cycles which add to macroeconomic instability (Fig. 4). Thirdly, the external balance of most countries is supported by substantial worker remittances from the Gulf countries and Europe; in Jordan, for example, in 2005 these flows amounted to 20% of GDP, in Morocco to 9% and in Lebanon reached 25% (see Fig. 7). In Lebanon, massive capital inflows and transfers are held responsible for the drastic real exchange rate appreciation12 over the 1990s which negative affected investments in the trade-able sector.

---

12 Over the 1990s, Lebanon’s exchange rate was multiplied by a factor ranging between 2 and 3.
Exchange rate management improved in all countries in result of a stronger outward orientation. During the past three decades, many MENA countries experienced substantial overvaluation of their real effective exchange rate (REER) to the detriment of export growth. Estimates reveal that the misalignment in the MENA region reduced the ratio of manufacturing exports to GDP per year by 18% on average per year between 1970 and 1990.\textsuperscript{13} Although misalignment decreased during the 1990s, the loss was still significant for some countries. Egypt, Jordan and Morocco missed out on estimated 2.4%, 3.1%, 3.7% of total exports respectively, Tunisia incurred about 8.7%. While there may have been gains in terms of reduced inflation, the trade-off clearly restrained export growth.

The major reason for the appreciation of the REER lies in the rigidity of the nominal exchange rate. Most MENA countries have had \textit{de facto} or formal pegged nominal exchange rates, with only some recent

\textsuperscript{13} Nabli and Veganzones-Varoudakis (2003) measure the misalignment (MIS) of the real exchange rate (REER) as the difference between the REER and its equilibrium value (EREER): MIS = (REER / EREER) -1. The estimations of the long-term relationship between the REER and its fundamental determinants have been used to compute the EREER. For this purpose, REER behaviour is modelled using an equation that includes both the role of fundamental factors in the medium to long term (e.g., terms of trade, investment, capital flows, trade openness), and the less persistent impact of short-term variables (e.g., macroeconomic policies, nominal devaluations).
changes towards floating exchange rates. Jordan, Morocco and Lebanon all maintain a soft peg system, Tunisia a managed float systems. Egypt floated its exchange rate only in 2003. Indeed, all countries but Morocco experienced a depreciation after 2000, in part as a result of more aggressive exchange rate policy which partly aimed at compensating for the effects of tariff dismantling (figure 2.3).

**Recent exchange rate developments favoured export in Jordan, Lebanon, and Egypt.** The US Dollar is the pre-dominant anchor for all Jordan, Lebanon and Egypt which entertain significant and strengthening trade relations with the US. As of late, Morocco and Tunisia peg their currency to the Euro. The choice of the reference currency has important implications for trade. In 2004 and 2005 Lebanon, Jordan and Egypt benefited from the currency developments of the US Dollar and depreciated vis-à-vis the Euro, in particular during the second half of the 2004. Probably most pronounced for Egypt, US Dollar movements contributed additionally to an increase in exports.

**Figure 2.3: REER developments in MENA countries**

**In the last several years bilateral and regional trade agreements have proliferated.** Starting in the mid 1990s, the countries entered into Association Agreement with EU as a first step to reach the proclaimed goal of the Barcelona process to create a EU-MED free trade area by 2010. The countries have also aimed at heighten intra-regional trade through various agreements such as the Greater Arab Free Trade Agreement (GAFTA) or Agadir Agreement.14 Furthermore, several countries signed bilateral free trade agreements with the Unites States (Jordan and Morocco).15

---

14 Signed by Morocco, Jordan, Egypt and Tunisia in 2004
Table 2.1: Trade Agreements and Partners

<table>
<thead>
<tr>
<th></th>
<th>EGYPT</th>
<th>JORDAN</th>
<th>LEBANON</th>
<th>MOROCCO</th>
<th>TUNISIA</th>
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</thead>
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<tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td>JORDAN</td>
<td>GAFTA, Xn</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
</tr>
<tr>
<td>LEBANON</td>
<td>GAFTA, Xn</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
</tr>
<tr>
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<td>GAFTA</td>
<td>GAFTA</td>
<td>AMU, GAFTA</td>
<td>AMU, GAFTA</td>
</tr>
<tr>
<td>MOROCCO</td>
<td>GAFTA, X</td>
<td>GAFTA, X</td>
<td>GAFTA</td>
<td>AMU, GAFTA</td>
<td>GAFTA, X</td>
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<tr>
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</tr>
<tr>
<td>TUNISIA</td>
<td>GAFTA, X</td>
<td>GAFTA</td>
<td>GAFTA</td>
<td>AMU, GAFTA, Xn</td>
<td>GAFTA</td>
</tr>
<tr>
<td>GCC</td>
<td>GAFTA</td>
<td>GAFTA</td>
<td>GAFTA</td>
<td>GAFTA</td>
<td>GAFTA</td>
</tr>
<tr>
<td>EU</td>
<td>EMAA (1)</td>
<td>EMAA (2)</td>
<td>EMAA (3)</td>
<td>EMAA (4)</td>
<td>EMAA (5)</td>
</tr>
<tr>
<td>US (BTA)</td>
<td>2000</td>
<td></td>
<td>2004</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AGADIR: MAFTA, Mediterranean Free Trade Area
AMU: Arab-Maghreb Union, signed in 1989 among Algeria, Libya, Mauritania, Morocco and Tunisia. Not yet implemented
EMAA (Euro-Mediterranean Association Agreements)
GAFTA: Greater Arab Free Trade Area, signed in 1998 among Morocco, Tunisia, Egypt, Jordan, Libya, Syria, Iraq, Saudi Arab, United Arab Emirates, Qatar, Bahrain, Oman, Kuwait and Lebanon
GCC includes Bahrain, Kuwait, Oman, Saudi Arabia, Qatar and United Arab Emirates
X: Bilateral trade agreement
Xn: Bilateral Trade agreement not implemented
(1) signed in 1997, effective in 2002
(2) signed in 2001, effective in 2004
(3) signed in 2002, an interim agreement for early implementation of trade measures is in force since March 2003
(4) signed in 1996, effective in 2000
(5) signed in 1995, effective in 1998

Source: EU Commission, Office of US trade Representative and WTO

Motivated in part by the commitments made to trade partners, the MENA countries have made notable progress in tariff reform. Yet, tariff protection remains high in Tunisia, Morocco and Jordan. In comparison with countries in other regions over time, we find that the MENA countries trade barriers have been the slowest to come down, and there have been episodes as well of reversals in policy during the 1990s. Tunisia and Morocco maintain the highest protection rates in MENA and the world, a weighted average level of around 26%, despite several reform episodes since the early 1980s, while Egypt had the highest dispersion of tariff rates until 2004. Among the five countries, only Jordan and Lebanon decreased their average tariff to the low level of some emerging economies such as Hungary and Turkey (around 5% on average). The average MFN tariff for the remaining three countries was higher than 20 per cent, quite above the level of their comparator countries in Asia (except India) and Eastern Europe which ranges between 10% and 15%. Most recently, however, both Morocco and Egypt reduced their tariffs in 2006 and 2007 respectively. But only Egypt managed to move to competitive tariff levels with effectively applied tariff rates at 6.9% while Morocco maintains its position (Figure 2.4 and 2.5).
Non-tariff barriers, though slowly decreasing, remain nevertheless significant. Average non tariff barrier protection in the MENA countries is generally higher than in other lower middle-income countries at the end of 2004; indeed, it is higher than in all the other regions of the world. In Tunisia, extensive quantitative restrictions which affect some 90 percent of domestic output (textiles, passenger cars, agricultural products) have progressively been reduced in the 1990s but import licences have been replaced by administrative barriers – so called cahier de charge. In Morocco, most quantitative restrictions have been eliminated but technical controls and quality standards still curb imports. In Jordan, most quantitative restrictions were gradually eliminated since 1995 but NTB coverage is still high at 48.5% (2004). In Egypt, import licensing was eliminated in 1993 and the scope of quantitative restrictions progressively reduced. In Lebanon, some import licensing and administrative barriers remain.

The most remarkable characteristics of the MENA countries; trade profile is a low degree of intra-regional trade and a resulting hub-and spoke pattern in trade relations. The intensity of trade relations can be measured with a revealed trade preferences index (RTP) which measures the intensity of bilateral trade relations. The index ranges from zero, indicating no bilateral to infinity, indicating that the bilateral relationship is the only existing one. Figure 2.6 shows the evolution of intra-regional trade over time with Egypt, Tunisia, Morocco trade captured in the analysis. A first observation is that after a sharp reduction in the seventies, following the first oil shock, intra-regional trade became gradually stronger. Finally in 1995 the RTP index returned to its 70s level (around 0.4). This is a low level if compared with intra-trade in other regions: The RTP among the EU-15 has been in the 0.6-0.7 range for the last two decades, while in several other integration areas such as LAC or EAP intra-regional trade even achieved levels of 0.8-0.9. A recent study by the Arab Monetary Fund (2006) confirms that there is no evidence of a noticeable increase in intra-regional trade until 2003. One of the major downsides of weak regional integration is that it prevents countries from integration into global production chains because intra-regional barriers to trade limits the scope for cross border movement and two way trade in parts and components. The location decisions of multinationals are crucially affected by the scope for sourcing inputs and moving them quickly and freely across national boundaries.16

As of now the level of intra-regional integration still lags behind of that envisaged by the Euro-Mediterranean Free Trade Area. For instance, it does not include accompanying anti-dumping and anti-subsidy mechanisms. However, it debatable whether there is still much more scope for expansion given

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16 Brenton, Baroncelli and Malouche, 2006
the limited complementarities in the countries trade profiles. Service show still great potential for intra-regional trade though.\textsuperscript{17}

**Fig. 2.6: Intensity of trade relations ships in MENA**

![Graph showing trade relations intensity in MENA](image)

Source: CEPII, CHELEM

The weak regional integration leads to a hub-and-spoke effect whereby the EU – as a major trade partner - acts as the hub and the single MENA countries as satellites of the EU market. The hub-and-spoke effect refers to a situation in which a country trade highly depends on the hub, trade amongst the spokes remains restricted while the hub enjoys improved access to all of the spokes. Such a structure marginalizes the spokes and tends to divert FDI to the hub as they provide better access to different markets and a usually better investment environment. Hence, a hub and spoke structure offers lower gains to the spokes than broad-based regional integration. This phenomenon is more pronounced for the Maghreb countries.

**Despite the remaining weaknesses, the anti-export bias decreased significantly for all countries in recent years. This made it possible for the five countries to move towards greater openness in trade.** While trade integration stagnated up to the second half of the 1990s, it has made much progress since 2000. Clearly, the stellar performance in export growth for merchandised goods and services (see chapter 1) is the result of the improved trade environment. All countries but Lebanon\textsuperscript{18} enjoy a higher degree of openness in 2005. Jordan and Tunisia are among the most open economies in the MENA region. Morocco also increased the rate of openness from 42% in 1990 to 80% in 2005. Alone Egypt, although factually more integrated than before, has not yet achieved its former levels after trade declined in the 1990s despite the increase in oil-price (figure 5).\textsuperscript{19}

\textsuperscript{17} World Bank, 2006 (Maghreb Study)

\textsuperscript{18} An explanation for this reduced degree of openness is that Lebanon’s demand for goods and services although was growing at 2 percent in real terms on average over the period 1993-2005, was increasingly satisfied by domestic producers (2.6 percent annual growth in real terms), which took over from imports (-0.1 percent annual growth in real terms). This is understandable, given the increasing share of non-tradable goods and services in total absorption, services in particular, and the reconstitution of some capacities in tradable sectors after the war. Domestic absorption growth was mostly driven by public consumption (4.6 percent respectively), while private consumption and investment hardly grew in contrast (+1.3 and -0.7 percent respectively). Besides exports of goods and services (including tourism), grew by 11.7 percent on average every year in real terms but there was a low growth in export prices, +1.7 percent annually against 3.3 percent for the deflator of GDP. World Bank (2006), Lebanon Growth Policy Note, Middle East and North Africa Social and Economic Development Group (MNSED), May 31.

\textsuperscript{19} It is expected, however, that Egypt’s position will change after the recent tariff reduction in February 2007 (see volume 1)
Still, the share in world trade is for all countries relatively low. Although growth in trade made remarkable progress in the past years, growth rates were only half of those of competitors such as Turkey, Poland or Hungary. Not only did the five countries fail to gain higher export share in world trade but their share decreased from 1.4% in 1995 to 1.2% in 2005. In contrast, China, Malaysia, Hungary, Poland, Romania, Mexico and Malaysia could all improve their relative position in world trade. The same picture if we control for population size (fig. 2.7). This is clear signal for their superior competitive position.

Fig. 2.7: Degree of openness (merch. trade in % of GDP)

![Graph showing degree of openness for different countries over time.]

Source: WB, WDI

Another outcome of the increased trade integration is that the countries were able to attract more FDI. Compared with the 1992-1997 annual average, FDI inflows to the five countries almost doubled in 2004 to 3653 million USD (Tab. 2.2). This is relatively successful considering that FDI inflows to other developing economies increased by only 45% on average, albeit from a higher starting point. In the period 2001-2003 one country stands out as the major location for foreign investment: Morocco received on average about 46% of the FDI inflow to the five countries. Together with Jordan the country tripled its inflows. In the same reference period Lebanon grew five times its average 1992-1997 level. Tunisia FDI inflows were less dynamic and grew only by 50%, though it also started at much higher levels relative to its size (Fig. 2.9). Egypt’s FDI inflow shrank on average despite intermediate expansion which can be partly explained by the fact that the highly appreciated exchange rate made it the least favourable country to trade with until 2003, and partly by the perceived higher security risk which hit the Mashrek region between 2001 and 2003.

Table 2.2: FDI inflows, by host region and economy, 1992-2004 (Millions USD)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>1075.5</td>
<td>1065.3</td>
<td>1235.4</td>
<td>509.9</td>
<td>646.9</td>
<td>237.4</td>
<td>1253.3</td>
<td>661.9</td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td>310.0</td>
<td>310.0</td>
<td>158.0</td>
<td>800.8</td>
<td>120.2</td>
<td>64.0</td>
<td>424.1</td>
<td>620.3</td>
<td>307.2</td>
</tr>
<tr>
<td>Lebanon</td>
<td>200.0</td>
<td>200.0</td>
<td>250.0</td>
<td>297.8</td>
<td>249.3</td>
<td>257.3</td>
<td>358.0</td>
<td>288.0</td>
<td>288.2</td>
</tr>
<tr>
<td>Morocco</td>
<td>333.1</td>
<td>849.5</td>
<td>426.5</td>
<td>2824.6</td>
<td>480.7</td>
<td>2314.5</td>
<td>853.1</td>
<td>1618.2</td>
<td></td>
</tr>
<tr>
<td>Tunisia</td>
<td>668.1</td>
<td>367.9</td>
<td>778.8</td>
<td>486.4</td>
<td>821.3</td>
<td>583.9</td>
<td>638.9</td>
<td>632.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2586.7</td>
<td>2690.7</td>
<td>3539.4</td>
<td>4190.3</td>
<td>2270.2</td>
<td>3917.9</td>
<td>3653.6</td>
<td>3508.0</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.2 (Continued): Dev. economies (mean)

| | 116914.7 | 186626.3 | 232507.3 | 253178.8 | 217844.9 | 155528.4 | 166336.6 | 233227.3 | 185030.7 |

FDI can be an important instrument for market entry and near-client services of end-products. But FDI can also serve as a means for cost-saving in vertically integrated firms by outsourcing parts of the production process to lower wage location. In such case, FDI fosters intra-industry trade with capital and intermediate goods as well as trade with end products. As shown in various empirical work, the correlation between FDI and trade is usually significantly positive. The recent progress in trade is therefore expected to yield more foreign investment. However, another factor that might have substantially contributed to the increase in FDI was the privatization of large, state-owned enterprises in telecommunications, agro-industry, transportation and construction.

**Still, the MENA countries attract less FDI than their comparators.** Dividing inward FDI flows by the host countries’ GDP controls approximately for country size. Figure 14 shows the FDI to GDP ratios and also that Chile, China and the East European countries attracted much more FDI relative to their size. With their better ability to adapt to new technologies and improving investment climates these countries represent strong competitors for global foreign investment.

A comparison over 1980-2004 reveals that all of the five countries were able to considerably increase their FDI stocks, though there are significant differences across countries. Tunisia which already had a relatively high inward FDI stock in 1980 experienced a spectacular increase from 38% to 66% of GDP in 2004. Egypt and Morocco also showed comparably high ratios of FDI stocks in 1980 (around 20% and 23% of GDP) but their increases did not go beyond 30% at any point up to 2004. All countries except Lebanon fare well in comparison with other emerging economies (fig. 2.10).

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2.2 THE DETERMINANTS OF EXPORT DIVERSIFICATION AND SIMILARITY

In light of above developments, we want to examine now the determinants of export diversification, measured in export concentration and export similarity. For this purpose we carry out an econometric analysis. In particular, we consider the following three variables:

The first variable under scrutiny is movements in the exchange rate. The real exchange rate, which reflects the underlying relative movement of prices at home and abroad, has a significant effect on the export performance. An overvalued currency, for instance, translates into a direct loss of price competitiveness for exporting firms. This would reduce exports but could also have an effect on export concentration. An appreciated real exchange rate in particular would favour exporters with a higher import-to-ratio, such as exporters of capital-intensive or high-tech products. In contrast, exporters of labor-intensive products often face aggressive competition on their product markets. A loss in competitiveness would hit them harder than exporters in (higher technology) product markets.

The second candidate is trade policy. Suppose, as in Melitz (2003), that export activities carry a fixed cost. Under a protectionist trade regime, the export sector will be underdeveloped. Accordingly, only a relatively limited number of firms will be able to afford the fixed costs of exporting, leading to less rather than more export diversification. On the other hand, if fixed production costs are paramount, the greater profitability of domestic production may induce a larger number of firms to enter the domestic market and, possibly, to export. Moreover, more trade integration leads to lower tariffs and improved access to foreign markets which could increase the export of goods that are in demand from trade partners. Uneven growths in export products affect the export mix, and hence export diversification.

As the third variable we consider FDI. Empirical evidence suggests that, during the nineties, vertical FDI has expanded rapidly, spurred by globalization and falling trade barriers. The predominance of vertical inward FDI in developing countries and the growing role of trade in components may well imply that investment by multinational corporations should be associated with a more diversified and similar export structure. However, if FDI is mainly directed to the exploitation of natural resources, it should lead to a more concentrated output and export structure. With market seeking FDI, multinational corporations will cater mainly to the domestic markets of the host country. The impact on export diversification should be nil or even negative, if domestic costs rise as a consequence of the foreign capital inflows.

Box 2.2: Analyzing the determinants of export diversification

In order to test the link between export concentration on the one hand and trade policy and per capita GDP on the other, we estimate the following simple equation:

\[
\log (\text{CONC})_{it} = \alpha_i + \delta t + \beta_1 \log (\text{Ypc})_t + \beta_2 [\log(Ypc)]^2 + \gamma_1 \log \tau_t + \gamma_2 [\log \tau]_t^2 + \epsilon_{it}
\]

where CONC_{it} is the HH index of export concentration for country i at time t, Ypc is GDP per capita, \tau is an indicator of the trade policy stance, and \alpha and \delta represent respectively fixed country and time effects.

The concentration index comes from UNCTAD (2006). GDP per capita is measured in constant US dollars and comes from the World Development Indicators of the World Bank. As an (admittedly imperfect) measure of the trade policy stance we rely on the (unweighted) average tariff rate computed by the International Trade Department at the World Bank. Our (unbalanced) panel covers 147 countries from 1980 to 2002.

We first assess the stationarity properties of our series. We rely throughout on the Im-Pesaran-Shin (2003)

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21 Martincus and Estevadeordal, 2005
22 Faini, 2004
test for panel data. All regressors are found to be stationary at comfortable significance levels (see table A-1 in the appendix).

We first estimate the benchmark equation (1). We then assess the robustness of the specification by adding other controls, such as FDI and (real) exchange rate misalignment. We rely throughout on a simple specification with fixed time (δₜ) and country (αᵢ) effects (a random effect specification was consistently rejected by standard tests). We also allow for a fairly general variance covariance structure, with different residual variance for each cross section (i.e. σ²ᵢₜ ≠ σ²ⱼₜ) and non zero contemporaneous cross equation correlation (cov (εᵢₜ, εᵢₜ) ≠ 0). Accordingly, we do not restrict the variance of the error term to be the same across countries and we control for the possibility that (contemporaneous) shocks may be correlated across countries.

The results are presented in table 4 a and b. We rely on three different specification of the dependent variable, respectively the level of the concentration index (column 1), its log (column 2), and a logistic transformation (column 3).

We repeat this exercise by using another indicator for export diversification, namely export similiarity. The results are presented in table 4c.

The empirical analysis suggests that lowering tariffs can reduce export concentration. Consider column 1 in table (4a). Two facts stand out. First, as expected the pattern of export concentration follows a U pattern, declining first as a function of income and rising afterward. This finding is fully consistent with the results in Imbs and Wacziarg (2003) as discussed in chapter 1. Second, we find that also tariffs have a non linear impact on the level of concentration. At first, for relatively low tariffs, an increase in import duties is associated with greater export concentration, consistent with the notion that the fall of export profitability will allow only a relatively limited number of firms to afford the fixed costs of exporting. For higher tariff rates, a more standard H-O mechanism seems at work. Indeed, a more protectionist regime will be generally associated with a more diversified domestic production and possibly a less concentrated export structure.
### Result Table 3a
Fixed Effect Regressions - Panel Least Squares
White cross-section standard errors

<table>
<thead>
<tr>
<th>dep var:</th>
<th>Concentration Index</th>
<th>Log (Concentration Index) / 1-Concentration Index</th>
<th>Log (GDP per capita)</th>
<th>Log (GDP per capita)²</th>
<th>Log (average Tariffs)</th>
<th>Log (average Tariffs)²</th>
<th>FDI Inflows</th>
<th>FDI inflows * tariffs</th>
<th>Exchange rate misalignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>log (GDP per capita)</td>
<td>-0.06***</td>
<td>-0.212***</td>
<td>-0.24*</td>
<td>-0.204**</td>
<td>-0.147***</td>
<td>-0.145***</td>
<td>-0.145***</td>
<td>-0.145***</td>
<td>-0.338***</td>
</tr>
<tr>
<td>log (GDP per capita)²</td>
<td>0.016***</td>
<td>0.082***</td>
<td>0.09***</td>
<td>0.081***</td>
<td>0.125***</td>
<td>0.123***</td>
<td>0.123***</td>
<td>0.123***</td>
<td>0.073***</td>
</tr>
<tr>
<td>log (average Tariffs)</td>
<td>0.045***</td>
<td>0.202***</td>
<td>0.25***</td>
<td>0.201***</td>
<td>0.176***</td>
<td>0.179***</td>
<td>0.179***</td>
<td>0.179***</td>
<td>0.151</td>
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<tr>
<td>log (average Tariffs)²</td>
<td>-0.002</td>
<td>-0.021***</td>
<td>-0.015</td>
<td>-0.021***</td>
<td>-0.031***</td>
<td>-0.030***</td>
<td>-0.030***</td>
<td>-0.030***</td>
<td>-0.011</td>
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<tr>
<td>constant</td>
<td>0.251***</td>
<td>-1.700***</td>
<td>-1.38***</td>
<td>-1.697***</td>
<td>-1.72***</td>
<td>-1.82***</td>
<td>-1.82***</td>
<td>-1.82***</td>
<td>-1.497***</td>
</tr>
</tbody>
</table>

#### Sample
- 1980-2002
- 1980-2002
- 1980-2002

#### Sample
- 1980-2003
- 1988-2003
- 1980-2003
- 1980-2003

### Result Table 3b
Fixed Effect Regressions - Panel Least Squares
White cross-section standard errors & covariance

<table>
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<tr>
<th>dep var:</th>
<th>Concentration Index</th>
<th>Log (Concentration Index) / 1-Concentration Index</th>
<th>Log (GDP per capita)</th>
<th>Log (GDP per capita)²</th>
<th>Log (average Tariffs)</th>
<th>Log (average Tariffs)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>log (GDP per capita)</td>
<td>-2.9</td>
<td>-2.36</td>
<td>1.78</td>
<td>-2.23</td>
<td>(-2.34)</td>
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<tr>
<td>log (GDP per capita)²</td>
<td>0.016***</td>
<td>0.082***</td>
<td>0.09***</td>
<td>0.081***</td>
<td>0.125***</td>
<td>0.123***</td>
</tr>
<tr>
<td>log (average Tariffs)</td>
<td>3.2</td>
<td>4.13</td>
<td>2.78</td>
<td>-3.63</td>
<td>-8.8</td>
<td>-8.31</td>
</tr>
<tr>
<td>log (average Tariffs)²</td>
<td>0.045***</td>
<td>0.202***</td>
<td>0.25***</td>
<td>0.201***</td>
<td>0.176***</td>
<td>0.179***</td>
</tr>
<tr>
<td>constant</td>
<td>0.251***</td>
<td>-1.700***</td>
<td>-1.38***</td>
<td>-1.697***</td>
<td>-1.72***</td>
<td>-1.82***</td>
</tr>
</tbody>
</table>

#### Sample
- 1980-2002
- 1980-2002
- 1980-2002

#### Sample
- 1980-2003
- 1988-2003
- 1980-2003
- 1980-2003

### Notes
- Fixed Effect Regressions - Panel Least Squares
- White cross-section standard errors & covariance
- **p-values**
**FDI has no significant influence on export concentration.** The main results reported in table (3b) suggests, that first, the addition of FDI does not change in any significant way our previous conclusions regarding the influence of GDP per capita and trade policy on export concentration. Secondly, FDI itself has no significant influence. In column 2, we focus on a shorter period of time, from the late eighties onward, as a rough way to test whether the nature, and the impact, of FDI changed during more recent years. However, none of our previous conclusions is affected. One complication may come from the fact that FDI may be endogenous and its coefficient biased in an unpredictable way. To control for this possibility, we rely on an instrumental variable procedure and use as an instrument the FDI potential index, as computed by UNCTAD for the period of 1988 to 2004. Once again, we do not find any indication that FDI has a significant influence on concentration. As a final check, we interact the FDI variable with the tariff indicator, to assess whether the impact of FDI may be a function of the trade policy stance, as theory would indeed suggest. We also find no support for the notion that the impact of FDI on export concentration may be a function of the level of tariffs (column 3).

**We also do not observe an effect of REER misalignment on export concentration.** Hypothetically we would expect that a highly appreciated exchange rate could depress export profitability and force particular those firms out of the export market which operate in industries with tight profit margins, with a negative effect on export variety and an increase in export concentration. On the other hand, firms are unlikely to respond to (mainly temporary) real exchange fluctuations, thereby muting the impact of real exchange rate misalignment on export concentration. At the same time, long run trends in the real exchange rate may already be picked up by income per capita. The results in column 4 in table (3b) suggests that REER misalignments had neither a significant effect on export concentration nor on similarity between 1980 and 2002.

**Overall, rising income and the shift towards a more liberal trade regime should combine to foster convergence in export structures.** Yet, FDI also proves insignificant for increase in export similarity. We use the same regression specification for another indicator of diversification, namely export similarity. If exports are strongly concentrated in just a few commodities, presumable the country’s export structure will strongly differ from the (relatively diversified) export structure of the world. However, if export growth proceeds along the lines of the country’s comparative advantage, like in Egypt or Tunisia, it may enhance the dissimilarity with respect to the world export structure. Given the predominance of high income countries in world trade we expect to find that export similarity should be positively correlated with GDP per capita. We also expect trade policy to affect export similarity. While a more liberal trade regime should align the export structure with the country’s comparative advantage and, accordingly, be associated with a greater dissimilarity with respect to the rest of the world, other factors may also be at work. First, the decline in tariffs and the greater profitability of exports may allow more firms to enter foreign markets with a positive impact on export diversification and, possibly, a greater similarity of the country’s export with respect to the world. Secondly, a more liberal trade policy stance may favour the convergence in export structures if intra-industry trade is predominant.
The results in table 3c indicate that income per capita has a negative impact on export diversity (export dissimilarity) suggesting that countries tend to converge to a more similar export structure as income grows. Interestingly enough, the impact of tariffs on export diversity (dissimilarity) is positive, indicating that comparative advantage forces may not be predominant. In column 2, we add FDI to the list of regressors and find that it has a positive impact on export diversity (dissimilarity). This counterintuitive relationship can be explained by the inclination of foreign investors to invest in existing industries with less uncertainty regarding productivity levels.

The results also hold for the five MENA countries and suggest that export concentration can be brought down by lowering average tariffs. The above analysis is a cross-section regression which covers 147 countries. A maintained hypothesis so far is that the pattern of export concentration and export diversity is the same among countries, except possibly for a constant term. This implies that above results should not differ significantly for MENA countries. In order to test this we check whether the assumption of equal slope coefficients for this set of countries is supported by the data. To keep things manageable, we focus on the benchmark specification. Our finding is that the hypothesis of equal coefficients between MENA countries and the full sample cannot be rejected at standard significance levels. This result must be taken with caution because the small number of observations for the MENA countries affects the significance of the (separate) regression and, hence, the power of the test. Moreover, our analysis suggests the role of tariffs is indeed quite relevant. If 2001 tariffs had been aligned with the average level of say Latin America, concentration would have declined by about 8% in Jordan, 15% in Algeria and Egypt, and by more than 20% in Morocco and Tunisia. Consequently, further tariff cuts in Morocco and Tunisia, and to some extent in Jordan could increase export diversification. With the most recent tariff reforms in February 2007 we can also expect export concentration to decline in Egypt.

Note: the analysis uses the diversity index as reported by UNCTAD (2006) which measures the dissimilarity to the world trade structure.

\[ \beta \text{ and } \gamma \text{ are constrained to be the same across countries, while the country intercepts (the } \alpha \text{'s) are allowed to differ.} \]

### Table 2.4 Fixed effects for MENA countries

<table>
<thead>
<tr>
<th>dep var:</th>
<th>Log (Concentration Index)</th>
<th>Log (Concentration Index)</th>
<th>Concentration Index</th>
</tr>
</thead>
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<tr>
<td>Algeria</td>
<td>0.73***</td>
<td>1.0***</td>
<td>0.21***</td>
</tr>
<tr>
<td>Egypt</td>
<td>13.4</td>
<td>11.8</td>
<td>12.8</td>
</tr>
<tr>
<td>Jordan</td>
<td>-0.08</td>
<td>-0.30**</td>
<td>-0.09**</td>
</tr>
<tr>
<td>Lebanon</td>
<td>1.48</td>
<td>3.55</td>
<td>5.2</td>
</tr>
<tr>
<td>Morocco</td>
<td>-0.75***</td>
<td>-1.12***</td>
<td>-0.20***</td>
</tr>
<tr>
<td>Lebanon</td>
<td>13.8</td>
<td>-13.2</td>
<td>12.2</td>
</tr>
<tr>
<td>Tunisia</td>
<td>-0.50</td>
<td>-0.65**</td>
<td>-0.16***</td>
</tr>
<tr>
<td>n° obs.</td>
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<td>1724</td>
<td>1724</td>
</tr>
<tr>
<td>n° cross-section</td>
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<td>147</td>
<td>147</td>
</tr>
<tr>
<td>Time specific effects</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Country specific effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.875</td>
<td>0.879</td>
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### Table 3c

<table>
<thead>
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<th>dep var:</th>
<th>Log (Diversity Index)</th>
<th>Log (Diversity Index)</th>
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</thead>
<tbody>
<tr>
<td>[log (GDP per capita)]</td>
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<td>-0.030*</td>
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<tr>
<td>[log (GDP per capita)]²</td>
<td>-0.008</td>
<td>-0.015***</td>
</tr>
<tr>
<td>log (average Tariffs)</td>
<td>0.035***</td>
<td>0.037***</td>
</tr>
<tr>
<td>[log (average Tariffs)]²</td>
<td>-0.006***</td>
<td>-0.006***</td>
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<tr>
<td>FDI inflows</td>
<td>2.86</td>
<td>3.13</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>-3.11</td>
<td>0.08***</td>
</tr>
<tr>
<td>misalignment</td>
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<tr>
<td>constant</td>
<td>-0.586***</td>
<td>-0.58***</td>
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<tr>
<td>n° obs.</td>
<td>1742</td>
<td>1724</td>
</tr>
<tr>
<td>n° cross-section</td>
<td>147</td>
<td>147</td>
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<tr>
<td>Time specific effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Country specific effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.875</td>
<td>0.879</td>
</tr>
</tbody>
</table>
2.3 DIVERSIFICATION AND TECHNOLOGICAL CHANGE

It is difficult to establish the relationship between innovation and export diversification. Intuition would tell us that innovation contributes to export diversification. Per simple definition, innovation can involve making new products using old technology, making old products with new technology, or making new products with new technology. Or generally speaking, we would expect diversification to increase through the introduction of new products. In what follows, we examine the relationship between innovation and technological change on one hand, and diversification on the other.

**Innovation on the technological frontier does not appear to matter for export diversification.** Klinger & Lederman (2006) found convincing evidence that the innovation performance of countries is consistently negative correlated with their level of export diversification, i.e. we observe more patentable or on-the-frontier innovation in (higher income) countries with more specialized export baskets. This is in line with the notion that higher income countries produce more innovation, as well as the Imbs & Warziarg findings whereby countries diversify up to a certain income level and then specialize again with higher incomes. And in fact, most innovations are often variations or an advancement of an already existing product and occur in the few sectors high income countries are specialized in. One example is new software; or a new application in an electronical device.

**Technology change, on the other hand, shows a significant relationship with export diversification.** The Klinger & Lederman approach used US patents as a proxy for on-the-frontier innovation. But innovation can also be solely reflected in technology adapted to produce old products (or increase their quality). Indeed, in a strict economic sense every variations to an existing product is regarded as a different, new product. Technology change improves the productivity of a product which through way of increased competitiveness can increase exports. This in turn can contribute to a more balanced product mix, if this product was among those with relatively low shares in exports. A regression analysis which correlates high technology exports as an indicator for technological change with a concentration measure (Hirschman-Herfindahl index) gives apt to believe that lower levels of export concentration is associated with more high-technology exports (Figure 2.11). The observed positive relationship is also in accordance with the outcomes in the MENA countries, which display both, low diversification and low technology intensity.

**Fig. 2.11: Correlation between export diversification and high technology exports.**

Note: High technology export values (Y) and the Hirschman Index of export diversification (Xi) (- 3 max diversification, 0 min diversification) are logarithmic.
The five MENA countries all under-perform with regard to the expected levels of high-technology exports. The econometric framework (see box 2.3) was used to predict levels of high tech exports conditioned on world average GDP (indicating potential demand), GDP per capita income, secondary school enrolment, and terms of trade (indicating supply and price factors). For the MENA countries we expect that high tech exports are, on average, much below their predicted levels, with Jordan and Morocco possibly having exports close to what would be predicted as they have both have relatively high levels of high-tech exports. And, indeed, the results confirm the hypothesis. Jordan and Morocco had exports close to prediction. The two biggest under-performers in the sample are Egypt and Tunisia. However, we can also observe an underperformance for some comparator countries such as Chile and Poland (Fig. 2.11).

![Chart: Actual to predicted high technology exports, US$]

**Trade protection and exchange rate volatility have a highly negative effect on the technology intensity of exports.** This is the major result of the regression analysis for 84 countries over the period 1994 to 2003 in which we examined the determinants of high-technology exports (see table 2.5 and Annex B). In addition to trade and macroeconomic policy, the results suggest that more investments into R&D, higher total factor productivity, stronger human capital, a better investment climate and IT infrastructure as well as well the better quality of institutions would reinforce high-technology exports. Conversely, neither FDI net inflows nor gross fixed capital formation in % of GDP play a significant role for upgrading exports. This is similar to the findings we had in the regression presented earlier on the determinants of export diversification. Again, we tested for the significance of the results for the subset of MENA countries and find that the same results hold.

**Box 2.3: Specifications of Export Technology Regression Analysis**

In order to test for the linkages between technology intensity we estimate the following equation on an unbalanced panel covering 82 countries from 1994 to 2003:

\[
\log (HTEXP)_{it} = \alpha_i + \delta_t + \beta_1 \log (WGDP_{it}) + \beta_2 \log (GDPPC_{it}) + \beta_3 \log (NBTT_{it}) + \beta_4 \log (TARIFFA) + \varepsilon_{it}
\]

where \( \alpha_i \) and \( \delta_t \) represent respectively fixed country and time effects.

This model explains high technology exports as a percentage of manufactured exports (HTEXP) in logarithmic form first by using a set of demand related variables: world GDP (WGDP\(_{i,t}\)), which may have a “pulling” role in high tech exports; the domestic per capita GDP (GDPPC) measured in constant US dollars as a proxy for overall endowments that influence the capacity to export higher quality goods; terms
of trade \((NBTT_{i,t})\), the improvement of which increases the profitability of production for exports; the volatility in relative prices, approximated by the volatility of the RER \((ERV)\) and calculated as the coefficient of variation of the RER over a five-year period; tariff measures such as customs and other import duties as a percentage of tax revenue \((TARRIFA)\) and MFN rate on manufactured goods \((TARRIFB)\).

In a second step other technological and structural non price variables are added to the equation: logarithm of the gross fixed capital formation to GDP \((CAPITAL2)\), which is conducive to an increase in overall production capacity, and thus is expected increase in technology export capacity; total factor productivity \((TPF)\); research and development expenditure as % of GDP \((RD)\); infrastructures endowment measured by road paved (as % of total road) and telephone mainline (per 1000 inhabitants); the availability of human capital, approximated by the logarithm of secondary school enrolment ratio on net enrolment \((HUMAN_{i,t})\), by the percentage of physicians on 1000 people \((HUMANBi_{i,t})\) and by literacy rates \((HUMANAi_{i,t})\); current and capital account restrictions \((CURRENT)\) and \((CAPITAL)\); a standardised sum of the six Kaufman, Kray and Mastruzzi (2005) governance indicators governance indicators \((GOVA)\); alternatively, one of the investment climate indicators House of Freedom and Fraser index \((HF1)\) and \((FI)\). The variables and their sources are further explained in Annex B.

\[
\log (HTEXP)_{it} = \alpha_i + \delta_t + \beta_1 \log (WGDP_{it}) + \beta_2 \log (GDPPC_{it}) + \beta_3 \log (NBTT_{it}) + \beta_4 \log (TARRIFA) + \beta_5 \log (TFP_{it}) + \beta_6 \log (GOVA) + \beta_7 \log (HF_{it}) + \beta_8 \log (FI) + \beta_9 \log (CONCit) + \beta_{10} \log (FDI_{it}) + \epsilon_{it}
\]

We augment and re-estimate the basic separately for each variable in order to disentangle their role. We rely on fixed time \((\delta_t)\) and country \((\alpha_i)\) effects or on a random effect specification according to the results of the Hausman test, which is shown in the table (last row). The test allows to accept or reject the Ho hypothesis that the fixed effect (FE) and random effect (RE) model coefficients do not differ systematically. If we cannot reject the Ho hypothesis we can adopt both a fixed and a random effect model (in this case we choose the FE model).

Finally, we estimate the equation simultaneously for all variables. The results are consistent with the previous estimation, except that the coefficient of human capital and governance become insignificant – possibly due to co-linearity. All results are reported in Annex 2.

**Which of those constraints are the most relevant for the development of high-technology export?**

We have already analyzed trade protection and exchange rate policy as potential constraints for diversification in the five MENA countries. We derived the conclusion that particularly trade protection is relatively high in Morocco, Tunisia and Jordan and that lowering trade barriers bears much potential for more exports, more export diversification and, evidently, technological change. Exchange rate policy matters, particularly, for the countries with pegged exchange rates. Presently, the countries present themselves as relatively stable in macro-economic indicators but we can observe high volatility in Lebanon and to some extent in Morocco and Egypt. However, aside from Lebanon, we can conclude any discernible, negative effect of exchange rate movements or macro-economic instability on exports. In what follows, we take a closer look at the remaining variables to identify potential constraints on high technology exports.
Table 2.5: Determinants of High-Technology Exports – Regression Result

<table>
<thead>
<tr>
<th>Specifications variables</th>
<th>Eq. 1</th>
<th>Eq. 2</th>
<th>Eq. 3</th>
<th>Eq. 4</th>
<th>Eq. 5</th>
<th>Eq. 6</th>
<th>Eq. 7</th>
<th>Eq. 8</th>
<th>Eq. 9</th>
<th>Eq. 10</th>
<th>Eq. 11</th>
<th>Eq. 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>World GDP (in log)</td>
<td>0.159</td>
<td>0.58</td>
<td>0.83</td>
<td>1.02</td>
<td>1.79</td>
<td>2.74</td>
<td>1.43</td>
<td>4.46</td>
<td>-0.29</td>
<td>1.17</td>
<td>0.59</td>
<td>0.61</td>
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<tr>
<td>GDP per capita (in log)</td>
<td>2.30</td>
<td>2.09</td>
<td>1.45</td>
<td>1.29</td>
<td>1.57</td>
<td>2.41</td>
<td>1.53</td>
<td>1.22</td>
<td>1.24</td>
<td>(0.48)</td>
<td>(1.15)</td>
<td>(0.96)</td>
</tr>
<tr>
<td>Terms of trade (in log)</td>
<td>0.80*</td>
<td>0.77*</td>
<td>0.61**</td>
<td>0.93*</td>
<td>0.45</td>
<td>0.80*</td>
<td>0.61**</td>
<td>0.88**</td>
<td>0.91**</td>
<td>1.37*</td>
<td>1.28*</td>
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<td>Real exchange rate (in log)</td>
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<td>0.8*</td>
<td>0.29</td>
<td>0.95**</td>
<td>0.98</td>
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<td>Volatility of real exchange rate</td>
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<td>-0.03***</td>
<td>-0.03***</td>
<td>-0.03***</td>
<td>-0.04***</td>
<td>-0.04***</td>
<td>-0.02**</td>
<td>-0.03***</td>
<td>-0.04***</td>
<td>-0.02**</td>
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<td>MFN rate on manufactured goods</td>
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<td>R&amp;D expenditure (% GDP)</td>
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<td>Total Factor Productivity (in log)</td>
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<td>Gross fixed capital formation on GDP (%) (in log)</td>
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<td>M2/GDP (in log)</td>
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<td>Export concentration (Hirschman-Herfindhal) (in log)</td>
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<tr>
<td>World Bank governance indicators (Kaufman and Kray) (in log)</td>
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<td>Investment climate (Fraser Index) (in log)</td>
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<td>246</td>
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<td>100</td>
<td>180</td>
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<tr>
<td>R2 overall</td>
<td>0.43</td>
<td>0.44</td>
<td>0.53</td>
<td>0.41</td>
<td>0.37</td>
<td>0.42</td>
<td>0.44</td>
<td>0.62</td>
<td>0.62</td>
<td>0.6</td>
<td>0.59</td>
<td>0.56</td>
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<td>Hausman test</td>
<td>ch2(5) = 2.35</td>
<td>(0.7950)</td>
<td>ch2(5) = 1.54</td>
<td>(0.9565)</td>
<td>ch2(5) = 3.86</td>
<td>(0.5705)</td>
<td>ch2(5) = 3.86</td>
<td>(0.5705)</td>
<td>ch2(5) = 14.64</td>
<td>(0.0000)</td>
<td>ch2(5) = 3.14</td>
<td>(0.6776)</td>
</tr>
</tbody>
</table>

Source: Author estimations. Data have been compiled from: World Development Indicators (WDI), 2006; World Bank Governance Indicators 2005; IMF, International Financial Statistics, 2006; UNCTAD; IMF Annual report on exchange rate arrangements and exchange restrictions; Freedom House; Fraser Institute. Notes: T-student in brackets. ***significant at 1% (99% level of significance); ** significant at 5% (95% level of significance); * significant at 10% (90% level of significance).
Low levels of investment in R&D are likely responsible for the slow pace of technological change. Generating new products or processes requires investments in R&D either at supply or knowledge production level. There is robust evidence in the empirical literature that high-tech exports and R&D intensity are positively correlated.\(^1\) Egypt, Jordan, Tunisia and Morocco had all very low level of investments in 1995, not exceeding 0.2% of GDP. Until today, only Tunisia and Morocco have stepped up R&D investments and reached levels of 0.6% of GDP (table 2.6). R&D investment in comparable economies is systematically higher and more aligned with the average for middle-income countries which stand at roughly 0.9% in 2004. It can be therefore assumed that more investments in R&D could foster technology intensity in MENA countries.

Table 2.6: Human Development and Technology Indicators

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (million)</th>
<th>GDP/head US$ PPP</th>
<th>R&amp;D Expenditure</th>
<th>Researchers (per million people)</th>
<th>Publication in Scientific Journals</th>
<th>GCI Rank</th>
<th>Higher Education &amp; Training Rank</th>
<th>Technological Readiness Rank</th>
<th>Innovation Rank</th>
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</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>8</td>
<td>8794</td>
<td>0.5</td>
<td>1263</td>
<td>829</td>
<td>72</td>
<td>62</td>
<td>68</td>
<td>87</td>
</tr>
<tr>
<td>Chile</td>
<td>16</td>
<td>12634</td>
<td>0.6</td>
<td>444</td>
<td>1500</td>
<td>27</td>
<td>40</td>
<td>35</td>
<td>39</td>
</tr>
<tr>
<td>China</td>
<td>1304</td>
<td>6571</td>
<td>1.4</td>
<td>708</td>
<td>29186</td>
<td>54</td>
<td>77</td>
<td>75</td>
<td>46</td>
</tr>
<tr>
<td>Egypt</td>
<td>74</td>
<td>4454</td>
<td>0.2</td>
<td>..</td>
<td>1720</td>
<td>58*</td>
<td>75</td>
<td>79</td>
<td>82</td>
</tr>
<tr>
<td>Hungary</td>
<td>10</td>
<td>18086</td>
<td>0.9</td>
<td>1472</td>
<td>12503</td>
<td>41</td>
<td>30</td>
<td>36</td>
<td>31</td>
</tr>
<tr>
<td>India</td>
<td>1095</td>
<td>3485</td>
<td>0.8</td>
<td>..</td>
<td>12774</td>
<td>43</td>
<td>49</td>
<td>55</td>
<td>26</td>
</tr>
<tr>
<td>Jordan</td>
<td>5126</td>
<td>6065</td>
<td>0.31</td>
<td>..</td>
<td>223</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Lebanon</td>
<td>4</td>
<td>6065</td>
<td>...</td>
<td>..</td>
<td>223</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td>..</td>
</tr>
<tr>
<td>Malaysia</td>
<td>25</td>
<td>108483</td>
<td>0.7</td>
<td>..</td>
<td>520</td>
<td>26</td>
<td>32</td>
<td>28</td>
<td>21</td>
</tr>
<tr>
<td>Morocco</td>
<td>30</td>
<td>4420</td>
<td>0.6</td>
<td>..</td>
<td>428</td>
<td>70</td>
<td>85</td>
<td>67</td>
<td>61</td>
</tr>
<tr>
<td>Poland</td>
<td>38</td>
<td>13980</td>
<td>0.6</td>
<td>1581</td>
<td>6770</td>
<td>48</td>
<td>33</td>
<td>51</td>
<td>44</td>
</tr>
<tr>
<td>Tunisia</td>
<td>10</td>
<td>8298</td>
<td>0.6</td>
<td>1013</td>
<td>452</td>
<td>30</td>
<td>36</td>
<td>53</td>
<td>27</td>
</tr>
<tr>
<td>Turkey</td>
<td>73</td>
<td>8429</td>
<td>0.7</td>
<td>341</td>
<td>6224</td>
<td>59</td>
<td>57</td>
<td>52</td>
<td>51</td>
</tr>
</tbody>
</table>


Source: WDI, Tunisian, Ministry of Science and Technology, Global Competitiveness Report 2006-07

Total Factor Productivity per worker has been growing since 2000 in most countries except Egypt. Unlike the other countries Egypt experienced positive, if modest TFP growth during the 1990s. Until now TFP growth has not resumed former levels and shows declining tendencies. Most other were able to substantially improve their factor productivity in recent years. Most remarkable, Morocco’s TFP grew from -1.1% on average in the 1990s - the lowest level among the five countries – to 0.9% since 2000, and even outperformed Turkey. Despite the positive developments, countries like Hungary, Bulgaria, India, and Turkey, or even China whose TFP growth is slowing down, display much larger TFP growth at rates between 2 - 4%. However, TFP which might have constrained technological change during the 1990s, does not appear to be the major culprit in the first part of this decade (Figure 2.12).

Human capital is strong albeit partly unexploited. Little knowledge on new technology and their application limits its use. Knowledge as reflected in human capital indicators is therefore one of the prerequisites for technological advancement. Morocco aside, the level of secondary and tertiary school enrolments in the MENA countries is similar to those of the comparator countries. Also, the higher education & training index by the World Economic Forum\(^2\) which partly reflects education quality indicators, is above (Jordan and Tunisia) or only little below (Morocco and Egypt) the median rank does not clearly suggest that there is educational divide between the countries. Scientist and engineers are according to the same source widely available (figure 2.1 and table 2.7). This suggests that the availability of human capital is not a constraint for technological change, or if it is, than it might be that the potential

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\(^1\) reference

\(^2\) The index is constructed from survey data on secondary and tertiary school enrollment, quality of the educational system, quality of math and science education, quality of school management, local availability of research and training center, extent of staff training and the quality of public schools. The data is in part perception based.
of the available human resource is not exploited. However, the available data shows that although unemployment rates among people with higher education is high (between 20-40% for secondary education and 10 - 20% for tertiary education), it is high and often lower than in comparator countries. With respect to secondary education, unemployment is in some countries even twice as high. Granted, technological change could be fostered by increasing human capital - its general availability, however, does not appear to be a major constraint.

Fig. 2.12: Total Factor Productivity 1990-00, and 2000-05

Fig. 2.13: Secondary and Tertiary School Enrolment, 2004

Egypt and Morocco show weaknesses in the business climate; the other three countries don’t deviate much from the business climate conditions in the comparator countries. Aside from the time for starting a business and investor protection, obstacles in Egypt and, to a lower extent, Morocco are higher than in the other three MENA countries or their comparator countries (table 2.7). In Tunisia, the biggest hurdles are the cost of obtaining licences and profit tax, but the country fares well in most other indicators. Similarly, Jordan’s business climate is generally friendly in comparison, particularly with regard to non-wage labour costs. All the MENA countries, including most of the comparators, rank in the bottom three quintiles, and improving the business climate could certainly help technology change through the creation of a more dynamism in the economic landscape – in Egypt and Morocco more than in the other countries. But it does not seem to be a big obstacle for technology change.

Table 2.7: Indicators of Economic Freedom and Business Climate

<table>
<thead>
<tr>
<th>Country</th>
<th>Ease of Doing Business Rank</th>
<th>Economic Freedom (Score)</th>
<th>Starting a Business (Time, days)</th>
<th>Dealing with Licenses (Cost, % of Income per capita)</th>
<th>Employing Workers (Nugosity of Employment Index)</th>
<th>Nonwage Labor Cost (% of Salary)</th>
<th>Getting Credit (Legal Rights Index)</th>
<th>Protecting Investors (Credit Information Index)</th>
<th>Paying Taxes (Total tax rate, % of profit)</th>
<th>Enforcing Contracts (Time, days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>59</td>
<td>6.3</td>
<td>32</td>
<td>301.1</td>
<td>50</td>
<td>32.4</td>
<td>6</td>
<td>6</td>
<td>43.5</td>
<td>440</td>
</tr>
<tr>
<td>Chile</td>
<td>24</td>
<td>7.4</td>
<td>27</td>
<td>125.2</td>
<td>24</td>
<td>3.4</td>
<td>4</td>
<td>6</td>
<td>6.3</td>
<td>26.3</td>
</tr>
<tr>
<td>China</td>
<td>108</td>
<td>5.7</td>
<td>48</td>
<td>101.1</td>
<td>24</td>
<td>44.5</td>
<td>2</td>
<td>3</td>
<td>4.3</td>
<td>77.4</td>
</tr>
<tr>
<td>Egypt</td>
<td>164</td>
<td>6.3</td>
<td>22</td>
<td>1,067.10</td>
<td>53</td>
<td>26</td>
<td>1</td>
<td>2</td>
<td>4.3</td>
<td>59.6</td>
</tr>
<tr>
<td>Hungary</td>
<td>60</td>
<td>7.4</td>
<td>38</td>
<td>279.1</td>
<td>34</td>
<td>35.2</td>
<td>6</td>
<td>5</td>
<td>4.3</td>
<td>60.6</td>
</tr>
<tr>
<td>India</td>
<td>138</td>
<td>6.7</td>
<td>71</td>
<td>678.6</td>
<td>41</td>
<td>16.8</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>95.2</td>
</tr>
<tr>
<td>Jordan</td>
<td>73</td>
<td>6.8</td>
<td>18</td>
<td>544.3</td>
<td>27</td>
<td>11</td>
<td>5</td>
<td>2</td>
<td>4.3</td>
<td>31.9</td>
</tr>
<tr>
<td>Lebanon</td>
<td>87</td>
<td>6.7</td>
<td>46</td>
<td>214.6</td>
<td>24</td>
<td>21.5</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>37.3</td>
</tr>
<tr>
<td>Malaysia</td>
<td>25</td>
<td>6.7</td>
<td>30</td>
<td>85.1</td>
<td>10</td>
<td>12.8</td>
<td>8</td>
<td>6</td>
<td>8.7</td>
<td>35.2</td>
</tr>
<tr>
<td>Morocco</td>
<td>117</td>
<td>5.8</td>
<td>12</td>
<td>269.2</td>
<td>63</td>
<td>17.7</td>
<td>3</td>
<td>1</td>
<td>4.3</td>
<td>52.7</td>
</tr>
<tr>
<td>Poland</td>
<td>74</td>
<td>6.7</td>
<td>31</td>
<td>92.7</td>
<td>37</td>
<td>21.4</td>
<td>4</td>
<td>4</td>
<td>5.7</td>
<td>38.4</td>
</tr>
<tr>
<td>Romania</td>
<td>71</td>
<td>5.7</td>
<td>11</td>
<td>185.6</td>
<td>62</td>
<td>33.3</td>
<td>4</td>
<td>5</td>
<td>5.7</td>
<td>57.7</td>
</tr>
<tr>
<td>Tunisia</td>
<td>77</td>
<td>6.3</td>
<td>11</td>
<td>1,077.80</td>
<td>46</td>
<td>21.8</td>
<td>3</td>
<td>3</td>
<td>3.3</td>
<td>58.8</td>
</tr>
<tr>
<td>Turkey</td>
<td>84</td>
<td>6</td>
<td>9</td>
<td>167.8</td>
<td>49</td>
<td>21.6</td>
<td>3</td>
<td>5</td>
<td>5.3</td>
<td>46.2</td>
</tr>
</tbody>
</table>

Note: Explanation of the different indicators can be found in Annex B.
In comparison with the other economies, ICT infrastructure in MENA countries is underdeveloped. A well-developed communication infrastructure lowers both the fixed costs of acquiring information and the variable costs of participating in markets. Through its general positive effect on trade, we can derive a supporting role for infrastructure variables in the diversification process. As figure 2.14 and 2.15 show, there seems to be a considerable gap in the ICT coverage. There are both, less internet users and less telephone lines in all four MEA countries represented in the figure than in the comparator countries. Only China and India, disadvantaged by their size have similar low ICT coverage. Upgrading the ICT infrastructure in the MENA could potentially promote technological change.

The quality of institutions is clearly a bottleneck. The strength and reliability of public institutions plays an important role in investment decisions. A poor quality of institutions increase the uncertainty costs of entrepreneurs who rely on a stable and reliable governance environments. Overregulation, red tap, corruption, the legal fairness or political instability affect  The MENA countries fare low indicators for government effectiveness, regulatory quality, political stability and rule of law and voice in comparison with the other economies. Most pronounced is the divide in government effectiveness and regulatory quality, where Morocco, Egypt and Lebanon are taking up the four lowest ranks (fig. 2.16).

Source: Kaufmann D., A. Kraay, and M. Mastruzzi 2006: Governance Matters V: Governance Indicators for 1996-2005
To this point, we have focused the analysis on how to increase diversification more general or within the given product and market parameters. Export diversification can also be increased by, leaving the market orientation aspect aside, exporting new products that have an potential to be successful on foreign markets. The most obvious way through which new export products can be developed work is innovation. Yet, patentable on-the-frontier innovation – i.e. the creation of a product or technology new to the world - rarely takes place in developing countries. The reasons are manifold: low level of tertiary education, little investments in R&D, weak national innovation systems, unsecured property right, lack of competitive dynamics etc. But we can look at innovation from a different perspective, and examine how innovation occurs inside the technological frontier. Such innovation includes things new to the firm even if they were not new to universe. Haussman and Rodrik (2003) coined the term ‘economic discovery’ for the general search of new products, technologies or services – business opportunities in a wider sense - which might already exists elsewhere and can be adapted so that generates returns under local conditions. Eventually, discovering new export opportunities, either of already existing products or the introduction of new ones should lead to more export diversification.

Recent work Klinger & Lederman (2006) found robust evidence that - in analogy to the Imbs & Warziarg findings for the stages of diversification – a country’s export basket becomes more diversified as income rises until a very high level, at which point the process reverses itself and specialization occurs. Further they observe that countries at relatively low levels of development experience more incidences of export discoveries, as they are in the process of diversifying their economies. As income rises, the frequency of discovery declines. Finally, when a high-income threshold is reached inside-the-frontier innovation is replaced by on-the-frontier innovation (Fig. 3.1).

Fig. 3.1: Discoveries, innovation and diversification


This chapter relates the discussion on export discoveries to the five MENA countries and examines how the search for export discoveries results into the diversification of exports. The objective is to better increase our understanding on the search process in order to draw lessons from the experiences entrepreneurs have made in the past. In particular, we are interested in the following questions:

(i.) What is the evidence of export discoveries in the five MENA countries?
(ii.) What triggers the search for new exports?
(iii.) What constraints do entrepreneurs face in the discovery process?
(iv.) How did entrepreneurs overcome these constraints?
(v.) Does the discovery elicit imitation and diffusion of the new export activity within the country? And if so, how?
For this purpose we have conducted more than 102 interviews with entrepreneurs, sector export, public and private institutions in the different countries to construct case studies of discoveries. This chapter is based on the results from the 25 case studies of exports that have emerged within the past ten years. The case studies, a more detailed summary analysis as well as the applied methodology is laid out in volume three.

The findings indicate that MENA countries produce fewer export discoveries relative to their GDP per capita. Most discoveries take the form of customization and adaptation of already existing products and services. Productivity and demand uncertainty, as well as access to finance, are the major constraints in the discovery process. These uncertainties were overcome either by partnering with other firms, subsidies of input suppliers, or public/private support. In many cases the entrepreneurs bore the risks by themselves. Public support plays a bigger role in resolving coordination failure during the diffusion rather than in the search process itself. In contrast, support provided by private sector institutions proved to be effective in both, search and diffusion process.

Box 3.1: How to identify export discoveries?
Following the methodology suggested by Klinger and Lederman (2004), export discoveries are identified with the help of disaggregated HS export data at six digit level. For our purpose we define a discovery as a product that was not sold abroad at the beginning of a period, but was consistently exported in large quantities by the end of 2003. Three different filters were applied:

- Filter 3: <10,000 in 1994 and > 1,000,000 in 2002 and 2003

One note of caution: The number of discoveries can give an indication of the dynamic of the export sector. However the data also displays a lot of noise due to mis- or re-classification of exports. The numbers should therefore not been regarded as absolute.

3.1 THE PROCESS OF EXPORT DISCOVERY

Discoveries appear to occur more often in Jordan and Tunisia than in Egypt or Morocco. During the period 1994 and 2003 Jordan and Tunisia exceeded Egypt and Morocco in the number of discoveries regardless which filter is used. The high number in Jordan is partly explained by the emergence of the textile sector after the conclusion of the QIZ agreement with the US. When applying Filter 2, almost one-third of the discoveries are textile related. Egypt shows very little discovery experiences, especially if considering the size of the country which would suggest that more discoveries should occur as there is a larger economically active population. On a positive note, the countries seem to produce more discoveries than they lose products in the export basket which principally should push diversification.

All five countries under-perform in their discovery performance. Figure 3.1 shows a scatter plot of discoveries against GDP per capita, and a discovery curve. The discovery curve was produced by regressing the two variables in a cross-country set for 73 countries. Again, we can observe the pattern that countries at relatively low level of development have more incidences of discoveries. As income rises the frequency declines. The curve also lets us know the number of discoveries we would predict at any given GDP per capita level. From there we can conclude that all five MENA countries under-perform in their discovery performance considering their income level. This is most notably the case for Egypt.
There are four types of discoveries that emerge in MENA countries. There are four different types of discoveries that can be distinguished from each other in the case studies:

**Genuine innovation.** Genuine innovation is the development and commercialization of new unproven technologies, untested processes and products which qualify for international patent.

**Customizations:** Customization includes products proven and tested elsewhere which are being altered in order to meet customer-specific needs. The nature of this export activity is often a service.

**Foreign owned or licensed innovation:** Foreign owned innovation includes all products, technology and processes invented elsewhere but imported and produced by the owner of the intellectual property right. All foreign direct investment by multinationals who relocate part of their production process fall under this category. Licensed innovations are all products which are being produced under license of the foreign property rights owner.

**Technological Absorption:** Absorption is the application of existing technologies, processes and products developed elsewhere but proved and tested in the local environment.

**Discovery based on adaptation and customization appears to be the most frequent.** Among the 25 case studies we identified three genuine innovations. Most other export discoveries were absorptive or customized innovations (table 3.1). Only few export discoveries consisted of products which are licensed or imported by the foreign owner. This observation is in accordance with the prediction whereby the countries more inside-the-frontier than genuine innovation as they diversify. The relatively high level of education might explain why genuine innovation occur more frequently in MENA countries as we would expect from countries at this stage of diversification. On the other hand, the MENA countries produce less genuine innovation as we would expect considering their income level, size or in comparison with other emerging economies (fig. 3.3).

**Box 3.2: Innovation, Customization and Absorption**

An example for customization is the Arab localization of foreign software in Egypt. The original product, the specific software was developed outside of the Arab world. But the company Arabize adapts and changes (translation, adapting graphics to local dress and customs etc.) it so that the software becomes more appealing to Arab users. In contrast, the Egyptian software company Sakhr developed a completely new product: a program for optimal character recognition. This program is considered a new technology in itself. Sakhr, in fact, holds international patents for several Arabic language processing technologies which are now being used e.g. to search the internet for sites in Arabic.

In Egypt catheters emerged recently as an export. Catheters are a well-known product which is simple in
it its production. However, Dr. Hambouli safety regulations need to be strictly observed and sanitary standards required for certification are difficult to meet. In order to comply with safety regulation and sanitary standards the firms had to apply foreign technology such as producing in a clean, germ-free room at local conditions. It is an example of technology absorption.

Automobile wiring harnesses in Morocco are a straightforward example for an foreign owned technology. Yakazi who established its production in the Tangier Free Zone is a large multinational company. It chose Morocco as location mainly due to its advantages in labor costs, proximity to its major market Spain and a politically relative stable investment environment. Yazaki brought all technology and knowledge along with its investment to Morocco where the harnesses are being produced with strictly standardized methods. The only adaptation which Yazaki had to undertake was an adjustment of its human resource management which was challenged by local tradition and custom (e.g. prayer times, different holidays, gender separation etc.)

**Fig. 3.2: Typology of Export Discoveries**

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>Foreign owned or licensed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catheters and other medical equipment (Egypt)</td>
<td>Brake pads &amp; Linears (Egypt)</td>
</tr>
<tr>
<td>Electric transformers (Jordan)</td>
<td>Air conditioner (Jordan)</td>
</tr>
<tr>
<td>Aeronautic components (Morocco)</td>
<td>Automobile Wiring Harnesses (Morocco)</td>
</tr>
<tr>
<td>Call Centers (Morocco, Tunisia, Egypt)</td>
<td>Car components (Tunisia)</td>
</tr>
<tr>
<td>Paprika (Morocco)</td>
<td></td>
</tr>
<tr>
<td>Strawberries/Summer fruits (TUN, MOR, EGY)</td>
<td></td>
</tr>
<tr>
<td>Ceramic Tiles (Tunisia)</td>
<td></td>
</tr>
<tr>
<td>Film productions (Lebanon)</td>
<td>Arabic language processing technology (Egypt)</td>
</tr>
<tr>
<td>Contract furniture (Egypt)</td>
<td>Pellets for quality potato chips (Lebanon)</td>
</tr>
<tr>
<td>Software localization (Egypt)</td>
<td>Security lock for USB stick (Lebanon)</td>
</tr>
<tr>
<td>Oriental spiced potato chips (Lebanon)</td>
<td></td>
</tr>
<tr>
<td>Software development (Lebanon, Jordan)</td>
<td></td>
</tr>
<tr>
<td>ICT based business services (Tunisia)</td>
<td></td>
</tr>
<tr>
<td>Customization</td>
<td>Genuine Innovation</td>
</tr>
</tbody>
</table>

**Discoveries in MENA countries are mostly driven by a new type of entrepreneur.** In a world with perfect information and without uncertainty a discovery would emerge as a result of profit maximizing behavior of entrepreneurs. In analogy, a new activity can be simply the outcome of a haphazard process, where an individual entity with a high risk propensity seizes an opening profit opportunity regardless of demand or productivity consideration. In reality, we find several cases in between those extremes. The case studies illustrate six different types of triggers (table 3.1). Interestingly, the discoveries in the case study were mostly driven by a new (not necessarily young) type of entrepreneur who distinguishes himself from the traditional entrepreneur insofar as he embraces new technologies and management techniques, and shows a higher risk propensity. The relevance of modern entrepreneurship in the discovery process is highlighted by a distinctive case study in Egypt in which a discovery failed due to a lack of modern entrepreneurship (Box 3.3).
Table 3.1: Typology of Triggers for Export Discoveries

<table>
<thead>
<tr>
<th>Trigger</th>
<th>Export Discovery &amp; Country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External, unpredicted shock</strong></td>
<td>▪ Automobile Wiring Harnesses (Morocco)</td>
</tr>
<tr>
<td>An external, unpredicted shock such as a war which changes</td>
<td>▪ Car components (Tunisia)</td>
</tr>
<tr>
<td>the profitability of existing business and forces firms to</td>
<td>▪ Aeronautic components</td>
</tr>
<tr>
<td>change their strategy. This also includes, for instance,</td>
<td></td>
</tr>
<tr>
<td>changes in the global demand or supply which pushes</td>
<td></td>
</tr>
<tr>
<td>multinationals to relocate part of their production process</td>
<td></td>
</tr>
<tr>
<td>in order to stay competitive.</td>
<td></td>
</tr>
<tr>
<td><strong>Market evolution</strong></td>
<td>▪ Call Centers (Tunisia, Morocco, Egypt)</td>
</tr>
<tr>
<td>The emergence of a new market or a change in the existing</td>
<td>▪ ICT based business services (Tunisia)</td>
</tr>
<tr>
<td>market structure which simply opens up the opportunity for</td>
<td>▪ Software development (Lebanon, Jordan)</td>
</tr>
<tr>
<td>new business. An example is the liberalization of a market.</td>
<td>▪ Strawberries/Summer Fruits (Egypt, Morocco, Tunisia)</td>
</tr>
<tr>
<td><strong>Capacity to produce in excess of domestic demand</strong></td>
<td>▪ Electric Transformers</td>
</tr>
<tr>
<td>A firm that was primarily orientated towards an export</td>
<td>▪ Ceramic Tiles</td>
</tr>
<tr>
<td>market and learns how to export it excess production.</td>
<td></td>
</tr>
<tr>
<td><strong>Emergence of a genuine, marketable innovation</strong></td>
<td>▪ Arabic language processing technology (Egypt)</td>
</tr>
<tr>
<td>A firm or person who commercializes a patented invention</td>
<td>▪ Pellets for quality potato chips (Lebanon)</td>
</tr>
<tr>
<td>for which they have obtained a patent.</td>
<td>▪ Security lock for USB stick (Lebanon)</td>
</tr>
<tr>
<td><strong>News and the enlightened entrepreneur</strong></td>
<td>▪ Brake pads &amp; linings (Egypt)</td>
</tr>
<tr>
<td>This type of discovery is driven by reception of relevant</td>
<td>▪ Film productions (Lebanon)</td>
</tr>
<tr>
<td>information about new business opportunities. Such</td>
<td>▪ Contract furniture (Egypt)</td>
</tr>
<tr>
<td>information could be obtained e.g. through travels, studies</td>
<td>▪ Software localization (Egypt)</td>
</tr>
<tr>
<td>or former work experience. In addition, the discovery</td>
<td>▪ Oriental spiced potato chips (Lebanon)</td>
</tr>
<tr>
<td>requires a certain type of entrepreneur, a forward</td>
<td>▪ Medical equipment (Egypt)</td>
</tr>
<tr>
<td>orientated and creative personality, who acts upon the</td>
<td>▪ Olive Oil</td>
</tr>
<tr>
<td>information.</td>
<td></td>
</tr>
<tr>
<td><strong>Random walk</strong></td>
<td>▪ Air conditioners and household appliances (Jordan)</td>
</tr>
<tr>
<td>The rare case of high risk entrepreneurs who determine</td>
<td></td>
</tr>
<tr>
<td>their business in a trial and error search process or by</td>
<td></td>
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<tr>
<td>seizing a one-time opportunity.</td>
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</table>

Box 3.3: Furniture and Leather shoes – News alone are not enough

A distinct example that demonstrates the importance of a juxtaposition of the availability of information and the ability to translate this information into productive activity is ExpoLink’s different attempts to encourage entrepreneurs to penetrate (new) export markets. ExpoLink is the leading private exporters association in Egypt which promotes exports through organizing firms in industry specific clusters. ExpoLink acts thereby as catalyst by taking a group of domestic producers with export potential to international fairs, bringing in international consultants, and organizing a support network of successful exporters to work with new entrants and help them penetrate foreign markets. Most firm-level success stories in the furniture industry are of domestically-focused producers that were ‘pulled’ into the export market by ExpoLink.

One of the examples is Meuble El Chark. This is a family firm that traces its history back to 1944, but was always focused on the domestic market. As of the mid-1990s, it was producing entirely for the domestic
contract market (international restaurants and hotels in Egypt). But in the late 1990s, growth in the tourism sector slowed. Ahmed Helmy, the new CEO of El Chark, felt that that the firm had to look to the export market for future growth. His father, the previous CEO and current Chairman, had negative experiences in the past when he evaluated the international market, and described it as a waste of time. Furthermore, Mr. Helmy was completely ignorant of the characteristics of foreign demand. His initial thoughts were that with his company’s deep knowledge of furniture production and Egypt’s status as a mid-technology manufacturer, he might be able to compete in other MENA markets, but not in the highly sophisticated European and American markets. Nevertheless, Mr. Helmy had no idea how to begin, and felt that his idea to enter the international market would never get off the ground. That is, until Expolink contacted him, and organized a meeting with his and other similar firms that might have export potential. Mr. Helmy was quite encouraged by this meeting, as most of the firms at the table were quite similar to his own: family firms with a long history in the domestic market, headed by a new generation with its eyes wandering towards the export market. Benefiting from the experiences of Mr. Nadim, trips to trade fairs in Europe and the USA, and international consultants organized by Expolink, Mr. Helmy learned that instead of the Middle East, Europe was a market where his firm could thrive. While Mr. Helmy’s original goal was to export a small percentage of his output in order to diversify market risk, he now exports over 65% of production, a figure which is growing annually.

In contrast, the same type of assistance did not help to bring the domestic leather shoe industry to succeed. Despite all the support it received and even though the country and its leather producers have a long history in this sector and it has many of the same natural advantages as furniture, the firms producing leather shoes for export simply proved not competitive enough in the international market. The most noticeable difference between the leather manufacturers and their counterparts in the contract furniture sector appears to be the personal characteristics of those leading the major domestic firms in both sectors. When ExpoLink reached out to the furniture sector, they were met by a new generation of CEOs running their family firms: individuals with international exposure and a desire to push into new markets. The leaders of the shoe manufacturers that were interviewed, however, had grown their businesses in the era of large-scale exports to East Germany and the USSR driven by political rather than demand factors, and have had difficulty in more competitive environments. There was little understanding of foreign market demand or a revealed capacity to penetrate new markets. Many international consultants hired by ExpoLink complained that the leather firms would not change their production methods or machinery and stick instead to traditional production methods.

These differences in individual characteristics and management techniques between the leaders in the furniture sector and those in the leather goods sector have contributed to widely different outcomes despite the fact that demand uncertainties were reduced by the provision of market-relevant information.

3.2 UNCERTAINTY IN THE SEARCH FOR NEW EXPORTS

Uncertainty is the major constraint in the search for new exports. One of the reasons why private entrepreneurs might refrain from investing in new activities is the degree of uncertainty involved in investment decisions. In this context uncertainty refers to a situation which is unforeseen and random. Unlike risks, which express the probability of the occurrence of any given event, uncertainty cannot be conveyed in terms of specific mathematical probabilities. Uncertainty can be related to unknown demand, unknown own productivity, or external factors such as conflict risk, macroeconomic changes etc. Obviously every investment decision is associated with uncertainties although there is considerable heterogeneity in the effect of uncertainty on investment. A wide array of empirical literature supports the view that uncertainty generally weakens investment responses. This is particularly the case for irreversible investments. Moreover, investment decisions respond differently to certain type of uncertainty. Systematic uncertainties such as exchange rate volatility simply increases the rate with which expected pay-offs are discounted with. Other uncertainties such as little information about demand
responses might lead to a delay or revoking of the investment decision. The existence of uncertainty due to imperfect information is often regarded as market failure (source).

**Demand and productivity uncertainty were the predominate uncertainties faced by first movers.** Demand uncertainty refers to the lack of information entrepreneurs might have about the demand characteristics or developments on specific markets. This includes uncertainty on the price the differentiated product or service can achieve. Demand uncertainty is usually the highest for entrepreneurs who commercialize a genuine innovation as these do not yet have a market from which the entrepreneurs can derive information. Productivity uncertainty is related to a lack of information on the capability of the firm to produce a certain quality and maintain price competitiveness. The product and service new to the entrepreneur, and so is the production process. The cost structure of similar production in other countries is often not a good indicator given that local conditions vary from those in other countries. Other then the production method, quality can also be influenced by local input factors such as intermediate goods, transportation, storage, etc. which might be likewise unknown to the entrepreneur if no previous experience in the production of similar goods were made.

Some cases featured neither dimension of uncertainty, while others featured both. Notably, some cases included productivity uncertainty but no demand uncertainty, or vice versa. While there are varying degrees of uncertainty present in each case, they can be categorized in terms of these two dimensions (table 3.2). Cases with low demand uncertainty were primarily instances of FDI where the entering firm already had operations in other countries, and therefore significant market experience with established customers.

Cases with low productivity uncertainty were often cases of investment where the entering firm had production experience, and their production processes required little adaptation to new local conditions. In the cases examined here, little adaptation was required because there were few domestically-sourced factors of production, and those that were required were relatively homogenous (i.e. unskilled labor, as compared to complex and unproven machinery or local climate and soil). The other cases where productivity was more or less known before production began were due to deep local experience in producing the same good or similar goods for sophisticated international firms in the domestic market, or familiarity with local management practices from one former experience combined with familiarity with international production practices from another.

<table>
<thead>
<tr>
<th>Demand Uncertainty</th>
<th>Productivity Uncertainty</th>
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<tbody>
<tr>
<td>LOW</td>
<td>HIGH</td>
</tr>
<tr>
<td><strong>What are the characteristics of foreign demand?</strong></td>
<td><strong>What will production costs be?</strong></td>
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<tr>
<td>LOW</td>
<td>Wiring Harnesses (Morocco)</td>
</tr>
<tr>
<td></td>
<td>Film production (Lebanon)</td>
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<td></td>
<td>Electric transformers (Jordan)</td>
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<td>Aeronautical Components (Morocco)</td>
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<td></td>
<td>Car components (Tunisia)</td>
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<tr>
<td>HIGH</td>
<td>Contract Furniture (Egypt)</td>
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<tr>
<td></td>
<td>ICT based services (Tunisia)</td>
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<tr>
<td></td>
<td>Call Centers (Morocco, Egypt and Tunisia)</td>
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<td></td>
<td>Arabic Software (Egypt)</td>
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Note: The categorization of uncertainty follows Klinger (2007)
Investment climate constraints were not reported as relevant in the search process but mentioned as a constraint to at a later stage of the business life cycle. In contrast to the concept of uncertainties which is considered an inherent characteristic of all economic action in a world of imperfect information and considered a reason for market failure, investment climate constraints are normally the result of “policy failure”, meaning that the observed barriers are policy induced. This has important policy implication as it determines the type of required intervention to overcome the problem. A quick look into the investment climate surveys reveals that the TOP 3 constraints mentioned by the average firm does not significantly differ from the TOP 3 of exporting firms or of those who have recently introduced a new product into their portfolio (see Annex C).

The findings from the interview unearth a surprising result. The only pertinent investment climate constraint during the search process was reportedly limited access to finance. All but one firm – foreign investments aside – were self financed! The only other two constraints mentioned were macroeconomic uncertainty (in four cases) and corruption (in one case). In fact, most entrepreneurs didn’t perceive any other constraint than the financing of their venture as particularly high and dismissed them as “normal to any business”. An easy explanation for this result might lie in the fact that all of the interviewed entrepreneurs were very successful in their venture. This means that there were all able to overcome the constraints. Some of them may have been already anticipated. Furthermore any costs resulting from investment climate constraints might have been offset with the relatively high turnover or profit. However, investment climate constraints gain more in importance during the lifecycle of the product. When asked for the constraints of today’s business, most entrepreneurs mentioned labor skills, red tap or lack of infrastructure - factors which reflect well the results of the investment climate surveys in the individual countries.

Four ways of uncertainty resolution. In general we observed four different patterns of how the entrepreneurs resolved the uncertainty they faced in the search process:

(i.) Some entrepreneurs resolved their uncertainty through partnership with firms who possessed the required knowledge. Such partnerships can consist in entering into a formal licensing agreement to reduce productivity and demand uncertainty (e.g. air conditions in Jordan, brake pads in Egypt). Or they take up the form of joint ventures (e.g. electric transformers in Jordan or car components in Tunisia).

(ii.) In some other cases uncertainty was resolved through subsidies by the input supplier. The motivations of the input supplier is to cultivate downstream demand (e.g. paprika in Morocco).

(iii.) Often entrepreneurs simply bore all risks by themselves like in the case of call centers or Arabic software in Egypt.

(iv.) Finally, uncertainty can be resolved through a public support. The case studies of custom furniture in Egypt or olive oil in Jordan represent this form of uncertainty resolution.

Knowledge played a critical role in uncertainty resolution. One interesting characteristics shared by a large majority of interviewed entrepreneurs is that that they were all equipped with specific knowledge either about the export business in general or about foreign demand. This knowledge was acquired through studies or work abroad or working experience in an exporting firm on the domestic market. The few entrepreneurs with no prior knowledge of the export business or foreign demand were helped by public programs. Most of the furniture producers in Egypt, for example, had no previous exposure to export business but gradually grew into their role as exporter under the close supervision of Expo-Link and the Industrial Modernization Centre (see box 3.3 and table 3.3).

We found evidence for the relevance of support mechanisms in the search process of new exports. Most notably, support to the emergence of exports played a critical role in all case studies in Egypt, ICT
enabled services in Tunisia, olive oil and ICT services in Jordan, and fresh fruits in Tunisia and Morocco (Box 3.3).

The impact of public support on the search process is a mixed bag. The entrepreneurs in all countries received support from a range of public export or investment promotion schemes. Firms in Lebanon received the least, firms in Tunisia the biggest support. Only one single program in Tunisia (FAMEX), provides instruments specifically designed to increase exports and diversification. This is done by limited the support to firms who either export a new product, are new to export or export to new markets. In the other cases, the support enjoyed by the firms was aimed at achieving other objectives, in many cases increased firm or sector competitiveness (see table 3.3). We found evidence for which support was instrumental in the search process of new exports. Most notably, in all case studies in Egypt, olive oil and ICT services in Jordan, and fresh fruits in Tunisia and Morocco. However in most cases entrepreneurs appreciated the support but did not render it critical.

Table 3.3: Support to Exporters in MENA countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Description</th>
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<tr>
<td>Egypt</td>
<td><strong>The Industrial Modernization Programme (IMC):</strong> The IMC was launched in 1997 with a view to increasing the competitiveness of private enterprises and build up their export capability. The IMC works directly with private enterprises, with business associations as well as with policy bodies to improve the policy framework for the industrial sector. Support activities have been provided for 3500 organizations and 10086 specific service requests from 1,187 companies or organizations have been satisfied. The goal is to serve 10,300 enterprises in 2008. Activities cover: Human Resource Development, R&amp;D support, technology transfer, information systems, access to finance, export development and quality systems. Most beneficiaries are recruited from the textile and food–processing sector. However, this only reflects their size in the economy and not necessarily a sector focus within the program. In fact, the program is non-discriminatory for manufacturing sectors. The only service sectors covered at the moment are ICT and other industry related services (e.g. transportation). Cost contribution of the private sector is low at 10-20% of total costs (depending on firm size and geographical location). The maximum support per company is 200,000 Euro. <strong>Egyptian Export Promotion Center (EEPC)</strong> is the governing body of Egypt’s export promotion system which comprises a variety of public and private service providers. It also oversees the 12 export councils which were established in 1997. The commodity councils were created to act as coordination entities representing the stakeholders in each sector, and are composed of the major players in each sector - manufacturers and exporters. Since their establishment in 1997, the number of these councils increased from 12 to 17. Beginning of 2005, the Ministry of Trade and Industry (MTI) appointed a core group of 10 to 12 leading manufacturers per sector and exporters in addition to MTI representatives to lead and support these sectors. Export Councils are in charge of achieving the Ministry's set export targets. Export Councils are currently under the umbrella of MTI acting as a communication channel with the representatives of the sectors having the stated objective of developing the industries’ exports; linking production and export policy and increasing the competitiveness of Egyptian exports in international markets. Export Council Board Members identify and discuss problems and needs facing the sector, whether domestically or internationally. Then each board would make the necessary recommendations and submit them to the Minister Trade and Industry. Further, some Export Councils has formulated specialized subcommittees, each in charge of improving the sectors’ competitiveness through addressing industry specific needs. Funding proposals are subsequently submitted to the IMC.</td>
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**ExpoLink:** ExpoLink is the leading private exporters association in Egypt, originally seed-funded by USAID. Besides its advocacy and lobbying function, Expo-Link also provides a range of information and marketing services for its members. As described above, it is also pro-actively addressing firms which show a potential to export. These firms are subsequently helped to develop their business (through technical assistance) or to penetrate new markets (trade fairs and mission), partly by using funds made available by the IMC for this purpose. However, the association is self-sustainable. ExpoLink enjoys a great reputation within the private sector due to the many success stories it achieved in helping firms to build up export capability. The quality of the services area generally valued.

**Achievements of Market-Friendly Initiatives and Results Program (AMIR):** AMIR is a USAID funded program which aims at developing a more favourable environment for business through more effective public institutions and financial markets, public-private partnerships, better business management and IT. The Private Sector Policy Initiative under AMIR emphasizes trade-related reforms in three areas: trade policy, market access and customs. The Amir program expired in 2006.

**Euro-Jordanian Action for the Development of Enterprises (EJADA):** This EU funded program intends to facilitate the integration of Jordan in the future Euro-Mediterranean free trade area through modernization and upgrading of Jordan's industry, improving the competitiveness of the small and medium enterprises (SME’S). A wide range of instruments is used for this purpose, including training, technical support, financial support, strengthening of SME associations, export promotion, etc. EJADA ended in July 2006.

**National Fund for Enterprise Support (NAFES):** NAFES was created in 2001, as a joint effort of the Higher Council for Science and Technology, Ministry of Finance, and Japan. The aim is to help SMEs to become more competitive domestically and internationally. Program activities include consultancy for and training in market analysis and sales support.

**Jordan Upgrading and Modernization Program (JUMP):** JUMP is an independent national programme managed by a committee headed by the Minister of Industry and Trade, with equal representation from both the Government and the private sector. The objectives include enabling enterprises to face increased national, regional, and international competition, increasing market shares and developing new non-traditional export markets. Among the wide range of services offered, specific trade-related services include assistance to market research, marketing plans, marketing and export promotion. The different programs have been recently merged and will be now administered by the Jordanian Enterprise Development Corporation (JEDCO). The Royal Scientific Society (RSS), the major institution in support of innovation and technological change, continues to offer testing and certification services to private enterprises.

**Tunisia:** Tunisia has numerous programs and financing schemes for the exporting firms. The biggest support schemes are:

**CEPEX – FOPROX and FAMEX:** The organizations responsible for providing export assistance include, in particular, the Centre de promotion des exportations (CEPEX – Export Promotion Centre), the Agence de promotion de l'industrie (API – Industry Promotion Agency), the Union tunisienne de l'industrie et de l'artisanat (Tunisian Industry and Handicrafts Union), and the chambers of commerce. CEPEX, as the agency responsible for implementing the export promotion strategy under the Ministry of Trade, is tasked with reviewing the impact of export assistance measures. It manages the computerized trade data bank Tasdir Net and organizes training missions, fairs and exhibitions. CEPEX has an average annual budget of 22 million dinars.

The major support scheme is the Fonds de promotion des exportations (FOPRODEX – Export Promotion Fund), set up in 1985; it is managed by CEPEX and grants loans and
subsidies to exporters, mainly by bearing the transport costs of agricultural product exports. FOPRODEX also carries out international market surveys, assists enterprises with their canvassing and advertising, and helps them to strengthen their internal structure. In addition, FOPRODEX helps enterprises to set up abroad, to gain access to the new information technologies and to train their staff in international trade. Its total budget is 14.5 million dinars, or 65 per cent of CEPEX’s total budget.

The second export promotion scheme managed by CEPEX is programme FAMEX. Famex has two firm-directed components:

- Export Market Access. This component included a matching grant fund (Export Market Access Fund – EMAF) to cover on a temporary basis up to 50 percent of the cost of consultant services and technical assistance required to enable enterprises, especially SMEs, to enter export markets.
- Pre-shipment Export Finance Guarantees (PEFG). The PEFG facility guarantees pre-shipment export loans by participating financial institutions (PFIs) to SME and emerging exporters.

An important characteristic of FAMEX is that it exclusively targets three types of firms: new exporters with proven export capability, firms that are exporting a new product, and exporters which seek to penetrate a new market.

Programme de Mise a Niveau (PMN): The facility co-finances activities such investment in equipment, marketing, certification, and organization and/or financial restructuring calculated to improve competitiveness. Altogether, 3,410 enterprises, spanning most of the manufacturing sector, have been restructured in this way. Around 926 beneficiaries were from the textile sector. The budget for 2005 was TD 501.8 million.

The Moroccan Export Promotion Centre (CMPE) is a state body under the supervision of the Ministry of Industry, Trade, Energy and Mining and is responsible for promoting and developing exports of industrial and agro-food products, services and all products that do not fall within the competence of other State institutions. Each year, it conducts programs for Morocco’s participation in foreign and Moroccan trade events (decided upon by the Interministerial Fairs and Exhibitions Committee). The CMPE also makes available to exporters a promotional space on its web site, which consists of an interactive database in the form of list of enterprises. It is financed in part by the para-fiscal import tax.

Similar to the other countries, Morocco provides support to business development through the ANPME (“agence nationale pour la promotion de la PME”). ANPME offers various services ranging from technical assistance, technology transfer and R&D support, restructuring assistance, training, bank guarantees to risk capital and start-up financing.

Kafalat assists SMEs to access commercial bank funding. Kafalat helps SMEs by providing loan guarantees based on business plans / feasibility studies that show the viability of the proposed business activity. It processes guarantee applications for loans that are to be provided by Lebanese banks to SMEs operating throughout Lebanon. Kafalat targets SMEs and innovative start ups that belong to one of the following economic sectors: Industry, Agriculture, Tourism, Traditional Crafts, High Technology. Kafalat guaranteed loans benefit from interest rate subsidies. The Quality Programme aims at supporting the government of Lebanon to realise a greater volume of export potential of Lebanese products to the EU markets.

ELCIM (European-Lebanese Center for Industrial Modernisation). Elcim is a EU funded agency which provides business development services to SME’s. Services include
technical assistance services, export marketing support, technology transfers, and support to access Guarantee or other financial schemes.

The EU-supported (15 mil. Euros) Quality Program aims at supporting the government of Lebanon to realise a greater volume of export potential of Lebanese products to the EU markets. Services are mainly information and advisory related.

Private sector associations played a marginal role in the search process. Unlike the omnipresence of public programs, private sector association was not much involved in the search process. Their role was often limited to the functions which the government assigned to them and to the provision of export services, such as issuing certificates of origin. Yet, the case study of ICT enabled services in Tunisia as well as the case studies illustrate that support from private sector associations can be very effective. In particular, private sector associations can leverage support provided by the public sector (see box 3.4).

Box 3.4: How First movers were helped to overcome uncertainties

Egypt: In Egypt ExpoLink and, as of late, the EEPC act as catalysts for group formation, group learning and public support. The needs of exporters are directly addressed on peer-to-peer basis supported by international or local consultants with specific knowledge. Both, demand and productivity uncertainties are addressed within this model.

In Tunisia, private, informal networking with a foreign business association (ATUGE) explains part of the export success in the ICT service case studies. The networking helped to reduce demand and productivity uncertainties by providing information and support with matching foreign investors with local entrepreneurs.

In Jordan public persuasion appeared to have played a significant role in the emergence of the ICT and olive oil industry. The King of Jordan systematically encouraged the creation of certain export industries such as olive oil and ICT services. Although partially flanked by certain sector specific initiatives and indirect subsidies, the active persuasion had – according to the interviewed firms – more effect than the tangible support offered to the entrepreneurs (market analysis and studies, creation of a consortium etc.). The pro-claimed commitment by the King served thereby as a signal for entrepreneurs for an existing demand in the public sector at domestic level. Indeed, the government has in reaction to the Kings engagement launched several initiatives such as “e-government” with significant public procurement volume. These signals helped to reduce part of the demand uncertainties because firms expected that they might be able to preserve their core business in the domestic market. By the same token it reduced productivity uncertainties as entrepreneurs expect that the attention given to the development of a certain industry will “grease the wheels” of the public administration and reduce the transaction costs.

The export of paprika in Morocco was enabled by informal contacts the first mover established with a farmer in California, USA. The firm send an employee to intern at the American farm to learn everything from crop management to processing. Since the American farmer provided over much superior competitiveness levels, he deliberately offered support to the Moroccan firm. The information helped significantly in reducing productivity uncertainties. A contract with a major US American distributor eliminated any demand uncertainties and the firm eventually started exporting.

3.3 IMITATION AND DIFFUSION

First mover produce positive externalities. Each discovery of a new export activity contributes to the economic growth process in its own merit. Like any market entry of a firm, the new business activity also fosters growth in upstream and downstream sectors through the demand for goods and services. Moreover, similar to a genuine innovation, a discovery produces positive externalities in form of
information about its success which can be subsequently used by imitating firms in their market entry decision. Hence, the externalities are also beneficial at horizontal level and can lead to the development of new industry in an economy. From a social perspective, the imitation of a successful export discovery by other domestic firms is desirable as it fosters the development of the export sector and economic growth.

Does free entry reduce the frequency of discoveries? However, Haussman and Rodrik (2002) argue that when imitation is possible, the first mover cannot fully appropriate the returns from its investment. Unlike the followers the first mover has to bear all risks of potential failure while both, the failure or the success of his business sends a valuable signal to other entrepreneurs on which they can base their decision. The social return is therefore in both cases higher than the private return of the first mover. In addition, subsequent market entry enabled by the first mover means that his private returns might be diminished by increased competition. This problem is very similar to that of genuine innovator who is normally protected from imitation by a patent. The first mover who Graphs out that an existing good can be produced profitably at home does not normally get patent protection, no matter how high the social return. Free entry makes the non-appropriability problem worse, and undercuts the incentive to search for new business opportunities. Haussman and Rodrik view the information externality produced by the first mover as a market failure whereby the market produces less discoveries than socially desirable. Logically, intervention might be necessary to correct for the failure.

The diffusion process in MENA countries is fairly fragmented. Most of the followers we interviewed negated that they acted upon a signal or even received one. This can be partly explained by the fact that in most cases the exportable products are somehow differentiated. In other cases, like call centers in Morocco, the market entry of firms was simultaneous or, like in the case of wiring harnesses or aeronautics, the signal that investors received was more of general nature, e.g. about the comparative advantages of the country. We found evidence for imitation mainly concentrated in the agriculture sector. In both, the strawberry and the summer fruit case study, there was a clear cut diffusion of information from the first mover to the follower. And finally, we found evidence for signals that were catalyzed by either a cluster or another firm network such as an association (Tunisia and Egypt).

Knowledge diffusion occurs typically, but not exclusively, through the turnover of skilled workers and managers who have acquired the requisite expertise on the job. Haussman and Rodrik (2002) argue that the poaching of such employees by later entrants is one of the most important competitive threats that pioneering firms face. Some of our case studies confirm this hypothesis. We found that, particularly in the service sectors, competition for human resource was keen, most notably in the Arabic software case (Egypt) where the first mover even acted as a form of training institute for the staff they hire. The call centers in Morocco reacted to this challenge by charging their employees initially for the training costs which were reimbursed six months into the employment. In almost all cases human resource was named as a general constraint for business growth, by first movers and followers alike.

Diffusion was in some cases also helped by clusters, associations or informal networks, most successfully in Egypt where the government facilitated firm cooperation by the creation of export clusters. However, the case studies generally show a lack of a coordinated or more organized diffusion process despite the fact that imitation is socially desirable. Linkages between firms, to public or private institutions, education facilities, research centers which could catalyze knowledge generally appear weak.

There is no evidence for fear of imitation in the case studies. Among the most notable observation is that none of the first movers we interviewed regards the followers as competitors. In contrast, imitation was in many cases facilitated or even encouraged by the first mover. This finding stands in stark contrast to the Haussmann & Rodrik assumption that the fear of competition discourages market entry. One explanation for this discrepancy is that Haussmann & Rodrik didn’t refer specifically to export discoveries but to discoveries in general. Imitation on geographically limited domestic markets is indeed a problem. Firms compete with each other for input suppliers as well as for buyers. On export markets, however, firms compete internationally without geographical limitations. Competition for inputs is limited in cases where they are imported. In our case studies, the first movers did not fear any competition
arising from other domestic firms but rather from other countries, particularly those with a strong market presence. Market penetration appeared to be one of the biggest challenges firms had to overcome when going abroad. To meet this challenge some first movers united forces and create scale economies through cooperation. The Egyptian exporters closely coordinate their marketing activities and formulate common strategies. The ICT service provider in Tunisia, for instance, exchanges information and experiences through their business association. The medical equipment suppliers in Egypt plan which geographic markets they will penetrate, visit trade fairs in a group, or organize trade missions. As a group they lobby with the government. And in order to improve the image of Egyptian medical equipment abroad, they ensure that only quality certified firms participate in their marketing activities while they help each other in achieving the necessary certifications. The Egyptian call center providers share business and help each other out, e.g. rent out agents or call center positions in order to overcome capacity constraints. In fact, some of the Egyptian exporters stated that the more domestic markets enter their business the better. Through industry growth they would be much better able to increase their market visibility and reputation. Similar reaction was received from the olive oil exporters in Jordan.

**How relevant is coordination failure?** Hausmann and Rodrik (2002) point to a second reason why new discoveries might be omitted: co-ordination externalities. Many projects require simultaneous, large-scale investments to be made upstream or downstream in order to become profitable such as electrical infrastructure, irrigation, logistics and transport etc. However, some of these services entail sunk costs and private entities might be reluctant to provide them unless they have the assurance that these will meet sufficient demand. More generally, coordination failures can arise whenever new industries exhibit scale economies and some inputs are non-tradable or require geographic proximity.

**Physical clusters and agglomeration is expected to remedy coordination failure.** The cluster approach represents a narrower version of the same idea by focusing location density and industrial agglomeration to promote the development of specific industries and efficient transmission of information both within the cluster and to the rest of the world (World Bank 2004). Geographic agglomeration is expected to benefit firms when locating near each other. It is related to the idea of economies of scale and network effects, in that the more related firms that are clustered together, the lower the cost of production and the greater the market that the firm can sell into. Such benefits can include e.g. gains from improved infrastructure, specialized facilities, labor pool, more market transparency, better supply network etc. In our case studies, geographic agglomeration hardly played a role, neither for the discovery itself nor for the diffusion process.

**Physical cluster and agglomeration only played a little role in the search and diffusion process.** There are only three cases in which the observe activities were geographically clustered, namely the manufacture of wiring harnesses in Morocco who are located in a Tangier Free Zone, the strawberry producers who are all located in Larache, south of Morocco, the Lebanese software developers who are located in an IT incubator as well as St Microelectronics which is located in an IT technology park in Tunisia (Tunis). Neither the first movers in the Lebanese software development case nor the Moroccan strawberry case were influenced by the externalities of their location. In the other two cases, both foreign investments, the benefits that go along with the location were a factor, if not a decisive one, in the investment decision. Aside from the strawberry case where the first mover passed on information to his neighbor, there is also no evidence that the agglomeration helped in diffusing knowledge. The firms in the IT incubator in Lebanon, though, stated that they find the environment and social networking “inspiring”. The benefits of agglomeration economies appear to be rather enjoyed at a later stage of business development, e.g. when training facilities or a well-developed infrastructure is necessary to maintain competitiveness.

**Virtual clusters and networks, on the other hand, proved effective.** Aside from geographic clustering or agglomeration, another form of cluster had played a significant role in several case studies for both, discoveries and diffusion. This is evident in the case of Egypt (medical equipment, furniture, call centers), Jordan (olive-oil), as well as Tunisia (IT based services in Tunisia). This type of cluster differs from the basic definition which refers to “a geographical concentrations of industries that gain performance
advantages through co-location” (Doeringer and Terkla, 1995). The clusters observed in the case studies can be rather defined as platforms for concerted efforts of actors in the supply chain as well as support institutions (business associations, technology centers etc.) which produce and sell a range of related or complementary products. They do produce, like in the case of agglomeration, similar beneficial externalities, and support knowledge diffusion and the creation of scale economies. An interesting observation is that in Tunisia and Egypt, the clusters were not born out of a government initiative but were private sector driven (Egypt, Tunisia). More importantly, they were the only ones which proved successful.
CHAPTER 4: HOW TO DIVERSIFY EXPORTS?

The previous chapters have identified trade protection and macro-economic instability as the major constraints to export diversification. Removing barriers to trade and reducing the anti-export bias should therefore be top-priority on a policy agenda for the promotion of export diversification. However, the analysis in this report also points to a number of factors of micro-economic nature that constrain, elicit or support export diversification and which can be singled out to devise export promotion policy. Specifically five factors appear to be most relevant for policy formulation: demand and productivity uncertainties, coordination failure, the incentive structure of the existing export promotion system, the institutional set-up, and the way the public and private sector interact in policy formulation and implementation.

The objectives of achieving export growth and diversification are not exclusive. Policies and instruments supporting diversification can certainly have an impact on export growth. Instruments adequate to promote export growth may also support diversification, but more often than not the potential of supporting the diversification process through decisively targeted instruments is missed. Devising export promotion policy to target export diversification can therefore make export promotion in its entirety more effective.

In this chapter we will derive lessons from the precedent analysis as well as from best practice to identify policy instruments in support of export diversification. The objective of this chapter is to present ideas and to point to certain policy directions. It further seeks to provide a basis for discussion between the different actors involved in the diversification process on the following questions:

(i.) How can uncertainties in the search or development of new exports be addressed?
(ii.) How can policy be designed to overcome coordination failure?
(iii.) How can the present incentive structure in the export promotion system be adjusted to support more export at the extensive margin?
(iv.) Which institutional set-up is required to implement these policies?
(v.) What is the role of the private and public sector in the diversification process?

The chapter concludes that a promotion strategy which targets export diversification gives more weight to the following instruments:

- National branding and better information services to improve information transparency;
- Improved institutions and linkages within the national innovation system to lower the cost of experimentation, and ultimately, support creative entrepreneurship;
- Equity finance, incentive compatible financing envelopes and guarantee schemes, as well as business angel networks to improve access to capital;
- Specialized clusters and networks, including diaspora networks, and make them work for export;
- A larger role for private sector associations to act as catalysts for technological change.

Eight guiding principles are being presented in order to make these instruments incentive-compatible and more effective. Finally a case is made to pursue a more holistic, value chain approach to export promotion and to bundle support.

This chapter does not present a logical framework which can be adapted to each country. It rather presents possible solutions to devise the existing approaches to export promotion in the MENA countries. Volume one suggests options for each individual country against their specific background in a policy matrix based on the suggestions in this chapter.
4.1 IMPROVE INFORMATION TRANSPARENCY

A lack of information results in uncertainty. In any companies’ quest for penetrating foreign markets, the most important factor for being successful abroad is information. There is a vast area from which information barriers can arise. For instance, information can include topics such as, languages, customs, standards, procedures, up to information regarding the finding of a representation within the market, etc. Hence, it is not difficult to understand that without the possession of information of this nature a lot of uncertainty can be created for firms going abroad. Information provision services are therefore always integral part of any export promotion strategy.

The information requirements of innovative or new exporters are different. Unlike exporters of existing products, exporters of new products face the problem that local knowledge of demand or productivity characteristics is simply not available. If the product is new to the local economy than there is nobody in the local market who can provide this information. If the product is only exported in very little quantities by few individual firms than the diffusion of information represents a challenge. In both situations, obtaining information is more costly to exporters of new products than for those whose products have been exported before. At the same time, the first mover produces information externalities to the benefit of other firms which he cannot fully internalize but which costs he has to bear by himself.

Aside from producer uncertainty, a lack of information can also lead to uncertainty on the buyers market. Buyers on international markets face an asymmetric information problem with respect to the quality of the products they purchase. Product quality and certification standards are the natural solution to this problem. But obtaining a certification does not suffice to succeed in a new market. If the export product is new to the producing country, then buyers naturally lack awareness of its existence and its quality characteristics. Moreover, no matter if the quality of the product meets in principal the requirements of the buyer, the country image may reflect negatively on the buying decision, especially if similar products of inferior quality from the same country were exported before. Building up a reputation for a new exporter or an exporter of a new product alike, for instance with an own brand, is a huge challenge on the increasingly competitive markets. In fact, many studies have shown that a country's particular image influences purchase decisions significantly, quite often more so than a brand name.

Much demand uncertainty can be solved with the traditional approaches of providing access to market intelligence, but would need to be adjusted to promote new exports. All business associations, chambers and trade promotions agencies in MENA countries provide information to exporters. Services range from market research or advice on horizontal export matters (regulatory issues, standards, procedures etc.) to industry specific marketing studies. However, the information provided by agencies is unlikely to match the requirements of new exporters. Sector and market studies usually focus on existing products for which an additional marketing potential is expected. Depending on capacity of the institution which provides them, they can be of poor quality or do not necessarily contain the needed information. An instrument which potentially is more useful for exporters of new products is to reduce the costs of specialized consulting service. One possible way to do this is through matching grants. The emphasis is here not placed on the direct provision of market intelligence by the export promotion/business institution but on facilitating their access.

Support to participation in trade fairs or business missions/delegations is another popular tool specifically MENA governments offer to increase the exporters knowledge of foreign market and demand characteristics. Exporters of new products are, however, often discriminated in accessing funds which support marketing activities, either because the funding agency doesn’t have experience and lacks knowledge in assessing the products market potential, or because group activities are centered around existing products. Access to the funds is sometimes denied if the product is still in the development stage as an unfinished is often interpreted as un-exportable. Yet, it is critical for firms which have incurred large costs in developing the new product to identify potential markets and buyers before they start production. Indeed, the majority of funds for participation in trade fairs promotes – unintentionally but exclusively exports at the intensive margin, e.g. it emphasizes the marketing of existing products in
existing trade relationships. Some consideration can be given to the eligibility criteria or the design of business delegation which takes into account the specific circumstances of export at the extensive margin.

**Productivity uncertainty is harder to come by but most of the MENA countries already provide an (almost) adequate response with their productivity and competitiveness support schemes.** Jordan, Egypt, Tunisia and Morocco acknowledge the vast importance of competitiveness for exports and offer targeted business development services which deal with pricing, quality standards, supply chain management, scaling, and product design. Support to business development is to different degrees targeting exporters and linked to export promotion activities. All of existing support schemes target almost exclusively existing exporters operating at the intensive margin, safe for the start-up elements that some programs include which don’t apply for the majority of exporters with established businesses. And there is good rationale for this: many other countries have wasted resources on targeting firms with no or little export potential, and it is difficult to assess the real potential of new exports, even more so if the firm has no experience in exporting. Funding new ventures is simply more risky with respect to the return of the investment. Perplexing, these exporters are the one most in need.

Productivity uncertainty is much higher for those exporters who embark on new ventures as for those who are already in business or imitate. Successful new ventures produce higher knowledge spillovers which can be appropriated by imitators. But how to deal with the high risks as provider of subsidized business support services? One way could be to widen the definition of business development and include product development as a first stage of the value chain. Specific services such as matching grants for international consultants and sector experts can be designed to support the initial business stage. Another instrument is to provide assistance in financing licensing partner through business matching programs. These, too, would need to grant access to exporters operating at the extensive margin and recognize their specific needs.

**National branding proved to be an effective instrument to penetrate buyers markets.** Building reputation with buyers is one of the essential ingredients of export success. But if a new export is not associated with the country’s image, then no matter how cost and quality effective the product is, the exporters face an uphill struggle in comparison with those countries that have a higher brand profile. Competing is twice as hard with a weak or negative brand image than it is with a strong one. For exporters of new products in the MENA countries it is double difficult as they do not only have to deal with the legacy of national export presentation (e.g. cultural tourism destination) but also with the not-self-inflicted image of being the associates of terrorism and political instability. Against this background, the medical equipment supplier in Egypt had a hard time to convince their potential buyers of their products’ quality in the same way as the IT service providers in Tunisia fight against the country’s image as low-cost location which builds wrong expectation with respect to the average education level.

National branding consists of developing an image and communicating it, both internally and externally, based on a country’s positive values and perceptions that are relevant to export development. The brand concepts, once researched, tested and defined, are then used as the basis of targeted promotional campaigns. Very few countries have successfully launched a national brand. Even developed countries do not find brand management an easy task. Hardly any research has been available on branding initiatives in developing countries. The International Trade Center (ITC) recently compiled cases of best practice (see box 4.1) in determining whether countries should consider brand development, and how they go about it. Two success factors are highlighted by the examples: First, countries must be sure they understand how they are perceived abroad. They need to invest in researching external perceptions of their national traits and products. Otherwise the promotional campaigns will fall flat. Second, national characteristics selected for promotion must have a basis in business reality (ITC, 2006). Despite the high investments involved with national branding, present effort which are mainly of sectoral nature and concentrated in the tourism sector should be widened given the problematic perception associated with the MENA countries.

Not a full alternative but a first step towards a full-fledged national branding strategy is sectoral branding. First experiences were made with tourism and textile. Other sectors offer rich opportunities for branding
campaigns such as the outsourcing and ICT business which are evolving in Tunisia, Morocco, Egypt, and in part, Jordan.

**Box 4.1: How to build a global credible brand beyond carnival – experiences from Brazil**

“Brand Brazil is packed with images which are consistently held by millions of consumers all over the world - ecstatic samba dancing at carnival time, the rainforest as endangered as they are exotic, magic, beaches, sport, adventure, style, grace, joie de vivre.” Simon Anhol

In 2004, Brazil’s Ministry for Industry and Development set several new areas of priorities for Brazilian exports. One of them was the Information Technology area. Even though Brazil is one of the 15 largest IT markets in the world, worth approximately 15 billion dollars a year, it exports only a few hundred thousand dollars worth of IT products and services, or about 1.5% of total industry value. India, by comparison, exports nearly 75% of its IT production. The government set an ambitious goal of US$2 billion in IT exports by the year 2007.

To achieve such significant growth, the Brazilian IT industry would have to gain recognition as a capable producer of IT services and products outside of Brazil, specifically in the United States, the world’s largest consumer of IT products. By participating in several industry events over the previous years, APEX Brasil was aware that Brazil was hardly ever identified in industry research and analyst reports as an up and coming outsourcing destination. In fact, countries with much less developed IT industries than Brazil’s, such and Russia, the Philippines and Vietnam, were frequently mentioned as the emerging IT outsourcing destinations by well know industry analysts, while Brazil was largely ignored.

To begin to change this perspective, APEX launched a three year branding effort in 2004 focused on the dissemination of Brazil IT services and products and of Brazilian IT companies as suitable partners for US companies seeking differentiated service closer to home. In October 2004 APEX decided to participate in the Gartner ITxpo (Orlando). APEX also chose to work with several Brazilian companies that were already established in the US market to develop an action plan that could, in the longer term, be applied to other Brazilian companies not yet selling in the US. Brazilian IT companies that worked in the US at that time were also hurt by the lack of knowledge about the country’s IT industry abroad. As one executive said, at each sales meeting, the company had to spend a significant amount of time explaining that Brazil did indeed have an IT industry, cutting down on the time he had for selling his product.

Working with the Brazil Information Center, a non-profit trade organization based in the US which promotes Brazil to American opinion makers and consumers, APEX started brand development –using the term Brazil IT both as a noun as a verb, such as in “Brazil it!”’, and consistently disseminating the competitiveness and areas of excellence of Brazil’s IT industry, as well as the competitive advantages Brazil holds over other leading outsourcing destinations.

The tools used for dissemination were video, Internet as well as traditional print media. The message was focused on a few key points such as Brazil’s cultural similarities to the US, geographical proximity etc. Areas of excellence such as Brazil’s banking system, electronic balloting system, healthcare IT, games, telecom and e-gov were chosen as focus points. Rather than selling itself as another potential India – Brazil IT meant to differentiate Brazilian IT services as “value aggregators” in a different league, with greater capacity to develop and implement creative solutions.

Brazil IT’s participation at the Gartner ITxpo in 2004 brought to the US nearly 30 Brazilian IT companies, in the First Timer pavilion. The participation was so successful that the exporters returned in 2005 with a much larger presence – with both an institutional space to promote knowledge about Brazil IT as well as five individual booths occupied by Brazilian companies – some with an established presence in the US and others still considering whether the time was right to enter the American Market.

Source: Renata Sanches (2006)
4.2 FACILITATE CREATIVE ENTERPREUNERSHIP

New businesses do not arise from start-ups but in majority from established entrepreneurs who seek new opportunities. It is widely acknowledged that entrepreneurship is a key driving force for national productivity and competitiveness. Yet, it is not the existence of new business start-ups which contributes to innovation, higher value added and new export industries. New start-ups may account for a fraction of these entrepreneurial developments. But the majority arise from firms that have the ability to engage in business processes characterized by experimentation, exploration and exploitation. MENA economies – like many other transition countries - are dominated by traditional entrepreneurs who focus on their existing activities and leverage their own competencies and do not explore new opportunities or ground. They only worry about new opportunities when the product/service life cycle of their offering is on the decline or when the market potential for them is at its peak and competition may be stepping into the fray. Relying on competitive forces as a driver for creative entrepreneurship is, however, not enough.

Experimentation is expensive and risky. Competition is very strong force to incite entrepreneurs to engage in the search for new businesses. One of major obstacles firms face is that many endeavors to try new things, either by investing in R&D, applying new technology, or producing new products lead to failure. In a business environment characterized by market imperfections such as high barriers to entry and exit or poor financial infrastructure etc. failure cannot be easily absorbed by the entrepreneurs. In consequence, entrepreneurs fear their personal, financial ruin. The personal risks of entrepreneurs in MENA countries is unequally higher than in industrialized countries where entrepreneurs have better access to financing and are protected by functioning bankruptcy laws. Another barrier which firms have to overcome is access to specific knowledge of the production process (as opposed to knowledge of marketing the product). Unlike in industrialized or star-performing countries, the knowledge and innovation systems which determine how knowledge is produced, managed and diffused within an economy are poorly constructed and fragmented. This makes the acquisition of knowledge more costly, and worse, even then when the knowledge is principally locally available.

The key to encourage creative entrepreneurship is lower the cost of experimentation and failure. It is to a large part understood that creative entrepreneurship is important but how to support is not. Part of the reason is that process is inherently opaque. It resembles a random walk, and it not always clear why in some instances support mechanisms works in some other not. We can identify the outward factors that influence it such as education and capital, but less so the intangible aspects, such as the creation and cultivation of ideas. One possible departure to find answers to the question of how to design support is to look at the cost aspect of entrepreneurial experimentation and to identify where costs arise. If these costs are reduced, we should expect to see more experimentation. There are two out of numerous aspects which this report wants to highlight for the five MENA countries: access to ideas & knowledge, and financing.

Ideas and knowledge are not scarce; they just need to be adequately managed. Until ideas make their way into the products and services, they are as ephemeral and fleeting as whispers in the wind. Ideas are not scarce, but good ideas are, as are the means with which to amass mediocre ones. This means that the fundamental problem of supporting creative entrepreneurship is not as much the production of ideas but rather how to manage the process of idea creation and propagating the ideas throughout the economy. The question is how to institutionalize the management and dissemination of ideas. A similar argumentation holds for the way of how technology is created and tacit knowledge of its application is acquired, disseminated and used more effectively by enterprises.

The costs of experimentation can be lowered by improving the national innovation system and making it more inclusive for the private sector. National innovation systems (NIS) comprise several institutions and competencies interacting in order to assimilate the growing stock of global knowledge, and to adapt it to local needs. They appears thus to be one of the key ingredients for creative entrepreneurship if the private sector is an integral element and beneficiary of the system. Success stories
of China, Korea, and Taiwan, for example, are in large part stories of a long term strategic policy focus on fostering indigenous innovation capacity. Knowledge and innovation systems have been driving many success stories of countries which moved into higher technology and value-added services such as China (see box 4.2).

The MENA countries have made considerable strides in developing their NISs, most notably Jordan and Morocco where NIS is the farthest well-developed and provide best practice for other countries in the region (Fig. 4.1 and 4.2). However, the NISs in MENA countries still suffer weak infrastructure, poor funding, too little interaction between actors, as well as an incentive system which is not conducive to applied research. In order for a NIS to benefit the private sector, it needs to provide institutions and schemes which (i.) adapt to the technological capability of the different enterprises; (ii.) tackles various needs (technical, commercial, legal etc.); (iii.) are embedded in broader actions aimed at upgrading the management and production capabilities of the enterprises (Jean Aubert, 2004).

**Fig. 4.1 : Innovation System in Jordan**

**Fig. 4.2: Innovation System in Morocco**

Source: TrendChart (2005)

There are various elements within a NIS that meets these requirements and are focal points for the private sector:

**Business incubators are the most integrated elements within the NISs and present the most important relay for creative entrepreneurs in MENA countries.** Business incubation is a business support process that accelerates the successful development of start-up and innovative companies by providing entrepreneurs with an array of targeted resources and services. These services are usually developed or orchestrated by the management team of the incubator and offered both in the incubator itself or through network of contacts. A business incubator’s main goal is to produce successful firms that will leave the program financially viable and freestanding. Incubators are considered one of the major vehicles for technology oriented business development in MENA countries and are increasingly gaining popularity (table 4.1.).

The incubators are often located in technology and science parks linked to universities, provided by a public authority such as the Ministry of ICT or S&T, or are privately run independent entities. They have partnerships with various organizations with different stakeholders, including government agencies, financial institutions, venture capitalists and donor agencies. There are, hence, the most integrated elements within the NISs. MENA incubators are organized in different incubations networks in which learning from each other is encouraged. The success of incubators hinges much on the incubation model, its ownership and governance structure, the scope and quality of the service provided. Incubators in MENA countries are characterized by an extreme heterogeneity of conditions, particularly in the investment climate environment, in which the incubators operate, and which in turn leads to the adoption of widely different operating modalities. This makes the transmission of experience and adaptation of lessons learned difficult. One the other hand, it is unrealistic to expect such a model to emerge under
current conditions. First successes can be observed in Jordan and Morocco, and in part in Lebanon. However, the first generation of firms is in most incubators just about to graduate which limits the assessment of their performance. In Lebanon and Jordan the demand for incubation services is higher than present supply capacities, which indicates room for expansion.

**Technology parks are an alternative instrument to incubation for more mature firms.** Different to incubation, technology parks primarily provide infrastructure and support services for businesses, particularly high-quality (high-capacity) communications, real estate and office space. The underlying rationale is that ideas and innovation flourish in well-defined regions where there is a concentration of talent, energy and vision. Frequently, technology parks have links to research institutions providing a pipeline of both innovations personnel and advice. This serves as the technology transfer function. Some IT Parks offer support facilities for incubator activities. The benefits of technology parks for firms include a conducive or attractive and well-functioning working environment. Various models for technology parks exist ranging from: self-sufficient towns of technology that encompass residential neighborhoods, shopping centers, technical universities, research centers, and often business incubators to relatively small self-contained establishments. The impact of technology parks on innovation and technology parks is disputed, but similarly to incubation, success depends on the model which is applied. MENA countries started to establish technological parks in the late 1990s. Meanwhile several technology parks can be found in all five countries with Morocco and Tunisia spearheading the trend to technology agglomeration.

It is unclear to what extend the technology parks can be regarded as success. Spillovers are difficult to measure, and no attempt to assess them has yet been made. Some of the technology parks still have abundant real estate. This is, however, not necessarily an indicator for limited effectiveness, and the present plans to establish further parks point to growing interest by investors in their search for location. Moreover, due to the complexity of design and implementation, technology parks can often take a number of years to mature and become fully sustainable – it might therefore be too early to closer examine the impact of technology parks.

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<th>Table 4.1: Technology Parks and Incubators in MENA countries</th>
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Source: TrendChart (2005) and own research

**There is a vast array of services offered by numerous technology centers in MENA countries. Yet, the quality of more sophisticated services, if available, is often criticized.** MENA countries have built a substantial infrastructural base for all types of research centers, technology centers and laboratories which offer a range of specialized services for testing, valorization and technology transfer. Technology support systems in each country do not yet seem to play the required role for the private sector. Technological services are of limited availability, and their quality is often criticized by the business community (Djeflat, 2002). Businesses, particularly innovative businesses, still largely depend on foreign scientific advisory services, even for projects of lower sophistication for which the knowledge is principally locally available. Better outreach initiatives by the science and technology institutions as well as better integration into global research networks could mitigate some of the weaknesses.

Linkages within the NIS – a prerequisite for the different elements to function – are not developed to potential. Several studies have stressed the importance of linkages between research institutions and firms. In the MENA countries the isolation of university and its limited and informal relationship with the domestic industry is often mentioned as a weak spot. Efforts to link the world of learning to the world
of work have been generally limited in scope and effectiveness. Linkages with foreign firms, mostly by public enterprises, were not properly used resting often on simple buying of equipment and services. Whenever these ties existed, they had limited spillover effects on universities, research centers etc. Often domestic companies played a simple role of sub-contractors and suppliers of low-skill manpower. Consequently, the learning by doing and accumulated experience, particularly through tacit knowledge, were not given the opportunity to be valorised domestically either in the same branch of activity or in other sectors. In addition, linkages between university research, R&D centers and Industry are relatively limited. Ways to strengthen linkages can include channels public R&D funds to research institutes which concentrate on commercial research, develop a centralized network where potential industry partners can find academic partners for contract research, develop a scheme through which companies can offer internships to students and researchers, pro-actively address foreign investors to participate in the learning and research activities.

The development of the NIS in MENA countries is still lagging behind those of other regions with similar income level. The governments of the MENA countries have established innovation systems but for the most part without a strong vision for its innovation policy. Morocco and Jordan appear to be countries with the most pronounced NIS profile. The necessary ingredients for NISs such as relays for the private sector typically exist. However, their limited use indicates weaknesses in interconnection and quality of the services provided by the knowledge institutions. The research community is generally poorly funded, and there is a seeming disconnect between the university system and the private sector. Privately financed research projects are rare, in part due to lacking or distorted incentives for researchers. The bulk of R&D is borne by the government with some questionable relevance for the private sector. In long-term, governments need to continue improving all the pillars of the NIS. In short-term, governments might consider setting up agencies (not necessarily a new institution) which act as intermediary within the NIS as a focal point for the private sector. The mandate of such an agency could be to strengthen the linkages within the NIS by overseeing all the research activities within the NIS, acting as match maker between the private sector and research institutions, spreading good practice, and evaluating the performance of the NIS.

**Box 4.2: China - A rapidly and profoundly reorganizing knowledge and innovation system**

For much of the 20th century the Chinese Innovation System was based on the Russian model. Its structure was vertical, with autonomous and isolated actors lacking horizontal cooperation. Science & Technology (S&T) activities were generated in Public Research Institutes (PRIs), while production activities were undertaken exclusively by State Owned Enterprises (SOEs) and the two functions were completely separated. Under this system, S&T outputs from PRIs were freely transferred to SOEs and there was no incentive for research and development at the enterprise level. In 1985, in line with the Resolution of the Central Committee of the Communist Party of China to reform from a centralized planning system to a market based economy, the structural reform of the science and technology system was enacted with a series of innovation system reforms. The Chinese government has introduced several initiatives to facilitate interactions among innovation players. Therefore, several policy actions concerning innovation system reforms aimed at introducing proper incentive systems for both science and industry to improve their innovation performance. These initiatives had a clear impact on the structure, dynamics and performance of China’s newly conceptualized national innovation system.

The main actors of the system are:

**Government:** All major innovation related policies and measures originate from the government with the Ministry of Science and Technology playing a leading role. In the late 1990’s, the Chinese government introduced a new policy triggered by the PRC Technology Transfer Promotion Act in 1996 and Regulations on Technology Transfer for PRIs in 1998. Most national innovation investments came from the national plans of Science and Technology, used systematically as a mechanism for promoting innovation in key areas and as a means to fund R&D and high tech development.
Universities & Research Institutes: Since the reforms, China’s universities and research institutes have been forced to link to the market and act like corporations. PRIs and universities are given greater autonomy on selling their research outputs, while institutional funding from the government is reduced. Investment from government was greatly reduced as an incentive for research institutes to satisfy enterprises. In China more than a thousand universities are operating, with the Beijing University and Tsinghua University being the most important ones. Universities contributed with only 10.6% to the national R&D spending in 1999. China’s universities are the primary performers of basic research; they represent half of the national basic research expenditure and employ over one half of the researchers engaged in basic research nationally. In the Chinese innovation system, PRIs including the Chinese Academy of Science play a relatively important role. The Chinese Academy of Sciences (CAS) is the best example of commercialization and privatization. In 1999, the R&D expenditure of research institutes represented 43.4% of national R&D spending, while that of enterprises was 41.6%. By the end of 2003, there were a total of 116 institutions directly under the supervision of CAS, among which there were 89 research institutes, 3 educational institutions, 12 administrative organs at the Headquarters and Branch levels of the Academy, 7 supporting departments, 2 media and publications institutions and three other types of institutions. The institutions employ a total of about 44,000 people, among them there are about 30,000 research and technical personnel, about 5,000 administrative personnel and about 9,000 workers. CAS had created a total of 18,000 new posts, of which the research posts accounted for 83% (CAS Annual Report, 2004). The statistical data shows that the Chinese Academy of Science is the major beneficiary of China’s government funds for S&T. In March 2005 the CAS adopted an interdisciplinary approach announcing the set up innovation bases in the next five years, which could combine research forces of different CAS institutes.

The business enterprises: China has plenty of entrepreneurial opportunities due to its large internal market and recent reforms, but it lacks entrepreneurs to meet the market demand. Three types of companies need to be considered separately in order to conclude on their innovative behaviour:

- State Owned Enterprises' reforms have been implemented in the 1990’s, and market based competition resulted in greater pressures for R&D activities, efficient production processes and competitive products. In the transition period of the innovation system reform towards a network type one, some firms have improved their technological capabilities and started collaborating with universities and PRIs.

- Foreign owned companies are not actively engaged in networking activities. A substantial number of foreign owned companies include only overseas production sites using technology from parent companies abroad. However, in the last years many of the biggest US and European multinationals started investing in local R&D labs, in particular foreign investment enterprises in China increase rapidly. This proves a changing pattern and the domestic market climate appears to exercise a significant influence on the R&D activities of foreign investment enterprises.

In the process of public research institute reforms, a substantial number of spin-off companies emerged. Many universities and PRIs set up companies. In institutional terms the complexity concerning the ownership of university-affiliated enterprises has not been fully solved. These spin-offs are becoming an important component of China’s NIS. Encouraging universities to spin off technology-based enterprises is an effective measure for urging universities to interact with industries and promote technology diffusion. Spin-offs in China are particularly interesting as the government is keen to encourage Chinese students abroad to come back and set up companies in high technology areas. More than 5,000 university spin-offs exist in China, illustrating that the innovative technology embedded in spin-off enterprises in China’s innovation system represents a large-scale transfer from universities and institutes to industries. Most of those companies are in Beijing, and those operated either by Peking University or Tsinghua University account for more than 30 percent of the income. In the mean time, they retain their mission of providing practical training to university students.

Traditional SMEs are inevitably less innovation oriented. Firms working with PRIs or universities have focused more on basic and applied research, instead of development. Only a minority of companies with
long term orientation on R&D are supposed to seek for long term competitive position by working with PRIs and universities. Relative technological capability of firms as compared to PRIs and universities is still significantly lower in China than that in Japan or other countries, and most of Chinese firms have not enough absorptive capacity to collaborate with the science sector. China’s enterprises have invested in importing technology more than in developing their own R&D capabilities, mainly because of the lack of effective incentives for primary R&D actors to enhance their innovation capacity proactively.

**Financial organizations:** China’s capital markets are immature, making it difficult to collect sufficient R&D funds from the private sector, and thus forcing the government to play a pivotal role in financing R&D activities. Consequently, China suffers a shortage of R&D investment. Meanwhile, bank loans for S&T activities, since the “Notice of Bank’s Loans for Technology” lessened the shortage of national S&T investment, and have successfully supported over 10,000 items of new technology development.

**Innovation Intermediaries:** Another aspect of the Chinese NIS is the development of regional innovation systems with the help of high tech development zones. There are 53 such zones, a kind of high tech parks where all NIS actors coexist and various tax and fiscal incentives are in effect. These zones are modeled after the most successful one, Zhongguancun, and are mostly located in coastal and border areas that have attracted large flows of FDI. The High Tech Development Zones serve as platforms for technology transfer, clustering and incubation. The *China Association for Science and Technology* is a non-profit, non-governmental organization of Chinese scientific and technological workers. Functioning as a bridge with the government, CAST has developed into a federation of 165 national professional societies, including 30 provincial branches and totaling 4.3 million members throughout China. The main tasks of CAST are to organize academic exchanges, to popularize scientific knowledge, to voice the opinions and demands of scientific and technological workers, and to be involved in evaluation and continuing education.

Source: TrendChart (2005b) – Bruce: less acronyms – shorten to one page

### 4.3 IMPROVE ACCESS TO FINANCE

The financing problem in MENA countries is not the supply of capital but the supply of financial services. One of the most important aspects of creative entrepreneurship is access to financing. The five MENA countries have all relatively high level of savings, banks tend to be over-capitalized and many international funds and donor agencies are ready to provide support. There is also a range of private actors such as Hermes, Siparex, Euosud Capital EEIG etc. have also been active. However the issue is not the supply of capital but the financial services suitable for enterprise development, especially when products and services are moving into new, high-technology or risk sectors. Until recently the financing institutions in MENA have not produced any services required to support growth and entrepreneurship in modern innovation based economies (TrendChart, 2005).

Innovative and creative entrepreneurs find it difficult to obtain access to various sources of financing. New ventures, no matter whether as start-up or existing firm are highly risky, have a high failure rate, and the prospects of years until they yield positive returns. These features makes it difficult to secure loans from banks, notwithstanding the fact that commercial banks in MENA countries lack screening skills and usually require very high collateral. Personal savings of entrepreneurs, family and friends, and retained earnings from other business are often the most important source of finance. Some government provide grants for R&D, start-ups, or the commercialization of an innovation, but these are not broadly available and only benefit individuals. As personal funds are depleting, an external source of financing becomes necessary for survival. At this stage, investment still highly risky, and in case of young enterprises often not large enough to attract the attention of venture capitalist. Very often wealthy individuals fill the gap until the firm or new venture has reached sufficient maturity to acquire external financing (OECD, 2004).
Access to finance is, however, not only a problem for creative entrepreneur but for most private businesses. Financial markets in MENA countries are seemingly disconnected from the private sector despite abundant liquidity. Even in countries with relatively high rates of lending to the private sector, credit remains concentrated among a select minority, and investment climate surveys suggest an average of more than 75 percent of private business investment in the MENA countries is financed internally through retained earnings. Access to finance is among the top three constraints in all five MENA countries. As a result, few of the assets accumulating to the region are channeled toward productive investment, notwithstanding risky investment. Moreover, key elements of a well-functioning financial sector, including bond and equity markets, remain largely undeveloped (MENA Development Prospects, 2006).

Equity financing is slowly gaining popularity but a lot remains to be done before it can play a significant role. Until recently, governments of MENA countries have not fully understood the range of financial services that are required to support growth and entrepreneurship in modern innovation based economies. Especially the difference between traditional banking, company finance, in particular financial services aimed at SMEs, and venture finance in the form of seed, start-up, growth and transmission capital is still not fully appreciated. In some countries early efforts to develop equity markets have been made, notably in Morocco and Tunisia (see table 4.2.). Funds exist that target specific sectors such as tourism, agro-food and IT. Specialisation allows managers to make use of knowledge newly acquired by means of previous efforts in terms of business intelligence and personal networks, which enables them to improve their own performance as professionals. On the other hand, this effectively restricts the pool of possible deals, and eventually diversification (TrendChart, 2005). Clearly, profound structural reform of the financing sector is needed to boost private sector investment, and this will require time.

Table 4.2.: Number of Venture/Equity Capital Provider

<table>
<thead>
<tr>
<th></th>
<th>Egypt</th>
<th>Jordan</th>
<th>Lebanon</th>
<th>Morocco</th>
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<td>1</td>
<td>2</td>
<td>2</td>
<td>17</td>
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Source: TrendChart (2005)

So, which viable solutions to finance creative entrepreneurs are available in a second-best world?

…establishing or enlarging dedicated investment facilities. If equity financing does not sufficiently cover the demand for financing, then investment facilities which specifically target new ventures by creative entrepreneurs can be established. Some investment facilities have been already established in MENA countries. These include:

- Morocco’s *Fonds Sindibad*, established with funds provided by local institutional investors, the European Investment Bank, and France’s CDC PME;
- Tunisia’s *fonds d’amorçage*, currently being promoted by the EIB;
- Egypt’s *Ideavelopers*, an integrated business incubator cum equity financing initiative launched by *Commercial International Investment Company* (Egypt’s leading private equity operator) and *Telecom Egypt*;

In designing such a type of facility three aspects appears of paramount importance, namely: (i) the geographical scale of operations (regional funds are often appealing from a fund raising perspective but, in order to operate efficiently, seed capital facilities must be “local”); (ii) the mobilization of adequate amounts of technical assistance money to support investment operations (in the form of a separate financing line or of an addition to standard fund management fees), and (iii) the formulation of clear investment policy guidelines, to ensure that the focus remains firmly on creative SME’s (Infodev, 2006).

…facilitating access to bank financing. Despite the emphasis placed on equity financing it is obvious that banks will continue to play a role in the financing of business ventures, especially in countries characterized by a weak “equity culture”. Two possible measures appear worth considering, namely:
(i.) Support to the establishment innovation-oriented credit guarantee schemes. Credit guarantee schemes aim at facilitating access to finance through the provision of a loan repayment guarantee that replaces, in part or in full, the need for collateral. Historically, these schemes have played an instrumental role in facilitating SME’s access to bank lending. In developing countries, a certain number of credit guarantee schemes were established in the 1970s and 1980s, often with support from international financial institutions (IFI). However, these schemes were often managed by state-owned development banks or other public institutions, which negatively impacted on their performance and financial stability, which in turn led to significant disenchantment towards this instrument. A renewed impetus in the promotion of credit guarantee schemes aimed at SME has emerged in the more recent years in East Europe and Asia, mainly supported by donor agencies European Mutual Guarantee Association (Association Européenne du Cautionnement Mutuel – AECM).

ii) the provision of assistance to small innovative firms in dealing with commercial banks. Problems in accessing loan financing cannot be blamed entirely upon banks. Indeed, promoters and small entrepreneurs are often unable to approach banks in a proper way, to prepare business plans of acceptable quality and, more importantly, to defend them vis-à-vis loan officers of commercial banks. The provision of technical assistance in this area could help more inexperienced entrepreneurs to obtain loans. In practical terms, the facilities could involve the recruitment of consultants that could be made available to assist them in their endeavors with commercial banks. Admittedly, the scheme follows a fairly traditional model of technical assistance, but under current conditions it could have a non negligible impact on the relationships with banks (infodev, 2006).

...initiating Business Angel Networks. Angel finances or informal equity is recognized to be a major source of equity for financing innovative firms. In the United States, angels are estimated to undertake ten times as many deals as formal venture capital firms. In Europe, the potential for business angel investments is estimated to be more than four times as high than venture capital investments. The invisibility of potential investors and entrepreneurs paired with a fragmented market place impose high search cost for both parties which can be reduced by the establishment of business angel networks. Business Angel networks have the potential to bring together domestic or foreign private investors seeking good investment and entrepreneurs searching to raise finance by providing a channel of communication (OECD, 2006).

...creating awareness in commercial banks. Financial intermediaries, namely commercial banks, face a similar problem than anybody else in the economy with respect to viability and prospects of the emerging product or service on foreign markets. However, compiling and disseminating information about the fundamental economic and financial parameters in new and technology-orientated sectors (once available) could help alleviating the asymmetric information problem. An example is this respect is the initiative recently proposed by Morocco’s ICT sector association regarding the institution of a centrale financière for the ICT sector to be made available to the banking sector

... disseminating the experience with quasi equity (mezzanine financing). In the case of smaller enterprises straight equity investments appear scarcely feasible for a variety of reasons (high transaction costs, tax avoidance considerations, etc.) and quasi equity (mix between debt and equity financing) appears as the most promising vehicle. However, in certain countries the legal infrastructure is not adequate to support quasi equity investments, in terms of legal provisions or, more often, operational capabilities of relevant operators. Actions aimed at disseminating the experience with quasi equity accumulated by some SME financing schemes could prove useful to financial and business circles alike (infodev, 2006).
4.4 MAKE CLUSTERS AND NETWORKS WORK FOR EXPORTS

More than information problems, coordination failure can prevent the emergence of new export activities. Creative entrepreneurship or any type of innovative action is desirable because it produces knowledge spillovers to other firms. If knowledge systems are fragmented, then these spillovers are likely to remain small. But aside from knowledge diffusion, another problem comes to our attention with respect to the emergence of new business activities in an economy: coordination failure. Coordination failure can arise in a situation in which collective action between actors could lead to a more desirable outcome but is omitted due to market frictions such as fear of free riding behavior or high transaction costs. An increasingly popular response to coordination failure within the private sector is the facilitation of collective action through cluster.

Traditionally clusters have been defined as being geographical agglomeration of SME’s in one or few related sectors. According to this definition, the above mentioned incubators or technology parks represents clusters. However, the definition of clusters has increasingly become fragmented as various classification have emerged which alternatively highlight geographic proximity, technology proximity, production complementarities (vertical clusters), external economy and intangible assets such as social capital. For the purpose of this report, we consider a broader definition of clusters: Cluster are geographically proximate groups (not necessarily agglomeration), of interconnected firms and associated institutions in a particular field linked by commonalities and complementarities.

A vast literature on clusters argues that cluster firms are characterized by a high degree of specialization and complementarity. This generates dynamic processes of knowledge creation (learning and innovation) and knowledge transfer (diffusion and synergies). In clusters, there are collective learning processes that can generate innovation and economies of scale, thereby competitiveness. Clusters are catalyst for positive externalities and can as they grow increase the extent of horizontal and vertical product differentiation. As a result, the cluster becomes a centre of accumulated competence across a range of related industries and across various stages of production (De Propeis and Driffield, 2006).

A slightly different but interlinked phenomenon with similar benefits are networks. Networks are groups of firms that cooperate on a joint development project complementing each other and specializing in order to overcome common problems, achieve collective efficiency and penetrate markets beyond their individual reach. Perhaps the biggest difference between clusters and networks is that the later aims at facilitating business for its members while the former seeks to generate more demand for firms with similar and related characteristics. Networking can also be a starting point for the creation of clusters. As networking expands and more enterprises are involved, the territorial, or cluster, dimension starts to emerge, usually alongside with the involvement of business development services and governmental institutions (UNIDO, 2005).

Many SME’s lack the resources and knowledge of other countries to effectively exploit global market opportunities. Existing export assistance programs reach very few SMEs. Organized in clusters or networks individual firms can gains from uniting forces to enhance their international market position, as opposed to building traditional rivalry among firms. In fact, the majority of existing clusters has a strong component of export promotion as part of their commercial objectives. The opportunities cluster offer firms to significantly increase the quantity and quality of export has been illustrated by the medical equipment firms in Egypt. The cluster firms joint formulate an export strategy and applies for public funds to finance their activities. These include participation in trade fairs, and delegation but also subsequent business development services such as technical assistance in quality upgrading and
certification. The medical equipment cluster is still in its embryonic stage but experiences from similar initiatives illustrate the success of commonly establishing market presence. Costa Rica’s Electronic and Information Technology cluster, like in Egypt a partnership between the government and the private sector, resulted in advanced manufacturing operations leading the export of $44 million USD of medical and $36 million USD of communication equipment (Alvarez, 2005).

Export oriented clusters have a very strong commitment of “border-out” support activities. This includes formulating an international marketing strategy, identifying new market opportunities, and collectively promoting the industry collectively, often coupled with national branding initiatives. They often cooperate in upgrading their supply capacities and skills diversification. Through their cooperation and interaction with the public sector, they also act as effective, specialized lobby groups addressing common trade-related problems such as infrastructure, or customs procedures. Not seldom, activities with a cluster lead to diversification of an individual firms product portfolio, inspired by the business activities of cluster peers.

Not all clusters are successful but failure can be avoided through learning lessons from experiences of other clusters. Several factors can lead to inefficiencies and disappointing results in cluster cooperation. Among the biggest problems reported in a survey of over 200 clusters Alvarez, 2005) are failure to achieve consensus on actions, an inappropriate framework for action, and limited contacts. The survey points to some important success factors for export clusters:

(i.) Sufficient resources: a budget or accessible fund which allows the cluster to carry out significant projects.

(ii.) Leadership: A strong, respected and dynamic facilitator is needed who has a deep knowledge of the industry, a strong network of contacts, and enjoys the respect of its members.

(iii.) A common framework, strategy or action plan: A framework based on strengths, a common vision and quantified targets is needed to ensure a continued and effective work flow within the cluster

(iv.) Social Capital: Social capital – trust and interpersonal relationship between members – is quintessential to consensus finding and conflict mediation.

Clusters do not always require a formalized structure. Some cluster initiatives rely on interpersonal and commercial relationships that build social capital in from of trust between the members. Depending on the preferences of its members, clusters can be kept informal, without any fixed organizational structure and prescribed terms of reference. Cooperation and coordination within such a cluster is then rather sporadic and emerges out of a specific need. This is a suitable for very small industries or firms. The outsourcing service providers in Egypt, for instance, prefer the informal approach of the regulated one of their business colleagues in the medical equipment cluster. Meetings between the few major player in the yet infant market take place on initiative of any member. Activities are often self-financed, and center around foreign representation, shared business (the firms rent out agency position to each other if needed for the fulfillment of a specific contract) and lobbying with the government.

From export clusters to international production chains: the inclusion of suppliers and buyers. As global supply chains become more integrated, there are more and more examples where the integration of foreign buyers and domestic/foreign suppliers has led to additional investment and activities that ultimately strengthened the cluster. Such full-scale vertically integrated clusters are rarely found in developing countries. Yet, vertically integrated clusters strengthen backward and forward linkages and ultimately increase the competitiveness of the cluster firms. Communication links with customers allow clusters to better identify emerging trends and customer needs. It can also be a mechanism which attracts foreign investment and can be used to identify more competitive suppliers. At domestic level, vertical integration with input suppliers, and especially service suppliers, can help to reduce transaction cost through closer cooperation and coordination. It can prove particular instrumental in identifying gaps in
the supply chain, or structural problems which out of a lack of awareness were not raised to the government.

**Box 4.3: Pharma Cluster in India - Quality matters.**

During the last 100 years, India has shifted from import to indigenous production of medicines. Gujarat commands a significant portion of the Indian formulation market (around 50 per cent in 1997-98) wherein the cluster of Ahmedabad, Vadodara and nearby area are in the lead. The major products manufactured in the cluster include pharmaceuticals (both allopathic and ayurvedic) and medical disposable products. There are around 450 drugs and pharmaceutical manufacturing units in Ahmedabad, Vadodara and nearby areas. Around 50 manufacturing units produce medical disposables and the rest are in formulations including ayurvedic products. Seven firms in the clusters are big, around 20-25 medium-sized and the rest are small. The total turnover of the cluster is estimated at Rs 40,000 million (approximately USD 800 million).

Right from the inception of this industry, quality up-gradation that was mainly driven by regulatory needs, is becoming more and more a market-driven necessity. Certifications like ISO, CE Mark, WHO-GMP have been made mandatory by importing nations and institutional buyers. A clear consensus emerged in the cluster that small firms would soon need to specialize and become quality contract manufacturers of large/medium units. However, many small units have little idea on these quality norms, let alone the capacity of achieving such certification (lack of required information, appropriate technical training, knowledge of desired plant layout/machinery requirements, affordable BDS providers). Supported by the UNIDO cluster development programme these challenges were addressed in a step-by-step approach by building awareness among firms, sustaining a group approach to purchase of business development service (BDS), creating institutional linkages and finally building the capacity of existing and newly created associations to ensure the sustainability of the process. The immediate nature of the challenges to be faced was spread through several workshops on GMP, WHO-GMP, ISO and CE certification where the most successful and forward-looking firms of the cluster intervened along with the regulatory bodies. However, the firms that participated in such workshops were at different levels of maturity and readiness. The allopathic formulation units were the first to agree on the need to address such challenges. Their association (IDMA-GSB) took the lead, established a list of qualified consultants and introduced a new service called ‘factory audit’ to assess the level of preparedness by firms. Among the firms that underwent such factory audit, six joined hands in a network and chose a common BDS provider from the list prepared by IDMA-GSB.

The BDS provider took a step-by-step approach to quality up-gradation whereby firms first went for ISO/GMP certification and thereafter for WHO-GMP Certification. A few more BDS providers soon adopted the same group approach. They followed a similar methodology of group formation and joint quality up-gradation. A similar step-by-step approach was taken for ayurvedic and disposable units. In the process the members of the group benefited through (a) discounted rates for BDS, (b) negotiated discounted by certification authorities and (c) joint learning benefits of staff.

A similar step by step approach was followed the more hesitant disposable manufacturers. Since they did not belong to the same association, group formation under the BDS provider was organized to increase reach in terms of firms. Once again a step-by-step approach was followed. The various training and quality up-gradation process introduced helped firms attain GMP and ISO. Some of them also went for further quality up-gradation such as the CE Mark. As a result of these initiatives, at the end of UNIDO intervention in 2002, 61 firms had embarked on quality up-gradation, 41 of which made an estimated joint investment to the tune of Rs 76.6 million (USD 1.5 million). Ten firms gained export linkages or were exposed to new export destinations. Twenty-one firms generated additional domestic business worth Rs 153.3 million (USD 3 million). Moreover, Indian drug Manufacturers Association – Gujarat State Board (IDMA-GSB) planned to set up a sub-contracting exchange. A Non Trading Corporation named Gujarat Pharma Techno Park was also formed to create a production facility for quality products. Ten new training programmes were introduced and a video film to train workers was created. Ten new BDS
providers have been introduced in the areas of quality, factory level training, contract business, export market and other support services. Associations created linkages with technical/developmental institutions. International networking was undertaken supported with development agencies. Source: UNIDO (1999)

Measuring success is one of the biggest challenges for assessing cluster initiatives – but it is doable. Establishing a set of metrics capable of tracking cluster performance is important to assess the actual impact of cluster activities. Such metrics could also enable the creation of a benchmarking tool to compare success across cluster initiatives. Obviously the metrics depend much on the objectives of the clusters. Some common areas are networks and partnerships (number of partnership arrangements, networking events, joint research activities…), export success (growth of exports, number of visited trade fairs, number of established contacts …), Innovation and R&D (Number of patents applied for, R&D expenditure, number of innovative awards…), Human resources (number of vacancies, number of trainings, …). Other approaches are developed by a number of institutions such as the International Trade Center which presents e.g. a “balanced scorecard” approach to measure the impact of export strategy (Alvarez, 2005).

Another network untapped by the MENA countries are international diaspora networks. All five MENA countries have a large Diaspora abroad. More than xx (or cite remittance flow) migrants from the five MENA countries together are believed to live abroad. Mostly, it the educated workforce that migrates abroad attracted by the employment opportunities and higher income they can attain. Diasporas accumulate considerable business, networking and marketing skills that could reduce these barriers for market penetration, and their utilization proved to be a successful addition to export promotion strategies in a number of countries. In particular, the networks increased reportedly the quality of international market and competitor information available to business and reduced the cost and time of obtaining reliable information from international markets. Through way of higher ethnic and cultural proximity, Diaspora networks also open up more possibilities for more joint ventures with overseas companies. Finally, mobilizing Diaspora can reverse the brain drain into a brain gain effect. So far only few attempts in Diaspora mobilization is observed. Some universities in the region try to incite researchers and professors to return or to participate in research (Egypt, Morocco, Tunisia). Large informal Diaspora networks in the business community exist in Lebanon. The initiative of King Abdullah II. of Jordan to communicate reforms programs in the ICT sector internationally can be regarded as a form of diaspora mobilization.

There are different models to mobilize Diaspora. The most obvious one is to set incentives for migrants to return and to engage in business activities, either on temporary labor basis or – as illustrated by the Jordanian ICT service case study - permanently. Creating Diaspora networks with the help of ICT technologies can transfer relevant knowledge without physical presence. Institutions concerned with export promotion could build up specialized Diaspora contact networks for their clients. Box 4.4. provides an overview of some experiences with Diaspora networks.
Box 4.4: International Diaspora networks in South Africa and Scotland

South Africa – the experience of an emerging Diaspora network

Skilled South Africans began emigrating in large numbers before the end of apartheid and the turn to democracy in 1994. The data do not permit an accurate estimate of the skills lost, as the South African Department of Home Affairs and Statistics South Africa take into account only emigrants who report themselves as such. The actual number of emigrants could be as much as three times official figures. Nonetheless, it is widely agreed that skilled workers continue to leave South Africa. Fully two-thirds of workers with the potential to emigrate have considered doing so, and the highly skilled—of all races—are most likely to be drawn abroad. As South Africa has struggled to integrate itself into the world economy while struggling with the AIDS/HIV pandemic, crime, and sharp fluctuations in the rand-dollar exchange rate, enhancing relations with the Diaspora has become a salient concern. To that end, South Africa has initiated two Diaspora networks, one encouraging direct collaboration and other transactions among members, the other encouraging the formation of mentoring relations between members already active in international markets and others aiming to become active. Together these networks suggest the range of activities that public–private partnerships of different sorts can use to explore the possibilities for directing diasporas in the direction of manna solutions.

The transaction-oriented South African Network of Skills Abroad (SANSA) was established in 1998 by the University of Cape Town’s Science and Technology Policy Research Center and a leading French agency for scientific cooperation, the Institute of Research for Development. SANSA aims to promote collaboration between highly skilled expatriate scientists and technologists and their counterparts in South Africa. The target group is alumni of all major South African universities and technical institutes. The portal to the network describes SANSA’s objectives and explains how to network with other members through electronic bulletin boards, discussion groups, and job postings. As of March 2002, SANSA had 2,259 members in more than 60 different countries, 58 percent of whom were South African citizens. In October 2000, the National Research Foundation, part of South Africa’s National Department of Arts, Culture, Science, and Technology, took over responsibility for SANSA. After some initial fumbling, the National Research Foundation is managing, with some difficulty, to stabilize the network. SANSA’s strength—its ability to facilitate transactions by enabling partners to find one another directly—is connected with a serious limitation: the inability to track the outcome of exchanges and communications between network members.

Because of the way the network is structured, there are no data on the successes and failures of the network, and those who operate it cannot learn from the successes and failures of the transactions they help generate. The second mentoring network, the South African Diaspora Network, was developed by the University of Cape Town’s Center for Innovation and Entrepreneurship through assistance from the World Bank Development Marketplace. Founded in 2001, this network focuses on developing knowledge and entrepreneurial connections between local South African firms and well-connected individuals in the United Kingdom. Drawing on expatriate organizations such as university alumni associations and the South African Business Club, an organization with members in the United Kingdom and the United States, the South African Diaspora Network aims to facilitate continuing collaboration between respected and influential business people from South Africa in key overseas markets and young, high-potential start-up ventures based in South Africa. Local clients were recruited through extensive media coverage in South Africa. More than 60 South African companies applied to be part of the project, some of which were selected to participate. About 40 overseas members, most of them well-connected South Africans living in Greater London, were recruited through presentations held at the South African Business Club in London and a meeting of the London chapter of the University of Cape Town’s Graduate School of Business Alumni Association.

So far the mentoring model of the network has resulted in some promising connections between growing firms and capable expatriates. But it is clear that the model will take time to yield results and that the network will have to develop the equivalent of a strategic plan to increase the number and improve the
quality of the connections it encourages. A network that facilitates direct contacts between members cannot be self-organizing. Determining which tools and additional infrastructure can make mentoring and transactional networks more effective is a major problem confronting policy makers aiming to make emerging diaspora networks mature as quickly as possible.

**India – the value of a mature diaspora**

The Indian experience shows that new models of business organization emerging during the continuing reorganization of supply chains can give rise to new patterns of development, in which economic learning begins through service provision rather than industrial activity, and in which the key investments are in education and training rather than in equipment and plant. The Indian software industry grew 40 percent a year in the 1990s. Revenues reached $10.2 billion in 2002, $7.7 billion of them from exports.

During the same period, employment grew from 56,000 to 360,000, absorbing most of the 75,000 new information technology graduates India produces every year. The number of software firms more than quadrupled, from 700 to more than 2,800, and the largest firms, such as Wipro and Infosys, are undertaking increasingly complex and valuable projects. India has demonstrated that success in outsourcing low-level business services can be a building block for higher value-added services. The emergence of the Indian software industry was in some ways a fortunate accident that almost surely cannot be reproduced by other countries. But it was an accident waiting to happen, dependent on structural conditions that can indeed be influenced by policy. The Indian government’s emphasis on higher education, especially scientific education, created a surplus of well-trained scientists, engineers, and technicians just when the Internet and telecommunications booms and the year 2000 problem produced a massive need for these professionals in the West. Still more providentially, excess U.S. demand for programmers developed just when a critical number of Indian expatriates who had emigrated to the United States in the 1970s and 1980s had become chief executive officers and senior executives at American technology companies. These executives played a critical role in giving their companies the confidence to outsource work to India. They were also patient sponsors as Indian firms gradually learned how to meet U.S. quality and delivery requirements.

Even with these propitious coincidences, however, Western firms could not have outsourced work extensively to India had the Indian government—unaware that software firms could become major employers and producers of tradable goods—not exempted the industry’s largely white-collar workforce from much of the labor regulation that hampers India’s traditional manufacturing. Even India’s much criticized isolationist policy toward the computer industry proved fortuitous: by the early 1990s, when regulations were relaxed, isolation had weaned an entire generation of programmers from mainframes and forced them to master emerging client server and personal computer standards.

No other country or industry should expect to duplicate India’s software luck. But India’s experience demonstrates that outsourced business services can make a primary contribution to economic development in the 21st century and that diaspora networks can play a crucial role in establishing long-range collaboration in the supply chain.

Source: Kuznetsov and Sabel, 2006
4.5 SET THE RIGHT INCENTIVES FOR NEW ACTIVITIES

Export Promotion in MENA countries has not produced the expected result. In attempting to promote export, governments have used a variety of instruments. Among the most favored are subsidies (kind and in-kind), matching grant schemes, guarantees, or the direct provision of services. The results have not in all cases been positive. This raises doubt as to the viability of export promotion. A recent analysis by Lederman, Olarreaga, and Payton (2006) studied the impact of export promotion in a sample of 104 countries. The result suggests that export promotion can indeed have a positive impact on the growth of exports. In fact, the impact is increases with income per capita. Although the export promotion can already produce positive effects at a GDP per capita around US$ 1000, the impact is more significant in countries with per capita income above US$ 2800. Hence, export promotion should be particularly effective in Lebanon, Tunisia and Jordan. Yet, while the study shows that one dollar invested in export promotion can yield up to US$ 490 (Latin America), the returns are much lower in the MENA region with US$ 96. This is lower than in Asian countries (US$ 227), OECD countries (US$ 160) and even Sub-Saharan countries (US$137) despite the fact that governments in MENA do not invest less in export promotion that countries in other regions. This points to weaknesses in instrument design.

There are different instruments, but the guiding principles are the same. A vast strand of literature discusses and present best practice in instrument design, e.g. for subsidies, financing facilities, guarantees or services. Each instrument has its best practice design in its own right. There are, however, some common guiding principles, which if correctly applied should not only lead to growth in exports but also foster export diversification. This report stresses eight principles of instrument design3:

First, put an emphasis on new activities. As alluded earlier, in order for any support scheme to promote diversification, the incentives ought to focus on new business activities. Again, new refers to both products and the technology’s applied in the process. But it can refer to new markets. The matching grant scheme FAMEX in Tunisia illustrates how this can work in practice: The eligibility criteria of FAMEX are defines as to only grant access to the fund to (i.) firms who export a new product; (ii.) firms who target a new market, (iii.) new exporters. Though this eligibility criteria the scheme decisively subsidizes experimentation of firm, and not traditional business processes. In order to ensure that firms have the capacity to export, the business are scrutinized and required to submit business plans which need to meet certain success criteria and can develop with support of an affiliated consultant.

Second, the support must deal with a market failure. No matter if the support scheme is a response to the problem of asymmetric information or coordination failure, it needs to respond to a need that the market by itself fails to meet. More often than not the market failure principle is ignored. Firms are being granted subsidized to same trade fairs in consecutive years. Training is being provided although they are training opportunities widely available on the domestic market which can and should be self-financed by the firms (e.g. language, general computer or accounting etc.). The idea is to encourage firms to undertake action they otherwise would omit due to their prohibitive cost, and not to subsidize their business operations which artificially raises their competitiveness. The intervention must produce additional behavior.

Public support is often provided to correct for a policy failure which can not be corrected in short-term. For instance, transportation subsidized are offered to firms in order to compensate for the anti-export bias (high tariffs, weak infrastructure). Often these subsidies are necessary to sustain the international competitiveness of firms. Nevertheless, if such subsidies are provided, then they should be short-term in nature with a clear schedule to phase them out. The ultimate goals should be to remove the policy induced barriers to business.

Third, subsidized activities must have a clear potential of providing spill-over and demonstration effects. As Rodrik (2004) points out there is no reason to provide support to an activity unless that activity has the potential to crown in other, complementary investments, or generate knowledge spillovers.

3 The principles represent a modified version of the principles discussed in Rodrik, 2004, Alawai, 2006, ITC, 2006
Fifth, target activities not sectors. Most export promotion programs stipulate certain sector priorities in their strategies. Yet, until now there is no convincing justification why specific sectors should be targeted in lieu of others. A nascent industry which has not yet emerged is as needy of support as any visible nascent industry. No rationale justifies the targeting of traditional or existing industries, especially not on grounds of international competitiveness considerations. Despite the individual success that have been achieved with sectoral targeting by some countries, the general experience is such that it can lead to misdirection in terms of promotion efforts. Cross-cutting programs have the advantage that span all sectors in the economy (including services) and are more likely to leverage market dynamics.

Sixth, produce value for the money. This is not just important to justify expenditures vis-à-vis the donating agency but it also needs to produce value for the firm. The best way to control that the right support services are being offered is to design each instrument on a co-payment basis. This way the service provider gets a direct feedback from the beneficiaries with respect to the value and quality of service as demand changes.

Seventh, each instruments should have a build-in sunset clause. Supported activities need to be closely monitored against their defined objectives. If it becomes apparent that an activity will not reach its objectives, its should be possible to withdraw the support after correction opportunities have been exploited. Such a sun-set clause can help to minimize failure.

Eight, don’t pick the winner but reward them. Naturally, there is an understanding desire by government to give preference in their support to those sectors it believes has a high potential. As already pointed above, sectoral support should be avoided as it is difficult to predict success. Likewise, giving preference to already successful sectors over other carries the dilemma that nascent industries are being discriminated which might be well successful in the future. However, there is a way of channeling resources to those sectors or industries who actually prove to be successful without discriminating against nascent industries: If support is provided against measurable objectives for well defined activities, then one could ex-post identify those beneficiaries (firms/clusters) who have overachieved their targets and reward them by providing support to additional activities. Such or similar mechanisms can help to channel the resources to winners in a transparent and incentive-compatible way.

4.6 BUNDLE SUPPORT

One of the problems export promotion facilities face is that their approach is not holistic enough. In its core, export promotion is about improving the competitiveness of a firm to successfully penetrate foreign markets. If this is true, then export promotion is not just concerned with marketing which represent the end of the value chain but the management of the entire value chain, starting from product development to marketing. And if export promotion is also about diversification than it starts even at an earlier stage, the idea of the export business itself. Hence, export promotion and market access is only half of the story. Trading patterns have evolved into complex interlinked systems. The question where to position itself is no longer a question firms can decide about at the end of the value chain but right at the beginning. This development calls for a holistic approach to export promotion ranging from support to R&D (experimentation at the beginning of the value chain), product development and design, management process, upscaling to marketing.

Value Chain support is fragmented in Tunisia and Morocco. Bundling resources could help to make the support more effective. All the MENA countries (except Lebanon) offer competitiveness programs (mise a niveau, supplier development, JUMP, PAAP) which have realized the importance of business development across the value chains. However, until recently support to business development
has been fragment. Individual financing schemes, programs and agencies offered support to R&D, commercialization of innovation, start-ups or marketing abroad. This is still the case, although Jordan and Egypt represent notable exception. In 2006, Jordan has created JEDCO – an umbrella organization which will manage all public support schemes and programs. In Egypt, the reformed Industrial Modernization Center (IMC) oversees all programs, including cluster policy and to some degree export promotion. In Morocco and especially in Tunisia business have to find their way though a myriad of programs in order to find the right support. In Tunisia several programs have competing objectives, requirements or eligibility. For instance, business have been rejected access to FAMEX might receive marketing support from FOPRODEX, Tunisia’s second export promotion scheme. A fragmented support system bears the danger of overlapping. In such an environment, business literally go “shopping” for the cheapest and most convenient support. In line with the idea of applying a holistic approach to value chain support, the different facilities and programs need to be bundled and managed by a single agency. A second best option would be to assign an agency with the tasks to oversee all the different instruments and navigate entrepreneurs through the jungle of support facilities.

Research underlines the notion that centralized support is more effective. The results in aforementioned work by Lederman, Olarreaga and Payton (2006) indicate that export promotions shows “export promotion activity should be shared with other activities such as investment promotion, export financing or on-shore support services.” Further they find that proliferation of agencies providing support to exporters hurts exports. Indeed, there is increasing trend towards centralizing support to exporters. The most prominent example for one-stop support for exporters and likewise one of the most successful and visible is Enterprise Ireland (Box x.).
Box 4.5: Enterprise Ireland – One Stop Support for Exporters

Ireland’s economy is one of the world’s most globalised, with extensive external trade and investment links. It is also one of the world’s most dynamic, with annual growth rates in excess of averages for the developed world. Record growth was experienced in the 1990’s, with a 10% average rate recorded for the period 1997-2000. Subsequent to the international slowdown of 2001/2003, growth rates receded to the 4-5% range in 2005, still among the highest within the EU and OECD. There has been no significant weakening across a range of key economic variables including asset prices, fiscal balance and employment. The legacy of the decade of growth of the 1990’s will be substantial, in particular Ireland’s transition from one of Europe’s poorest economies to one of its wealthiest.

One of the driving institutional forces behind Ireland’s growth success has been Enterprise Development. Enterprise Ireland is the Irish state economic development agency focused on helping private business transform itself both with respect to geographical spread and value added. The core mission of Enterprise Ireland is to accelerate the development of what is hoped will become world-class Irish enterprises capable of achieving strong positions in global markets resulting in increased national and regional prosperity and purchasing power. Through the agency’s extensive network of 13 Irish offices and 34 international offices, and collaborations with research and technology centers, it works with Irish companies to assist them to compete and to grow. It’s focus, for Irish companies, is on main areas of activity: Achieving export sales; investing in research and innovation; competing through productivity; starting up & scaling up and driving regional enterprise. Enterprise Ireland is pursuing a holistic approach to business development, firm-based innovation and export promotion achieved through a range of well-targeted instruments (see chart).

Source: Enterprise Ireland, 2006

4.7 RE-DEFINE THE ROLE OF THE PUBLIC AND PRIVATE SECTOR

Both the public and private sectors have different roles to play. One one level there are market failures which only the government can address. One the other level, the private sector is good at solving problems that respond to incentives at the level of individual firms. However, the private sector in MENA countries has not yet assumed its role it can play in the development process as such. This is not just a matter of space. Even where space for the private sector to take over responsibilities exists, the private sector is hesitant to engage. This is in part explained by the legacy of state-domination.

The terms of reference of the public and private sector as well as their form of interaction within the diversification process are similar to the search process an innovative entrepreneur faces. It is to some degree based on trail and errors, and to another on certain principles. Ultimately, the stakeholders in each country have to engage into a discourse on how they want to define their role and what responsibilities
they are ready to assume. Once the right balance between public and private engagement is established, innovative entrepreneurship and diversification can flourish to benefit the society.

A new policy approach offers viable and sensible solutions for MENA countries and a framework for public-private sector interaction: Network based learning. A new policy model with important implications for the role of state is emerging in policy debates and literature: “New Industrial Policy” – an approach that can be best described as network based learning. This approach supports learning and creative entrepreneurship – or the self-discovery⁴ – of private actors. Organizational innovation and learning in functional networks is at the heart of this approach. Mezzo-level structures, e.g. the underlying institutions and relationships between actors in an economic process, are of central concern. The objective of this new policy approach is similar to the one which has been defined for the promotion of new exports: the reduction of information and coordination failure. Underlying is the recognition that these market failures are industry-specific. The latter still poses a problem and no consensus has yet been achieved on the question how industry specific failure can be addressed if the government is restricted in its ability to offer selective interventions.

Rodrik (2004) implies that the agency which carries out the promotional activities is a public body with a clear mandate closely monitored by a principal of high-level authority. However, in such a model horizontal intervention is binding because public interventions in specific industries would need to be ignored (see section 5). With the right institutional design it is be possible, though, to tackle both – market and industry specific market failure.

The idea is simple: Outsourcing. If selected interventions are needed in order to alleviate the different and industry specific market failure, but the governments cannot ensure the correct implementation of intervention, then it must encourage the private sector to create intermediaries – groups, associations, networks or clusters - which can perform this function. In practical terms this means that the state focuses on activities which only it can do or can do best, and outsources all other activities to the private sector. The concept of private sector driven development has been so far interpreted as a direct public and private sector interaction at individual basis. In most business development programs subsidies and technical assistance is provided to individual firms. The involvement of private sector associations and other intermediaries (associations, chambers etc.) has been often limited to consultation and project selection, and has rarely taken up the form of actual collaboration. Business association and other private sector groups still play a minor role in the economic process. Yet, a more interventionist and supportive policy approach requires a greater understanding of market drivers and constraints. Here, business associations are uniquely positioned to provide relevant services to their members because they are much better informed about their concerns and interest. In this context, there is a range of enabling activities that associations can deliver in lieu of a public sector agency. Trade fairs, for example, need not be organized by a government department. The contract to manage them can be offered on tender to business associations. The case study of the agro-industry association FEPACH in Chile demonstrates how a business association of limited scope has been gradually empowered to become a major in the development of the agro-industry in Chile (box. 4.6 ).

The government’s role is then circumscribed at i.) policy making at macro-economic and regulatory level to ensure access to markets and level playing field, (ii.) the provision of basic public goods, (iii.) the facilitation of group learning, (iv.) and the provision of funds to groups (!) for the implementation of promotional activities. The activities can, for instance, take up a form similar to public-private partnerships in which the state would (co-)sponsor activities of groups and associations. Direct subsidies on regular basis, however should be avoided to maintain the independence of private sector associations.

The risks of rent-seeking are real but can be contained through strictly liberal trade policy. Due to their lobbying function business association are often viewed as unproductive rent-seeking groups with the primary objective to seek fiscal and trade benefits from the state for their members. And as empirical

⁴ Hausmann and Rodrik (2004)
evidence shows that the risks of rent-seeking are real.\textsuperscript{5} It therefore might feel awkward to animate government to encourage the formation of business groups. However, it should be acknowledged that rent-seeking is most fruitful in a protectionist environment, when lobbying functions possibly help strengthen the consensus for protectionist measures for local producers.\textsuperscript{6} Fostering trade liberalization and increasing competitive pressures can drive business association to extend their function beyond lobbying. Governments on a reform path are unlikely to recoil into former protectionist pattern, partly prevented by their binding commitments in trade agreements. A clear stance towards more trade liberalization can therefore minimize the political economy risks. Also, rent-seeking objectives do not necessarily preclude associations from performing productive functions which reduce information and coordination costs. Distributional objectives might, in fact, coexist or even alternate productive goals.\textsuperscript{7}

If rightly diffused, business association can function as catalysts for technological change. Lobbying for protection is likely to occur more frequently at a later stage of the Schumpeterian business cycle when competition and easy market entry diminishes the returns of entrepreneurs and fears of market exit increase. In contrast, lobbying at the early stage of the business cycle is more directed towards property rights and protection against imitations in the case of on-the-frontier innovation. Within the frontier, lobbying is more likely to take place in form of advocacy for resources and infrastructure with productive benefit. In that case, associations can function as a catalyst for technology change; they put a new technology on the agenda, lobby for resources, favorable tax regimes and by doing so create legitimacy for a new technological trajectory.\textsuperscript{8}

How to increase the capabilities of business association through competitive bidding on funds? Governments might be concerned with a lack of strength and capacity of associations to implement market relevant functions. But this in essence a similar problem that public agencies face. If rightly approached, strength and capacities can be build up, facilitated and supported by the public sector. If the above mentioned principles of instrument design are applied to the allocation of funds, associations can be supported to this end. In fact, a support model can even be designed based on competitive and reward principles: Funds can be allocated to business groups after submission of detailed business plans, including planned activities and measurable objectives. Part of the public fund can be retained by the agency until the end of the project cycle. After the project evaluation the retained funds can be allocated towards previously communicated success criteria to the associations which fared best in the (over-) achievement of their objectives. This constitutes a way of rewarding winners without picking losers.

There is a great potential for business associations to leverage the diversification process. Business associations fulfill market supporting and market complementary functions. The former is more relevant in developing economies where markets fail to deliver even the most basic public goods. Market supporting activities strengthen the overall efficiency of markets by pressuring the state to provide public goods where they are needed. In this sense, business association act as information medium for the state. In more sophisticated and emerging economies, market complementary activities become more important. They involve collective action through information sharing and standard setting among firms to overcome different market imperfections and to reconcile interdependent production and investment decisions. They also facilitate coordination between upstream and downstream firms. In brief, business associations provide industry specific services which lower the cost of information and coordination and create space for experimentation. Through emphasizing the complementary function, business associations can act as catalysts for creative entrepreneurship and technological change.

Business associations are also best positioned to spearhead cluster development within their industry. Through active collaboration at a multilateral level, business associations can help to foster

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collective action. This may include activities such as the formulation of standards that result in a reputation for quality at international level, which can also lead to positive externalities for exporters outside of the cluster. Promoting collective action through associations, however, may be difficult given that in many clusters local producers are often also local rivals. While local competition promotes local development, the possibilities of external economies and free rider gains can also discourage cooperation between entrepreneurs. In the context of export-orientated clusters such rivalry is unlikely to occur as the market is geographically unlimited. The case studies in the MENA countries have clearly demonstrated that fear of rivalry did not hamper the emergence of new business. But if rivalry, or rather fear of rivalry, might be a concern, associations can help to lessen fears by opening a dialogue on the benefits of cooperation and in which instances it might exceed those of single action. A key conceptual issue for ensuring dynamics within clusters is how the potentially conflicting pulls of competition and cooperation are mediated. One of the major function business association have to fulfill is to strengthen the social capital - informal norm and trust relations that promotes cooperation - among their members.

Not all business associations are positioned to provide such services but restructuring and competitive forces may lead the association to achieve their objectives. In order for business associations to assume new responsibilities, it needs to be assessed how well they are equipped to perform their work. Several aspects need to be considered such as the governance structure, leadership role, and internal capacity to provide services, financing arrangements, and human resources. However, the associations effectiveness as a body is a reflection of the broader capabilities of its members. That is to say, in an environment where competition is intense, where the structure of the industry is highly skewed, and where practices are such that the industry as a whole is geared to moving towards a "low road" trajectory, an association is unlikely to function effectively in promoting collective action and exports capabilities. Nevertheless, dynamic competitive pressures also imply that associations are dynamic institutions. The pressures of the new competition are forcing exporters to upgrade – a challenge that associations then also have to master through restructuring. Competition is therefore a necessary condition to trigger change in associations.

Business associations in MENA countries need to be better equipped for their new role in the diversification process. The landscape of business associations varies within and between MENA countries. Business associations in Egypt are thriving and already interact widely with the public sector under the umbrella of the major business development center (IMC) and the system of export (commodity) councils under which collective action is encouraged. The largest private exporter association ExpoLink has become integral part of the export promotion system and is widely respected within the business community. However, the institutionalization of the export councils as well as the empowered role of the public export promotion center dwarfs ExpoLinks former significance. Further, the export commodity councils lack clear terms of reference and a solid, participatory governance structure which is more inclusive for less-prominent and smaller enterprises. Finally, the present allocation mechanisms for business development and export promotion activities is not sufficiently incentive compatible to leverage the activities of the clusters. Three aspects within the new export promotions system might require re-consideration: the integration of private sector intermediaries such as expo-link within the system, the incentive structure of the business development funds and the institutional set-up of the export (commodity) councils.

In Jordan, only few business associations play a significant role, with the most important being Intaj, the private association for the ICT industry. Intaj received seed money from USAID and has since its establishment effectively provided services to its members and supported the government in formulating initiatives for the ICT sector which aim at improving the regulatory framework and infrastructure. Jordan’s biggest challenge will lie in stimulating further collective action within the private sector and linking private sector organization to its newly reformed system for business development and export promotion under the rooftop of the Jordan Enterprise Development Cooperation.

9 reference
In Lebanon, export promotion or business development activities are near to absent. The business associations have started to engage in first activities but lack general funding and capacity. Overcoming coordination failure is a particular challenge to Lebanon’s business associations as the private sector is characterized by only little spirit of cooperation and lack of social capital. Providing funding possibilities for capacity building projects and cluster activities in new areas for exports could be a first step to promote Lebanon’s export sector.

In Tunisia, private sector initiative is severely hindered by the regulatory framework which limits funding possibilities for business associations. In fact, no completely, independent private sector organization exists. At present, the business associations are largely funded by the state budget, have been created by decree and enjoy semi-public status. They are therefore not regarded as representatives by the business community, and are not adequately positioned to engender joint action. Moreover, parallel export promotion financing schemes and a myriad of different programs in support of private sector activities lead to overlap and inefficiencies of the export promotion system as a whole. Some programs such as FAMEX proved successful and should serve as a model for best practice for other agencies in Tunisia. Bundling the support system and revising the regulatory framework to allow for private collective action represent two priorities for policy action.

Similar to Jordan, there are pockets of excellence with respect to services provided by business associations in Morocco. However, linkages between private sector intermediaries and the export promotion facilities are not very apparent. Moreover, Morocco’s major body for export promotion, namely Moroccan Export Promotion Centre (CMPE), clearly lacks capacity and is under-funded to starvation. Morocco has made first experiences with cluster activities, namely in the textile sector, in the early 1990s. At this point, no cluster initiatives could be identified. It also remains unclear why they have not been continued. Devising policies for more export diversification would require reforming Morocco’s export promotion after reviewing present linkages between exporters and the public support schemes. To this end, a review and evaluation of Morocco’s cluster experience could reveal interesting lessons if future cluster based support schemes are considered.

**Case Study 4.6: Chile – Empowering business associations to foster collective action**

The growth of the tomato processing industry is a direct outcome of the activities the Chilean business association of agro-industry processing firms, ASFACO later known as FEPACH. It is a case study which demonstrates both the significant technological and organizational problems firms faced, and the process of destroying the old while building new connections among firms, and between firms and the state in which experimentation and learning flourished.

During most of the 1980s and 1990s, Chile enjoyed high rates of economic growth, with its GDP growing at an average rate of 6.1 percent per year. The export sector was the driving force behind this performance. Since the early 1980s, exports grew dramatically, from about 10 percent of the country’s GDP to approximately 35 percent. More than 70 percent of these exports are natural resource-based products, derived from the agricultural, mining, forestry and fishing sectors. Most of Chile’s leading exports, such as fresh and canned fruits and vegetables, and fresh-frozen seafood, are essentially new economic activities. The tomato processing industry is one example of a new export activity. This product was never exported before, but achieved substantial competitiveness in the 1990s, accounting for an important share of processed exports. Chilean producers became so adept that by 1994, Chile occupied the fifth place among the world’s tomato paste producers, after the USA, Italy, Turkey, Greece, and tied with Spain. Not only did Chile increase its share of the world market, but it also penetrated very demanding ones.

Success was not instant, nor automatic. Just two decades ago, Chile lagged far behind other exporting nations. None of the indigenous firms had the capacity to export. Becoming exporters presented at least four technological challenges. First, producers used poor quality local fruit (discard quality) and varieties inappropriate for industrial purposes. Second, the volumes produced at the time were insufficient to
achieve a relevant presence in foreign markets. Third, the existing local plants used dated small-scale reconditioned second-hand equipment, which did not compare to that used by the established competitors (California, Italy, Portugal). Fourth, the firms could not meet nor knew of the quality standards required for exportation, and lacked basic connections to foreign markets.

The rise of the agro-industry from low-quality and inefficient production, to being competitive at the global level entailed a process of destroying old practices and forms of organization, and constructing new alternative ones. Chilean government action nurtured the emergence and upgrading of local production networks, fostered new product standards, technologies and production organization, and attracted private investment in new industries. Synergistically, domestic firms formed new local networks, or reorganized existing ones, while investing in upgrading their organization of production to compete in global markets. As firms and the state sought ways to improve performance, they rebuilt and discovered a new role for the business association that was critical in fostering collaboration to upgrade production among large Chilean firms.

The Association of Processed Foods (ASFACO) was founded in the late 1950s. For most of the time of its existence ASFACO was concerned with lobbying with government for protectionist intervention in an economic environment characterized by import-substitution policy. With the opening and deregulation of the economy in the 1980-90s ASFACO’s traditional role became irrelevant, and brought the association into a state of inactivity. In the words of a long-time member: “ASFACO became like a club of a few members who would meet to exchange opinions at a monthly breakfast.”

A popular view credits the liberal macroeconomic reforms for the high levels of growth that Chile experienced. An analysis of the experience of the agroindustrial processors shows, however, that the firms’ adjustment to new competitive pressures was not automatic, nor immediate. Increasing export production required new technology and investments to deal with highly perishable products, as well as strict timing coordination demands. Firms had to upgrade, adopting technological and organizational innovations in production, processing and marketing to compete successfully in international markets. Much of this technology change involved tacit, practical and organizational knowledge that could not simply be purchased and transferred as “turnkey” operations. The process of adjusting and upgrading is an investment, as it takes time and resources to acquire the new skills and unlearn backward practices. In the period following the economic reforms, large Chilean processing firms failed in their multiple attempts to export processed tomatoes.

The government’s goal to increase exports led them to form groups of firms focused on the upgrading of production methods and products. Specifically, the state used funding to prod firms to upgrade existing products or to develop new ones. It provided government grants through the state agency PROCHILE. The government pushed firms to engage in collaborative efforts to design and improve production processes and develop new export products. PROCHILE promoted the formation of alliances between agroindustrial firms to assist their explorations into unknown foreign markets. The central focus of these state-promoted, but self-coordinated groups was to help firms to learn how to improve the product quality to meet international standards, as well as examine production practices while exploring what to produce for world markets.

The Export Promotion Fund, with a yearly budget of five million dollars in the mid-1980s, provided resources to co-finance export projects proposed by groups of firms in the same sector. The financing could only be given to firms in a group, not individually; and the government financed 50 percent of the project, with private firms financing the other half. PROCHILE promoted the association of firms into sector-specific export committees that would then define a project. Projects fell into two categories: (1) improving quality to meet international standards; and/or (2) develop new products. However, until the late 1980s the government showed an unwillingness to work with the existing business associations, and PROCHILE contacted and recruited firms directly, bypassing existing organizations, such as ASFACO, to bring together members and non-members of existing associations to form new sector export committees.
The governments’ attitude change in line with a new export promotion policy, and PROCHILE committees sparked the reorganization of ASFACO. The PROCHILE committee brought them together in a way that ASFACO on its own could not. As some of the leaders recounted: Suddenly, the enterprises that came together in PROCHILE’s committee began to feel that ASFACO could fill an important vacuum, not as an organization destined to lobby, pressure and protest against the government, as it had done in the protectionist period, but as one that would address the daily production problems that managers face in their enterprises. Soon we had a new group in ASFACO and change began to occur gradually.

Originally, ASFACO included only producers of canned products. As other types of fruit and vegetable processors began to join, the firms decided in 1989 to divide into groups forming four associations under one umbrella organization, which led to the organization of FEPACH. It grouped not just the ASFACO members, but all the various agroindustrial sub-sectors, including producers of frozen, juice, and dehydrated products that had come together in the PROCHILE export committees. FEPACH currently focuses on four activities: (1) developing quality standards to improve and maintain the reputation of the sector; (2) organizing technological missions jointly with PROCHILE; (3) working jointly with the government in negotiating bilateral and regional trade agreements; and (4) gathering and distributing information to members regarding exports and international market trends.

Promoting new standards for improving quality became the central role of FEPACH. However, adopting new standards implies changes in existing production processes and practices, and firms resisted moving in the new direction, and were uncertain that investing in the changes will be beneficial. Through discussion, firms begin to convince each other that the new standards are crucial for their collective reputation in world markets. Importantly, not all firms start out with equal levels of knowledge. Some are further along than others in experimenting with changes.

The standard-setting process serves to communicate more effectively among firms; it supports new product development activity and learning to learn. The association creates a space for firms to evaluate their individual knowledge, and the coherence between their existing practices and those of the most advanced ones. This constant comparison fosters information flow from one firm to another. The collective discussions that ensue to identify where practices and institutions are deficient, contribute to generate a shared knowledge among firms. Firms develop new product standards based on the new awareness of what clients demand, as well as the technical information that firms acquire on their explorations of international markets, and their contacts with foreign customers. The information gathered abroad on new products and production processes becomes usable knowledge as firms begin to understand and to make explicit the tacit knowledge that is not easily transferred. Through discussion in groups, firms share knowledge on how to organize the production process and where to market. The groups of firms create conditions for collective learning. An important part of the new institutional arrangements is the formation of quality control labs and certification programs. The labs provide data and measurements necessary to support the enforcement and diffusion of new standards. Specifically, the associations that constitute FEPACH establish mechanisms for widespread quality control and the certification of export products. While each processor has their own internal quality control lab, FEPACH promotes the use of an independent certifying company, in addition to the quality control of each firm. Standard setting becomes particularly important in the initial development stages of a new export product or sub-sector when firms are not familiar with, nor have developed the capacity to meet the strict foreign standards for imported food products. Recently, for example, FEPACH has been working with the firms that export frozen fruits and vegetables to establish a code of quality standards and promote the certification process, which results in the use of a certification seal from experienced independent certification firms if standards are met.

FEPACH promotes yearly trips abroad for what they call technological missions, which go beyond the habitual participation in international trade fairs, which they also do. In these technological missions, the general managers, plant managers and operators, and agricultural managers, go on apprenticing trips,
lasting up to a month in some cases, to visit leader foreign firms producing similar products. They go to see how Chilean firms compare to the competition, as well as to learn about new technology and practices in order to improve their own. The firms use FEPACH as the trip coordinator, and then plan the trip with PROCHILE in order to gain the benefits of their expertise in contacting the foreign embassies and governments for foreign missions. For example, the tomato processing firms have organized trips to China, Turkey, Italy, and California, visiting management, quality control labs, processing plants and raw material production. In their visit to Turkey, for example, the Chilean enterprises were received as a group by Turkish private firms that would not have talked to an individual firm. One manager reported how they learned a way to improve Chilean cultivation practice by adopting a Turkish technique for measuring the distance between seedlings in a more exact way than before, with an important reduction in production costs and increased productivity performance.62 Trips to California and Italy had as one of their purposes learning ways to improve the quality attained in the handling, processing, and packing of the products; crucial to maintaining and expanding exports to demanding foreign markets. In addition, the firms visited these countries to explore the mechanization of tomato harvesting. Trips abroad also contribute to improve the exchange between managers, increase friendships, and create a path for continued discussions after they return to Chile. Moreover, the firms often engage in joint experimentation of new practices they discover.

FEPACH also provides important collective services to the large firms. For example, it helped large processing firms face a crisis caused by a sudden rise in ocean shipping prices in 1988. The firms banded together to create enough unified pressure to negotiate down the shipment prices through a collective contract. All of these processing firms decided to do future contracting with the shipping companies as a group, and gave the coordination and negotiation task to FEPACH. The joint contracting of shipments brought substantial savings to firms. One manager reported savings of US$5 million dollars per year as a result of better pricing for shipments. Most importantly, contracting as a group with the shipping lines reduces the confidentiality of much of the firm-level proprietary information as FEPACH coordinates the amounts and the destination of all shipments. This coordination entails much sharing of information among firms in terms of destination, customer identities, products and volumes exported. In time, the association began to produce yearly reports containing data such as: member ranking by production and export sales, types of products, destination.

The case discussed here is but one example, but there are similar ones in other sectors of Chilean economy. Government policy did not target or focus on a specific sector; rather it was economy-wide. The experience of the agro-industry processing sector reflects closely that of other sectors, particularly seafood and forestry processing. Some of these PROCHILE export committees later evolved into strong associations that took over the role of providing supporting conditions to their firms’ export endeavors. State policy was a catalyst in the initial stages, with firms subsequently investing significant efforts to rebuild their existing business organization.

Source: Paola Perez-Aleman (2003 – Bruce: please shorten to 2 pages)