

Determinants of Export Performance

2

1. INTRODUCTION¹

The previous chapter illustrates the need to adopt a pluridimensional policy approach in order to make trade a proper instrument for development. In that context, export performance cannot be only the good fortune to be producing goods in high demand. Rather, it is likely to be the outcome of the combination of various elements framing the production environment and export products' access to international markets. It is therefore necessary to identify those elements. It is also necessary to determine whether the latter affect export performance differently at different levels in order to draw up policy lessons.

The present chapter reflects the results of a recent empirical investigation by the UNCTAD secretariat into the determinants of export performance of developed and developing countries.² The findings highlight the importance of both demand and supply-side factors. The study shows that trade barriers continue to be of significance, as has been stressed in other studies, including those by UNCTAD over the years. Equally important is the issue of building competitive supply capacity to effectively exploit export opportunities. The study shows that the relative importance of demand and supply factors varies from country to country, depending a great deal on the stage of development of the external sector. Strong linkages to international markets, physical infrastructures, soundness of the macroeconomic framework and quality of institutions appear to be other major determinants of export performance.

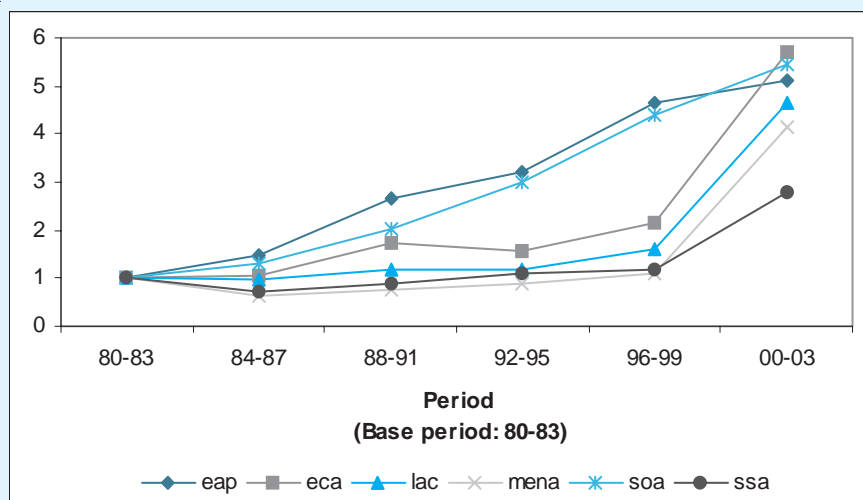
An important purpose of the exercise is to get an order of magnitude of various factors affecting trade performance as a first step to taking a systematic look at policy options for using trade and trade-related factors as an instrument in order to generate desirable development outcomes. It can thus be seen as a direct contribution to the ongoing work on trade and development index.

2. FOREIGN MARKET ACCESS

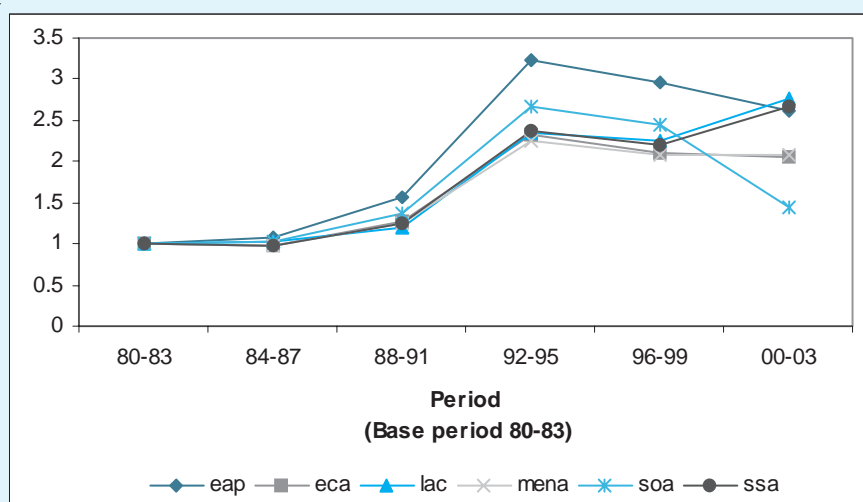
2.1 Foreign market access as an explanation of export performance

Access to foreign markets is a critical determinant of export performance. Here, the term "foreign market access" is seen as representing the foreign market potential of a country. In that sense, it is a broader notion than the term "market access" as used in trade negotiations. It relates directly to the characteristics of the trading partner countries, such as the size of their market and transport facilities, and inversely to their own internal transport costs. It also depends positively on the size of the export basket and the number of differentiated items and their prices, which in turn are affected by market entry conditions. Transborder costs, which also include tariff and non-tariff barriers, have the expected negative impact on foreign market access.

In general, there has been widespread improvement in foreign market access since the early 1980s, which matched to a large extent improvement in export performance (figures 2.1 and 2.2). This stabilized somewhat in the 1990s as the data also reflect the effects of the financial crisis of the late period as underlined by the fall of foreign market access for all Asian countries and in particular South Asian ones. On the whole, the results can be attributed to the important trends in unilateral, regional and multilateral liberalization in the last 20 years, although, as discussed later, there remain important, and, sometimes, shifting, trade barriers that inhibit the potential for further growth, especially in developing countries.

Figure 2.1. Evolution of export performance in developing countries (1980-2003)

Note: Vertical axis represents the ratio between the considered period and the base period. For explanation of abbreviations, see table A 2.4.

Figure 2.2. Evolution of market access in developing countries (1980-2003)

Note: Vertical axis represents the ratio between the considered period and the base period. For explanation of abbreviations, see table A 2.4.

The analysis indicates that the East Asian and Pacific countries in particular were among the main beneficiaries of the observed increase in foreign market access. As indicated in table 2.1, these countries have always been above the benchmark figures (that is, the average performance of the whole sample covered by the investigation). This coincides with their successful diversification efforts, including in the more dynamic sectors of world trade. The results have also been driven essentially by a rise in foreign market access both within and outside the region (table 2.2), although intra-regional market access has grown faster as regional trade

barriers have come down and markets have expanded. Those countries that on average enjoyed the highest growth rates are Singapore and Malaysia. The results underline the significant role of regional integration for East Asian and Pacific countries.

Middle Eastern and African countries initially experienced a fall in foreign market access generated within their respective regions (table 2.2). However, this negative trend was strongly reversed in the 1990s, as they also started to open their markets. Table 2.2 indicates that over the period 1988-1995 foreign market access within the region grew by almost 160 per cent for sub-Saharan countries and 130 per cent for Middle Eastern and North African countries. The highest growth rates are for East African countries, which are also the best performers in terms of overall foreign market access growth. However, this general tendency was reversed in the final period up to 2003, reflecting the difficult recovery from the financial crisis of the late 1990s.

A similar scenario holds for Latin American countries. Intra-regional foreign market access grew by almost 200 per cent in Latin America over the period 1988-1995. The higher rates of foreign market growth are found for countries belonging to MERCOSUR, which was effectively launched at the beginning of the 1990s. The positive impact of this regional trade integration process is captured by above average growth rates for intra-regional market access. The best performer in all foreign market access dimensions is Uruguay. Table 2.2 shows that Latin American countries also benefited from the high growth of market access outside their region.

Table 2.1. Components of regional exports growth (per cent)

| Region | Exports growth | | | | | FMA growth | | | | | Supply capacity growth | | | | |
|----------------------------|----------------|-------|-------|-------|-------|------------|-------|-------|-------|-------|------------------------|-------|-------|-------|-------|
| | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 |
| <i>EAP</i> | 54 | 46 | 11 | 49 | 21 | 7 | 48 | 111 | -8 | -12 | 43 | 44 | -71 | 59 | 16 |
| <i>LAC</i> | -5 | 20 | 3 | 45 | 102 | 4 | 16 | 96 | -4 | 23 | -4 | 3 | -99 | 40 | 43 |
| <i>MENA</i> | -26 | -1 | -6 | 17 | 92 | -3 | 28 | 81 | -8 | 1 | -36 | -1 | -66 | 32 | 60 |
| <i>SOA</i> | 22 | 47 | 30 | 51 | 18 | 2 | 34 | 96 | -8 | 9 | 30 | 19 | -48 | 55 | 2 |
| <i>SSA</i> | -23 | 10 | -12 | 11 | 20 | -2 | 29 | 89 | -7 | 9 | -25 | -7 | -64 | 16 | 31 |
| Memo Item: | | | | | | | | | | | | | | | |
| <i>Developed countries</i> | 13 | 41 | -3 | 45 | -3 | 9 | 21 | 89 | -5 | -12 | 6 | 17 | -93 | 46 | 29 |
| <i>ECA</i> | 9 | 23 | 4 | 66 | 16 | -2 | 31 | 80 | -9 | -3 | 7 | 34 | -90 | 48 | 26 |
| <i>Benchmark</i> | 17 | 40 | -2 | 42 | 8 | 1 | 28 | 87 | -7 | 8 | 20 | 21 | -86 | 49 | 36 |

Table 2.2. Geographical composition of regional foreign market access growth (per cent)

| Region | Foreign market access growth | | | | | FMA growth within the region | | | | | FMA growth outside the region | | | | |
|----------------------------|------------------------------|-------|-------|-------|-------|------------------------------|-------|-------|-------|-------|-------------------------------|-------|-------|-------|-------|
| | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 | 80-87 | 84-91 | 88-95 | 92-99 | 96-03 |
| <i>EAP</i> | 7 | 48 | 111 | -8 | -31 | 10 | 63 | 124 | -9 | -31 | 3 | 21 | 81 | -6 | 29 |
| <i>LAC</i> | 4 | 16 | 96 | -4 | 35 | -40 | 18 | 195 | 1 | 35 | 16 | 16 | 81 | -6 | 20 |
| <i>MENA</i> | -3 | 28 | 81 | -8 | 46 | -31 | -3 | 127 | -14 | 46 | 1 | 30 | 78 | -7 | -3 |
| <i>SOA</i> | 2 | 34 | 96 | -8 | -24 | 3 | 3 | 100 | -12 | -24 | 2 | 37 | 95 | -8 | 12 |
| <i>SSA</i> | -2 | 29 | 89 | -7 | -28 | -51 | 6 | 156 | -14 | -28 | 4 | 30 | 86 | -7 | 11 |
| Memo Item: | | | | | | | | | | | | | | | |
| <i>Developed countries</i> | 9 | 21 | 89 | -5 | -12 | 11 | 19 | 87 | -5 | -7 | 7 | 24 | 97 | -5 | -21 |
| <i>ECA</i> | -2 | 31 | 80 | -9 | 163 | -17 | 30 | 117 | 5 | 163 | -1 | 31 | 79 | -9 | -8 |
| <i>Benchmark</i> | 1 | 28 | 87 | -7 | -1 | -6 | 33 | 91 | -8 | 9 | 6 | 25 | 85 | -7 | 8 |

Foreign market access in South Asia has been driven by improvements in market access inside and outside the region. In the second half of the 1980s, the improvements seemed to be driven principally by extraregional market access, but this changed in the 1990s as countries in the region began a series of major reforms, although, again, the financial crisis of the late 1990s had a negative effect on these countries (table 2.2).

As noted earlier, the term “foreign market access” is somewhat wider than the term as used by trade negotiators, as it includes geographical factors, trading partners’ size, as well as traditional trade policy interventions. However, in this empirical context, partner characteristics cannot be entirely separated from policy components, so that a possible interpretation of the increased significance of foreign market access for the more successful exporters is the evolution of the external sector structure, for example participation in the more dynamic sectors of trade.

The analysis also indicates that improved access to international markets can contribute to the expansion of the external sector at all stages of its structural development,³ but this seems to be relatively more important at the earlier stages of structural evolution than for countries that have already achieved a high degree of structural change. This suggests that the more advanced developing countries are better able to exploit market opportunities through product diversification and differentiation, for example by quality upgrading, and thereby also avoiding trade barriers.⁴ The less advanced countries produce more homogeneous products that are more easily targeted by trade barriers (as well as suffering from commodity price declines), so that, when barriers come down, they experience a sharper increase in performance.

These results have important implications for national policies and strategies, development cooperation programmes and actions within the trading system, as discussed in the next section.

2.2 Improving foreign market access: Policy implications

2.2.1 Market access

Enhanced market access can induce a supply response. An important step in improving market access requires the further lowering of trade barriers for developing countries at all stages of development. Actions include tackling high tariffs, and tariff peaks and escalation facing items of export interest to developing countries’ agricultural and non-agricultural exports; undertaking commercially meaningful reform in agriculture, including substantial improvement in market access for developing countries, phasing out of export subsidies and substantial reduction in trade-distorting domestic support; liberalizing of services sectors and modes of supply of export interest to developing countries, particularly Mode 4 of the GATS; providing adequate and operational special and differential treatment. These are issues that need to be addressed in the WTO Doha Work Programme if it is to fulfil its development goals, but progress so far has been slow.

Recent studies and reports by UNCTAD provide in-depth treatment of these issues, highlighting the potentially substantial welfare and trade gains. For instance, Anderson (2004) shows potential gains of over USD 100 billion a year from global trade liberalization in goods, of which the major gains – over USD 30 billion – come from liberalization in the agriculture sector. Other studies, using different assumptions, show even larger gains, especially if liberalization were to occur in the services sector: for example, Brown, Deardorff and Stern (2001) estimated that developing countries could see welfare gains of more than USD 500 billion from duty-free trade.⁵ Winters et al. (2003) showed that liberalization of the movement of labour

could produce welfare gains for developing countries of the order of USD 156 billion. Francois, Glismann and Spinanger (2000) studied the effects of liberalization of the textiles and clothing sector and estimated income gains of USD 24 billion per year, export revenue gains of USD 40 billion and employment generation of about 27 million jobs for developing countries.

However, improved market access through WTO negotiations on tariffs and NTBs is not a sufficient condition for actual market access to occur. NTBs relate to the application of discretionary measures by importing countries under certain WTO rules such as SPS, TBT and ADM, as well as evolving voluntary health, environmental and other standards set by the private sector operators, their associations and NGOs. The latter have become increasingly important in recent years. For instance, there is a growing trend towards harmonizing private sector standards among international supermarket chains, making conformity with those standards a requirement for market access. These barriers have serious implications for developing countries in terms of high compliance costs and potential or actual trade losses as an increasing number of their exports are being subjected to them.

To be commercially meaningful, actions to improve market access in agriculture and non-agriculture areas should be accompanied by measures to help developing countries gain actual market entry. These should include disciplining and removing, as appropriate, non-tariff barriers and evolving discretionary measures, particularly those related to technical regulations and standards, sanitary and phytosanitary measures, environmental conditions and anti-competitive market structures and practices. Anti-dumping, in particular, seems to have become the defence mechanism of choice (box 2.1), and further disciplines on the use of such measures may be required if the gains from trade are to be realized. Just as important are private sector measures and requirements such as voluntary standards. A key priority is to ensure that these standards and measures are developed transparently with the participation of developing countries, and applied in a non-discriminatory manner. At the same time, innovative measures, complemented by capacity-building support, are required in order to upgrade substantially developing countries' technical levels and capacity, particularly in standard setting, in accordance with relevant international standards and scientific criteria, as well as helping developing countries to meet legitimate health and safety requirements.

2.2.2 Trade adjustment and policy space

The issue of trade adjustment to trade reform is taken up in Chapter 3. Estimates by the UNCTAD secretariat⁶ show that while the overall adjustment to various proposals is quite moderate, there are likely to be substantial changes in output in some sectors and regions, as well as considerable losses of tariff and government revenues. Preference losses are also likely to be considerable in some sectors, such as sugar, with particular impact on some countries. While these changes are expected to bring long-term gains for developing countries as a whole, in the short-term those countries are likely to face important adjustments in their economies (box 2.2).

The issue of policy space has become a major concern for developing countries as there is an increasing realization that inside border provisions of certain WTO agreements such as TRIPS, TRIMs and subsidies, and "WTO-plus" provisions under North-South RTAs, have limited the range of choices available to developing countries in terms of the policies and instruments to pursue development. In addition, a number of studies have shown the high cost of implementing a number of WTO Agreements.⁷

Box 2.1. Anti-dumping and its implications for developing country trade

Over the past quarter century, anti-dumping (AD) has emerged as one of the most widespread impediments to international trade. The number of AD initiations per year more than doubled between the late 1980s and the late 1990s, reaching 366 in 2001 and decreasing to about 220 in 2004. The traditional users (including Australia, Canada, the European Union and the United States of America) accounted for over 80 per cent of total AD initiations in the 1980s and the first half of the 1990s. More recently, a number of other countries, such as Argentina, Brazil, China, India, Mexico, the Republic of Korea, South Africa and Turkey, have initiated a significant number of investigations. As regards targets of AD initiations, Asian countries have increasingly been subject to such investigations, with their share rising from 30 per cent in the late 1980s to about 50 per cent in recent years.

An explanation for the large increase in AD is that it is relatively user-friendly: lack of strict definition of AD standards opens up the possibility of its widespread use. Contrary to most other trade policy instruments, such as tariff, quotas and voluntary export restraints, AD has not been brought under strict multilateral discipline through the GATT or WTO. This has led to an increasing gap between the legal definition of dumping and any economic notion of dumping: AD has less to do with combating unfair trade and more with improving the competitive position of the complainant against companies of countries against which complained is lodged. In other words, AD, in many cases, has become a contemporary form of trade protection.

This has important implications for the export prospects of developing countries trying to upgrade export products, including by improving domestic contents or selling their own-brand products through independent distributors. In doing so they often rely on a price policy involving a reduction in the retail price to make such products attractive in foreign markets. Even though such pricing may simply reflect lower profit margins arising from avoidance of middlemen's rent, it exposes the exporting country to the risk of being targeted for AD initiations.

AD has traditionally been debated in the context of competition policy and economy-wide welfare concerns. However, changes in macroeconomic variables, such as fluctuations in economic activity and movements of real exchange rates, affect the domestic and import variables used for determining government agencies' decisions on AD cases across all industries in an economy. This illustrates the linkage between trading system and monetary and financial systems. An effective approach to dealing with AD will therefore require a holistic treatment of the issue.

2.2.3 Commodity prices, market structures and export performance

Commodity production and trade have a significant bearing on sustainable livelihoods of the poor, as well as on the export and growth performance of the large number of commodity-dependent developing countries. Half of all developing countries depend on non-fuel commodities for more than half of their export earnings, two thirds if fuels are included. Over the past decade, commodity export dependence and export concentration have not decreased significantly, indicating the importance of actions in this area in improving export performance of these countries.

Commodity prices are continuing their long-term decline. After falling between 1995 and 2002, with the UNCTAD combined index in terms of current dollars decreasing by 30.8 per cent, commodity prices on average recovered slightly in 2003 and in early 2004, particularly in nominal US dollar terms, but considerably less so in terms of SDRs. Price fluctuations continue to be a characteristic common to almost all commodity markets, and if anything, the amplitude of the fluctuations appears to have increased (box 2.3). The commodity price instability index as calculated by the UNCTAD secretariat (average monthly deviation from exponential trend) for commodities in current US dollars was 2.8 per cent during the period 1999 to 2002, compared with 1.8 per cent ten years earlier, from 1989 to 1992.

Box 2.2. Possible size of implementation and adjustment costs of trade agreements: Lessons from the case of the countries acceding to the EU

Trade agreements do not come cheap. Their application requires substantial implementation costs as argued in Finger and Schuler (2002). Even large developed economies make provisions for these eventualities. The adjustment needs of developing countries, given their limited resources, raise the question whether these are the highest development priority compared with other pressing social issues, such as poverty alleviation, AIDS, and so on.

Support to countries acceding to the European Union, whose trade and development index is taken as the intermediate benchmark for developing countries in chapter 1 of this report, could provide a very rough indication of what might be in order. Under the Phare Programme, which is one of the three pre-accession instruments financed by the European Union to assist the applicant countries of Central Europe with EU integration, an amount of €11 billion has been allocated for the period 2000–2006 for institution building in 10 countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia). This corresponds to annual funds equal to 0.5 per cent of the combined GDP of these countries. Applying this factor to the combined GDP of developing countries yields USD 34 billion per year. This is not to say that the latter figure is a reliable guide to developing countries' need for support for adjustment to, and implementation of, WTO Agreements. Adjustment and implementation requirements arising from accession to the European Union cannot be equated with those stemming from WTO membership. Also, most developing countries' institutional and other related capacities are not comparable with those of the EU candidate countries.

Box 2.3. Commodity price movements and their implications for export performance and development

The amplitude of price fluctuations varies considerably among groups of commodities and individual commodities, with vegetable oilseeds and oils and minerals, ores and metals having, on average, higher fluctuations than agricultural raw materials and food and beverages. Over the past several decades, real prices of several important commodities have continued to fall. In 2002, the price index of agricultural commodities deflated by the price index of manufactured exports of industrial economies in US dollars (74) was one half of the same index in 1980 (145) on a base of 100 in 1985. The period from 1998 to 2002 witnessed major falls in the prices of some commodities of major export interest to developing countries, such as coffee, cotton and sugar. Coffee producers now receive roughly a third of the price they used to get in the mid-1990s.

The secular decline in real commodity prices and large price fluctuations have direct consequences for earnings and poverty levels, since farmers cannot generate the surplus needed to invest in measures to raise productivity through more intensive and appropriate use of capital and inputs, or to diversify production for export. Managing large fluctuations in commodity prices is a formidable task not only for farmers but also for Governments and enterprises. In addition, observing the large risks in agriculture and lacking the know-how for dealing with these, financiers have generally been reticent in providing the necessary seed and working capital. This is further complicated by the emergence of increasingly concentrated market structures at the international level and stringent standards and requirements in developed country markets. If present trends continue, a large number of commodity-dependent developing countries risk being excluded from the dynamic segments of the world economy, with serious implications for their export performance, sustainable development and poverty levels.

Parallel to the price decline, developing countries exporters of agricultural commodities have been faced with additional difficulties arising from their weakening position in global value chain. Increased concentration and vertical integration of different stages of the supply chain have strengthened the bargaining power of a few TNCs and large distribution networks in a number of commodity markets. For example, the reduction in the number of roasters and trading companies in the coffee sector has led to increased concentration in the global value chain for coffee. Roasters are now the lead actors in the international coffee market, with five of them accounting for half of global trade. The consolidation and globalization of retail distribution chains have also been accompanied by a widening of spreads between consumer prices and international commodity prices. Domestic reform and liberalization of commodity marketing, which saw the abolition of State involvement in agriculture, led to atomized producers facing large buyers and rendered the former ineffective price takers, without a concomitant reform of the international market structures and related processes.

This unfinished business of commodity sector reform needs to be urgently addressed; it should have significant positive welfare effects on both producers and final consumers. The aim should be to inject dynamism into commodity production and trade with a view to improving export performance and thereby contributing to speedy reduction of poverty. In this connection, the report of the Group of Eminent Persons on commodity issues convened by UNCTAD⁸ includes an emphasis on the importance of enhanced, equitable and predictable market access for commodities of key importance to developing countries, addressing the problems of oversupply, making compensatory financing schemes user-friendly and operational, strengthening capacity and institutions, and the establishment of a diversification fund that would help private sector to seize opportunities.

2.2.4 Role of regional economic cooperation and integration

The difficulties in arriving at multilateral solutions within the WTO which take adequate account of development needs has led many developing countries to seek to reduce trade barriers through arrangements with neighbouring countries and, most recently, even across continents. South-South trade and regional economic and trade arrangements, which are allowed by WTO rules, can provide a supportive environment for improving export performance. As the empirical analysis indicates, intraregional market access played an important role in enhancing the export performance of East Asian countries. In the Latin American region, MERCOSUR has had a substantial impact on the expansion of trade in specific sectors among participating countries, as well as between these countries and the rest of the world. There has been a dramatic increase in the number of regional trade agreements (RTAs) in the post-Uruguay Round period, many of them among developing countries, indicating the interest of developing countries to open their own markets to one another (box 2.4).

Although only accounting for just over 10 per cent of total world trade, South-South trade is growing significantly and represents an important opportunity for developing countries to increase their exports. Over 40 per cent of developing country exports are to other developing countries, and trade between them is increasing at a rate of 11 per cent per year. This “silent” transformation is further underlined by increasing investment, transfer of technology and enterprise-level interaction at the intraregional level, but increasingly also at the interregional level. This presages the emergence of a new “trade geography” in the South.

South-South trade can also be a useful testing ground for developing countries to build export capacities, including in dynamic and new sectors. The dynamically changing regional division of labour, known as the “flying geese” model, where less developed countries enter simpler manufacturing stages as the more advanced

Box 2.4. Emerging issues in regional trading agreements

The proliferation, expansion and deepening of RTAs have been significant during the past decade. Today, a total of 215 RTAs are in force and altogether account for some 40% of world trade in 2000 and are estimated to cover over 50% in 2005. Recent “new generation” RTAs increasingly cover not only trade in goods, but also “behind the border” areas, including trade in services, investment, competition policy, intellectual property rights, government procurement, labour, environment and development cooperation, thereby going beyond multilateral disciplines and liberalization commitments (“WTO-plus”). Furthermore, RTAs can have trade creation or diversion effects. This raises the question of the interrelationship and coherence between trade liberalization and trade policy reform through RTAs and MTS. The proliferation of RTAs, especially among major trading nations, has raised concern among developing countries and other non-participants over a possible deterioration in their conditions of access to these integrated markets and a fragmentation of the MTS. A major development has been the growth of North-South RTAs and North-South-South RTAs.

A number of developing countries are in the process of transforming their trade and economic relations with their previously preference-granting developed countries into reciprocal free trade areas, as is the case with the ACP-EU negotiations for the Economic Partnership Agreement, Euro-Mediterranean Agreements between the EU and North African and Middle Eastern countries, and the FTAA negotiations involving countries in the Western hemisphere. A challenge facing developing countries in these novel forms of RTAs is that they would need to design the appropriate degree and pacing of regional liberalization, as well as SDT, bearing in mind their limited economic capacity, negotiating resources and ongoing Doha negotiations.

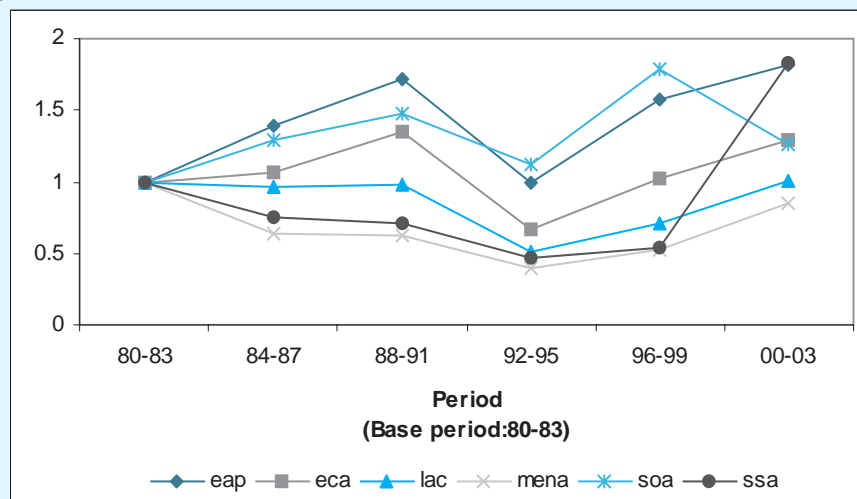
economies successfully shift to increasingly sophisticated manufacturing activities, remains a relevant ideal for regional cooperation. Such a process can also help countries avoid the low and declining value-added trap. Mapping regional divisions of labour along value chains could help countries in their diversification strategies. South-South trade through the Global System of Trade Preferences Among Developing Countries (GSTP) provides a potential complementary avenue for developing countries to increase and expand their interregional market access opportunities.

3. SUPPLY-SIDE FACTORS

3.1 Trends

Supply-side constraints are receiving increasing attention as a constraint on lifting the trade performance of many developing countries. This is one of the reasons why developing countries, especially the LDCs, are often unable to take up opportunities for trade under preferential trading regimes, such as the generalized system of preferences (GSP).⁹ The main components of supply capacity are internal transport costs and factors affecting cost of production. The latter are strongly related to domestic market structure and the institutional framework. The macroeconomic environment also has an important role in shaping supply capacity.

The relative evolution of supply capacity is slightly more differentiated than that of foreign market access (figure 2.3). Asian economies show the largest relative increase in their supply capacity in the 1980s and the lowest relative fall at the beginning of the 1990s. The best performers over the two decades were Taiwan Province of China and Singapore. Figures reported in table 2.2 indicate that the bulk of the growth in supply capacity occurred in the 1980s. The Chinese and the Philippines’ supply capacities grew outstandingly in the period 1992-99. Asian countries were also the best performers in relative terms over the two decades.

Figure 2.3. Evolution of supply capacity in developing countries (1980-2003)

Note: Vertical axis represents the ratio between the considered period and the base period. For explanation of abbreviations, see table A 2.4.

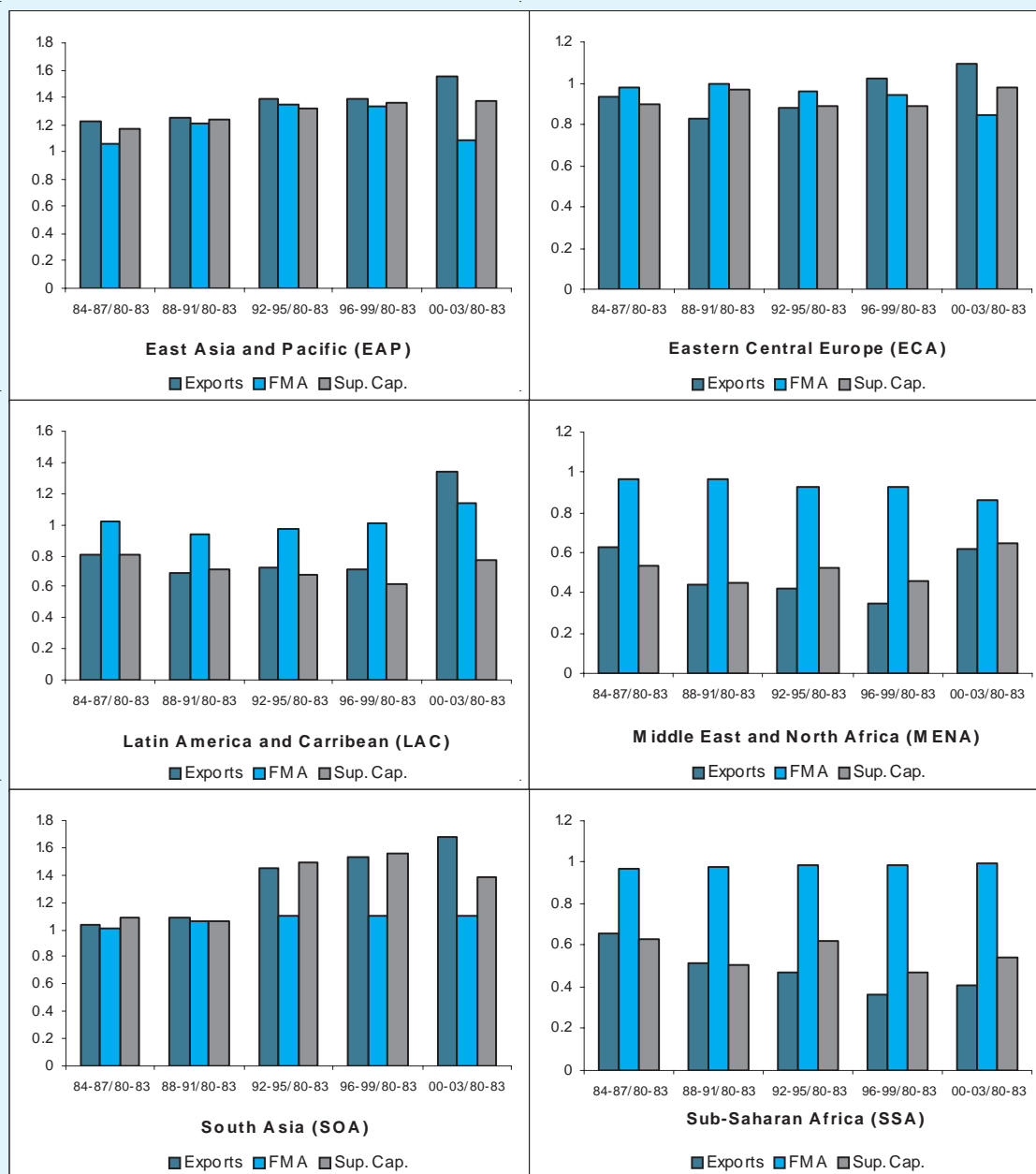
The African and the Middle Eastern countries mostly experienced negative growth in their supply capacities up to the mid-1990s. But growth rates turned positive in the second half of the 1990s as shown in table 2.1. This may reflect to a large extent the negative impact of conflicts on infrastructure and related investment. However, relatively high growth rates have been observed since then.

As shown in table 2.1, a decline in supply capacity was also experienced by most Latin American countries up to the first half of the 1990s. Export performance, if not negative, remained very low in that period, most likely as a result of the impact of economic turmoil that characterized the region. It then increased substantially and strongly contributed to relatively high growth rates in exports.

However, the issue of export performance constraints becomes more nuanced when one looks at the relative significance of supply capacity and foreign market access. For example, the Asia and Pacific regions are the only regions that have improved their export performance relative to the whole sample of countries in all periods (figure 2.4). They experienced a relative improvement in their foreign market access in all periods but the very last one. This indicates that their export performance has been driven by an outstanding relative improvement in their supply capacity. This is likely to reflect a policy orientation aiming to support and stimulate exporting firms' productive capacities. This policy consisted not only in leveling the playing field for exporters, but also in boosting it in their favour by employing proactive policies such as the coordination of investment plans, directed credits and, initially, infant-industry protection.¹⁰

The relative export performance of the African and Middle Eastern countries tended to deteriorate over the 1980s and 1990s (figure 2.4). This was driven by a relatively poor performance in supply capacity, rather than a deterioration of foreign market access. However, supply capacity started picking up in the period 2000-2003 pushing upward relative export performance. On the other hand, foreign market access has driven the export performance of the Latin American and Caribbean countries, while supply capacity has tended to deteriorate over the last 20 years. However, supply capacity appears to improve relatively in the period 2000-2003.

Figure 2.4. Benchmarked export performance and components



Note: Bars represent ratios of regional values over sample values. They are computed for each period and then normalized to the ratio prevailing in the first period. For instance the bar plotted in graph 1 for Exports 84-87/80-83 in region *eap* correspond to $(Exports_{eap} 84-87 / Exports_{sample} 84-87) / (Exports_{eap} 80-83 / Exports_{sample} 80-83)$. This makes it possible to qualify the evolution of export performance for each region across periods and with respect to world export performance for each period. Export performance has been defined theoretically as the product of foreign market access and supply capacity. That is, the exports ratio is equal to the product of the foreign market access and the supply capacity ratios up to an error term related to estimation. For explanation of abbreviations, see text.

3.2 Key determinants of supply capacity¹¹

Determinants are discussed in the context of export performance. Most of them have been cited in the previous chapter in the more general context of the trade and development index.

(i) Domestic transport infrastructure

The size and the growth of the supply capacity of a country depend critically on the availability of physical infrastructure, ranging from roads and ports to energy and telecommunications. The UNCTAD study used internal transport infrastructure as a proxy for infrastructure as a whole. It found that the importance and the significance of internal transport structure vary from period to period and from one group of countries to another. It appears that internal transport costs had a significant negative impact on export performance over the 1988-1991 period among the weakest performers.¹² Internal transport facilitation played an important role across all regions in explaining export performance in later periods. Its significance appears to be more marked among the better performing exporters.

The analysis therefore suggests that internal transport infrastructures are likely to play an important role at the early stage of export sector development. Most African countries, many of which are LDCs, are characterized by poor transport infrastructure, and are found in all periods to be poor export performers. This appears to indicate that African countries could do much to raise their supply capacity by investing in transport infrastructure. This conclusion is supported by other recent studies: for example, Limão and Venables (2001) present some empirical analysis indicating that levels of trade flows observed for African countries are relatively low, essentially because of poor transport infrastructures. This could be more acute in the case of landlocked countries because of their geographical handicaps. The fact that there has not been a substantial investment in infrastructure in these countries in the last two decades could explain their very low upward mobility in export performance.

(ii) Macroeconomic environment

The real exchange rate, which reflects the underlying relative movement of prices at home and abroad, proves to have a significant effect on the export performance of the lowest performers. Results for all periods indicate, for example, that an overvalued real exchange rate is seriously detrimental to export performance, while on average a 1 per cent real depreciation could increase exports by 6 to 10 per cent. This is not an argument for competitive devaluations of nominal exchange rates, but rather it points to the importance of the pursuit of productive gains to maintain external competitiveness.

An overvalued currency, sometimes as a result of fixed exchange rates that are used as a nominal anchor to control inflationary pressures,¹³ translates into a direct loss of price competitiveness for exporting firms. This is of particular importance for commodities and manufactured products that are labour-intensive. Both types of goods are essential components of the export baskets of weak export performers, indicating the likely overvaluation of their real exchange rates. Good export performers, on the other hand, have relied on more capital-intensive production relative to weak performers. The former may suffer less than the latter from export price competitiveness, measured by the real exchange rate, while exporters in more labour-intensive activities may suffer less from high capital rents.

In other words, good export performers are more likely to have a stronger position in more capital-intensive or differentiated product markets and may face less aggressive competitors than exporters in more labour-intensive product markets. As a consequence, their competitiveness might be expected to be less sensitive

to small movements in the real exchange rate, and relatively more dependent on the technological content of their product and thus to a large extent on capital. This is not likely to be the case for producers exporting low-skill-intensive products, which are highly substitutable and whose demand is very volatile and price-sensitive. Real interest rates, an element in the relative price movements that drive the real exchange rate, are found to affect significantly the export performance of good performers, with high rates increasing producer costs and hence impacting negatively on export competitiveness.

(iii) Foreign direct investment

The results indicate that FDI is likely to affect export performance positively (UNCTAD, 2002b). This is true for most levels of export performance and for every period under consideration. The experience in a number of countries suggests that FDI strongly contributes to the transformation of the composition of exports. For instance, it has been well documented that FDI inflows into Singapore or, more recently China, have helped to increase significantly the technological content of exports by supporting strongly the development of export supply capacity, including knowledge-based industries.

Consistent with these experiences, a positive and significant relationship between export performance and FDI contribution to capital formation is found at all levels of export performance in this analysis. In all periods except 1988-1991, the strongest impact is obtained for the lowest two groups of export performers. In the first two periods, the impact of FDI contribution to capital formation is non-linear. Thus, there appears to be a U-shaped relationship between export performance and the FDI: they relate closely at early stages of export development, but the relationship becomes weaker as export development advances, only to become stronger again at later stages of export development.

The results also reveal that where FDI does contribute to the technological upgrading and structural evolution of the export sector, the structure of the sector is an important ingredient of export performance both at the early stage of development of the export sector and at a later stage. A possible qualification of the argument would be to say that export performance is positively affected by inter sectoral diversification among poor performers and intra sectoral diversification among better performers, where FDI would seem to be directed towards innovative activities within an already existing sector. Results for the last period only indicate a decreasing pattern of the impact of FDI across all country groups. This could indicate that good performers in earlier periods have a maturity turning point in intra-sectoral development, but the results in this period again may be influenced by the Asian crisis.

Overall, the analysis points to the conclusion that supply capacity constraints could also be addressed by improving the technological content of the export sector as indicated by the positive influence of FDI contribution to capital formation on export performance.

(iv) Institutions

An important distinguishing aspect of the UNCTAD study is that it takes into account institutional factors. A significant role for institutional quality could have been expected at an early stage of export sector development, but, in the UNCTAD analysis, this is the case only for the 1988-1991 period. This might be explained by the difficulties in isolating the contribution of institutional factors at such a stage, because of the likelihood of their being closely related to the general macroeconomic environment and the contribution of FDI, although there is no strong statistical evidence of multicollinearity among explanatory variables. However, the analysis also seems to indicate that institutions matter more at a higher level of export per-

formance. This result suggests that what appears to be essential in the overall growth process as suggested by recent research¹⁴ is only partially true for export performance. It might also suggest that institutions and macroeconomic variables are substitutable along the export development process. While the real exchange rate is an essential price competitiveness component for low performers, once macroeconomic stability has been achieved and the composition of exports is more oriented towards more capital-intensive or differentiated goods, as is most likely the case for high performers, the institutional framework comes in as an essential competitiveness ingredient. Better institutions are expected to guarantee better protection of property rights, which becomes essential as production becomes more and more capital-intensive. Better institutions are also likely to be associated with more efficient administration and in particular regulation, which could prove to be important price components in industrialized countries.

3.3 Strengthening supply capacity

The analysis of supply-side factors points to the importance of three basic policy thrusts—namely, the creation of a sound macroeconomic and investment environment; building supply capacity and competitiveness, and the effective and controlled management of integration with the global economy. Sectorally focused policy instruments employed by successful countries included selective measures, specific exemptions from taxes and duties, controls over interest rates and credit allocation, and managed competition, while external sector policies included phased liberalization and managed exchange rates. Measures were taken to facilitate local R&D, including financial subsidies, particularly for large and risky projects, and the creation of science parks and special industrial estates. These policies were applied in a time-limited and targeted manner with clear performance standards. Application of such policies and instruments requires adequate policy space and flexibility to respond to structural deficiencies and to effectively manage external integration. The burden of this should not rest on national policies alone, since donor conditionalities and “inside border” provisions in multilateral and North-South regional trade agreements have much to do in defining the degree of policy freedom allowed to developing countries at the national level.

As suggested by the empirical analysis, inter sectoral diversification should be promoted at the early stage of development of the external sector, which could be done via the promotion of foreign direct investment. This could also support a stance in favour of more neutral sectoral policies. However, the lowering of trade barriers by developing countries on intermediate inputs into their own production could also be useful as a step towards enhancing their value added and hence export performance and the benefits they derive from trade. However, this process would also benefit from further reductions in tariff escalation in major markets, permitting developing countries to advance the processing of their own basic commodities.

In a more dynamic context, diversification should also be promoted within sectors. As the developing countries move into more diverse and differentiated products, ties with developed countries may help to foster intra-industry trade and avoid a protectionist reaction as their exports expand. An important way for accomplishing this is the promotion of technological improvement, which requires adequate human capital. This implies that public investment should also be devoted to increasing the availability and quality of human capital (e.g. through education) and the “technological competency” of the labour force (e.g. through training). However, technological improvement is also critical and this can either be imported via FDI or nationally generated via R&D. Then, in the process of external sector development, inter-sectoral diversification should be associated with the accumulation of competencies that will be able to lead to intra sectoral diversification, which appears at later stages of development.

Increasing domestic supply capacity and enhancing international competitiveness should rank high among the strategic objectives of policies at macro, sectoral and micro levels. Specific market failures and missing markets, the lack of an entrepreneurial base, imperfections in technology and capital markets, risks involved in starting up new activities and exporting, and linkages and externalities among different sectors should be adequately factored into policies and measures.

The extent of benefit from improved export performance depends, to a large degree, on the size of domestic value added. While the East Asian NIEs in particular managed to successfully combine diversification and trade expansion with growth in manufacturing value added and GDP, many other developing countries, on the other hand, often find themselves caught in a low and declining value-added trap arising from: (a) “export illusion” caused by the high import content of exports, wherein export earnings do not reflect the true domestic value added; and (b) “fallacy of composition”, which arises when too many countries rush into the same sectors or products, thereby driving down terms of trade and export earnings, and thus denying themselves the achievement of the original objective of improving domestic value added through diversification. Addressing these twin problems should be a key policy priority.¹⁵

Another challenge facing the developing countries is to strategically tap TNC potential in order to improve export performance. As has been indicated by the analytical results above, the impact of FDI varies with the stage of development of the export sector. Consequently, the FDI policies should be calibrated to respond to particular circumstances. In general, such policies and measures should aim to ensure that the objectives and targets of FDI policies are consistent with, and an integral part of, their broader development objectives, policies and strategies. Incentives to attract FDI should aim at “racing to the top”, rather than “racing to the bottom”, as well as ensuring a sustainable upgrading of export-oriented activities, and help diffuse skills, knowledge and technology to domestic firms.

The empirical analysis also highlights the importance of transport infrastructure. Investment in transport infrastructure may be one of the most important ways of lifting the trade performance of African countries in particular, as well as other developing countries. Moreover, since many of these countries are landlocked, a regional approach to transport seems to be indicated. Finally, since the returns on infrastructure investment tend to be low or take a long time to come to fruition, this is a case for public works, supported by donors (since many of these countries are already heavily indebted) or at the very least soft loans from the international financial institutions.

4. CONCLUSION

An important lesson from successful experiences with export performance is that national policies and international actions should simultaneously address the twin issues of foreign market access and supply capacity. Fighting for better access to international markets without simultaneously paying attention to supply conditions is likely to be unproductive in terms of export performance, as suggested by the African and to some extent the Latin American experiences. However, policies should have a differentiated approach by taking into account the fact that the determinants of export capacity vary across countries.

Improved supply capacity has been the driving force behind the export performance of successful Asian countries. However, supply capacity appears to have limited the export performance in African, Middle Eastern and Latin American countries. Poor transport infrastructures and weak macroeconomic and institutional environments are the main explanatory factors behind poor performance (e.g. in

the African countries). Thus, recalibrating development cooperation programmes to provide greater focus on adequate and coherent financial and technical support for developing countries' efforts to improve supply capacity should be a key priority.

As might be expected, the UNCTAD analysis also shows that foreign market access is highly significant, particularly in explaining poor export performance for a number of countries whose exports are badly affected by trade barriers. High performers seemed able to surmount this constraint, possibly because of their more diverse and differentiated portfolio of goods on offer as well as intra-firm, intra-industry trade. FDI can play an important role here, as it does in lifting supply capacity. The ongoing Doha Round negotiations can also play a critical role in improving developing country foreign market access in areas such as agriculture, manufacturing, including textiles and clothing, and services. Development cooperation has an important role in capacity building in developing countries in effectively addressing evolving market entry conditions and technical standards.

Appendix 2

A 2.1. The methodology in brief

This study builds on the work of Redding and Venables (2004a). It uses the same theoretical model of bilateral trade flows and adopts a similar empirical strategy. The latter initially consists of building data series to capture both the internal and external components of export performance using *gravity techniques*. These series are then used to investigate the importance of foreign market access relative to supply capacity components. In other words, the exercise is to identify the possible main determinants of the supply-side conditions after having controlled for the external elements. However, this study has a different econometric approach from that used by Venables and Redding. In this study, regression techniques, which are able to account for unobserved heterogeneity across countries, namely *quantile regressions*, are used. Accounting for unobservable heterogeneity should allow the identification of any differences in the effect of and importance of export performance components, which are linked to the degree of development of the external sector itself. In other words, the techniques used here allow for the testing for non-linearities in the relationship between export performance and its components. Moreover, more emphasis is put on the determination and impact assessment of variables related to supply conditions. This is done with the aim of determining as clearly as possible the policy implications.¹⁶

A 2.2. The theoretical context: A heuristic description¹⁷

The theoretical framework is essentially a standard new trade theory model based on product differentiation derived from a constant elasticity of substitution demand structure.

The economy consists of a number N of countries. Only the manufacturing sector is considered. Firms in that sector operate under increasing returns to scale and produce symmetric differentiated goods, which are used in consumption. Preferences are represented by a CES utility function in which the elasticity of substitution s between any pair of products is the same.

In that framework, the demand in country j for each variety produced in country i is a function of country's j total expenditure on differentiated products, the price of the good and the price index defined over the prices of individual varieties produced in i and sold in j . Total expenditure is assumed to be exogenously given. The elasticity of demand is identical across varieties and larger than 1. The producer price is assumed to be the same for all varieties produced in country i . Transport frictions, which reflect the cost of getting a good from country i to country j , are set proportional to the producer's price. This cost is composed of three elements: the cost of getting the product to and from the border in countries i and j and the cost of getting the product across the border. Intra-country cost would reflect internal geography and infrastructure. Inter-country cost would reflect external geography and policy barriers.

Exports from country i to country j are equal to the product of supply capacity, transborder transport costs and the market capacity of country j . The supply capacity of the exporting country is the product of the number of varieties and their price competitiveness, which is measured by the product of the producer price and internal transport costs. The market capacity of country j depends positively on total expenditures in j , on the number of competing varieties and their prices expressed in the price index, and negatively on country j internal transport costs.

The total value of exports of country i is equal to the product of its supply capacity and the sum of the market capacity of all country i exports destination countries, weighted by bilateral trade costs. The latter represents country i foreign market access or equivalently country i market potential, which refers to the concept developed by Harris (1954).

The model presented above postulates that the effect of a rise in expenditure on traded goods in a given country would benefit relatively more than those of its trading partners that are relatively closer (the demand pecuniary effect). In this context, distance has to be interpreted not only as a pure geographical element but also as any element that possibly represents a barrier to trade, such as tariffs, non-tariff barriers and anti-competitive barriers.

The model also suggests that in order to capture fully the demand pecuniary effect just described, favourable supply conditions are expected to play an essential role. In addition, access to foreign markets may be reduced by poor supply capacity.

A 2.3. The Empirical Context

(a) *The dataset*

The bilateral trade flows of 84 countries for the period 1980-2003 are used to estimate the gravity equations. The list of countries is presented in table 2.A1. Bilateral trade flows are obtained from the UN COMTRADE database. Data are deflated by the United States GDP deflator (1995 is the base year) in order to obtain real values. Data on trade flows are combined with geographical characteristics and data on GDP. Sources are detailed below. To account for likely measurement error, data are weighted by the product of trade partners' GDP in all regressions based on bilateral trade flows.

As bilateral trade flows are usually characterized by high year-to-year fluctuations and this study is essentially concerned with medium- to long-term determinants of export performance, they are averaged over four-year periods. The study examines export performance over the period 1980-2003, which gives five periods of analysis.

In the second part of the paper, quantile regressions are applied to the above export data aggregated at the country level. Data availability for supply capacity variables is a major constraint. In order to keep analytical relevance and statistical coherence, empirical investigations are run for the three 4-year periods covering 1988-2003. Variables sources are detailed in table 2.A2.

(b) *Estimation strategy*¹⁸

Gravity equations

As suggested by the theoretical model, total export growth can be decomposed into supply capacity and foreign market access growth. The approach consists of estimating a gravity model equation where the dependent variable is exports (logarithm) from country i to country j and the dependent variables are bilateral distance (logarithm), an indicator of the existence of a common border, exporter-country dummies and importer-partner dummies.

$$\underbrace{\ln(X_{ij})}_{\text{Value of Exports from } i \text{ to } j} = \alpha + \underbrace{\lambda \text{partn}_j}_{\text{Export partner Market Capacity}} + \underbrace{\beta \text{count}_i}_{\text{Supply Capacity}} + \underbrace{\gamma_1 \ln(\text{dist}_{ij}) + \gamma_2 \text{bord}_{ij}}_{\text{Bilateral Trade Costs}} + \underbrace{u_{ij}}_{\text{Stochastic error}}$$

Bilateral distance dist_{ij} and the border dummy bord_{ij} are assumed to capture geographical bilateral trade costs. Exporters' and importer partners' fixed effects, count_i and partn_j respectively are introduced to control for supplier capacity and market capacity. They can also be expected to control for institutions and policy-related bilateral trade costs. Tobit estimation is used to account for zero bilateral trade values. In addition, in order to allow for measurement error in bilateral trade flows that is correlated with the volume of trade, observations are weighted by the product of country and partner GDP.

Following Redding and Venables (2004b) the supply capacity estimate is given by the exponential of exporter country dummy times its coefficient. That is

$$SC_i = \exp(\hat{\beta} \text{count}_i)$$

Foreign market access estimate takes the form

$$FMA_i = \sum_{i \neq j} \exp(\hat{\lambda} \text{partn}_j) \text{dist}_{ij}^{\hat{\gamma}_1} \exp(\hat{\gamma}_2 \text{bord}_{ij})$$

Supply capacity determinants

The following regression equation is used to estimate the determinants of supply capacity:

$$\ln(X_i) = \alpha + \lambda \ln(\text{GDP}_i) + \beta \ln(\text{POP}_i) + \gamma \ln(\text{FMA}_i) + \delta \ln(t_i) + \chi \text{COMP}_i + u_i$$

where POP_i is population, t_i is internal transport costs and related features and COMP_i is a variable or set of variables affecting export sector competitiveness, either directly or indirectly.

Variables used to control for the competitiveness environment are assumed to be related to the institutional and macroeconomic frameworks. Two indicators are used for institutional quality. The first is the widely used index from the International Country Risk Guide database. It measures the risk of expropriation, which is associated with institutional quality. A higher value of the index is associated with better institutional quality.

The second indicator is specific to labour market institutions and as such is expected to reflect more precisely the labour cost dimension. Nevertheless, it remains a qualitative measure. The indicator is built using Forteza and Rama (2001) data and methodology. A higher value of the indicator corresponds to a less flexible market.

Macroeconomic conditions are proxied by the real exchange rate.

The technological environment is captured possibly by the contribution of FDI, in percentage, to capital formation.

Internal transport frictions are introduced via the percentage of paved roads in total road networks. Transport structure variables are likely to capture internal transport frictions more precisely than exclusively geographical variables.

To account for possible endogeneity issues both current and lagged values are used for GDP, FDI and infrastructure variables. Estimation results revealed no significant difference and results are presented with current values.

Taking into consideration the fact that unobserved heterogeneity might play an important role in determining export performance, but the set of available variables and indicators does not allow to control for it, quantile regression techniques are used,¹⁹ following the seminal work of Koenker and Bassett (1978). Quantile techniques permit the study to allow for the existence of unobservable heterogeneity not only through differences in the constant term, as is the case when introducing dummies, but also through differences in coefficients. The strength of the estimation relies very much on the fact that these differences are obtained within the same sample and not across samples. Quantile regression allows the characterization of an entire conditional distribution rather than only the mean of that distribution as in the case of standard OLS. In that sense, quantile regression is robust even in the presence of outliers, which is not the case for traditional conditional mean estimation procedures.

In the present context, the distribution of the real value of countries' total exports is dealt with. Quantile regression allows the identification of different responses of exports value to FMA and supply capacity variables associated with different points on exports value conditional distribution. Nonetheless, quantile regression coefficients measure the determinants of export performance for under- and over- performing countries only in terms of export performance. As estimation could modify the position of a given country, it may become hazardous to attribute export performance determinants to over- and under- performing countries per se. Quantile regression results represent the basis for policy-oriented experiments aimed at qualifying possible export performance constraints.

A.2.4 List of countries in the sample

| | |
|--|--|
| <p>Western Europe (we) Austria Belgium-Luxembourg Switzerland Cyprus Germany Denmark Spain Finland France United Kingdom Ireland Italy Netherlands Norway Sweden Greece Portugal</p> <p>Sub-Sahara (ssa) Burkina Faso Côte d'Ivoire Ghana Kenya Madagascar Mali Mauritania Mauritius Niger Nigeria Rwanda Senegal Uganda United Rep. of Tanzania South Africa Zambia Zimbabwe</p> <p>Middle East and North Africa (mena) Algeria Arab Republic of Egypt Islamic Republic of Iran Israel Jordan Kuwait Morocco Syrian Arab Republic Tunisia</p> | <p>Latin America and Caribbean (lac) Argentina Bolivia Brazil Chile Colombia Costa Rica Dominican Republic Ecuador Guatemala Honduras Jamaica Nicaragua Panama Peru Paraguay El Salvador Trinidad and Tobago Uruguay Venezuela</p> <p>South-Asia (soa) Bangladesh India Sri Lanka Nepal Pakistan</p> <p>Eastern Europe and Central Asia (eca) Bulgaria Hungary Poland Romania Turkey</p> <p>East Asia and the Pacific (eap) Australia China Hong Kong (China) Indonesia Japan Republic of Korea Malaysia New Zealand Philippines Singapore Thailand Taiwan, Province of China</p> |
|--|--|

A.2.5 Variables and sources

| Variables | Source |
|---------------------------------------|--|
| Bilateral trade flows | United Nations COMTRADE database |
| GDP, population, infrastructures | World Bank World Development Indicators 2005 |
| United States GDP deflator | IFS from the IMF |
| Internal geography | Gallup, Sachs and Mellinger (1998)/ (www2.cid.harvard.edu/ciddata) |
| Miscellaneous | CIA World Fact Book, various years |
| Labour market indicators | Forteza and Rama (2001) |
| Real exchange rate | World Bank Development Indicators 2005 and author's computations |
| FDI contribution to capital formation | UNCTAD Handbook of Statistics/(www.unctad.org/statistics) |
| Institutions | Expropriation risk form International Country Risk Guide database / Hall and Jones (1998) / (www.stanford.edu/~chadj/datasets.html) |

A.2.6 Quantile regressions results

| Dependent variable : Ln(Exports) | | | # Observations :84 | | | | | | | |
|----------------------------------|-------------------------|---------------------|---------------------|---------------------|---------------------|----------------------------|----------------|----------------|----------------|----------------|
| | 1988-1991 | | 1992-1995 | | 1996-1999 | | 2000-2003 | | | |
| 10 | In(GDPt-1) | 0.754* 0.155 | 0.755* 0.193 | 0.869* 0.201 | 0.739* 0.176 | In(POPU) | 0.228 0.163 | 0.27 0.226 | 0.154 0.198 | 0.343*** 0.205 |
| | In(FMA) | 0.985* 0.341 | 0.848** 0.402 | 0.983*** 0.526 | 1.174** 0.571 | Lab Institutions | -1.709** 0.884 | -0.886 0.936 | -1.306 0.897 | 0.378 0.53 |
| | Institutions | 0.136*** 0.082 | -0.033 0.106 | -0.024 0.09 | 0.04 0.793 | FDI in capital formation % | 4.130** 1.909 | 3.154*** 1.674 | 3.269* 1.298 | 0.93 0.699 |
| | In (Real Exchange rate) | 0.043 0.044 | 0.045 0.04 | 0.129* 0.05 | 0.407 0.608 | Paved roads % | 0.886 0.634 | 0.673 0.604 | 1.214*** 0.71 | 0.926 0.578 |
| | Constant | -20.274* 7.723 | -19.638** 9.094 | -23.721** 11.881 | 0.664** 0.727 | | | | | |
| 25 | In(GDPt-1) | 0.831* 0.155 | 0.904* 0.161 | 0.930* 0.16 | 0.774* 0.147 | In(POPU) | 0.097 0.174 | 0.108 0.178 | 0.081 0.166 | 0.092 0.168 |
| | In(FMA) | 0.807** 0.359 | 0.862** 0.372 | 0.762*** 0.45 | 0.664 0.457 | Lab Institutions | -0.726 0.931 | -1.038 0.753 | -1.084 0.721 | 0.444 0.405 |
| | Institutions | -0.007 0.076 | -0.013 0.085 | -0.035 0.078 | 0.777 0.717 | FDI in capital formation % | 5.359* 1.708 | 2.857 1.541 | 2.672* 1.036 | 0.496 0.597 |
| | In (Real Exchange rate) | 0.086** 0.038 | 0.029 0.038 | 0.066*** 0.041 | 0.327 0.543 | Paved roads % | 1.004*** 0.571 | 0.391 0.561 | 0.603 0.657 | 1.017 0.609 |
| | Constant | -17.369** 8.147 | -20.704** 8.988 | -18.410*** 10.405 | 0.171 0.71 | | | | | |
| 50 | In(GDPt-1) | 0.865* 0.138 | 1.014* 0.155 | 0.870* 0.152 | 0.810* 0.152 | In(POPU) | -0.013 0.166 | -0.141 0.174 | 0.078 0.186 | 0.002 0.199 |
| | In(FMA) | 0.573 0.408 | 0.6 0.395 | 0.66 0.44 | 0.684 0.444 | Lab Institutions | -0.82 0.845 | -0.885 0.755 | -0.921 0.88 | 0.265 0.37 |
| | Institutions | 0.001 0.068 | 0.097 0.082 | -0.036 0.09 | 0.305 0.596 | FDI in capital formation % | 4.123* 1.66 | 3.725** 1.705 | 2.597* 0.962 | 0.554 0.708 |
| | In (Real Exchange rate) | 0.04 0.034 | 0.033 0.036 | 0.023 0.042 | 0.09 0.566 | Paved roads % | 0.483 0.521 | 0.321 0.54 | 0.295 0.625 | 0.125 0.635 |
| | Constant | -10.901 9.323 | -13.856 9.302 | -14.098 10.286 | 0.14 0.631 | | | | | |
| 75 | In(GDPt-1) | 0.825* 0.138 | 0.975* 0.14 | 0.977* 0.156 | 0.958* 0.165 | In(POPU) | -0.023 0.165 | -0.192 0.161 | -0.181 0.192 | 0.241 0.231 |
| | In(FMA) | 0.241 0.403 | 0.436 0.421 | 0.980** 0.433 | 1.204** 0.604 | Lab Institutions | -0.455 0.776 | -0.568 0.827 | 0.127 0.976 | 0.004 0.429 |
| | Institutions | 0.016 0.068 | 0.114 0.078 | 0.033 0.085 | 0.475 0.65 | FDI in capital formation % | 4.094** 2.095 | 3.533** 1.505 | 1.973*** 1.106 | 0.951 0.747 |
| | In (Real Exchange rate) | 0.048 0.036 | 0.021 0.034 | 0.043 0.039 | 0.542 0.645 | Paved roads % | 0.879*** 0.538 | 0.771 0.499 | 0.511 0.524 | 0.08 0.564 |
| | Constant | -3.133 8.893 | -8.593 9.325 | -19.720** 10.11 | 0.795 0.622 | | | | | |
| 90 | In(GDPt-1) | 0.784* 0.152 | 1.020* 0.136 | 0.996* 0.161 | 0.749* 0.232 | In(POPU) | -0.021 0.186 | -0.224 0.165 | -0.149 0.186 | 0.157 0.292 |
| | In(FMA) | 0.325 0.362 | 0.207 0.424 | 0.774*** 0.44 | 1.428*** 0.768 | Lab Institutions | -0.396 0.833 | -0.863 0.907 | 0.718 1.027 | 0.213 0.489 |
| | Institutions | 0.073 0.075 | 0.122*** 0.073 | 0.042 0.09 | 0.414 0.834 | FDI in capital formation % | 4.768** 2.144 | 4.508* 1.339 | 1.697 1.147 | 1.34 0.887 |
| | In (Real Exchange rate) | 0.537 0.575 | 0.659 0.529 | 0.292 0.527 | 0.022 0.643 | Paved roads % | 0.049 0.04 | 0.041 0.039 | 0.001 0.044 | 0.447 0.832 |
| | Constant | -3.999 7.98 | -3.89 9.162 | -16.088 10.038 | 0.562 0.79 | Regions Dummies | Yes | Yes | Yes | Yes |
| | | .1 Pseudo R2=.7981 | .1 Pseudo R2=.7925 | .1 Pseudo R2=.7915 | .1 Pseudo R2=.7299 | | | | | |
| | | .25 Pseudo R2=.7848 | .25 Pseudo R2=.7904 | .25 Pseudo R2=.7899 | .25 Pseudo R2=.7443 | | | | | |
| | | .5 Pseudo R2=.7932 | .5 Pseudo R2=.7946 | .5 Pseudo R2=.7790 | .5 Pseudo R2=.7390 | | | | | |
| | | .75 Pseudo R2=.7919 | .75 Pseudo R2=.8047 | .75 Pseudo R2=.7857 | .75 Pseudo R2=.7094 | | | | | |
| | | .9 Pseudo R2=.8229 | .9 Pseudo R2=.8276 | .9 Pseudo R2=.7978 | .9 Pseudo R2=.6464 | | | | | |

Note: Standard errors are reported in *italics*. * significant at 1% and ** significant at 5%.

NOTES

- 1 This chapter draws on empirical results from Fugazza (2004).
- 2 The study covers 84 countries 20 developed and 64 developing or SEE and CIS countries over the period 1980-2003. The full list of countries is given in table A2.1 of the annex. The annex also briefly describes the theoretical framework and empirical methodology used.
- 3 This argument is inferred by empirical results obtained using quantile regressions over the 1988-2003 period as described in the annex. Results are presented in table 2.A3 of the annex.
- 4 The greater sophistication in their production also permits them to engage more in intra-industry trade – two-way trade in products of the same industry. Earlier UNCTAD studies in this area suggest that foreign market interests in such two-way trade, which is often also intra-firm trade, tend to counter potential protectionist pressures. An example is the export of textiles to be processed into clothing.
- 5 The model used by the authors includes assumptions of economies of scale and imperfect competition, which tends to inflate the gains from trade. Most importantly, the analysis assumes liberalization in the services sector that accounts for the major part of the gains. In turn, this depends on some estimates of the trade effects of measures used in the services sector that are estimated by econometric techniques. A more conservative approach is to assume constant returns to scale, and perfect competition, which gives much lower estimates.
- 6 Fernandez de Cordoba, Laird and Vanzetti (2004).
- 7 See for instance Finger and Schuler (2000).
- 8 See UNCTAD (2003).
- 9 Other factors include restrictive rules of origin, burdensome documentation and procedural requirements, etc.
- 10 See World Bank (1993) and Rodrik (2003) for a comprehensive argumentation.
- 11 Empirical results are reported in table A2.3 of the annex.
- 12 The percentage of paved roads has been used as a proxy for the transport sectors as a whole.
- 13 This policy approach was used extensively by Latin American countries to control hyperinflation. However, a number of Asian countries also adopted this approach, which was a major trigger for the crisis of 1997-1998.
- 14 See Rodrik, Subramanian and Trebbi (2002) for empirical assessment and for a critical review of empirical work.
- 15 See UNCTAD (2002a) and Mayer (2002) for an extensive discussion.
- 16 In his comments on Redding and Venables (2004a), Maskus (2004) insists on the need to better identify supply conditions variables in order to retrieve specific policy implications.
- 17 We refer the reader to Redding and Venables (2004a) for a technical presentation of the model.
- 18 We refer the reader to Fugazza (2004) for a detailed description of the estimation strategy.
- 19 Quantile regression is an extension of the classical least squares estimation of the conditional mean to estimation of different conditional quantile functions. The conditional mean function is estimated by minimizing the symmetrically weighted sum of absolute errors, where the weight is equal to 0.5. Other quantile functions are estimated by minimizing an asymmetrically weighted sum of absolute errors, where the weights are functions of the quantile of interest. We refer the reader to Buchinsky (1998) for a survey and general discussion of relevance of the use of quantile techniques in economic analysis.

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