

ADDRESSING THE IMPACT OF PREFERENCE EROSION IN BANANAS ON CARIBBEAN COUNTRIES

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NERA
Economic Consulting

15 Stratford Place
London W1C 1BE
Tel: (+44) 20 7659 8500
Fax: (+44) 20 7659 8501
Web: <http://www.nera.com>

An MMC Company



Oxford Policy Management
6 St Aldates Courtyard
38 St Aldates
Oxford, OX1 1BN
Tel: 01865 207300
Fax: 01865 250580
Web: admin@opml.co.uk

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European Commission, Brussels

- Paul Schildkamp, AIDCO, Manager of the SFA budget line
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- Weyinmi Omamuli

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- Bernard Cornibert

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- Gordon Myers

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EXECUTIVE SUMMARY

This report sets out to assess the impact on the Caribbean of the reform – or tariffication – of the EU Common Organisation of the Market in Bananas (COMB).

Part One of this study, by NERA, examines the impact of different tariff levels on the European market, taking into account:

- the competitiveness of the Caribbean
- dollar zone production and competitiveness over the next decade
- competition from other, mainly African, ACP producers
- under different levels of tariff and at different stages in the marketing chain.

Part Two, by OPM, goes on to examine the development options for the Caribbean, picking up the NERA findings on the price impact of different tariff levels on individual countries, in particular:

- impacts on the economy, in particular on production, exports and employment,
- potential strategies in response to changes in the COMB, including:
 - improved competitiveness
 - exit from banana production and
 - diversification
- the nature of available development assistance
- the arguments for and against additional financing
- concluding with recommendations for future aid strategies.

Background

In 2002, Caribbean producers supplied the EU 15 with a little under 300,000 tonnes of bananas - 7.5 % of the total market of over 4,000,000 tonnes. Traditional UK Caribbean¹ suppliers accounted for a little under 200,000 tonnes, or under 5%, of the EU 15 market, predominantly to the UK. These countries have accounted for a little below 25% of the UK market in recent years. Over the same period there has been a significant increase in the share of other ACP producers, notably from West Africa but also the Dominican Republic.

¹ ie excluding the Dominican Republic

Latin American “dollar” banana imports to the EU have been broadly held at quota levels of around 2,650,000 tonnes.

Caribbean producers face the possibility of further reductions in protection when the EU preference moves from a tariff/quota to a tariff only regime. This may mean both a lower level of tariff protection against non-ACP bananas and the end of any licensing constraints that may have limited the extent of competition from African ACP countries.

Impacts of previous changes to the EU banana regime

The progressive erosion in trade preferences has already had a significant impact on Caribbean banana producers. During the 1990s banana exports from the Windward Islands fell by 50%, exports from Jamaica showed a similar, but less severe trend, while those from Belize and Suriname rose. Suriname exports were temporarily halted in 2002-3 as a result of the bankruptcy of the parastatal company Surland. The decline in the banana industry damaged countries’ balance of payments and employment was most heavily hit in the Windward Islands.

Evidence on the livelihoods impact of job losses is limited. Anecdotal evidence from the Windward Islands suggests that there has been serious hardship in certain communities. However, the impact has been cushioned by the structure of the workforce: many were part-timers or close to retirement age. Workers have taken early retirement, sought service sector employment or emigrated.

There are significant differences between the seven Caribbean countries in terms of their economic dependence on bananas: the Windward Islands are the most banana-dependent.

The rapid growth in service industries (mainly tourism) has more than compensated for the decline in banana exports, even in the most banana-dependent Caribbean economies. In many respects Caribbean countries have already successfully adjusted to the loss of banana preferences.

The Competitiveness of the Caribbean

Analysis of fob export unit values averaged over 1999-2002 shows a substantial price gap:

- ACP Caribbean €560 /tonne
- Latin America €262 /tonne
- Competitiveness “gap” €259 /tonne

Industry sources on the price at which licences are sometimes traded suggest values for quota rents around € 122/tonne. Adding this to the €75/tonne in-quota tariff imposed on imports from Dollar producers results in a competitiveness “gap” of about € 197/tonne.

This suggests that the competitiveness gap between the Caribbean producers and those of Latin America, and therefore the “equivalent tariff” necessary to sustain current EU price levels (and current Caribbean ACP production), is in the range €197 to €259 per tonne. These estimates are subject to significant qualifications, and this range may understate the true competitiveness gap if transport costs are taken into account.

The analysis of the impact of the changes in the regime rests on an assumption that there is little prospect of the Caribbean being able to compensate for a substantial loss of preference (choice of a uniform tariff far lower than the tariff equivalent) through an increase in competitiveness. Their lack of comparative advantage with other banana exporters is simply too great; and reflects several factors:

- Differences in terrain, soil quality and climate
- Organisation dominated by smallholdings or large scale plantations
- Labour costs (the Caribbean being essentially middle income with general income levels a multiple of those of Ecuador, the lowest cost Latin American producer)
- For some Caribbean countries, transport costs associated with small island economies

Dollar Zone Production and Competitiveness Over the Next Decade

Surveys of existing studies suggest that there will be changes in the pattern of Latin American production in the next decade, and that these could include expansion of production in the most efficient producing countries (Ecuador and Costa Rica). These trends may include further concentration of production in larger and more efficient holdings, particularly in Ecuador.

Overall, realistic assumptions about the future of Latin American supplies are that:

- there may be some reduction in the cost of banana production in those countries, but we expect these to be relatively modest, given that much of the production already appears to be efficiently organised, and is currently based on very low cost labour;
- there is currently significant scope for Latin America to expand production, at prices equal to those they currently obtain from the EU, evidenced by the fact that their exports to the EU are at quota levels and appear to be quota constrained.

Competition from other Mainly African ACP Producers

Since any tariff will not protect Caribbean producers from other ACP competition, the cost characteristics and competitiveness of other ACP producers may also be important to the Caribbean in the medium term, and under a wide range of actual tariff outcomes.

It is logical to bracket the Dominican Republic with West African producers, since its past performance has shown similar characteristics of much lower costs than the weaker Caribbean producers and it has similarly increased its share of the ACP quota in recent years. It is also now a significant exporter to the UK.

The indicators we have analysed suggest the African ACP countries have lower production costs than the Caribbean, with some factors such as lower labour and transport costs that make them potentially competitive with the Latin American producers.

If the tariff were set at the “equivalent tariff” level (estimated above in the range €197-259) that would maintain the current EU price and hence allow current levels of Caribbean production to continue. We would expect African suppliers and the Dominican Republic to expand their exports to the EU. However, the principal losers would not be the Caribbean suppliers but Latin American suppliers (who would be likely to face a competitor with lower effective costs of supply – after taking into account the tariff preference – as compared to the current regime).

There is little hard evidence available on the potential (in terms of suitable land etc.) to expand African supplies. However, given the apparent profitability of supplies to the EU at prices currently obtainable, or at the prices that would obtain with a relatively high tariff and a tariff only regime, it seems probable that there is some potential for expansion.

Outcomes for Different Levels of Tariff

High Tariff Equivalent to Existing Quota Arrangements

NERA has attempted to estimate a tariff equivalent level “ T_E ” at which current EU wholesale prices would be maintained. This is essentially the level at which the Caribbean countries should, subject to the qualifications attaching to our analysis, be able to sustain current levels of production to the EU.

T_E is estimated as a range between € 197 and € 259/tonne. With the application of such a tariff, non-Caribbean ACP producers appear likely to enjoy a substantial competitive advantage such that they might gain market share at the expense of Latin American producers. Caribbean producers retain their existing export volume and market share.

EU prices for the EU-15 would remain unchanged under a tariff set at this level. However there would be very substantial price increases for consumers in the accession countries, who currently enjoy tariff-free access to world market bananas.

A Low Tariff at Around the Current Figure of € 75

A low tariff of around € 75 would put Caribbean production under severe or extreme pressure from the much lower prices that are an inevitable outcome of the much lower costs of both Latin American and other ACP production in a competitive market. It is likely that

exports to the EU from many Caribbean islands, including the Windward Islands and probably Jamaica, would virtually cease.

Intermediate Levels of Tariff

With intermediate levels of tariff, and resulting prices below current levels, Caribbean exports are likely to fall, but with prospects for survival of some production in the lower cost countries such as Jamaica and Belize. The admittedly imprecise estimates of the supply elasticities of Caribbean production suggest volumes could respond sharply to further falls in price, with exports falling by 3% or more for every 1% fall in the price to exporters. Belize's relatively stronger position is confirmed by an estimate of a drop of only 1.4%.

At some point a substantial fall, resulting from a tariff significantly less than the equivalent tariff of T_E , could push production for export below viable levels for the more vulnerable Caribbean producers. It is likely that the Windward Islands would be the first to be forced to cease exporting to the EU if prices fell substantially.

Effects in the UK and other EU Member States

Impact of a Higher Tariff on European Wholesale/Retail Prices

Reductions in the level of protection below the equivalent tariff T_E would lead to similar reductions in the wholesale price banana suppliers can command.

NERA estimates that, in the UK, a 10% reduction in the wholesale price would lead to a reduction of 5.9% in the retail price. Taking the higher estimate of T_E at € 259/t, a tariff level of €200/tonne would lead to a reduction of 5% of retail prices, while a tariff of €75/t would result in retail prices around 15% lower than today.

Market Response of Consumers in the UK

At least in the UK, a reduction in wholesale prices would also lead to an increase in volume of consumption. The estimated price elasticity of banana demand is -1.1, which means that a 10% reduction of the retail price would lead to an increase of sales volumes of 11%. Based on this elasticity estimate, we project that with a tariff level of €200/t, volumes sold in the UK would increase by 5.5%, whereas with a tariff of €75/t the increase would be around 17%.

Projected Impact of the Tariff-Only Regime: Caribbean Countries

For an estimate of the tariff equivalent of € 259/t, projections suggest that the future survival of the Windward Island export industry depends on the EU setting a high tariff of around €175-€225 per tonne. Jamaica could continue to export so long as tariffs are above €125 per tonne. Belize could continue to export even under a free trade (zero tariff) scenario.

It is difficult to predict the socio-economic impact of changes to the regime other than by drawing on the experience of the 1990s. In the case of the Windward Islands, a further employment loss of all remaining banana farmers (7,300) and farm workers (21,900) can be expected under the low tariff scenario. Even under the high tariff scenario, more than half the remaining farmers would probably abandon banana production.

Jamaica would be likely to suffer lower reductions in export earnings, GDP and employment under both the high and low tariff scenarios than any of the other Caribbean countries. The impact of declining exports will be cushioned by the large domestic market in bananas, but the local impact in the three main banana-producing parishes could be substantial.

Even in the more efficient Belize some contraction of the banana industry would be unavoidable under the low tariff scenario. Because prices would fall significantly, there would be a substantial drop in export earnings.

Following the bankruptcy of Surland, the situation in Suriname is uncertain. There is some optimism that the relaunched company will prove successful. Initial production figures and yields seem encouraging.

Development Options for Caribbean Banana Producing Countries

The main strategies for dealing with a tariff only COMB in the Caribbean are:

- improving the competitiveness of the banana industry,
- exit from banana production, and
- diversification.

These options are not mutually exclusive, and different combinations will be appropriate in different countries.

Improving the Competitiveness of the Banana Industries

Part one assumes that productivity within countries remains constant, and that bananas from all suppliers are of uniform quality and type. The outcome for Caribbean producers may be better than predicted if they can achieve productivity gains, and if they can succeed in differentiating products by quality and type. The Windward Islands and Jamaican smallholders are currently having difficulty meeting EUREP-GAP traceability standards; only Belize manages to comply.

Under the high tariff scenario, some of the more efficient producers might survive if productivity could be increased through (i) further institutional reforms to Banana Growers Associations, including formation of producer associations; (ii) investment in infrastructure, and (iii) land consolidation.

Significant productivity gains are unlikely in the Windward Islands. The main hope for their banana industry is to exploit niche marketing and value-adding opportunities, such as fair trade, organic bananas and special packs. At the low tariff level niche markets would probably only offer a future to the most efficient producers.

In Jamaica the prospects for improving competitiveness vary between the two estates and the smallholder sector. The two estates are well-run, and with further investment could probably continue to operate profitably with a tariff level as low as €150 per tonne. Many of the smallholders currently producing for export are likely to revert to the domestic market.

Belize closely resembles the rest of Latin America (i.e. dollar banana zone). Large scale, professionally managed plantations, generally favourable soils, and suitable terrain provide good conditions for the adoption of latest technologies. Productivity has recently increased, and recent investment in drainage, irrigation, tissue culture and port facilities are likely to deliver further productivity gains.

Suriname is potentially a competitive banana producer. The collapse of Surland was mainly due to labour unrest (trade union militancy), weak management and political interference in the parastatal, rather than inherently high production costs. The new company is very optimistic about its prospects, and initial yield and production figures are encouraging but its success depends on privatisation going ahead as planned.

Where investment could raise productivity and competitiveness, it should be privately financed. Public funding in the form of grants should generally be avoided because this is likely to skew investment decisions away from commercial considerations. An element of public support to the banana industry may be justified, where:

- the proposed investment has a public or mixed goods character,
- there are failures in financial markets,
- there are strong welfare arguments for supporting producers in lower income brackets, and
- there is a need for one-off investments in institutional development or reform

Exit from banana production

Exit or partial exit strategies will be required where the banana industry is likely to contract or collapse altogether to ensure an orderly winding down of production and provision of safety nets for affected farmers and workers. Possible forms of support include:

- one-off severance payments for farmers or workers leaving the industry,
- pensions for retrenched workers or farmers abandoning banana cultivation,

- social security payments targeted at those most affected by the decline in the industry,
- community development funds targeted at communities affected by the loss of banana employment, and
- retraining for unemployed farmers and banana workers.

Such programmes could usually only be financed through government or donor funding. Financing needs will be significant, and are likely to put a strain on public finances. In designing social support programmes, assistance should be targeted at those most in need.

Diversification

Diversification is likely to be the best response for the high cost Caribbean banana producers (i.e. Windward Islands and Jamaica) to a tariff-only regime. It should be an integral part of the general development strategy, built into PRSPs. Governments should avoid trying to pick winners and focusing public support on particular activities. Strategies should aim to increase the mobility of factors of production so that they can move out of declining industries into more dynamic sectors. Obstacles to mobility, such as restrictive land laws and employment regulations should be addressed. In the long run, successful diversification will be dependent on:

- creating an appropriate administrative and legal environment enabling the market to work in the interests of the poor, and
- supporting the provision of public goods and transfer payments, including infrastructure, health and education and social security.

Overcoming political resistance to market reforms will be a major challenge, particularly in the Windward Islands where there is a strong tradition of state intervention.

Development Assistance for Caribbean Banana Producing Countries

Three main sources of EC funds are available to Caribbean producers: (i) the Special Framework of Assistance (SFA), (ii) export revenue stabilisation schemes (STABEX and FLEX), and (iii) National Indicative Programmes (NIP) funded by the European Development Fund (EDF).

The Special Framework of Assistance (SFA) was intended to support the competitiveness of ACP banana producers and promote diversification with funds allocated over the period 1999 to 2009 over the periods. There has recently been a notable shift away from projects supporting the competitiveness of the banana sector towards diversification and social support. It has had major weaknesses:

- unclear objectives,

- unrealistic expectations,
- incoherence between EC trade and aid policy,
- variable results,
- misallocation and perverse incentives,
- limited absorption capacity,
- inappropriate subsidies,
- an ill-defined approach to diversification,
- limited social support, and
- rigid procedures and disbursement delays.

Instruments under the European Development Fund provide compensatory aid to offset cuts in foreign earnings from temporary reductions in export prices and volumes. Before the Cotonou Agreement, compensatory aid was provided through the STABEX instrument. Under the 9th EDF, STABEX has been replaced by the FLEX instrument to provide aid contingent on natural disasters and fluctuations in export earnings, as well as provisions for debt relief. This is funded from 'B' envelope of National Indicative Programmes. The restrictive rules have meant that only 5 countries have benefited – none of them Caribbean banana producers. If member states accept the European Commission's proposed relaxation of these rules, it would be much easier for Caribbean Islands to access FLEX funds.

The other main category of EC development assistance is the 'A' envelope of National Indicative Programmes. This provides resources for general development programmes which are planned on the basis of a country strategy with a five year duration.

Comparisons between annual aid allocations with past losses in banana export earnings and projected losses in future show that SFA allocations have offset a substantial proportion of the export losses which occurred during the 1990s. In the Windward Islands SFA commitments have been equivalent to about half of the export losses. However, SFA allocations cover only a small portion of the total losses expected under a tariff-only regime. In the Windward Islands SFA funds are equivalent to 16-27% of total export losses arising from past and future changes to the EU banana regime. When considering all EC aid this figure rises to 22%-41%.

Arguments for and Against Additional Financing

If the European Community opts for a low tariff post-2006, calls for additional aid for the Caribbean banana producers are inevitable. There are likely to be demands for a successor arrangement to the Special Framework of Assistance. The principal arguments for additional aid are as follows:

- High cost Caribbean banana exporters will be badly hit by a tariff-only regime, especially under the low-tariff scenario.
- the SFA was formulated in 1999 before discussions on the tariff-only regime began, the level of assistance was set according to the needs arising from earlier changes to the banana regime, and did not foresee the introduction of a tariff-only regime.
- After 2009 Caribbean countries will face a double shock resulting from the introduction of the tariff-only regime and the phase out of substantial SFA resource flows.
- The Banana Protocol places the European Community under certain obligations to ACP banana producers.

Against these arguments, it may be said that:

- further assistance is unlikely to help those countries which have not succeeded in becoming competitive by 2009. Other countries which have achieved significant productivity gains using SFA funds (e.g. Belize) should be in a strong enough position to sustain the development of their banana industries using alternative sources of finance after 2009. While diversification and social support will still be major priorities for several Caribbean countries after 2009, there are more appropriate instruments to support diversification.
- the SFA was conceived as a one-off intervention designed in the context of a specific change to the banana regime, and that it should not become a permanent feature of EC development cooperation.
- previously programmed resources will continue to be spent for several years after 2009, possibly until as late as 2015. This should be sufficiently long to help countries meet the challenges of a tariff-only regime.
- in the case of the Windward Islands there is evidence that most of the employment impact of changes to the banana regime has already been felt, and the impact of the introduction of the tariff only regime will be more limited.
- other sources of development assistance are available to the Caribbean countries. The FLEX instrument should provide some additional support for Jamaica and the Windward Islands if the European Council agrees on the proposed rule changes.
- the capacity to absorb large increases in aid spending is limited, especially in the Windward Islands.
- all of the Caribbean countries benefiting from the SFA are middle-income countries with per capita incomes in excess of \$3,000 (except for Suriname). These countries already receive very high levels of aid. The Windward Islands as a group received an average of \$132 per capita in aid between 1998 and 2002. This compares to \$20 per head in the Least Developed Countries in 2001.

Recommendations for Future Aid Strategies

Adequate donor resources are available to support industry restructuring, exit and diversification strategies. Where needs are greatest (i.e. the Windward Islands) it can be argued that new resources should be made available as the SFA is phased out. However, higher levels of donor assistance would not be justified:

- Suriname and Belize, by virtue of their more competitive banana industries, should not require any additional support after the phase-out of the SFA.
- Economic dependence on bananas is relatively low in Jamaica. The resources required to adjust to the tariff-only regime should be available from other donor, government and private sources without the need for additional aid.
- The Windward Islands will be in greatest need of support, particularly under the low-tariff scenario. A sudden drop in aid flows following the phase-out of the SFA after 2009 could be damaging. In this context some form of transitional aid facility to support economic diversification would be justified, but an overall increase in aid flows would not.

Additional support should not be directed specifically at the banana sector, and should be provided in the form of mainstream development funding. In the Windward Islands the main priorities will be economic diversification and mitigation of social impacts. The SFA is not well suited to support these objectives: it should be phased out and replaced by mainstream donor programmes, including the A and B envelopes of the National Indicative Programmes, as well as other multilateral and bilateral donor support. There may be a case to expand these programmes in the Windward Islands to compensate for the loss of SFA resources.

In general, donor funding is most likely to be effective if it is provided in support of comprehensive, nationally-owned strategies for poverty reduction, economic diversification and growth (see section 3.3). Where conditions allow, coordinated, multi-donor budget support would probably be a more effective means to support these strategies than stand-alone projects.

The SFA should not be extended beyond 2009 but it should be improved to increase its relevance, efficiency and effectiveness. Options are limited because of the difficulty of modifying the EC Regulations. However, there is scope to:

- refocus the content of SFA programmes at the national level on the most relevant needs,
- develop expertise according to new priorities, such as helping farmers to meet EUREP-GAP standards, fair trade and organic certification requirements etc,

- avoid or phase out unsustainable activities that subsidise banana producers' operating costs,
- improve approaches to promoting diversification and providing social support,
- ensure greater lesson learning and consistency between country programmes,
- tackle disbursement delays and bureaucratic obstacles.

Additional Recommendations

This report has highlighted the lack of detailed evidence on the socio-economic and environmental impacts of preference erosion. While it suggests that these impacts have not been particularly severe, caution should be exercised in interpreting the findings of this short desk-based review. More detailed in-country work is required.

Further study of the need for and suitability of alternative mitigation strategies is required on industry competitiveness, social support and diversification options.

The issues examined in this report are not unique to the banana sector in the Caribbean, but are common to numerous countries facing the problem of commodity dependence. Broader discussions are needed on strategies to promote diversification in commodity-dependent economies, particular where they will be affected by preference erosion. In the context of EC development cooperation this might require new thinking on such issues as: (i) additional NIP allocations for small island, commodity dependent countries, (ii) further discussion on the modalities and management of the FLEX instrument, and (iii) refocusing Country Strategy Papers and all EC development aid instruments on economic diversification in commodity dependent countries.

INTRODUCTION

Caribbean countries have long enjoyed preferential access to European banana markets, first under bilateral arrangement with individual EU Member States, and since 1993 through the EU Common Organisation of the Market in Bananas (COMB). Since its inception the EU banana regime has been challenged by several Latin American countries, backed by US transnationals. Following a WTO ruling against the EU, the banana regime has been modified in several stages leading to an erosion of Caribbean trade preferences. In 2006 (or possibly earlier) the EU will introduce a tariff-only trade regime to replace the present tariff-quota system. This would allow duty-free access for ACP bananas, and apply a uniform tariff to bananas originating from non-ACP countries. The EU is legally entitled to maintain a tariff preference for ACP producers until 2008. After 2008 zero-duty access for ACP suppliers could be maintained under the EC's broader proposals to negotiate Economic Partnership Agreements (EPAs) with groups of ACP countries.

Caribbean countries are concerned about the introduction of the tariff-only regime, which will lead to a further erosion of preferences and greater exposure to foreign competition. As a consequence of their high production costs, certain Caribbean countries are likely to lose market share or may cease exporting bananas altogether. Because of their relatively high economic dependence on banana exports, the social and economic impacts may be severe. The future of the Caribbean banana industry is highly dependent on the level of tariff protection that can be granted under the tariff-only trade regime. For this reason the level of the future tariff has become a subject of intense debate and lobbying. A high tariff level will offer a degree of protection to Caribbean producers, but may be challenged in the WTO and be resisted by EU Member States that oppose high banana prices (Germany and the new Member States). A low tariff level would avoid such disputes, but would threaten the survival of the Caribbean banana export industry.

This report assesses the impact of the move to a tariff-only trade regime on Caribbean banana producers, and discusses strategies to mitigate these impacts, including the role of development aid. It focuses on the seven "traditional" Caribbean banana exporters.² Other ACP banana producers in the Caribbean and West Africa are not discussed in detail, except in terms of their ability to gain market share from traditional Caribbean and Latin American (dollar zone) producers. This report therefore only considers a small part of the overall picture, and tends to focus on the losers, rather than the gainers of the proposed reform. Within the category to "traditional" ACP banana suppliers, there will also be important differences in the response of individual countries to the introduction of the tariff-only regime.

² These include Belize, Jamaica, Suriname and the four Windward Islands : Dominica, Grenada, St Lucia and St Vincent and the Grenadines

This report is divided into two parts. The first part, prepared by National Economic Research Associations (NERA) develops economic models to assess the effect of different tariff levels on banana exports from Caribbean countries. Specifically it aims to:

- Describe the workings of the EU banana market under past, present and future regimes.
- Assess the cost of banana supply in different producer countries.
- Use the price gap methodology to calculate the tariff equivalent of present quotas that would offer Caribbean producers a level of protection equivalent to what they enjoy at present.
- Develop an econometric model to estimate the response of individual Caribbean exporters to different tariff levels.
- Consider the impact of different tariff levels on wholesale and retail banana prices in the UK and other EU Member States.

The Second part of the report prepared by Oxford Policy Management Ltd (OPM) considers the broader socio-economic impacts of the projected changes in banana trade between the Caribbean and EU. It discusses strategies to mitigate these impacts, and assesses the role of development assistance. Specifically it aims to:

- Analyse the impact of previous changes to the banana regime on Caribbean exporters as a guide to their future response.
- Consider the broad range of social and economic impacts of the projections made in part one of the report.
- Assess the potential of Caribbean producers to improve their competitiveness.
- Discuss alternative strategies to mitigate the impact of the introduction of the tariff-only regime.
- Discuss the role of development assistance in supporting such strategies, and make recommendations on future development assistance needs and priorities.

PART I
IMPACT OF DIFFERENT TARIFF LEVELS

1. INTRODUCTION

The aim of this part of the report is to analyse the possible consequences of the reform of the EU banana trade regime due in 2006. As part of its 2001 agreements with Ecuador and the U.S. after long-standing trade disputes, the EU has committed to replacing the current tariff-quota regime by a uniform tariff on bananas by 2006 at the latest. We analyse

- The likely effects of different tariff levels on the banana producer countries that currently enjoy protection under the quota regime. We concentrate on the Caribbean ACP states,³ but also include the most important African producer countries.
- The effect of the regime change on wholesale and retail prices and demand in the European Union, especially in the UK.

Our analysis proceeds along the following lines. First, we describe the workings of the EU banana market under the current and future regimes. This provides the background for the analysis (Section 2). Next, we assess the supply cost of the Caribbean, African and Latin American producers. This allows identification of the most inefficient or highest cost producers, who can be expected to suffer most if levels of protection are lowered, to the benefit of the most efficient countries. For the same purpose, we also look at different countries' past performance under the EU banana regime, which allows some inferences on likely reactions to changes in prices (section 3).

We then analyse the shifts in supply that can be expected under different levels of tariff to be introduced in 2006 (section 4), and

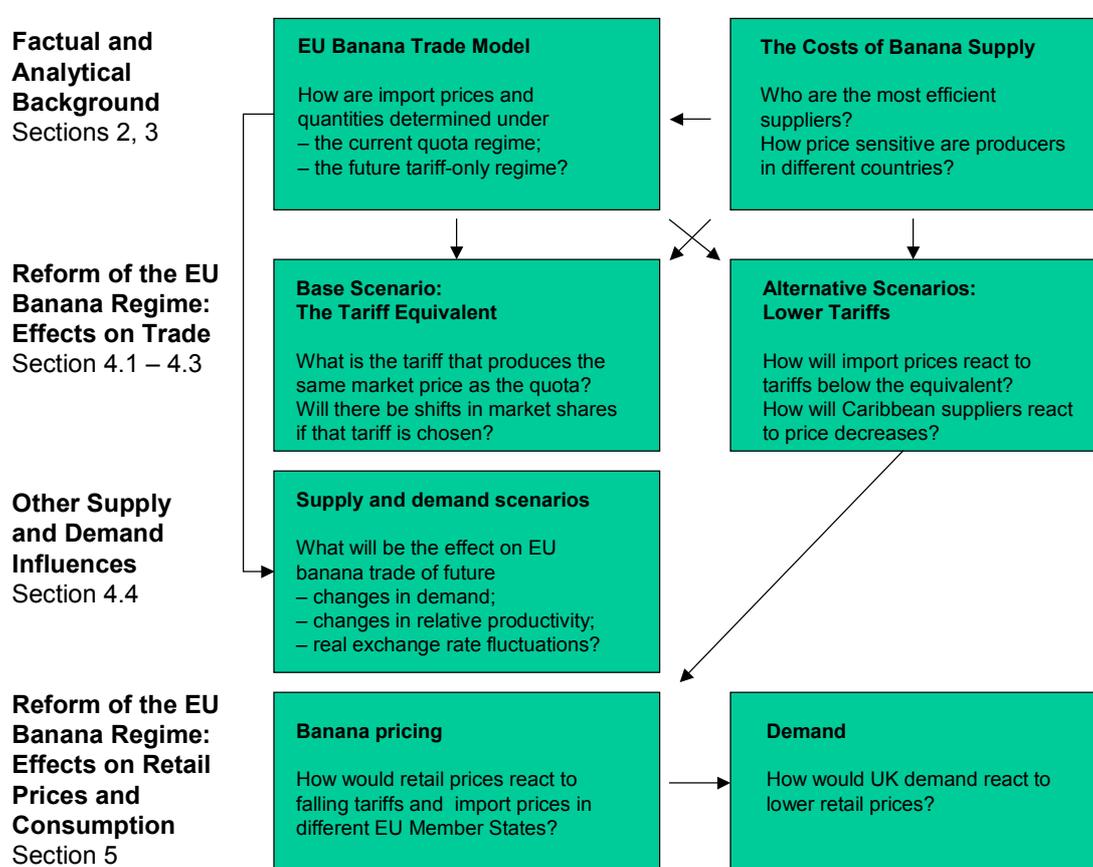
- estimate the tariff that would preserve the internal EU market price as under the tariff quota, if tariffication were undertaken today (the "tariff equivalent");
- analyse the effects of the regime change on the supplies of the various groups of banana producers in the scenario where the tariff equivalent is chosen as uniform tariff rate;

³ Unless stated otherwise, "Caribbean ACP suppliers" in this report is taken to include the Windward Islands, Jamaica, Belize, Barbados, Bahamas and Suriname. The last three have not been looked at in any detail. Barbados and Bahamas are not significant banana producers. In Suriname, production ceased in April 2002 due to the bankruptcy of Surland, the Government-operated banana company. Though officially an ACP Member, for the purposes of our analysis we do not include the Dominican Republic among the Caribbean ACP states. For reasons that will become clear further below, we treat this country as a category of its own. "African ACP suppliers" will refer to Angola, Burundi, Cameroon, Cape Verde, Congo Democratic Republic, Equatorial Guinea, Ghana, Guinea, Ivory Coast, Kenya, Mali, Mauritius, Mozambique, Rwanda, Senegal, Somalia, South Africa, Togo, and Uganda. Of these, Cameroon and Ivory Coast we have analysed in more detail. "Latin American suppliers" (who may synonymously be called "Dollar suppliers" will be taken to include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, and Venezuela. The well-documented producer countries of Ecuador and Costa Rica will most often be used as examples.

- estimate the effects of the regime change on the supplies of the Caribbean ACP producers for several scenarios of lower tariffs;
- analyse how future changes in supply and demand conditions may erode or strengthen the level of protection conceded by the uniform tariff.

Finally, we will assess the downstream impact of the regime change in the UK (Section 5). We will estimate how the changes in import prices generated by different tariff levels as discussed in section 4 may impact on wholesale and retail prices in the UK and in other European countries.

The map below shows how the study is organised.



2. THE WORKINGS OF THE EU BANANA REGIME

In this section, we describe the main elements of the EU banana regime, and analyse the way in which prices and quantities are formed. This provides the analytical background for the remaining sections.

2.1. The Tariff-quota System Since 1993⁴

The EU-wide tariff quota regime established in 1993 replaced a variety of different schemes that were in place in different EU Member States. The regime consisted of three main elements, which underwent a number of changes over the years: quotas, tariffs and import licenses.

2.1.1. Quotas

In essence, the system consists of two quotas. One is exclusive to ACP suppliers (the “ACP quota”) and one is open to all countries (the “general quota”). The level of the ACP quota has been amended several times and currently stands at 750,000 tonnes. The ACP quota was initially allocated in fixed quantities (the “traditional ACP imports”) to the different ACP countries.⁵ Some ACP countries, for example the Dominican Republic, had no right to import under this scheme.⁶ This in-quota allocation was lifted in 1999, so that the quota was now open to all ACP countries without any additional quantitative restriction.

The general quota also increased several times, partly in order to allow for increased demand from the EU due to accession of three new Member States. It currently stands at 2.653m tonnes.

2.1.2. Tariffs

ACP imports enter duty-free under both the general and the ACP quota. Third country imports under the general quota are subject to an in-quota tariff, which initially was set at €100,⁷ and reduced to €75 in 1995. Out-of-quota imports have been subject to varying tariffs with preferences to ACP suppliers, which so far have proved to be prohibitive (the current level is €680/t with a preference of €300 for ACP suppliers).

⁴ A more detailed description of the complex tariff-quota regime and its various modifications is presented in NERA (2003).

⁵ The quantities allocated to each country are presented in Table 3.3.

⁶ As will be discussed further below, produce from the Dominican Republic was initially imported under the general quota.

⁷ Throughout this report, “€” will be used to signify ECU and Euro.

2.1.3. Import licences

The rights to import under the various quotas are allocated through issuing import licences (with entitlement determined principally by past usage of the licences). Accordingly, to export to the EU a supplier must both meet the origination criteria of the quota concerned *and* have a licence to import (or sell to a company that has such a licence). If those who hold the licences are not prepared to make them available to others (even at their market value) then these licences can act as an additional barrier to exporting to the EU.

2.1.4. EU production

The high-cost banana production within the EU (in Crete and overseas territories like Canary Islands, Martinique and Guadeloupe) have received additional protection through a system of deficiency payments for quantities up to 854,000t/year (subject to quality). In the remainder of this report, we assume that EU producers continue to enjoy the same levels of support as at present.

2.2. The Workings of the Tariff-quota System

To understand the current competitiveness of the different suppliers, it is important to establish if the quota has been binding, i.e. if the producers subject to the quota would be willing to increase their supplies at current EU prices if they were allowed to do so. If the quota is not binding, then it has no effect on the behaviour of suppliers.

Table 2.1 compares the actual imports from Latin American and ACP countries against the levels of their respective quotas. We note that the general quota has been almost fully used by Latin American suppliers, which suggests that the quota is binding on them.

In contrast, the ACP quota has not been binding.⁸ However, industry sources have put to us that African suppliers and probably also producers from the Dominican Republic are currently *de facto* constrained from substantially expanding their supply to the EU due to the non-availability of licences under the ACP quota.⁹

⁸ Note that the gap between imports and quota is closing after reduction of the ACP quota in 2002. However, we consider that the ACP quota will at most be only just binding, in which case the following analysis would not be affected.

⁹ This is supported by the fact that, as will be shown in section 3, supply costs in Africa and in the Dominican Republic are far lower than in the Caribbean ACP states, Caribbean producers continue to sell significant quantities to the EU.

Table 2.1
EU Imports under the Quota System, 1999-2002 ('000 t)

	1999	2000	2001	2002
<u>Dollar supply</u>				
General quota	2,553	2,553	2,553	2,653
EU imports from Dollar producers	2,522	2,543	2,561	2,611
General quota - Dollar imports	31	10	-8	42
<u>ACP supply</u>				
ACP quota	858	858	850	750
EU imports from ACP producers	676	756	730	726
ACP quota - ACP imports	182	102	120	24

Source: NERA (2003).

The workings of the European banana market are illustrated by Figure 2.1. The Latin American producers have the lowest unit costs¹⁰ (represented by schedule $Cost_{\$}$), but are only allowed to import up to the level of the quota (represented by bracket $Quota_{\$}$).¹¹ Similarly, the African ACP suppliers, which have a lower cost ($Cost_{ACP-AF}$) than the Caribbean suppliers ($Cost_{ACP-Car}$)¹² are prevented from importing more by unavailability of import licenses (Implicit $Quota_{ACP-Af}$).¹³ After both quotas have been filled, the Caribbean suppliers face a residual demand curve for which they do not have to compete with their more efficient competitors from other producer regions.¹⁴ They are therefore the marginal suppliers in the market, and the market price p^* and volume q^* are determined by the intersection of their cost curve with residual market demand. In the diagram, the ACP quota is not binding: at the market price, the Caribbean producers have not been able to supply enough volume to fill the quota. The quantity constrained Latin American and African producers have costs below the market price and earn quota rents on their supplies. For the Latin American producers, the quota rent is given by $(p^* - Cost_{\$})$, or $(p^* - Cost_{\$} - \text{€}75)$ if the in-quota tariff is incorporated into the model.¹⁵

¹⁰ See section 3.

¹¹ Because the general quota is binding, the in-quota tariff has no effect on price or volume. We therefore have neglected the tariff in this model. It can, however, straightforwardly interpreted as being part of the Latin American suppliers' unit cost.

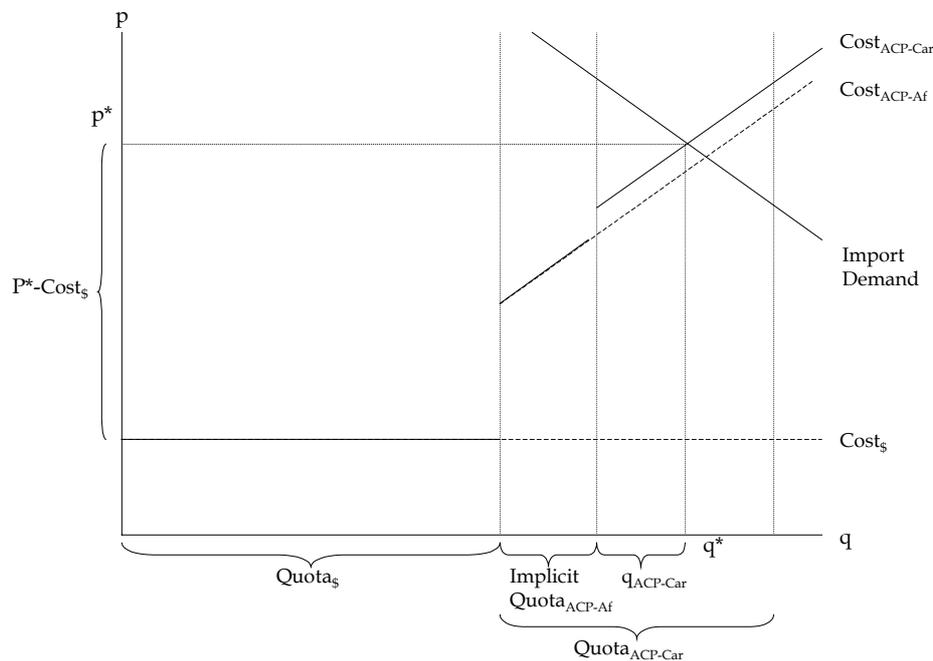
¹² The cost curves of the ACP suppliers are shifted from the point of origin on the y-axis to the point where they start supplying under the quota regime.

¹³ The Dominican Republic, which is in a similar situation than the African suppliers, is subsumed under their cost function.

¹⁴ They must compete, however, with EU domestic supplies.

¹⁵ There are some assumptions implicit in the model as presented in Figure 2.1. First, we assume that all groups of suppliers operate under competition, i.e. they are forced to provide at unit cost. Only then will their unit cost functions resemble their supply functions. Second, the supply curve of Latin American producers is horizontal, i.e. it is perfectly elastic: as long as the market price is at or above their constant unit costs, these producers will be willing to supply any volume required. These assumptions will be discussed further in section 4.

Figure 2.1
The EU Banana Market: The Current Situation under the Tariff Quota



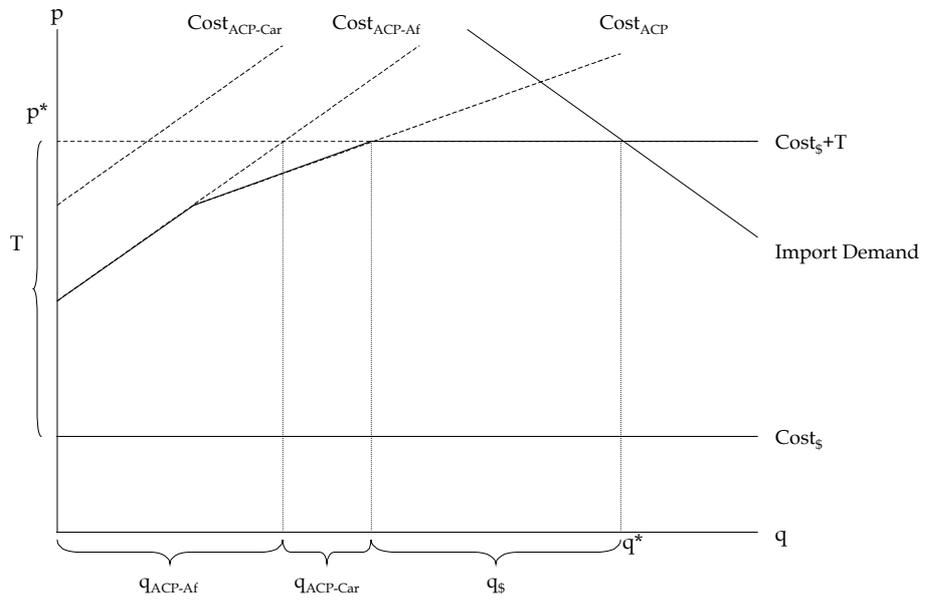
2.3. 2006: A tariff-only system

In the settlement of its long-standing trade dispute with the United States and Latin American countries, the EU agreed in 2001 to replace the current tariff-quota system by a tariff-only system with a flat tariff from January 2006. It was agreed to that the rate of tariff chosen was to provide “a level of protection and trade as close as possible to the system of tariff quotas in order to maintain market balance and avoid losses for suppliers.”¹⁶ For the purpose of this report, we take this to mean that after 2006 all imports from ACP countries will continue to enter free of duty, whereas imports from third countries will be subject to a uniform tariff rate.

The workings of the EU banana market under this regime can be illustrated by means of Figure 2.2. The tariff (T) increases the unit cost of Latin American suppliers. In this regime, the Latin American suppliers are willing to offer any volume at a price equivalent to $Cost_{s+T}$ and therefore determine the market price. Both types of ACP suppliers provide the volumes at which they are just profitable at that price. If the tariff under the new regime equals the quota rent of the Latin American producers under the quota system ($T = p^* - Cost_{s}$), market price and total volume will not be affected by the reform. We shall refer to this value as the “tariff equivalent” of the quota regime (T_E).

¹⁶ Quoted in Read (2001), p. 227.

Figure 2.2
The EU Banana Market 2006: A Tariff-Only Regime



3. THE COSTS OF BANANA SUPPLY

In this section, we analyse the cost conditions of the different banana producing countries. A precise assessment of the likely impact of changes in the level of protection after 2006 in the different producer countries would require estimation of each country's cost function, i.e. the relationship between cost of supply and quantities supplied. This relationship determines the volume each player could produce profitably under any given market price. However, the extensive data on input costs that would be required for estimating cost functions is not readily available. We are therefore limited to analysing the (rather scarce) information on the cost of banana supply in the public domain, as well as from the past performances of the different supplier countries under the changing EU regime. This allows some conclusions on their possible behaviour after 2006.

3.1. Cost Differentials Between Supplier Countries

The cost of supplying bananas to the EU has two main components: production and transportation costs. Both will be analysed in turn.

3.1.1. Production costs

Our desk-based research suggests that Caribbean producer countries face significant cost disadvantages when compared to competitors in Latin America and in some African countries. Caribbean producers have an unfavourable position in the main cost drivers of banana production: land, climate, and labour.

3.1.1.1. Land

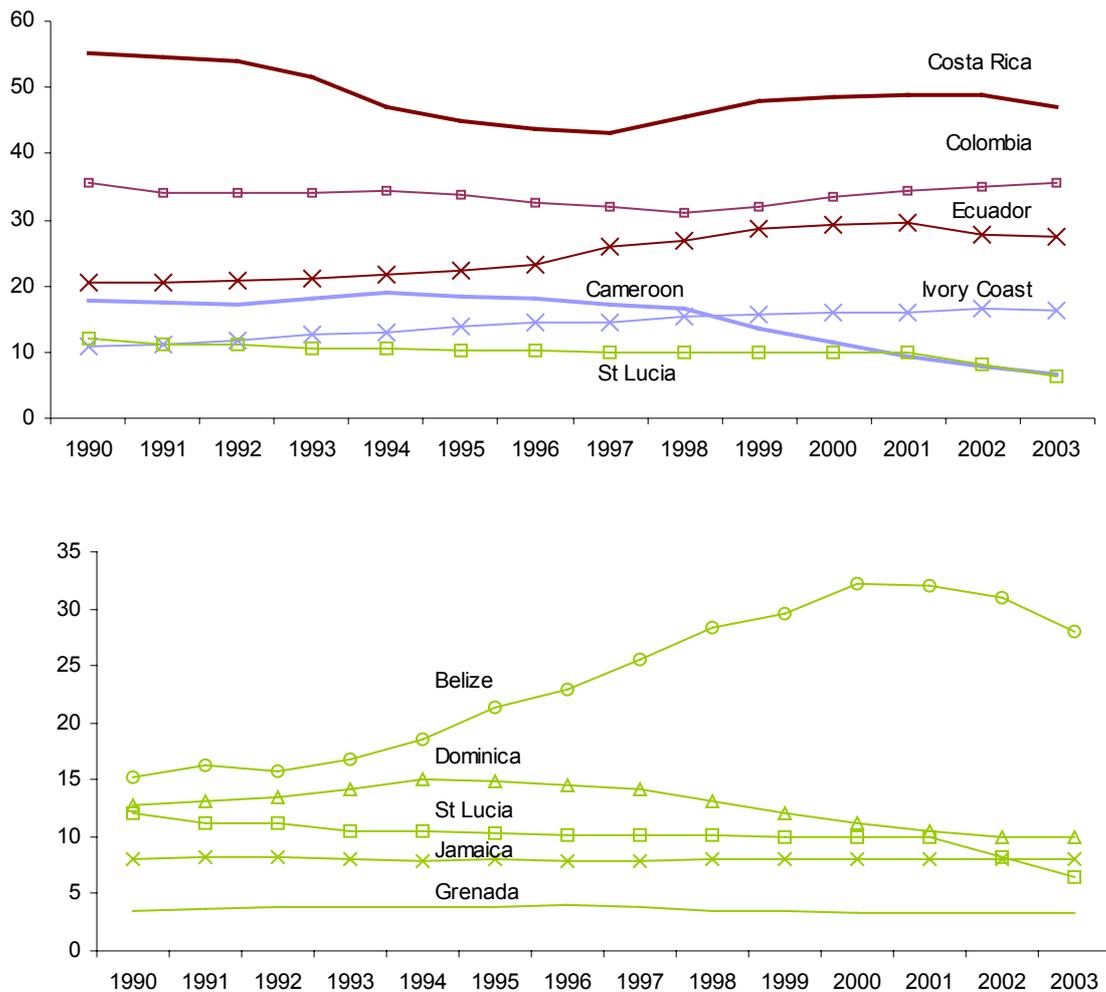
FAO yield data suggests that, with the notable exception of Belize, land productivity measured as output per hectare is lower in the Caribbean countries than in the other producer regions, as can be seen in Figure 3.1. There are several reasons for this.¹⁷

- Soils in the Caribbean are deemed to be inferior to those in Latin America.
- Land on many Caribbean islands is hilly and mountainous, which makes irrigation and mechanisation difficult. In Latin America and Africa in turn plantations are located in large plains.
- Mechanisation in the Caribbean is further hindered by property structures. Most farms are family owned smallholdings; for example, most farms on the Windward Islands operate on less than 1ha. In Latin America and Africa, production is controlled to a large extent by three multinational fruit companies (Chiquita, Dole

¹⁷ The following draws on information from Lewis (2000), p. 5 et seq.; UNCTAD (2004), p. 15 et seq., www.geest-bananas.co.uk (accessed 22 March 2004).

and Del Monte) and, in some cases, large domestic companies. These have invested heavily in technology and mechanisation of large plantations (which typically have a size of around 50ha, but can be as large as 5,000ha).

Figure 3.1
Yields in Banana Production for Selected Countries (t/ha, 5 Year Rolling Averages)



Source: FAO; NERA calculations.

For the shape of cost functions (and therefore the likely reactions of supply volumes when price increases or decreases), the question of availability of land suitable for banana cultivation is important. Intuitively we would expect that land productivity will tend to fall as new areas are dedicated to banana crops in order to increase volume.¹⁸ Conversely, as

¹⁸ Cost will be minimised if the most productive land is used first, and less productive areas only incorporated if higher prices so permit.

land is abandoned in order to reduce production, productivity will tend to increase.¹⁹ UNCTAD (2003) suggests that while in Latin America suitable land is widely available, the opposite is true in the Windward Islands. We have analysed FAO data on the past development of harvest areas,²⁰ which provided some further insights. Cameroon has more than doubled its cultivated surface between 1990 and 2003, while its yields have suffered a relatively steep decline. This may suggest that availability of suitable land in Cameroon might hit its limits relatively soon.²¹ Similar conclusions might be drawn for Costa Rica, where yields worsened in the first half of the 1990s when harvest areas were expanded, and improved in the second half when they were reduced again. Ecuador in turn significantly increased its harvest areas over the 1990s and still managed to increase its yields, probably due to important efforts in mechanisation.²²

3.1.1.2. *Climate*

In addition to low land productivity, the Caribbean producers also suffer from the fact that, due to little rainfall in the dry seasons, they are more reliant on irrigation.²³ Further, production in the Caribbean is more frequently disrupted by natural disasters, like Hurricane Mitch in 1999. Plantations in Latin America enjoy favourable climate throughout the year. Costa Rican producers benefit from high rainfall in all seasons, so that no irrigation is necessary.²⁴

3.1.1.3. *Labour*

The sources we have consulted are consistent in affirming that wages of banana workers in the Caribbean are significantly higher than in Central and South America. For example, the IMF (2002) finds that wage rates on the Windward Islands are more than five times higher than in Ecuador.²⁵ We have found no estimates of wages in banana production in African countries, but one source considers that labour costs in Africa are lower than in the Caribbean.²⁶ The high Caribbean wage rates are not compensated by advantages in productivity. On the contrary, productivity (measured by output per worker) in Latin America is considerably higher (see Table 3.1), as could be expected from the fact that

¹⁹ We have used FAO data on harvest areas and yields in order to establish correlation coefficients between the two variables for a number of producer countries. These have been negative for most producer countries (exceptions being Ivory Coast and Dominica), thus confirming the negative relationship between total crop surfaces and productivity.

²⁰ See Appendix E.

²¹ However, it is also possible that there has been a delay in mechanisation of the newly incorporated plantations, in which case, there would now be a potential for important productivity gains.

²² Mechanisation of banana production in Ecuador increased from 40% of cultivated surface in 1990 to around 70% in 2000; www.sica.gov.ec/cadenas/banano/docs/super-exp.htm, accessed 22 March 2004.

²³ www.geest-bananas.co.uk.

²⁴ Lewis (2000).

²⁵ Other sources with information on labour costs in banana producing countries include FAO (1999), Hubbard et al (2002), and

²⁶ Hubbard et al. (2000), Annex A.

production in Latin America is much more capital intensive and mechanised. Labour costs have been estimated to account for about half of total costs in the Windward Islands.

Table 3.1
Labour Productivity in Banana Production

	Reference Year ¹	Harvest area (ha)	Total production (t)	Directly employed workers	Ha/worker	t/worker
St. Lucia	1999	8,500	85,000	7,500	1.1	11.3
St Vincent	1995	5,500	59,000	23,653	0.2	2.5
Dominica	1995	2,700	40,500	10,255	0.3	3.9
Belize	2003	1,937	43,064	6,000 ²	0.3	72.0
Costa Rica	1999	48,829	2,419,999	40,000	1.2	60.5
Ecuador	2002	205,595	5,528,100	300,000	0.7	18.4
Columbia	2003	43,000	1,449,999	22,000	2.0	65.9

Sources: Harvest areas and total production: FAOStat. Directly employed workers: FAO (1999), (St Lucia and Costa Rica); Nurse and Sandiford (1995), p. 3; www.belizeinvest.org.bz (Belize); Hellin and Higman (2002), p. 3 (Ecuador); UNCTAD (2003), p. 19 (Colombia).

(1) The reference year chosen corresponds to the year of publication of the source of employment data.

(2) Includes directly and indirectly employed labour force.

The reaction of wage costs to increases or falls in production is rather difficult to predict. In countries where other employment opportunities are available when workers are laid off, wage levels would not vary a lot with changes in supply. However, where substantial proportions of the labour force depend on banana production, wages may adapt to a significant degree when prices suffer very large reductions in order to maintain supply levels and protect the source of income.²⁷ In such a situation, supply could become inelastic (i.e., volumes would fail to drop in response to price decreases). This is potentially a relevant factor in some of the Windward Islands like St Vincent and Dominica, where banana production gives employment to a relatively large proportion of the population. On the other hand, the reduction in wages necessary to compensate for a large competitiveness gap may be implausibly large.²⁸

3.1.1.4. Production cost trends since 1990

To the extent that exporters are in competition, fob export prices should reflect differences in total production cost.²⁹ Figure 3.2 shows the evolution of export prices of the three main

²⁷ Wages might adapt either through a reduction in wage rates in local currency, or by a depreciation of the local currency vis-à-vis other banana producing countries, or a combination of both.

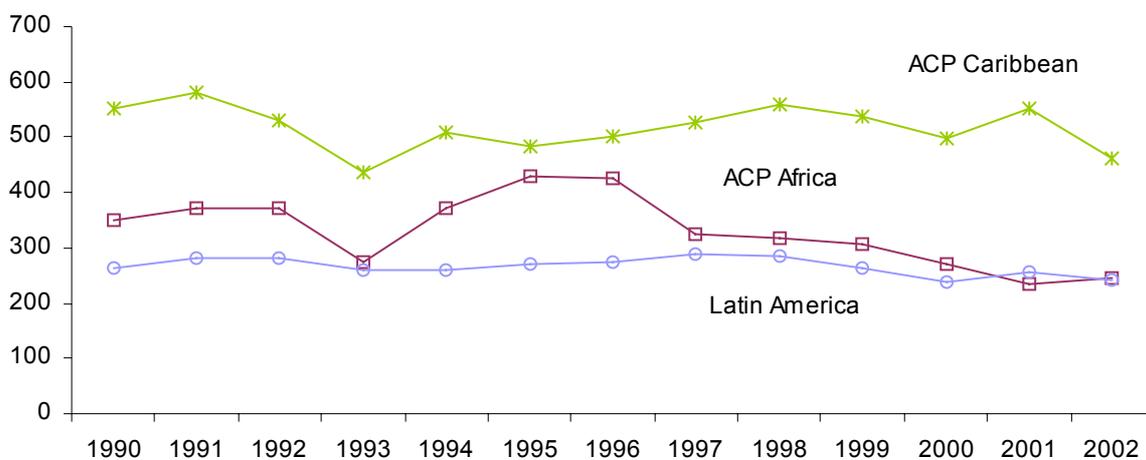
²⁸ A little numerical example may illustrate the dimension of wage adaptation required to offset a sharp reduction in the banana price. According to Table 3.1, labour productivity in St Lucia is 11.3t per worker per year. Therefore, a reduction of €50/t in the per unit cost in St Lucia could be generated by a reduction in the average annual wage of St Lucian banana workers of €565, which compares to a Gross National Income per head of less than \$4000 (according to Worldbank statistics).

²⁹ We consider that EU cif import prices are less suitable as cost indicators. Although these prices will reflect transport costs, they may also be distorted by quota rents and the fact that they often do not represent market prices, but transfer prices of the vertically integrated multinational banana companies.

supplier groups. It appears that since introduction of the tariff quota system in the EU the cost gap between Caribbean and Latin American suppliers has tended to widen. This may be due to shifts in the Latin American supply structure, where Ecuadorian producers, by far the cheapest under the Latin American players, have invested heavily in mechanisation of their plantations. Ecuador, and also the much smaller Guatemala, have expanded during the 1990s and displaced some of the less efficient Dollar producers (Figure 3.3). In a similar fashion, African ACP producers, especially Cameroon and Ivory Coast, have been able to achieve significant cost reductions since 1995, and now operate in a cost range similar to that of the Dollar producers. If these trends were to continue, the productivity disadvantage of the Caribbean suppliers might well increase in the next five or ten years.

It is notable that fob unit values of the Dominican Republic have increased strongly after 1999 and now appear to lie within the cost range of the other Caribbean countries. This coincides with its volume expansion after liberalisation of the ACP quota in 1999 (see section 3.2), which suggests that this country has a rather inelastic supply curve.³⁰

Figure 3.2
Export Unit Values (fob, \$/t)



Source: FAO; NERA calculations

³⁰ An alternative explanation for the increase in fob prices of bananas from the Dominican Republic, however, might be that this country has started to produce significant amounts of organic bananas which trade at a higher price, see FAO (2003), p. 3.

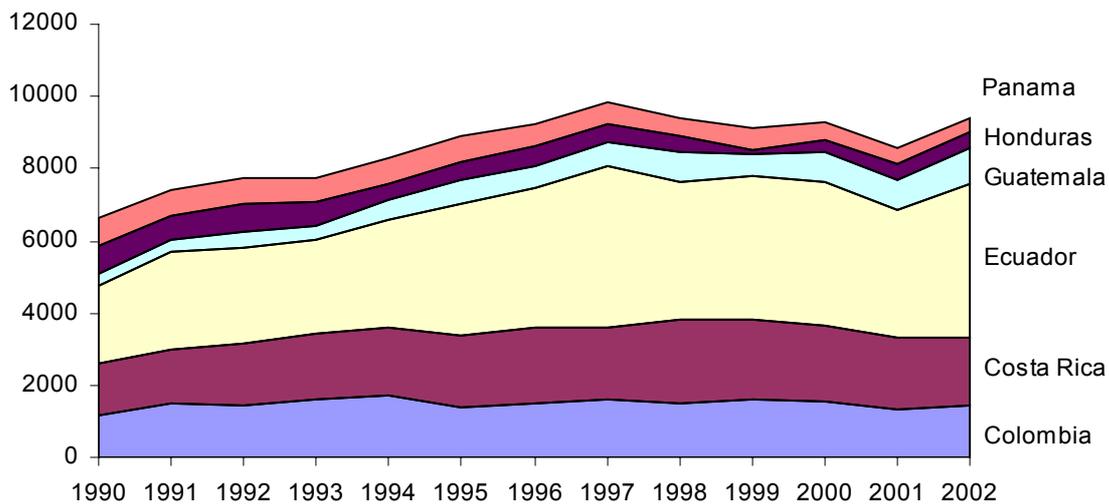
Table 3.2
Export Unit Values (fob, \$/t)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	Avg 94 - 02
Dominica	398	393	338	406	436	487	478	519	469	436
Grenada	395	343	260	260	294	219	340	360	406	320
St. Lucia	430	383	412	416	539	463	472	1179 ¹	479	530
St. Vincent	408	345	335	388	456	479	457	457	446	419
Belize	431	395	403	431	432	455	526	493	504	452
Jamaica	515	427	406	526	518	590	561	525	536	512
Dominican Republic	141	105	116	128	172	255	271	309	459	217

Source : FAO, NERA calculations.

(1) The high unit value of St Lucia in 2001 is likely to correspond to an error of measurement.

Figure 3.3
Export Volumes ('000 t)



Source: FAO

3.1.2. Transport costs

Transportation costs depend on a variety of factors. One important influence is turnaround times to and from Europe of the reefer boats used for shipping bananas. The shorter the turnaround time, the higher the volume of bananas that can be transported in a year and the lower the unit cost needed to recover the large fixed cost of the ship.³¹ Turnaround times are

³¹ Raboy (2003) offers an analysis of the structure of shipping costs.

comparable from the Caribbean, Eastern Central America and Africa. Ecuador's sailing times to Europe are by far the longest among the important producer countries.³²

However, sailing times are only one element of the time taken for export. Exports from the Latin American producers go through a single port, which will be equipped with advanced loading equipment such as conveyor belts. Loading is therefore rapid and the ships usually can go straight onwards to the destination. The situation faced by the Caribbean producers is quite different. Export volumes are so small that reefer boats need to call at several ports to complete a shipload. Port facilities are also less mechanised, which leads to an additional time disadvantage. We further understand that the low volumes exported from the Caribbean islands support smaller ships than those from the big Latin American producers; larger ships have lower unit costs. Finally, production in the Caribbean islands is more volatile and unpredictable due to climatic conditions and natural disasters. Capacity utilisation on ships is therefore more uncertain, which will add to unit costs. In conclusion, we consider that transport costs of Caribbean producers are likely to be higher than those of Latin American suppliers.³³

It is important to note that it is difficult to predict the reaction of Caribbean transport costs to very large drops in volume. There may be a threshold below which volumes would be too low to support weekly delivery with fully utilised ships. Once that threshold is met, unit costs would increase steeply with decreasing volumes because of falling capacity utilisation. A switch to smaller, more inefficient ships in order to keep capacity utilisation high or a change in the transport system involving even more port calls would have the same effect. At that point banana exports to the European Union might cease to be viable.

3.1.3. Conclusions

The costs of banana exports to the European Union are highest in the Caribbean, which face the lowest land productivity and the highest labour and transportation costs. The most efficient suppliers are the Latin American producers, although African suppliers, in particular Cameroon, have been moving into the same cost range. This supports our assumptions on the locations of the different cost curves in our analysis of the working of the EU banana regime (sections 2.2 and 2.3).

Projections on the volume response to changes in price by different suppliers would require precise estimates of the relationship between cost and volume produced. The scarce information we have had access to does not allow such estimations; however, some conclusions can be drawn. First, our findings on Latin American producers are consistent with the notion of highly elastic supply (for example, we have found that the large expansion of Ecuador in the 1990s has not led to reduced yields; we have not found evidence

³² This is according to Lherault (2003), p. 14 et seq., and industry sources.

³³ UNCTAD (2004) comes to a similar conclusion.

that labour costs tended to increase). As for the Caribbean producers, we find that it would be very difficult to predict reactions of supply to very large decreases in EU import prices. One source of uncertainty is the behaviour of wages; if these were to fall as prices fell, this would have some mitigating effect on export volumes; supply would become more inelastic. Of course, even if volumes were maintained at a higher level than predicted, the loss of income would still be severe. On the other hand, unit transport costs in the Caribbean would increase steeply once volumes fell below a certain minimum threshold. This effect might be so substantial that it would render banana exports unviable.

3.2. Past Performance under the EU Banana Regime

Given that it is not possible to estimate cost functions for individual producer countries based on the rather patchy cost information in the public domain, we have sought to draw inferences on cost differentials between producer countries and the possible reaction of the ACP suppliers to a reduction in the level of protection from their performance under the EU banana regime. A key development was the modification implemented from 1999. In 1999 country-specific quantitative restrictions within the ACP quota were lifted. This led to a situation where high-cost "traditional" ACP producers, which so far had been protected by the individual country allocations, lost quota shares to their more efficient peers (see Figure 3.4 and Table 3.3).

Figure 3.4
Import Volumes (t)

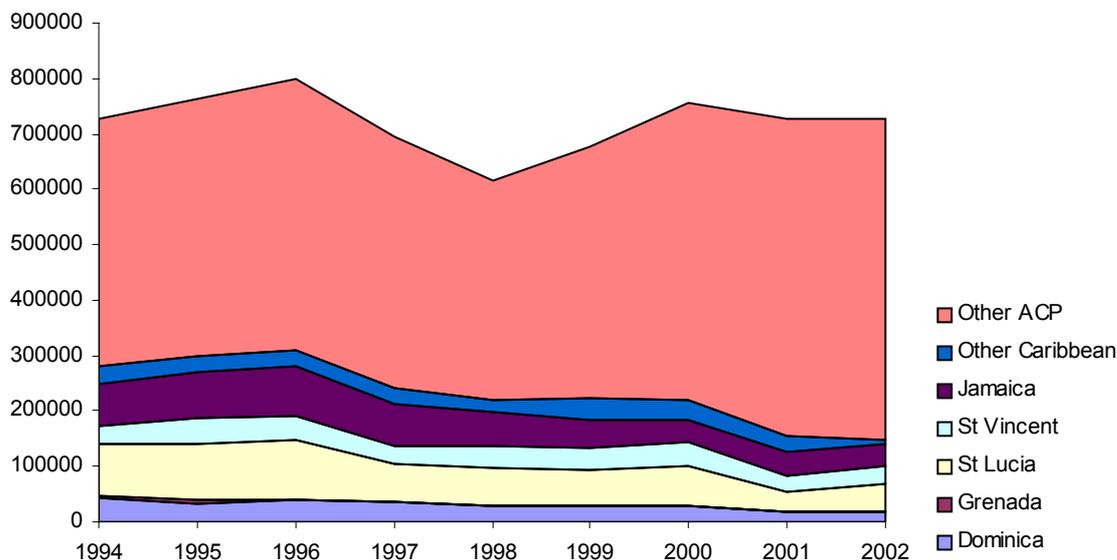


Table 3.3
EU Import Volumes ('000 t)

	Allocated volume 1994 - 98	1994 - 1998 (average)	1999	2000	2001	2002	Change 94-98/99-02
Dominica	71.0	35.5	27.6	27.7	17.5	17.5	-36%
Grenada	14.0	2.4	0.6	0.8	0.6	0.6	-74%
St Lucia	127.0	88.2	65.5	72.6	34.7	49.3	-37%
St Vincent	82.0	38.5	37.9	42.9	30.8	32.5	-6%
Belize	40.0	49.8	55.7	68.6	51.6	38.2	8%
Jamaica	105.0	77.7	51.6	40.9	43.0	40.6	-43%
Dominican Republic	0.0	65.5	42.2	59.8	85.9	97.3	9%
Other Caribbean	38.0	28.0	39.0	34.2	29.0	6.5	-3%
Cameroon	155.0	152.6	160.6	205.0	215.5	229.7	33%
Ivory Coast	155.0	162.9	192.5	200.2	216.7	210.8	26%
Other African	70.7	18.6	2.6	3.1	3.5	3.4	-83%
Total	857.7	719.7	676.0	755.8	728.8	726.5	

Source: Eurostat, Council Regulation (EEC) No 404/93, 13 February 1993.

Prior to 1999, of the countries entitled to allocation of a “traditional quantity” only the Dominican Republic (which did not have any allocation in the ACP quota), Belize, Cameroon and Ivory Coast imported in excess of their individual allocations. These countries must therefore have imported into the general quota. At least until 1995, when individual allocations within the general quota were established, it appears that they were able to compete with dollar producers at a level of protection of €100. All other countries’ imports remained well short of their allocations. This confirms, once again, the important cost advantage of the African suppliers over Caribbean ACP producers (in the case of the Dominican Republic, it would appear that the volume expansion has led to an increase in unit costs, see section 3.1.1.4).

The rightmost column of Table 3.3 shows the percentage change in average import volumes between the periods of 1994 - 1998 and 1999 - 2002. After the reform of 1999, the Dominican Republic, Belize, Cameroon and Ivory Coast expanded their imports under the ACP quota (FAO data also suggests that in 1999, Cameroon started to strongly expand its harvest area). This is likely to have been a contributory factor to the decline in prices earned by the traditional Caribbean producers (see Table 3.4).

The volume reactions of the Caribbean suppliers to the expansion of their other ACP competitors is difficult to disentangle from the general trend of decline since introduction of the quota regime. Even so, Figure 3.4 and Table 3.3 suggest that some Caribbean producers have been able to adapt better to increasing competition under the quota regime than others. The import volumes of Dominica, Grenada, St Lucia and Jamaica all showed very substantial declines over the 1994-2002 period, and it can be expected that these countries would also react more sensibly if the level of protection were reduced after 2006. St Vincent kept its volumes relatively stable, which points to a more inelastic supply curve. A reason

for this may be the apparent lack of alternative employment in this country (see section 3.1.1.3).

Table 3.4
Unit Values of EU Imports (cif, Index: 1998 = 100)

	Dominica	Grenada	Saint Lucia	Saint Vincent	Belize	Jamaica	Dominican Republic	Cameroon	Ivory Coast
1994	81.9	80.8	82.3	80.9	132.3	86.9	107.2	94.9	98.2
1995	75.7	69.3	75.2	74.5	127.2	75.1	98.8	87.2	86.6
1996	75.4	74.3	81.2	78.8	107.4	74.4	99.9	92.5	80.5
1997	91.2	66.0	91.6	88.4	101.4	98.6	105.2	95.5	97.1
1998	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1999	104.9	99.9	106.7	103.9	138.3	96.8	97.0	97.1	85.5
2000	95.9	92.4	99.4	96.2	132.4	104.0	101.2	100.5	84.3
2001	94.9	92.9	97.2	95.0	128.2	98.1	110.0	107.4	97.8
2002	97.2	93.4	99.3	97.1	131.9	92.9	112.9	96.4	90.7

Source: Eurostat; NERA calculations

4. REGIME CHANGE 2006: EFFECTS ON SUPPLIERS

In this section, we attempt to quantify the immediate effects of introduction of the tariff-only regime in 2006. We proceed in two steps. First, we use a price gap methodology to derive the tariff that would replicate the import price generated by the quota, and discuss how such a tariff would affect the supply of the different producer countries. We also note anecdotal evidence on the price of traded import licenses, which provides an alternative measure of the tariff equivalent. We then use a simple model of the EU banana market to estimate effects of supply from the Caribbean if a tariff lower than the quota equivalent T_E is chosen.³⁴

4.1. Basic Assumptions of our Methodology

Both types of analysis require a number of simplifying assumptions. The implications for the results of the analysis if these assumptions are not met will be discussed where appropriate. The assumptions are:

- i) Import and export prices are determined in a competitive market. This assumption is necessary for the unit cost curves in the graphical models in Figure 2.1 and Figure 2.2 to be equivalent to supply curves.
- ii) Supply of Latin American producers is perfectly elastic; this is represented by their horizontal cost curve in the models in Figure 2.1 and Figure 2.2.
- iii) Bananas are homogeneous, i.e. they have the same quality independent of their country of origin. In the illustrations in Figure 2.1 and Figure 2.2, this is represented by a single demand curve that is valid for all suppliers.
- iv) From a more practical perspective, estimating the effect of a regime change in 2006 would first require a projection of the market situation immediately before the reforms. Our approach does not allow for this. We assume that the market situation today is equivalent to the position in 2006, and consider what the supply reactions would be if the tariff-only regime were introduced today. Implicitly, we abstract from possible influences between now and 2006, and thereafter, including

³⁴ An alternative method for projection of future banana market results and the effects of different choices of tariff are the so-called multi-country equilibrium models. Essentially, these consist of estimating the supply functions of banana producers and the demand functions of banana importers and computing the price and quantities under which the world market and the EU market (and any other regional markets) reach equilibrium. By changing the exogenous parameters to the model – for example tariff rates – different scenarios can be constructed and their outcomes compared. Several studies have used this method to project the future evolution of the banana market, for example FAO (2003); Guyomard and Le Mouél (2002), and Borrell (2004). These models work under less restrictive assumptions than our approach (though our assumptions ii) and iii) below must usually be made as well). Construction of such a model is not within the scope of this study, but we will present the results of some of the studies mentioned above in Appendix C.

- Changes in the level of demand.
- Effects of the accession of ten Eastern European countries to the EU in 2004 and the adaptation of the quota regime to accession.
- Differentials in productivity growth between supplier countries.
- Movements in real exchange rates between different supplier countries, and between the supplier countries and the Euro.

4.2. Estimation of the Tariff Equivalent of the Quota Regime

4.2.1. Price gap method

We have used a price-gap methodology to estimate the tariff that would exactly replicate the European internal price³⁵ under the current tariff-quota regime. The price gap is the difference between the internal price and the price of the restricted suppliers (i.e. the Latin American producers) before application of the restriction. The model in Figure 2.1 shows that the internal price (p^*) is determined by the cost of the Caribbean (and EU domestic) producers, who are the marginal suppliers under the current regime. As discussed in section 2.3, under the assumptions set out above setting a tariff equal to the difference between p^* and the cost of the Latin American suppliers ($Cost_L$) will generate the same market price.

The main methodological problem with this method is the choice of an appropriate price benchmark to represent the costs of protected and unprotected suppliers. We have chosen the fob export prices of the unconstrained Caribbean ACP suppliers (i.e. excluding the Dominican Republic) and the Latin American suppliers. We believe that of all options available, these prices can be expected to best reflect costs of production. The problem with this data is that the difference between these prices will not reflect transport cost differentials; however, we believe this measurement error is smaller than under any other combination of prices. (A detailed discussion of the price-gap method, and in particular of the price benchmarks chosen, is presented in Appendix B.)

³⁵ By “internal” price in this context we mean the price level prevailing for imports that applies once the impact of protectionist measures (i.e. the quota or the tariff) have taken effect.

Table 4.1
The Price Gap (€)

€/t	1994	1995	1996	1997	1998	1999	2000	2001 ¹	2002	Avg. 99-02
ACP Caribbean	428	375	401	467	497	506	538	550	488	520
Latin America	219	208	220	256	253	246	260	286	255	262
Price Gap	208	166	181	211	244	260	278	265	233	259

Source: Eurostat; NERA calculations

(1) The weighted average price for ACP Caribbean in 2001 excludes St Lucia, because St Lucia's unit value in that year appears to be subject to a substantial error of measurement. Without this correction, the price gap would have turned out to be €275.

The result is presented in Table 4.1 above. Based on average prices from 1999 to 2002, we compute a tariff equivalent of €259. We consider that this represents a lower boundary, given that if any of assumptions i) to iii) set out in section 4.1 were relaxed, the price gap would actually underestimate the tariff equivalent.³⁶ Further, we have mentioned that our benchmark prices do not capture differentials in transport costs. However, in section 3.1.2 we have shown that transport costs of the Caribbean producers are likely to be higher than those of their Latin American competitors. Correcting for this would therefore also lead to a higher estimate.

4.2.2. Estimation of quota rents based on the price of traded import licenses

The licences to import under the various quotas are sometimes traded. The market value of these licences could provide an estimate of the rent attributable to being able to import under the Dollar quota. Although comprehensive data does not seem to exist, industry sources have advised us that quotas to import in the Dollar quota have been trading at around €122/t.

This is an estimate of the quota rent accruing to holders of licences to import under the Dollar suppliers' quota. That is, it is the value of being able to import from Dollar sources even though these sales also have to pay the in-quota tariff of € 75. Accordingly the total level of protection under the current system requires the €75 tariff to be added to the estimate of the quota rent, giving an estimated tariff equivalent of €197/t in aggregate.

This figure is lower than our price gap based estimate. In theory both the quota rents approach and our price gap approach are alternative bases for estimating the same thing. Accordingly, selecting between them depends on which is more reliably measured. In this case our evidential basis for the quota rents approach is very thin, based as it is on an anecdotal estimate. The remainder of our analysis will be conducted on the assumption that our price-gap estimate correctly measures the tariff equivalent.

³⁶ This is discussed in detail in Appendix B.

4.3. Effects of the Regime Change

We will now assess the effects of the 2006 reform under different tariff scenarios.

4.3.1. Basic scenario: the quota-equivalent tariff

As discussed in section 2.3, under the new system the market price would be determined by the unit cost of the Latin American suppliers, inclusive of the uniform tariff. If a tariff of €259 (i.e., the tariff equivalent) is chosen, market price and volume will not change.³⁷ Both groups of ACP suppliers offer the volume at which their unit costs and the market price are equalized. This implies that the Caribbean exports will not be affected. However, the producers from Africa (and, possibly, the Dominican Republic), which under the tariff quota were prevented from importing more under that price, will now be able to expand their supplies, to the detriment of the Latin American producers.

4.3.1.1. *Relaxing assumption ii): when Latin American supplies are not perfectly elastic*

When the Latin American supply curve is not horizontal but upward sloping, the price gap will understate the level of protection of the tariff-quota.³⁸ Choice of a tariff of €259 will then lead to a reduction in price and to an increase in total imports. Both Caribbean and Latin American producers will lose volume, while African and Dominican Republic producers will see their volume increased. While we believe that a horizontal supply curve is not realistic (for example, as discussed in section 3.1.1, land productivity may decline as more marginal harvest areas are incorporated in production), Latin American supply has so far proved to be fairly elastic, so that the bias introduced by our assumption is unlikely to be large.

4.3.2. Alternative scenarios: lower tariffs

As discussed above, under a tariff of €259 Latin American imports will be displaced by supplies from producers in Africa (and possibly the Dominican Republic). It is therefore likely that such a tariff would meet the resistance from Latin American countries and the multinational banana companies. These parties will try to achieve a tariff that at least allows them to keep their volumes constant. We understand that one argument in the negotiations will be that a WTO-conforming tariff rate cannot exceed the current in-quota tariff of €75. We therefore present an estimate of the effect of different tariff levels between €259 and €75 on the supplies of various Caribbean suppliers. For that purpose, we have adopted the following simple approach.

³⁷ We would be in situation where $p^* - \text{Cost}_s$ in the illustration under Figure 2.1 equals T in Figure 2.2. Under this tariff, the Latin American producers are willing to offer any quantity at price p^* .

³⁸ A detailed explanation of this result will be provided in Appendix A.

The current level of the export price ACP Caribbean producers command (which we take to be the average of the fob export unit value of ACP Caribbean bananas between 1999 and 2002 as used in our price-gap exercise above) is €520. This price would be maintained if a tariff of €259 were introduced in 2006. Under the assumptions of our model, a reduction in the tariff level would lead to a similar reduction in the price level. If a tariff of €200 were chosen instead, this would therefore lead to a price reduction of 11.3% $(=(€259-€200)/€520)$. If price elasticities of supply for the different producer countries were known, the percentage change in supply could then easily be derived as the product of the price reduction and the supply elasticity.³⁹ However, we can do this only for those ACP suppliers that do not face quantity restrictions under the quota system (because for those who do face restrictions the current price may not reflect unit cost).

Supply elasticities for the banana industry are very difficult to estimate, because this would need to rely on cost data that, as has been pointed out above, is not in general available. To our knowledge, banana supply elasticity estimates for individual Caribbean countries based on solid econometric methods are not publicly available: industry forecasts usually make use of elasticities for producer regions. We have pursued two approaches to obtaining supply elasticities for individual countries.

4.3.2.1. *Results based on supply elasticities taken from the literature*

First, we reviewed existing forecast models and used their aggregate supply elasticities to construct elasticities for individual countries. We found three forecast models that used supply elasticities for the whole of Caribbean ACP producers. FAO told us that FAO (1999) used an elasticity of 0.2, which we understand is based on econometric estimations. This would imply a very inelastic supply schedule: a price decrease of 5% would reduce output only by 1%. We find that this is not consistent with the large drops in ACP Caribbean supplies observed under the quota regime.

Two other studies, Guyomar and Le Mouël (2002) and Borrell and Bauer (2004) do not estimate supply elasticities, but simply assume values. Both use a supply elasticity of 1 for the Caribbean ACP suppliers. We chose to work with the higher supply elasticity of 1 because it seems to better reflect observed behaviour of trade patterns. From this regional average, we have corrected our assumed elasticities for individual countries upwards or downwards by 0.3 according to their different performance under the EU banana regime as described in section 3.2. The results are presented in Table 4.2.

³⁹ When the assumption of perfectly elastic Latin American supply is relaxed, a reduction in tariff will lead to a smaller reduction in price. Therefore, the fall in supply will tend to be overstated by this method.

Table 4.2
Lower Bound Supply Projections for Different Tariff Scenarios
Based on Adjustment to Literature Consensus

Tariff level (€)	fob price(€)	Price reduction	Change in supply caused by change in trade regime (assumed supply elasticities in brackets)						
			Dominica (1.0)	Grenada (1.3)	St Lucia (1.0)	St Vincent (0.7)	Jamaica (1.3)	Belize (1.0)	
259	520	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
250	511	-1.7%	-1.7%	-2.3%	-1.7%	-1.2%	-2.3%	-2.3%	-1.7%
225	486	-6.5%	-6.5%	-8.5%	-6.5%	-4.6%	-8.5%	-8.5%	-6.5%
200	461	-11.3%	-11.3%	-14.8%	-11.3%	-7.9%	-14.8%	-14.8%	-11.3%
175	436	-16.2%	-16.2%	-21.0%	-16.2%	-11.3%	-21.0%	-21.0%	-16.2%
150	411	-21.0%	-21.0%	-27.3%	-21.0%	-14.7%	-27.3%	-27.3%	-21.0%
125	386	-25.8%	-25.8%	-33.5%	-25.8%	-18.0%	-33.5%	-33.5%	-25.8%
100	361	-30.6%	-30.6%	-39.8%	-30.6%	-21.4%	-39.8%	-39.8%	-30.6%
75	336	-35.4%	-35.4%	-46.0%	-35.4%	-24.8%	-46.0%	-46.0%	-35.4%
0	261	-49.8%	-49.8%	-64.8%	-49.8%	-34.9%	-64.8%	-64.8%	-49.8%

NERA projections.

Under this approach, we project that those countries that proved to be more price sensitive under the quota regime (Jamaica and Grenada) would lose more than a quarter of their supply if a tariff of €150 were established, almost half their supply if the tariff was €75 and almost two thirds if a free-trade regime was established. St Vincent, which we assume to be more price-inelastic, would lose around 15% of its supply with a tariff of €150, almost 25% with a tariff of €75 and more than a third of its supplies with free trade.

These results are hardly satisfactory, not only because the supply elasticities lack empirical justification. The observed trade under the EU banana regime leads us to expect much larger volume reactions by Caribbean suppliers to price reductions. It therefore seems likely that Caribbean supply is much more elastic than one. We therefore consider that the results in Table 4.2 above represent at best a lower bound to the real supply losses.

4.3.2.2. *Results based on econometrically estimated supply elasticities*

Given the drawbacks of the previous method, we used econometric techniques and annual FAO export data since 1961 to estimate supply elasticities for Caribbean producer countries. We submit that these estimates are not likely to be very reliable. Due to the unavailability of cost data the estimations had to rely on restrictive assumptions and an ad-hoc model with little foundation in economic theory. For some countries, the rather short data series available allowed only for very imprecise estimates, which we have chosen not to use.⁴⁰

⁴⁰ Our estimation procedure and its drawbacks are described in Appendix D.1.

Having made these qualifications, we found some rather high supply elasticities that seem to be more consistent with observed behaviour than the ones used under the previous methodology. The results of this exercise are presented in Table 4.3.

Table 4.3
Supply Projections for Different Tariff Scenarios
Based on Elasticity Estimation Method

Tariff level (€)	fob price(€)	Price reduction	Change in supply caused by change in trade regime (estimated supply elasticities in brackets)					
			Dominica (11.2)	Grenada ¹	St Lucia (4.8)	St Vincent (6.3)	Jamaica (3.5)	Belize (1.4)
259	520	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%
250	511	-1.7%	-19.4%		-8.3%	-10.9%	-6.1%	-2.4%
225	486	-6.5%	-73.2%		-31.4%	-41.2%	-22.9%	-9.0%
200	461	-11.3%	100.0%		-54.5%	-71.5%	-39.7%	-15.5%
175	436	-16.2%			-77.5%	-100.0%	-56.5%	-22.1%
150	411	-21.0%			-100.0%		-73.4%	-28.7%
125	386	-25.8%					-90.2%	-35.3%
100	361	-30.6%					-100.0%	-41.9%
75	336	-35.4%						-48.5%
0	261	-49.8%						-68.2%

NERA projections.

(1) No supply projections were made for Grenada because supply elasticity estimates were too imprecise.

Our estimated supply elasticities range from 1.4 for Belize (implying that Belize would reduce its supply by 1.4% if price were to fall by 1%) to 11.2 for Dominica. Under these elasticities, the Caribbean supplies would decline steeply as lower levels of protection were adopted. Except Belize, none of the countries represented in the table would continue supplying bananas under a tariff of €75/t, let alone free trade. St Lucia, St Vincent and Dominica would stop supplying with tariffs below €150, €175 and €200, respectively.

Table 4.4 below show the results of our estimation in terms of export volumes and values for Jamaica and Saint Lucia.

Table 4.4
Supply Projections for Different Tariff Scenarios
Based on Elasticity Estimation Method

Tariff	Change in volume	Saint Lucia		Change in volume	Jamaica	
		Volume ('000 t) ¹	Value (€ '000)		Volume ('000 t) ¹	Value (€ '000)
259	0.0%	55534	28878	0.0%	44033	22897
250	-8.3%	50921	26020	-6.1%	41366	21138
225	-31.4%	38105	18519	-22.9%	33956	16503
200	-54.5%	25289	11658	-39.7%	26547	12238
175	-77.5%	12474	5439	-56.5%	19138	8344
150	-100.0%	0	0	-73.4%	11728	4820
125				-90.2%	4319	1667
100				-100.0%	0	0
75						
0						

(1) The volume of the €259 tariff scenario corresponds to the average import volume 1999 – 2002.

4.3.3. Conclusions

We have used our estimation of the tariff equivalent, projections of the reduction in market price when lower tariffs are adopted, and supply elasticities of Caribbean banana producing countries to estimate the supply reactions to different tariff levels after 2006. We find that €259/t is the lower bound of the tariff that would leave the EU banana price unchanged. Reductions in the tariff level can be expected to lead to similar reductions in the price level. Projections based on a relatively low supply elasticity of around 1 as has been used in previous studies would lead to significant declines in the supplies of the ACP Caribbean producers; however, all Caribbean ACP countries could still trade bananas with a tariff as low as €75, and even under free trade.

It is our view, however, that these results are not consistent with the drastic decreases of Caribbean supplies after liberalisation of the ACP quota in 1999. While we are aware that our own estimations of supply elasticities, which turned out to be substantially higher, suffer from methodological and data problems, we believe that they are more consistent with observed trade patterns. Under these assumptions, most ACP Caribbean producers would be forced to cease supplies altogether if a tariff as low as €75 were adopted.

Two important qualifications to these results need to be made. First, the estimates rely on assumption ii) (perfectly elastic Latin American supply). If Latin American supply is

upward sloping (which, as discussed, it is likely to be at least to some degree), reductions in tariffs generate lower reductions in price; hence the supply losses are overstated.⁴¹

Second, though this is a frequent assumption in economic modelling, elasticities are not in general constant over a range of price levels. This means that supply projections based on constant elasticities are less reliable the larger the assumed change in price. In section 3.1.1.3 we have noted that it is quite likely that as prices keep falling, wages may start to adapt in some countries, thus mitigating the loss of volume; i.e., supply becomes more inelastic. Further, the most productive land might be sufficiently competitive to supply at much lower prices. We have also noted that transport costs in the Caribbean may increase steeply and even become prohibitive if volumes supplied fall below a critical threshold. This implies further that there is a possibility of a chain reaction: once the most price-sensitive Windward suppliers (Dominica, according to our estimates) cease supplies, this may undermine the current transport arrangement. Other islands, which in absence of transport cost increases would have continued to supply, might then be forced to exit the market as well. These issues should be born in mind when interpreting our projections for the lower tariff levels and especially those for the free trade scenario.

Like the Caribbean producers, the suppliers from Africa and the Dominican Republic will benefit from high tariffs. Under the quota-equivalent tariff, they seem likely to be able to increase their supplies to the detriment of the Latin American suppliers. The lower the tariff chosen, the lower will be their increase in supply. There will be a tariff threshold below which they too would start losing with respect to the current situation.

4.4. Effects of Changing Supply and Demand Conditions

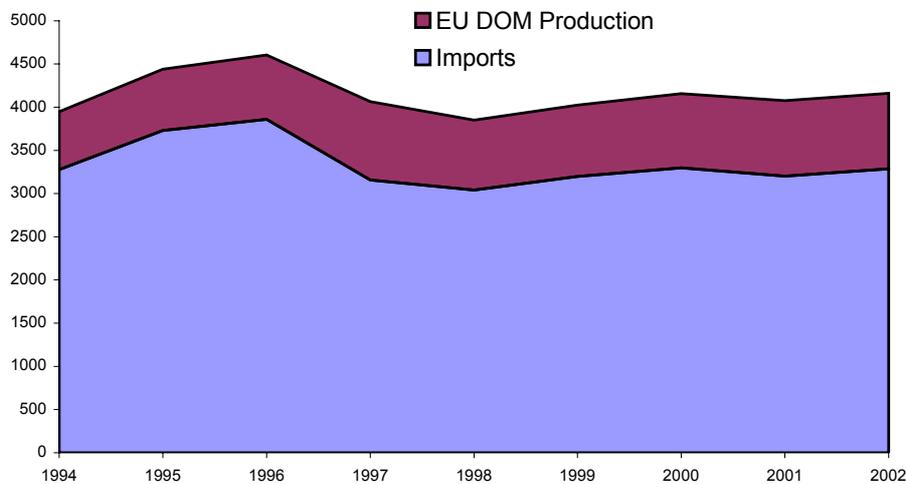
We will now relax assumption iv) and assess the effects on the competitive position of the different suppliers when relative costs and demand change over time.

4.4.1. Changes in demand

Supply of bananas into the EU has been stagnating over the 1990s, and declining in per-capita terms (Figure 4.1). Borrell and Bauer (2004) argue that, as retail prices have declined in real terms over the same period, this corresponds to an autonomous decline in consumer demand. They expect that this trend will continue in the future.

⁴¹ For a detailed explanation of this result, see Appendix A.

Figure 4.1
Supply of Bananas to the EU ('000 t)



Source: Eurostat; FAOStat

Such a fall in demand corresponds to an inward shift of the import demand curve in our graphic models in Figure 2.1 and Figure 2.2. It is straightforward to see that if demand has declined while the quota system is still in place, the Caribbean producers would be forced to decrease their supply, and prices would fall. As long as the decrease in demand were relatively small, import volumes of the other suppliers would be unaffected, but quota rents would be reduced due to the price decline. Only in case of a sufficiently large contraction of demand, African suppliers (and, for even larger demand falls, Latin American producers) would start to lose volumes as well.⁴²

What happens if demand were to decline after introduction of the tariff regime? It is clear from Figure 2.2 that under the assumption of a horizontal Latin American supply curve prices would not change, as the price ceiling set by these producers will then only depend on their unit cost and the tariff rate. The decline in volume would be fully borne by the Latin American suppliers. If, as is more realistic to assume, Latin American supply is less than perfectly elastic, the drop in demand would lead to a reduction in price, thus affecting African and Caribbean supplies as well.

4.4.1.1. Accession of 10 new Member States

A special case of change in demand to consider is the effect of accession of 10 new Member States, who currently import around 670,000t of bananas per year at prices much below EU

⁴² African producers will start to lose volumes when, at the price offered by the Caribbean producers, demand is less than the combined general and implicit quotas.

level. We understand that these are currently open markets, and enjoy lower prices than the EU15. The Caribbean producers do not export into these countries. We understand that some interim accommodation within the current quota system will be arranged for the accession of these countries. This could have effects on the Caribbean suppliers, depending on the nature of the arrangement.

One option would be to introduce a separate quota for the accession states, and restrict re-exports into the EU15. This would lead to an effective partitioning of the EU market into EU15 and EU10, and the former would not suffer any alterations. Therefore, the Caribbean producers would not be affected. The European Commission has adopted such a scheme in a recent proposal.⁴³

The second option would be to incorporate the accession countries under an extended general quota. A small quota extension that left the price level within the EU unchanged would still have no effect on the Caribbean producers.⁴⁴ Larger quota extensions would lead to reductions in price and volume losses first of the Caribbean and, for sufficiently large quota extensions, the African suppliers.

The interim arrangement might also have effects on the situation after 2006. First, if the accommodation of the accession states leads to a reduction of protection levels within the European Union, this might set a new benchmark for the negotiations of the uniform tariff, because the tariff equivalent would be lower post-accession. Second, if the reduction of the protection level is sufficiently large, some Caribbean producers might not be able to sustain their business until 2006 and might exit the market even if high tariffs eventually were imposed.

4.4.2. Trends in relative productivity

In section 3.1.1 it has been pointed out that, due to the unfavourable topographic conditions and a property structure characterised by family smallholdings the scope for increasing productivity on the Caribbean islands through mechanisation and exploitation of economies of scale is rather limited, while investment in new technology and mechanisation has boosted productivity of the large plantations in Latin America and non-traditional ACP producers. If this trend were to continue in the future, unit costs of these producers would fall relative to those in the Caribbean, causing the level of protection to decline in the long

⁴³ On April 16 2004, the European Commission “presented transitional measures for banana imports into the ten new Member States to the Management Committee for Bananas. The Regulation would fix an additional quantity of bananas of 300 000 tonnes to supply the market of new Member States for the period May-December 2004. (...) This additional quantity would provide the new Member States with a sufficient supply of bananas.” See European Commission press note at <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/490&format=HTML&aged=0&language=EN&guiLanguage=en>

⁴⁴ Such a quota extension would have to exactly match the volume the accession countries would demand at the current EU 15 price level. This solution would hurt both consumers in the accession countries (who would have to pay higher prices and would consume less) and the banana producers who currently supply (because of the volume losses implied).

run. In the tariff model presented in Figure 2.2, this corresponds to a downward shift of the Latin American cost curve ($Cost_s$). A decrease in Latin American unit costs will lead to a similar decrease in the price level, and to corresponding reductions in the volumes provided by the protected suppliers.

4.4.3. Real exchange rate influences

Banana suppliers' competitiveness is sensitive to movements in real exchange rates. When their domestic currencies are subject to inflation, this leads to a nominal cost increase in Euro terms. A nominal appreciation of the domestic currency against the Euro has a similar effect.

Two types of real exchange rate effects can be distinguished:

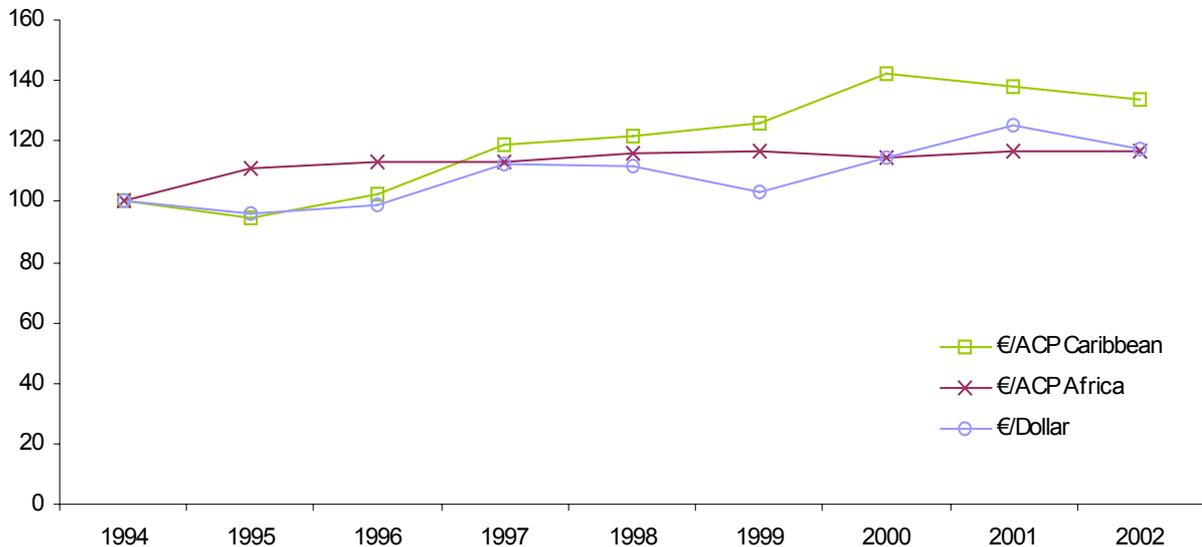
- Movements in the relative real exchange rates of Latin American, African and Caribbean ACP suppliers. For example, when the real exchange rate of the Caribbean producers with respect to the other suppliers appreciates, the Caribbean cost disadvantage expressed in Euro terms increases. As a result, the level of protection conceded by a specific tariff is eroded.
- Movements in the real exchange rates of the producer countries with respect to the Euro. Even when the real exchange rates between producer countries remain at parity, but their currencies appreciate in real terms against the Euro, the degree of protection generated by a specific tariff specified in Euros will decline. Conversely, if the Euro appreciates, the degree of protection would increase.

Figure 4.2 below shows the evolution of real the exchange rates of the different producer groups with respect to the Euro over the last decade. The Euro has tended to depreciate, on average, against the producer countries' currencies.⁴⁵ Their costs expressed in Euro have therefore increased. Further, the real exchange rate of the Caribbean producers has appreciated more than those of their Latin American and African competitors. This means that even if there had been no differences in productivity growth, the unit cost disadvantage of the Caribbean producers will have increased in Euro terms. Because the cost of Caribbean suppliers under the tariff quota determines the market price, their appreciation has led to higher banana prices, and to correspondingly lower volumes, than would have been achieved had exchange rates remained at parity. Since 2002, these trends have been partly reversed due to the sharp appreciation of the Euro with respect to the US\$.⁴⁶

⁴⁵ Real exchange rate indices on a country-by-country basis can be found in Appendix E.

⁴⁶ Because more recent data on inflation has not been available for most countries, we have not been able to assess latest movements in real exchange rates between producer countries.

Figure 4.2
Real Exchange Rates Euro/Banana Producer Countries
 (Index: 1994 = 100; increases of the index indicate appreciation in producer countries)



Source: IMF, ECB, NERA Calculations.

The indices are weighted by EU import volumes as given by Eurostat and include the following countries:

ACP Caribbean – Windward Islands, Belize, Jamaica and Suriname;

ACP Africa – Cameroon, Ghana, and Ivory Coast;

Latin America – Colombia, Costa Rica, Ecuador, Guatemala, Honduras, and Panama.

Consumer price indices were used for deflation, as more appropriate cost deflators were not readily available for many producer countries.

Real exchange rate movements will continue to significantly affect the relative cost positions of the different producer countries after the introduction of a uniform tariff in 2006. However, because exchange rates are next to impossible to predict, and it is even in doubt if a long-run equilibrium exchange rate exists,⁴⁷ we have not attempted to forecast any trends in real competitiveness due to monetary factors.

It should be noted, though, that in producer countries with flexible exchange rate regimes the nominal exchange rate may to a certain degree be expected to cushion effects from cost inflation or relative losses in productivity, especially if banana exports have a large contribution to GDP.⁴⁸ However, this instrument of adaptation is not available in countries

⁴⁷ See Rogoff (1996).

⁴⁸ Where this is the case, reduced competitiveness will lead to a reduction of receipts from banana exports, which in turn will put downward pressure on the nominal exchange rate. Depreciation in turn will increase competitiveness. Of course, while this might allow the country to maintain higher volumes of banana exports, the depreciation in the terms of trade would nevertheless result in a decline in their value.

who have their exchange rates fixed to the Dollar (like the Windward Islands and Belize), or use the Dollar as their official tender (like Ecuador and Panama).

5. REGIME CHANGE 2006: EFFECTS IN EU MEMBER STATES

In this section, we attempt to provide answers to the following questions: If a low tariff on banana imports is set in 2006, can this be expected to lead to lower wholesale and retail prices in the UK and other EU Member States? If so, will this lead to an increase in consumption? We will provide a detailed assessment of these questions for the United Kingdom. For that purpose, we will first assess the nature of price setting at the wholesale and retail level. Then econometric methods will be used to predict the reaction of UK retail prices to changes in the wholesale price of bananas. We will also present a brief comparison between the pricing behaviour in the UK versus other EU Member States. Finally, we will present econometric estimations of UK demand elasticities for bananas, which will allow to predict the reaction of consumption to possible price reductions following the 2006 reforms.

5.1. Banana Pricing in the Import Country

In order to predict price reactions to changes in the trade regime, it is first important to understand how wholesale and retail prices are formed.

5.1.1. Wholesale prices

Wholesale prices are the prices that banana importers charge retailers. Under competitive conditions, these should reflect production and transport costs, as well as the impact of trade restrictions like tariffs or quotas. A proportion of bananas is traded in spot markets, which makes wholesale prices publicly observable. However, in many EU Member States and in particular in the UK, large supermarket chains, which are responsible for the bulk of banana sales to end consumers,⁴⁹ now mostly source bananas via long-term supply agreements, often with one of the large multinational banana companies.⁵⁰ These prices will not be readily observable.

5.1.2. Retail prices

Retail price setting is heavily influenced by the way supermarket chains compete with each other. The Competition Commission (2000) inquiry into supermarkets found that one element of supermarkets' strategies was so-called 'focus pricing'.⁵¹ Supermarkets attempt to set very competitive prices for a number of high-selling or high-profile goods (so-called "Known Value Items" - KVI), because they believe these prices will be used by customers to assess the overall price level of a retailer. Price competition for non-KVI was found to be much less intense. Bananas were expressly characterised by several grocers as one of the

⁴⁹ UNCTAD (2004) quotes a Fruitrop (2002) report according to which 75% of bananas in the UK are sold by supermarkets.

⁵⁰ For example, ASDA has an exclusive supply agreement with Del Monte.

⁵¹ Competition Commission (2000), paragraphs 2.335 et seq.

KVI. It was usual to find all major supermarkets quoting the same price for bananas, and there had even been a price war for this item. This leads to the expectation that supermarkets will price bananas close to cost, i.e. react to changes in the wholesale price.⁵²

5.2. Impact of Import Price Changes on Wholesale and Retail Prices

5.2.1. UK

We have used econometric analysis to estimate the elasticity of banana retail prices with respect to wholesale prices (i.e., the percent change in retail prices provoked by a given percent change in wholesale prices).⁵³ We first compared monthly banana prices provided by the Office of National Statistics with DEFRA wholesale price data.⁵⁴ We found a very low elasticity of 0.08, which suggests that a wholesale price increase by 10% would lead to a minimal increase of 0.8% in the retail price. This is not consistent with the assertion that the largest retailers in the market price bananas very aggressively. However, the apparent contradiction might reflect the fact that the large supermarkets do not source the bulk of their supplies in the kind of spotmarket where the DEFRA data was generated.

We therefore also compared the monthly retail price with cif unit values of UK imports provided by Eurostat. cif unit values are not an adequate wholesale price because there is no guarantee that they correctly capture all the costs of supply including the ones generated by the trade restriction.⁵⁵ Having made this qualification, it is nevertheless remarkable that this comparison resulted in an elasticity of 0.59. This would imply that retailers could be expected to pass through almost 60% of any cost savings resulting from a low tariff. This is more in line with the analysis of retail price setting presented above.

The three prices are plotted in Figure 5.1. It can be seen that there was close co-movement until end-1999, when the relationship appears to break down until around mid-2002. This is likely to have been connected with the acquisition of ASDA by Wal-Mart in June 1999, which is likely to have completely altered the strategies of the competitors in the market. Note also that the DEFRA wholesale price data covers precisely the period when import and retail prices are not highly correlated. This is a further reason to place greater reliance upon

⁵² To the extent that pricing bananas (or other KVI) cheap allows supermarkets to attract more customers that will also buy other items, it may even be rational for them to price bananas below costs. Below-cost selling was one of the issues criticised by the Competition Commission in its inquiry. Accordingly, though costs are clearly important, they are not the only factor supermarkets take into account when pricing bananas.

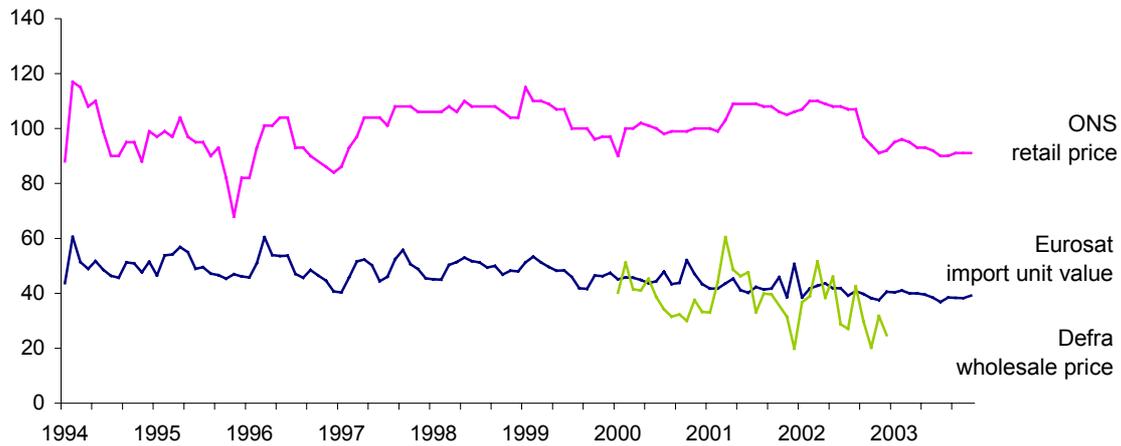
⁵³ Our econometric analysis is described in Appendix D.2.

⁵⁴ This data is collected in weekly surveys in the markets of Birmingham and New Covent Garden. It was only available for the period from 2000 to 2002. We computed monthly averages to make it comparable with the Eurostat cif data.

⁵⁵ To the extent that importers are integrated upstream, as is the case of the large banana companies, cif unit values will just reflect internal transfer prices, which need not be a true reflection of costs, and may be very different from the price these firms charge the large supermarket chains. Even when importers are independent, the import price will not in general reflect the true cost of a trade restriction. Under the current system, this would only be the case if the importer were forced to transfer the whole quota rent to the exporter, which is not likely to be the case.

the estimate based on the Eurostat import price data. In our analysis below, we therefore apply an elasticity of retail prices with respect to wholesale prices of 0.59.

Figure 5.1
UK Banana Prices (pence/kg)



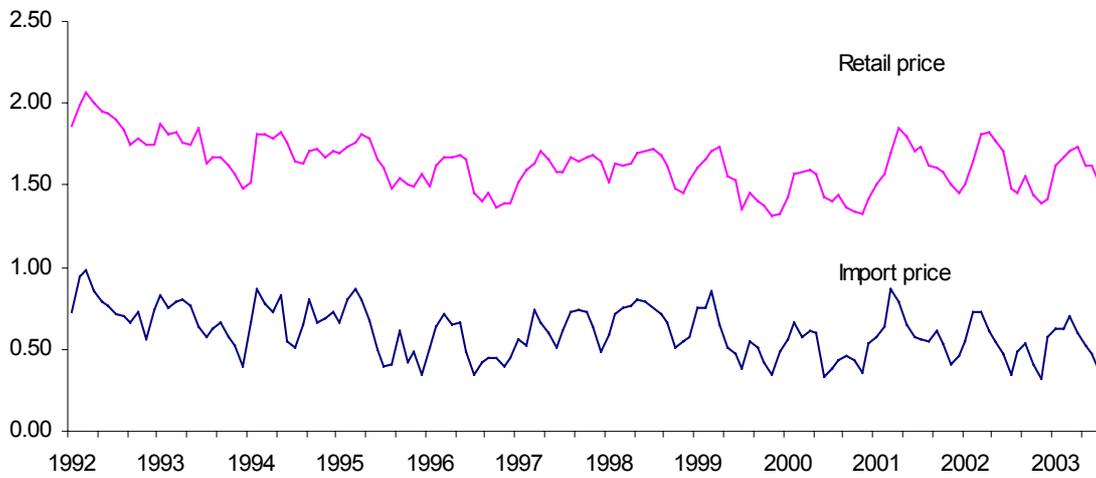
Source: Eurostat, DEFRA, ONS.

5.2.2. France and Germany

We obtained monthly data on banana import and retail prices in France and Germany from FAO. We have not submitted this data to econometric analysis, but graphical comparison of the prices in Figure 5.2 and Figure 5.3 below shows that retail prices in these countries follow wholesale prices even closer than in the UK.⁵⁶

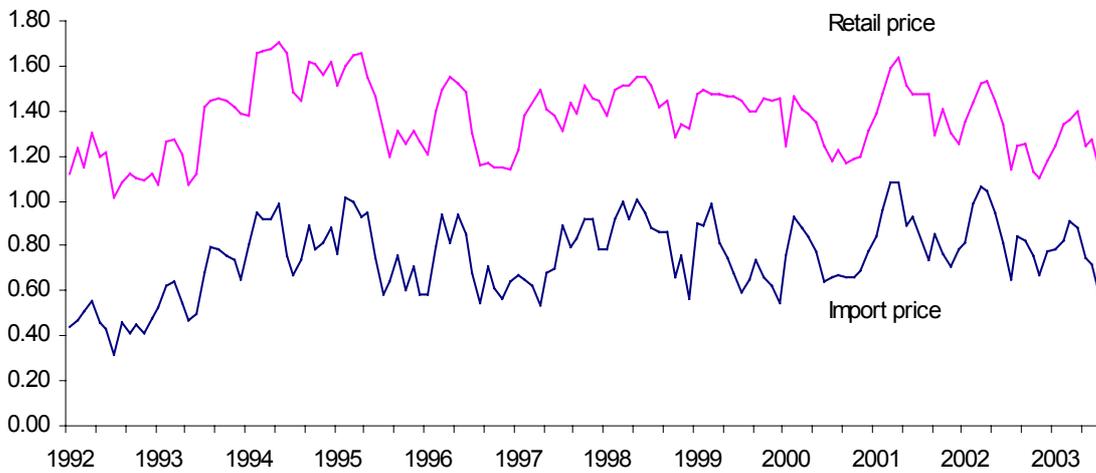
⁵⁶ We have computed correlations between the retail and import price series for the UK, France and Germany. The correlation coefficients were 0.30, 0.76 and 0.80, respectively.

Figure 5.2
Banana Prices in Germany (€/kg)



Source: FAO.

Figure 5.3
Banana Prices in France (€/kg)



Source: FAO.

5.3. Impact of Import Price Changes on Market Demand in the UK⁵⁷

In order to assess the impact of possible price changes on banana consumption in the UK, we have used econometric techniques to estimate price elasticities of banana demand.⁵⁸ For that purpose, we used scanner data on volumes and values of banana sales in around 400 Sainsbury outlets all over the UK, in the period from November 2001 to November 2003. We obtained an overall demand elasticity of -1.11, which implies that as the retail price falls by 1%, demand in volume terms will increase by 1.11%.⁵⁹

The sharp drop in banana prices since mid-2003 has provided a reality check for this demand elasticity estimate.⁶⁰ Eurostat data suggests that monthly UK import volumes have indeed tended to increase since mid 2003.⁶¹ Latin American bananas benefited the most from this growth in import demand. However, when interpreting episodes like these, it is important to bear in mind that price is but one of many influences on banana demand. Other factors – like prices of substitutes or income effects – can add to or subtract from the own-price effect.

5.4. Conclusions

Combining the results from the preceding subsections with the analysis of the price and quantity effects of the tariff-only regime (section 4.3) allows some projections of how retail prices and demand in the UK would react to different tariff levels. In section 4.3, it was assumed that a reduction of the tariff below the tariff equivalent can be expected to lead to a similar reduction in the wholesale price for bananas (i.e., if the uniform tariff chosen is €10/t below the tariff equivalent, the wholesale price can be expected to fall by €10/t). The empirical evidence in this section suggests that reductions in banana wholesale prices would be passed on to retail prices to a significant extent. Changes in retail prices in turn are expected to lead to relatively elastic demand reactions.

As a consequence, a reduction in the level of protection can be expected to feed through to retail prices to a significant degree; this, in turn, would lead to a substantial increase in volumes demanded. Table 5.1 below shows our projections as to the reactions of wholesale and retail prices and volumes demanded in the UK for different tariff levels. For example, with a tariff of €200/t, we would expect retail prices to fall 5% compared to current levels,

⁵⁷ Due to the large cost of the data necessary for demand elasticity analysis, this part of the study was limited to the UK.

⁵⁸ These techniques are described in detail in D.3.

⁵⁹ The data available to us did not allow for separate analysis of demand elasticities for Latin American and Caribbean bananas.

⁶⁰ According to ONS price data, the per-kilo price for bananas has dropped from p108 in June 2002 to p91 in November 2003. In spring 2004, the price stood at below p80 in the large supermarkets.

⁶¹ Twelve-month growth rates (i.e., the variation of import volumes in the most recent twelve months with respect to the previous period) of UK banana import volumes increased from values around 2% in the first half of 2002 to values between 10% and 14% in 2003. We have not had access to more recent data on import volumes.

which in turn would lead to an increase of sales volumes of 5.5%. With a tariff level of €75/t, retail prices would fall 15.5% and sales volumes increase 17.2%.

Table 5.1
Projected Reactions of EU Banana Wholesale Prices, UK Banana Retail Prices and UK Sales Volumes for Different Tariff Levels

Tariff (€/t)	EU wholesale price (€) ¹	Implied change in wholesale price	Change in UK retail price ²	Change in UK demand volume ²
259	702	0.0%	0.0%	0.0%
250	693	-1.3%	-0.8%	0.8%
225	668	-4.8%	-2.9%	3.2%
200	643	-8.4%	-5.0%	5.5%
175	618	-12.0%	-7.1%	7.8%
150	593	-15.5%	-9.2%	10.2%
125	568	-19.1%	-11.3%	12.5%
100	543	-22.6%	-13.4%	14.8%
75	518	-26.2%	-15.5%	17.2%
0	443	-36.9%	-21.8%	24.2%

Source: NERA projections.

(1) Assumes that there is a single wholesale price for the EU. The base price that would result under the tariff equivalent has been taken to be the average of the ACP Caribbean cif import price from 1999 to 2002.

(2) Assumes an elasticity of retail prices with respect to wholesale prices of 0.59.

(3) Assumes a price elasticity of demand of 1.11.

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PART II
OPTIONS FOR THE CARIBBEAN AND THE ROLE
OF DONOR ASSISTANCE

7. ASSESSING THE IMPACT OF PREFERENCE EROSION

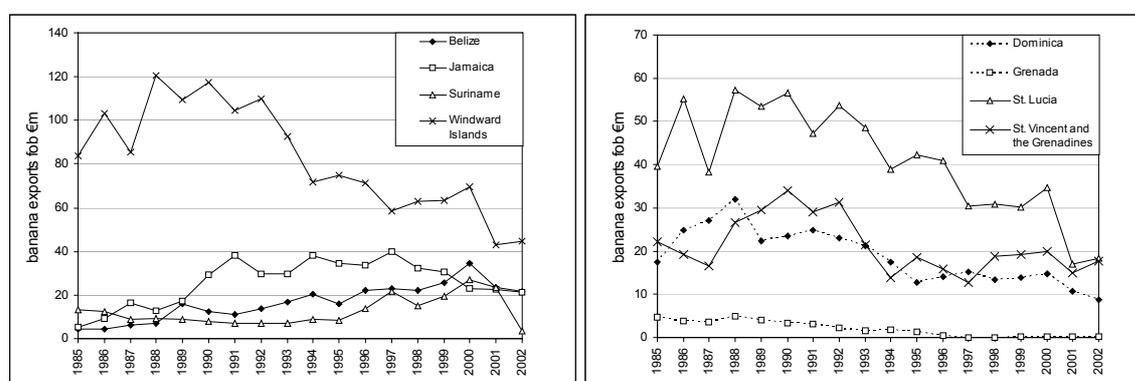
7.1. Impact of Previous Changes to the Banana Regime

The EU banana regime has been modified in several stages leading to a progressive erosion in preferences (see chapter 3 of the NERA report). There has already been a significant impact amongst Caribbean banana producers. It is important to assess this impact in order to understand more fully their likely response to the introduction of the tariff-only regime in 2006.

7.1.1. Macroeconomic impacts

Figure 7.1 below shows trends in banana export earnings from the seven Caribbean countries since the mid 1980s. Windward Islands exports increased until the early 1990s, but following the introduction of the Common Organisation of the Market in Bananas (COMB) in 1993, exports began a steep decline, and are now around half of their peak levels. Exports from Jamaica show a similar, but less severe trend. Belize and Suriname enjoyed a rise in banana exports during the late 1980s and 1990s. However, exports from Suriname declined sharply in 2002 as a result of the bankruptcy of the parastatal company, Surland. Exports have restarted in 2004 following the launch of a new company.

Figure 7.1
Banana exports from the Caribbean 1985-2002



Source: FAOSTAT

Table 7.1 below compares average banana exports for the three years before the introduction of the COMB with the average exports for 1999-2002. This provides an indication of the export losses that have already arisen from the introduction of the banana regime. However, it does not capture the full impact of changes made to the banana regime in 2001 when individual country quotas for ACP countries were abolished, and the practice of tying import licenses to purchases from a specific country was ended. This is likely to result in a progressive shift of exports away from high cost Caribbean producers towards lower cost

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ACP producers. Regardless of the introduction of the tariff-only regime, exports from the Windward Islands are likely to decrease further as a result of the abolition of individual country quotas.

Table 7.1
Changes in exports between 1989-1992 and 1999-2002

	Avg. exports 1989-1992/ €m	Avg. exports 1999-2002/ €m	Gain (+)/loss (-) €m	Gain (+) / loss (-) as % of 1989-1992 exports
Belize	13.2	26.4	+13.2	+100.2%
Jamaica	28.6	24.4	-4.2	-14.8%
Suriname	7.8	18.4	+10.6	+135.0%
Windward Islands	110.2	55.2	-55.1	-50.0%
Dominica	23.4	12.0	-11.4	-48.9%
Grenada	3.1	0.2	-2.9	-93.8%
St. Lucia	52.7	25.0	-27.7	-52.6%
St. Vincent	31.0	18.0	-13.0	-41.9%

Source: FAOSTAT

In addition to its effect on the balance of payments, the decline in the banana industry has also affected the growth performance of Caribbean economies. However, it is difficult to assess the impact on growth because time series data on value added in the banana sector is not easily available. The decline in the banana industry contributed to the worsening fiscal position of the Windward Islands during the late 1990s and early 2000s, although inappropriate fiscal policies exacerbated the situation.⁶²

7.1.2. Employment and livelihoods impacts

Employment figures provide some indication of the social impact of the decline of the banana industry. Unfortunately, data is not available for all the Caribbean countries under study, and quality is variable. The best information exists for the Windward Islands. Table 7.2 shows that the number of registered banana farmers in the Windward Islands declined from around 24,100 in 1993 to 7,300 in 2001- a fall from 6.7% to 2.0% of the population of working age (15-60 years).⁶³

The total impact on employment of the decline in the banana industry is much greater than this suggests. European Commission reports indicate that the number of workers deriving all or part of their income within the banana sector exceeds the number of farmers by a

⁶² See the case study of Dominica, Appendix F

⁶³ There are some doubts regarding the reliability of these figures, which are probably an overestimate because they include multiple registrations where farmers have registered with several companies.

factor of three.⁶⁴ This suggests that the total decline in banana sector employment in the Windward Islands over the period 1993-2001 could be as high as 67,000, or 18% of the total population of working age.⁶⁵ It is also important to consider the linkages between the banana industry, and employment in other sectors, such as transport and marketing services. An ILO report on the banana industry states that “no other economic activity in the Eastern Caribbean has similar multiplier-effects on employment levels”, and that “roughly a third of the entire labour force was dependent on this economic sector.”⁶⁶

Figures on employment trends in the banana sector in Jamaica could not be obtained. However, one of the three banana estates producing for export recently closed resulting in several hundred job losses.

In Belize employment in the banana sector has increased as a result of the growth of the industry. There are currently around 3,100 workers on 22 farms. It is estimated that an additional 3,000 people are employed indirectly by the banana industry in Belize.

In Suriname the bankruptcy of Surland in 2002 resulted in around 2,500 job losses. It is expected that these jobs will be regained with the start-up of the new company. 1000 workers have already been rehired.

Table 7.2
Number of registered banana farmers in the Windward Islands 1993-2003
thousands

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dominica	5.8	6.8	6.2	5.5	4.8	2.9	2.9	2.4	1.3	1.0	1.0
Grenada	0.9	0.9	0.5	0.2	-	0.1	0.1	0.1	0.1		
St. Lucia	9.7	8.0	7.4	6.7	4.8	4.5	5.2	4.8	3.8	2.0	2.0
St. Vincent	7.8	7.4	6.1	5.7	6.7	4.2	4.4	3.8	2.2	2.5	2.3
Total	24.1	23.0	20.2	18	16.3	11.7	12.6	11.1	7.3		

Source: NERA (1993-2001), European Commission (2002-2003)

Research evidence on the livelihoods impacts of employment losses in the banana sector is rather limited. This is rather surprising, especially in the case of the Windward Islands where the banana issue has received a high political profile. The lack of detailed research evidence makes it difficult to fully assess the socio-economic impact of preference erosion, and to consider the need for mitigation strategies.

⁶⁴ European Commission (2004)

⁶⁵ This figure is likely to be an overestimate because farmers often register with several companies at once.

⁶⁶ ILO (1999). It is not clear how this estimate was derived.

Anecdotal evidence on the Windward Islands suggests that the decline of the banana industry has created serious hardship and has greatly impoverished certain communities. However, the impact has been cushioned by the demographic structure of the workforce. The EC estimates suggest that the average age of workers remaining in the banana sector in the Windward Islands is around 55.⁶⁷ Most of those dropping out of the industry are therefore close to retirement age and often do not seek re-employment.⁶⁸ Furthermore, many farmers operated on a part-time basis, which has limited the extent of income losses.

The decline in the banana industry has also closed employment opportunities for the young. This is particularly serious in the context of high unemployment in the Windward Islands. In 2001 unemployment rates in St Lucia, Dominica and St. Vincent were 18%, 20% and 22% respectively.⁶⁹ Service industries, tourism in particular, now provide the main source of employment for the young. Emigration has also become increasingly common, and remittance flows play an important role in supporting communities affected by the decline of the banana industry.

Employment in the Windward Islands banana industry has already fallen by more than two-thirds. This suggests that most of the social fallout of preference erosion may already have been experienced. Although there has been serious hardship, there is little sense of a deep social crisis that could threaten political stability. Communities have, by and large, been able to cope through a combination of early retirement, seeking service sector employment and emigration. Further information on employment and livelihoods impacts in Dominica – one of the most severely affected of the Windward Islands – can be found in Appendix F.

Reports from Suriname suggest that the social impact of the closure of Surland has been rather limited.⁷⁰ Most of the 2,500 redundant banana workers were able to find alternative employment in other sectors such as retail and small-scale manufacturing. However, many ex banana workers moved into part-time, temporary and less well paid jobs that lacked the additional social benefits provided by the former banana company. For this reason they have been keen to join the new company, which has now rehired around 40% of the retrenched workers.

7.1.3. Other impacts

In the Windward Islands, the cultivated area under bananas has declined significantly: from 29,000 ha to 18,000 ha between 1990 and 2001, 13.6% to 8.4% of land area.⁷¹ Such a large

⁶⁷ European Commission (2004)

⁶⁸ However, Annex 2 suggests that Dominican farmers expected a much later retirement age of 70+.

⁶⁹ World Bank (2002)

⁷⁰ Philippe Dury, personal communication

⁷¹ FAO

change in land use will have affected the character of the landscape and may have had some environmental impact. However, research evidence on this subject is lacking.

There is little evidence that the decline in banana production has encouraged farmers to switch into narcotics production (e.g. Marijuana cultivation), as is sometimes claimed. Although Marijuana has long been cultivated in Jamaica, there is little production in the Windward Islands.

7.1.4. Economic dependence on banana exports

The impact of preference erosion depends greatly on the level of economic dependence on banana exports. Four common measures of economic dependence are given in Table 7.3:

- *Banana exports as % of total merchandise exports 1999-2002.* This exaggerates the importance of bananas in national income, but in the case of the Windward Islands is useful as an indicator of the importance of the banana trade to the availability of goods transport to and from the islands.
- *Banana exports as % of total merchandise exports and exports of services 1999-2002.* This measures the importance of bananas to total foreign earnings.
- *Banana exports as % of GDP 1999-2002.* This shows the relative importance of banana exports in total national income, but does not take account of the multiplier effect.
- *Banana workers as % of population of working age 2001.* This is a measure of the importance of bananas to employment.

Table 7.3
Indicators of dependence on banana exports

	Banana exports as % of total merchandise exports 1999-2002	Banana exports as % of total merchandise exports and exports of services 1999-2002	Banana exports as % of GDP 1999-2002	Banana workers as % of population of working age 2001
Belize	14.7	7.4	3.2	2.3
Jamaica	1.9	0.7	0.3	0.1
Suriname	3.4	2.9	2.1	0.8
Windward Islands	29.6	6.2	3.2	8.0
Dominica	23.0	8.3	4.4	9.9
Grenada	0.8	0.1	0.1	0.6
St. Lucia	39.5	6.3	3.6	10.8
St. Vincent	39.3	10.1	5.0	8.4

Sources: FAOSTAT, World Bank, employment figures (EC reports and interviews)

There are considerable variations between the different measures and between countries. The Windward Islands have the highest level of *merchandise export* dependency on bananas (29.6%) – twice as dependent as Belize (14.7%). However, in terms of *total export earnings* the

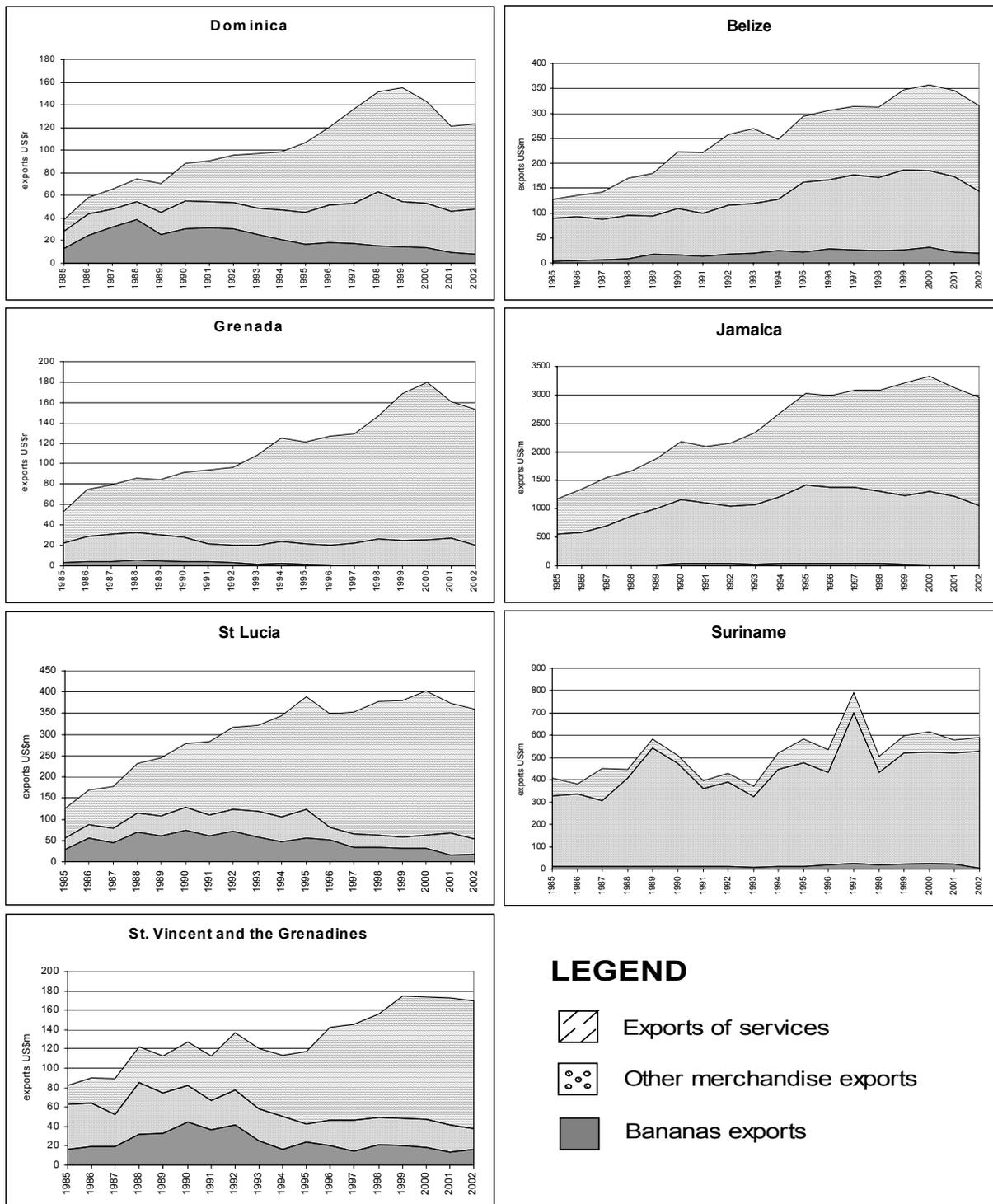
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dependency level falls to 6.2% - less than Belize - showing a considerable level of exports of services. In terms of GDP, the Windward Islands, along with Belize, have the highest level of dependence on bananas. In terms of employment, the Windward Islands are still much more dependent on bananas than the other Caribbean countries. Thus, against most measures the Windward Islands can be considered to be the most banana dependent of the Caribbean countries. In this context, the steep declines in banana exports from the Windward Islands have been particularly serious.

Figure 7.2 shows that rapid growth in export of services (mainly tourism) has more than compensated for the decline of banana exports, even in the most banana-dependent economies. It is clear that a major transformation in the structure of Caribbean economies has occurred, and that in many respects Caribbean countries have already successfully adjusted to the erosion of banana preferences. This shift in production patterns towards tourism and other services reflects the comparative advantage of Caribbean countries that are land scarce, but have moderate levels of human development and strong climatic advantages.

The growth of tourism and other services has clearly helped to reduce the dependence on banana exports and has helped to limit the impact of preference erosion. However, in some respects it is a mixed blessing. There is a danger that dependence on bananas could simply be replaced by dependence on tourism, which carries its own risks, as the drop in tourist arrivals after September 2001 illustrated. Tourism may also have resulted in an upward pressure on wage rates, which could further undermine the competitiveness of the banana sector. However, there is likely to be a limit to the extent to which the tourism sector can absorb surplus labour. The skills of banana workers may not be directly transferable to the tourism sector.

Figure 7.2
Structure of Caribbean Exports



Sources: FAOSTAT, UNCTAD

7.2. Impact of a Tariff-Only Regime

Table 7.4 shows projections of export earnings under the post-2006 tariff-only import regime that are derived from the simulations shown in Table 5.5 (NERA report). Projections are not available for Suriname and Grenada.⁷²

Table 7.4
Projected export earnings at different tariff levels

		Belize	Jamaica	Dominica	St. Lucia	St. Vincent
Avg. exports 1989-1992/ €m		13.2	28.6	23.4	52.7	31.0
Avg. exports 1999-2002/ €m		26.4	24.4	12.0	25.0	18.0
Projected exports at tariff levels: /€m						
	€259	27.8	22.9	11.7	28.9	18.7
	€250	26.7	21.1	9.3	26.0	16.4
	€225	23.7	16.5	2.9	18.5	10.3
High tariff scenario	€200	20.8	12.2	0	11.7	4.7
	€175	18.2	8.3	0	5.4	0
	€150	15.7	4.8	0	0	0
Low tariff scenario	€125	13.4	1.7	0	0	0
	€100	11.2	0	0	0	0
	€75	9.3	0	0	0	0
	0	4.4	0	0	0	0

The future survival of the Windward Islands export industry depends on the EU setting a high tariff varying between a minimum of €175 per tonne for St Lucia and €225 per tonne for Dominica. The projections show that Jamaica could continue to export so long as tariffs are above €125 per tonne. Belize could continue to export even under a free trade (zero tariff) scenario.

No decision has yet been taken by the European Community on the tariff level after 2006.⁷³ However, sources within the European Commission suggest that it is most likely to be in the range of €100 to €200 per tonne. There appears to be a range of opinions on the appropriate

⁷² In the case of Suriname projections were not made because of the uncertainty regarding the bankruptcy and the prospects for the relaunched company. Exports from Grenada are extremely low.

⁷³ Sources in Brussels indicate that a decision will probably be taken this year and that the tariff may be introduced early (by end of 2004) in order to avoid arguments and possible market disruption arising from the setting of an additional quota for the 10 acceding Member States.

tariff level, and it is difficult to predict the outcome of the discussions. For the purposes of this paper two scenarios will be considered:

High tariff scenario - €200 per tonne. In this case the tariff would be set sufficiently high to protect the majority of ACP producers, and to limit the charge to the European Community budget of compensatory aid to EU banana growers (this increases as the EU price falls). In order to meet these objectives the tariff level would have to be set at the top end of the range reported to be under consideration.

Low tariff scenario - €125 per tonne. As discussed in paragraph 5.3.2 (Nera Report) any tariff above €100 per tonne would result in a shift in exports away from Latin America (dollar banana zone) towards Africa. Latin America, and US transnational companies would be very unlikely to accept a reduction in export volumes to the EU. In order to avoid another WTO dispute the European Commission could opt for a low tariff level. A tariff of €125 per tonne would probably be sufficiently low to avoid a WTO challenge, while still offering a degree of protection to the lower cost ACP producers.

Given the immense damage that another WTO dispute would cause, and the limited prospects of a favourable outcome for the EU, the low tariff scenario is considered to be the most likely. Even if the high tariff level were adopted, it is likely that this would be reduced in future as a result of further rounds of trade liberalisation. In all likelihood the level of protection provided by the high tariff scenario could not be maintained for many years.

7.2.1. Projections under the high tariff scenario

At a tariff level of €200:

- Exports from the Windward Islands would fall sharply. Dominica would cease exporting altogether. Export values would fall by 53% (€13.3m) in St. Lucia and 74% (€13.3m) in St Vincent. In Dominica and St. Vincent the declines would be similar to that experienced during the 1990s, whereas in St Lucia the reduction in exports would be about half that experienced during the 1990s.
- In Jamaica, export values would fall by about 50% (€12.2m). This would be a much greater reduction in export earnings than was experienced during the 1990s.
- In Belize export values would fall by 21% (€5.6m). This forecast may be rather inaccurate because industry sources indicate that the Belizean banana industry would be competitive with other Latin American countries (i.e. dollar zone producers) at this tariff level, and that production could be expanded. Export production is currently constrained by the shortage of EU import licences.

7.2.2. Projections under the low tariff scenario

At a tariff level of €125:

- All Windward Islands would probably cease exports, resulting in lost annual export earnings of between €12 million (Dominica) and €25 million (St. Lucia). Such declines are of similar magnitude to those already experienced during the 1990s.
- Jamaica is a borderline case where a small amount of export production may still be possible at a €125 tariff level. However, at this tariff level export earnings would fall by more than 90%, or €22.7 million per year. This would be a much greater reduction in export earnings than was experienced during the 1990s.
- Belize would be the least affected country, but at a tariff level of €125 there would still be a 50% drop in export earnings (€13 million per year). This would be a sharp reversal of Belize's export performance during the 1990s.

7.2.3. Socio-economic impacts

It is difficult to predict the socio-economic impact of these projections. However, the experience of the 1990s provides a guide to the future. In the case of the Windward Islands, a further employment loss of all remaining banana farmers (7,300) and farm workers (21,900) can be expected under the low tariff scenario. Even under the high tariff scenario, more than half the remaining farmers would probably abandon banana production. Although the impact of these job losses would be very serious, it is notable that under both scenarios the employment loss is much smaller than took place during the 1990s. As before, the social impact would be cushioned by early retirement, the growth of service industries and remittance flows. There is serious concern that a further decline in the volume of banana export from the Windward Islands may threaten the viability of shipping services. This could damage the development prospects of other industries (e.g. other agricultural exports) that depend on back cargo provided by banana boats.

Although the loss of export earnings in Jamaica would be quite severe under both the high and low tariff scenarios, this decline would be much less in relation to export earnings, GDP and employment than in any of the other Caribbean countries. However, because banana cultivation is concentrated in three parishes, the employment impact at the local level could be quite serious. A particular feature of the banana industry in Jamaica is the large size of the domestic market, which is estimated at around 100,000 tonnes per year in comparison with present export volumes of around 40,000 tonnes per year. Under the high tariff scenario smallholders would probably exit the export market, but could switch production to the domestic market without suffering a large income loss. Under the low tariff scenario there is a risk that a major share of the production from commercial estates would be diverted to the local market, which would depress prices and hurt the smallholder sector.

A contraction in the Belize banana industry is unlikely even at the low tariff level. However, because prices would fall significantly under the low-tariff scenario there would be a significant drop in export earnings. This could have a significant macro-economic impact because banana exports account for a substantial share of total exports and GDP.

Following the bankruptcy of Surland, the situation in Suriname is very uncertain. There is some optimism that the relaunched company will prove successful. Early production figures, yields and export forecasts appear very promising.

8. THE POTENTIAL FOR IMPROVED COMPETITIVENESS

The model used to make supply projections is based on rather restrictive assumptions.⁷⁴ In particular, it assumes that productivity within countries remains constant, and that bananas from all suppliers are of uniform quality and type. In practice, these assumptions *may* not hold. Productivity gains and product differentiation by quality and type *could* make a significant difference to the viability of the Caribbean banana industry. In this case the future of the Caribbean banana industry may not be as dire as suggested by the projections in section 1.2. This chapter considers the prospects of raising the competitiveness of Caribbean suppliers in relation to competitors, their ability to compete on quality, and the potential to exploit value-adding and niche marketing opportunities, such as fair trade and organic bananas.

8.1. Windward Islands

As discussed in section 4.1.1 (Nera Report) the low productivity and high costs of banana production in the Windward Islands can be traced to: (i) the steepness of the terrain, (ii) poor soils, (iii) the structure of the industry (smallholdings), (iv) high labour costs, and (v) small volumes. This presents serious challenges, but there are some options for increasing productivity:

- *Further institutional reforms* to the Banana Growers Associations, which provide marketing, input distribution and technical advisory services. Some progress has already been made in this regard. Privatisation and liberalisation are relatively advanced in Dominica and St. Lucia, but progress has been slower in St. Vincent and the Grenadines.
- *Investment in infrastructure* (e.g. irrigation, drainage, mechanisation, rural roads and packing sheds). A limited number of infrastructural investments are being funded using STABEX and Special Framework of Assistance (SFA) funds. However, given the inherently high production costs and small scale of farms, there are concerns about the viability of these investments. There appears to be relatively little scope for further investment, and resources committed under the most recent SFA programmes have been allocated almost exclusively to economic diversification and social support. In contrast, banana plantations on flatter terrain in Latin America offer much better opportunities for infrastructural investment and productivity gains.
- *Consolidation of holdings*. The predominance of smallholdings in the Windward Islands prevents economies of scale and efficient service delivery. Legal obstacles to

⁷⁴ See the first part of this study

land transfers and the longstanding uncertainty regarding the future of the EU banana regime have discouraged land purchases.

- *Formation of producer associations.* There is some scope to improve the efficiency of service provision through the formation of farmer-led producer associations.

In most cases it is unlikely that these investments could ensure the viability of Windward Island banana producers under the low tariff scenario. However, under the high tariff scenario, such investments might ensure the survival of some of the more efficient producers.

In addition to their high costs, there is concern about the quality of Windward Island exports. A high proportion of bananas imported from the Windward Islands are failing to meet specifications.⁷⁵ European supermarkets are increasingly demanding traceability requirements and higher environmental, sanitary and labour standards from their suppliers. The EUREP-GAP initiative adopted by EU supermarkets requires high standards of documentation, pesticide use, waste disposal and labour relations. There are indications that Windward Island farmers are having difficulty meeting EUREP-GAP standards, which must be in place by the end of 2004. The extra costs of meeting these standards will probably force more farmers to exit the business.

The main hope for the banana industry in the Windward Islands is to exploit niche marketing and value-adding opportunities, such as fair trade,⁷⁶ organic bananas and special packs, for which there may be a significant price premium. The Windward Islands have achieved some success in developing these markets. For example, Grenada has begun exporting organic bananas, and many Windward Island bananas are marketed under fair trade labels. WIBDECO, the Windward Island Banana Development and Export Company, has promoted the marketing of bagged bananas that are packaged before shipment to the UK. In spite of these achievements, there are still major challenges. Some producers have been unable to provide sufficient volumes to fulfil orders for fair trade bananas (see the Dominica case study in Appendix F). Organic production is still rather limited because of its high investment and certification requirements.

The success of niche marketing and value adding strategies will depend greatly on the price premium received for niche products, the level of tariff and the entry of competitor countries

⁷⁵ RTA Banana Bulletin : Issue No. 10. December 2003

⁷⁶ The term 'fair trade' refers to arrangements that give certain categories of disadvantaged producer better prices and trading terms than they would receive on the commercial market. Fairtrade Foundation, Oxfam and Traidcraft have agreed the following basic criteria of fair trade: (i) a clear set of criteria defining the fair trade terms is available to consumers and producers, (ii) an organisation (auditor, body of Trustees), independent of business interests, oversees the implementation of the fair trade principles, (iii) the suppliers are selected on the basis of being poor and relatively disadvantaged by the way the commercial market operates, (iv) there are monitoring systems to ensure that the fair trade principles and criteria are met and that individual producers are benefiting from the trading terms applied, and (v) producers are consulted and are able to contribute to the development of the monitoring systems.

into niche markets. Niche markets generally provide a 15-30% price premium. In the case of the high tariff scenario this would be sufficient for many producers to remain in business. However, at the low tariff level niche markets would probably only offer a future to the most efficient producers. A key risk is that competitor countries with much lower cost structures follow the lead of the Windward Islands into niche markets (e.g. fair trade bananas are increasingly sourced from Costa Rica). While competition in niche markets is certain to increase, one factor in favour of Windward Island producers is their strong brand image in the UK, which is based on a public perception of an ethical and environmentally sound product.

Further information on options for the development of the banana industry in Dominica can be found in Appendix F.

8.2. Jamaica

In Jamaica two plantations produce exclusively for export and the smallholders produce mainly for the large domestic market, but also export small quantities (about 3000 tonnes per year). The prospects under tariffication are very different for the two types of producer.

The two plantations, operated by the export company JPG, are reported to be efficient and well run. There is some scope for further productivity gains, and it is likely that investment has been constrained by the uncertainty regarding the future of EU banana regime. Although wages are relatively high in Jamaica, the industry is confident that it could remain competitive with a tariff as low as €150. JPG has a highly profitable shipping and marketing operation, and also transports and markets bananas from Latin American (dollar banana zone) countries in the UK. These operations are probably used to cross-subsidise the Jamaican banana export business.

The smallholder sector is having difficulty meeting EUREP-GAP standards. Rather than facing these additional costs, most small farmers will probably transfer production for export to the domestic market. In the past smallholders have responded flexibly to changing prices and exchange rates by switching between domestic and export markets. This has had little effect on domestic market prices. The European Commission estimates that of the current 240 small farmers producing for export, only about 20 will remain after the end of 2004 when EUREP-GAP standards become binding.

Another challenge to the long-term sustainability of the Jamaican banana industry will be to reduce the level of subsidy. At present many operating costs for small producers (e.g. spraying and water management) are met by EC SFA funds.⁷⁷ There is concern about the

⁷⁷ Shutt, H. and Murad, Z. (2002) *Evaluation of the Implementation of Council Regulation (EC) No. 856/1999 Establishing a Special Framework of Assistance (SFA) for Traditional ACP Suppliers of Bananas*, LMC Limited

long term sustainability of these services, and the banana industry more generally, once SFA funds are phased out after 2009.

8.3. Belize

Conditions for banana cultivation in Belize are much more favourable than on the Caribbean islands, and closely resemble the rest of Latin America (i.e. dollar banana zone). Large scale, professionally managed plantations, generally favourable soils, and suitable terrain provide good conditions for the adoption of latest technologies. The industry has already achieved major productivity gains and complies with EUREP-GAP standards. Recent investments in drainage, irrigation, tissue culture and port facilities are likely to deliver further efficiency gains in future. Belize has relatively high labour costs, but is reported to be already competitive with Costa Rica. Marketing has been in a key constraint in Belize where the single export license is held by the Irish company Fyffes. It is expected that the move to a tariff-only regime would remove licensing constraints, and could allow for a substantial increase in export volumes.

8.4. Suriname

Suriname is potentially a competitive banana producer, which benefits from suitable agroclimatic conditions and low labour costs. The collapse of Surland was mainly due to labour unrest (trade union militancy), weak management and political interference in the parastatal, rather than inherently high production costs. Although the new company is very optimistic about its prospects, and initial yield and production figures are encouraging, its success will much depend on whether privatisation goes ahead as planned.

9. DEVELOPMENT OPTIONS FOR CARIBBEAN BANANA PRODUCING COUNTRIES

There are three main strategies available to Caribbean banana producing countries affected by the tariff-only trade regime:

- *Improving the competitiveness of the banana industry* where there are reasonable prospects of maintaining profitability under the tariff-only regime.
- *Exit from banana production.* A phased closure of the banana industry coupled with the provision of safety nets and social services targeted at affected groups.
- *Diversification.* Investment and policy change to support diversification in the agricultural sector and wider economy.

These options are by no means mutually exclusive, and varying combinations will be required in different countries depending on the potential competitiveness of the banana industry. While a combination of exit and diversification should be the principal strategy in the Windward Islands, there may still be some scope to support the competitiveness of the least cost producers, who are able to exploit niche markets. For the remaining Caribbean countries, where there are reasonable prospects for the continued viability of the banana industry, a combination of improving competitiveness and supporting diversification would be the most appropriate strategy. However, some producers will still drop out of the export market, creating the need for a partial exit strategy and provision of safety nets.

The case study of Dominica (see Appendix F) provides examples of development options for a country that has been particularly severely affected by the decline in the banana industry.

9.1. Improving Competitiveness

There are numerous investment possibilities that could raise the competitiveness of Caribbean banana production. It is important to consider competition not only on price, but also on quality, value-adding and niche marketing.

- Investment in infrastructure (e.g. irrigation, drainage, mechanisation, rural roads, packing sheds, cold storage and port facilities)
- Institutional reforms to service providers (marketing, input supply, pest control etc.)
- Consolidation of land holdings
- Formation of farmer-led producer associations and cooperatives
- Research and extension (e.g. disease resistant varieties)

- Replanting and use of tissue culture technologies
- Support for meeting quality standards and traceability requirements (e.g. EUREP-GAP)
- Support for developing niche markets (e.g. organic and fair trade certification, packaging)

In most instances these investment requirements should be met through private finance. The benefits would accrue mainly to individual producers, who should make informed commercial judgements about costs and benefits, and raise finance according to their assessment of future returns. Public funding in the form of grants should generally be avoided because this is likely to skew investment decisions away from commercial considerations towards attracting subsidies.

However, there are some instances where an element of public support to the banana industry may be justified:

- Where the proposed investment has a public or mixed goods character (e.g. port facilities, rural roads, research on new varieties and tissue culture technology).
- Where there are failures in financial markets public funding may be justified. Loan finance would generally be preferable to grants.
- Where there are strong welfare arguments for supporting producers in lower income brackets (e.g. support for smallholders to meet EUREP-GAP standards or to develop fair trade or organic products).
- Where there is a need for one-off investments in institutional development or reform (e.g. land reform or formation of producer associations).

9.2. Exit from Banana Production

Under all scenarios, employment in the banana sector will decline considerably. There is a need to devise exit or partial exit strategies to ensure an orderly winding down of production and provision of safety nets for affected farmers and workers. The types of support that could be considered are:

- One-off severance payments for farmers or workers leaving the industry
- Pensions for retrenched workers or farmers abandoning banana cultivation
- Social security payments targeted at those groups most affected by the decline in the banana industry

- Community development funds targeted at communities affected by the loss of banana employment
- Retraining for unemployed farmers and banana workers

In most cases, such social support programmes could only be financed through government or donor funding. Some of the above options could prove to be a severe strain on public finances. For example, providing the 21,900 Windward Island farmers and workers with an annual pension of \$1,500 per year (about 40% of GDP per capita) would cost around \$33 million per year. Such large welfare payments would impose substantial opportunity costs in terms of forgone economic development and diversification opportunities.

There would also be major difficulties in targeting assistance at those most in need. Severance payments or pensions would probably only be available for those who are still active in the industry. It would be more difficult to make payments available to those who had previously left the industry. However, excluding this category would raise welfare and social justice concerns.

9.3. Diversification

Diversification is the best response for the high cost Caribbean banana producers (i.e. Windward Islands and Jamaica) to the introduction of the tariff-only regime. In the case of the Windward Islands, their physical characteristics – both the nature of the terrain and their location – make it unlikely that diversification into other agricultural products is a sustainable option, except for certain niche products and to supply to local and tourist markets. The development of services offers the best prospects for growth and economic diversification.

Each country will need to develop its own diversification strategy, based on an assessment of its comparative advantage. This would:

- start from the position of making the market economy work in the interests of the poor: this will be a major task in countries such as the Windward Islands where domestic policies and preferential trade arrangements have considerably distorted the role of the market;
- be an integral part of the general development strategy, rather than identify particular activities for government support. The history of the Caribbean is full of examples of failed attempts by governments to pick winners.
- focus on increasing the mobility of factors of production so that they can move out of declining industries into more dynamic sectors. Obstacles to mobility, such as restrictive land laws and employment regulations should be addressed;

- be designed to maximise the efficient use of existing factors of production. In the long run, successful diversification will be dependent on two types of government policy;
 - creating an appropriate administrative and legal environment enabling the market to work in the interests of the poor;
 - supporting the direct provision of public goods and transfer payments, such as physical infrastructure, education facilities and social support to facilitate adjustment to the inevitable social and economic disruption.

The approach to diversification advocated in this report is essentially market-based rather than government-driven. It relies on progress in implementing market reforms that will create a conducive business environment and allow factors of production to respond flexibly to changed opportunities. This is a particularly difficult challenge in the Windward Islands where there is a strong tradition of state intervention in the economy.

The following paragraphs outline some principles for the design of a strategy for market driven diversification. The process is outlined in figure 3.1.

The first stage is a thorough analysis of existing factors of production, their mobility, the markets in which they operate, and the supporting administrative and physical infrastructure. The earlier chapters of this report and the case study on Dominica demonstrate the paucity of data and research.

OPM's report to DfID on "Making Markets Work for the Poor" included

Table 9.1 setting out the basic analytical framework for examining particular issues and impacts.⁷⁸ The problems identified by this analysis relate to a broad range of public policies. The small size of Caribbean economies points to a major role for CARICOM in promoting reform. For example, structural issues in the global banana market, in particular vertical integration, where importers and growers become tied to particular retail chains, are potentially anti-competitive. Tackling any such restrictive business practices through competition law may be critical to the future of any residual banana trade.

⁷⁸ Page 7 of Making Markets Work for the Poor

Table 9.1
Pro-poor Market Development: Defining Characteristics

Market Characteristic	Domain of intervention or collective action	Illustrative areas for analysis	
Enabling framework	Macro-economic policy	Extent of inflation. Capital subsidies displacing labour.	
	Law and Administration	Integrity, accessibility and representativeness of judicial system. Property rights.	
	Political and social culture, governance	Democratic accountability of representatives. Extent of male-dominated institutions.	
	International markets	Open access to developing country products. Instability of capital flows.	
Market failure	Public goods	Adequacy of rural infrastructure. Lawlessness, insecurity.	
	Externalities	Pollution of natural resources	
	Market structure and power, monopoly	Degree of competition. Land ownership concentration.	
	Information asymmetry	Education on citizens' rights. Legislation on product description Quality of agro-chemicals Access to credit	
	Transactions cost	Contract enforcement mechanisms. Barriers to formal financial sectors.	
	Adverse power relations, exclusion	Regulations anti-poor, anti-women, ethnic bias	Female property rights limited, inheritance laws Law favours formal enterprises
		Organisational bias	Gender awareness in service providers
		Social relations link to markets	Bonded labour obligations inherited. Intra-household control of cash sales
		Market segmentation	Barriers to accessing formal credit. Barriers to formal labour markets.
	Inter-market linkages	Risk management	Facilities for savings. Accessibility of insurance mechanisms.
Linked markets		Means for transmitting migrant remittances Extent to which credit market failures limit labour markets	

Market reforms take two main forms:

- reform of the *enabling environment* through such matters as introducing a competition policy aimed at removing restrictions on market transactions. Such principles would underlie sector specific reforms, such as utilities and financial regulation and would be applied throughout the economy as a whole through measures such as:

- a generic competition law, which would address matters of efficiency and equity, the latter most notably through specific exemptions and exclusions designed to provide fair competition for SMEs and to support safety and other standards,
 - investment regulations designed to provide a level playing field for domestic and inward investors,
 - a transparent public purchasing regime allowing for value for money through competition and non-discriminatory specifications.
- Sectoral reform: Promoting flexibility in land, labour and capital markets, and providing essential public goods, such as power, transport and telecommunications infrastructure.

The starting point would be an assessment of the need for specific reforms covering factors of production:

Labour:

- remove obstacles to mobility
 - simplify and improve labour laws
 - remove tax disincentives
- improve quality of labour through provision of public goods:
 - health
 - education and training

Solutions to the problem of redundant banana workers are often sought in the provision of direct employment of the displaced workers. In the long run, market forces would tend to create opportunities for such workers as they competed with others of similar abilities, whether skilled or unskilled labour. New service industries would operate at different skill levels, but other workers would move up the chain creating opportunities. The nature of current service exports should be examined to evaluate the extent to which they might be increased, or others of a similar kind introduced. For example, where foreign income is derived from remittances from overseas workers⁷⁹, e.g. nurses, it might be possible to create an environment in which a specialist health service serving overseas clients could be created.

⁷⁹ Mode 4 – movement of labour in terms of the GATS

Where, as in Dominica, there is a highly skilled cadre of medical experts, the kind of services provided by the tourist industry might be used to provide nursing homes or residential accommodation for foreigners.

Capital:

- physical capital
 - remove import barriers
 - put in place regulations over zoning etc, possibility of tax changes/incentives
 - provide infrastructure that will enhance export competitiveness
- financial:
 - improve financial regulation
 - liberalise tax regimes on income from investment
 - improve access to credit

The current structure of the banana industry makes it difficult for small businesses to access capital to start up new activities. Specific donor or government interventions, if properly managed, could tackle this problem. The use of tax measures would need careful handling to ensure equal treatment for local and inward investors, and to work with the grain of current international discussion/negotiations on the concept of harmful – rather than healthy, tax competition.

Land and natural resources:

- identify untapped resources
- introduce/reform regulatory regime for resource use
- facilitate land transfers, rental market. Evidence from the Windward Islands suggests that failures in land transfer and rental markets have been a major obstacle to the restructuring of the banana industry.

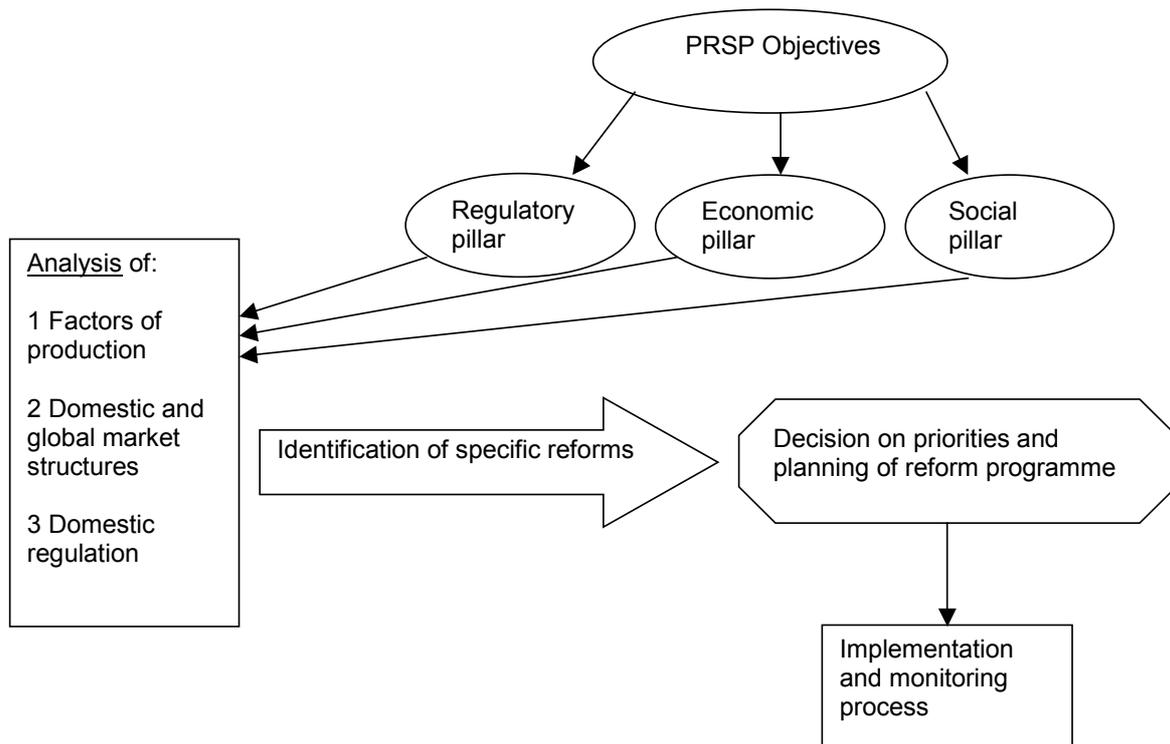
The approach to diversification advocated here is essentially market.-based. However, in the short-run there *may* be a case for direct public intervention; for example, for:

- subsidies, grants and loans, on presentation of full business plans for viable enterprises and to kick start new firms.
- funding for investment and export promotion boards.

Such an analysis should form the basis of a process for drawing up a strategy of specific actions against an integrated timetable of deadlines and targets. This process should be integral to the PRSP or other national development strategy. The case of Dominica provides some good practice, but also points to the difficulty of moving from planning to implementation (see Appendix F):

“Plans for restructuring the agricultural sector constitute part of Dominica’s draft Public Sector Investment Plan (PSIP) and Interim Poverty Reduction Strategy Paper (I-PRSP). Government documents state as broad priorities, the proactive support of tourism, agriculture and manufacturing through the revision, formulation and implementation of respective policies and projects and the development of an administrative, legislative and incentive framework that will be conducive to attracting, encouraging and sustaining private sector investment. The distillation of concrete policies to achieve these objectives are perhaps less clear.”

Figure 9.1
Preparation of a Strategy for Development Through Market Driven Diversification



10. DEVELOPMENT ASSISTANCE FOR CARIBBEAN BANANA PRODUCING COUNTRIES

10.1. EC Development Cooperation Instruments

There are three main sources of EC funds available to the Caribbean banana producing countries:

- The Special System of Assistance (SSA) established in 1994 and replaced in 1999 by an expanded Special Framework of Assistance (SFA) for traditional ACP suppliers of bananas.
- Export revenue stabilisation schemes. In 2000 STABEX was replaced by the FLEX instrument under the Cotonou Agreement.
- National Indicative Programmes (NIP) funded by the European Development Fund (EDF)

10.1.1. The Special Framework of Assistance

The Special System of Assistance (SSA) was launched in 1994 to assist 12 traditional ACP producers to adjust to the Common Organisation of the Market in Bananas.⁸⁰ This arrangement was replaced by a Special Framework of Assistance (SFA) in 1999 that will last for 10 years.⁸¹ The new instrument provided a much greater level of funding; around €45 million per year under the SFA in comparison to €78 million disbursed during the entire period covered by the SSA. Funding for the SFA is provided in the form of a specific budget line (B7-7810) funded out of the European Community Budget. Projects are financed on the basis of annual financing proposals.⁸²

The EC Regulations governing the SFA states that the programmes should support the competitiveness of ACP banana producers and promote diversification. Funds have been used to support a variety of different types of project, including field productivity improvements, institutional development and reform in the banana sector, diversification projects (mainly in the agriculture and rural development sectors), as well as a few interventions aimed at supporting safety nets. There has recently been a notable shift away from projects supporting the competitiveness of the banana sector towards diversification

⁸⁰ The eligible countries are Belize, Cameroon, Cape Verde, Côte d'Ivoire, Dominica, Grenada, Jamaica, Madagascar, St Lucia, St Vincent and the Grenadines, Somalia and Suriname.

⁸¹ Regulation on establishing a Special Framework of Assistance for traditional ACP suppliers of bananas No 856/1999 OJ L 108, 27.4.1999, p.2.

⁸² It should be noted that Financing Agreements are signed each year, but the programmes covered by each Financing Agreement usually last more than one year.

and social support. Financing for diversification projects has increased from 12 per cent of SFA funds in 1999 to 64 per cent in 2002.⁸³

SFA country allocations are determined on the basis of the size of the banana industry within the ACP country and the competitiveness gap. The competitiveness gap is defined as the difference between the average c.i.f. price per tonne delivered to the EU from the ACP country over the past three years compared with c.i.f. price for the most competitive non-ACP producer over the same period.⁸⁴ The measure favours the allocation of funds to higher cost banana producers, in particular the Windward Islands. From 2004 country allocations will be reduced by a maximum of 15 per cent per year. It is not clear what formula will be used to determine this reduction coefficient. However, the Regulation states that reductions will be linked to gains in competitiveness: countries which improve competitiveness will have their allocations cut less rapidly.

10.1.2. Export revenue stabilisation schemes

Instruments under the European Development Fund provide compensatory aid to offset cuts in foreign earnings from temporary reductions in export prices and volumes. Prior to the Cotonou Agreement, compensatory aid was provided through the STABEX instrument. Several Caribbean countries have benefited from significant STABEX funding as a result of export losses in the banana sector. STABEX funding for the Windward Islands has been roughly equivalent to support from the SSA and SFA. STABEX funds are formally tied to supporting commodity sectors affected by export declines. However, in some cases these funds have been used to support broader economic diversification and development goals (for example, Public Sector Reform in Dominica). STABEX has been discontinued since 1999, but there are considerable unspent funds that will last for another few years.

⁸³ Communication from the Commission to the Council and the European Parliament, Special Framework of Assistance for traditional ACP suppliers of bananas, Biennial Report from the Commission, 2002 COM (2002) 763

⁸⁴ Commission Regulation (EC) No 1609/1999 of 22 July 1999 laying down the detailed rules for the implementation of Council Regulation (EC) No 856/1999 establishing a special framework of assistance to traditional ACP suppliers of bananas, OJ L 190/14, 23.7.1999

Under the 9th EDF, STABEX has been replaced by the FLEX instrument to provide aid contingent on natural disasters and fluctuations in export earnings, as well as provisions for debt relief. This is funded from 'B' envelope of National Indicative Programmes. The conditions required to access FLEX funds have so far proven to be very restrictive, and only 5 countries have benefited – none of the Caribbean banana producers. However, new rules proposed by the European Commission include special provisions for landlocked and island states.⁸⁵ This will make it much easier for Caribbean Islands affected by falling banana export revenues to access FLEX funds.

10.1.3. National Indicative Programmes (A envelope)

The main type of EC development assistance is the 'A' envelope of National Indicative Programmes. This provides resources for general development programmes that are planned on the basis of a country strategy with a five year duration. A rapid review of EC Country Strategy Papers for the Caribbean reveals the following priorities for National Indicative Programmes: rural development, health and education, trade development, macroeconomic management, infrastructure, private sector development, environmental projects, institutional development and good governance.

10.2. Allocation of EC Development Assistance

Table 10.1 below shows annual SFA allocations to the seven Caribbean banana producers. It should be noted that actual disbursements have been less than committed amounts (see section 4.3). The Windward Islands have received the largest SFA allocations of the 12 countries eligible for funding.

Table 10.1
Annual commitments from the Special Framework of Assistance (€ million)

	1999	2000	2001	2002	2003	Average SFA commitments 1999-2003
Belize	3.10	3.10	3.35	3.50	3.20	3.25
Dominica	6.50	6.50	6.70	6.40	5.90	6.40
Grenada	1.00	0.50	0.50	0.50	0.50	0.60
Jamaica	5.30	5.30	5.00	4.70	4.40	4.94
St. Lucia	8.50	8.88	9.20	8.80	8.00	8.68
St. Vincent	6.10	6.45	6.40	6.10	5.60	6.13
Suriname	3.10	2.70	2.70	2.50	2.20	2.64

Source: European Commission – personal communication

⁸⁵ The proposed new rules for the FLEX instrument are that countries would be compensated for export losses when 2 criteria are met: (i) a 10% loss of export earnings from goods (2% in the case of least-developed countries, landlocked countries and island states), and (ii) a worsening in the programmed public deficit. At present landlocked countries and island states are still subject to the 10% threshold. The maximum amount of compensation would be equal to the worsening of the public deficit. Export losses are calculated in relation to the arithmetical average of the earnings in the first three years of the four years preceding the application year. The criteria may be applied to total export losses or specifically to agricultural or mineral export losses."

Table 10.2 below shows commitments to the seven Caribbean producers under the ninth EDF. It distinguishes between the A envelope of National Indicative Programmes that covers programmed development activities, and the B envelope that covers contingencies, including the FLEX instrument. Commitments over the five year period covered by the ninth EDF are shown, as well as estimates of annual commitments. EDF allocations are generally lower than SFA commitments, except for Jamaica and Suriname).

Table 10.2
European Development Fund (9th EDF) Allocations to Caribbean Banana Producers

	9 th EDF 2002-07 allocations €m		Estimated annual commitments €m	
	A envelope	B envelope	A envelope	B envelope
Belize	7.8	1.0	1.6	0.2
Dominica	3.7	12.0	0.7	2.4
Grenada	3.5	3.9	0.7	0.8
Jamaica	73.0	27.0	14.6	5.4
St. Lucia	4.5	8.9	0.9	1.8
St. Vincent	5.0	16.0	1.0	3.2
Suriname	11.0	8.1	2.2	1.6

Source: European Commission Country Strategy Papers

An important question is the extent to which EC aid has offset past losses in banana export earnings and will compensate for projected losses in future. Table 10.3 compares average annual allocations of EC aid with changes in export earnings. Three measures of export losses are considered:

- *Previous losses.* The difference between the average export earnings in 1989-92 and the average for 1999-2002.
- *Previous and projected losses (high tariff scenario):* the difference between peak exports (average for 1989-92) and projected exports post-2006 under the high tariff scenario.
- *Previous and projected losses (low tariff scenario):* the difference between peak exports (average for 1989-92) and projected exports post-2006 under the low tariff scenario.

The table shows levels of aid as a percentage of export losses both for annual SFA allocations and for total EC aid allocations (including the SFA, and A and B envelopes of the NIPs). These figures should be considered to be a maximum because actual disbursements are generally substantially lower.

Key findings from the table are:

- SFA allocations have offset a substantial proportion of the export losses which occurred during the 1990s. In the Windward Islands SFA commitments have been equivalent to about half of the export losses.

- SFA allocations would be equivalent to only a small share of the total export losses under a low post 2006 tariff when compared with peak exports in 1989-92. In the Windward Islands SFA funds would be equivalent to 16-27% of export losses. When considering all EC aid this figure rises to 22%-41%
- In Jamaica export losses so far have been more than compensated by SFA funds. However, under the tariff-only regime, SFA funds will only offset a small portion of export losses. When EDF funds are considered in addition to SFA funds, the total projected export losses under the low tariff scenario would be nearly offset by EC aid receipts.

Table 10.3
Level of EC Aid in Relation to Banana Export Losses

		Belize	Jamaica	Dominica	St. Lucia	St. Vincent
Annual aid allocation	SFA only					
€m	SFA and NIP	3.25	4.94	6.40	8.68	6.13
		5.01	24.94	9.54	11.35	10.33
1989-92 to 1999-2002						
Export loss	€m	-13.2 (i.e. gain)	4.2	11.4	27.7	13.0
<i>Aid as % of export losses</i>	<i>SFA only</i>		118%	56%	31%	47%
	<i>SFA and NIP</i>		594%	84%	41%	79%
1989-92 to post 2006: high tariff scenario	Export loss	€m				
		-7.6 (i.e. gain)	16.4	23.4	41.0	26.3
<i>Aid as % of export losses</i>	<i>SFA only</i>		30%	27%	21%	23%
	<i>SFA and NIP</i>		152%	41%	28%	39%
1989-92 to post 2006: low tariff scenario	Export loss	€m				
		-0.2 (i.e. gain)	26.9	23.4	52.7	31.0
<i>Aid as % of export losses</i>	<i>SFA only</i>		18%	27%	16%	20%
	<i>SFA and NIP</i>		93%	41%	22%	33%

10.3. Key Findings from Evaluations of the Special Framework of Assistance

This section summarises the main findings of two recent evaluations of the SFA,⁸⁶ and draws on discussions with managers of the SFA programme in Brussels, EC Caribbean Delegations and Programme Management Units, as well as the findings of the Dominica case study (see Appendix F). All of these sources provide a rather critical assessment of the performance of the SFA, and highlight the following issues:

- **Unclear objectives:** The Regulation is loosely worded, states objectives in very general terms, and allows a wide range of interventions to support the banana sector and promote economic diversification. In the absence of clear guidelines, the content of country programmes has varied widely and has often been heavily influenced by individual decision makers. This has not always resulted in effectiveness and coherence.
- **Unrealistic expectations:** there has been a tendency to set unrealistic objectives, and to ignore market realities and long term trade perspectives. There has been a lack of independent assessment of the cost-effectiveness of proposed projects, and in some cases producers have been supported with little long-term prospect of achieving competitiveness under more liberal market conditions.
- **Incoherence between EC trade and aid policy:** In the absence of a decision on the future tariff level it is impossible to assess the potential competitiveness of producers supported under the SFA programme. Large sums of aid money have been used to support producers whose future viability could be put in doubt by an unfavourable decision on the tariff level.
- **Variable results:** it is too early to fully assess the results of the programme in raising competitiveness and supporting diversification. There have been some successes in raising field productivity in certain countries, for example Belize. However, efforts to promote institutional reform in the banana sector have generally performed poorly. In general, evaluations find that aid has limited power in raising industry competitiveness.⁸⁷
- **Misallocation and perverse incentives:** there has been widespread criticism of the use of the competitiveness gap formula to determine aid allocation:

⁸⁶ Hubbard, M., Herbert, A, and Roumain de la Touche, Y. (2000) Evaluation of EU assistance to ACP banana producers.

Landell Mills Ltd (2003) Evaluation of the Implementation of Council Regulation (EC) NO. 856/1999 Establishing a Special Framework of Assistance (SFA) for Traditional ACP Suppliers of Bananas.

⁸⁷ "Assistance to the banana export industry has helped, but has not been the critical factor in increasing investment in the industry. The critical factors have been market access, prices and prospects ... The power of assistance to help achieve competitiveness is limited." (Hubbard et al., 2000)

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- Spending more aid money in less competitive countries risks wasting resources on declining industries with no long term prospects.
 - The allocation formula provides no incentive to increase competitiveness. While the reduction formula (post 2004) does reward increased competitiveness, its impact will be rather limited.
 - The competitiveness gap measure may no longer be appropriate because the majority of funds are now used to support diversification. Investment requirements for diversification are not directly related to the competitiveness gap.
 - The measure does not take account of quality differences: higher cif prices may imply better quality rather than a lack of competitiveness.
 - cif prices are only loosely related to production costs because they also include transportation and insurance costs, as well as quota rents extracted by license holders. cif prices may therefore provide a very misleading picture of competitiveness.
- Limited absorption capacity: several managers of SFA country programmes report that recipient countries have difficulties absorbing SFA funds. In the Windward Islands, it is particularly difficult to find useful outlets for additional aid funds because there is a high existing level of aid spending and administrative capacity is stretched. In addition, there is still a common tendency amongst politicians in the Windward Island to advocate state interventionist modes of development, which hinders progress in implementing reforms required to restructure the banana industry and support economic diversification. Arguably, the main constraints to achieving the objectives of the SFA often relate more to political and capacity constraints within recipient countries than the level of funding available.
 - Inappropriate subsidies: several country programmes (e.g. Jamaica, St Vincent) have subsidised farmer's operating costs, for example, by funding spraying and water management. In the long-term these subsidies are not sustainable, and, by shielding growers from the realities of the market, may hinder efforts to raise competitiveness. The provision of grants for infrastructure investments has also distorted investment decisions. Evaluations of the SFA have recommended that support should usually be provided in the forms of loans managed as part of a revolving fund, so as not to influence commercial decision making. This approach has been followed in Belize, where SFA funds appear to have had a positive impact on raising investment and boosting productivity.
 - Ill-defined approach to diversification: there has been a major shift towards promoting diversification, and the majority of SFA funds are now spent outside of the banana sector. Although this is a welcome trend, the effectiveness of this support

may be limited because it is usually provided in the form of standalone projects rather than support to comprehensive strategies to promote diversification (see section 3.3).

- Limited social support: very limited assistance has been provided for social support, in spite of the large numbers of farmers dropping out of the banana industry. However, some of the more recent SFA programmes (e.g. Windward Islands) now include social support programmes.
- Rigid procedures and disbursement delays: rigid EC procedures have resulted in significant disbursement delays. Of the €175 million allocated to the SFA between 1999 and 2002, only 53% has so far been covered by Financing Agreements and only 40% has been disbursed.⁸⁸ The preparation of annual action plans and Financing Agreements has proven to be administratively burdensome for the EC and recipient governments. EC financial and tendering procedures have also held back disbursements. SFA programme managers report that EC procedures are a major frustration that take up much of their time, and divert their efforts away from more substantial issues of strategy making, programme design and monitoring.

⁸⁸ European Commission, personal communication

11. FUTURE FINANCING REQUIREMENTS

11.1. Arguments for Additional Aid

If the European Community opts for a low tariff post-2006 there are certain to be calls for additional aid for the Caribbean banana producers adversely affected by the change in the trade regime. There are likely to be demands for a successor arrangement to the Special Framework of Assistance, which will be phased out after 2009. The principal arguments for additional aid are as follows:

- High cost Caribbean banana exporters will be negatively affected by the move to a tariff-only regime, especially under the low-tariff scenario. These losses will be in addition to those resulting from earlier changes to the banana regime.
- Because the SFA was formulated in 1999 before discussions on the tariff-only regime began, it could be argued that the level of assistance was set according to the needs arising from earlier changes to the banana regime, and did not foresee the introduction of a tariff-only regime.
- While the level of assistance provided by the SFA was fairly substantial in comparison to losses experienced during the 1990s, the level of assistance appears to be rather low in comparison to total losses that would result from the introduction of the tariff-only regime in addition to earlier changes (see Table 10.3).
- After 2009 Caribbean countries will face a double shock resulting from the introduction of the tariff-only regime and the phase out of substantial SFA resource flows.
- The Banana Protocol places the European Community under certain obligations to ACP banana producers. However, it is notable that the legal requirements of the Banana Protocol under the former Lomé Convention have been removed from the Second Banana Protocol under the successor Cotonou Agreement. Whereas the former Banana Protocol guaranteed ACP states market conditions “no less favourable than they had previously enjoyed”, the Second Banana Protocol contains no such undertaking and simply states that “the Community agrees to examine, and where necessary take measures aimed at ensuring the continued viability of their banana export industries and a continuing outlet for their bananas on the Community market.”⁸⁹

⁸⁹ Article 1, Second Banana Protocol, Protocol 5 of the Cotonou Agreement

11.2. Arguments Against the Continuation of the SFA

Although the above arguments carry some weight, there are also several reasons to oppose an extension of the SFA:

- The SFA is unlikely to be a relevant instrument after 2009. For those countries that have not succeeded in becoming competitive by 2009, further assistance is unlikely to be helpful. Other countries that have achieved significant productivity gains using SFA funds (e.g. Belize) should be in a strong enough position to sustain the development of their banana industries using private sources of finance after 2009. While diversification and social support will still be major priorities for several Caribbean countries after 2009, there are probably more appropriate instruments to support diversification than the SFA.
- There appears to be very little appetite amongst EC officials and SFA programme managers in Brussels and the Caribbean for an extension of the SFA. The consensus view is that the SFA was conceived as a one-off intervention designed in the context of a specific change to the banana regime, and that it should not become a permanent feature of the EC development cooperation.
- Although new SFA commitments will cease in 2009, previously programmed resources will continue to be spent for several years thereafter, possibly until as late as 2015. The duration of SFA support may therefore be sufficiently long to assist countries to meet the challenges of adapting to a tariff-only regime.
- In the case of the Windward Islands there is evidence that most of the employment impact of changes to the banana regime has already been felt, and the impact of the introduction of the tariff only regime will be more limited.
- There are other sources of development assistance available to the Caribbean countries provided by the EC and other donors. The FLEX instrument should provide some additional support for Jamaica and the Windward Islands if the EC agrees on the proposed rule changes. Table 10.2 provides an indication of the level of resources available to each country from the FLEX instrument. Although this will be somewhat lower than the current present level of SFA, it will nevertheless be significant given the small size of Caribbean island economies.
- The capacity to absorb large increases in aid spending is limited, especially in the Windward Islands.
- All of the Caribbean countries benefiting from the SFA are middle-income countries with per capita incomes in excess of \$3,000 (except for Suriname). These countries already receive very high levels of aid. In per capita terms, Dominica is the most aid dependent country in the world (\$254 per capita in 2001). The Windward Islands as

a group received an average of \$132 per capita in aid between 1998 and 2002. This compares to \$20 per head in the Least Developed Countries in 2001.⁹⁰ In the light of these figures it may be difficult to make a case for additional aid spending in Caribbean countries, especially in the context of the UK's efforts to encourage the EC to spend a greater portion of its aid budget on low income countries.

11.3. Recommendations Regarding Future Aid Strategies

The findings in this report will require further discussion before firm policy positions can be defined. However, some preliminary recommendations can be made on the need for further assistance to assist Caribbean banana producers to adjust to the tariff-only regime.

- The impacts of the introduction of the tariff-only regime in 2006 will continue to be felt after the SFA is phased out around 2009. It will be important to ensure that adequate donor resources are available to support industry restructuring, exit and diversification strategies. Where needs are greatest (i.e. the Windward Islands) there will be a need to ensure that fresh resources are made available as the SFA is phased out. However, it would not be justified to provide higher levels of support than at present.
 - Suriname and Belize, by virtue of their more competitive banana industries, should not require any additional support after the phase-out of the SFA.
 - In the case of Jamaica there is not a strong case for additional aid because economic dependence on bananas is relatively low. The resources required to adjust to the tariff-only regime should be available from other donor, government and private sources without the need to provide additional aid.
 - The Windward Islands will be in greatest need of support, particularly under the low-tariff scenario. A sudden drop in aid flows following the phase-out of the SFA after 2009 could be damaging. In this context some form of transitional aid facility to support economic diversification would be justified. However, it is not recommended to increase aid flows above present levels because absorption capacity is already under strain.
- While additional support may be justified in some cases, it should no longer be directed specifically at the banana sector, and should be provided in the form of mainstream development funding. In the Windward Islands the main priorities will be economic diversification and mitigating the social impacts of the decline of the

⁹⁰ Aid figures for the Windward Islands were derived from the OECD/DAC database. Figures for the Least Developed Countries are quoted from the UNDP Human Development Report 2003. In terms of GDP, average aid ratios for the Windward Islands in 1998-2002 were 3.1% compared to 7.5% for the Least Developed Countries in 2001

banana industry. The SFA is not well suited to support these objectives. Consequently, it should be phased out and replaced by mainstream donor programmes, including the A and B envelopes of the National Indicative Programmes, as well as other multilateral and bilateral donor support. There may be a case to expand these programmes in the Windward Islands to compensate for the loss of SFA resources.

- In general, donor funding is most likely to be effective if it is provided in support of comprehensive, nationally owned strategies for poverty reduction, economic diversification and growth (see section 3.3). Where conditions allow, coordinated, multi-donor budget support would probably be a more effective means to support these strategies than standalone projects.
- It is not recommended to establish a new SFA facility after 2009. However, while the SFA is still in existence, there is a need to improve the relevance, efficiency and effectiveness of this instrument. Unfortunately, the available options are limited because of the difficulty of modifying the EC Regulations governing the use of the SFA. However, there is scope to:
 - refocus the content of SFA programmes at the national level on the most relevant needs,
 - develop expertise according to new priorities, such as helping farmers to meet EUREP-GAP standards, fair trade and organic certification requirements etc,
 - avoid or phase out unsustainable activities that subsidise banana producers' operating costs,
 - improve approaches to promoting diversification and providing social support,
 - ensure greater lesson learning and consistency between country programmes,
 - tackle disbursement delays and bureaucratic obstacles.

11.4. Additional Recommendations

A key issue that has been highlighted by this report is the lack of detailed research evidence on the socio-economic and environmental impacts of preference erosion. This makes it difficult to fully assess the level of hardship and challenges caused by changes to the EU banana regime. While this report suggests that the impacts of preference erosion have not been particularly severe, caution should be exercised in interpreting the findings of this short, desk based review. More detailed in-country research would be required to assess more fully the socio-economic and environmental impacts of preference erosion.

Another topic where further research is required is to study in greater depth the need for and suitability of alternative mitigation strategies. This report has made some general recommendations on the need for a balanced approach covering measures to support industry competitiveness, exit strategies and economic diversification. However, more specific findings can only be derived through in-country research on industry competitiveness, social support needs and diversification options.

The issues described in this report are not unique to the problems of the banana sector in the Caribbean, but are common to numerous countries facing the problem of commodity dependence. In addition to considering the specific problems of the Caribbean banana industry, it is important to engage in broader discussions on strategies to promote diversification in commodity dependent economies, particular where they will be affected by preference erosion. In the context of EC development cooperation this might require new thinking on issues such as: (i) additional NIP allocations for small island, commodity dependent countries, (ii) further discussion on the modalities and management of the FLEX instrument, and (iii) refocusing Country Strategy Papers and all EC development aid instruments on economic diversification in commodity dependent countries.

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APPENDIX A. THE EU BANANA TRADE MODEL WHEN LATIN AMERICAN SUPPLY IS NOT PERFECTLY ELASTIC

Our analysis of the effects of the change of the EU banana regime from a tariff-quota to a flat tariff relies on the assumption that the supply of Latin American producers to the EU is perfectly elastic, i.e. that Latin American producers are willing to supply any volume demanded above a certain price threshold, but nothing below that threshold. This will be the case if they always are willing to supply at cost and if their unit cost does not change with increasing volumes. In graphic models, perfectly elastic supply is represented by a horizontal supply schedule.

The assumption of horizontal supply curves is convenient because it significantly simplifies economic analysis. In the present case it allows us to limit the analysis to the European market, while ignoring the world market. In doing so, it is possible to produce forecasts without having to resort to the construction of complex simulation models, which would not have been within the scope of this project.⁹¹

However, to the extent that the assumption of perfect elasticity is not realistic it will also lead to biased results. We consider that in the present case, Latin American supply is likely to be highly elastic, but not perfectly elastic. Therefore, there will be a moderate bias to our projections. In this Appendix, we will identify the nature of the biases introduced by the assumption of perfectly elastic Latin American supply.

A.1. The Price-Gap Bias

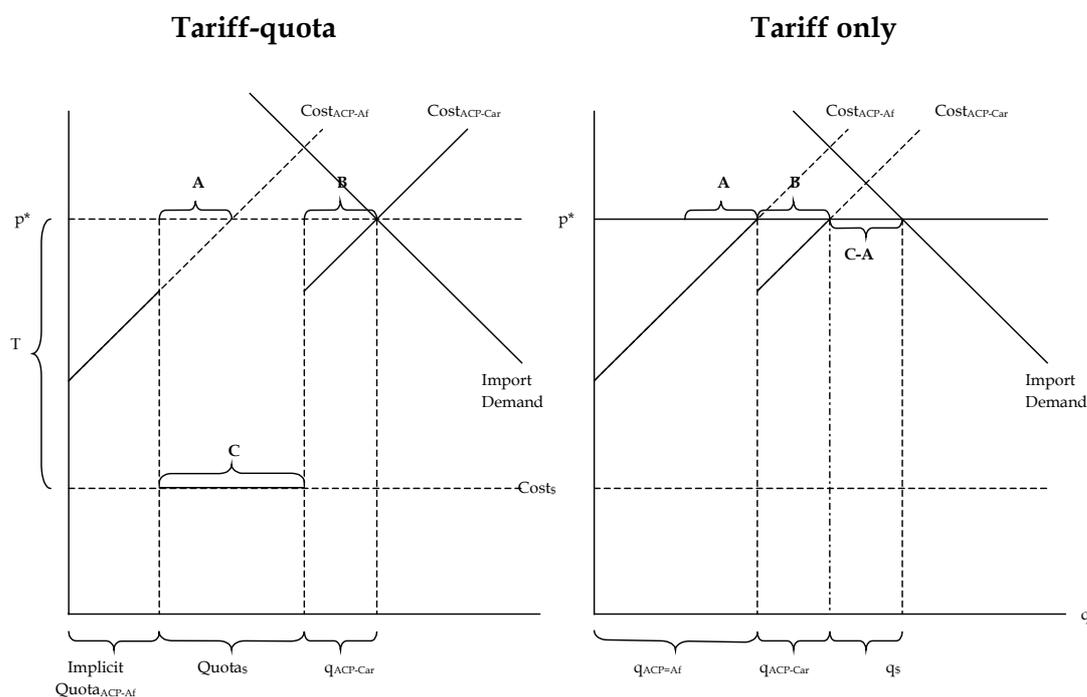
We have used a price gap method to establish the tariff equivalent to the current EU quota system for bananas, i.e. the uniform tariff rate that would produce the same market price as the quota. The price gap measures the tariff equivalent as the difference between the unit cost of the quota-constrained suppliers and the current market price. This methodology will always be appropriate if supply of Latin American producers is perfectly elastic. It will still be appropriate if Latin American supply is not perfectly elastic, but Latin American producers are the only ones to face a quota constraint. In case of the EU banana market, however, there is a second group of constrained producers: Producers from Africa (and, possibly, the Dominican Republic) appear to face quantitative restrictions because they have difficulties in obtaining import licences. In a situation characterised by inelastic Latin American supply AND constrained African supply, the price gap method will underestimate the tariff equivalent.

⁹¹ A number of studies on this subject based on simulation models have been produced in recent years. Their results are summarised in Appendix C.

A.1.1. Perfectly elastic Latin American supply

We first consider the case where Latin American supply is perfectly elastic, but African supply is constrained (see Figure A.1). The important property of the perfectly elastic Latin American supply function ($Cost_{\$}$) for our purposes is that it alone will determine the EU price level.⁹² Prices cannot rise above the level implied by the supply function because if they were to do so, Dollar supplies would simply expand until they were brought back to the same level.

Figure A.1
Tariffication with Perfectly Elastic Latin American and Constrained African Supply



The price gap approach, properly estimated, would result in a tariff level “T” that was just large enough to result in the horizontal Dollar supply function shifting upwards to the same level as the EU prices that prevailed under the tariff-quota system. The result would be that EU prices would remain unchanged.

We assume that Caribbean and African ACP producers have an upward sloping supply function. Accordingly, the level of output that they would supply under a tariff-only system would be determined by the intersection of their supply function with the prevailing EU

⁹² Assuming that the tariff is not set at such a high level as to price Dollar supplies out of the market entirely – i.e. a level at which Dollar supplies become so uncompetitive that the totality of EU demand is taken up by African and Caribbean ACP producers and EU domestic producers.

price. Since the EU price would be at the same level as before, Caribbean ACP producers would continue to supply the same amount as they were previously able to do.

African ACP suppliers however are assumed to have faced *de facto* constraints under the tariff-quota system. Under a tariff only system they would expand their supplies since this *de facto* quota is lifted. This increase in African ACP supplies would be at the expense of Dollar suppliers, who would supply less than they do under the current tariff-quota system.

Under the current tariff-quota system, we assume that African ACP suppliers would like to supply an additional volume of bananas to the EU equal to the amount A but are prevented from doing so by the *de facto* quota. Dollar suppliers supply C, the amount of their quota, while Caribbean ACP suppliers supply amount B. Under the tariff-only system the EU price is unchanged, but African ACP suppliers now supply an additional volume A, while Dollar suppliers supply a smaller amount (C minus A). Caribbean ACP supply remains unchanged at B.

Under the assumption of a horizontal Dollar supply function, the price-gap method, properly implemented, will maintain pre-existing EU prices and, accordingly, a similar set of market circumstances as was previously faced by Caribbean ACP suppliers.

A.1.2. Inelastic Latin American supply

Now let us relax the assumption of a horizontal supply function and assume a more conventional upwards sloping supply function for Dollar suppliers. In this case we can no longer assume that the EU price will be determined solely by the Dollar producers' supply function alone. Instead the price will be determined by an aggregated supply function across all three producing regions that will be upward sloping along its entire length.

Now consider what happens when we impose the price-gap based tariff "T" on Dollar producers. A price level that equates to the pre-existing EU price level is no longer a sustainable equilibrium. At the old EU price level Caribbean ACP and Dollar supply would remain at their levels under the tariff-quota system. But African ACP supplies would expand by amount A. Accordingly, at this price level supply would exceed demand and prices would have to fall.

The fall in prices to their new equilibrium level⁹³ will have the following effects:

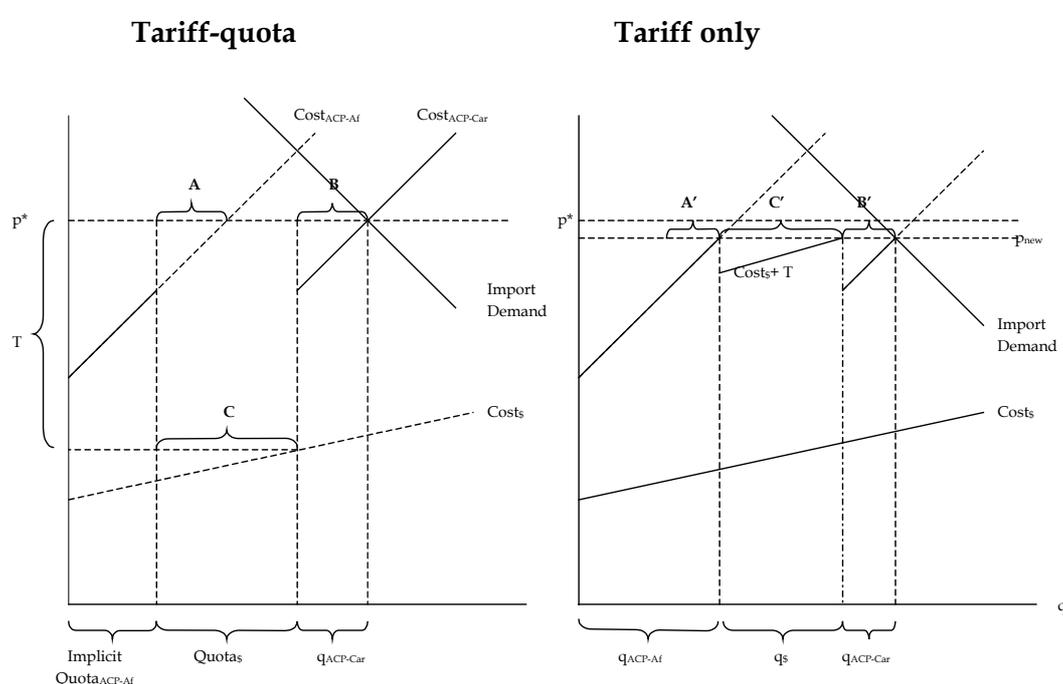
- African ACP supplies will increase above their level under the tariff-quota system, but by an amount less than A (A' in the diagram below).

⁹³ The level at which the aggregate supply of the three producing regions equates to demand.

- Dollar supplies will decrease below their level under the tariff-quota system – since their supply function is upward sloping a reduction in price will result in a reduction in their output.
- Caribbean ACP supplies will decrease below their level under the tariff-quota system – since their supply function is upward sloping a reduction in price will result in a reduction in their output.

This is illustrated in the Diagram below.

Figure A.2
Tariffication with Inelastic Latin American Supply and Constrained African Supply



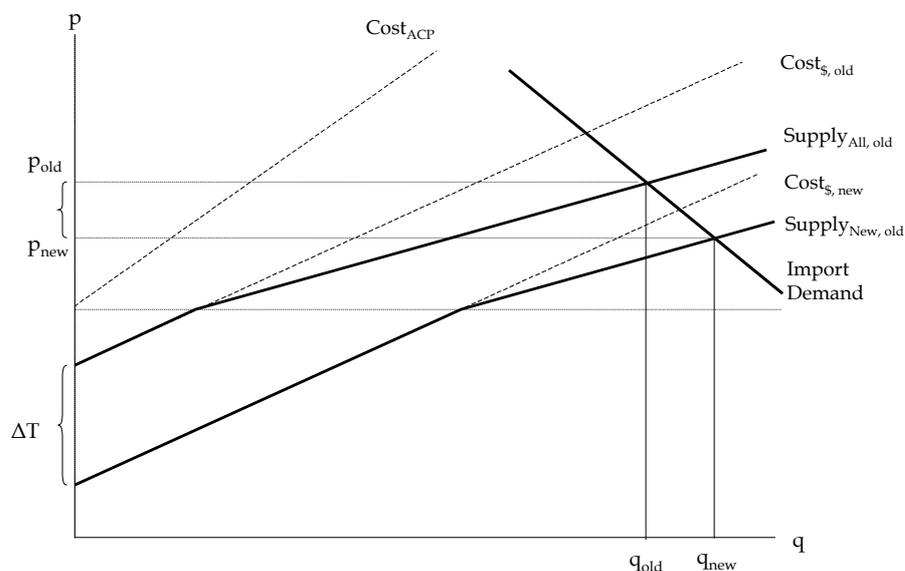
Accordingly, if the Dollar supply function is upward sloping, a tariff level estimated using the “price gap” approach will fail to maintain an equivalent level of prices or quantity supplied by Caribbean ACP producers. In fact Caribbean ACP suppliers would face lower prices across a smaller output than they did previously.

A.2. The Tariff Reduction Bias

Because with horizontal Dollar supplies market price will at all volumes be equal to the constant unit cost of Latin American suppliers with the tariff added, a reduction in the level of the tariff will lead to a similar reduction in the price level (i.e., when the price prior to the reduction of the tariff was €100 and the tariff is reduced by €10 the price will fall to €90). Our results of section 4.3 rely on this relationship.

If the Latin American supply curve is not horizontal but upward sloping, a reduction in the tariff level will result in a smaller reduction in the price level. This is illustrated in Figure A.3. Dashed lines represent the cost curves of Latin American producers ($Cost_{\$}$) and ACP producers ($Cost_{ACP}$).⁹⁴ These can be aggregated horizontally to construct a market supply curve ($Supply_{All}$; this has a “kink” at the price where the ACP producers start supplying). Because both cost curves are upward sloping, the market supply curve is upward sloping as well. Now suppose a tariff reduction of ΔT . This will lead to a shift of the Latin American cost function from $Cost_{\$,old}$ to $Cost_{\$,new}$, and the market supply curve will shift accordingly. This leads to a reduction of the equilibrium price from p_{old} to p_{new} . However, the price reduction is smaller than the tariff reduction ($p_{old} - p_{new} < \Delta T$). Two effects are responsible for this. First, the downward pressure on price generated by the shift in the Latin American cost curve is cushioned by the contraction of the ACP supplies as prices start to fall (graphically, this is represented by the fact that the vertical difference between the two market supply curves is smaller above the “kinks”). Second, as prices fall, larger quantities are demanded. Both ACP and Latin American suppliers will move up their cost curves in order to meet the extra demand.

Figure A.3
Effects of a Tariff Reduction with Inelastic Latin American Supply



The difference between the price and the tariff reduction (and therefore the bias to our projections) will be smaller

⁹⁴ For simplicity, we drop the distinction between Caribbean and African ACP suppliers in this analysis. This does not affect the results.

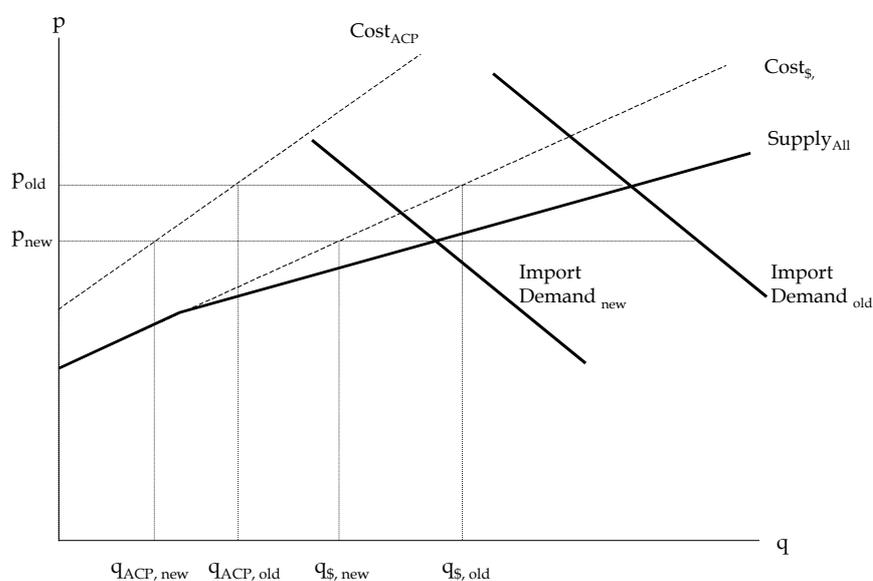
- the more elastic Latin American supply. When the Latin American supply curve is almost horizontal, these producers will i) almost match the reduction in ACP supplies as prices fall, and ii) have very small cost increases as they move up their cost curve in order to meet additional demand;
- the more inelastic ACP supply. When ACP supply is very inelastic, these producers will not react with sharp volume contractions when prices start to fall after the tariff reduction. Suppose ACP supply were perfectly inelastic (i.e., the cost curve would then be vertical): the “kink” of the market supply curves would then disappear;
- the more inelastic demand. Suppose demand were perfectly inelastic (a vertical demand curve). Falling prices after the tariff reduction would then not lead to increased demand, and producers would, on aggregate, simply supply the same amount as before but at lower cost.

A.3. The Demand Bias

If Latin American supply is perfectly elastic, this implies that these producers are willing to supply any given volume demanded at their constant unit cost. Variations in demand therefore have no effect on market price, and consequently on the volumes the ACP producers can supply at that price. Therefore, reductions (or increases) in demand are entirely absorbed by the Latin American suppliers.

If Latin American supply is not perfectly elastic, variations in demand affect both the market price and the volumes supplied by both groups of producers, as can be seen in Figure A.4.

Figure A.4
Shifts in Demand with Inelastic Latin American Supply



When demand contracts, all producers will be forced to move down their cost curves, so that the market price falls and volume decreases for all. The effect on ACP supplies will be the larger, the

- more inelastic Latin American supplies. If Latin American supplies are very inelastic, their producers will react with larger price reductions to reductions in demand;
- more elastic ACP supplies. If ACP supplies are very elastic, they will react with large volume contractions as price falls in response to the decrease in demand.

APPENDIX B. THE PRICE-GAP METHOD

One of the objectives of this report is to identify the tariff to apply to Dollar banana imports that will maintain EU wholesale prices at their current level. This requires that the tariff equal the difference between EU wholesale prices under the current regime and Dollar producers' pre-tariff costs of supplying the EU. Attempting to estimate this difference is known as the "price gap" approach, and is widely used as a practical basis for estimating the tariff equivalence to non-tariff trade barriers.

How can we estimate these prices?

B.1. The EU Wholesale Price

By "wholesale price" we mean the EU price that pertains once trade barriers have had their effect but before moving onwards down the supply chain. A proxy for this can be obtained by measuring the prices of bananas sold into the EU by producers that are not constrained in their ability to supply the EU by trade barriers. Suppliers that are constrained by the trading regime would typically supply below EU market prices (with the rents accruing to whoever holds the rights to import under the various quotas).

As discussed, it seems that the EU import regime is, in practice, constraining supplies not only from Dollar sources, but also from ACP suppliers from Africa (and possibly the Dominican Republic). Accordingly, supplies from these sources cannot be assumed to give a reliable indication of internal EU prices; including them in the estimation of the EU price will give an underestimate.

In contrast the Caribbean ACP countries have not in recent years faced either an effective quota constraint or had to pay a tariff. Accordingly we consider that using their prices in supplying the EU provides a reasonable proxy.

In terms of estimation, there are broadly two options. First, the EU cif import prices could be used (which include transport costs). Second, Caribbean fob export prices could be used if subsequently adjusted for transport costs to the EU. Which approach is better depends principally on the accuracy of the measurement, and which data set is most consistent with that used for the estimation of the external Dollar price.⁹⁵

⁹⁵ Since it seems that Caribbean supplies are unlikely to attract quota rents (i.e. they are supplied up to the quantity that it is profitable to supply at the margin), both fob and cif prices should provide reasonable indicators. Which to choose depends principally on the reliability of measurement and estimation. This is in contrast to imports from Dollar sources where quota rents may well influence EU cif prices and accordingly fob prices adjusted by transport costs, if measurable, may be more reliable.

B.1.1. The costs of Dollar suppliers

Dollar suppliers' costs of supplying the EU can be proxied in three ways.

- First, export prices at point of origin can be used as an estimate of the "world price" pre-transport costs. An estimate of the costs of supplying the EU could be obtained by adding estimated transport costs to the export prices. Obviously this approach carries the problem that transport costs need to be estimated.
- Second, cif import prices to a "near country" to the EU that did not impose trade restrictions could be used as a proxy for the costs of supplying the EU including transport costs but without trade restrictions. There are several problems with this approach. One is that the "near country" may not be comparable. The second is that the cif import price data tends to be quite volatile across countries and across time, yielding a wide range of estimates.⁹⁶
- Third, cif import prices to the EU provide a direct estimate of the costs of supplying the EU. Unfortunately they are also likely to be inflated by the effect of the EU trade barriers, i.e. some of the quota rents or the Euro 75 tariff within the quota may be reflected in the cif import prices.

B.1.2. African ACP and Dominican Republic exports

It appears that imports from Africa and the Dominican Republic are currently *de facto* constrained, and that at current EU prices these suppliers would increase banana exports to the EU to some degree if they were permitted to do so.

It follows that if the tariff is set such that the EU price remains at its current level, this would not leave the distribution of EU imports unchanged. Assuming that African ACP suppliers and the Dominican Republic face zero duty, they would be able to expand their supplies to the EU.

At whose expense would this expansion be? The answer depends upon whether the supply of Dollar bananas is relatively elastic or not. If Dollar supply is highly elastic, then the expansion of African supply would be at the expense of Dollar producers, not that of Caribbean suppliers. The reasons for this somewhat counterintuitive answer are explained

⁹⁶ Raboy (2003), for example, finds a very sharp and unexplained increase in Norwegian cif import prices in 2002. He also finds that Eastern European prices are far lower than Norwegian levels. He attributes this to dumping in Eastern Europe. There may be an element of truth in this, but it demonstrates the difficulty in interpreting near country data. Moreover, it suggests that banana pricing to Norway is unlikely to be competitive – if it was, why would the suppliers not also be dumping in Norway? The answer is likely to be that Norwegian demand is more inelastic and can sustain higher prices, so banana suppliers aim to maintain higher price there. But if they are able to do this, then supplies to Norway cannot be presumed to be on a competitive commodity market basis and, accordingly, not a sound basis for estimating the "external" price for the EU. Norwegian cif import prices would be likely to significantly overstate the genuine cost of supply of Dollar producers.

in more depth in Appendix A. In summary, the reason is that if Dollar supply is highly elastic such that their supply curve is virtually horizontal, then the dollar supply function, plus the tariff that is ultimately adopted by the EU, will determine prices in the EU marketplace.⁹⁷ Both Caribbean and African suppliers will simply supply up to the point at which their marginal costs are equal to that price. If the tariff is set using the price gap approach to ensure that EU prices remain as they are currently, then Caribbean suppliers would continue to supply as they do currently, African supplies would expand, and Dollar supplies would contract.

If, alternatively, the Dollar supply schedule is steeply upward sloping, then the price gap approach will not provide full protection to Caribbean suppliers. What would happen is that African supplies would expand forcing EU prices to a lower level than they are currently. Supplies of both Dollar and Caribbean suppliers would decrease as prices fell.

The supply function of Dollar producers is a matter of empirical fact. It seems unlikely to be sharply upward sloping (since banana production in these countries is highly industrialised). But neither is it likely to be perfectly elastic (i.e. entirely horizontal). Accordingly, we would expect the price gap approach to fail to result in the current situation being recreated – prices would fall at least to some degree with consequent damages for Caribbean ACP suppliers. Thus we regard our estimates using the price gap approach as a lower bound of the tariff equivalent, defined as the uniform tariff that would produce the same EU banana price as the current quota system.

B.2. Limitations of the “Price Gap” Approach

The price gap approach provides a rough-and-ready workhorse for estimating tariff equivalence. It is also the only approach that we have attempted to quantify within the scope of this study. However, it is important to be aware that there are theoretical and practical objections that can be made to the approach and which could apply in the case of banana exports to the EU. These are summarised below.

B.2.1. Theoretical problems with the price gap approach

1. *The approach assumes that the “internal” EU price and the “external” world price are both determined in a competitive market.* If supply to both is competitive then the differences in prices will reflect the difference in cost at the margin between “internal” (ACP) producers and “external” (Dollar) producers. If supply is not competitive then the price gaps would reflect price-cost mark-ups in an imperfectly competitive market with three implications. First, the difference between “internal” and “external” prices will not necessarily reflect differences in costs. Second, adding to the marginal cost of

⁹⁷ Unless Dollar supplies are priced out of the market entirely, which seems unlikely over the range of plausible tariffs that they might face.

Dollar suppliers (by increasing the tariff they face) cannot be presumed to be fully passed on by them into prices – they might simply accept lower margins in return for higher market shares. Third, and emphasizing the previous point, if African ACP supply would expand under a tariff-only regime, it could spark a price war in supply to the EU, with prices falling rapidly, despite the tariff on Dollar supplies. We consider that there are *a priori* reasons to suppose that the supply of Dollar bananas is not fully competitive.⁹⁸ Accordingly we consider that the prices of Dollar producers are likely to overstate their costs, and their use might therefore underestimate the tariff equivalent.

2. *The approach assumes that Dollar and Caribbean ACP supplies are of equivalent quality. If Caribbean ACP supplies were of lower quality, adoption of the price gap approach would underestimate the tariff level necessary to provide full protection.*
3. *The probable expansion of African supply will tend to push prices downwards if tariffs are set using the price gap approach. As explained above, the *de facto* constraints on African supplies under the current system suggest that under a tariff-only system African supplies will increase with the effect of reducing EU prices. Again this suggests that estimates based on the price-gap approach should be viewed as a lower bound.*

While we have not attempted to quantify the effects of these theoretical problems, on balance we consider that their implication is that the price gap approach will understate the tariff required to maintain current EU price levels and quantities imported from the Caribbean ACP suppliers.

B.2.2. Practical limitations of the price gap approach

There are several practical limitations of the price gap approach.

1. Measurement of the prices required is not straightforward, as discussed in Section B.2.3 below.
2. It provides a basis for estimating the tariff equivalent to a quota only at a particular point in time (in this case between 2001 and 2003). But the tariff-only regime will be introduced in 2006 by which time demand conditions might have changed and the relative competitiveness of Caribbean ACP suppliers to Dollar or African suppliers might have changed. Moreover, further changes can be expected beyond 2006. Thus a tariff level estimated on the basis of 2001-2003 data might not provide the same level of protection in 2006 and beyond. This issue is discussed in detail in section 4.4.

⁹⁸ Recall Raboy's (2003) analysis that low import prices to Eastern Europe reflected dumping in those areas, contrasting sharply with the high prices maintained in Norway. This is suggestive that banana supply is not a fully competitive commodity market. The fact that the trade is dominated by a few major fruit importers further suggests that prices should not be presumed to reflect perfectly competitive markets.

B.2.3. Choice of price benchmarks

In principle, there were two data sets available for the price gap exercise:

- Eurostat data on imports of bananas by volume and value on a cif basis, allowing the construction of unit values of imports by country of origin and country of importation.
- FAO data providing export volumes and values on an fob basis by exporting country, again allowing the construction of unit values of exports. This data does not specify country of destination. Fob data does not include transport costs, thus an estimate of transport costs from country of origin to the EU must be adopted.

We do not have great confidence in either of these data sources. The Eurostat data suggests that unit values for imports of bananas varies sharply according to the importing country, even for the same suppliers. Moreover, these unit values reflect transfer prices for the most part (since vertically integrated suppliers account for a large proportion of the trade), rather than actual prices in a traded market. Finally, in the case of imports from Dollar suppliers, the EU cif prices are likely to reflect, in part at least, the quota rents. Accordingly we consider, on the basis of the evidence that we have seen, that these data are of doubtful accuracy and are likely to understate the tariff equivalence of the current regime.

The FAO fob export data may also be of questionable accuracy and also reflect transfer prices. However, it does have the advantage that the data should not include quota rents to a material degree.⁹⁹ The principal drawback of fob prices is that they need to be adjusted to reflect transport cost, requiring further estimation.

There are three candidates for estimating the price¹⁰⁰ gap between Dollar suppliers and Caribbean ACP suppliers. They are:

- (Caribbean ACP cif EU import price) minus (Dollar cif EU import price). We consider this comparison likely to underestimate the tariff equivalence due to the probable existence of quota rents in the Dollar EU cif price.
- (Caribbean ACP cif EU import price) minus (Dollar fob export price plus estimated transport costs). We consider that this comparison places excessive reliance on the estimation of transport costs from Latin America to the EU since one measure (Dollar fob export prices) relies upon the estimate while the other does not.

⁹⁹ Some quota rents could also be included in these prices since they are also likely to be transfer prices in many cases. However, their impact on fob prices in general should not be large because the majority of supplies are to the USA, where there are no quota restrictions.

¹⁰⁰ In all cases a reference to "price" is in practice a unit value.

- (Caribbean ACP fob export price) minus (Dollar fob export price). We consider that this provides the most reliable basis for estimation since it does not suffer from the quota rent problem. Fob prices do not include transport costs and in principle these comparisons would require an estimate of transport costs to be added. However, it seems that transport costs from the Caribbean ACP countries to the EU are, if anything, higher than from Dollar sources.¹⁰¹ Thus the fob price comparison will tend to understate the real price gap.

Therefore, for our price gap analysis we have compared Caribbean ACP fob export prices with Dollar fob export prices. The results of the exercise are presented in section 4.2.

¹⁰¹ See section 3.1.2.

APPENDIX C. RESULTS FROM BANANA TRADE SIMULATION MODELS

Since the EU agreed to reform its banana trade regime by 2006, several authors have used multi-country static partial equilibrium models (“simulation models”) to estimate the tariff equivalent and / or the effects of volumes supplied by the different producer regions under different tariff scenarios. The production of forecasts based on simulation models is much more onerous than the methods we have used in our projections, and generating such a model was not within the scope of this project.

Like the methods used in this study, simulation models need to rely on assumptions on the nature of competition in the market, the shape of supply and demand functions, and on the future evolution of supply and demand conditions. The advantage of simulation models with respect to the methodologies used in this report is that they allow quantifying the effects of changes in the assumptions on the results.

Typically, such models look at a number of export countries or export regions (e.g., the Latin American suppliers, the Caribbean ACP suppliers and the African ACP suppliers) and import countries or regions (e.g. the EU and the rest of the world). Each export region is represented by a supply function, the shape of which (the elasticity of supply) is estimated (or assumed where estimation is impossible or deemed too onerous). Similarly, each import region is represented by a demand function and its respective price elasticity. It is then assumed that all markets will always reach equilibrium, i.e. prices will be established such that the total amount of supply generated by all export regions equals the aggregate demand of all import regions.

The current market equilibrium (i.e. current prices and volumes in the different import and export regions) is taken as the point of departure of the model. Forecasts can then be made by imposing changes on the demand and supply curves (for example, annual shifts in demand according to a long-term trend that might be determined by income or population growth; annual shifts in supply according to a trend determined by technological progress; varying restrictions on supply implied the changing trade regimes in the import regions) and re-calculating the equilibrium.

The main results of three recent studies are reported in Table C.1 below.

Table C.1
Recent Banana Trade Simulation Models

	Guyomar et al. (2002), (1999)	FAO (2003)	Borrell et al. (2004), (1990)
Model setting	2 import regions (EU, Rest of the World), decomposed into 4 groups of countries; 3 export regions (EU DOM, ACP, Latin America), decomposed into 7 groups of countries.	10 import regions, 30 export regions, organised in three markets (Europe, America and Asia).	Number of import and export regions not specified.
Demand functions	Assumption of constant elasticities Some elasticities assumed, some estimated. Elasticities range from -0.3 (Rest of the World) to -1.0 (UK)	Assumptions of constant elasticities. Elasticities were estimated. Price elasticities range from -0.2 to -1. Income elasticities range from 0 to 1.5. Growth trend in GDP per capita included in demand function.	Assumption of constant elasticities. Demand elasticities were estimated, and ranged from -1 to -0.4. Growth trends derived from GDP growth from 1992.
Supply functions	Assumption of constant elasticities Dollar producers: 2 All ACP and EU DOM: 1 Both supply and demand functions include growth trends, which were estimated from 15 years of data.	Assumption of constant elasticities. Elasticities were estimated. Price elasticities range from 0.2 (Africa, Caribbean) to 0.7 (Ecuador, Philippines). Growth trends are included, in a range from -0.03 (Caribbean) to 0.3 (Ecu., Phil.)	Assumption of constant elasticities. Price elasticities were assumed: 1 for favoured suppliers, 3 for non-favoured suppliers. Growth trends estimated from FAO yield data and model calibrations.
Base year	Average 1996 - 1998	Average 1998 - 2000.	1992 - 2000.
Source of trade data	Eurstat and FAOStat.	FAOStat.	FAOStat
Projections of effects of banana regime change in 2006	A tariff of €182/t would result in the same <u>average</u> c.i.f. import price as under the quota. This tariff would preserve the import volumes of the Dollar suppliers. This "tariff equivalent" is valid for an exchange rate of 1€/\$. It would be higher if the Euro were to depreciate.	Tariff of €75/t: EU prices would fall by 20% and import volumes grow by 13% in 2006. Tariff of €200/t: EU prices would fall by 10% and import volumes grow by 3%. Tariff of €300/t: EU banana imports would remain unchanged.	With a tariff of €300, price would increase by 5% until 2012. The likelihood (under varying underlying assumptions like growth trends, exchange rate movements etc.) that Latin American suppliers would lose volume between 2006 and 2012 is 22% under a tariff of €75/t and 99% under €100/t.

APPENDIX D. QUANTITATIVE ANALYSIS

This appendix describes the econometric techniques used for the estimation of supply elasticities of ACP Caribbean banana producer countries, elasticities of UK retail prices for bananas with respect to wholesale prices, and UK price elasticities of the demand for bananas.

D.1. Supply Elasticities of ACP Caribbean Banana Producer Countries

Our aim was to estimate supply elasticities for a set of Caribbean producer countries, including Belize, Dominica, Dominican Republic, Grenada, Jamaica, St Lucia, St Vincent, and Surinam.

D.1.1. Specification

Data availability dictated our choice of the specification of the supply model. In absence of data on total cost and input prices, the estimation of a fully-fledged cost model¹⁰² was not feasible. Instead, we estimated a supply relationship based on the specification of a marginal cost function. Because marginal cost is not observable, we had to rely on the assumption that banana producers are engaged in perfect competition. In that case, they will be forced to price at marginal cost, and marginal cost can be proxied by observable price variables.

The theoretical model we chose underlying the estimation equations for the supply relations of ACP countries is the quadratic cost function. In particular, we assumed a linear relationship between marginal costs and volumes exported for each ACP producer:

$$\text{Marginal Cost} = a + b(\text{Quantity}) + g(\text{Control Variables}) + e,$$

where a , b and g are the coefficients of the model to be estimated and e is the error term of the model. The error term measures all factors that affect marginal costs but are unobserved to the analyst (i.e., cannot be included under the control variables). The aim of the econometric analysis is to consistently estimate the coefficients of the model.

D.1.2. Data and Variables

To populate the variables of the model we employed the FAO annual data on total export volumes and nominal export values in US dollars. This database contains information for each banana producing country from 1961 to 2002.

¹⁰² Estimation of a translog model or a generalized quadratic cost model would have been desirable.

We populated the variables of the model with the following data:

Marginal costs: We applied the unit value in nominal US dollars for each country as a proxy for marginal costs. This price represents the fob export price.

Quantity: We specified quantity for each country with total global exports volumes.

Control Variables. In addition to these structural variables we also employed a set of control variables in the estimations. While input prices such as wages or cost of capital and land would have been the most obvious candidates for inclusion in the model, data on these was not publicly available. We were therefore restricted to using the following:

- *Square of quantity.* We estimated a quadratic specification of the marginal cost function, additionally including the square of the quantity variable. However, the quantity variable and the square of it turned out to be highly multicollinear, with the implication that the estimated results were biased. We therefore did not continue our econometric analysis in the quadratic framework.
- *Harvest area.* The area of land employed in the banana production in each country, as published by the FAO.
- *Yield.* This variable represents the productivity of land in banana production and is defined as the ratio of total annual production volume and harvest area. The ingredient data for calculating yield are published by the FAO.
- *Dummy variables for natural disasters.* Supplies in the Caribbean are frequently disrupted by natural disasters such as hurricanes and droughts. We controlled for this including a dummy variable for each year in which a country was hit by a natural disaster.¹⁰³
- *Time trend.* We included a time trend to control for effects such as inflation of the US dollar or continuous technical improvements in production.
- *EU Banana Regime change in 1993.* We included a dummy variable to capture any effects of the change in the EU banana regime in 1993, which changed dramatically the competitive environment for the Caribbean producers. We distinguished between the periods before and after the regime change, thereby allowing for a parallel shift in the marginal cost schedule after that year.

¹⁰³ The dummy variable equals 1 in a disaster year and 0 otherwise.

D.1.3. Estimation

The marginal cost equations were estimated in a linear specification, separately for each individual country. We employed three different estimation strategies depending on whether the variables in the model were stationary or whether they had a unit root.

Cointegration regressions. For Dominica, Grenada, St Vincent and Surinam we regressed the levels of unit prices on the levels of the explanatory variables applying ordinary least squares (OLS) estimation techniques. This was possible because all the variables in the model displayed unit root and turned out to be cointegrated. This means that the data describe a long-term relationship between unit prices and quantities exported. An important implication of cointegration is that the estimated coefficients of the model are consistent.

Regression in first differences. For Jamaica and St Lucia we regressed first differences in unit prices on first differences in the explanatory variables applying OLS estimation techniques. This was necessary because some but not all of the variables of the model were stationary, so that cointegration techniques were not appropriate.

Instrumental variable estimations. Results for Belize were produced using instrumental variable estimation based on the two-stage least squares (2SLS) technique. We first employed this approach for all countries that we estimated in first differences, because export volumes might have been endogenous, i.e. determined jointly with prices through the interplay of banana supply and demand. In such cases, plain OLS techniques would lead to inconsistent estimates of the coefficients. However, application of the Hausman test showed that only in the case of Belize OLS and 2SLS estimates were different to a statistically significant degree. As instrumental variables we applied demand side factors like world GDP and world population.

D.1.4. Results

Estimation of the coefficients allowed us to derive supply elasticities. Given the specification of the marginal cost model, the supply elasticities can then be written as:

Supply Elasticity = $(1/b)(\text{Average Price}/\text{Average Quantity})$.

The results are presented in Table D.1. The p-value measures the precision of the estimate of b (the coefficient to the quantity variable), which is used to derive the supply elasticity. For example, p-value of 0.01 indicates that, given the value of the actual estimate and its variance, there is only a 1% probability of wrongly rejecting the hypothesis that the true

value of the coefficient is zero.¹⁰⁴ P-values of 0.1 and below are usually taken to indicate reasonably precise estimates. For our forecast, we have taken a more tolerant approach and accepted estimates with a p-value of up to 0.25. We have not produced forecasts for countries with less precise estimates, i.e. Grenada.

Table D.1
Supply Elasticities of Caribbean Banana Producers

	Supply elasticity	p-value
Dominica	11.2	0.25
Grenada	5.1	0.35
St Lucia	4.8	0.04
St Vincent	6.3	0.05
Belize	1.4	0.24
Jamaica	3.5	0.25

NERA estimations.

D.2. Elasticities of UK Retail Banana Prices with Respect to Wholesale Prices

D.2.1. Specifications and data sets

We estimated banana retail –wholesale price elasticities for the UK as follows:

Elasticity of the retail price with respect to the wholesale price. Monthly UK banana retail prices are published by the Office of National Statistics. Wholesale prices were obtained from Defra, which surveys prices at the wholesale markets in Birmingham and New Covent Garden on a weekly basis, differentiated by country of origin. We produced weighted average prices using banana import shares as weight and aggregated the weekly data to obtain monthly observations. The number of observations was restricted by the period covered by the wholesale price series (2000 to 2002).

Elasticity of the retail price with respect to the import price. For construction of the import price we used import volume and value data published on a monthly basis by Eurostat. The data is disaggregated by country of origin, so we produced average unit values weighted by import volume. The number of observations was restricted by the period covered by the Eurostat data (January 1994 to November 2003).

¹⁰⁴ Note that a coefficient of zero would produce an infinitely large supply elasticity, i.e. a perfectly elastic supply (a horizontal supply curve). Therefore, “imprecise” estimates make it difficult to distinguish between perfectly elastic and inelastic supply.

All three price series were converted to pence per kg and deflated, applying the Retail Price Index for Total Food, nsa for the banana retail prices, and the Producer Price Index for Food, nsa for the wholesale price and the cif import price series.

We specified the relationships between prices in a log-linear way:

$$\log(\text{Retail Price}) = a + b \cdot \log(\text{Wholesale Price}) + g \cdot (\text{Control Variables}) + e,$$

where a , b and g are the coefficients of the model to be estimated and e is the error term. The aim of the econometric analysis is to estimate consistently the coefficients of the model.

An advantage of the log-linear specification of the relationship between the different banana prices is that the coefficient b can be readily interpreted as a price-price elasticity. A potential caveat of this approach is that the model lacks micro-foundation and is rather ad hoc and explorative. We chose this specification given restrictions with respect to data availability.

D.2.2. Variables

The control variables we employed in our estimations included a trend variable to capture time-dependent effects on the variation of the retail price, seasonal dummy variables for each month to capture seasonal fluctuations in the banana retail price, and lagged banana wholesale prices of up to four lags.

D.2.3. Estimation

The models were estimated using OLS with levels of the different banana prices. Unit root tests revealed that all three banana prices were stationary.

D.2.4. Results

The results are shown in Table D.2

Table D.2
Estimation of Banana Retail-Wholesale Price Elasticities

Elasticity of banana retail price with respect to	Elasticity	p-value
Wholesale price (DEFRA)	0.08	0.06
Unit values of banana imports (Eurostat)	0.59	0.00

Source: NERA estimations

D.3. UK Price Elasticities of the Demand for Bananas

The aim of this analysis was to estimate the own-price elasticity for overall demand for banana for the UK. We also estimated specific own-price and cross-price elasticities for Caribbean, organic and fair trade bananas.

D.3.1. Specification

Our econometric specification uses a two-stage budgeting approach of the demand system. At the first level, we estimated total demand for bananas in a log-linear form as:

$$\log(\text{Banana Consumption}) = a + b \cdot \log(\text{Banana Price}) + c \cdot \log(\text{Control Variables}) + e.$$

The coefficients a , b , c are to be estimated and e is the error term. The estimate of coefficient b can be readily interpreted as the overall price elasticity for banana.

At the second stage of the demand estimation, we treated bananas as a differentiated product that we grouped into the following categories that could be identified in the database:

- Bananas originating from the Caribbean and sold to consumers specifically as Caribbean bananas (share of 2.2% of total sales);
- Organic bananas (11.2% of total sales);
- Fair trade bananas (11.1% of total sales);
- “Rest”: rest of bananas not further specified in the database (75.4% of total sales).

There is, however, a serious problem arising from the above categorisation of bananas. The bananas lumped under the category “rest”, i.e. banana that are not further specified in the database, are not distinguishable by origin. In particular, it is likely that the “rest” category includes a substantial proportion of Caribbean bananas. In other words, with the information from the database, we were not able to accurately delineate the different banana products and assign them to a set of exclusive product categories. We expect this blurry differentiation between Caribbean and “rest” bananas to have an important effect on the estimated results of the AIDS model. This, however, does not affect our estimation of an overall price elasticity of bananas in stage one of the procedure.

As a specification of the demand model we chose the “Almost Ideal Demand System”¹⁰⁵ (AIDS), a widely accepted and intuitively reasonable model in economics. Its economic properties are arguably superior to many alternative specifications. In particular, it allows a

¹⁰⁵ A. Deaton and J. Muellbauer (1980), “An Almost Ideal Demand System,” 70 *American Economic Review*.

flexible representation of own-price and cross price elasticities in the sense that these parameters are determined by data, and not *a priori* by theoretical assumptions.

For each of the four types of banana mentioned above, the following equation was estimated:

$$\begin{aligned} (\text{Budget Share of Banana Type 1}) &= A + B \cdot \log(\text{Total Banana Expenditure} / \text{Banana Price}) \\ &+ C1 \cdot \log(\text{Banana Price of Type 1}) + C2 \cdot \log(\text{Banana Price of Type 2}) \\ &+ C3 \cdot \log(\text{Banana Price of Type 3}) + C4 \cdot \log(\text{Banana Price of Type 4}) \\ &+ D \cdot (\text{Control Variables}) + \text{error}, \end{aligned}$$

where A, B, C1 to C4 and D are the coefficients of the model to be estimated in a consistent way. Note that for each banana type we estimated the equivalent equation thereby allowing for the fact that the coefficients may vary across the equations.

Both levels of the demand system were estimated and, by combining the estimates from both levels, the overall and cross-price elasticities for each banana type were then derived.

D.3.2. Data and Variables

We employed scanner data purchased from and provided by Information Resources for the demand estimations. This database contains retail information on weekly sales volumes and values for different categories of bananas, which we then applied to construct unit retail prices. The data was sourced from over 400 Sainsbury's retail outlets in eleven regions covering the entire UK (Southern, London, South West, Wales and West, East of England, Midland, Yorkshire, Lancashire, Northeast, Central Scotland, Border, Northern Scotland, Northern Ireland) during a period from the week beginning on the 3 November 2001 until the week beginning on 29 November 2003. The database, however, contained missing observations for a relatively large number of weeks.

We complemented the scanner database by data published by the Office of National Statistics.

With regard to the first stage of demand estimation, i.e. the estimation of overall demand, we populated the variables of the model with the following data:

Banana Consumption. We aggregated the demand for all types of bananas measured in kg in the Information Resources database. This variable measures the amount of bananas sold in kg in each region per week.

Banana Price. We constructed an overall banana price index based on the four banana types indicated above calculating a weighted average of their unit prices.

Control Variables. In addition to these structural variables we also applied a set of control variables in the estimation of overall banana elasticity. We used the following control variables:

- *Real disposable income.* Disposable household income available on a quarterly basis deflated by the retail price index.
- *Time trend.* We included a time trend to control for any time specific effects.
- *Seasonal dummy variables.* We controlled for possible seasonal fluctuations by including a dummy variable for each month.

With regard to the second stage of demand estimation, i.e. the estimation of demand elasticities for the specific banana types, we populated the variables of the model with the following data:

Budget share. The budget share for each type of banana was calculated as the ratio of the expenditure by region per week for that specific type of banana to the total banana expenditure by region per week.

Banana price of a specific banana type. For each type we calculated the unit banana price in £/kg for each region and each week by taking the ratio of the value of the banana sales and the volume of the respective sales.

Control variables. We also included a number of control variables in the estimation of the second stage of the demand system. Beside a time trend we controlled for seasonal fluctuations by including monthly dummy variables in the estimations.

D.3.3. Estimations

The database we applied for demand estimation was a panel data set. This allowed us to control for regional and banana type specific effects. We estimated our demand model with a fixed-effects estimation technique. Estimations were based on a total of 395 observations.

Similar to the estimation of the marginal cost functions, we faced potential problems of endogeneity of the banana prices in the estimation of the demand elasticities at both stages. We therefore employed an instrumental variable estimation technique based on a two-stage least squares estimation with panel data. As instrumental variables, we applied cost-side shifters. In particular, we employed in our estimations an aggregated wage index for the UK, the UK cif import price of banana, current and lagged exchange rates between pound

sterling and the US dollar and euro. The Hausman test showed that the estimated coefficients from the 2SLS differed significantly from the within-group estimator.

D.3.4. Results

The following table shows the result of the first-stage estimation for the overall demand elasticity.

Table D.3
Estimation of Overall Demand Elasticity for Bananas for the UK

Elasticity	p-value
-1.11	0.001

Source: NERA estimations

The overall elasticity for banana demand is negative (and therefore conforms to intuition) and is statistically significant.

The results of the estimation of the own-price and cross-price elasticities for the four banana types Caribbean, fair trade and organic bananas is summarized in the table below. Note that the elasticities reported below are unconditional elasticities.

Table D.4
Own-Price and Cross-Price Elasticities for Different Banana Types

	Caribbean	Fair Trade	Organic	Rest
Caribbean	-3.27 (0.026)	-0.77 (0.024)	0.52 (0.024)	0.10 (0.053)
Fair Trade	-2.06 (0.122)	-0.42 (0.175)	0.68 (0.001)	-0.14 (0.003)
Organic	-16.44 (0.009)	0.54 (0.714)	-1.14 (0.252)	0.41 (0.065)
Rest	-21.16 (<0.000)	-6.15 (<0.000)	0.59 (0.347)	0.34 (0.017)

Note: P-values in parentheses. The table reads as follows: The figures in the diagonal are own-price elasticities. Each figure in the cells off-diagonal indicates the cross-price elasticity of the banana type in the first row with respect to the banana type in the first column.

The results show that except for the category “rest” the own-price elasticities all have the expected sign though the elasticity for fair trade is rather low, in fact even lower than the overall demand elasticity. With regard to cross-price elasticities, half of the elasticities have a negative sign, which is not consistent with economic expectations. We suppose that the main

reason for this result is the problem of inaccurate product delineation mentioned above. In particular, we believe that the banana category “rest” is likely to contain also Caribbean bananas, which would make the notion of cross-price elasticity useless.¹⁰⁶

¹⁰⁶ Omission of the category “rest” from the estimations would not prove useful either given the fact that this category is the largest covering 75% of total banana sales.

APPENDIX E. STATISTICAL ANNEX

Table E.1
Banana Export Volumes (t '000)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Dominica	44	33	43	37	31	29	31	21	18
Grenada	4	4	2	-	-	1	1	1	1
Saint Lucia	92	113	102	74	54	66	50	20	98
St. Vincent & Grens.	35	55	49	33	41	40	43	33	40
Jamaica	76	83	86	76	62	52	41	43	40
Belize	48	41	57	54	51	56	66	48	43
Barbados	0	0	0	-	0	0	0	0	0
Bahamas	0	0	0	0	0	0	0	-	1
Suriname	33	37	24	33	24	33	34	29	7
Dominican Rep.	99	73	83	69	67	61	79	131	107
Cameroon	165	187	160	180	134	165	238	254	238
Ivory Coast	158	180	194	201	206	242	243	256	256
Ecuador	3,008	3,665	3,866	4,462	3,856	3,966	3,994	3,534	4,296
Costa Rica	1,869	2,022	2,103	2,026	2,288	2,230	2,079	1,959	1,873
Columbia	1,704	1,360	1,477	1,586	1,508	1,584	1,564	1,344	1,424

Source: FAOStat

Table E.2
Banana Export Values (f.o.b., \$m)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Dominica	21.0	16.8	18.2	17.1	15.0	14.8	13.5	9.5	8.1
Grenada	2.1	1.8	0.6	-	-	0.1	0.2	0.2	0.2
Saint Lucia	46.8	55.9	52.8	34.6	32.4	32.6	21.8	21.0	44.4
St. Vincent & Grens.	16.7	24.5	20.5	14.4	20.9	20.5	18.3	13.5	16.7
Jamaica	46.1	45.7	43.6	45.2	36.0	32.4	21.2	20.2	20.2
Belize	24.5	21.0	28.7	26.1	24.7	27.3	31.9	21.2	20.5
Barbados	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
Bahamas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	0.4
Suriname	10.8	11.3	17.6	24.4	17.0	21.0	24.9	21.0	3.4
Dominican Rep.	16.6	9.9	12.0	10.0	13.0	16.6	19.8	36.2	46.3
Cameroon	60.5	75.6	62.9	49.5	36.5	43.0	48.8	47.7	45.2
Ivory Coast	59.1	80.6	87.4	68.6	69.0	76.7	68.5	70.2	74.0
Ecuador	692.2	818.5	964.1	1311.6	1058.7	945.6	809.4	828.6	958.5
Costa Rica	535.9	680.4	631.9	588.0	684.7	629.4	546.6	501.1	495.2
Colombia	489.5	431.2	459.2	503.2	476.1	478.0	436.6	367.4	404.2

Source: FAOStat

Table.E.3
Banana Export Unit Values (f.o.b., \$)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Dominica	473	509	423	459	489	519	442	465	443
Grenada	468	444	325	294	330	234	313	322	384
Saint Lucia	510	496	516	470	604	494	436	1055 ¹	453
St. Vincent & Grens.	483	447	419	438	512	510	422	409	422
Jamaica	611	552	509	594	581	629	518	470	506
Belize	511	511	504	487	485	485	485	442	477
Barbados				2500					
Bahamas								500	370
Suriname	330	308	743	739	713	636	732	732	512
Dominican Rep.	167	136	145	145	193	271	250	277	434
Cameroon	366	404	392	275	272	261	205	188	190
Ivory Coast	374	448	450	342	335	318	282	275	289
Ecuador	230	223	249	294	275	238	203	234	223
Costa Rica	287	336	300	290	299	282	263	256	264
Colombia	287	317	311	317	316	302	279	273	284

Source: FAOStat

(1) St Lucia results for 2001 are likely to be subject to a substantial error of measurement.

Table E.4
EU Banana Import Volumes by Importing Country (t '000)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ¹
Dominica	43	33	39	35	27	28	28	86	17	9
Grenada	5	5	2	0	0	1	1	1	1	0
Saint Lucia	92	101	107	71	70	66	73	43	49	28
St. Vincent & Grens.	32	48	44	30	39	38	43	35	33	17
Jamaica	76	84	89	77	62	52	41	18	41	33
Belize	47	41	54	53	53	56	69	0	38	56
Barbados	0	0	2	0	0	0	0	31	0	0
Bahamas	0	-	-	-	-	0	0	635	0	0
Suriname	33	28	26	29	21	39	34	29	7	0
Dominican Rep.	86	75	61	49	56	42	60	0	97	93
Cameroon	158	165	167	157	116	161	205	215	230	243
Ivory Coast	149	160	181	166	158	193	200	217	211	168
Ecuador	549	632	686	738	569	697	691	705	829	692
Costa Rica	622	564	604	603	640	663	656	52	687	563
Colombia	461	557	653	569	541	555	617	646	666	549
Total	3,278	3,729	3,858	3,157	3,042	3,198	3,299	3,203	3,288	2,817

Source: Eurostat

(1) January to November

Table E.5
EU Banana Import Values by Importing Country (c.i.f., €m)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ¹
Dominica	26	18	22	23	20	21	19	12	12	6
Grenada	3	2	1	0	0	0	1	0	0	0
Saint Lucia	54	55	62	46	50	50	52	24	35	18
St. Vincent & Grens.	19	26	25	19	28	29	30	21	23	11
Jamaica	52	50	53	60	49	39	34	33	30	18
Belize	28	24	26	24	24	35	41	30	23	28
Barbados	0	-	1	-	-	-	-	-	-	-
Bahamas	0	0	0	0	0	-	-	0	-	0
Suriname	22	19	17	21	15	26	30	20	4	-
Dominican Rep.	47	37	31	26	28	22	33	50	61	48
Cameroon	95	91	97	94	73	98	130	146	139	157
Ivory Coast	90	85	89	99	97	101	103	130	117	115
Ecuador	293	326	351	369	285	365	362	404	491	404
Costa Rica	311	297	347	353	378	388	368	392	450	374
Colombia	233	288	321	299	272	290	324	346	349	325
Total	1,811	2,000	2,034	1,742	1,696	1,836	1,881	1,914	1,963	1,738

Source: Eurostat

(1) January to November

Table E.6
EU Banana Import Unit Values by Importing Country (c.i.f., €)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ¹
Dominica	597	551	550	665	729	764	699	691	708	639
Grenada	613	526	564	501	759	758	701	705	709	645
Saint Lucia	589	538	581	655	715	763	711	695	710	646
St. Vincent & Grens.	592	546	577	647	732	760	704	695	711	645
Jamaica	686	593	588	779	790	764	821	775	733	557
Belize	600	577	487	459	453	627	600	581	598	507
Barbados	481	-	528	-	-	-	-	-	-	-
Bahamas	280	408	433	455	499	-	-	879	-	497
Suriname	676	664	640	710	709	666	878	679	606	-
Dominican Rep.	542	494	502	534	497	517	551	588	628	523
Cameroon	598	549	583	601	630	612	633	676	607	648
Ivory Coast	602	530	493	594	612	524	516	599	556	684
Ecuador	533	516	513	499	500	525	524	573	592	584
Costa Rica	500	527	575	585	590	585	562	617	655	664
Colombia	505	516	493	526	503	523	525	536	524	593
EU Average	552	536	527	551	557	573	570	597	597	616

Source: Eurostat

(1) January to November

Table E.7
Banana Production: Yields (t/Ha)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dominica	14.9	15.0	13.5	11.9	10.0	10.0	10.2	10.0	10.0	10.0
Grenada	4.0	3.9	3.9	3.1	3.0	3.3	3.4	3.4	3.4	3.4
Saint Lucia	10.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0	1.0
St. Vincent & Grens.	10.6	10.7	11.0	11.1	10.1	10.7	10.0	10.0	10.0	10.0
Jamaica	7.5	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1
Belize	24.6	23.6	29.1	27.5	36.6	31.4	36.6	27.9	22.2	22.2
Barbados	5.6	5.6	5.6	5.6	5.6	5.6	5.5	5.5	5.4	5.5
Bahamas	16.6	14.3	16.6	22.9	19.9	20.2	13.0	13.3	13.3	13.3
Suriname	21.1	23.1	22.6	21.0	17.7	25.5	22.3	19.8	19.7	19.7
Dominican Rep.	12.2	12.5	12.8	13.0	12.4	12.3	12.3	12.3	13.2	13.2
Cameroon	17.3	17.8	17.9	15.4	14.0	3.3	7.3	7.3	7.4	7.4
Ivory Coast	13.6	16.0	15.8	14.2	17.7	15.3	16.9	16.4	16.4	16.4
Ecuador	23.0	23.7	25.3	35.5	26.4	33.0	25.6	26.5	26.9	25.7
Costa Rica	37.9	44.1	46.2	46.8	53.2	49.6	46.8	47.9	46.1	44.4
Colombia	35.4	29.6	29.2	30.9	30.7	39.0	37.1	33.7	33.7	33.7

Source: FAO.

Table E.8
Harvest Areas (Ha '000)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dominica	4	3	4	4	3	3	3	3	3	3
Grenada	2	2	2	1	1	1	1	1	1	1
Saint Lucia	11	14	13	10	8	9	9	9	120	120
St. Vincent & Grens.	4	6	5	3	4	4	5	5	5	5
Jamaica	16	16	16	16	16	16	16	16	16	16
Belize	2	2	2	2	1	2	2	2	2	2
Barbados	0	0	0	0	0	0	0	0	0	0
Bahamas	0	0	0	0	0	0	0	0	0	0
Suriname	2	2	2	2	2	2	2	2	2	2
Dominican Rep.	34	28	30	30	29	35	28	36	38	38
Cameroon	55	55	55	52	52	189	86	86	85	85
Ivory Coast	17	15	16	16	16	17	17	17	17	17
Ecuador	221	228	226	211	207	194	253	229	206	219
Costa Rica	53	52	52	49	47	49	48	44	45	45
Colombia	54	54	51	52	49	42	41	41	42	43

Source: FAO.

Table E.9
Real Exchange Rates: Euro / Domestic Currency (1994=100)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Dominica	100	91	93	104	105	110	126	129	120	99
Grenada	100	91	94	104	105	110	127	132	126	-
St. Lucia	100	95	97	105	108	117	137	138	130	-
St. Vincent & Grens.	100	91	96	105	107	113	128	130	121	99
Jamaica	100	101	122	153	161	166	186	186	175	132
Belize	100	92	99	109	108	111	126	129	122	-
Suriname	100	91	101	118	140	135	158	100	99	-
Dominican Rep.	100	97	103	117	114	121	143	152	135	-
Cameroon	100	109	111	112	113	115	110	113	113	-
Ivory Coast	100	114	115	114	118	119	119	121	122	-
Ghana	100	114	124	138	139	141	98	100	96	-
Ecuador	100	94	95	108	108	79	83	115	119	105
Costa Rica	100	96	99	109	110	113	132	139	128	103
Colombia	100	100	107	126	119	112	116	115	104	79
Guatemala	100	96	104	123	124	118	134	144	144	123
Honduras	100	103	104	123	135	148	178	189	177	148
Panama	100	90	93	102	102	108	124	125	117	-
Philippines	100	99	107	110	87	101	105	98	92	74

Source: NERA calculations based on IMF and ECB data.

APPENDIX F. CASE STUDY ON DOMINICA

Dominica was chosen to be the subject of this case study because it has been particularly badly affected by the decline in the banana industry.

F.1. Competitiveness of the Dominican Banana Industry

Over the past two decades the agricultural sector in Dominica has faced substantial structural challenges. The phasing out of preferential treatment for agricultural exports to the European Union (EU) has subjected the predominant banana industry to tough competition. International banana production has increased and is unmatched by an equal increase in consumption. In addition to the scaling back of preferential access to EU markets, prices have been falling, and Dominican banana producers have had to compete with more cost-efficient producers, mainly from Latin America. This has led to a reduction in production levels and a sharp drop in employment in the sector.

There are several reasons for the relative disadvantages in competitiveness of Dominican banana industry. The terrain is difficult and requires time intensive farming. Farmers are small-holders rather than plantation owners, and wages for farm labourers are comparatively high by comparison to other banana producing countries, but relatively low in local terms. There is relatively low land-ownership and only about 45 percent of all banana farmers hold titles to the land they cultivate. Others cultivate on state land or rent or squat on private land. Limited land ownership has hindered investment in the industry, such as for irrigation or more intensive farming methods. In addition, EU quality demands have required investments in facilities, which many farmers have opted not to undertake.

Productivity levels are generally low and reflect a semi professional approach to farming. The average annual yield in Dominica is about 5 tonnes of banana per acre. The Ministry of Agriculture estimates that even without irrigation, farmers could produce an annual yield of 10 to 12 tonnes. According to a representative from the agricultural authorities, the semi professional approach to farming is manifested in the lack of creditworthiness and the perpetual indebtedness of many farmers. Lack of financial knowledge has hampered re-investment in the industry to increase yields and productivity.

Relatively high prices for land, low export earnings, high labour costs and limited access to credit facilities are quoted as the reasons that have hindered young and aspiring entrepreneurs taking a more professional approach towards agricultural production and entry into the agricultural sector. Employment opportunities in other sectors, such as tourism, telecommunications and services, and regional and international migration continue to constitute more attractive and lower risk employment alternatives.

Viability of Production

The average cultivation area in Dominica is 3 acres. It is estimated that 10-20 acres would make banana production viable. 10 acres of land in a suitable area would cost a young farmer about EC\$ 100,000 – 200,000, a cost which is prohibitive to most without access to credit

F.2. Impacts of Preference Erosion

The reduction in production levels and the drop in employment in the sector have led to a general contraction in the economy and a sharp decrease in government revenue. However, government expenditure has not been adjusted congruently. As a result of excessive and unaffordable public borrowing to support non-productive (and in some cases, unjustified), public investment projects, the fiscal position of the government has significantly deteriorated and the public debt level now stands well above 120 percent of GDP. This has had a detrimental effect on the overall investment climate and has hampered the diversification of the Dominican economy away from banana production towards other agricultural and non-agricultural production.

An impact analysis on the restructuring of the banana industry from March 2000 provided to the Ministry of Planning found that between 1990 and 2000, production levels had halved, and revenue accruing from banana production had fallen by two thirds. The Ministry of Agriculture states that the amount of cultivated land has dropped by more than half from 8000 acres to 3500 acres and abandoned farming land is increasing. The number of banana farmers is estimated to have decreased from 7000 to just 900.

Recent studies show that unemployment in the banana sector is not excessively high, compared to overall unemployment rates. However, it is likely that such statistics mask the impact of the industry restructuring as former banana industry employers have been included in more general unemployment categories or have migrated. The 2002 population census shows a clear decline in the size of Dominica's population due to migration. Many former farm labourers have left to neighbouring islands where they work in construction, tourism and agriculture. There is the view that the social impact of the decline in banana production had been mitigated because banana farmers phased into retirement. However, others argue that the average banana farmer would have been in his 50s, and had the industry not declined farmers would normally have remained active until well into their 70s. Banana sector unemployment is measured as those who previously earned their income from banana farming and are now unemployed. Unemployment data is very unreliable due to the informal economy and the poor quality of government data but according to a recent study, general unemployment is increasing with rates among the 18-25s particularly high. There are two social assistance programmes which could replace employment earnings but

they are poorly targeted and it is known that they are not as effective as they should be in reaching those most in need.

F.3. Existing Industry Restructuring Plans and Future Restructuring Needs

Most Dominican banana producers who have remained active have relied either on participating in the niche market for fair trade and organic bananas or have been supplying the local and regional market. Fair trade bananas have become the pillar of the industry, making for nearly 70 percent of total banana exports. Recent opportunities include delivery of fair trade bananas to the Swiss Coop, which for three years guarantees prices that lie above normal fair trade exports. For this particular arrangement, export levels of 11,000 to 16,000 boxes per week are envisaged. However, at present farmers have difficulties meeting the target of 4,000 to 5,000 boxes per week.

Despite price guarantees, Dominica's remaining banana farmers appear reluctant to supply sufficient amounts of produce to take advantage of remaining quotas and other opportunities due to the levels of investment required to improve quality and productivity to the required levels. Current production levels fall short of exploiting Dominica's remaining EU quota, and producers have not capitalised on a recent increase in regional demand for bananas and other produce, in particular from neighbouring tourism-oriented islands but also from Trinidad and Tobago. Most severely, supply shortages and low production levels have undermined the viability of the weekly banana boat, organised by WIBDECO. The possibility that this service could cease is a matter of concern not only for the Ministry of Agriculture and for Dominica Banana Producers Limited (DBPL), who manage Dominican banana producers' exports.

Fair Trade Bananas

Officials from the Ministry of Agriculture confirm the following prices per box of bananas (approx. 17 kg per box- February 2004): WIBDECO buys fair trade bananas for about EC\$ 22.60 per box. Therefore farmers get about EC\$ 18.45 per box. Generic bananas are bought for about EC\$ 15.95 per box and the Dominica Banana Producers Ltd. receives about 10 percent of the WIBDECO price. The average production cost per box is estimated at about EC\$ 10.00.

Plans for restructuring the agricultural sector constitute part of Dominica's draft Public Sector Investment Plan (PSIP) and Interim Poverty Reduction Strategy Paper (I-PRSP). Government documents state as broad priorities, the proactive support of tourism, agriculture and manufacturing through the revision, formulation and implementation of respective policies and projects and the development of an administrative, legislative and incentive framework that will be conducive to attracting, encouraging and sustaining private sector investment. The distillation of concrete policies to achieve these objectives are

perhaps less clear. There is some development in support of the fishing industry and the rehabilitation of the country's infrastructure. Various donor organisations support diverse projects aimed at improving public service delivery and administrative procedures to facilitate an enabling environment for private sector activities. The activities are taking place within a programme framework called Strengthening the Enabling Environment in Dominica, (SEED). The SEED reforms are part of the overall public sector reform programme and are focussed on the following overall objective;

"To establish an environment that is dynamic, responsive, supportive and conducive to sustainable and diversified private sector (including NGOs) and broader social, cultural and economic development."

The specific activities to be undertaken include:

- Improving the institutional framework for investment and export promotion
- Reforming investment incentive framework, including reduce time for investment approvals
- Improving the operation of key public institutions such as; Customs, Inland Revenue, land administration, physical planning division and Registry services
- Development of a tourism strategy
- Improving business access to justice
- Introducing tripartite consultation and planning process in place to develop a consensus on the policies, role and scope of government in the development of the private sector

F.4. Diversification Strategies

Single agricultural crops providing the majority of export earnings have always dominated Dominica's agricultural sector. Prior to bananas Dominica was a prime exporter of lime and also vanilla. Mono cropping has left the island state vulnerable to exogenous shocks. But along with the decline in the banana industry went a decline in other crops destined for the local and regional market. When farmers scaled back and ceased to produce bananas, there was a parallel decline in the production of other fruits and vegetables for the cultivation of which agricultural inputs received for banana production had also been used.

Despite various initiatives, diversifying agricultural exports has not been very successful. On one hand it appears that sector level interventions have suffered from institutional constraints, including lack of clearly articulated policies for the sector and the failure to improve the necessary infrastructure that supports agro-processing facilities and export promotion activities. On the other hand, constraints to export diversification also arise from

the personal situation of farmers. Cash-strapped and hardly creditworthy, the relatively quick cash flow arising from the sale of bananas cannot be replicated with many other fruits and vegetables. The need to drain funds from agricultural production to support family livelihoods rather than reinvesting for higher productivity and diversification has undermined initiatives to diversify agricultural exports (for example revival of the cultivation of organic reviving vanilla where the time span from planting to harvesting exceeds 3 years) and also the shift towards more livestock holdings.

Although agricultural exports have been declining, farming activities for local demand and subsistence continues. It is believed that sales and diversity on the local market have increased, as many families who used to grow their own supplies now prefer to buy these. Banana producers have also diversified into other non-agricultural industries, in particular domestic and tourist transport and as a result there has been a significant increase in the number of registered tourist operators.

F.5. Experience with SFA and STABEX and Future Strategies

Dominica has benefited from a large number of EU funding arrangements, including various SFA, STABEX and EDF facilities. Projects have focused on studies related to land use and administration of the banana industry, research and training on standards, regulations and legislation management, harvest facilities, water supplies and infrastructure, air access and road maintenance, but also eco-tourism and site development. Although EU funds have largely been earmarked for direct and indirect support to the agricultural industry, the impact and success of the use of these funds has been mixed. Officials state that the EU requirements and rules applicable for the use of STABEX and SFA funds in support of the industry have not been designed appropriately.

Inappropriate Design

For example, efforts to facilitate irrigation have focused on providing the front-end off-farm parts of irrigation systems, whilst farmers were expected to cover the cost for connecting from main points to their respective farms. Because farmers typically lack financial knowledge and access to credit and are insufficiently creditworthy they have not been able to undertake investments necessary to render a positive return to the employment of EU funding. As a result, most Enterprise Development Funds (EDF), which have predicated a maximum of 50 percent grant element have not been used in support of increasing the competitiveness of the banana industry.

Poor Project Design

On the other hand, some believe that the way resources were managed by the DBPL and the incentive schemes that underlie the provision of agricultural inputs to farmers have undermined farmers' responsible use of resources.

Management of Resources

For examples, there were cases where farmers who had been given fertilizers to increase productivity were found to re-sell the material for the gain of cash. DBPL and the Banana Trust have both been criticised for lacking foresight and not preparing farmers for the kinds of agricultural activities they should have been undertaking to adapt to the changing environment. Despite many declarations, few constructive actions have been undertaken.

Another problem impacting on the provision of support to Dominica has been the general trend for funds allocated for targeted programme or project related expenditure to be diverted into budget support funds to support short term funding gaps as a result of the current fiscal crisis. These funds have been applied to fund the day-to-day activities of an extensive and poor performing public service, rather than focussing on reform related activities.

More recently, STABEX funding has been proposed to support more general public sector and administrative reforms to provide a better enabling environment for private sector activities and institutionally strengthened governance structures. The thrust is that significant institutional weaknesses have impacted on the effectiveness of development interventions by the EU and other donors. These include a complex and not always transparent environment for private sector development activities, a level of public services that is unaffordable (government is running significant current account deficits and only surviving due to IMF, WB and bi-lateral loans and handouts) given current economic conditions and the existence of a set of social policies and safety net programmes that is uncoordinated and poorly targeted towards the most needy. Specifically, there is significant scope to improve the effectiveness of the Ministry of Agriculture to enable it to prepare and support effective diversification policies.

The Government of the Commonwealth of Dominica is implementing a Medium Term Public Sector Reform Strategy (MTPSRS), led by the Reform Management Unit (RMU) of the Office of the Prime Minister. The MTPSRS has four strategic object areas:

- public administration modernisation,

- economic management,
- growth related government services and
- the rationalisation of public services.

Under STABEX arrangements, the RMU receives considerable support to increase human capacity and improve technical expertise with the objective to lead various aspects of public sector streamlining and rationalisation. The EU currently funds resident technical assistance to support the modernisation of public administration as well as to an existing initiative to strengthening the enabling environment. The reform programme is also receiving technical assistance support from DFID, the World Bank, UNDP and CIDA.

There is a broad consensus that support to the Dominican authorities should concentrate on promoting economic diversification in general, rather than agricultural diversification in specifically. This includes the establishment of an institutional environment that is responsive, supportive and conducive to sustainable and diversified private sector development. Such wider public sector reform initiatives include:

- regulatory reforms,
- policy development,
- improving planning and consultation mechanisms
- institutional reform and
- rationalisation of key public organisations that interact with the private sector.

The logic for this approach is that Dominica is unlikely to develop an internationally competitive agriculture sector sufficient to support economic and social needs, and therefore economic development also needs to focus the development of services and manufacturing industries. However, in the short term, agriculture continues to be a vital sector for the local economy, not least because it provides produce for the local population.

F.6. Conclusions

The conclusions arising from this review with respect to the effectiveness of development assistance are:

- The assistance does not appear to have succeeded in making Dominica producers more competitive in traditional markets, and Dominica now sees organic and fair trade markets as their strongest areas to compete in
- Despite development assistance, the banana sector has significantly contracted to the point that Dominica has significant supply, quantity and quality constraints

-
- The development assistance did deliver reforms in institutional arrangements – replacing the government led marketing activity with the new Dominica Banana Producers Limited
 - Many diversification projects have failed due to poor project design, lack of institutional capacity to manage the projects and limited prospects for diversification due to topography, a weak private sector, high labour costs and the costs of actually getting products to market
 - The Government of Dominica now recognises the need to use development assistance to support broader reform programmes that develop the ability of the government to support economic development and strengthening the private sector
 - Delays caused by lengthy approval procedures for EU assistance have hampered the ability of development assistance to be supportive and responsive
 - The diversion of development assistance funds from planned and targeted development projects into budget support limits the ability to plan and deliver assistance in a strategic, rational and timely manner.

APPENDIX G. THE IMPACT OF PREFERENCE EROSION IN BANANAS ON AFRICAN COUNTRIES

G.1. Introduction

The present paper, prepared by NERA Economic Consulting, presents an analysis of the potential effects on African supplier countries of different scenarios as to the uniform tariff on banana imports to be established by the European Union by 2006. The study was commissioned as an Annex to our previous report “*Addressing the Impact of Preference Erosion in Bananas on Caribbean Countries*” (June 2003), which was prepared for DfID by NERA Economic Consulting in collaboration with Oxford Policy Management. The present paper will draw on many of the findings of the previous work, which we refer to as “the main report”.

The analysis focuses on Cameroon and Ivory Coast, the most important African banana exporting countries by far in volume terms (see Table G.1). Though historically Somalia also exported significant amounts to the European Union, production in this country has been severely affected by ongoing civil unrest in recent years, and supplies to the EU have ceased completely since 1999. Another country to mention is Ghana, which in the 1990s has experienced a significant increase in banana exports to the EU, but starting from a very small base. However, due to the short and rather singular export history of this country¹⁰⁷ and the low level of its current exports we have not attempted to quantify its export potential.

Table G.1
Banana imports into the EU (t'000)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Main import countries
Cameroon	158.2	165.3	166.6	157.1	115.7	160.6	205.0	215.5	229.7	242.6	F, B, L, I
Ghana	0.4	1.6	2.8	3.2	4.2	2.5	3.0	3.3	3.2	0.7	NL, UK
Ivory Coast	149.1	160.3	180.7	166.2	158.2	192.5	200.2	216.7	210.8	167.7	F, B, L, UK
Somalia	4.6	21.7	25.1	21.6	7.0	0.0	0.0	0.0	0.0	0.0	I
Total	312.3	348.8	375.3	348.2	285.2	355.7	408.1	435.5	443.7	411.0	

Source: EUROSTAT

The projections on African supplies under different tariff scenarios presented in this paper must be interpreted with extreme caution. We already pointed out in the main report that the most reliable approach to such a task would be estimation of a cost function (i.e. the

¹⁰⁷ Virtually all export bananas in this country are produced on a single plantation, Volta River Estates Ltd., which was founded in 1988 with the support of Dutch government funds. Since 2002, VREL produces exclusively organic fair trade bananas, which they import into Europe through fair trade company AgroFair. See www.vrelorganic.com and *The Economist*, 23 December 1995.

relationship between output volumes and costs of supply). This would allow determining, for any given banana price, the amount a country can profitably produce. However, as in the case of the Caribbean producer countries, the cost data required for such an exercise is not available.

We therefore adopted a similar methodology as in our analysis for the Caribbean. We analysed the past export performance of the African countries under the changing European banana import regime (section G.2) in order to identify a base scenario of tariff policy that would allow determining the supply volume under the market price resulting from that policy¹⁰⁸ (i.e., the location of the supply function). We then estimated supply elasticities (i.e. the shape of the supply function) in order to derive the variation of supply volumes under alternative tariff scenarios. The projections based on this methodology are presented in section G.3, while the theoretical underpinnings and methodologies used are described in section G.4.

Though we consider that this method is the best available given the data constraints, its reliability is nevertheless very limited. The projections presented below rest to a large extent on the assumption that African export prices reflect marginal costs. There is a significant possibility that this has not been the case in the last 40 years; this is due to the fact that, unlike the banana producers in the Caribbean, the African suppliers are likely to have faced quota constraints, which suggests that their observed supplies understate the quantity that they would have liked to export at current prices. As for the Caribbean, it is also the case that the supply function that is estimated using historical data may not apply in the future and as supply increases.

G.2. African Exports Under the Changing European Trade Regime

Historically, virtually all of Cameroon's banana exports have gone to the European Union, with France being the most important trading partner by far (see Table G.2). Ivory Coast's exports seem to be slightly more diversified, at least in recent years; however, the bulk of exports outside Europe go to African neighbour countries.^{109,110}

¹⁰⁸ In the case of Caribbean suppliers, the base scenario was the tariff equivalent, under which these countries would supply the same volumes as under the quota system.

¹⁰⁹ The most important African importers of Ivory Coast bananas are Senegal, Mali and Burkina Faso.

¹¹⁰ It should be mentioned that according to EUROSTAT data there were slightly more exports to non-EU Europe than suggested by the FAO data. According to this, in the years from 1999 to 2003 the 10 Eastern European accession countries captured between 1.9% and 4.6% of all imports of the enlarged European Union (25 member states) from Ivory Coast. The accession states' share in imports from Cameroon ranged from 1.1% to 4.4%.

Table G.2
Cameroon and Ivory Coast: Banana Export Volumes (% of total)

	Cameroon				Ivory Coast			
	EU	France	Non-EU Europe	Rest of World	EU	France	Non-EU Europe	Rest of World
2002	99.5	73.9	0.0	0.5	90.6	68.0	0.0	9.4
2001	97.6	69.8	0.0	2.5	73.8 ¹	71.1 ¹	0.0 ¹	10.9 ¹
2000	100.0	73.3	0.0	0.0	89.6	64.8	0.0	10.4
1999	N.A.	N.A.	N.A.	N.A.	91.5	70.4	0.0	8.5
1998	N.A.	N.A.	N.A.	N.A.	92.7	78.6	0.0	7.3
1997	100.0	95.6	0.0	0.0	93.7	80.2	0.0	6.3
1996	99.8	83.3	0.0	0.2	N.A.	N.A.	N.A.	N.A.
1995	99.9	80.2	0.0	0.1	N.A.	N.A.	N.A.	N.A.
1994	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1993	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1992	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1991	99.9	99.9	0.0	0.1	N.A.	N.A.	N.A.	N.A.
1990	100.0	100.0	0.0	0.0	N.A.	N.A.	N.A.	N.A.
1989	100.0	100.0	0.0	0.0	N.A.	N.A.	N.A.	N.A.
1988	100.0	99.5	0.0	0.0	N.A.	N.A.	N.A.	N.A.
1987	99.4	97.4	0.0	0.6	N.A.	N.A.	N.A.	N.A.
1986	100.0	99.4	0.0	0.0	N.A.	N.A.	N.A.	N.A.

Source: FAO.

N.A.: Not available from source.

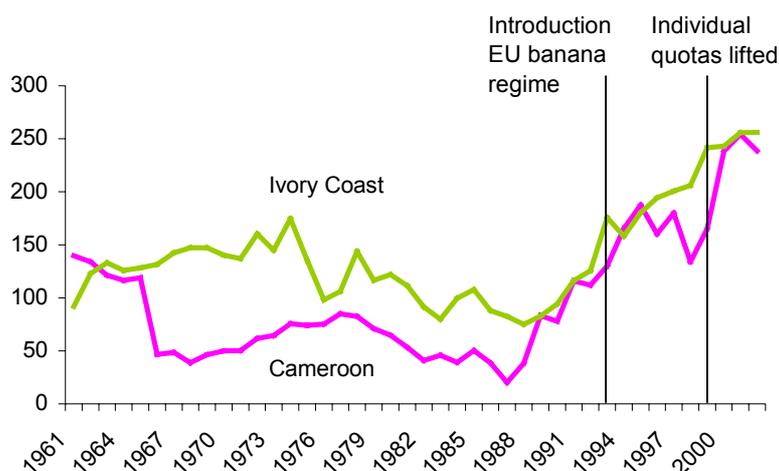
(1) In the original source, Ivory Coast's 2001 exports to individual countries do not add up to the total given in the original source. Consequently, in this table the percentages of EU, non-EU Europe and the rest of the world do not add up to 100.

Figure G.1 below shows the evolution of the banana exports of Cameroon and Ivory Coast since 1961.¹¹¹ For assessment of African banana exports into Europe, it is useful to distinguish between three periods characterised by different trade regimes: i) the period of regimes in force in individual EU member states (pre-1993); ii) the period of individual country quotas under the EU banana regime (1993 – 1999); and iii) the period after elimination of country specific contingents within the ACP quota (post 1999).¹¹²

¹¹¹ Export data was here preferred over import data because EU banana import data is only available since 1994. However, to the extent that both countries' exports have mainly been directed at the European Union, these numbers roughly mirror imports into the European Union.

¹¹² For a more detailed description of the various permutations of the EU regime after 1993, see section 2 of the main report.

Figure G.1
African Banana Exports (t'000)



Source: FAOStat.

G.2.1. The French Banana Import Regime Pre-1993

As was shown above, the main export market for Cameroon and Ivory Coast has traditionally been France. Consequently, prior to introduction of the Common Market for Bananas in 1993 the French banana import regime was especially important for these countries. From 1962, France operated a quota regime for banana imports aimed at protecting its overseas dominions Guadeloupe and Martinique on the one hand and its ex-colonies Cameroon, Ivory Coast and Madagascar on the other.¹¹³ Under this regime, two thirds of its imports were reserved for the overseas departments and one third for the African suppliers. Licenses to third countries were only issued in case of supply shortages from the preferred sources. Third-country imports were subject to a tariff of 20%, whereas imports from the African countries entered free of duties.

We do not have precise information on quota levels, but we found the following description of how quotas were fixed: "A semi-private committee, the CIB (Comite Interprofessionnel Bananier) decides on the level of imports. Where there is a shortage they contact the GIEB (Groupement d'Interet Economique Bananier), a public body, which purchases the required amount of dollar bananas and onells them to CIB at the same (higher) price paid for DOM and ACP bananas."¹¹⁴

¹¹³ See Eglantine Bentz, *Le transport maritime des fruits: le transport de la banane camerounaise*, Université de Droit, d'Economie et des Sciences d'Aix-Marseille, Aix-Marseille 2000, p. 13 et seq.; Julian Roche, *The International Banana Trade*, Woodhead Publishing Limited, Cambridge 1998, p. 182; Jim Fitzpatrick and Associates, *Trade Policy and the EC Banana Market: An Economic Analysis* (report sponsored by Dole Europe Ltd), London 1990, p. 21 et seq.

¹¹⁴ Fitzpatrick and Associates (1990), p. 21 et seq.

For the purposes of this analysis it would have been useful to know if Cameroon and Ivory Coast (and the overseas dominions) were usually able to fill their quotas, or if third country licenses had to be issued with frequency. In the latter case, it could have been concluded that the quota on the African case was not usually binding, so that at current French import prices no additional quantities could have been exported even in absence of the quota restriction. Export prices could then be taken to be reflective of costs rather than of quota rent.¹¹⁵ Unfortunately, such information has not been available. We also failed to find any qualitative information explaining the depression of exports from the Ivory Coast and Cameroon since the late 1970s that is apparent from Figure G.1.

G.2.2. Country-Specific Quotas under the EU Banana Regime Since 1993

Figure G.1 confirms that banana exports from Cameroon and Ivory Coast “experienced a virtual rebirth”¹¹⁶ since the late 1980s. UNCTAD (2003) states that this “was the result of the recovery of demand for bananas in Europe and the repositioning by international fruit companies in anticipation of the single European market in 1993.”¹¹⁷ Indeed, the large multinational banana companies, especially Dole and Del Monte,¹¹⁸ started investing in Cameroon and Ivory Coast, which, as has been mentioned in section 3.1 of the main report, led to new land being incorporated into production and significant cost savings.

Table G.3 shows that imports of both countries into the European Union exceeded their individual country quotas under the initial EU banana regime, in some years by significant amounts.¹¹⁹ There are at least three possible explanations for why this might have been the case:

- One is that at least some of the African plantations were able to compete with the Latin American producers and exported to the European Union under the general quota.

¹¹⁵ A profit maximising supplier will always seek to extend production up to the point where marginal cost (i.e., the cost of producing one further unit of output) exactly matches marginal revenue (i.e. the revenue from selling this extra unit in the market place). As long as marginal revenue is larger, providing extra units will add to profit. In an unrestricted, competitive market, marginal revenue, and therefore marginal cost, is reflected by the market price. However, if a binding quota prevents the producer from expanding his output to the desired level, prices no longer reflect costs: marginal cost is now below the market price. This issue is important for the validity of our econometric estimates of African supply elasticities; see sections G.3.3 and G.4.2 below.

¹¹⁶ UNCTAD, *Major Developments and Recent Trends in International Banana Marketing Structures*, Geneva 2003, p. 22.

¹¹⁷ Ibid.

¹¹⁸ For example, Dole engaged in a joint venture with French Compagnie Fruitière. Compagnie Fruitière was active in production in Cameroon since the privatisation of Organisation Camerounaise de la Banane (OCB), which controlled plantations in the French speaking Eastern part. Its activities in Ivory Coast included a participation in the largest producer group, Societe de Commercialisation de la Banane (SCB), in which Dole now has a controlling interest. Del Monte entered into a partnership with the Cameroon Development Corporation (CDC), which controls production in the English speaking Western Cameroon, while Chiquita has stakes in Ivory Coast banana production through Banador. See UNCTAD (2003), p. 22.

- Another explanation is that the individual country quotas were not strictly enforced, i.e. Cameroon and Ivory Coast were allowed to export in excess of their allowed volumes under preferential conditions.
- A third explanation is that the African suppliers exported into the general quota, but at an accounting loss. This would be plausible in an agricultural market where future output is difficult to plan with precision. When production exceeds quota targets, selling the excess quantities below accounting cost may still be preferable to not selling them at all.

The assumption that the first explanation – i.e. that the African suppliers were in fact able to compete with the Latin American producers – is the correct one is a cornerstone for our tariff analysis. As will be discussed in more detail further below, if this explanation is true, African export performance in the period from 1993 to 1998 reflects how behaviour would have been under conditions where they had no tariff advantage over Latin American producers. There is no other episode where conclusions can be drawn from observed performance under the quota regime on potential performance in a world without quotas. Meaningful projections are not possible without such a base scenario. However, we do not have any concrete evidence to suggest that this explanation should be preferred over the other two, and the relatively low level of excess over quota means that the second and the third explanations cannot be ruled out as implausible. This is a substantial caveat as to the reliability of our projections.

Table G.3
African Banana Imports into the EU under the Country-Specific Quota Regime

	Cameroon (quota: 155,000 t)			Ivory Coast (quota: 155,000 t)		
	Imports (t'000)	Excess over quota (t'000)	(%)	Imports (t'000)	Excess over quota (t'000)	(%)
1994	158.17	3.17	2.0	149.08	0.00	0.0
1995	165.29	10.29	6.6	160.27	5.27	3.4
1996	166.62	11.62	7.5	180.74	25.74	16.6
1997	157.12	2.12	1.4	166.25	11.25	7.3
1998	115.74	0.00	0.0	158.24	3.24	2.1

Source: Eurostat, Council Regulation (EEC) No 404/93, 13 February 1993.

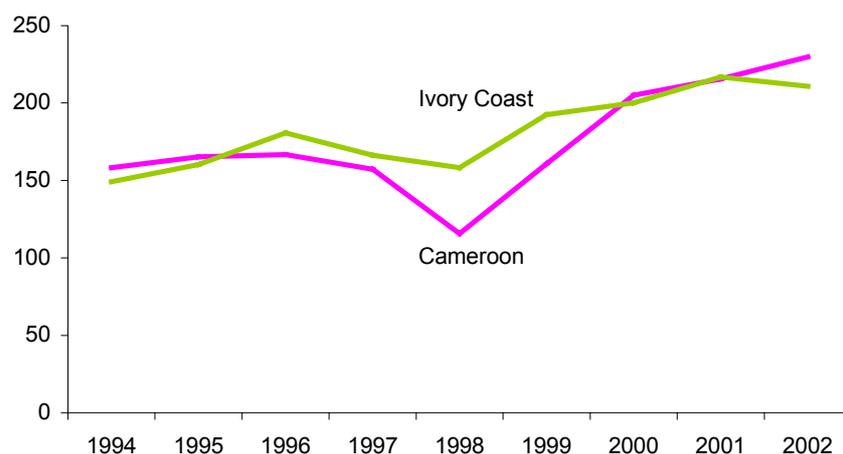
G.2.3. Elimination of Individual Country Quotas After 1999

It has been described in section 3.2 of the main report that following the removal of country specific contingents within the ACP quota in 1999 both Cameroon and Ivory Coast were able

¹¹⁹ Due to severe draught Cameroon was not able to fill its quota in 1998; see www.bananalink.org.uk/trade/btrade.htm.

to significantly increase their exports to the European Union (see Table 3.3 of the main report and Figure G.2 below). This is likely to have reflected the significant cost advantage that the African producer countries appear to have over their competitors from the Caribbean, who were the main losers of the liberalisation of the ACP quota.

Figure G.2
EU Banana Imports from Cameroon and Ivory Coast (t'000)



Source: EUROSTAT.

It has also been suggested in section 2.2 of the main report that, although the ACP quota has not been binding (in that the combined exports of all ACP countries were smaller than would have been allowed under the quota), the African suppliers have faced a *de facto* quota constraint because they did not have access to the necessary import licenses. This suggests that if the pending reform of the EU trade regime involved imposition of a tariff that led to similar EU banana prices as under the quota regime (the “tariff equivalent”), the African suppliers, now freed from the license restriction, would be able to expand their imports further.¹²⁰ Estimation of this expansion is not possible without information on the location and shape of the African suppliers’ supply function. An approximation to this will be provided in section G.3.2.

G.3. Effects of the Regime Change on African Suppliers

Our analysis of the effects of a uniform tariff on the producers in the Caribbean (see section 4 of the main report) involved two steps. First, we established the tariff equivalent of the quota regime as the base scenario of a tariff that would leave Caribbean imports unaffected in the short term. Second, we used supply elasticity estimates in order to establish the effect of lower tariffs on Caribbean supplies. Our analysis of the African suppliers is broadly

¹²⁰ See section 4.3.1 of the main report.

similar. The main difference is that in this case a different base scenario must be used. As was already mentioned, under the tariff equivalent African supplies would be likely to expand rather than remain equal. In other words, observed supply levels under the current quota system do not provide reliable information on the amounts African producers would be willing to import under the tariff equivalent.

We describe the likely reaction of the African suppliers under our chosen base scenario – a uniform tariff of zero (or, equivalently for the African suppliers, a uniform tariff applied to both ACP and non-ACP countries) – in section G.3.1. In section G.3.2 we use supply elasticity estimates to project the African supplies under various scenarios of higher tariffs.

Our methodology relies on a number of assumptions:

- v) Export and import prices are determined in a competitive market, i.e. reflect marginal costs.
- vi) Supply of Latin American producers is perfectly elastic (i.e. their supply curve is horizontal).
- vii) Bananas are a homogeneous good.
- viii) Level of demand, differentials in productivity between supplier countries and real exchange rates remain constant over time.
- ix) Transport costs to the European Union are similar for African and Latin American suppliers.

The first four are similar to those of the analysis of the Caribbean countries (see section 4.1 of the main report), and their implications have been discussed in the main report. It is important to note, however, that the first assumption is more restrictive here because, as the African supplies appear to have been subject to binding quota restrictions over the last 40 years, there is some possibility that their export prices included quota rent.

As to the fourth assumption, we observed in section 3.1.1 of the main report that the African suppliers obtained important cost savings over the 1990s. This is relevant to our projections for the base scenario, which are informed by the observed export performance in the period from 1993 to 1998. Because the African suppliers are now more competitive, this would lead to an underestimation of their supplies under the base scenario.

We do not have solid data to support the fifth assumption. However, as was mentioned in section 3.1.2 of the main report, there are sources to suggest that turnaround times of reefer boats are similar from Eastern Central America (e.g. Costa Rica) and Africa, which would imply that transport costs are very similar.

G.3.1. The Base Scenario: Free Trade

In the period from 1993 to 1998, when individual country contingents within the ACP quota were in place, Cameroon and Ivory Coast exported some amounts of bananas in excess of their respective country-specific quotas. As discussed in section G.2.2, one of several possible explanations for this is that the African suppliers were sufficiently efficient to export some quantities under the general quota, subject to the same in-quota tariff¹²¹ as the Latin American supplies. If this explanation was correct, then, under reasonable assumptions about the dynamics of the banana market, the quantities exported by Cameroon and Ivory Coast in those years could be shown to be similar to the quantities they would have exported in a situation where they had no advantage over the Latin American suppliers (for a detailed reasoning of this finding, please refer to section G.4.1). All our projections are reliant on this observation; it is therefore important to have in mind that there are alternative explanations for African exports in excess of country-specific quotas under which this observation would be incorrect.

We therefore take free trade (defined here as a zero tariff or a non-discriminatory uniform tariff payable by both ACP and non-ACP imports) as our base scenario. Under this scenario, the African suppliers could command export prices no higher than world market prices, which are determined by the more cost efficient and highly price elastic Latin American suppliers.¹²² We take this price to be €262/t, which corresponds to the average unit value (fob) of Latin American exports for the period of 1999 – 2002.¹²³ We approximate the quantities of bananas Cameroon and Ivory Coast would be able to export to the EU under this scenario by the average annual volumes for the period from 1994 to 1998.¹²⁴ Table G.4 shows that under this scenario the African suppliers would suffer volume reductions of the order of 20-25% from their current supply levels.

Table G.4
EU Imports from African Countries (t'000)

	Current (= Average 1999-02)	Under free trade (= Average 1994 - 98)	Difference
Cameroon	202.7	152.6	-24.7%
Ivory Coast	205.1	162.9	-20.6%

Source: NERA calculations based on EUROSTAT data.

¹²¹ €100/t until 1995 and €75/t afterwards.

¹²² For details on the workings of a tariff-only regime, see section 2.3 of the main report.

¹²³ See our price-gap analysis in Table 4.1 of the main report. Recall that we assumed that there is no transport cost differential between African and Latin American suppliers. Should African suppliers have lower transport costs, they could command a premium over the Latin American fob export price (fob prices are, definition, net of transport prices).

¹²⁴ Though individual country quotas were in force from 1993 to 1998, EUROSTAT does not provide information on imports of fresh bananas prior to 1994.

G.3.2. Alternative Scenarios: Higher Tariffs

Application of a uniform tariff to imports from Latin American sources would enable the African suppliers to command a premium over Latin American export prices. For example, if a tariff of €75/t was chosen, African suppliers could charge (€262+€75=€337). On this assumption, supply elasticity estimates can be used to project quantity increases above the free trade volume generated by different levels of tariff. For example, a tariff of €75/t would imply that the African suppliers could obtain an export price 28.6% higher than the price in the base (free trade) scenario. A supply elasticity of 1 would then imply that under the tariff of €75/t, the volume supplied by the African suppliers would be 28.6% higher than under free trade. This projected import level can then be compared to current supply levels under the quota regime.

Table G.5 and Table G.6 show the results of this exercise for two different sets of supply elasticities. Table G.5 follows the literature consensus (see section 4.3.2.1 of the main report) and assumes a supply elasticity of unity for both Cameroon and Ivory Coast. Under this approach, we find that both countries would be able to roughly maintain their current supply levels under a tariff of €75/t. As higher tariffs were imposed, supplies could be expanded. Under the tariff equivalent (€259/t), Cameroon and Ivory Coast could increase their exports to the European Union by 50% or more over current levels.

Table G.5
Supply Projections for Different Tariff Scenarios
Based on Assumed Supply Elasticities of 1.0 (Literature Consensus)

Tariff level (€)	fob price (€)	Price increase	Cameroon			Ivory Coast		
			Supply (t'000)	Change in supply from base sc.	Change in supply from current	Supply (t'000)	Change in supply from base sc.	Change in supply from current
0	262	0.0%	152.6	0.0%	-24.7%	162.9	0.0%	-20.6%
75	337	28.6%	196.3	28.6%	-3.2%	209.5	28.6%	2.2%
100	362	38.2%	210.8	38.2%	4.0%	225.1	38.2%	9.7%
125	387	47.7%	225.4	47.7%	11.2%	240.6	47.7%	17.3%
150	412	57.3%	240.0	57.3%	18.4%	256.2	57.3%	24.9%
175	437	66.8%	254.5	66.8%	25.6%	271.7	66.8%	32.5%
200	462	76.3%	269.1	76.3%	32.8%	287.3	76.3%	40.1%
225	487	85.9%	283.6	85.9%	39.9%	302.8	85.9%	47.6%
250	512	95.4%	298.2	95.4%	47.1%	318.3	95.4%	55.2%
259	521	98.9%	303.5	98.9%	49.7%	323.9	98.9%	57.9%

NERA projections.

We also attempted to estimate supply elasticities econometrically.¹²⁵ Sufficiently precise results could only be found for Cameroon, for which we obtained an elasticity of 1.5.¹²⁶ Our

¹²⁵ See section G.4.2 for technical details.

¹²⁶ For a description of our estimation method, please refer to section G.4.2.

supply projections based on this elasticity are presented in Table G.6. These suggest that Cameroon could slightly expand its supplies to the EU under a tariff of €75/t. Under the tariff equivalent of €259/t the country could increase its exports by 87% over current supply levels.

Table G.6
Supply Projections for Different Tariff Scenarios
Based on Estimated Supply Elasticity of 1.5

Tariff level (€)	fob price (€)	Price increase	Supply (t'000)	Cameroon	
				Change in supply from base scenario	Change in supply from current
0	262	0.0%	152.6	0.0%	-24.7%
75	337	28.6%	218.1	42.9%	7.6%
100	362	38.2%	240.0	57.3%	18.4%
125	387	47.7%	261.8	71.6%	29.2%
150	412	57.3%	283.6	85.9%	39.9%
175	437	66.8%	305.5	100.2%	50.7%
200	462	76.3%	327.3	114.5%	61.5%
225	487	85.9%	349.2	128.8%	72.3%
250	512	95.4%	371.0	143.1%	83.0%
259	521	98.9%	378.9	148.3%	86.9%

NERA projections.

G.3.3. Cautionary notes

We reiterate that the projections provided in the previous subsections should be interpreted with great caution. As mentioned above, our conclusions on the base scenario (i.e., the volumes Cameroon and Ivory Coast would supply under free trade) are only valid if the above-quota exports between 1993 and 1998 were in fact due to the efficiency of the African suppliers. However, some plausible alternative explanations exist.

The projections concerning scenarios of higher tariffs based on supply elasticity estimates are even more problematic. From the outset, the caveats with regards to our estimations of Caribbean supply elasticities as discussed in section 4.3.2.2 of the main report apply here as well. However, the estimations of African supply elasticities present two additional problems that cast further doubt on their reliability. First, unlike the Caribbean countries, the African suppliers may have faced binding quota constraints during the whole period covered by the data the elasticity estimates are based on.¹²⁷ This means that trade in African bananas generated quota rents, part or all of which might have been captured by exporters through higher export prices. The assumption that export prices reflect marginal costs of

¹²⁷ See section G.2.

production, which is fundamental to the validity of our econometric analysis,¹²⁸ will not hold in this case.

Exporters would not have been able to capture rents if they stood in competition for supplies under the quota, as in this case they would have been forced to supply at marginal cost. However, quota rents might have been captured (and our assumption of marginal cost pricing compromised) if exporters coordinated their behaviour or if they held import licenses themselves. In the first case, export prices would have been higher than marginal cost; in the latter they would merely have constituted transfer prices with very little information on cost conditions whatsoever.

The rather scarce information on the market conditions in the African supplier countries obtained from desk based research does not allow us to determine with certainty which of the three situations described is closest to reality. In the period from 1993 to 1998, in both Ivory Coast and Cameroon, at least two of the three multinational banana companies were active in production,¹²⁹ alongside independent domestic suppliers. These players might well have been in competition for access to the country specific quotas. However, in both countries there were also powerful producer groups or government agencies¹³⁰ that might have been able to provide coordination between exporters. Finally, it is clearly the case that the vertically integrated multinational banana companies will have owned at least some of the import licenses,¹³¹ whereas other exporters may have had to rely on intermediaries.¹³²

¹²⁸ See section G.4.2 below.

¹²⁹ Del Monte and Dole control plantations in Cameroon, whereas Dole and Chiquita are active in Ivory Coast; see UNCTAD 2003.

¹³⁰ In Cameroon, the State-owned Cameroon Development Corporation (CDC) owned most of the banana estates (no foreign person is allowed to own land in Cameroon), but had cooperation agreements with Del Monte and Agrisol, who operated the plantations; see Michael Hubbard, Alicia Herbert and Yves Roumain de la Touche, *Country Report on Assistance to Cameroon: Evaluation of EU Assistance to ACP Banana Producers*, February 2000. In Ivory Coast, there is the Office de Commercialisation de l'Ananas et de la Banane (OCAB), a powerful body that manages production, exports, and relations with EU/ACP markets, and a number of producer groups, the largest of which – Societé de Commercialisation de la Banane (SBC) is related to Dole; see UNCTAD (2003), p. 22.

¹³¹ See Sandrine Rioual, "La guerre de la banane: De la suprématie des firmes à la réforme de la Convention de Lomé?", *Politique Africaine* no. 75, Oct. 1999. UNCTAD (2003) suggests that in Ivory Coast, 56% of banana exports are controlled by Dole, while Chiquita markets another 27% through Banador; p. 22.

¹³² In order to test whether African export prices contained quota rent, we compared African, Latin American and Caribbean cif-fob price margins (i.e., the difference between unit values based on cif prices (as given by EUROSTAT) and fob prices (as given by FAOStat)) over the period from 1994 to 2002. The margins for both Cameroon and Ivory Coast consistently exceeded those of the Caribbean producer countries, and were similar to those of the Latin American suppliers. While this finding does not provide conclusive evidence, it is at least consistent with the assumption that African export prices do not contain quota rent. The reasoning is as follows. Cif prices are composed of fob price, transport costs and quota rent captured by importers. Caribbean exports are unconstrained and therefore do not generate quota rent; hence the cif-fob margin should reflect transport costs only. We have found some evidence suggesting that African transport costs are likely to be similar to those of the Caribbean (see further above in this section). Therefore, a finding that African margins were not significantly larger would imply that most of the quota rent is captured through export prices, thus proving that the assumption

A further caveat is that our projection exercise relies on the assumption that supply elasticities are constant, i.e. do not change as price varies. This assumption is restrictive, and projection results will be biased if it does not hold.¹³³ Results will be less reliable for scenarios of high tariffs, as the impact of the bias will be larger the larger the difference from the base scenario of free trade. While this problem also affects the projections of Caribbean supplies,¹³⁴ it is even more relevant here because i) the benchmark price (€262 as compared with €520 in the analysis of the Caribbean) is lower, implying that similar absolute changes in the price level lead to higher proportional price variations (e.g. a €75-variation from €262 is equivalent to 28.6%, as opposed to only 14.4% when the benchmark is €520); and ii) arguably, the tariff-equivalent is closer to the range of “realistic” tariff scenarios than the zero-tariff benchmark. In particular, the African projections will provide only a very poor estimate of the supplies under the tariff equivalent.

G.4. Technical Notes

G.4.1. A Model of African Supplies under Country-Specific Quotas

The projections on African supplies under a free-trade scenario rely on the assumption that supplies to the EU in excess of country-specific quotas were cost efficient quantities imported under the general quota. In section G.3.1 above the claim is made that under this assumption, Cameroon’s and Ivory Coast’s total export supplies between 1993 and 1998 reflected the quantities these countries would have been willing to supply in a situation where they had to compete with the Latin American producers in equal conditions. In this section, we provide the theoretical reasoning as to why this might be the case.

Figure G.3 depicts the situation of an African export country under individual country quotas. The country’s suppliers operate on the upward-sloping aggregate marginal cost-curve $Cost_{ACP-AF}$.¹³⁵ Latin American supplies are described by the horizontal cost curve $Cost_s$. The constant unit cost of the Latin American suppliers determines the banana price in the world market (p_W), which is also the price (net of in-quota tariff) a non-integrated exporter can obtain under the general EU quota.¹³⁶ p_{EU} is the prevailing price in the

of marginal cost pricing would not hold. Conversely, the fact that African margins are in fact higher suggests that at least some of the quota rent is captured by importers.

¹³³ For example, in section 3.1.1 of the main report, we observed that the yield of Cameroon’s banana plantations had diminished as output was expanded over recent years. This suggests that this country’s supply curve could quickly become more and more inelastic if further expansion of output requires incorporation of additional, less productive land into banana production.

¹³⁴ See section 4.3.2.2 of the main report. Because in the case of the Caribbean suppliers the base scenario is characterised by a high tariff, projections are less reliable for the low tariff scenarios.

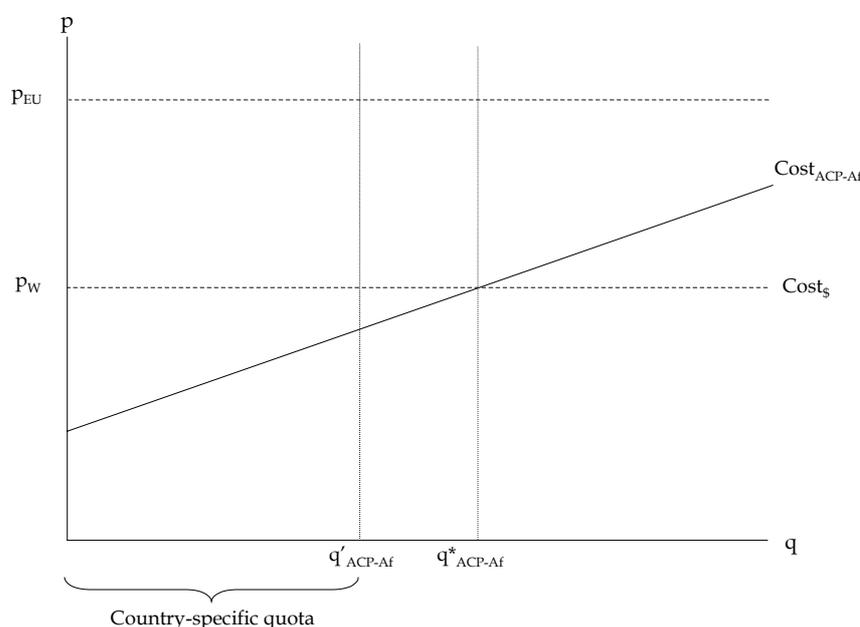
¹³⁵ This marginal cost curve aggregates the individual cost curves of all the suppliers in the country.

¹³⁶ Because our model ignores transport costs, the African suppliers would be indifferent between supplying to the open world market or to the general quota. In the real world, they will always prefer supplying into the general quota, because transport costs to the European Union are lower than to markets in the Americas or in Asia.

European Union, which under the characteristics of the quota system cannot be influenced by the African suppliers.¹³⁷

If the African country only had access to the world market or the general quota, it would export the quantity at which its marginal cost exactly matched the world market price p_W , i.e. q^*_{ACP-AF} .¹³⁸ However, even though the African country has also access to a country-specific quota, under the assumptions of our analysis it will not supply more than q^*_{ACP-AF} to the European market.

Figure G.3
Banana Supply of an African Country under Country-Specific Quotas



Because our model assumes that the African suppliers compete with each other, import licence holders can fill the country specific quota by offering the African suppliers a price of p_W . At any lower price, exporters will prefer supplying into the general quota. However, competition prevents them from forcing any higher price upon the license holders in order to extract some of the quota rent. As the exporters face the same price p_W under the country-

¹³⁷ It will be recalled that under the quota system, the European price level is determined by the cost of the most inefficient suppliers in the Caribbean and is therefore largely given for the African suppliers. Note that, in theory, African suppliers with market power might well influence the European price by choosing not to fill the quota. This might be a rational strategy in some circumstances (the supplier would have to be able to appropriate the additional quota rent generated by the higher EU price, the increased profit on the remaining supplies would have to exceed the profit lost due to the reduction in output).

¹³⁸ For any additional units, marginal cost would be higher than the world market price; supplying these would therefore imply incremental losses to the country's suppliers.

specific and the general quota, total supply will be q^*_{ACP-AF} .¹³⁹ Quantity q'_{ACP-AF} will be supplied into the country-specific quota, the remainder into the general quota.

G.4.2. Estimation of Supply Elasticities

This section describes the scope and the results of the econometric analysis of banana supply in Cameroon and Ivory Coast. As in the analysis of Caribbean banana supplies, data availability restricted our choice of supply specification so that in the end we relied on the same simple linear relationship between marginal costs and export volumes as discussed in Appendix D.1.1 of the main report.

We populated the variables of the model by annual data from the FAO on total export volumes and nominal export values in US dollars for the period from 1961 to 2002, rendering 42 observations, and 41 observations in estimations involving first differences. We applied the following variables in the model of supply estimation:

Marginal costs: We applied the unit value in nominal US dollars for each country as a proxy for marginal costs. This price represents the fob export price.

Quantity: We specified quantity for each country with total global export volumes. We know from alternative data provided by FAO¹⁴⁰ that the vast majority of both countries' banana exports go to the European Union.

Control variables. In addition to these structural variables we also employed a set of control variables in the estimations. These included:

- *Harvest area.* The area of land employed in the banana production in each country, as published by the FAO.
- *Yield.* The productivity of land in banana production defined as the ratio of total annual production volume and harvest area. The ingredient data for calculating yield are published by the FAO.
- *Dummy variables for natural disasters.* We controlled for the drought period in 1998, which appears to have had a severe impact on banana production in Cameroon. We expect that similar natural disasters are likely to have occurred more often and in both countries; however, we could not obtain reliable information on other such events.

¹³⁹ Note that in this situation the observed unit value of African exports (p_w) is equal to marginal cost.

¹⁴⁰ See Table G.2.

- *Dummy variable for privatisation of the OCG (l'Organisation Camerounaise de la Banane).* The privatisation of the governmental OCG, the Cameroon Banana Organisation, in 1990 may have had an impact on the productive efficiency in banana production, which we controlled for by using a dummy variable.
- *Market entry of multinational banana producers in Cameroon in 1988.* We included a dummy variable to capture any effects of the entry of large multinationals in the Cameroon banana production from 1988. The multinationals also increased their engagement in Ivory Coast from the late 1980s/early 1990s, but here we lack a precise date of the potential structural break.
- *Dummy variables for political turmoil and military coups.* Both countries went through phases of political instability in form of riots, mutiny, military coups or armed uprising. We controlled for these political shocks as some of them might have affected banana production.
- *Dummy variables for strikes.* Cameroon was affected by a number of strikes in the 90s and in 2001.

The same estimation techniques and tests were applied in this analysis as in the evaluation of the banana supply of Caribbean countries. In particular, we estimated the supply relationship of the two African banana producers with cointegration regressions, regressions in first differences,¹⁴¹ and with instrumental variable estimation techniques. A brief description of these techniques is provided in Appendix D.1.3 of the main report.

Table G.7 presents the results of the supply elasticities of the two countries. The elasticities were derived from the coefficient estimates of the linear marginal cost specification. We also report p-values of the elasticity estimates. The estimate for Cameroon is statistically significant, whereas the estimate for Ivory Coast is so imprecise that we consider it unsuitable for forecasting.¹⁴² The underlying econometric model of the supply elasticity for Cameroon is a cointegration regression. The estimate of the supply elasticity for Ivory Coast is based on the instrumental variable estimation technique, which we performed in first differences.

¹⁴¹ Unit root tests revealed that most price and export series in the models were non-stationary.

¹⁴² The p-value of 0.89 means that, in the case of Ivory Coast, there is a probability of 89% that, given the estimates obtained, rejecting the hypothesis that Ivory Coast's supply elasticity is actually 0 would be wrong. In the case of Cameroon that probability is only 3%, indicating that this country's supply elasticity estimate is much more precise.

Table G.7
Supply Elasticities of African Banana Producers

	Supply elasticity	p-value
Cameroon	1.5	0.03
Ivory Coast	17.4	0.89

NERA estimates.