

**THE SOCIAL IMPACT OF IMPROVED MARKET
ACCESS
AND EXPORT PROMOTION IN AGRICULTURE**

Edward Anderson
Francisco Ayala
Kate Bird



London
November 2005

Preface and acknowledgements

The objective of this report is to analyse the impact of improved market access and domestic export promotion on household welfare and poverty in developing countries. It was commissioned by the European Commission (EC) and the UK Department for International Development (DFID) under the European Community's Poverty Reduction Effectiveness Programme (EC-PREP).

The report was carried out by the Overseas Development Institute (ODI) in London. The team consisted of Edward Anderson, Francisco Ayala and Kate Bird. Edward Anderson is Research Officer at the ODI, Kate Bird is a Research Fellow. Francisco Ayala is an independent consultant. Ian Gillson and Susana Ponce assisted with data collection and preparation.

Table of Contents

Executive Summary	5
1 Introduction	6
2 Conceptual framework.....	8
2.1 Effects of improved market access and domestic export promotion on agricultural exports.....	9
2.1.1 Initial considerations	9
2.1.2 Improved market access (1): preferential tariff reductions.....	9
2.1.3 Improved market access (2): MFN tariff reductions	10
2.1.4 Improved market access (3): higher export quotas.....	10
2.1.5 Domestic export promotion (1): reductions in import tariffs and/or export taxes	11
2.1.6 Domestic export promotion (2): reductions in natural barriers to trade.....	11
2.1.7 Domestic export promotion (3): export subsidies.....	11
2.1.8 Domestic export promotion (4): increases in export and/or import quotas	12
2.1.9 Other factors.....	12
2.2 Effects of improved market access and domestic export promotion on poverty	12
2.2.1 Effects via changes in domestic prices	12
2.2.2 Effects via changes in factor returns.....	13
2.2.3 Effects via the government budget	13
2.2.4 Longer-term effects on investment and economic growth.....	14
3 Cross-country analysis of agricultural exports	16
3.1 Levels and trends in agricultural exports from developing to developed countries	16
3.2 Levels of market access and domestic export promotion	21
3.3 Effects of market access and export promotion on agricultural exports.....	23
3.3.1 Bivariate analysis	23
3.3.2 Multivariate analysis	24
4 Case Study 1: Exports of fruit and vegetables from Kenya....	28
4.1 Introduction	28
4.2 Background.....	29
4.2.1 Poverty and human development in Kenya.....	29
4.2.2 The performance of the Kenyan economy	32
4.2.3 The macroeconomic contribution of horticultural exports.....	35
4.3 Factors underlying increased exports of fruit and vegetables.....	37

4.3.1.	Enabling factors.....	37
4.3.2.	Institutional experimentation with export arrangements	38
4.3.3.	Foreign market access	38
4.3.4.	The domestic political and institutional environment.....	39
4.3.5.	Horticulture sector organisations.....	41
4.4	Effects of fruit and vegetable exports on poverty	42
4.5	Conclusion	45
5	Case Study 2: Exports of frozen shrimp from Bangladesh....	49
5.1	Introduction	49
5.2	Background.....	52
5.2.1	Levels, trends and characteristics of poverty and human development.....	52
5.2.2	Levels, trends and macroeconomic contribution of frozen shrimp exports	55
5.3	Factors underlying increased exports of frozen shrimp	57
5.3.1.	Improved terms of trade	57
5.3.2.	Foreign market access	58
5.3.3.	Domestic export promotion.....	59
5.3.4.	Broader domestic environment.....	59
5.4	Effects of frozen shrimp exports on poverty	60
5.4.1.	Effects via domestic prices	60
5.4.2.	Effects via the returns to factors of production.....	62
5.4.3.	Effects via government revenue	63
5.4.4.	Other effects	64
6	Case Study 3: Exports of cut flowers from Ecuador.....	66
6.1	Introduction	66
6.2	Background.....	66
6.2.1	Levels, trends and characteristics of poverty and human development.....	66
6.2.2	Levels, trends and macroeconomic contribution of cut flower exports.....	68
6.3	Factors underlying increased exports of cut flowers.....	69
6.3.1.	Access to foreign markets	69
6.3.2.	Domestic trade, tax and export policies.....	70
6.3.3.	Political and institutional context	70
6.3.4.	Infrastructure	71
6.3.5.	Other effects	71
6.4	Effects of cut flower exports on poverty	71
6.4.1.	Direct effects	71
6.4.2.	Employment effects.....	72
6.4.3.	Gender effects.....	73
6.4.4.	Health effects.....	73
6.4.5.	Effects on child labour.....	74
7	Conclusion	76
	References.....	78

Executive Summary

This report assesses the effects of improved market access and domestic export promotion on agricultural exports, household welfare and poverty in developing countries. By market access, we refer to measures imposed by developed country governments which restrict or raise the cost of imports from developing countries. By domestic export promotion, we refer to policies introduced by developing country governments which increase the relative returns to exporting.

For countries with a basic comparative advantage in agricultural commodities, improved market access increases agricultural exports as long as domestic barriers to trade are not so high as to remain prohibitive, and at least some factors of production are able to move into the exporting sectors from other sectors of the economy. The size of the response will vary however, depending on the rate at which diminishing returns set in as production in the exporting sector expands.

The impact of improved market access and/or domestic export promotion on poverty depend mainly on a) the amount of barriers that poor households face in terms of participating directly in the export activity, and b) whether the export activity is more or less labour-intensive than other activities. If barriers faced by poor households are high, and/or the export activity is not labour-intensive, effects on poverty are likely to be weak, unless the domestic government implements complementary measures to redistribute increased earnings and/or incomes in the sector.

Aggregate exports of agricultural commodities from developing to developed countries have remained largely stagnant over the past two decades. This is in marked contrast to developing countries' exports of manufactures. Nevertheless, some countries have achieved some significant increases in exports to developed countries of some agricultural commodities during the 1990s, particularly in Asia (e.g. China, Thailand, Malaysia) and Latin America (e.g. Chile, Mexico, Ecuador).

There is clear evidence to suggest that domestic trade policies have a significant impact on agricultural exports from developing countries. There is some evidence to suggest that market access has an impact on agricultural exports from some developing countries, notably for exports from ACP countries to the EU, and from ATPA and CBI countries to the US. There is however little evidence to suggest that improved market access has increased exports from Least Developed Countries.

In terms of policy implications, two main messages emerge from the report. The first is that developed country governments need to implement measures complementary to improved market access if the poorest developing countries are to gain significantly from that improved access. These include greater official development assistance for investments in improved transport and communications infrastructure, and technological upgrading and quality control. The second is that developing country governments typically need to implement measures complementary to export promotion if increased exports are to make a significant contribution to poverty reduction. This includes the expansion of government spending in social sectors, including social security and welfare, basic health and education.

1 Introduction

This report assesses the effects of improved market access and domestic export promotion on agricultural exports, household welfare and poverty in developing countries. By market access, we refer to measures imposed by developed country governments which restrict or raise the cost of imports from developing countries, such as import tariffs, import quotas, and non-tariff barriers. By domestic export promotion, we refer to policies introduced by developing country governments which increase the relative returns to exporting, such as reductions in export taxes, import tariffs, and improvements in international transport and communication infrastructure.

Low levels of market access, particularly for agricultural commodities, are often argued to be a cause of poor export performance by several developing countries, and in turn prevent large numbers of people from lifting themselves out of poverty through trade. A recent study (Cline 2004), for example, estimates that trade liberalisation in developed countries would lift 540 million people above the \$2-a-day international poverty line. These arguments underlie the calls for dramatic improvements in market access for agricultural exports to developed countries as part of the Doha Round of multilateral trade negotiations (e.g. Oxfam 2002).

At the same time, however, it is recognised that low levels of market access in developed countries are not the only constraint to increased exports from many developing countries. Theory suggests that a favourable domestic environment to exporting – one which avoids anti-export bias and macroeconomic instability, and which maintains adequate incentives for saving and investment – may be just as important. It is also recognised that natural barriers to trade, imposed for instance by geographical isolation and/or lack of access to the sea, combined with poor infrastructure, also constrain exports, particularly in Least Developed Countries.

These additional considerations therefore raise doubts about the potential for greater market access in developed countries to raise agricultural exports from many developing countries. At the same time, it is also argued that the linkages between increased agricultural exports and poverty are often weak. There are various channels through which exports can reduce poverty – higher prices for producers, increased demand for labour, and higher government spending via increased tax revenues for example – but if few poor households are able to engage in production for export, or if export production is capital- or land- (rather than labour) intensive, or if government expenditure is poorly targeted toward the poor, these channels may be weak or even non-existent.

It is these issues – the impacts of market access and domestic export promotion on developing countries' agricultural exports to developed countries, and the impact of those exports on household welfare poverty – which are the focus of the report. The report is divided into four main sections.

The report begins (Section 2) by setting out a clear analytical framework linking improved market access, domestic export promotion, agricultural exports, and poverty reduction. It first describes the effects of improved market access on agricultural exports, distinguishing between the effects of reductions in most-favoured-nation (MFN) tariffs, preferential tariff reductions, and increased export quotas. It then describes the effects of domestic export promotion on exports, distinguishing between the effects of reductions in import tariffs and export taxes, export subsidies, and increases in import and/or export quotas. Finally, it describes the effects of improved market access and/or domestic export promotion on poverty, distinguishing between their effects on poverty via a) changes in domestic prices of goods and services, b) changes in the market returns to different factors of production, c) changes in government expenditure and/or revenue, and d) longer-term effects on investment and economic growth.

The report then provides (Section 3) a cross-country analysis of agricultural exports from developing to developed countries. It first shows aggregate trends in agricultural exports from developing to developed countries over the past two decades, by region and in comparison with other goods (e.g. manufactures), and which particular developing countries have been most successful in terms of increasing their agricultural exports to developed countries. It then presents evidence on levels of market access and domestic export promotion among different groups of developing countries. Finally, it tests statistically whether developing countries which have greater access to developed country markets, or which have less restrictive trade policies, have higher agricultural exports than those which do not.

The report then analyses in greater detail three specific examples of low-income developing countries which have achieved significant increases in exports of specific agricultural commodities in recent years (Sections 4, 5 and 6). The particular case studies selected for analysis are Kenya (fruit and vegetables), Bangladesh (frozen shrimp and prawns), and Ecuador (cut flowers). In each case, both the factors underlying the increase in exports, and the impact of those exports on poverty, are documented and assessed. A final section (Section 7) concludes.

2 Conceptual framework

In this section we set out a framework for analysing the effects of enhanced market access and domestic export promotion on levels of poverty and household welfare in developing countries.

Our focus is on those developing countries with some basic comparative advantage in one or more agricultural commodity. This means that, in a hypothetical world of completely free trade, they would export those commodities in exchange for other goods and services, both agricultural and non-agricultural. This comparative advantage in turn is assumed to reflect the domestic availability of resources which are important for the production of the commodities concerned, and which are relatively scarce in the rest of the world (e.g. favourable soils and climate).

By market access, we refer to the various measures imposed by developed country governments which restrict imports of agricultural commodities from developing countries. These include import tariffs, import quotas, and non-tariff barriers. The higher are import tariffs and non-tariff barriers, and the lower are import quotas, the lower or more unfavourable is market access. Levels of market access vary across both commodities and countries. Some agricultural commodities (e.g. sugar) are typically subject to much higher import restrictions than others (e.g. coffee). At the same time, imports from some developing countries (e.g. the Least Developed Countries) are often subject to much lower restrictions, at least on some agricultural commodities, than others (e.g. other low-income and middle-income developing countries).

By export promotion, we refer to the various domestic policies which increase the returns to production for export relative to production for the home market. This includes reductions in export taxes, increases in export quotas, and increases in export subsidies. They also include reductions of tariffs and quotas on imports, which reduce the profitability of production for the home market by lowering the domestic price of competing imports. They also include policies which lower the various additional costs associated with either exporting or importing, such as public expenditure on international transport infrastructure (seaports and airports) and improvements in the quality and efficiency of government customs offices.

In our framework, we first analyse the effects of improved market access and export promotion on agricultural exports (Section 2.1). We then analyse their effects on poverty and household welfare (Section 2.2). To keep our framework clear and relatively simple to understand, we begin by outlining a set of assumptions about the structural characteristics of the countries on which we focus. These are as follows:

1. There are various barriers to trade (e.g. geographical distance, lack of access to the sea, import tariffs, export taxes), but these are never so high as to prohibit trade altogether.
2. Demand for imports is relatively income-elastic, and (holding relative prices constant) rises at a rate close to or exceeding that in national income.
3. At least some factors of production are able to move between sectors of the economy.
4. There are various barriers to the movement of factors of production between sectors (e.g. costs of labour migration and retraining), especially in the short-run (roughly speaking, 1-5 years).

5. The supply of some factors of production required by the export sector (e.g. suitable land) is essentially fixed, even in the medium-run (roughly speaking, 10-20 years).
6. There are also various barriers to the movement of goods between regions within each country (e.g. internal transport costs).
7. The exported commodity accounts for a relatively small share of total domestic consumption.
8. Each developing country is small, so that the amount it trades has no impact on its terms of trade.
9. The agricultural commodities exported are relatively standardised, homogenous products which are traded internationally at a single price.

We now turn to the effects our main policies of interest, improvements in market access and domestic export promotion. In each case we summarise the main predictions emerging from theory; a fuller treatment can be obtained from Markusen *et al.* (1995, ch. 15-18).

2.1. Effects of improved market access and domestic export promotion on agricultural exports

2.1.1. Initial considerations

It is helpful to begin by considering the effects of an improvement in a country's terms of trade. First assume that there are no domestic restrictions to trade. Under assumptions (1) to (3), an improvement in the terms of trade increases agricultural exports. It does so by raising the profitability of export sectors, and causing the movement of labour and other factors of production into those sectors from other sectors.

The size of the increase in exports following an improvement in terms of trade depends on the rate at which diminishing returns set in, in the exporting sector, as resources are withdrawn from other sectors. This in turn depends on the size of barriers to the mobility of factors of production outlined under assumption (4), and the importance of the fixed factors outlined under assumption (5). The higher are these barriers, and the more important are the fixed factors to production of the agricultural commodity, the smaller the increase in exports.

Under alternative domestic trade regimes, these effects may differ. If binding export or import quotas are in place (at home or in trade partners), an improvement in the terms of trade has no effect on exports. If import tariffs are in place, an improvement in the terms of trade raises exports, unless tariffs are so high as to be prohibitive even after the terms of trade improvement. By affecting the amount which a country exports, the level of import tariffs, export taxes and subsidies also affects the responsiveness of exports to terms of trade improvements, since the higher the initial level of exports, the more rapidly diminishing returns are likely to set in.

2.1.2. Improved market access (1): preferential tariff reductions

The first factor we consider is a reduction by some (or all) developed countries in the level of tariffs on a developing country's exports, to levels below (or further below) those faced by other exporting countries. The effects depend on whether all exports of the commodity subject to the preferential tariff are destined to the developed country (or countries) providing the preference, or whether the commodity is also exported to countries not providing a preferential tariff. These different possible scenarios are labelled (a) and (b) respectively.

Under scenario (a), the effect of a preferential tariff reduction is simply to improve the terms of trade of the developing country receiving the preference. The effects in the exporting country are then exactly the same as outlined in the previous section. Exports rise, by an amount depending on the rate at which diminishing returns set in the export sector(s) and on the domestic trade regime.

By contrast, under scenario (b) the preferential tariff reduction reduces the relative price of the commodity in the developed country providing the preference, and has no effect on the terms of trade of the developing country receiving the preference. Although the developing country receiving the preference will increase its exports of the commodity to the developed country providing the preference, total exports of the commodity remain unchanged.

2.1.3. Improved market access (2): MFN tariff reductions

The second factor we consider is a reduction by some (or all) developed countries in most-favoured-nation (MFN) tariffs. By MFN tariffs we refer to tariffs which are set in a non-discriminatory way: the same rates are applied on imports from all exporting countries (even if they vary across commodities and importing countries). In most cases – this will tend to improve the terms of trade of those developing countries exporting the commodities concerned.¹ The effects on exports are then exactly the same as those outlined in Section 2.1.1.

The main exception occurs in those developing countries subject to a preferential tariff below the MFN rate, and whose exports are absorbed entirely in the developed country providing the preference (scenario (a) in Figure 1).² If the absolute level of the preferential tariff is held constant, a reduction in the developed country's MFN rate then worsens the terms of trade, by reducing the domestic price of the commodity(ies) in the developed country(ies) providing the preferential tariff. This effects on exports are then exactly the opposite of those outlined in Section 2.1.1.

2.1.4. Improved market access (3): higher export quotas

The third factor we consider is an increase in (i.e. a relaxation of) the level of quotas set by some (or all) developed countries on a particular developing country's exports. In most cases, the effect will be to raise the volume of exports, by increasing the domestic relative price of the exported commodity.³

¹ This is particularly the case when the developed countries making the reductions are large in number and/or size, and the developing countries exporting the commodities concerned are few in number and/or small in size.

² If the absolute level of the preferential tariff is kept constant the preference margin, defined as the difference between the preferential tariff and the MFN tariff, necessarily falls. This is likely to be quite common in practice since a great many preferential tariff rates are set at zero, and it seems unlikely – although not inconceivable – that developed countries would ever consider setting negative preferential tariffs.

³ This is particularly the case when the developed countries imposing the quota is large in number and/or size, and the developing countries exporting the commodities concerned are few in number and/or small in size. If this is not the case, the relative price of the good subject to the quota in the developed country imposing the quota will tend to decline, which will tend to dampen the increase in developing country exports.

The main exception in this case occurs the developing country also exports the commodity subject to the higher quota to other countries not imposing quotas. In this case, there is no change in the overall volume of exports of the commodity, despite the relaxation of the quota, because the domestic relative price of the commodity subject to the quota remains unchanged. There is instead only a diversion of exports, from the rest of the world to the country with the higher quota.

2.1.5. Domestic export promotion (1): reductions in import tariffs and/or export taxes

We now turn to the effects of domestic export promotion. The first factor we consider under this heading is a reduction in a developing country's import tariffs and/or export taxes. This raises the domestic returns to exporting, relative to production for the home market. Assuming that there are no binding quotas in place (at home or in the country's trade partners), this will in turn, under assumptions (1) and (3), raise exports. The size of the increase in exports depends on the same factors, discussed in Section 2.1.1, which affect the responsiveness of exports to a terms of trade improvement.

The lowering of import tariffs and/or export taxes also affects government revenue. Although the elimination of tariffs and/or taxes necessarily reduces government revenue, their reduction may either increase or reduce revenue, depending mainly on the responsiveness of exports. The higher is the responsiveness of exports, the larger the increase in imports, and therefore the more likely that tariff revenue rises despite a lower tariff rate.

2.1.6. Domestic export promotion (2): reductions in natural barriers to trade

The second factor we consider are policies which reduce non-tariff barriers to trade through, for example, public expenditure on international transport infrastructure (seaports and airports) and improvements in the quality and efficiency of government bureaucracy. This also raises the domestic returns to exporting, relative to production for the home market, and the effects on exports are the same as those arising from a reduction in import tariffs and/or export taxes. The main difference is that most policies which reduce non-tariff barriers raise government expenditure, whereas lower import tariffs and/or taxes may either increase or decrease government revenue.

2.1.7. Domestic export promotion (3): export subsidies

The third factor we consider is an increase in, or introduction of, export subsidies. Export subsidies can take various forms, including subsidised credit and/or intermediate inputs, fiscal incentives, support with technological upgrading and/or quality control in order to meet product health and/or safety standards, and so on. Subsidies may sometimes be available only to firms locating within a specific area, as with export processing zones.

The effect of an export subsidy is to raise the domestic relative price of the export commodity. Effects on exports are also the same as those resulting from a reduction in import tariffs and/or export taxes. The main difference is that increased export subsidies necessarily raise government expenditure, whereas lower import tariffs and/or taxes may either increase or decrease government revenue.

2.1.8. Domestic export promotion (4): increases in export and/or import quotas

The final factor we consider under domestic export promotion is an increase in a developing country's import and/or export quotas. This also raises the domestic relative price of the export commodity. Assuming that there are no binding quotas in place in the country's trade partners, this will also, under assumptions (1) and (3), raise exports. The size of the increase in exports is in this case limited however, by the size of the quota increase.

The relaxation of import and/or export quotas also affects the amount of rents associated with the quota. As with tariffs, although the elimination of quotas necessarily reduces rents to zero, an increase in quotas may either reduce or increase rents, depending mainly on the responsiveness of exports. Note however, that these rents may not accrue to importers and/or exporters within the country itself.

2.1.9. Other factors

There are various other factors which could lead to increased exports. Here we mention two. The first is an increase in the supply and/or productivity of factors of production required in the export sector. This could result, for example, from an increase in the availability of land through irrigation investment, or an increase in the supply of suitably trained labour. Such effects may well explain increases in exports of a specific commodity over the medium or longer-term, but are less likely to account for large increases over the short-term (being themselves less likely to change significantly over short periods of time).

The second is an innovation in the method of producing the export commodity, or in the nature of the commodity itself, which reduces costs and/or increases demand. This could involve, for example, a new method of cultivation, or a new marketing channel (e.g. on-line sales via the Internet). Such innovations may in turn be driven by broader changes in the underlying domestic environment which promote innovation and investment, such as a more stable political environment.

2.2. The effects of improved market access and domestic export promotion on poverty

In this section we consider the effects of improved market access and domestic export promotion on poverty. These effects arise from four main sources, which are as follows: changes in the domestic prices of goods and services, changes in the domestic returns to factors of production, changes in domestic government revenue, and longer-term effects on growth and investment. We consider each of these sources in turn.

2.2.1. Effects via changes in domestic prices

Most of the factors outlined in Section 2.2 cause the price of exported commodities to rise relative to imported commodities.⁴ In general terms, the effect of this change on any given household depends on whether it is a net producer or a net consumer of the exported commodity: net producers benefit, while net consumers suffer. The size of the effect depends both on the amount of net production or consumption, and the ability of the household to alter its net production and consumption position. If, however, that domestic demand for the

⁴ The exceptions are when there is simply a diversion of exports, toward markets offering preferential access and away from third markets, rather than an increase in the overall volume of exports.

export commodity is low, there will be very few net consumers of the commodity. Price effects in this case will be limited to the (beneficial) impacts of price changes on net producers of the export commodity. The effects on poverty will depend on the number of poor households who are net producers of the export commodity, and their ability to increase production in response to an increase in price.

Additional considerations arise when considering the effects of increased (i.e. relaxed) quotas. In some circumstances, this allows producers of the export commodity to sell a higher quantity of the commodity at the higher (i.e. protected) price available in the foreign market. Any additional income gained in this way is additional quota rent. Arguably however, it is unlikely that any significant rents will accrue directly to any poor households involved in production of the commodity. It is more likely that rents will accrue to the domestic government, in the form either of profits of state agricultural/export marketing corporations, or revenue from the taxation of the profits of large farms and estates, or to importers in the foreign market.

2.2.2. Effects via changes in factor returns

Under the assumptions outlined at the beginning of Section 2, changes in domestic relative prices also affect the returns to the different factors of production, with additional implications for poverty. Two well-known predictions derived from the theory of international trade are relevant here.

The first is that a rise in the relative price of the exported commodity increases the real income of factors of production 'specific' (i.e. of little productive value in any other sectors of the economy) to the export sector, and decreases the real income of factors of production specific to the import sector. The second is that the price change increases the real income of those (mobile) factors of production which are used relatively intensively in the export sector, and reduces the returns to those which are used relatively intensively in the import-competing sector.

The effects of these changes on poverty will vary, according to the characteristics of the exporting and import-competing sectors on the one hand, and the types of assets owned by poor households on the other. The higher is ownership by poor households of assets used intensively and/or exclusively in export production, the greater the impact of increased exports on poverty, and vice versa.

2.2.3. Effects via the government budget

Some of the factors leading to increased exports have implications for domestic government revenue and expenditure. Increases in export subsidies, and increased public expenditure on transport infrastructure, both raise government expenditure. The elimination of import tariffs and export taxes reduce government revenue, while their reduction may either increase or reduce government revenue. In addition, some of the rents associated with export and/or import quotas may accrue to the domestic government, as described above.

The effect of a change in government revenue will depend on the way in which the benefits of public expenditure are distributed across households. Where a large share of public revenues are received by the poor, in the form of transfer benefits and/or subsidised goods and services, a reduction in government revenue will tend to increase poverty, while an increase in

government revenue will tend to reduce it (all else being equal).⁵ If, however, only a small share of government expenditure is received by the poor, changes in government revenue will have little effect on poverty. The share of the benefits of government expenditure the poor do in fact receive will tend to vary according to country characteristics, including bureaucratic capacity (e.g. an effective department responsible for social protection) and political considerations (e.g. the level of democracy, the commitment of political elites to poverty reduction).

Similarly, the effect of an increase in government expenditure will depend on the way in which the burden of additional taxation (or alternative sources of financing) is distributed across households. Where little of this burden falls on the poor, there will be no (additional) effect on poverty, but if a significant amount does fall on the poor, this also needs to be taken into account. Once again, the extent to which the burden of additional taxation does fall on the poor will depend on characteristics of the country concerned, including bureaucratic capacity (e.g. effective tax enforcement and administration) and political considerations.

In some cases, there will also be implications for government revenue in the exporting country's trade partners. Developed countries providing tariff preferences experience a reduction in government revenue, which (in the absence of some offsetting adjustment) will cause a decrease in the amount of foreign aid given to developing countries (including those not receiving the preference). A decrease in aid will have a similar impact on poverty as a decrease in government revenue.

2.2.4. Longer-term effects on investment and economic growth

In addition to the above sets of effects, improved market access and domestic export promotion may affect poverty through their longer-term effects on investment and economic growth. A number of different considerations are relevant here.

On the one hand, increased agricultural exports generate foreign exchange which can be used to purchase foreign goods and services (e.g. industrial machinery, design and marketing expertise) which typically play a crucial role in stimulating private investment and economic growth. In the absence of increased exports, the availability of foreign exchange may be limited (particularly if official development assistance is low). By competing with foreign firms, increased exporting also exposes domestic firms to the latest product and process innovations in any given sector. This can provide a further source of productivity gain.

On the other hand, increased agricultural exports could come at the expense of production in other sectors (e.g. manufactures) which may offer greater opportunities for growth in the longer-term, even if not in the short-term. This might be because manufacturing is a more knowledge-intensive activity than agriculture, and therefore provides more incentives for the acquisition of knowledge over time (a key driver of economic growth). It might also be because increased agricultural exports are subject to declining terms of trade, because of their low income elasticity of demand.

These competing hypotheses mean that the longer-term effects of increased agricultural exports on investment and economic growth are particularly difficult to assess. In any one

⁵ Note here there may well be a difference between the average share of government revenue received by the poor, and the (marginal) share of additional government revenue received by the poor. For small changes, it is the marginal share which is of interest, but it is generally only the average share which can be measured.

country context, the need to generate increased foreign exchange will have to be weighed up against any adverse consequences of continued specialisation in agricultural commodities.

3. Cross-country analysis of agricultural exports

In this section we analyse recent trends in agricultural exports to developed countries from all developing countries. We first show trends in total agricultural exports from developing to developed countries over the past decades, and highlight those countries which have been most successful in terms of increasing their agricultural exports to developed countries (Section 3.1). We then present evidence on levels of market access and export promotion for different developing countries (Section 3.2). Finally, we analyse the effects of market access and export promotion on developing country exports using statistical methods (Section 3.3).

We use two ways of defining agricultural commodities, according to whether the trade data we use are based on an SITC or the HS product classification system:

- SITC: groups 0, 1, 2 (minus groups 27 and 28) and 4.
- HS: groups 1-24 and 5201.

We define developed and developing countries according to the definitions used by UNCTAD in its 2003 Handbook of Statistics.⁶ In some sections of the analysis, we will restrict our analysis to those developing countries defined by UNCTAD which were also defined (by the World Bank in 2004/5) as either middle or low-income, and with populations exceeding 250,000. There are 139 such countries.

We use evidence on levels and trends of agricultural exports between developed and developing countries from two sources. These are as follows:

1. The UNCTAD Handbook of Statistics (2003 CD-ROM edition), which we use for estimates of total agricultural exports from all developing countries to developed countries, and for estimates of total agricultural exports from each major regional grouping of developing countries to developed countries. These data are available between 1980 and 2001, and are based on the SITC product classification.
2. The UN COMTRADE database, which we use for estimates of agricultural exports from each low or middle-income developing country to developed countries, in total and by commodity. These data are available for 94 of the 139 low and middle-income developing countries with populations exceeding 250,000, in most (although not all) years between 1988 and 2002, and are based on the HS product classification.

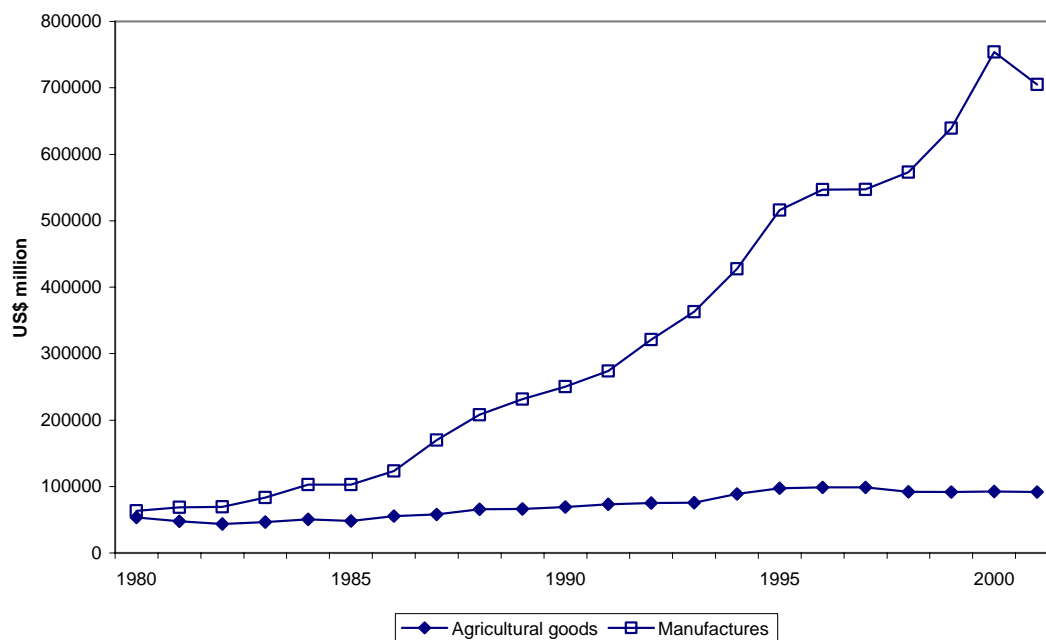
3.1. Levels and trends in agricultural exports from developing to developed countries

Total exports of agricultural exports from developing to developed countries increased from US\$53 billion in 1980 to US\$92 billion in 2001, an increase of 2.6% per year in nominal terms (Figure 1). However, when allowing for inflation the level of exports in real terms was effectively stagnant over the period. This contrasts strikingly with trends in exports of

⁶ Developed countries include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Malta, Netherlands, Norway, New Zealand, Portugal, Spain, Sweden, Switzerland, UK, and the US. Developing countries include all other countries and territories, except South-East Europe and the Commonwealth of Independent States.

manufactures from developing to developed countries, which increased from US\$64 billion in 1980 to US\$705 billion in 2001, a very large increase even when allowing for inflation.

Figure 1 Exports of agricultural goods and manufactures from developing to developed countries, 1980-2001

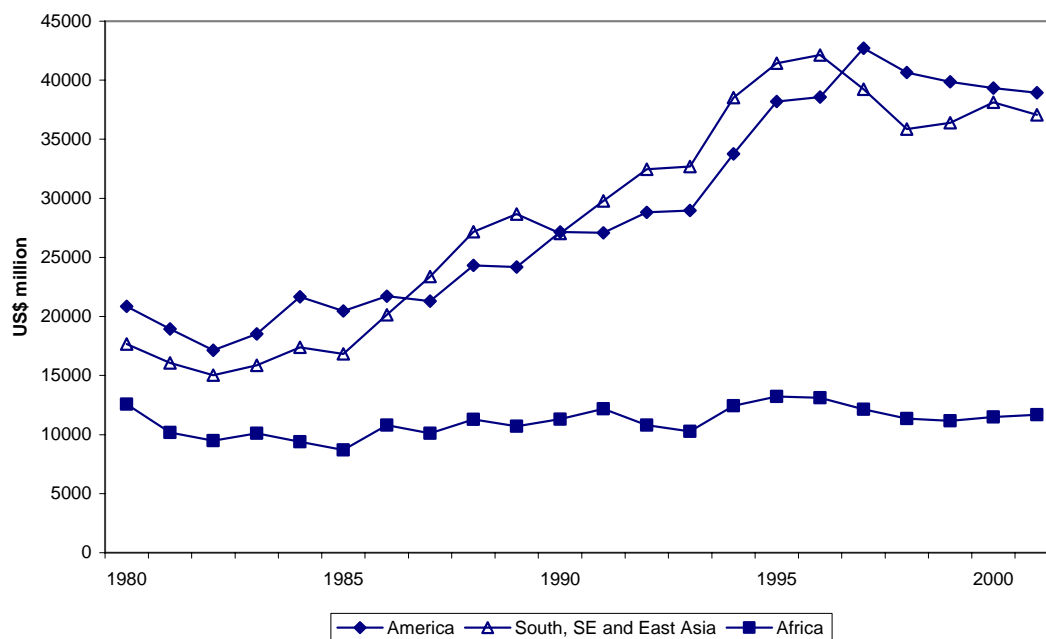


Source: UNCTAD (2003)

Notes: Manufactures are defined as product classifications....

The growth in agricultural exports from developing to developed countries, at least in nominal terms, was driven by increases from coming from Latin America, South Asia and East Asia (Figure 2). These regions accounted for 72% of total agricultural exports to developed countries in 1980, and 83% in 2001. Exports from Africa, by contrast, did not increase over the period even in nominal terms. Their share of total agricultural exports to developed countries consequently fell, from 24% in 1980 to 13% in 2001.

Figure 2 Exports of agricultural goods to developed countries by main developing country region, 1980-2001

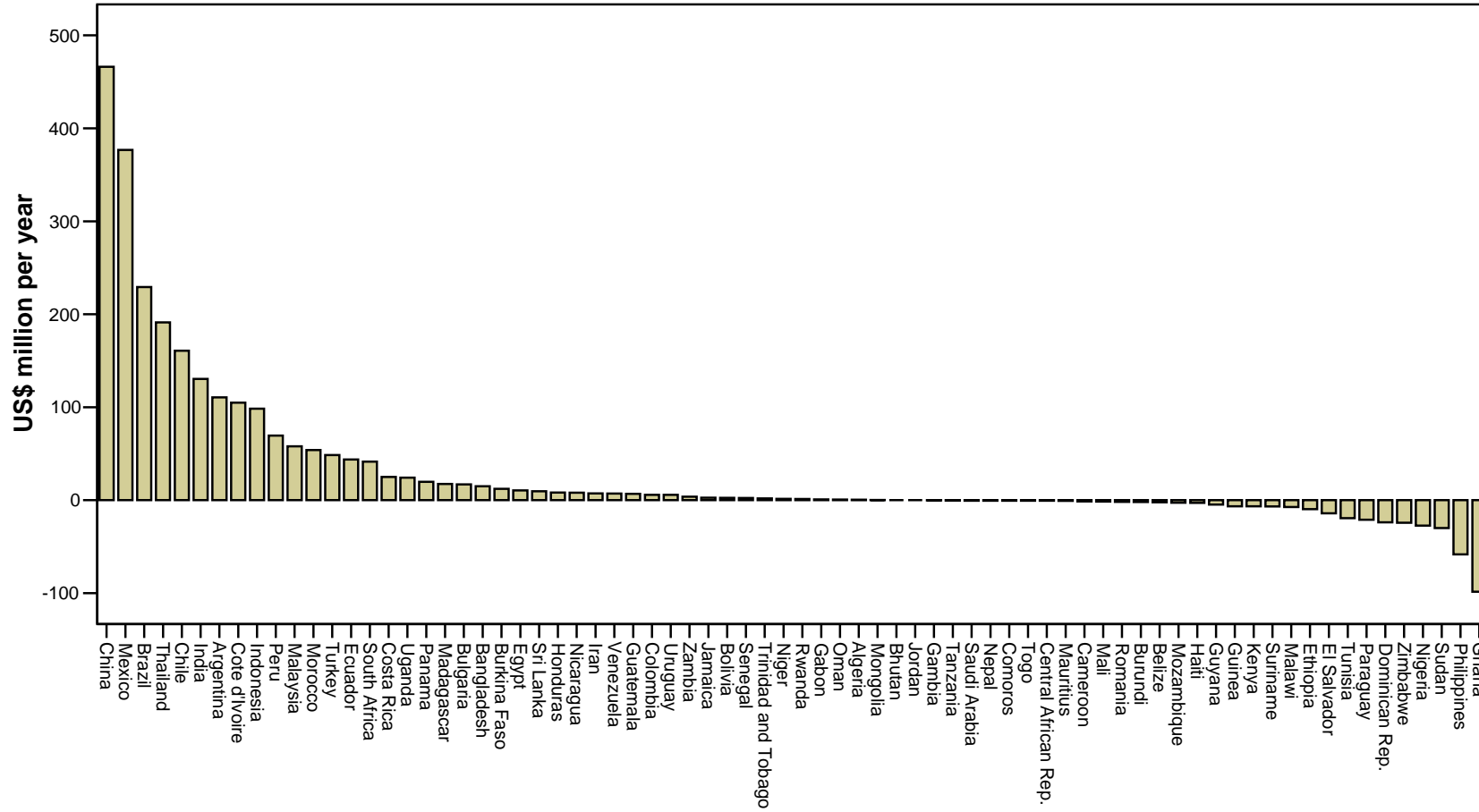


Source: UNCTAD (2003)

Information on which particular developing countries achieved the largest increases in agricultural exports to developed countries is shown in Figures 3 and 4. Each shows the average annual increase in total agricultural exports over the 1990s, from each of the countries in the UN COMTRADE database with data covering at least two years across the decade. (The precise years over which the increase is measured vary by country, but are shown in the appendix).

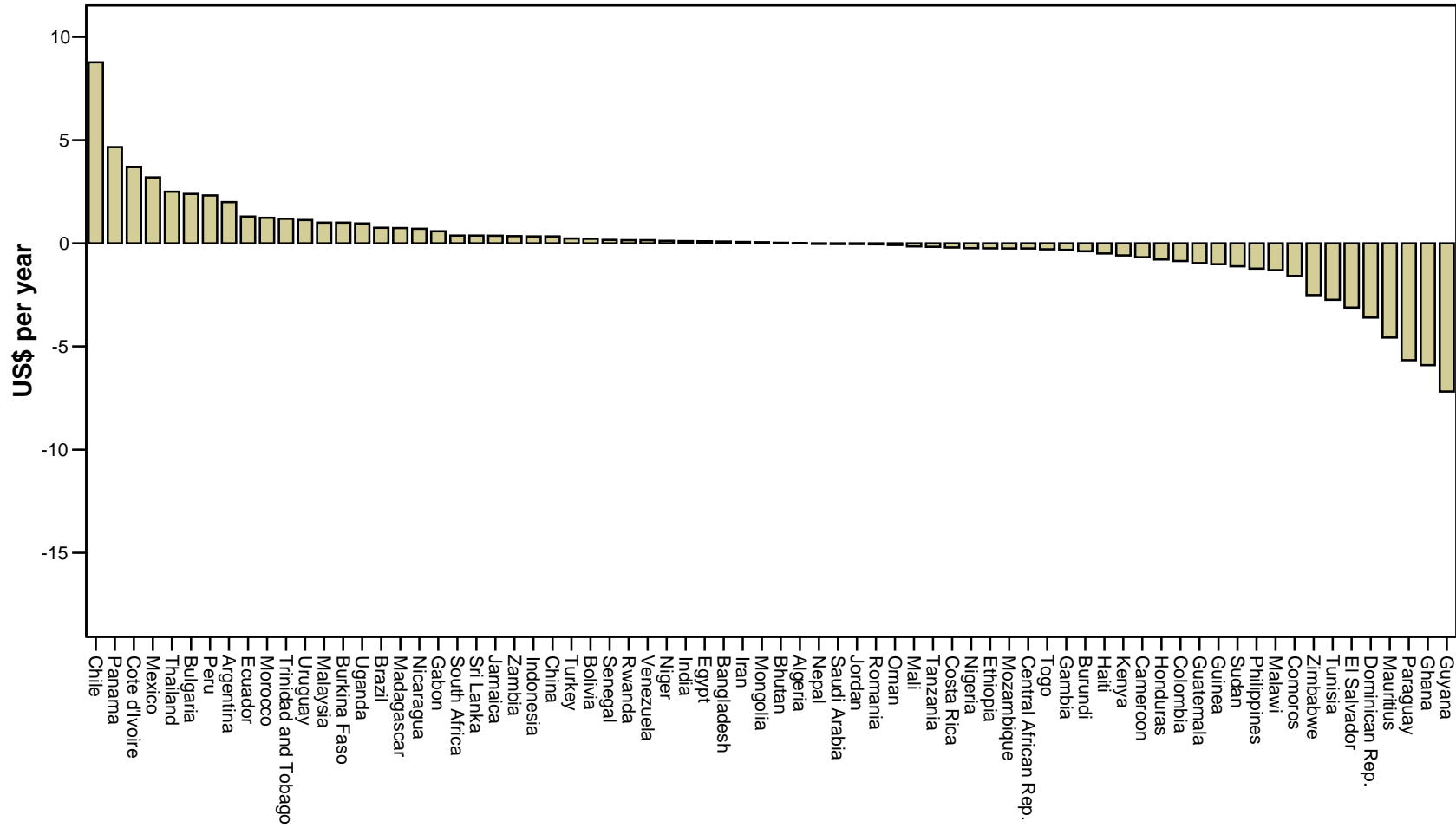
Figure 3 shows average increases in aggregate US\$ terms. The list is clearly dominated by the largest (in terms of population and/or GDP) developing countries, including China, Mexico, Brazil, India, and Argentina. Figure 4 shows the average increases in per capita terms. The countries seeing the largest increases according to this measure were (in Latin America) Chile, Panama and Mexico, (in Asia) Thailand, Malaysia and Sri Lanka, and (in Africa) Cote d'Ivoire, Morocco and Burkina Faso.

Figure 3 Increases in agricultural exports to developed countries during the 1990s (US\$ per year)



Source: UN COMTRADE

Figure 4 Increases in agricultural exports to developed countries during the 1990s (US\$ per capita per year)



Source: UN COMTRADE

3.2. Levels of market access and domestic export promotion

We now present evidence on levels of market access and domestic export promotion across different developing countries. For evidence on market access, we use information on the tariff structures of the three main developed country markets – the EU, Japan and the US – obtained from the UNCTAD TRAINS database.⁷ All three offer preferential tariff rates on selected agricultural and non-agricultural commodities to the vast majority of developing countries under the Generalised System of Preferences (GSP) scheme. All three also offer further preferential tariffs to Least Developed Countries (LDCs), and to selected other countries and regions. For the US, these include countries participating in the Caribbean Basin Initiative, the ANDEAN Trade Preference Agreement (ATPA), and the African Growth and Opportunity Act (AGOA). For the EU, this mainly includes the Africa, Caribbean and Pacific (ACP) countries. The coverage and extent of tariff preferences under these schemes varies, but each offers at least some degree of preferential market access for agricultural commodities over and above those prevailing in other developing and developed countries.

In Table 1 we group all low and middle-income countries into groups, depending on which of the different trade preference schemes operated by the EU, Japan and the US they are members of. We then show, for each set of countries in each preference group, which are countries classified as having an open-oriented trade regime during the 1990s [more specific information required], according to the criteria developed by Sachs and Warner (1995), and which are not. These data do not cover all countries, and extend only until 1998, but nonetheless they still represent the most widely available proxy for trade-orientation. To illustrate, 62 low and middle-income countries were subject during the 1990s to no other preferences other than those arising under the GSP scheme. Of these, 32 are recorded as having an open-oriented trade regime during the 1990s, 16 are recorded as not having an open-oriented (i.e. closed) trade regime during that period, and 14 are not classified.

⁷ Given time constraints, it has not been possible to collect information on levels of import quotas.

Table 1 **Developing country membership of the main preference schemes of the EU, Japan and US**

	Open-trade regimes	Closed trade-regimes	Unclassified trade regimes
GSP only (63)	Albania Armenia Azerbaijan Bosnia and Herzegovina Brazil Bulgaria Chile Czech Rep. Egypt Georgia Hungary Indonesia Jordan Kyrgyzstan Malaysia Mexico Moldova Morocco Nicaragua Paraguay Philippines Poland Romania South Africa Sri Lanka Syria Thailand Tunisia Turkey Ukraine Uruguay Venezuela	Argentina Belarus China Algeria Croatia India Iran Iraq Nigeria Pakistan Russia Tajikistan Turkmenistan Uzbekistan Vietnam Yugoslavia	Estonia Kazakhstan Latvia Lebanon Libya Lithuania Macedonia (T.F.Y.R) Micronesia (Fed. State) Mongolia Oman Palau Saudi Arabia Slovak Republic West Bank and Gaza
GSP + ACP, ATPA and/or CBI (35)	Barbados Bolivia Botswana Cameroon Colombia Congo, Rep. Costa Rica Ecuador El Salvador Ghana Guatemala Guyana Honduras Jamaica Kenya Mauritius Papua New Guinea Peru Trinidad and Tobago	Cote d'Ivoire Gabon Zimbabwe	Belize Fiji Namibia Panama Suriname Swaziland
GSP + LDC (48)	Benin Ethiopia Gambia Guinea Guinea-Bissau Madagascar Malawi Mali Mauritania Nepal Sierra Leone Tanzania Uganda Yemen	Angola Bangladesh Burkina Faso Burundi Central African Rep. Chad Congo, D. Rep. (Zaire) Haiti Mozambique Myanmar Niger Rwanda Senegal Somalia Togo Zambia	Afghanistan Bhutan Cambodia Cape Verde Comoros Djibouti Equatorial Guinea Eritrea Kiribati Lao P.D.R Lesotho Liberia Maldives Sao Tome and Principe Solomon Islands Sudan

Source: Authors' calculations based on Sachs and Warner (1995) and Easterly et al. (2003).

3.3. Effects of market access and export promotion on agricultural exports

In this section we investigate the relationship between the measures of market access and export promotion shown in the previous sub-section on exports, first using bivariate and then using multivariate analysis.

3.3.1 Bivariate analysis

In Table 2, we show information on the average per capita exports of agricultural products from countries in each of the nine cells in Table 1. Our interest is to ask: a) whether those developing countries subject to preferential tariffs below those granted under the GSP had higher exports than those which were not; and b) whether those developing countries with open-oriented trade regimes during the 1990s had higher exports than those with closed regimes. Evidence on (a) is obtained by comparing the values of exports vertically down the table in each column, while evidence on (b) is obtained by comparing the values of exports horizontally across the table in each row.

The results in Table 2 suggest that export-promotion (or more specifically, an open trade-regime) has a positive impact on agricultural exports. Within each preference group, and among all countries as a whole, exports per capita are substantially higher among countries with open rather than closed trade regimes. The results with regard to market access are inconclusive however: although those countries subject to some additional preferential tariffs beyond those arising under the GSP have higher agricultural exports per capita than those which do not, the subject to the most preferential tariffs of all (i.e. LDCs) have by far the lowest agricultural exports per capita.

Table 2 Average levels of agricultural exports to developed countries by market access and export promotion (US\$ per capita)

	Open-trade regimes	Closed trade-regimes	All trade-regimes
GSP only			
Mean	45.2	23.7	40.4
Standard deviation	50.5	50.9	50.5
No. of countries	21	6	27
GSP + ACP, ATPA and/or CBI			
Mean	92.1	57.2	86.9
Standard deviation	105.6	74.2	100.7
No. of countries	17	3	20
GSP + LDC			
Mean	6.7	3.0	4.8
Standard deviation	8.1	2.1	6.0
No. of countries	10	10	20
All countries			
Mean	53.8	18.1	43.7
Standard deviation	77.0	41.5	70.4
No. of countries	48	19	67

Notes: The results refer to levels of exports in 2001 or 2002, depending on data availability.

Source: Authors' calculations.

Table 3 repeats the analysis, this time using evidence on average trends in per capita agricultural exports during the 1990s. The results again suggest that open-oriented trade-regimes have a positive impact on agricultural exports. In particular, when considering all countries (rather than any one particular preference group), the average increase in per capita agricultural exports to developed countries is higher among those countries whose trade regimes became open over the period, in comparison with those whose regimes remained closed or open. The results with regard to market access are again inconclusive. In particular, those countries with no tariff preferences other than those arising under the GSP saw the largest increases in exports over the period.

Table 3 Average trends in agricultural exports to developed countries by market access and export promotion (US\$ per capita per year)

	Trade-regimes remaining open	Trade-regimes remaining closed	Trade-regimes becoming open	All trade regimes
GSP only				
Mean	0.81	0.61	0.48	0.67
Standard deviation	3.58	0.93	0.41	2.51
No. of countries	11	4	7	22
GSP + ACP, ATPA or CBI				
Mean	-1.30	0.59	0.46	-0.29
Standard deviation	1.85	3.10	1.31	2.02
No. of countries	7	3	6	16
GSP + LDC				
Mean	-0.67	-0.01	0.04	-0.09
Standard deviation	0.49	0.47	1.03	0.65
No. of countries	2	9	4	15
All countries				
Mean	-0.07	0.25	0.37	0.17
Standard deviation	2.98	1.29	0.91	2.01
No. of countries	20	16	17	53

Notes: The results include those countries for which trends in exports can be calculated over a period of at least seven years between 1988 and 2002.

Source: Authors' calculations.

3.3.2 Multivariate analysis

We now investigate the relationship between market access, export promotion and exports using multiple regression techniques. This has two main advantages. First, it allows us to control for various other influences on the levels and trends in agricultural exports. Second, it allows us to account more easily for differences in the coverage and depth of tariff preferences over time and across the different developed countries granting those preferences.

Our basic approach is to estimate a standard 'gravity model' of agricultural exports, in which the level of exports is assumed to be a function of the size of the exporting and importing countries (as measured by GDP) the distance between them, and the existence of common characteristics (e.g. a common language). We then augment this basic model with a series of variables reflecting the level of export promotion in the exporting country, and the level of market access in the importing country. This

matches the approach used by previous studies of the impact of preferential tariffs, such as Sapir (1981).

We again measure export promotion using the Sachs and Warner (1995) trade policy measure, which is available on an annual basis through to 1998. We also include a dummy variable for whether the exporting country borders the sea, which is a measure of natural barriers to trade. For levels of market access, we construct 7 dummy variables as follows:

- $D_{LDC,US}$: 1 for all exports to the US from LDCs, 0 otherwise;
- $D_{LDC,EU}$: 1 for all exports to the EU from LDCs, 0 otherwise;
- $D_{LDC,JPN}$: 1 for all exports to Japan from LDCs, 0 otherwise;
- $D_{LDC,OTH}$: 1 for all exports to other developed countries from LDCs, 0 otherwise;
- $D_{ACP,EU}$: 1 for all exports to the EU from ACP countries, 0 otherwise;
- $D_{CBI,US}$: 1 for all exports to the US from CBI countries, 0 otherwise;
- $D_{ATPA,US}$: 1 for all exports to the US from ATPA countries, 0 otherwise.

We also interact each of the dummy variables with dummy variables for each year, to allow for changes in the coverage and/or depth of tariff preferences over time. This generates another 70 dummy variables (7 preference groups in each of 10 years). We also add dummy variables for each year, to capture trends in agricultural exports over time among all countries. Our final specification is therefore as follows:

$$\ln X_{ijt} = \beta_0 + \beta_1 \ln N_{it} + \beta_2 \ln N_{jt} + \beta_3 \ln y_{it} + \beta_4 \ln y_{jt} + \beta_5 \ln dist_{ij} + \beta_6 lang_{ij} + \beta_7 sw_{it} + \beta_8 coast_i + \beta_{9-15} marketaccess + \beta_{16-86} marketaccess * year + \beta_{87-97} year + \varepsilon_{ijt}$$

where the subscript i denotes each exporting country, the subscript j denotes each importing country, and the subscript t denotes each year. The definition of each variable is shown in Table 4. We estimate the model using the method of ordinary least squares. The sample includes exports from 84 low and middle-income developing countries (all with populations exceeding 250,000 in 2002) to 24 developed countries, in most years between 1988 and 1998. The total number of observations is 8,592.

The results of the regression analysis are shown in Table 5. In column (1), we show the results of the basic ‘gravity model’ specification. All the variables have the expected sign and are statistically significant at the 5% or 1% level. In particular, agricultural exports are higher between countries located closer together and between countries which share a common language. Agricultural exports are also higher from countries which border the sea, and with higher populations and higher GDP per capita.

Table 4 List of variables

Variable	Definition	Source
<i>X</i>	Total agricultural exports (US\$)	UN COMTRADE
<i>N</i>	Population (millions)	World Bank (2004)
<i>Y</i>	GDP per capita (1995 US\$)	World Bank (2004)
<i>Dist</i>	Distance between exporting and importing country (km)	Authors' calculations
<i>Lang</i>	Proportion of exporting and importing country populations speaking a common language	Hall and Jones (1999)
<i>Sw</i>	Sachs and Warner measure of trade policy in exporting country	Easterly <i>et al.</i> (2003)
<i>Coast</i>	Exporting country borders the sea (1=yes, 0=no)	Authors' calculations
<i>Market access</i>	7 dummy variables described in text	Authors' calculations
<i>Market access*year</i>	Market access variables interacted with dummy variables for each year	Authors' calculations
<i>Year</i>	Dummy variables for each year	Authors' calculations

Source: Authors' calculations.

In column (2), we show the results when including the measures of market access and export promotion. The results show that developing countries which promote exports – or again more specifically, have an open trade regime – have significantly higher agricultural exports. This supports the findings of the previous section. The effects of market access are again mixed. LDCs have significantly lower agricultural exports to the EU, Japan, the US and other developed countries, even when controlling for domestic export promotion, access to the sea, distance from markets, GDP per capita and so on. There is therefore no evidence from these results to suggest that preferential tariffs have increased exports from LDCs.

By contrast, other developing countries receiving preferential tariffs have significantly higher agricultural exports to those developed countries providing preferences. In particular, the ACP countries have significantly higher exports to the EU, and the ATPA and CBI countries have significantly higher exports to the US, than other countries, even when controlling for the various other influences on exports included in the regression. This is evidence therefore that these particular preference schemes have promoted exports.

We also tried including separate dummy variables for each preference group in each year. These results generally suggested little differences in the effect of preferences on exports over time. The one exception was for the US and Japan, where exports from LDCs towards the beginning of the period were significantly higher than other countries (after controlling for all other influences included in the regression), and became significantly lower than other countries only towards the end of the period. This could reflect preference erosion for LDCs over the period (due to reductions in MFN tariffs over the period), or increasing levels of non-tariff barriers faced by LDCs.

Table 5 Determinants of agricultural exports: regression analysis

	(1)	(2)
ln N _i	1.03	1.11
	0.02	0.03
ln N _j	1.43	1.43
	0.02	0.02
ln y _i	1.27	0.95
	0.04	0.05
ln y _j	-0.21	-0.17
	0.09	0.09
ln dist	-0.23	-0.18
	0.06	0.06
Lang	0.78	0.74
	0.17	0.16
Coast	0.24	0.14
	0.10	0.10
SW	-	1.06
		0.09
EU-LDC	-	-0.87
		0.15
JPN-LDC	-	-1.54
		0.35
US-OTH	-	-1.46
		0.35
OTH-LDC	-	-0.15
		0.16
EU-ACP	-	0.66
		0.13
US-ATPA	-	1.16
		0.56
US-CBI	-	1.58
		0.44
R2	0.51	0.53
N	8,592	8,592

Notes: Standard errors are shown below each coefficient.

Source: Authors' calculations.

4. Case Study 1: Exports of fruit and vegetables from Kenya

4.1. Introduction

This case study seeks to explore the impact of the Kenyan horticultural export sector on poverty in Kenya⁹. It will analyse the factors underlying the increase in exports of horticulture by Kenya since the early 1990s; identify whether the increase in Kenyan horticulture exports have had an impact on poverty incidence and severity (in comparison with the likely counterfactual); identify government policies which might enhance the beneficial impacts of increased horticultural exports and, where necessary, mitigate any adverse consequences.

Figure 5: Map of Kenya⁸



We have chosen to focus on the Kenyan horticulture sector¹⁰ because it is hailed as a success. Within the horticulture sector we focus on fruit and vegetable sub-sectors which involves large numbers of smallholder farmers and casual workers employed in processing and packing, with important implications for poverty reduction (see Section 4.5, below). This contrasts with the highly capital intensive export floriculture sub-sector¹¹ which is excluded from analysis.¹²

The sector is also of interest because of the dominant, and apparently successful, involvement of the private sector¹³ which has delivered an efficient and flexible

⁸ source: CARE International - http://www.careinternational.org.uk/cares_work/where/kenya

⁹ Horticulture is taken here to include fruit, vegetables, flowers and ornamental plants. The broader FAO definition includes nuts, legumes, starchy root crops and sugar crops. This case study will focus on fruit and vegetables but because we use data from various sources some discrepancies due to different definitions are likely. In Kenya cut flowers account for half of all horticultural exports (Minot and Ngigi, 2004:4). The cut flower sub-sector is dominated by large-scale capital intensive operations and is likely to generate more limited direct benefits to farmers and workers than the fruit and vegetable sub-sectors which we focus on in this case study.

¹⁰ The main horticultural crops are fruits, vegetables, cut flowers, and herbs and spices (Kenya, 2002; Gachanja, 2001, Kamau, 2001). Cut flowers contribute significantly to export earnings.

¹¹ The floriculture sub-sector is dominated by 4-5 very large companies which have developed vertically integrated systems of producing, transporting and marketing flowers through their own chartered cargo space and their own marketing organisations, in the Netherlands, Germany and the UK. Rose producers are an exception, and these include small and medium sized producers (FKAB, 2001).

¹² Some aggregated figures may refer to floriculture as well as vegetables and fruits.

¹³ One third of fruit and vegetable exporters are South Asian Kenyans (Minot & Ngigi, 2004:70) and some of the largest export companies are owned by Europeans or European

marketing system (Minot & Ngigi, 2004:60). And, unlike much of the rest of the Kenyan economy, the horticulture sector is growing rapidly (see Section 4.2.3, below for detail).

In Section 4.2 we provide a brief introduction to poverty in Kenya, outlining trends, human development and the key drivers of poverty. We describe the characteristics of the poor and their spatial distribution in Kenya. We also provide an overview of Kenya's economic performance, main trading partners and trends in trade since independence. We introduce the horticultural export sector, and highlight its contribution to the Kenyan economy. In Section 4.3 we highlight the factors which have helped to make the Kenyan export horticulture sector a success and in Section 4.4 we outline the impact that the sector has had on poverty reduction. Lastly we suggest areas in which policy innovation might strengthen the poverty reducing impact of the sector.

4.2. Background

4.2.1. Poverty and human development in Kenya

Population growth¹⁴ has outstripped sluggish economic growth and the incidence of both poverty and extreme poverty¹⁵ increased substantially during the 1990s in both rural and urban areas, with poverty increasing from 45% in 1992 to 52% in 1997 and an estimated 56% in 2000 (Omiti et al, 2002:7, World Bank, 1996). This has resulted in food insecurity, inadequate access to basic social amenities such as health and education, unemployment, escalating insecurity, lawlessness and general economic decay (Kenya, 2001c). Intensified poverty is illustrated by worsened child food insecurity, with the percentage of underweight children under five increasing from 14% in 1990 to 23% in 2001. This indicates that poor families are in crisis and that children are vulnerable to inheriting their parent's poverty (UNDP, 1990, 1993, 2000, 2003).

Human development has worsened, indicated by Kenya's human development indicator rank dropping from 136 to 146 between 1998 and 2001 (UNDP, 2003 and 2000). Kenya's Human Development Index (HDI¹⁶) has also been in decline, illustrating that multidimensional poverty is deepening in Kenya (UNDP, 1990, 1993, 2000, 2003).

Kenyan. Both groups use their networks to lower transactions costs, deepen knowledge of European markets and gain access to investment and working capital (often difficult in Kenya).

¹⁴ Increased by 3.3% between 1975 and 2000, and a predicted 1.8% between 2000 and 2015. In 1975 the population was 13.6m, in 2001 31.1m and by 2015 it is predicted to reach 36.9m (UNDP, 2003:252).

¹⁵ In 1997, the poverty line was estimated at Kshs. 1239 per month per adult in rural Kenya and Kshs. 2648 in the urban areas. In 1994, these figures were Kshs. 978.27 and Kshs. 1489.60 for rural and urban areas, respectively. Poverty is defined as the inability of persons, households or communities to meet certain minimum levels of consumption at which basic needs such as food, education/literacy, shelter are fulfilled. Extreme poverty is based on food poverty measures, where consumption of food falls below a level set for the nutritional standards that are necessary for healthy growth and maintenance of the human body.

¹⁶ The Human Development Index (HDI) attempts to represent multidimensional poverty. It is derived from a simple average of three components: longevity, educational attainment and the standard of living.

Box 1: The crisis of poor social development in Kenya

- Poor people are unable to access education, health and decent housing (PPA reports);
- Life expectancy fell from 59.5 years in 1989 to 54.7 in 1999 and 44.6 in 2001 - linked to increased poverty and the spread of HIV/AIDS;
- Adults (15-49) living with AIDS increasing from 11.6% to 15% in the three years from 1998 to 2001;
- Infant mortality rates rose from 66 per thousand (1989) to 67 per thousand (1999);
- Under five mortality rose from 89 (per thousand) (1990) to 90 (1996) and 105 (1998);
- Immunisation for infants (under 1 year) reduced from 92% in 1990-94 to 56% in 1995-96, with DPT decreasing from 84% to 46%, polio from 84% to 43% and measles from 73% to 38%;
- Primary school enrolment declined from 95% in 1989 to 79% in 1995, while secondary school enrolment fell from 30% in 1990 to 27% in 1995 and 23% in 1999;
- Access to safe drinking water marginally increased from 47% in 1990 to 49% in 1995 and 54% in 1998-2000.

Source: UNDP, 1990, 1993, 2000, 2002, 2003

Poverty in Kenya is associated with slow or non-existent economic growth (see Section 4.2.2, below); income inequality and unequal access to productive resources (e.g. land); household and individual shocks (e.g. ill-health, disability); natural shocks (e.g. drought, floods and fire); inadequate spread and access to basic social services (particularly education and health); insecurity and ethnic clashes; geographic isolation in remote rural areas worsened by a strong urban bias in the design and delivery of services; corruption, poor governance and inadequate service delivery and implementation of development programmes; lack of effective social policies; and disease (particularly TB and HIV/AIDS) (Nyamwaya, 1995; World Bank, 1996; Kenya, 2001; Manda et al, 2001:31).

The identification of inequality as a key driver of poverty has important implications for this study as increased trade flows commonly intensify income inequality, if not countered by other policy measures. Kenya is already among the most unequal societies in the world with a higher gini coefficient than most countries in the region ; the richest 20% control 59% of the national income while the poorest 20% control only 2.5% (UNDP, 2002).

Poverty is strongly concentrated in rural areas with rural households being twice as likely as the urban population to be poor or very poor, but rapid urbanisation¹⁷ and certain policy reforms have seen the alarming increase of both the incidence and severity of urban poverty. Very few poor people are employed in the formal (15%) or state sectors (7.5%). They tend to obtain livelihoods through the informal sector and large numbers of poor people are 'unemployed', including the underemployed, casual labourers and those engaged in unpaid household enterprises.

The impact of the drivers of poverty described above leads to poverty being strongly clustered in certain social categories: the landless; subsistence farmers; pastoralists in drought prone districts; unskilled casual labourers; people with disabilities; female headed households; households headed with people without formal education;

¹⁷ 12.9% urban dwellers in 1975, 34.3% in 2001, predicted 47.2% by 2015 (UNDP, 2003:252).

unskilled and semi-skilled casual labourers; AIDS orphans; street children and beggars; unpaid family workers; large households; single mothers and fathers; urban slum dwellers; and unemployed youth (Kenya, 2001c).¹⁸

An examination of these social profiles indicates that gender, education and occupation are important proximate determinants of poverty. Gender-related poverty varies by marital status, but women in general are more likely to be poor than men. This is largely due to their lack of rights and control over productive resources and their lack of legal protection. Low levels of asset ownership, poor access to credit and limiting social norms means that women are highly concentrated in agriculture. The majority of subsistence farmers are women (69%), and this is the livelihood group whose members are most likely to be poor in Kenya (Omiti et al, 2002).

Real prices of several cash crops have been on a declining trend, with coffee prices declining by 46.7% between 2000 and 2002 alone, and cotton by 18% over the same period (CBS, 2003). This means that the incomes of richer farmers are likely to be in decline, diminishing their ability to hire casual labour, with serious implications for the poorest who rely on casual agricultural employment as an important source of livelihood.

Aggregate poverty figures conceal sharp regional disparities in poverty incidence in Kenya. These are closely associated with rainfall and agro-ecological potential, and poverty is higher in arid and semi-arid parts the country. The Provinces with the highest incidence of poverty in 1997 were Nyanza (63%) and Coast (62%), with Coast also experiencing the strongest rise in poverty (from 44% in 1992 to 62% in 1997). Poverty was lowest in the Central Province (31%), suggesting that proximity to the capital and international markets is important (Ministry of Finance and Planning, 2000a) (see Table 6). There are also wide regional disparities in human development (Table 7) with the HPI highest in the arid and semi arid regions(UNDP 2002).

¹⁸ Evidence from the 1997 WMS shows that about 51% of the subsistence farmers and 55% of pastoralists are poor (Kenya, 2001).

Table 6: Poverty trends in Kenya.

Rural Areas	Percentage of poor			Percentage of extreme poor		
	1992	1994	1997	1992	1994	1997
Central	35.89	31.93	31.39	67.83	32.95	29.73
Coast	43.50	55.63	62.10	63.00	50.95	59.46
Eastern	42.16	57.75	58.56	62.31	59.50	56.82
Nyanza	47.41	42.21	63.05	70.72	41.31	58.16
Rift Valley	51.51	42.87	50.10	81.02	45.75	48.02
Western	54.81	53.83	58.75	78.41	52.25	58.58
North Eastern	-	58.00	-	-	56.55	-
Total Rural	47.89	46.75	52.93	71.78	47.19	50.65
Urban Areas						
Nairobi	26.45	25.90	50.24	41.92	27.26	38.38
Mombasa	39.17	33.14	38.32	44.84	33.12	38.57
Kisumu	-	47.75	63.73	-	44.09	53.39
Nakuru	-	30.01	40.58	-	37.18	26.81
Other towns	-	28.73	43.53	-	27.07	37.91
Total Urban	29.29	28.95	49.20	42.58	29.23	38.29
Total Kenya	44.78	40.25	52.32			

Source: Ministry of Finance and Planning, 2000a). (Welfare Monitoring Surveys - 1992, 1994 and 1997.

Table 7: Human Poverty and Human Development Indices for Kenya

Province	HDI		HPI	
	Value	Rank	Value (%)	Rank
Kenya	0.539		34.5	
Nairobi	0.783	1	32.4	2
Central	0.595	2	30.7	1
Coast	0.459	4	37.5	4
Eastern	0.452	6	39.9	5
Rift Valley	0.528	3	36.8	3
Nyanza	0.457	5	44.3	7
Western	0.445	7	41.1	6
North Eastern	0.426	8	44.8	8

Source: UNDP, 2002

4.2.2 The performance of the Kenyan economy

Kenya has had a bleak record of poor performance over a broad range of economic, social, political and governance indicators (Freeman et al, 2003), which has been linked to worsening poverty outcomes. Furthermore, a poor governance record during the 1990s alienated donors and by 2000 Kenya received half the per capita aid flows of neighbouring Uganda and Tanzania (Freeman et al, 2003).

The current gloomy picture is in contrast to the country's potential and its immediate post-independence experience. At that point the Kenyan economy was doing well. The smallholder farm sector thrived through producing cash crops for international markets at a time when international markets were buoyant (ibid). Crop marketing boards, established during the colonial period or post-independence, seemed effective

initially. However the lack of separation between public office and private accumulation, low levels of labour productivity and the crowding out of the private sector by parastatal bodies became problematic. Despite evidence that reform was necessary, Kenya was reluctant to dismantle the poorly functioning public marketing agencies (Freeman et al, 2003).

Economic growth fell from 7% per year in the 1960s to 4% in the 1980s and to 2.4% in the 1990s, and since the late 1990s the economy has been in recession (CBS, 2003:19). Taking a shorter time span we see that the Kenyan Shilling has devalued sharply since the mid-1990s, declining in value against the US dollar from 44.8 in 1994 (CBS, 2001) to 77.0 in 2002 (CBS, 2003). In addition, Kenya has had lower rates of growth and higher levels of inflation than its immediate neighbours, Tanzania and Uganda (CBS, 2003:19).

A study comparing Kenya's economic growth performance with Bangladesh's between 1960 and 2000 found that Bangladesh has begun to outperform Kenya (Roberts and Fagernäs, 2004). This is instructive as Bangladesh used to be regarded as a development 'basket case'. In seeking to understand why the performance of the two countries has diverged, Roberts and Fagernäs found multiple and mutually reinforcing causes. Bangladesh's manufacturing sector is growing three times as fast as Kenya's. In Kenya the public share of investment (40%) is extremely high for a low income country, while Bangladesh has a low share of investment (15%). Kenya experienced a declining trend in its trade/GDP ratio between the 1960s and the late 1980s. It has also experienced erratic macroeconomic management, with high levels of public expenditure, taxation and unemployment. Formal sector wages have been driven up by the large public sector payroll and continuous domestic financing of the fiscal deficit has caused prolonged episodes of relatively high inflation. In addition the quality of public institutions declined between 1960 and 2000, and confidence in them has fallen. Surveys of local businesses rate Kenyan governance more negatively than that in Bangladesh (Roberts and Fagernäs, 2004).

Of particular interest to this study is the finding that export growth has not had any significant effect on aggregate economic growth in Kenya, with the real export/GDP ratio falling during much of the period of fast growth. Furthermore, most elements of Kenyan agriculture have stagnated since the 1970s when hybrid maize was adopted. Since then there have been no further productivity enhancing technologies promoted and input costs and the mismanagement of reforms have contributed to production declines (Roberts and Fagernäs, 2004).

Poor performance in the Kenyan economy has affected employment creation (CBS, 2003:57) with small declines in public sector employment (1998 – 2002), due largely to civil service reform (CBS, 2003:59).¹⁹ This was balanced with the net creation of 21,400 jobs in the private sector (ibid). However the working population is growing faster than new jobs can be created²⁰, and while there were 6.8 million jobs in the economy in 2002, 74.2% of these were within the informal sector (CBS, 2003:57). Manufacturing has generated more new jobs than any other sector, driven by

¹⁹ In December 2001 the public sector accounted for 40% of total wage employment in Kenya, but productivity of many of these people is low as they are without resources to undertake any meaningful activity (Freeman et al, 2003).

²⁰ 43% of the population was under 15 in 2001 (UNDP, 2003:252).

employment opportunities in the EPZ²¹ (Export Processing Zones) and successful exploitation of AGOA (CBS, 2003:58).

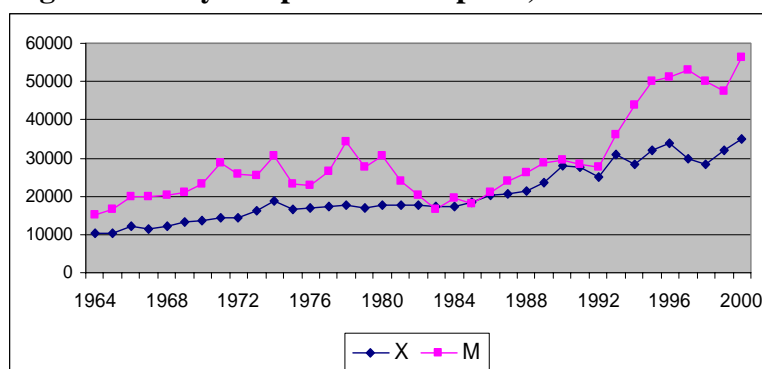
Focusing on the agricultural sector, this sector contributes around 25% of GDP²² (more than any other sector), employs roughly 75% of the labour force, provides nearly all of Kenya's food requirements and is a major foreign exchange earner (Kenya, 2001). Key export crops include tea, coffee, sugar, cotton, horticulture, pyrethrum, and oil crops. Others important products include milk, beef, fish, and honey. Tea, horticulture, coffee, petroleum products and cement account for approximately two thirds of Kenya's total exports (CBS, 2003:130), and tea is Kenya's second largest foreign exchange earner after tourism (Karanja, 2002).

The EU, COMESA and Asia are key Kenyan export markets, and remained so throughout the 1990s. The most important single agricultural commodity exported to the EU in 2001 was plants and flowers (22% of all agricultural exports to the EU), followed by tea (17%), vegetables (14%) and coffee (11%) (CBS, 2001). Kenya continues to be the most important supplier of vegetables to the EU despite increased competition from Côte d'Ivoire, Morocco, Zimbabwe, South Africa and Cameroon (Minot & Ngigi, 2004:19)

Kenya has a relatively narrow range of export products and has lost substantial potential export earnings as a result of its failure to diversify its exports towards non-traditional exports in line with changes in world market demand (Wagacha, 2000). Had these problems been rectified, Kenya could have gained an estimated additional US\$2199 million from trade expansion between 1980 and 1997 (Wagacha, 2000:37).

Kenya's exports are dominated by the agricultural sector, and export values increased from Ksh.18,910 million in 1992 to Ksh.69,285 million in 2000 (Figure 6). Export *growth* in most sectors has declined (Wagacha, 2000:37; CBS, 2001) making agricultural exports – and the vibrant horticultural sub-sector - disproportionately important.

Figure 6: Kenya Imports and Exports, 1964-2000



Source: Economic Surveys Kenya Bureau of Statistics, various Issues

²¹ Sales from goods produced in EPZs accounted for 4.3% of the manufacturing sector turnover and 12.5% of total employment in the sector in 2002 (CBS, 2003:169).

²² The sector's contribution to GDP has progressively declined from 37% in early 1970s to about 25% in 2001 (Kenya, 2001:23).

4.2.3. The contribution of horticultural exports

Horticultural products have accounted for two-thirds of all growth in agricultural exports and recently surpassed coffee to become the second largest merchandise export, after tea. Kenya is the second largest horticultural exporter in Sub-Saharan Africa (after South Africa), the second largest developing-country exporter of flowers in the world (after Colombia), and the second largest developing-country supplier of vegetables to the European Union (after Morocco).

French beans, Asian vegetables, canned pineapple and avocados dominate horticulture exports but Kenya now exports 30 different fruits and 27 vegetables (Minot & Ngigi, 2004:18). However, only a tiny proportion of overall horticultural production is exported (3.1% in 2001), but exporters have innovated to gain substantially from value addition and although export volumes only increased by 16% between 1996 and 2001 their value increased by 262%. Horticulture's share of agricultural exports has increased from around 6% in the early 1960s to 46% in 2000 (Minot and Ngigi, 2004:2). The value of horticultural exports have increased four-fold in constant dollar terms since 1974²³, reaching US\$167m in 2000 (Minot & Ngigi 2004). This growth has accelerated during the last decade, with (real) growth of 2.7% per year (Karanja, 2002:61). As a result horticulture now contributes 30-35% of GDP (Kenya, 2002) and is Kenya's third foreign exchange earner after tea and tourism.

The growth of tourism and horticulture has been important for the Kenyan economy as, in addition to benefits derived from earnings, the diversification of the economy has reduced its exposure to price risk in those key commodity markets (Minot & Ngigi, 2004:82). Growth in the Kenyan tourist industry has supported the development of export horticulture. Producing for hotels and restaurants gave producers a better idea of quality and product requirements, and continues to provide them with a market for produce which does not quite make the exacting standards of international exporters. Nairobi is a regional air transport hub, reducing air freight costs and in the 1980s, with horticultural export volumes too low to justify chartering a cargo jet, produce was transported in passenger jet cargo holds (Minot & Ngigi, 2004:14).

Various crops have dominated at different points over the last three decades. During the 1970s the expansion of the sector was driven by strong increases in pineapple production and processing for export. However during the late 1970s and 1980s growth was instead generated by increased exports of fresh vegetables and to a lesser extent fruits, as farmers diversified away from tea and coffee following price shocks. Kenya lost domination of the European fresh pineapple market to Côte d'Ivoire in the 1980s, it has lost European market share in avocados to higher quality Israeli and South African products and has lost out to southern European and Mediterranean producers of peppers, courgettes and temperate vegetables (Minot & Ngigi, 2004:21). But the sector has been resilient, identifying new markets and expanding exports of French beans, Asian vegetables and cut flowers (ibid.)

²³ Between 1963 and 1991 horticultural exports rose by approximately 12 times in weight and forty times in value (McCulloch and Ota, 2002).

The majority of Kenya's horticultural exports head to the EU, which is the largest importer of fresh horticultural products (from non-EU countries) in the world (FKAB, 2001). This dependence has exposed exporters to risks, which include market saturation, driving down profit margins, increasingly demanding importers, and the loss of preferences enjoyed under the Lomé Agreement. Kenya will face tariffs of 7% on primary and 18% on processed products, pushing down profit margins. Some worry that investors in the Kenyan horticulture sector will shift to Uganda, Tanzania or Ethiopia to make use of their least developed nation status. However, Kenyan producers can supply year round and they have been able to move up the value chain, making them very competitive under current conditions (Ikiara *et al*, 2003).

Kenya is the number one floriculture exporter to the EU (followed by Israel, Costa Rica, Colombia, USA, Ecuador and Zimbabwe) (FKAB, 2001) and a move to higher value products during the 1990s is a key reason for the upward trend in export values. In terms of vegetable exports, beans and peas are the key export crops (65% of value in 1999), and Kenya has been able to defend market share by improving quality (*ibid.*). Fruit exports have increased in value despite volumes showing only a small increase (FKAB, 2001). However, the EU market is increasingly competitive and appears to be saturated, resulting in lower profit margins during the 1990s (*ibid.*). As profits are squeezed, exporters drive down the prices paid to producers (Argwings-Kodhek, 2001), with implications for incomes and poverty reduction.

Increasing demands for traceability and demand for value added products (e.g. mixed salads, pre-packed prepared vegetables) has been driven by UK supermarkets, which retail over 70% of fresh fruit and vegetables sold in the UK (Minot & Ngigi, 2004). This generates higher export earnings for Kenya and provides opportunities for the larger scale and better organised exporters but is a challenge for smaller producers and exporters (FKAB, 2001). Currently the fruit and vegetable export sector is dominated by a small number of major exporters who control around 85% of vegetable exports (*ibid.*), sourcing many of their products from smallholders (Argwings-Kodhek, 2001).

Increasingly tight requirements²⁴ and pressure for consistency across production units and through the seasons and for innovation in product and production method have made access to the market more difficult and imposed new costs on suppliers (Dolan & Humphrey, 2000; FKAB, 2001; Kanji and Barrientos, 2002). UK supermarkets are wary of sourcing from small farmers, as failure to meet safety or ethical standards could result in bad publicity and undermine their market position. Because of this, supermarkets are increasingly using their dominant position as buyers to control production, innovation, quality and standards within the horticulture supply chain, leading to changes in the supply base. They believe that concentrating their grower base will reduce their exposure to risk by giving them greater control over the production and distribution processes (Barrett *et al*, 1999; Kanji and Barrientos, 2002).

²⁴ Traceability; MRLs - Maximum Residue Limits; quarantine; high post harvest quality requirements necessitating cold storage facilities; packaging recycling requirements; human welfare and safety compliance – including health and safety requirements and the ethical treatment of labour (FKAB, 2001, Kanji and Barrientos, 2002).

In an attempt to meet supermarket requirements, exporters are now developing close relationships with selected producers. The need to do this has encouraged an increased focus on larger suppliers with lower transaction costs and vertical integration with several exporters acquiring production capacity. Both trends have led to a consolidation of the sector and 8-10 large exporters are responsible for 75-80% of export volume (Minot & Ngigi, 2004:70). This consolidation has led to a clear decline in smallholder horticultural production (Minot & Ngigi, 2004).

Two of Africa's largest horticulture exporters have shown that smaller producers can meet the standards required by European importers – UK supermarkets in particular - if the exporter assumes responsibility for organising growers, arranging finance, providing technical support and ensuring traceability. However, the trend towards consolidation appears set.

In 1992, close to 75% of fruit and vegetables in Kenya were grown by smallholders. This has fallen since then and 55-60% of horticultural exports are still produced by smallholders but smallholders have lower labour costs than large scale commercial producers and are strongly motivated to provide careful husbandry. Large producers have not been able to compete with smallholders in the production of many types of fruit and vegetable (Minot & Ngigi, 2004:24). The dynamic growth of the Kenyan supermarket sector (Neven & Reardon, 2004) may be seen as a positive sign for smallholders as they will create a high value outlet for products which do not quite make export grade.

4.3. Factors underlying increased exports of fruit and vegetables

4.3.1. Enabling factors

The export sector has been able to survive and grow despite low levels of public investment in infrastructure and other powerful constraints. The Kenyan government has not intervened significantly in horticultural markets, to buy, sell, export or set prices (Minot & Ngigi, 2004: 86). This is in contrast to government intervention in many other, now fragile agricultural export sectors in Kenya. However, state enterprises *were* involved in horticultural processing, often through joint ventures. Interestingly most of the growth in horticultural exports has been in fresh produce (ibid.).

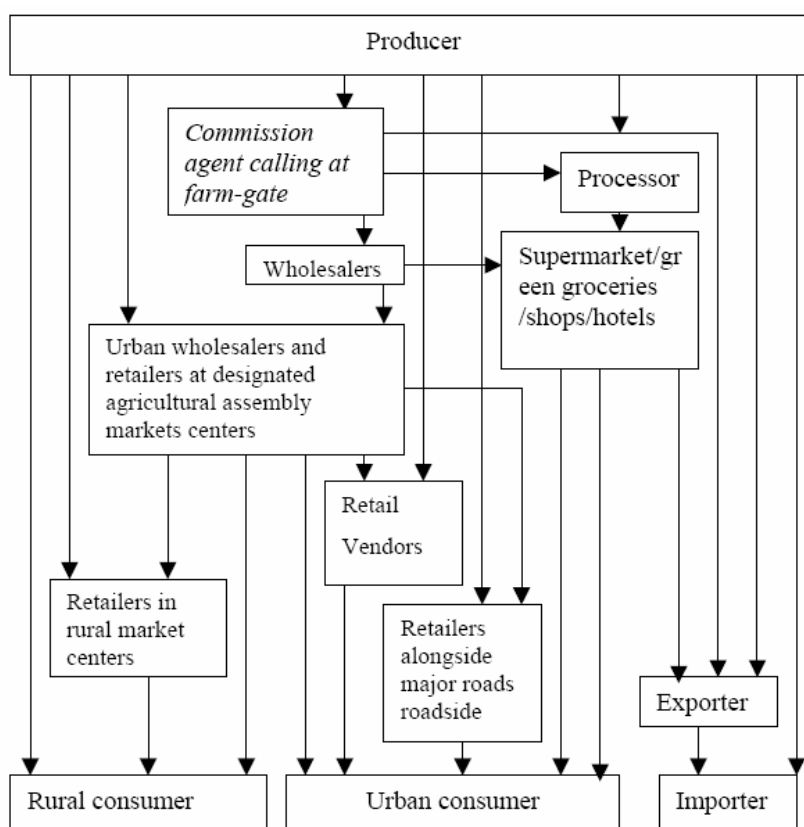
The development of the sector has been supported by Kenya's investment climate, which is good in comparison with many other African countries (ibid.:87). An element of this has been the government's relatively liberal policies on foreign investment and investment by local businesses (Minot & Ngigi, 2004: 88). Macroeconomic stability during the 1960s and 1970s encouraged investment in productive capacity (ibid.), and inflation and exchange rate overvaluation during 1980s was modest in comparison with neighbours (e.g. Tanzania and Uganda) (Minot & Ngigi, 2004: 88). Kenya had stable government and stable policies over a long period. In addition, Nairobi's role as an international air transport hub has provided exporters with competitive access to markets. The government has allowed (and in some cases promoted) the development of a wide range of private marketing institutions (e.g. FPEAK) and has allowed experimentation with a wide range of institutional arrangements between farmers and buyers (Minot & Ngigi, 2004: 88).

Private entrepreneurs have used their good personal networks and knowledge of import markets to respond to international demand for high quality goods, identify market opportunities and make the most of them. For example, the growth of the Asian community in the UK created a market for ‘Asian’ vegetables, and Kenyan export capacity developed rapidly, building on expertise in production for the Kenyan Asian community and on networks between the Kenyan Asian and the British Asian communities (Minot & Ngigi, 2004:13-14).

4.3.2. Institutional experimentation with export arrangements

Horticultural market institutions and arrangements are complex. Actors in the horticultural sector have experimented and identified a number of successful approaches. Arrangements include smallholders selling in spot markets, personalised relationships with traders, implicit contracts, explicit contracts, marketing through farmer organisations and vertical integration by producer-exporters (Minot and Ngigi, 2004:93) (see Figure 7).

Figure 7: Horticultural marketing channels



Source: Minot & Ngigi, 2004: 64.

4.3.3. Foreign market access

The Lomé Agreement (1975-2000) allowed Kenya and other ACP (African, Caribbean and Pacific) states access to EU markets through non-reciprocal trade

preferences which gave them lower tariffs or tariff exemptions in manufactured and agricultural goods (not in direct competition with EU products). Under this agreement, Kenyan horticultural products (and most other agricultural exports to the EU) attracted both a zero tariff and the absence of quotas, which contributed to making Kenya one of the leading exporters of horticultural products to the EU (Ikiara *et al*, 2003).

The **Cotonou Agreement** (which replaced the Lomé Agreements in 2000) gives all ACP-LDCs quota and tariff preferences, with more generous preferences offered for manufactured than agricultural goods (Ikiara *et al*, 2003). Preferences for agricultural produce are sometimes limited by quotas, ceilings and seasonal restrictions for fruit and vegetables and exclude some products (*ibid*). Limited capacity in Kenya has meant that it has not made the most of all its quotas (e.g. for beef and veal or for sugar) (Ikiara *et al*, 2003). Kenya is not categorised as a Least Developed Country (LDC) under the Cotonou Agreement and will lose non-reciprocal trade preferences by January 2008. They will be replaced by negotiated reciprocal arrangements referred to as economic partnership agreements (EPAs). Unless these arrangements result in zero tariff rates, Kenyan goods may face tariff bands similar to those faced by non-ACP countries. For horticultural products tariffs are currently 8-15% (Ikiara *et al*, 2003). So, from January 2008 competition from quota-free zero-rated goods from ACP-LDCs may reduce the profitability and market share of Kenyan goods.

With the removal of preferential access Kenya is likely to face competition from Egypt, South Africa, Chile, Brazil and Thailand in selling horticultural products profitably in the European market (Minot and Ngigi, 2004:21)

4.3.4. The domestic political and institutional environment

Kenya has had a bleak record of poor performance over a broad range of economic, social, political and governance indicators (Freeman *et al*, 2003). But in December 2002 a general election in Kenya replaced the incumbent Kenya African National Union (KANU), which had held power without a break since Kenya's independence in 1963 with the National Rainbow Coalition (NARC), a coalition of opposition parties. Three years on and optimism has turned to disappointment, corruption is still widespread and there is little evidence that the government has the policy instruments or the political will to tackle the constraints faced by the economy or the widespread poverty.

Both rural and urban Kenya have suffered from deteriorating public service delivery since the 1980s. Clear indicators of this are the disintegrating infrastructure and sporadic electricity and water supplies (Freeman *et al*, 2003). In an environment of worsening economic performance, where the incidence and severity of poverty is increasing in both rural and urban areas, this is very serious, as the poor depend disproportionately on public goods and services for their well-being.

Corruption and the poor separation between public and private has substantially slowed economic growth. Kenya has been ranked 97 out of 102 in terms of corruption (with 102 being the most corrupt) (Transparency International, 2003). Studies by Transparency International suggest that the corruption of public officials effectively

taxes each Kenyan individual by an average of Ksh.8,000 per month.²⁵ This tax burden is shared by households and businesses, who see their profits squeezed, but if the cost fell entirely on households it would equal a cost of living increase of 31% over the costs of living in a bribe free society. If it fell entirely on businesses it would equal an additional tax of 2.8% of total turnover (Transparency International, 2001). Again, poor governance affects the poor more deeply, as the better off are able to navigate round the blockage and constraints faced by everyone (Freeman et al, 2003).

After independence Kenya followed import substituting policies which were unsustainable over the long term. Stop-start structural adjustment reforms began in 1980 (Karanja, 2002) but it was not until the 1990s that they began to be implemented consistently. Quantitative restrictions on exports were converted into tariffs, which were reduced over time, and the exchange rate was liberalised (Foroutan, 1993). By 1993 all administrative controls on international trade had been removed, including import licences. Export promotion schemes established between 1985 and 1990 included the export compensation scheme, which compensated exporters on taxes on inputs and import duty and VAT remission schemes (Wagacha, 2000:36). Many of these changes have benefited the horticultural sector, which was also aided by the reduction in the (real) price of fertiliser following price and market liberalisation in 1993 (Karanja, 2002). However, marketing boards are still in place for many major export commodities (MTI, 2003:84) and producer prices are still set and floor prices maintained by the boards for certain crops (e.g. rice, maize, pyrethrum, bixa, cashew nuts, and milk) (ibid) (see Box 2 for a summary).

²⁵ 68% of this went to central government officials, 18% to state corporation officials, and 11% to local government, with much smaller amounts to the private sector and foreign organisations - embassies and international organisations (Transparency International, 2001).

Box 2: Economic Reforms (1986 to 2002)

1. Abolition of administrative controls on international trade, such as import licensing and foreign exchange allocations.
2. Removal of exchange controls on current account transactions together with partial removal on restrictions on capital accounts, including the 90 days foreign exchange surrender limit.
3. Removal of restrictions on all foreign commercial borrowings as well as allowing Kenyan nationals to invest abroad up to US\$500,000 without reference to the Central Bank of Kenya.
4. Lifting of controls on interest rates and credit limits (previously deposit and lending rates were controlled by Central Bank of Kenya) (1992).
5. Rationalisation of tariff rates, revenue collection reforms including introduction of VAT, formation of a tax authority in 1995, abolition of the selective 20% export tax and introduction of 2% presumptive income tax for marketed agricultural products.
6. Removal of price controls for essential food items, petroleum products and agricultural inputs
7. Maize movement controls abolished (1989).
8. Maize prices decontrolled (1995).
9. Fertiliser prices decontrolled and fertiliser import quotas abolished (1990). Fertiliser market liberalised (1993). Fertiliser price controls abolished (1993).
10. Dairy industry de-regulated (removal of Kenya Co-operative Creameries – KCC – position as monopoly buyer) (1992).
11. Foreign exchange retention accounts permitted for exporters of non-traditional goods and revision of import licensing to allow issuance of import licences for importers having their own foreign exchange (Aug 1992). Exporters of traditional exports (mainly agricultural commodities) allowed to retain 50% of foreign exchange (from Nov 1992). Exchange rate controls removed (1993).
12. Coffee and tea auctions (Nairobi and Mombassa) allowed to conduct business in US\$ from 1992. Gradually farmers were paid in dollars, and they were allowed to keep the dollars for their own use.
13. Monetary policy reforms and review of the Banking Act allowed entry of new institutions to financial services markets and enhanced Central Bank's role in monitoring and regulating the sector.
11. Privatisation and reform of parastatals (ongoing).

Adapted from Owuor (1997) and Karanja (2002).

4.3.5. Horticulture sector organisations

Government involvement in the export horticulture sector has been limited. However, the leading role played by Kenyan Asians and Europeans, and the expulsion of Asians from neighbouring Uganda in the 1970s, created tensions and prompted government interference, which has since declined. The government established the Horticultural Crops Development Authority (HCDA) in 1967, which focuses on facilitating the sector, promoting the development of horticultural crops, disseminating information on horticultural marketing, attempting to coordinate various actors in the sector and licensing exporters.²⁶ It has also been involved in a number of fruit and vegetable processing joint ventures, and established the Kenya Plant Health Inspection Service (KEPHIS) in 1997, which inspects imported and exported agricultural commodities and issues phytosanitary certificates for export shipments (Minot & Ngigi, 2004).

²⁶ The HCDA is funded through a 12 cents per kilogram levy on horticultural exports and support from international organisations (Minot & Ngigi, 2004). Producers are critical of its performance and do not feel that they get value for money.

Another influential organisation in the horticultural sector is the Fresh Produce Exporter Association of Kenya²⁷, established in 1975, which liaises with research and regulatory organisations and lobbies government on behalf of the export sector. It undertakes market research and collaborated with HCDA in the drafting of the Code of Practice for horticultural producers (Minot & Ngigi, 2004:63).²⁸

4.4. Effects of fruit and vegetable exports on poverty

Almost all farmers in Kenya, rich or poor, grow some sort of horticultural crops, 96% of which are consumed domestically (Minot & Ngigi, 2004:83). Estimates of the number of farm households involved in export horticultural production vary but 108,000 is thought to be a reasonable estimate (Minot & Ngigi, 2004:83). Many of these are smallholder farmers. In this section we assess the likely impact of the export horticulture sector on poverty. This is a difficult assessment to make as separating the export sub-sector from the much larger, domestically-oriented sub-sector is complex.

In addition, there is limited national household survey data indicating the importance of specific livelihood activities in generating incomes for different income groups, or groups differentiated by their socially ascribed status (for example women or certain ethnic groups). Government, the research community and civil society groups have so far failed to produce analysis of how changes in employment opportunities and income in trade-related sectors will affect different income groups. Likewise there is a shortage of analysis of how changes in the price of either inputs or consumption items will affect different social groups. There is limited analysis of the drivers, maintainers and interrupters of poverty. In addition, increased horticultural exports will be only one of a number of issues affecting economic performance, the livelihood risks and opportunities faced by poor households or changes in the cost of their consumption basket.

Poverty incidence and severity has increased in Kenya meaning that the growth of the horticulture sector has been unable to counteract negative trends elsewhere in the economy. Evidence, however, suggests that if it were not for horticulture and other growth sectors, performance of the economy would be even poorer and poverty outcomes worse.

We do know that large numbers of smallholders are involved in production for export (as well as pre-export processing and packing) and the findings from a number of studies suggest that smallholder farmers producing for the horticultural export market have higher incomes than non-horticultural farmers, even after household characteristics such as age, education, ethnicity, and ownership of land have been controlled for (Minot & Ngigi, 2004:32). Gross margin calculations by Minot & Ngigi (2004:30-31) suggest that returns per hectare are between 6 and 20 times higher for French beans than for a maize and beans intercrop. Farmers growing for the export horticulture market also benefited from improved access to credit and extension

²⁷ FPEAK receives a 5 cents per kilogram levy on horticultural exports and was, until recently, supported by USAID (Minot & Ngigi, 2004).

²⁸ The Code of Practice is designed to satisfy European importers that Kenyan horticultural products meet their environmental and employment standards. Some are concerned that the code, which is not legally enforced, will be costly to comply with and that compliance will be difficult to document (Minot & Ngigi, 2004:63).

services. French bean growers²⁹, have a similar farm size to other farmers but they earn more than twice as much: only 8% are in the poorest quintile, while 38% are in the richest quintile (in comparison with 21% and 19% of other farmers) (Minot & Ngigi, 2004:51). This supports the idea that the export horticulture sector has been good for the poor. Interviews with farmers who produce for the export horticultural market indicate that their incomes and levels of well-being have increased as a result of their involvement in the sector (Minot & Ngigi, 2004:82).

If smallholders account for 47% of fresh produce exports and the farm-gate price is 60% of the F.O.B. price, then the direct benefits of fruit and vegetable exports to the smallholders is around US\$46m (Minot & Ngigi, 2004:82). This sounds extremely positive, but it is difficult to provide a more differentiated analysis. What is the impact on the lowest income groups? What about women and women headed households? What impact does the export horticulture sector have on casual labour through providing regular work or through driving up wage rates? Do benefits from this sector penetrate beyond the zone around Nairobi airport³⁰? Does it generate benefits in the rural service sector as domestic demand increases? We are unable to answer such questions in this paper as few studies of Kenyan agriculture or industry provide differentiated analysis by livelihood group, poverty quintile or geographical location.

In addition to the smallholder farmers involved in the export horticulture sector, large numbers of unskilled and semi-skilled workers are involved in the production, packing and processing of horticultural products (McCulloch & Ota, 2002). Urban households involved in processing and packing also experience improved income levels (ibid.). Significant numbers of jobs are created on farms owned by the major exporters and on those producing under contract. Many of the agricultural workers are landless women with few other income earning opportunities (ibid.). Jobs in processing and packing tend to be concentrated in Nairobi. The majority of employees (70-80%) are women employed casually and seasonally, working long hours for poor pay. There is evidence of gender and other forms discrimination (McCulloch and Ota, 2002), but the salaries are often above minimum wages and are an alternative to unemployment (Ikiara et al, 2003). If consolidation of the sector proceeds, driven by importer demands, the impact that horticulture currently has on income stabilisation and poverty reduction may be compromised.

We do not have data about the benefits (or otherwise) experienced by casual labourers working for smallholders, about the more organised workforce on large farms, or about the well-being of households who experience barriers to entry. In addition, there is an implicit assumption that an increase in household income will result in well-being increases for all family members. Dolan (2001, 2002) shows that the commercialisation of the historically female controlled, horticultural sector has

²⁹ French beans are the most important vegetable export from Kenya, but only 4% of farmers grow French beans (around 150,000 farmers) and production is highly concentrated (Minot & Ngigi, 2004:43).

³⁰ It is estimated that much of the export vegetable production in Kenya takes place within 100km of the airport, and benefits from the extensive road network in the Kenyan highlands (Minot & Ngigi, 2004:86).

resulted in its appropriation by men and in gendered struggles over land, labour³¹ and income in the face of new commodity systems.

The RHS Rural Household Survey (RHS) of 2000 highlights that almost all farmers in Kenya (over 90% of households in the poorest quintile) produce horticultural crops, with around 40% of the total value being marketed (much for the domestic market) (Minot & Ngigi, 2004:46). The median value of fruit and vegetable production is US\$188 with households in the top quintile earning 18 times more than those in the poorest quintile (ibid.) But earnings from fruit and vegetable production contributes a similar proportion to household income in all income groups (14-21%). The sale of fruit and vegetables is merely a source of additional income for the majority of farmers and over two thirds of farmers gain less than 20% of their income from this source (ibid:42).

It is difficult to determine causality. Has horticultural production driven a household's income up or are richer farmers more able to make the investments necessary for horticultural production and more able to bear the risk? Alternatively income and horticultural production could be correlated without having a causal relationship, both factors could, instead, be driven by good market access (Minot & Ngigi, 2004:48).

A survey of farmers on a main road near Nairobi found that growers of horticultural export crops had (on average) larger land holdings than other local farmers (2.7 hectares compared with only 1.2 hectares). This does not indicate which way causality runs, but it may show that the poorest households are unable to become involved in production for export. Irrigation substantially increases yield and reliability of horticultural produce and reduces seasonality, making producers more favoured by exporters. The RHS found that half the farmers growing French beans owned irrigation equipment compared with only 10% of other farmers (Minot & Ngigi, 2004:26), and a small survey focusing on an area with excellent market access found that 90% of smallholder producers of horticultural export crops had irrigation equipment, compared with 36% of non-horticultural producers (McCulloch & Ota, 2003 in Minot & Ngigi, 2004:27). These findings suggest that poorer farm households without savings or access to credit are unable to purchase irrigation equipment and are therefore excluded from export horticultural production.

Further barriers to entry have been identified. Fruit and vegetable production requires more labour, more purchased inputs and higher skill levels than the production of grains and legumes. Farmers in remote rural areas are likely to receive low and perhaps sub-economic farm gate prices – if they can find a trader to buy their produce. Households with limited household labour or the ability to hire casual labour are unlikely to be able to diversify into horticulture as vegetable production is significantly more labour intensive than a typical maize-bean intercrop (a maize-beans intercrop requires 175 person-days per hectare per year whereas French bean production requires 1300 person-days; chilli, okra, tomatoes, onions and brinjal require 540-690 person-days). Variable costs are also higher in horticultural production, excluding farmers without savings or access to credit. Farmers with irrigation are likely to do much better as horticultural producers than those without it,

³¹ Women play a leading role in vegetable production on smallholder farms, providing an estimated two-thirds of the labour input.

and yet households without savings or access to credit are unlikely to be able to buy irrigation equipment. Horticultural production involves experimentation and adaptation. Farmers rarely 'get it right' during the first season and often try several crops. This means that producers need to have the assets and income to weather disappointing results. Horticultural crops are subject to more production risk than staple crops, and risk averse poor households may therefore avoid involvement in the sector (Minot & Ngigi, 2004).

Small producers wishing to continue producing for export are likely to have to form cooperatives based on clusters of 30-50 smallholder farms to pool the costs of pre-packaging facilities and minimise transaction costs in providing production quality and traceability information to exporters. In practice this - and the profit squeeze - is likely to see small producers gradually squeezed out (FKAB, 2001).

As we have shown above, consolidation in the export horticulture sector is likely to squeeze smallholder farmers, particularly the poorest producers, out of producing for export. This has unpredictable implications for poverty and income inequality and losses may be more than compensated for by expanded employment opportunities for casual agricultural labourers and in processing and packing if the sector continues to grow (Humphrey, McCulloch & Ota, 2004).

The horticulture sector is growing robustly and has effective up and downstream linkages into the broader economy which is stimulating more widely spread benefits. However, there are indications that growth could be more robust, profit margins could be higher and barriers to entry could be reduced if government and other actors were to tackle a set of challenges faced by both producers and exporters.

Poor domestic infrastructure (roads, telecoms, power, grading and cooling facilities) generates unnecessary losses for both producers and exporters and limits the areas of Kenya able to participate in horticultural production for export. High packaging and air freight costs drive up prices and squeeze profits, limiting the extent to which the horticulture sector can generate poverty reduction in Kenya. High levels of local authority taxation do not appear to be matched by investments in either public services or infrastructure and are therefore regarded as extractive. In Section 4.5 below, we outline a number of policy recommendations identified by these challenges.

4.5. Conclusion

There are a number of ways in which the government of Kenya might maximise the poverty reducing benefits of the export horticulture. It is clearly important to stimulate the involvement of smallholder producers and avoid supporting the development of large-scale capital-intensive farming. This has been done in the past by leasing land at concessionary rates, providing subsidising credit and providing tax incentives for agricultural investments (Minot and Ngigi, 2004). One of the key advantages of the sector at the moment is its flexibility with the most efficient market institutions evolving out of experiments with different forms by entrepreneurs and farmers. It is important that the government does not attempt to become too closely involved in the development of marketing institutions, for example through imposing cooperative

production, contract farming, nucleus estate production or any other specific marketing system (ibid.).

However, the poorest households in both rural and urban areas are often those without land. This suggests that supporting the development of labour markets in the export horticulture sector is likely to be more important than attempting to support the smallholder sector in delivering poverty reduction, particularly for the very poor.

A number of more general interventions would support the development of an enabling environment for enterprise including the export sector. Multiple constraints face farmers, traders, manufacturers and entrepreneurs and distort the Kenyan economy, dampening transmission mechanisms, slowing the supply response and limiting the benefit that poor consumers gain from low international market prices for basic consumables. The constraints include:

- high costs of power, regular power cuts
- poor road and rail infrastructure
- poor port facilities (including limited pre- and post-shipment facilities)
- costly, low quality telecommunications and ICTs
- information asymmetries
- costly, low access to credit
- poor contract enforcement
- poor governance/ lack of an enabling environment
- low labour productivity
- poor access to value-addition

Cost and irregularity of power supply: Kenya is second only to Japan in its power cost (US\$0.10 per KWh in Kenya compared to US\$0.108 per KWh in Japan) and far higher than South Africa (US\$0.028) and Mauritius (US\$0.048). These high costs affect the performance of the manufacturing sector and constrain both agriculture and agro-processing. They are blamed on bad management and corruption in the public sector provider. Privatising the power sector, with government providing effective regulation, would be likely to increase the efficiency of the sector and drive down unit costs.

Poor road and rail infrastructure: Only around half of Kenyan roads are in good condition, and poor roads increase costs, delay deliveries and inhibit investment. The rail system is on the point of collapse after years of under investment and mismanagement, leading to ever greater pressure on the roads. Investing in both road and rail infrastructure would extend markets into currently remote areas and expand the area able to produce profitably for export.

Poor port facilities: The port at Mombassa is so badly affected by difficulties with Kenyan customs and export procedures, high port tariffs, inadequate facilities, inefficiency and corruption that some importers now prefer to use Dar es Salaam. Overcoming these problems would reduce constraints on the imports necessary for the export horticulture sector, supporting its accelerated growth.

Costly, low quality telecommunications and ICTs: Kenya's postal and telecommunications corporation (KPTC) has a monopoly³² in landline-based telecommunications. This has led to sub-optimal levels of investment and slow expansion of the network and Kenya has a lower teledensity (telephone lines per 1,000 people) than the SSA average (Ikiara *et al.*, 2002). Many members of the urban based elite use mobile phones but there are currently only two network providers, limiting competition, and call costs are extremely high. There is only one internet provider in Kenya, and monopoly has discouraged investment and innovation and bandwidth is narrow, resulting in slow and interrupted download. These constraints on communication slow technical innovation, restrict access to important market information and increase the costs of running a business. By reversing these challenges the government would support growth in the domestic economy and on export sectors such as horticulture.

Costly, low access to credit: The Kenyan government has relied disproportionately on financing the fiscal deficit with short-term domestic borrowing, crowding out the private sector. However, even if farmers and entrepreneurs can access credit, it is very expensive. Although inflation declined from 5.8% to 2% between 2001 and 2002, average lending rates stayed at 20% in 2002. This is a very serious barrier to farmers, traders, processors and exporters wishing to move into the export horticulture sector. Reforms to the financial sector are necessary if enterprise in general is to be enabled.

Poor contract enforcement: Contract enforcement is weak. This acts as a disincentive to investors and to entrepreneurship in markets and in international trade.

Poor governance/ lack of an enabling environment: Export procedures and authorisation requirements constrain exporters. Corruption and the mismanagement of state controlled enterprises damage business and make products uncompetitive on the global market. Corruption is so widespread that it amounts effectively to a tax of US\$105 per month faced by every individual. This damages the consumption levels of ordinary households and the profit levels of enterprises.

Low labour productivity: Kenya is a low wage economy, with wage levels comparable with India and China, but some manufacturers claim that productivity rates are ten times higher in the Far East and five times higher in India. In the manufacturing sector this is not simply due to a poor work ethic, but is also due to poor training for staff and outdated machinery and manufacturing methods. Poor labour productivity drives the cost of outputs up, making companies uncompetitive in international markets and likely to lose market share against imports in domestic markets.

Poor access to value-addition: Facilities for agro-processing and value addition are poor in Kenya due to limited access to credit and investment capital, low levels of entrepreneurship, limited effective demand in national and regional markets for processed goods, and government involvement in several sectors (through regulation or direct involvement).³³ The lack of agro-processing facilities mean that primary

³² KPTC's monopoly was officially removed in 1999, but this is yet to have had any affect on the sector.

³³ A ministerial task force has identified laws that restrict entry into commercial operations in order to recommend their repeal (Maxwell Stamp, 2003:18).

producers have limited opportunities to add value to their products prior to sale, hampering the diversification of Kenya's exports and making producers vulnerable to cheaper imports.

Other constraints include the difficulty in accessing irrigation and weak contract enforcement. Minot and Ngigi (2004) highlighted the importance of irrigation for horticultural production for export. A number of farmers were interviewed who began producing horticultural crops only after they obtained an irrigation pump. This suggests that bottlenecks in the agricultural equipment market need to be identified and, if possible, removed. Government also has a role in stimulating investment and dissemination of micro-irrigation, water harvesting and water management technology (Minot and Ngigi, 2004:95). Poor contract enforcement has been identified as a constraint and there may be a role for government in dispute mediation and the development of new institutional arrangements to facilitate the enforcement of contracts (Minot and Ngigi, 2004:95).

5. Case study 2: Exports of frozen shrimp and prawns from Bangladesh

5.1. Introduction

The focus of this case study is on exports of frozen shrimp and prawns, as defined as product code 030613 in the standard Harmonised System (HS) product classifications.³⁴ As with the other case studies, the key objectives are to identify and describe a) the factors underlying increased exports of the product to developed countries, and b) the effect of increased exports on poverty and household welfare.

We first provide some basic information about the sector in Bangladesh.³⁵ Two main species of shrimp are exported: black tiger shrimp (*Penaeus Monodon*, or Bagda) and giant prawn (*Macrobrachium Rosenbergii*, or Golda). The main production method in each case is aquaculture, meaning that the shrimp are grown and cultivated in specifically prepared ponds or 'ghers', as opposed to being caught in open water (either inland or marine).³⁶ Tiger shrimp are cultivated in brackish water in the coastal districts of Satkhira, Khulna, Bagerhat and Cox's Bazar (see Figure 8). Giant prawn are cultivated in fresh water and are cultivated over a wider area, including Bagerhat, Khulna, Jessore, Patuakhali, Barisal, Chittagong, Lakshmipur, Feni, Gopalganj, Madaripur, Faridpur, Kishoreganj, Rajbari and Dhaka, although the majority of farms are based in Khulna. The vast majority – close to 100% – of shrimp produced by aquaculture are destined for export. By contrast, shrimp obtained by fresh water capture are almost exclusively consumed domestically.

Various actors are involved in the production of shrimp for export by aquaculture (Figure 9). The process begins with the purchasing of shrimp larvae (or 'fry') by shrimp farmers, either from local villagers who collect them from nearby rivers and creeks or from purpose-built hatcheries. Following harvesting, the shrimp are transported from the farms to depots, where the shrimp go through certain pre-processing activities such as washing, be-heading, and icing. The shrimp are then transported, in insulated vans, to processing factories where they go through a final stage of processing, including further washing, freezing and packaging. The shrimp are then shipped overseas, mostly through the Mongla port in the Khulna region, although during the peak season export is also carried out using the Chittagong port.

³⁴ Fresh shrimp and prawns are consumed domestically but not are exported by Bangladesh, although they are by some countries (e.g. Thailand).

³⁵ The material in this section is derived from the following sources: Ahmed *et al.* (2002), Aluaddin and Hamid (ud.), Battacharya *et al.* (1999), and Khatun (2004).

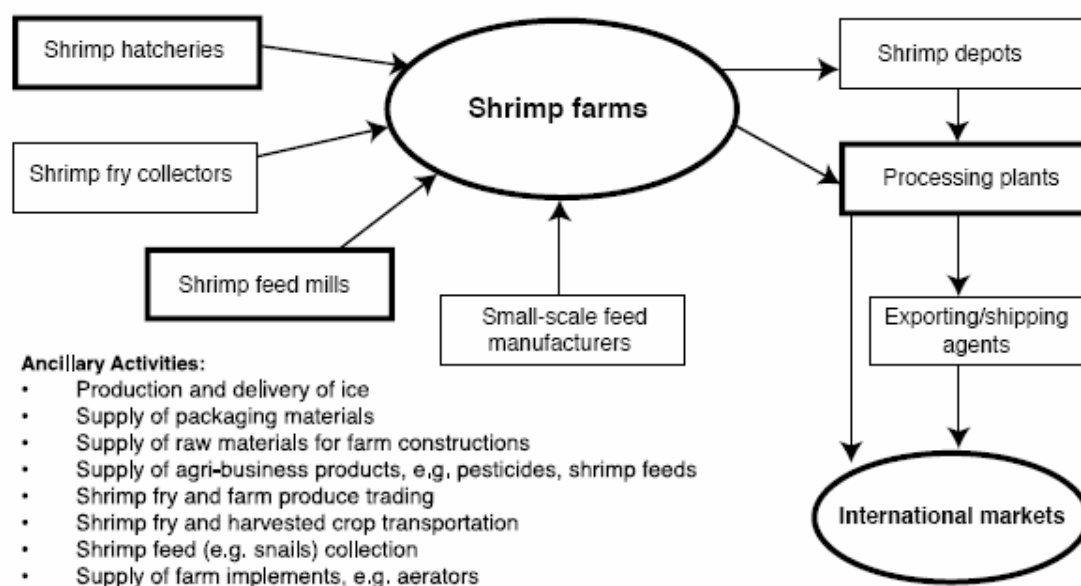
³⁶ Some exports are produced by marine capture, but the share is small. The production of shrimp through commercial aquaculture began in the mid-1980s. Before that, shrimp were still exported – and had increased from US\$2.9 million in 1972-3 to US\$33m in 1980 and US\$90m in 1985 – but were produced primarily through open-water catches.

Figure 8 Map of Bangladesh³⁷



³⁷ Source: Bangladesh Government- <http://www.bangladeshgov.org/bdmaps/bdadmin.jpg>

Figure 9 Schematic diagram of Bangladesh's shrimp industry, showing sectoral linkages



Source: Aluaddin, M. and M. Hamid (ud.)

Techniques of shrimp production vary across countries. A basic distinction can be made between:

- Extensive cultivation, based on large pond sizes (5 hectares or larger); low levels of stocking density; wild sources of shrimp larvae collection; little preparation or maintenance of water quality, and relatively low yields per hectare (150-300kg per hectare per year).
- Intensive cultivation, based on smaller pond sizes, higher levels of stocking density; hatcheries used as source of shrimp larvae; nursery rearing of shrimp larvae in smaller ponds; investments in water quality (e.g. through sluices, aeration and pumping); artificial feeding, and high yields per hectare (3,000 to 6,000kg per hectare per year).

Shrimp culture in Bangladesh is predominantly carried out using the extensive method, or an 'improved extensive' method whereby farmers apply a few components of intensive cultivation methods. In 1995, only 1% of shrimp farms were estimated to be using intensive or semi-intensive methods. The expansion of intensive or semi-intensive methods is deemed desirable, because of increasing land scarcity in coastal areas. Nevertheless, there are significant obstacles to the expansion of such methods, including limited availability of capital, limited knowledge of the methods themselves among farmers, limited capacity of domestic hatcheries (particularly of the preferred bagda shrimp), and an outbreak of disease in 1995 which caused a number of semi-intensive farms to be abandoned and raised doubts about the environmental sustainability of intensive methods.

Different organisational structures for shrimp farming exist, including:

1. Single control (e.g. by a household) on owned land.
2. Single control (e.g. by a household) on rented land.
3. Multiple control (e.g. a group of households) on owned land.
4. Multiple control (e.g. a group of households) on owned and rented land.
5. Control by non-local entrepreneurs (e.g. urban-based agents or owners of processing facilities) on rented land.

Small (less than 5 hectare) ponds/ghers are typically not economic under extensive cultivation system, because they reduce opportunities for (natural) water circulation and raise the cost of constructing and maintaining earthen dykes between ponds. In practice therefore, the most common organisational structures for shrimp aquaculture in Bangladesh are types (3) and (5) above: either a co-operative/collaborative initiative between multiple land-owners (with small to medium-size land-holdings), or a private operation by an entrepreneur leasing in land from one or more land-owners.

5.2. Background

5.2.1 Levels, trends and characteristics of poverty and human development

Bangladesh is one of the poorest countries in the world, and has been classified as a Least Developed Country by the UN ever since this category was first defined. Depending on the precise poverty line chosen, recent estimates put the number of people living in absolute poverty at between 44 and 65 million people, corresponding to between 34% and 50% of the population (Table 8). Nevertheless, the country did achieve a significant decline in the proportion of people living in poverty during the 1990s. This is the case when using both an 'upper' and a 'lower' value of the poverty line, and alternative measures of poverty: the headcount, the poverty gap and the squared poverty gap.³⁸ Much of this decline can be attributed to the impressive growth performance during the 1990s, with real GDP per capita increasing between 1990 and 2002 at an average rate of 2.9% per year (World Bank 2004).³⁹

³⁸ Both poverty lines are based on estimates of the expenditure required to meet a set of minimal nutritional requirements, plus an additional amount for non-food expenditures. The lower poverty line incorporates a minimal allowance for non-food goods (the typical non-food spending of those who could just afford the nutrition requirement) while the upper poverty line makes a more generous allowance (the typical non-food spending of those who just attained the nutrition requirement) (World Bank 2002).

³⁹ This performance has in turn been attributed to the combination of prudent macroeconomic management and wide-ranging deregulation of trade and investment begun in the 1980s and reinforced in the 1990s.

Table 8 Poverty in Bangladesh during the 1990s

	Upper poverty line		Lower poverty line	
	1991-92	2000	1991-92	2000
Headcount rate (%)	58.8	49.8	42.7	33.7
Headcount rate (millions)	67	65	49	44
Poverty Gap	17.2	12.9	10.7	7.3
Squared Poverty Gap	6.8	4.6	3.9	2.3

Notes: The poverty gap is the mean shortfall from the poverty line (counting the non-poor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence. The squared poverty gap is the mean squared shortfall from the poverty line. This measure places greater emphasis on the depth of poverty, as opposed to the incidence of poverty, compared with the poverty gap measure.

Source: World Bank (2002)

The undoubted progress during the 1990s in terms of economic growth and income poverty reduction was matched by improvements in non-income measures of well-being. Data from the World Bank (2004) suggest that the period witnessed a halving of child and infant mortality rates, reductions in child malnutrition, and significant increases in net primary school enrolment, gender equality in primary and secondary school enrolment, and access to improved sanitation facilities, particularly in rural areas (Table 9).

Table 9 Non-income welfare indicators in Bangladesh during the 1990s

	1990	2003
Infant mortality (per 1,000 births)	96	46
Child mortality (per 1,000 births)	144	69
Net primary school enrolment rate, male (%)	76	83
Net primary school enrolment rate, female (%)	66	87
Access to improved sanitation, rural areas (%)	11	39
Immunisation against measles (% of children 12-23 months)	65	77
Malnutrition prevalence (% of children under 5)	66	52

Source: World Bank (2004).

A recent assessment of the country's progress toward the Millennium Development Goals (World Bank 2005) concluded that only the goal for attaining universal primary school enrolment by 2015 was unlikely to be met. This significant performance on non-income welfare indicators has been linked not only to economic growth, but also to increased levels of public expenditure on health and education and the contribution of strong non-governmental organisations.

Despite the undoubted progress, there were two recent trends over the 1990s which represent a concern. First, there is some evidence that the rate of income poverty reduction decelerated significantly in the second half of the decade (World Bank 2002). Second, there was a significant increase in inequality over the decade, at least in terms of income and/or expenditure (information on inequality in other welfare indicators being more difficult to come by). There were two main sources of this increase: first, a faster growth of average incomes in urban compared to rural areas, and second, a faster growth of the incomes of the relatively rich compared to the

relatively poor within urban areas.⁴⁰ Rising inequality tends to lower the poverty-reducing effects of growth (Ravallion 2001), and raises doubts as to whether reductions in poverty will continue at the same rate as in the recent past.

Turning to the characteristics or correlates of poverty, we first note strong variations across regions and districts in the extent of income and non-income poverty (Table 10). Approximately 85% of the total number of people living in poverty are based in rural areas, while 60% are based in the five districts with the highest levels of income poverty, which are all predominantly rural.⁴¹ Infant mortality, child vaccination, child malnutrition and school enrolment rates also vary significantly by region. This feature of poverty in Bangladesh has been used to argue that speeding up poverty reduction and attainment of the MDGs in forthcoming decades will require more explicit targeting of interventions, central government resources and growth opportunities to lagging divisions and districts (World Bank 2005, p.71).

Table 10 Regional variations in income and non-income poverty in 2000

	Income poverty		Net primary school enrolment		Number of underweight children
	Rate (%)	Share of national total	Rate (%)	Share of national total	Share of national total
Rural Rajshahi and Pabna Faridpur, Tangail and Jamalpur	65	10	61	9	7
Rural Bogra, Rangpur and Dinajpur	57	13	48	19	16
Rural Barishal and Pathuakali	62	16	69	12	11
Rural Dhaka	40	5	70	5	10
Rural Khulna, Jessore and Kushtia	47	9	69	9	9
Urban Rajshahi	52	10	74	6	6
Other urban Dhaka	48	3	66	3	2
Urban Khulna	27	1	62	2	1
Other urban Chittagong	45	2	73	1	1
Rural Sylhet, Comilla	42	2	67	2	2
SMA Chittagong	49	13	65	15	18
Rural Noakhali, Chittagong	46	2	61	3	2
SMA Dhaka	47	8	69	9	12
	29	5	70	6	5
Rural	53	84	-	84	89
Urban	37	16	-	16	11
Bangladesh	50	100	65	100	100

Source: World Bank (2005)

⁴⁰ Evidence of the latter is provided clearly in the income growth incidence curves for urban and rural areas over the decade (see World Bank 2002). One plausible explanation for these trends is that expansion of formal sector industries in urban areas is driving up average incomes in urban areas, but that rapid rural-urban migration of mainly unskilled labourers is causing the incomes of the poorest groups within urban areas to stagnate.

⁴¹ Almost all districts in Bangladesh experienced reductions in income poverty during the 1990s. The exceptions were Chittagong district, and rural areas of Sylhet, Comilla and Noakhali. Reductions in income poverty were also similar in urban and rural areas, despite higher increases in average income levels in urban than rural areas (World Bank 2002).

Poverty in Bangladesh is also closely related to levels of education and land ownership (Table 11). Because of these close relationships, investments in human capital and improvements in both the efficiency and equity aspects of the operation of land markets are considered vital in terms tackling rural poverty. It is generally regarded that landlessness is on the rise in Bangladesh (see, for example, World Bank 2002), although direct evidence showing this trend is not readily available.

Table 11 Correlation between income poverty, education and land ownership in 2000

	Rate (%)	Share of national total
<i>Education level</i>		
Not literate	64.1	73
Less than primary	41.3	4
Completed primary	40.9	12
Completed middle	30.7	6
Completed secondary	24	3
Completed overall	8.2	1
<i>Land ownership</i>		
Less than 0.05 acres	64.7	59
0.05-0.49 ha	59.4	15
0.50-1.49 ha	47.6	16
1.50-2.49 ha	35.7	6
2.5 + ha	21.8	5

Notes: Figures refer to the upper poverty line. Figures for levels of land ownership include rural poverty only.

Source: World Bank 2002

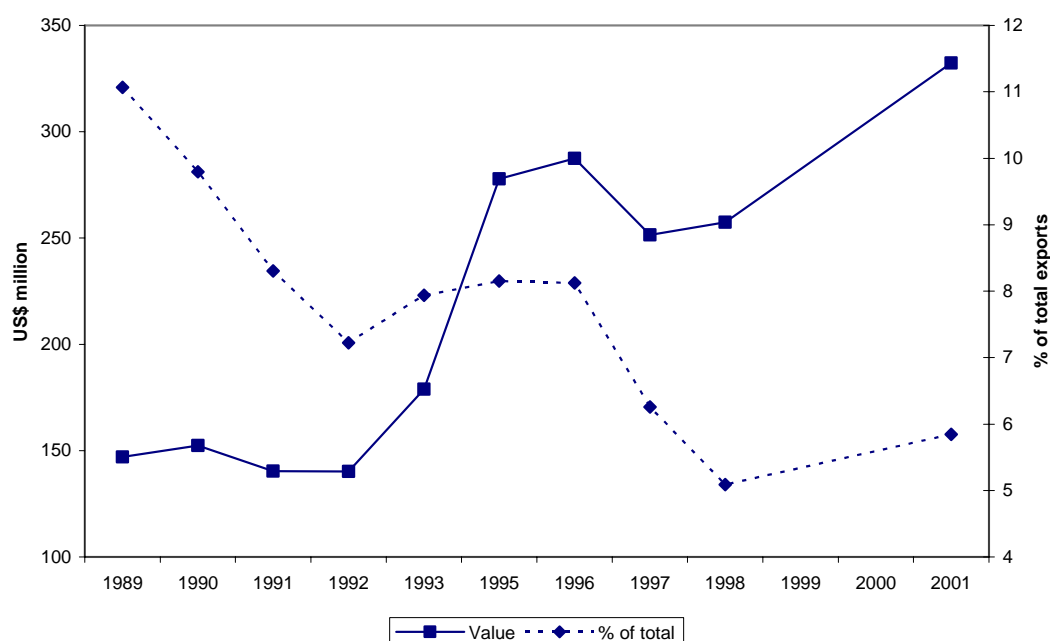
Other so-called correlates of poverty in Bangladesh include access to infrastructure (availability and price of electricity, phone-lines and transport services), and to common property resources such as *khas* land. It is worth noting, however, that poverty is not strongly linked with religion: the incidence is 50% among the Muslim population and 46% among the non-Muslim population. Also, poverty rates are similar between male-headed and female-headed households – 50% and 48% respectively – although they are higher among households where the female head of household is widowed, divorced or separated (World Bank 2002).

5.2.2. Levels, trends and macroeconomic contribution of shrimp exports

Exports of frozen shrimp by Bangladesh amounted to US\$332 million in 2001, having risen by 6.8% per year between 1990 and 2001, approximately 4.6% per year in real terms (Figure 10).⁴² Despite this rapid increase the share of frozen shrimp in total exports fell over the period, because of even faster growth of apparel exports. Nevertheless, the share of frozen shrimp exports in total exports was still in 2001 the largest outside of the apparel sector.

⁴² Export figures for frozen crustaceans published by the Food and Agriculture Organisation are not identical to those contained in the COMTRADE database, but show a very similar overall level and rate of increase over the period.

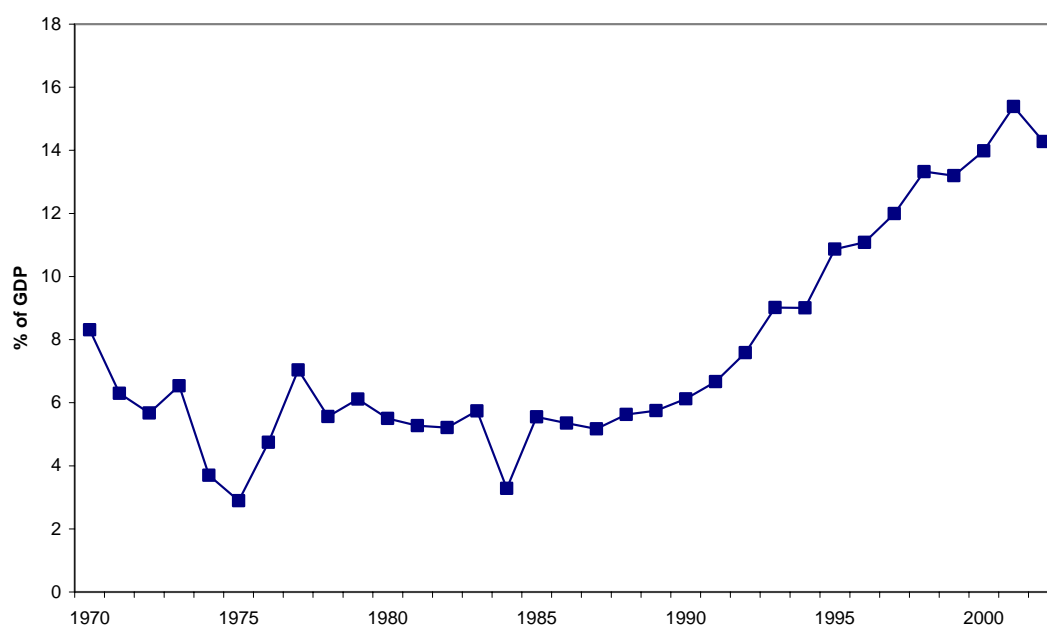
Figure 10 Exports of frozen shrimp from Bangladesh, 1989-2001



Source: UN COMTRADE

The share of exports as a share of GDP in Bangladesh also rose over the period (Figure 11), from 5.8% in 1989 to 14.3% in 2002. This has, most observers would argue, been driven by the substantial amount of trade liberalisation which the Government of Bangladesh has carried out over the same period. In addition, despite the lowering of tariffs, revenue from import tariffs and other duties still accounted for 40% of total government tax revenue on average between 2001 and 2003, and was the single largest source of government tax revenue (IMF 2004).

Figure 11 Total exports in Bangladesh, 1989-2002 (% of GDP)



Source: World Bank (2004)

It is difficult to provide an estimate of the total number of households and/or individuals gaining some proportion of their livelihood from shrimp farming. On the one hand, there are (as shown in Figure 9) a wide range of different actors engaged in the sector, spanning a range of different activities in both the formal and informal sector, over a wide geographical area. Even for one specific activity (e.g. processing), few surveys have been made allowing for a precise estimate of the number of people engaged in the activity, and the size of the contribution to household income and livelihood security obtained. However, it is possible to build at least a picture from various sources which are available. It has, for example, been estimated recently that there are:

- between 30,000 and 40,000 farms engaged in tiger shrimp cultivation, and around 100,000 farms in giant prawn cultivation;
- approximately 500,000 people engaged in the collection of wild shrimp larvae at various stages of the year;
- around 200 shrimp processing factories, each employing up to 500 workers.

To this, one needs to add the largely undocumented number of persons engaged in other activities in the supply chain, including depot workers, ice sellers, truck drivers, moneylenders, and so on. Khatun (2004) puts the figure at ‘more than 2 million people’, when including all the various upstream and downstream activities (e.g. harvesting, culture, processing, exporting and other ancillary activities). Although this estimate should be treated with caution, the size of the sector is clearly such that developments within it can have a significant impact on poverty at both the regional and national level.

5.3. Factors underlying increased exports of frozen shrimp

5.3.1. Improved terms of trade

Increasing prices of shrimp relative to other goods (agricultural and non-agricultural) on international markets between the mid-1980s and mid-1990s is generally regarded to be an important factor underlying the growth in shrimp exports from Bangladesh. According to Battacharya *et al.* 1999, the per unit price of shrimp exported from Bangladesh registered a rise from US\$2.4 per lb to US\$4.5 per lb over this period, and had reached US\$6.3 per lb by 1998. Further evidence is provided by Delgado *et al.* (2003), who show that export unit values of crustaceans increased on average by 21% between 1985 and 1997.

Two main factors are believed to have accounted for the rise in the price of shrimp on world markets. The first is increasing demand for shrimp stemming from economic growth and higher incomes in low and middle-income countries, combined with increasing consumption of higher-value fish commodities, such as shrimp, in high-income countries. The second is a decline in catches of shrimp from open-water marine sources in the main producing countries in East and South East Asia.

5.3.2. Foreign market access

Another factor underlying the increase in exports has been favourable access to major developed country markets. The vast majority (around 90%) of frozen shrimp exports are destined to the EU, Japan, and the US.⁴³ In each case, exports are subject to low tariffs. In the US, the MFN rate (as of 2002) on imported frozen shrimp is zero, while in Japan it is only 1%, having fallen from 3% in 1988. In the EU, the MFN rate on imported frozen shrimp has been much higher: 12% in 2002, having fallen from 18% in 1988. However, imports of frozen shrimp from Bangladesh are subject to zero tariffs under the EU's trade preference regime for Least Developed Countries.

Although tariffs on frozen shrimp exports are low, non-tariff barriers are significant. Shrimp processed for export to the EU and the US has to comply with standards recommended by the Codex Alimentarius Commission (CAC), and in particular the Hazard Analysis Critical Control Point (HACCP) guidelines for food safety management. The CAC has no formal enforcement mechanism for its recommendations through international law, but it has been endorsed by the 1995 agreements of the WTO on SPS and Technical Barriers to Trade (Delgado *et al.* 2003). The EU and the US have adopted CAC recommendations in their own policies; Japan and Australia are considered however to be less stringent in enforcing the guidelines (Khatun 2004).

An extreme example of non-tariff barriers to shrimp exports was provided in 1997, when the EU banned imports of shrimp from Bangladesh on the grounds that it did not meet the standards set out under HACCP guidelines. Four factors were identified in the decision (Toufique and Hasan 1998, referenced by Battacharya *et al.*, p.14):

- a) unskilled and unhygienic labourers;
- b) unhygienic methods of shrimp transportation and preservation;
- c) irregular and unhealthy methods for acquiring shrimp, and
- d) corrupt practices used to make excess profit at the expense of hygiene control.

The ban lasted five months, after which a number of processing firms were gradually allowed to resume exports to the EU following the receipt of certificates. The US FDA has also issued threats regarding imposition of restrictions on shrimp imports from Bangladesh for this reason (*ibid.*, p.16), although it has not yet acted on such threats. The cost of meeting HACCP guidelines is high: according to one estimate, the minimum installation cost of a HACCP-certified plant ranges from US\$270,000 to US\$380,000, and annual maintenance costs US\$35,000 to \$US71,000 per year (Dey *et al.* 2002).

Furthermore, the US International Trade Commission voted in 2005 to impose anti-dumping duties on imports of shrimp and prawns from Brazil, China, Ecuador, India, Thailand and Vietnam. This was done on the grounds that the six countries are exporting goods to the US at a price below the cost of production in order to increase market share, which was hurting US shrimp producers (using open-water capture). Brazil has subsequently threatened to contest the ruling in the World Trade

⁴³

Within the EU, the largest markets are Belgium, Germany, the Netherlands and the UK.

Organisation. Although the potential imposition of anti-dumping duties on shrimp imports by the US has not yet included Bangladesh, and that Bangladesh may benefit from duties imposed on competing producers, the danger remains that imports from Bangladesh may also be subject to such duties in future.

5.3.3. Domestic export promotion

A third factor underlying the increase in shrimp exports has been reform of the domestic trade regime. During the 1990s, successive governments of Bangladesh implemented a series of measures towards the liberalisation of trade, including the reduction of import tariffs, elimination of quantitative restrictions and reduction of tariff dispersion. For example, between 1990 and 2000, average tariff rates fell from 89% to 17%, the maximum tariff rate fell from 300% to 37.5%, and the number of commodities under quota restrictions shrunk from 620 to 100 (WTO 2002).

Trade policy in Bangladesh has also involved various export incentives. These have included duty-free imports of capital machinery and parts, compared with average duties of 10% and 24% for all other importers; a 50% rebate on taxable income generated by any export business; a tax holiday (up to nine years) from payment of export taxes, currently set at 0.25% of export revenue; and subsidised/concessional interest rates for credit to the export sector, in the range of 8 to 10 per cent per annum compared with 10 to 14% for other sectors. There are also more specific policies targeted at the shrimp sector. These include a VAT refund on fuel subsequent to export, and the leasing of government *khas* land for shrimp aquaculture at preferential rates.

Despite these various subsidies and incentives, various barriers and delays to both importing and exporting remain. Surveys carried out by the World Bank in the late 1990s suggested that the various demands for ‘under the table’ payments at each step of the export process – for example, obtaining an Export Registration Certificate through to clearance of goods through customs – increase the cost of exporting significantly. According to one survey (of apparel exporters), firms spend 7% of their sales revenue to overcome the various delays associated with this process (WTO 2002).

5.3.4. Broader domestic environment

A fourth factor has been a generally conducive domestic environment to export. The country witnessed prudent macroeconomic management during the 1990s, in the form of single-digit rates of inflation, low levels of domestic financing of fiscal deficits (an average of 1.1% of GDP between 1990 and 1998), and low levels of external debt (36% of GDP in 2001). This stability in the macroeconomic environment was combined with more specific government commitment to support the shrimp farming sector. This includes the specific financial incentives discussed above, but also broader initiatives designed to assist with technological upgrading, quality control, and to address concerns about the negative environmental and/or socio-economic impacts of the expansion of shrimp farming. This commitment is embodied in the National Fisheries Policy (introduced in 1998), the objectives of which include:

- establish demonstration shrimp farms and provide training for shrimp farmers;

- incentives for private sector to expand the capacity of shrimp hatcheries;
- encouragement of foreign investors, particularly those with higher technological capacity, to undertake joint ventures with local firms;
- government investment in necessary infrastructure, and quality control laboratory institutes;
- prohibition of environmentally harmful production methods;
- encouragement of small farms using appropriate technologies and local labour;
- creation of committees at the local and national level to oversee developments in the sector and to solve problems arising.

Implementation of the NFP is the overall responsibility of the Department of Fisheries (DOF), but it is supported by various other organisations including the Bangladesh Fisheries Research Institute (BRFI) and the Bangladesh Fisheries Development Corporation (BFDC). The Board of Investment (BOI), which is the principal private investment promotion agency in the country, also indicates the frozen fish sector as a specific area for potential investment. Furthermore, the Fish and Fish Product Inspection and Quality Control Rules (1997), which govern fish collection, storage and processing are enforced by a specific department within the Department of Fisheries with legal authority to inspect firms dealing in the fish business.

However, a number of constraints to further increases in exports in the sector remain. Despite government commitment to the sector, implementation of the NFP is generally regarded to be weak, for reasons including limited interaction between different Government agencies, and a lack of co-operation among various stakeholders in the private sector. Levels of physical infrastructure are also widely regarded to compare unfavourably with other countries at similar levels of development in the region, and to restrict economic potential (World Bank 2002).⁴⁴ Deteriorating law and order is also widely regarded to be a problem, with particular implications in shrimp farming areas where violence between those involved in, and those opposed to, shrimp farming is a common occurrence, and large numbers of households are reported to have been forced illegally from their property (see EJF 2003).

5.4. Effect of increased shrimp exports on poverty

5.4.1. Effects via domestic prices

We begin by assessing the impact of increased shrimp exports on poverty via their effects on domestic prices. As noted in Section 5.2, shrimp produced by coastal and/or freshwater aquaculture are now almost exclusively destined for export, and are not consumed domestically. There are therefore effectively no households in the country which are net consumers of the export product, and who would as a result be made worse off by a rise in its relative price.

It is possible, however, that the types of shrimp now exported to developed countries used to be consumed domestically, and that rising domestic prices of shrimp, and

⁴⁴ High priority to infrastructure development now features in the most recent annual development plan of the national government.

increased shrimp exports, have reduced domestic consumption and adversely affected some households through this channel. The concern that the growth in international fish trade may have this impact, with adverse implications on the poor – for whom fish is often an important nutrition source – has been noted in the literature (see, for example, Delgado *et al.* 2003). Unfortunately, historical information on domestic consumption of the *bagda* and *golda* shrimp which are now exported are not available to test this hypothesis.

However, according to FAO estimates the aggregate domestic consumption of shrimp – including that obtained from open-water marine freshwater capture – increased substantially during the 1990s, from 13.9 million tonnes in 1989 to 65.8 million tonnes in 2001 (equivalent to 0.5kg per capita). These figures are somewhat limited, since they refer to aggregate consumption, and may simply reflect increasing consumption levels among the relatively rich.⁴⁵ Furthermore, the figures include all types of shrimp, and may also reflect a shift toward higher consumption of lower quality shrimp with lower nutritional content. Nevertheless, unless the quality and/or nutritional content of exported and domestically consumed shrimp is very different, and the distributional pattern of increased domestic shrimp consumption is very skewed toward the rich, it is plausible to argue that potentially adverse effects on poverty via this particular channel have been small in magnitude.

Households which are net producers of *bagda* and *golda* shrimp are of course much more common. As described in Section 5.2, there are currently somewhere between 130,000 and 140,000 shrimp farms in the main shrimp-growing areas of the country (although not all owned and/or operated by single households). For households engaged in shrimp farming, household income derived from the activity ranges from 1,500 to 30,000 taka per month, depending on the size of the pond cultivated, whether or not land is owned or rented, and the amount of investment made (e.g. in terms of stocking). As a result, few shrimp farmers are among the extreme poor, and although some are still below the poverty line – which, for a household consisting of five members, is in the region of 4,000 taka per month – the majority are not.⁴⁶

However, even if the majority of existing shrimp farmers are not poor, it is possible a) that some, or even many, were poor prior to becoming shrimp farmers, and/or b) that existing poor households not directly engaged in shrimp farming may be able to enter the sector as export opportunities increase further. Shrimp farming is, according to Khatun (2004), widely regarded to be a profitable venture and households in Khulna and Bagerhat districts engaged in crop farming are eager to take up shrimp farming as their primary occupation. How easy or difficult has it been in the past, and will it be in future, for poor households to do this?

⁴⁵ The only disaggregated evidence relates to consumption of all types of fish. According to household survey evidence, aggregate per capita consumption of fish rose by approximately 9% between 1991 and 2000 (World Bank 2002). Per capita consumption of fish in fact increased by more than this amount in rural areas, and among households in the bottom two quintiles of the rural income distribution (*ibid.*). In urban areas however, and among the bottom two quintiles of the urban income distribution, per capita consumption of fish declined, with potentially adverse effect on household nutrition (although this trend was offset by large increases in per capita consumption of meat, poultry and dairy products).

⁴⁶ Direct estimates of the numbers of farmers living above and below the poverty line are not available.

Land ownership is not an overwhelming prerequisite or requirement for a household to enter shrimp farming (if it were, the potential for the poor to become net producers would be very limited, given the evidence presented in Table 11). Many shrimp farmers cultivate using leased-in or rented land from private landowners or the government. Nevertheless, there are various other barriers which prevent poor households from taking up shrimp farming. One of these is credit: to purchase shrimp larvae, farmers must borrow money, and although there are middlemen who will make loans to farmers in return for the right to purchase shrimp at prices below the market rate, the costs and availability of such finance is higher for poor and landless household. Another is political: access to government-owned *khas* land is determined by political connections which poor households typically lack.⁴⁷ A third barrier is simply that the majority of poor households do not live in regions in which, for reasons of soil conditions, water availability and climate, shrimp farming (either coastal or freshwater) is possible.

The overall conclusion is that the potentially positive impacts of increased shrimp prices on poverty, via its effect on the profits of net producers of shrimp, are under existing conditions relatively small in magnitude. Nevertheless, there are proposals to remedy this situation, such as through *Gonogher*, the term for shrimp farming by local groups supported with training and finance (see Begum and Alam 2000, referenced in Ahmed *et al.* 2003), and the proposals in the National Fisheries Policy to encourage small shrimp farms.

5.4.2. Effects via the returns to factors of production

It has frequently argued that shrimp farming is both more land-intensive, and less labour-intensive, than other rural activities such as rice cultivation and livestock-rearing (EJF 2003). This is argued to be the case even with more semi-intensive cultivation methods (Delgado *et al.* 2003). The implication is that a rise in the returns to shrimp production relative to other activities such as these will, under the assumptions that at least some factors of production are mobile across sectors, reduce real wages and increase (in real terms) the rents earned by landowners. There are certainly those who would argue that this has been the case: the EJF (2003), for example, argues that:

“the shrimp farming industry is not labour-intensive and loss of employment in the agricultural sector ... has led to the displacement of hundreds of thousands of people from lands used traditionally, and sustainably, for generations”.

The report also quotes Mr A. Tutu, of the Bangladesh Coastal Development Partnership, as stating that “shrimp aquaculture has created a massive unemployment situation in the region [South-West Bangladesh]”. Delgado *et al.* (2003) note more broadly that “shifts of resources from rice cultivation into fish farming could lead to a reduction in the demand for labour from landless people” (p.126).

Whether shrimp cultivation is land-intensive has been questioned however. As noted by Alauddin and Hamid (ud.), although shrimp farming itself is less labour-intensive

⁴⁷ Reports of *khas* land being used for shrimp farms illegally by influential members of society, in some cases apparently with the support of local police or government officials, are detailed in EJF (2003).

than rice cultivation, when including the various upstream and downstream activities outlined in Section 5.1 above, the overall level of labour intensity is higher than that of rice cultivation. According to these authors, the problem is not that shrimp farming reduces employment; it is rather that landless workers in shrimp-farming areas have gained little from shrimp farming, either because they live too far away from shrimp processing factories (which are based close to urban centres), or because shrimp farmers have tended to hire in labour from outside rather than employ local workers.

Unfortunately, evidence on trends in real wages in rural areas is inconclusive, because real wage trends are highly sensitive to the way in which nominal wage trends are deflated. According to the World Bank (2002), estimates of the change in agricultural real wages between 1991 and 2000 range from an increase of 9% to a decrease of 6%. However, it is widely accepted that the gap between real wages in urban and rural areas widened during the 1990s, and that this widening contributed to rapid rural-urban migration.⁴⁸ In other words, although the incomes of landless labourers in rural areas may not have decreased in absolute terms, they have certainly not grown as fast as in urban areas.

Direct evidence on trends in the incomes of land-owners is also difficult to come by. However, indirect evidence of increasing returns to land is provided by the numerous cases of evictions of small tenant farmers from government-owned or leased in private land (see EJF 2003). The legality of such evictions is typically the subject of significant dispute, made complicated by the frequent ambiguity surrounding property rights and the details of tenancy arrangements (e.g. length of tenure, right to alter rents paid, and so on). Nevertheless, evictions do provide a clear indication of increased profitability of land in alternative uses, of clear benefit to land owners and clear harm to landless tenants.

Additional considerations arise to the extent that there are some economies of scale in shrimp aquaculture, at least when practised in its extensive form (as is mainly the case in Bangladesh). In particular, small (less than 5 hectare) ponds/ghers are typically not economic under extensive cultivation system, because they reduce opportunities for natural water circulation, and raise the cost of constructing and maintaining earthen dykes between ponds. In practice therefore, one of the most common types of gher is that operated by a co-operation/collaboration of multiple land owners. In such co-operatives, smaller land-owners have less bargaining power over the division of revenue obtained, and as a result receive a lower return to their land than large land-owners (Aluaddin and Hamid, *ud.*). There are also instances of poorer households being denied the opportunity to participate in shrimp farming co-operatives, because other farmers believe they will steal part of the farm's output. There are also reports of poorer households being forced to sell their land for shrimp farming at unfavourable rates, under duress.

5.4.3. Effects via government revenue

As was noted earlier, the contribution of taxes on international trade to overall tax revenue in Bangladesh is high. Furthermore, according to the WTO (2000) this

⁴⁸ According to latest estimates, the urban population is growing four times as fast as the rural population (World Bank 2002).

contribution remained more or less constant, in proportional terms, during the 1990s, and in fact rose in absolute terms. There is no evidence to suggest therefore, that the promotion of exports in Bangladesh, through the lowering of import tariffs, has reduced government revenue, and had potentially adverse impacts on poverty via this particular mechanism.⁴⁹

At the same time however, other aspects of the government's export promotion strategy have reduced other sources of government revenue. These include the rebate on taxable income generated by export activities, VAT refunds on fuel subsequent to export, and the leasing of government *khas* land for shrimp aquaculture at preferential rates. It is not possible to say with any degree of certainty how much government revenue is lost through these various initiatives. Nevertheless, given that the amounts are unlikely to be insignificant, it is valid to ask whether a reduction in government revenue would have an adverse effect on poverty.

Bangladesh currently has several public programs which target the poor directly, including Food for Work, Food for Education, Vulnerable Group Development, Test Relief, and other pure transfer programs (see World Bank 2003, p.73). Total spending on social security and welfare makes up approximately 0.7% of GDP in Bangladesh (IMF 2004). According to the country's recent Public Expenditure Review (World Bank 2003), spending on these sectors is well targeted – for example, the poorest fifth of the population is more than three times as likely to participate in the government's Vulnerable Group Development Program – and provides important income protective and developmental objectives (e.g. increasing school attendance among the poor and particularly among girls).

If export promotion did reduce government expenditure on social security and welfare, this would therefore have an adverse effect on poverty. In the case of Bangladesh however, government expenditure on 'pro-poor' sectors – including social security and welfare, but also basic education and health – is widely perceived to have increased rather than fallen during the 1990s, both in absolute terms and as a share of the total (World Bank 2003, p.45). By implication, increased expenditure on export promotion has been offset instead by increased revenue from other sources and/or reductions in government expenditure in other sectors. The possibility that either of these changes would have had an adverse effect on poverty is less likely, although difficult to prove (the final outcome depending on the way in which any additional revenues are raised, and the precise sectors in which any expenditure reductions occur).

5.4.4. Other effects

In the conceptual framework we noted the effects which increased exports may have on poverty, via their effects on long-term growth and investment. In the case of Bangladesh, effects operating via this channel have been positive. Shrimp exports have clearly made a substantial contribution to the country's foreign exchange earnings, and it is this contribution which is often most stressed in government strategy (e.g. the National Fisheries Policy). The contribution has been particularly

⁴⁹ The reason is the elastic response of both imports and exports to the reduction in import tariffs, so that the effects of a higher quantity of imports has offset the effects of lower average import tariffs.

important given declining inflows of official development assistance, which fell from 5 percent of GDP in 1990 to approximately 2 percent of GDP in 2001 (World Bank 2003). Although the effect of foreign exchange earnings on poverty or even the determinants of poverty (e.g. economic growth) is difficult to measure, it would be difficult to argue that the effects have not been significant.

It would also be difficult to argue that the shrimp sector offers limited potential for long-run growth and technological development. Although there are a number of competing producers of shrimp in Asia and elsewhere, evidence suggests that the elasticity of demand for the product (both price and income) are high, and consequently that strongly deteriorating terms of trade are unlikely to arise in the future years. There are also high returns to capital investment and technological upgrading in the sector, in terms of the shift from extensive to intensive methods of cultivation (as explained in Section 5.1). It would be inaccurate, therefore, to describe the sector as less knowledge-intensive than other sectors of the economy, despite being in a primary sector activity.

Nevertheless, one significant concern which surrounds the expansion of shrimp exports in Bangladesh has been its environmental side-effects. The expansion of land cultivated for shrimp farming has threatened the Sundarban Mangrove Forest, which is one of the largest tracts of mangrove forest in the world. The expansion of shrimp farming has also been blamed for increasing soil and groundwater salinity in surrounding areas, which has had adverse impacts on farmers growing rice and other food crops, and forced poorer households (and particularly women) to travel further for their sources of drinking water (Crow and Sultana 2002). Open-water collection of wild shrimp fry is also generally considered to destroy many other types of fish fry in the process, and to be harmful despite the additional employment it generates, particularly for landless households.

It is of course difficult to measure the various environmental side-effects associated with shrimp cultivation; one recent attempt (Battacharya *et al.* 1999) found that economic gains from shrimp farming do still outweigh the environmental costs. However, the study also cautioned against drawing firm conclusions given the far-reaching nature of environmental costs, and the fact that some environmental impacts, such as bio-diversity loss, are irreversible. The National Fisheries Policy does make the reduction of environmental side-effects in shrimp farming one of its key objectives, to be achieved through the promotion of integrated shrimp-rice cultivation, the prohibition of shrimp cultivation in such areas where it may destroy mangrove forest, and arrangements for modern training to minimise damage to other species during open-water shrimp fry collection. The government has subsequently imposed a ban on open-water shrimp fry collection, but enforcement has been weak (Khatun 2004).

6. Case Study 3: Exports of cut flowers from Ecuador

6.1. Introduction

This section focuses on the case of exports of cut flowers from Ecuador and their impact on poverty and household welfare since the early 1990s. In 2004, Ecuador exported 59,940 tonnes of cut flowers, generating a revenue of US\$ 258 million. This had increased from just 3,000 tonnes, and a revenue of US\$ 7 million in 1990. Within the sector, roses constitute the main export product, accounting for 73% of total revenue; others include gypsophilas, carnations, chrysanthemums, summer and tropical flowers, and some others. As an average, some 4,000 hectares of flower plantations exist, of which 2,500 correspond to roses. Thanks to the favourable climatic conditions and investments in state-of-the-art technology, the country exports high-quality products to some of the main developed country markets, including the United States, the Netherlands, Russia and Germany.

Section 6.2 begins by summarising the latest evidence on levels and trends in poverty and human development in Ecuador, and providing some background information on the cut flowers sector. Section 6.3 then outlines some of the key enabling factors underlying the large increase in cut flower exports. Section 6.4 then analyses the impacts of the sector on poverty and household welfare. Positive and negative impacts are documented, including reduced levels of income poverty among those working in the sector, but also increased child labour, adverse health impacts and the experience of harassment and assault. Section 6.5 concludes, and recommends specific policies for the government to adopt in support of Ecuador's flower production sector, aimed at enhancing the sector's performance and its impact on poverty and household welfare.

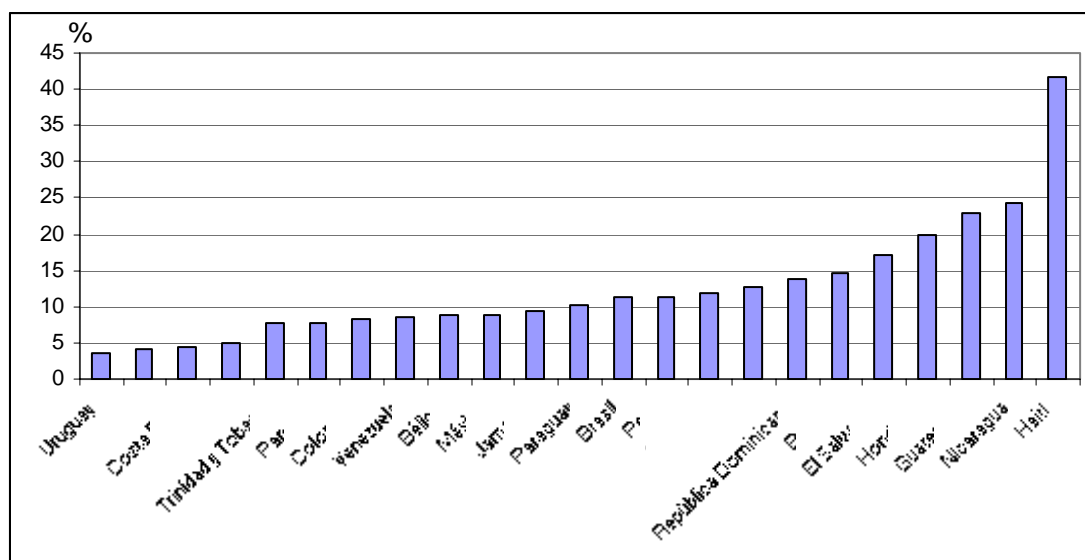
The information presented has been obtained from a combination of publicly available secondary sources, and also a short primary study of a specific intermediate-sized rose-producing and exporting firm, located within the area of Cayambe, Province of Pichincha. This included interviews with a random sample of the farm's employees.

6.2 Background

6.2.1 Levels, trends and characteristics of poverty

One of the outstanding social problems Ecuador confronts concerns the high levels of poverty that prevail. The country is 15th from among the 23 countries in Latin America (Figure 12), with only Bolivia and Guyana being worse off within South America (UNDP, 2003).

Figure 12 Human Poverty and Income Index for Latin America and the Caribbean



Source: UNDP (2003), Report on Human Development

Two main sets of methods are used to estimate poverty in Ecuador. The first is the unmet basic needs (UBN) approach, which identifies a household as poor whenever it lacks one or more means of access to education, health, nutrition, housing, public utilities or job opportunities (*Secretaría Técnica del Frente Social*, 2004). According to this approach, data from the National Census of 2001 showed that 6 out of 10 Ecuadorians were poor in 2000. This figure represented a decline of approximately 12 percentage points in comparison with 1990. Notwithstanding this decline, the absolute number of poor increased from 7.1 to 7.4 million people over the decade. This demonstrates a lack of success of the policies aimed at mitigating poverty in the country (*Secretaría Técnica del Frente Social STFS*, S/A).

The second method involves estimating levels of household consumption through the use of living standards surveys, and identifying those households which cannot afford a basic basket of goods and services as poor. According to this approach, poverty increased from 34% of the population in 1995 to 56% in 1999, while extreme poverty (defined as not even meeting minimum food supply requirements) increased from 12% to 21%. The increase has been attributed to the economic crisis which Ecuador experienced during 1998 and 1999 (STFS, 2004).

The main correlates of poverty in Ecuador are educational attainment, location of residence, ethnic background, and livelihood activity. With regard to education, data from the 2001 Census indicate that the percentage of the poor (according to the UBN approach) among the population living in households where the head of household lacks an education is as high as 91%. The percentage of the poor among the population living in households where the head of household has only has elementary education is also very high, at 73%.

Levels of poverty also differ substantially between rural and urban areas: according to the 2001 Census, poverty measured by the UBN approach affected 86% of the rural

population and 46% of the urban population. Among regions, the Amazon Basin and the Coastal regions had the highest incidence of poverty, at 80% and 67% respectively, while the Highlands region was lower at 54%.

According to ethnicity (as self-defined by the head of household), the highest rates of poverty in 2000 were witnessed among Indians and Blacks, at 90% and 75% respectively. According to livelihood activity by the head of household, the incidence of poverty was highest among agriculture and construction workers, at 88% and 69% respectively.

6.2.2 Levels, trends and macroeconomic contribution of cut flower exports

Exports of cut flowers from Ecuador have shown a large and rapid expansion since 1990, and now represents the second largest (in value terms) agricultural export (Table 12). Their share of total agricultural exports rose from 1.3% in 1990 to 15.5% in 2003, while their share of total exports rose from less than 1% in 1990 to 5.2% in 2003. The proportion of total production which is exported is high, in the region of 90%.

Table 12 Ecuador's principal agricultural export goods, 1990 -2003 (million US dollars)

	1990	1995	1999	2000	2003
TOTAL EXPORTS	2724	4381	4451	4927	4305
MAIN AGRIC. PRODUCTS	1059	2015	1968	1462	1453
Bananas and plantain	471	857	954	821	835
Coffee	104	185	57	22	8
Shrimp	340	673	607	285	200
Cacao	75	82	64	38	76
Manila hemp	8	12	10	8	6
Wood	0	31	26	20	28
Tuna fish	13	67	42	51	48
Fish	34	23	28	22	27
Fresh cut flowers	14	84	180	195	225

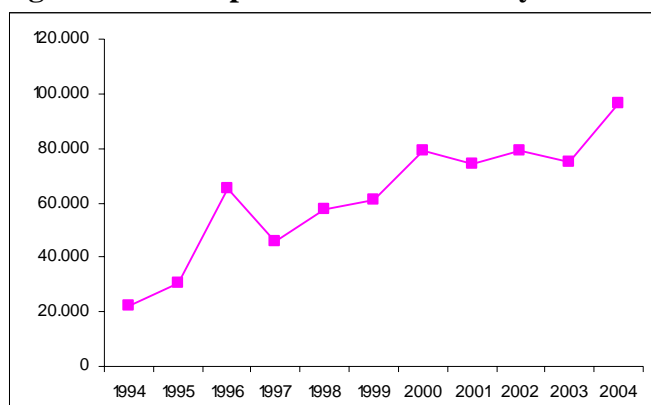
Source: Central Bank of Ecuador

The main flower producing areas are located within the provinces of Pichincha and Cotopaxi (66% and 12% of the total area, respectively), followed by Azuay, Imbabura and Guayas. In Pichincha, the districts of Cayambe and Pedro Moncayo encompass 54% of the plantations. Approximately 500 agricultural production units (APUs) are devoted to export-oriented trade, the majority of which are located in Pichincha, Cotopaxi and Azuay (67%, 14% and 9% of the total number APUs, respectively).

According to annual figures, exports of flowers experienced a significant one-off boom during 1995-1996, corresponding to a doubling of the volume of flowers exported (from 30,628 to 65,247 MT) (Figure 13). Starting in 2000 however, the growth of production has stagnated somewhat, but this was subsequently reversed in 2004. According to the Central Bank estimates, production of cut flowers represented in 2003 approximately 14% of total agricultural sector GDP, and approximately 2%

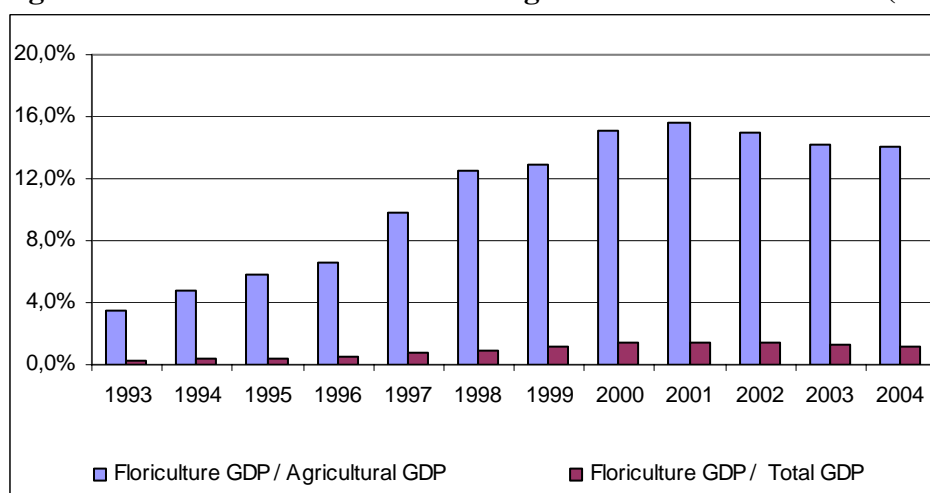
of total GDP (Figure 15). These contributions have increased significantly since the early 1990s, although there has been a small decline between 2001 and 2004.

Figure 13 Exports of cut flowers by volume (MT)



Source: Central Bank of Ecuador

Figure 14 Share of cut flowers in agricultural and total GDP (% of total)



Source: Central Bank of Ecuador

6.3. Factors underlying increased exports of cut flowers

6.3.1 Access to foreign markets

Ecuador is the fourth exporter of flowers in the world, after the Netherlands, Colombia and Israel. The North American market represents the main market destination, currently amounting to 60% of the total. Its share has been dropping over time however, due to increasing exports to European markets but also increasing competition in the North American market from Colombia. The second most important market is the Netherlands, with approximately 11% of total sales 2005. This represents a considerable expansion, since throughout the 1990s the share was in the region of 3%. Russia is the third most important market, and like the Netherlands represents a substantial expansion over the past decade. In 1994, its share amounted to only 2% of sales, but this has reached 10% by 2005. Several other European markets are significant, including Germany and Italy.

Exports of cut flowers from Ecuador are not subject to import tariffs in all the main importing countries. This situation could change however, if the American Free Trade Agreement is accepted, and the United States proposal is applied whereby roses would be placed in a D-basket category. This would entail a tariff of approximately 7%, with a 10-year period envisaged for lowering the tariff to zero. The direct consequence would impact on the production costs and loss of competitiveness vis-à-vis Colombia (EXPOFLORES, 2004).

6.3.2 Domestic trade, tax and export policies

The cut flower sector in Ecuador does not receive any export subsidies or benefits from the government. Most assistance comes from the sector itself, provided through the various associations that exist, and in particular EXPOFLORES. This is the Flower Producers and Exporters Association of Ecuador, which has been in operation since 1984. Its main objective is to promote and strengthen the prestige of the Ecuadorian flower-producing sector at the national and international levels, in terms of human, ecological, commercial, logistics and technological development whilst conserving the environment.

One of the main weaknesses found in the sector corresponds to the high costs of air freight. Ecuador has the highest costs of the region in this aspect, reducing its competitiveness particularly in relation to Colombia. According to EXPOFLORES, air freight costs \$1.45 per kilo to Miami and \$2.50 per kilo to Europe, as compared to \$1.13 per kilo to Miami from Colombia. The difference is attributed to the higher costs of aviation fuel, airport taxes, handling charges, cargo agency, domestic air transportation, cargo commissions, and VAT, among other things, in Ecuador. Domestic transport costs are, however, more competitive, and have tended to increase by less than in other cut flower exporters.

6.3.3 Political and institutional context

The political situation in Ecuador since 1997 has generally been detrimental to the sector. In that year, president Abdalá Bucaram was ousted from office in 1997, and in the eight years since the country has been witness to a parade of Presidents who have remained in office during an average period of 15 months each. The adverse effects are however not so much due to political instability, but rather the various institutional and popular protests against successive government administrations, which have involved strikes and business interruptions. Each time this happens, access to airports is blocked and flower producers cannot export their outputs. This has been responsible for some significant revenue losses to the sector, and have been a recurrent issue during the last eight years.

One particularly damaging case occurred in 2004, when protests interrupted business at the Ministry of Agriculture and Livestock for between six and seven weeks. During this period of time no certificates of origin or plant sanitation certificates could be issued by the Agricultural/Livestock Sanitation Service, thus preventing the shipment of the products from the country entirely. When one takes into account that around 15,000 boxes of flowers are exported on a daily basis, at a cost of US\$70 each, the losses reach approximately US\$1 million per day. These sorts of problem have prevented international buyers from risking long-term business with the sector, since

they are afraid the supply will be irregular and will reduce the returns to their investment. The high country risk factor has undoubtedly damaged the trading prestige which the flower-production sector had built (EXPOFLORES, 2005). The sector has requested improvements, and the privatisation of certification and sanitation services, but little government response has been forthcoming.

6.3.4 Infrastructure

The cut flower sector in Ecuador uses state-of-the-art technology in its productive process. Computers with analogue sensors are used to measure the soil stress and humidity; tension metres, suctioning devices, chips are only a few examples of the technological level being applied to the sector (EXPOFLORES, 2004). Currently 97% of the plantations use a drop-irrigation system, whilst 3% use micro-spraying (EXPOFLORES, 2005). Ecuador has become an exporter of technology and support programmes for farmers and flower-producers.

The sector also benefits from relatively cheap and reliable power sources. According to evidence from the 2001 National Agricultural/Livestock Census, almost 95% of farms exporting cut flowers used power comes from the public grid, and only 2% used their own power generation facilities. During the same year, around 50% of farms received some form of technical assistance in producing and marketing their flowers, wither from commercial firms, the Ministry of Agriculture, the National Development Bank, or other institutions (Araujo, 2001).

6.3.5 Other factors

Ecuador's geographic location is particularly suited to flower production, in particular its location on the Equator and the fact that the average height of the plantations corresponds to 2,800 metres above sea level. This generates a climate and levels of sunlight contributing towards high product-quality: very sturdy, long and vertical stems, large blooms and intense shades of colour, and longer shelf-life. Another advantage has do to the fertility of the land and its location near the airport of Quito, hence ensuring adequate roads and infrastructure and the possibility of purchasing the required inputs in the capital (EXPOFLORES, 2005).

6.4 The effect of cut flower exports on poverty

6.4.1 Direct effects

The amount of labour used by the flower sector has increased drastically during the last decade. According to information provided by EXPOFLORES, in 1994 approximately 10,000 persons were working in the sector; by 2005, this had risen to approximately 38,000 persons. The proportion of women in total sector employment is around 60%, which has remained constant since 1994. When bearing in mind that a family comprises an average of 4 members, the resulting total number of persons deriving direct benefits from the flower production sector would include somewhere in the range of 150,000 persons.

Wages paid in the sector compare well with those prevailing in other sectors. In 2004, compensation for a flower plantation worker was established at \$220, while the minimum wage for a production worker is \$150 (Table 13). Analysis of interview data from the surveyed farm showed that, of those employees regarding their present job as being an improvement on their previous job, approximately half attributed the improvement to higher salaries.

There are further non-wage benefits associated with employment in the sector, including nursery costs, uniforms, transportation, meals, affiliation to the Social Security (IESS), and medical care. Strong migratory movements have been evidenced of workers to areas where these plantations exist, particularly from coastal regions. Many flower production areas include housing programmes made available to workers from other regions (EXPOFLORES, 2005).

The majority of workers in the sector have at least an elementary education, at least 70% according to data collected from the surveyed farm. This limits the direct impact of farm employment on poverty, given the particularly high incidence of poverty in Ecuador among those households where the head of household has no education.

Table 13 Legally established salaries in Ecuador, 2005

Categories	Salary (\$)
Workers protected by the sector's Work Code	150
Independent Workshop Operators or Handcrafters	78
Handcrafts workers and apprentices	65
Micro-enterprise workers (other than handicrafts)	70
Domestic employees	55
Workers under the Maquila scheme	150
Voluntary Affiliates or those who have continued to make voluntary contributions, and who are not covered by professional social security	135

Source: Ecuadorian Social Security Institute, 2005

6.4.2 Employment effects

The cut flower sector also generates a large amount of employment indirectly. According to estimates by Expoflores, the total number of jobs created by the sector, directly and indirectly, is approximately 500,000. Among the various services made available to flower plantations are: fertiliser, sprayings, plastic wraps, polyethylene sheeting, nursery irrigation, cardboard boxes, bar codes, waterproofing, water reservoirs, nurseries and greenhouses, laboratories, hoses, electric material, plantlets, refrigeration facilities/devices, irrigation, roofing, water treatment, straps, customs agents, cargo agents, automated cultivation, cold rooms, metal structures, and labelling.

Over 50 companies providing agricultural services at the national-level have been registered with the Superintendence of Companies (including pest control and spraying of pesticides). There are 15 manufacturing companies producing industrial chemicals (fertilisers), 16 producing fungicides, and 24 producing cardboard containers. Technicians employed in the sector are now predominantly Ecuadorian, whereas in the past they had been foreign (largely Colombian).

6.4.3 Gender effects

Of the total number of workers in flower plantations, nearly 60% is comprised by women, most of them young girls. It is generally argued that women have as a result achieved a degree of financial independence, and on many occasions have become the heads of their households. Due to the role women fulfil in flower plantations however, on many occasions children are left on their own. Work days on plantations include Saturdays and on occasions Sundays, and household activities which had hitherto traditionally been performed by women have reduced. In addition, community action has almost disappeared (for instance the agricultural '*mingas*' or community work), disarticulating the bases of community and society (Korovkin, 2003).

Sexual harassment at the work-site is quite common. According to a study carried out by the International Labour-Related Rights Fund (Mena and Proano 2005), 55% of female workers experienced some form of sexual harassment in the north Quito region, while 19% had been subject to assault. The majority of these incidents take place within the cultivation and post-harvest areas, and during cleaning activities.

6.4.4 Health effects

There are certain health risks faced by workers in the cut flower sector. The main risk is the intensive use of pesticides and fertilisers during the productive cycle. These cause problems to the respiratory system and the skin. Studies have shown that 100% of the substances are inhaled, whilst 15% of the substances deposited on the skin are absorbed. According to a study performed by the Environmental and Sanitary Improvement Programme, the presence of residual pesticides in the urine of workers was detected, hence demonstrating that chemicals are absorbed from the crops, during post-harvest, maintenance and warehouse operations (Harari, 2003).

Several adverse health impacts have been detected in workers, including headaches, nausea, muscular pain, dermatitis by contact, impaired coordination, problems with memory and in certain cases, congenital malformations, abortion and reduced fertility. In addition, the impacts extend to neighbouring communities. The same study performed showed that 20% of persons living near flower plantations exhibited symptoms derived from exposure to agricultural chemicals (*ibid.*, 2003). Analysis of interview data from the surveyed farm showed that approximately 40% of workers had been sick at one point as a consequence of working in the sector. The most common impacts were gastro-intestinal disorders and respiratory ailments.

Children working at flower plantations are particularly prone to health risks. It has been estimated that approximately 46% of child workers have had accidents or suffered from diseases directly involved with their work (OIT, 2002). The majority

handle pointed, sharp tools that can cause accidents, and have been exposed to pesticides and chemicals.

Significant efforts have been launched to prevent workers experiencing adverse health impacts. One is *La Flor de Ecuador*, an EXPOFLORES initiative. This aims at creating awareness of the social and environmental impacts of activities in the sector. It encourages the appropriate use of chemicals, the prevention of contamination (making producers eligible for green seals) and the general improvement of working conditions. Activities also include environmental management (appropriate management of watersheds, irrigation, soil, pesticides, fertilisers; minimisation of liquid and solid wastes), human resources management (compliance with Ecuador's Labour and Industrial Safety Codes), and safety and protection measures (normalisation and standardisation of all procedures involved in the flower export chain). Participation in this initiative is now a pre-requisite for becoming part of EXPOFLORES.

6.4.5 Effects on child labour

A study performed by ILO, as part of the International Programme aimed at Eradicating Child Labour IPEC (2002), demonstrated that at least one thousand children work at flower plantations in Cayambe and Pedro Moncayo. Of them, 25% are under 15 years of age, and the great majority have worked for at least a year in the sector. Their work schedule comprises 40 hours per week (sometimes more) with an average income earned of USD 100 per month. They participate in the cultivation, harvesting and post-harvesting activities. Many children between 14 and 17 are behind in their schooling because of their early enrolment in the work performed at the flower plantations.

Demand for child labour in flower production has been linked to the high-turnover of adult workers; in the surveyed farm, there were changes in personnel almost every week. In such circumstances, employers hire any sort of labour that is available, without paying much attention to age, to maintain production levels and meet orders. A lack of appropriate, accessible housing also limits the amount of adult migration to meet local labour demand.

The EXPOFLORES initiative *La Flor de Ecuador* includes the goal of eradicating child labour at flower plantations. In addition, the *Foro Social Florícola*, an inter-institutional entity attached to the *Comité Nacional por la Erradicación Progresiva del Trabajo Infantil (CONEPTI)* was established in 2002, for the purpose of developing and implementing policies aimed at eradicating child labour. This programme is present in the provinces of Pichincha, Cotopaxi, Los Ríos, El Oro and Guayas (EXPOFLORES, 2005).

6.5 Conclusion

The rapid increase of cut flower exports from Ecuador is undoubted. However, there is now a need for appropriate policies to sustain that growth, to support small producers to participate in the growth, and to offset the adverse social and environmental impacts of the sector. These could include:

- promoting research and development on new varieties of plants;
- supporting small producers' in top-notch production technology;
- improving credit conditions;
- eliminating administrative and commercial burdens;
- improving education and training opportunities among the young, to the benefit of their work at flower plantations;
- appointing external auditors to monitor companies and ensure that working conditions are appropriate and meet legal safety provisions;
- making the eradication of child labour a national priority;
- guaranteeing workers' right to reasonable working hours, regular breaks and a freedom from harassment and assault.

7 Conclusion

This report assesses the effects of improved market access and domestic export promotion on agricultural exports, household welfare and poverty in developing countries. By market access, we refer to measures imposed by developed country governments which restrict or raise the cost of imports from developing countries, such as import tariffs, import quotas, and non-tariff barriers. By domestic export promotion, we refer to policies introduced by developing country governments which increase the relative returns to exporting, such as reductions in export taxes, import tariffs, and improvements in international transport and communication infrastructure.

The report begins (Section 2) by setting out a clear analytical framework linking improved market access, domestic export promotion, agricultural exports, and poverty reduction. A number of key findings emerge from this framework, which are as follows:

- For countries with a basic comparative advantage in at least some agricultural commodities, improved market access increases agricultural exports as long as domestic barriers to trade are not so high as to remain prohibitive, at least some factors of production are able to move into the exporting sectors from other sectors of the economy, and there is at least some transmission of prices internally (from the border to production regions).
- The size of the response will vary however, depending on the rate at which diminishing returns set in as production in the exporting sector expands. This rate will be higher, the more barriers there are the movement of labour between sectors (e.g. costs of labour migration and retraining), and the harder it is to increase the supply of other factors of production required by the export sector (e.g. suitable land).
- The impact of improved market access and/or domestic export promotion on poverty depend mainly on a) the amount of barriers that poor households face in terms of participating directly in the export activity (as producers), and b) whether the export activity is more or less labour-intensive than other activities, and therefore tends to raise or reduce real wages and/or employment opportunities. If barriers faced by poor households are high, and/or the export activity is not labour-intensive, effects on poverty are likely to be weak (at least in the short-run), unless the domestic government implements complementary measures to redistribute increased earnings and/or incomes in the sector (e.g. through taxes and transfers).

The report then provides (Section 3) a cross-country analysis of agricultural exports from developing to developed countries. A number of key findings emerge from this analysis, which are as follows:

- Aggregate exports of agricultural commodities from developing to developed countries have remained largely stagnant (in real terms) over the past two decades. This is in marked contrast to developing countries' exports of manufactures to developed countries, which more than quadrupled (in real terms) over the same period.

- Nevertheless, some countries have achieved some significant increases in exports to developed countries of some agricultural commodities during the 1990s, particularly in Asia (e.g. China, Thailand, Malaysia) and Latin America (e.g. Chile, Mexico, Ecuador).
- There is clear evidence to suggest that domestic trade policies have a significant impact on agricultural exports from developing countries, and in particular that countries with open-oriented trade regimes have higher agricultural exports.
- There is some evidence to suggest that market access has an impact on agricultural exports from some developing countries, notably the ACP countries (which have higher exports than other countries to the EU) and the ATPA and CBI countries (which have higher exports than other countries to the US). There is however little evidence to suggest that improved market access has increased exports from Least Developed Countries.

The report then analyses in greater detail (Sections 4 and 5) two specific examples of low-income developing countries which have achieved significant increases in exports of specific agricultural commodities in recent years, which are Kenya (horticulture) and Bangladesh (frozen shrimp and prawns).

In terms of policy implications, two main messages emerge from the report. The first is that developed country governments need to implement measures complementary to improved market access if the poorest developing countries are to gain significantly from that improved access. These include greater official development assistance for investments in improved transport and communications infrastructure, technological upgrading and quality control (for meeting product standards set by developed countries), and so on. The second is that developing country governments typically need to implement measures complementary to export promotion if increased exports are to make a significant contribution to poverty reduction. These include the expansion of government spending in social sectors, including social security and welfare, basic health and education, and an increase in domestic tax collection to finance this expansion.

References

- Ahmed, S., Mallick, D., Ali, M. and Rahman, A. (2002). Literature Review on Bangladesh shrimp. Document No. 1, Policy Research for Sustainable Shrimp Farming in Asia (PORESSFA), European Commission Project No. IC4-2001-10042.
- Aluaddin, M. and M. Hamid (ud.). Shrimp culture in Bangladesh with emphasis on social and economic aspects. Department of Economics, University of Queensland, Australia.
- Argwings-Kodhek, G. (2001) '*Marketing, Regulatory and Legislative Issues In Kenyan Agriculture: Opportunities and Constraints.*' Tegemeo TAMPA project, Kenya Agricultural Monitoring and Policy Analysis Project. Nairobi: Tegemeo Institute of Agricultural Policy and Development. Draft, September 2001.
- Barrett, H.R., Ilbery, B.W., Brown, A.W., Binns, T. (1999) Globalization and the Changing Networks of Food Supply: The Importation of Fresh Horticultural Produce from Kenya into the UK. **Transactions of the Institute of British Geographers** Vol. 24, No. 2, Pp 159 - June 1999
- Battacharya, D., Rahman, M. and Khatun, F. (1999). Environmental impacts of trade liberalisation and policies for the sustainable management of natural resources: a case study on Bangladesh's shrimp farming industry. Centre for Policy Dialogue, Bangladesh.
- Begum, A. and Alam, S. (2000). Social aspects of coastal shrimp aqua-culture in Bangladesh. Study sponsored by the World Bank and the FAO, Dhaka, Bangladesh.
- Bienen H. (1990) '*The Politics of Trade Liberalisation in Africa.*' Economic Development and Cultural Change, Vol.38 No.4 (July, 1990), pp.713-731.
- Bird, K., Kamau, P., Odhiambo, W. (2004) *Trade Policy Reforms and Poverty in Kenya*. Report for the DFID funded Africa Trade Poverty Programme. London: ODI.
- Bird, K. (2003) '*A framework to analyse linkages between trade policy, poverty reduction and sustainable development.*' Produced for the Africa Trade and Poverty Programme. Funded by DFID, UK. First draft. September 2003. London: ODI.
- Booth, D., and Kweka, J. (2004) '*Priorities for National Trade Policy and the PRSP Review: The TTPP Trade-Poverty Linkages Study.*' Report prepared for DFID. London: ODI.
- CBS (2001) '*Statistical Abstract.*' Nairobi: Central Bureau of Statistics, Ministry of Finance and Planning. Government of Kenya.
- CBS (2003) '*Economic Survey.*' Nairobi: Central Bureau of Statistics, Ministry of Finance and Planning. Government of Kenya.
- Cline, W. (2004). Trade Policy and Global Poverty. Washington D.C.
- Crow, B. and Sultana, F. (2002). Gender, class, and access to water: three cases in a poor and crowded delta. *Society and Natural Resources*, 15: 709-724.
- Delgado, C., Wada, N., Rosegrant, M., Meijer, S. and Ahmed, M. (2003). Fish to 2020: Supply and Demand in Changing Global Markets. International Food Policy Research Institute, Washington D.C..
- Dey, M., Ahmed, M., Jahan, K. and Rab, M. (2002). Analysis of fish trade policies in developing Asian countries: liberalisation vs. barriers. Paper presented at

- International Institute of Fisheries and Trade, August 2002, Wellington, New Zealand.
- Dolan, C., and Humphrey, J. (2000) '*Governance and trade in fresh vegetables: the impact of UK supermarkets on the African horticulture industry.*' Journal of Development Studies, Dec 2000, Vol.37, No.2, pp.147-176
- Dolan, C. (2001) '*The 'Good Wife': Struggles over Resources in the Kenyan Horticultural Sector.*' Journal of Development Studies. Vol. 37, No. 3, pp. 39-70(32)
- Dolan, C. (2002) '*Gender and witchcraft in agrarian transition: the case of Kenyan horticulture.*' Development and Change, Vol. 1, No. 4, p659.
- EJF (2003). Smash and grab: conflict, corruption and human rights abuses in the shrimp farming industry. Environmental Justice Foundation, London, UK
- FKAB (2001) '*Sector Study of the Horticultural Sector in Kenya.*' A study made on behalf of USAID, Kenya. FKAB Feldt Consulting.
- Foroutan F. (1993). 'Trade Reform in Ten Sub-Saharan African Countries: Achievements and Failures.' World Bank Policy Research Paper. No. 1222 (Nov, 1993).
- Freeman, H.A., Ellis, F., Allison, E. (2003) '*Livelihoods and Rural Poverty Reduction in Kenya.*' LADDER Working Paper No.33. April 2003. Norwich. University of East Anglia.
- Gachanja, S. P. (2001) '*Horticultural Industry in Kenya.*' Paper presented at an IDS Workshop, Holiday Inn, Nairobi.
- Humphrey, J., McCulloch, N., Ota, M. (2004) '*The impact of European market changes on employment in the Kenyan horticulture sector.*' Journal of International Development, Vol. 16, No.1, pp 63-80.
- Ikiara, G.K., Ikiara, M.M. and Odhiambo, W. (2003) '*Impact of the European Union (EU) on Poor and Marginalised People: The Case of Kenya's Horticulture and Fisheries Sector.*' Mimeo, Paper Prepared for ActionAid Kenya.
- IMF (2004). Government Financial Statistics, CD-ROM. Washington D.C., International Monetary Fund.
- Kamau M. (2001) '*Regional competitiveness in production and marketing of horticultural crops for the domestic market.*' Nairobi: Tegemeo Institute of Egerton University.
- Kanji, N. and Stephanie Barrientos, (2002) '*Trade liberalisation, poverty and livelihoods: Understanding the linkages.*' Working paper No. 150, Institute of Development Studies and International institutes for environment and development.
- Karanja, A.M. (2002) '*Liberalisation and smallholder agricultural development: a case study of coffee farms in Kenya.*' Wageningen.
- Kenya, Republic of (2000) '*Popular Version of the Second Report on Poverty in Kenya.*' Ministry of Finance and Planning. Human Resources and Social Services Department and Central Bureau of Statistics. December 2000. Ministry of Finance and Planning, Government of Kenya. Nairobi.
- Kenya, Republic of (2000a) '*Poverty in Kenya: Vol. 1. Incidence and Depth of Poverty*' Ministry of Finance and Planning. Human Resources and Social Services Department and Central Bureau of Statistics. June 2000. Ministry of Finance and Planning, Government of Kenya. Nairobi.
- Kenya, Republic of (2000b) '*Second Report on Poverty in Kenya: Vol. 2, Poverty and Social Indicators.*' Ministry of Finance and Planning. Human Resources and

- Social Services Department and Central Bureau of Statistics. November 2000. Ministry of Finance and Planning, Government of Kenya. Nairobi.
- Kenya, Republic of (2001) *'Economic Survey.'* Nairobi: Government Printer.
- Kenya, Republic of (2002) *'National Development Plan 2002-2008.'* Nairobi: Government Printer,
- Khatun, F. (2004). Fish trade liberalisation in Bangladesh: implications of SPS measures and eco-labelling for the export-oriented shrimp sector. Centre for Policy Dialogue, Bangladesh.
- McCulloch, N. and Ota, M. (2002) *'Export Horticulture and Poverty in Kenya.'* IDS Working Paper No. 174. Brighton, Institute of Development Studies.
- Manda, D.K., Kimenyi, M.S., and Mwabu, G. (2001) *'A Review of Poverty and Antipoverty Initiatives in Kenya.'* KIPPRA Working Paper No.3. Nairobi, KIPPRA.
- Markusen, J., Melvin, J., Kaempfer, W. and Maskus, K. (1995). International Trade: Theory and Evidence. McGraw Hill, Singapore.
- Maxwell Stamp (2003) *'Republic of Kenya Trade and Poverty Programme (KTPP): Institutional Review.'* Prepared for Ministry of Trade, Nairobi. Funded by DFID, UK. June 2003.
- Minot, N., & Ngigi, M. (2004) *'Are horticultural exports a replicable success story? Evidence from Kenya and Côte d'Ivoire.'* EPTD Discussion Paper No. 120. MTID Discussion Paper No. 73. Environment and Production Technology Division and Markets, Trade and Institutions Division. IFPRI: Washington
- MTI (2003) *'Trade & Poverty Programme advisory paper on the potential impact of possible future WTO agreements.'* Ministry of Trade and Industry Draft report for consultation.' Prepared for the Ministry of Trade & Industry, Nairobi. July 2003
- Narayan, D and Nyamwaya, D (1995) *'A Participatory Poverty Assessment Study - Kenya.'* Report prepared for the World Bank. Washington: World Bank.
- Neven; D., Reardon, T. (2004) The Rise of Kenyan Supermarkets and the Evolution of their Horticulture Product Procurement Systems. Development Policy Review. Vol. 22, No. 6, pp. 669-699(31)
- Omiti, J., Owino, W., Otieno, W., O., P. (2002) *'Poverty Reduction Efforts in Kenya: Institutions, Capacity and Policy.'* IPAR Discussion Paper No.033/2002. Nairobi: IPAR.
- Oxfam (2002). Rigged rules and double standards: trade, globalisation and the fight against poverty. Oxfam, UK.
- Ravallion, M. (2001). Growth, inequality and poverty: looking beyond averages. World Development 29 (11), pp.1803-1815.
- Reimer, J.J. (2002) *'Estimating the Poverty Impacts of Trade Liberalization.'* World Bank Policy Research Working Paper no. 2790. Washington: World Bank
- Roberts, J. and Fagernäs, S. (2004) *'Why is Bangladesh outperforming Kenya.'* Draft ESAU Working Paper. London: ODI.
- Sapir, A. (1981). 'Trade benefits under the EEC Generalised System of Preferences'. European Economic Review 15: 339-355.
- Transparency International (2001) *'The Kenya Urban Bribery Index.'* Nairobi: Transparency International. <http://www.transparency.org/dnld/kubi.pdf>
- Transparency International (2003) *'Global Corruption Report, 2003.'* Transparency International. <http://www.globalcorruptionreport.org/download.shtml>
- Toufique, K. and Hasan, A. (1998). Technological capacity in the shrimp processing sector in Bangladesh. Bangladesh Institute for Development Studies, Dhaka.

- UNDP (1990) *'Human Development Report: 1990'* UNDP. Oxford: Oxford University Press.
- UNDP (1993) *'Human Development Report: 1993'* UNDP. Oxford: Oxford University Press.
- UNDP (2000) *'Human Development Report: 2000'* UNDP. Oxford: Oxford University Press.
- UNDP (2003) *'Human Development Report: 2003'* UNDP. Oxford: Oxford University Press. <http://www.undp.org/hdr2003>
- UNDP Kenya (2002) *'Human Development Report: 2001: Addressing Social and Economic Disparities. Kenya'* UNDP Kenya.
- Wagacha, M. (2000) *'Analysis of Liberalisation of the Trade and Exchange Regime in Kenya since 1980.'* IPAR Discussion Paper. DP No.023/2000. Nairobi: Institute of Policy Analysis and Research. May 2000.
- World Bank (1996) *'Kenya: Participatory Poverty Assessment.'* Environment Department, *Dissemination Notes*. No. 46. August 1996.
- World Bank (2002). *Poverty in Bangladesh: building on progress.* Report no. 24299-BD, Poverty Reduction and Economic Management Sector Unit, South Asia Region, World Bank.
- World Bank (2003). *Bangladesh Public Expenditure Review.* Poverty Reduction and Economic Management Sector Unit, South Asia Region.
- World Bank (2004). *World Development Indicators, CD-ROM.* Washington D.C., World Bank.
- World Bank (2005). *Attaining the Millennium Development Goals in Bangladesh.* Human Development Unit, South Asia Region, World Bank.
- WTO (2000). *Trade Policy Review: Bangladesh.* Report by Secretariat, World Trade Organisation, Geneva.