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Reform of EU Export Subsidies on Sugar: The Legal and Economic Implications for the ACP Countries

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Introduction

ACP countries have preferential terms of access for their sugar exports to the EU. The sugar Protocol of the Lomé Agreement gives (indefinite) duty-free access for agreed quantities of sugar at guaranteed (protected domestic EU) prices to specific ACP Protocol countries.[1] This results in these ACP countries receiving prices for their sugar exports to the EU that are in excess of those on the world market, and a corresponding transfer of income that embodies a significant element of rent or 'aid'.

In September 2002 Australia and Brazil filed complaints and requests for consultations with the EU at the WTO, concerning the nature of the EU's sugar market. The complaint is that the volume of the EU's subsidised exports of sugar exceed the levels the EU had committed itself to under the Uruguay Round Agreements. If this challenge at the WTO leads to reforms of the EU sugar policies, then this may lead to reductions in protected EU import prices and therefore in turn to reductions in the level of income transfer to the ACP protocol exporters. Reduced rents or 'aid' to these relatively sugar-dependent ACP exporters may have serious macroeconomic implications, in terms of incomes, employment, the balance of payments and tax revenue.

The EU sugar regime

The production of beet sugar in the EU is limited under the Common Agricultural Policy (CAP) by the imposition of country-specific quotas that form part of an overall EU quota limit. Quotas apply to the finished refined product (white sugar) but implicitly constrain production of the raw beet. Each member state (MS) is allocated a quota by the Council of Ministers, which it then distributes to processors according to its own national rules.

The quotas themselves are further subdivided into three parts, namely the 'A', 'B', and 'C' quotas. In essence, 'A' and 'B' are the main quotas and differ only in the level of the levy imposed on producers. 'A' attracts a fixed levy of 2% of the intervention price while 'B' producers face a variable levy of up to 37.5% of intervention price, dependent upon the cost of export refunds. A further storage cost levy, used to pay back producers for storage costs, is charged on all sales bar those into intervention. 'C' quota sugar is not eligible for intervention buying and is thus exported without subsidy and sold at the world market price.

The intervention price is set by the Council and this, along with the storage cost levy, creates a floor price for sugar in the EU. Clearly prices do not always equate to this but will move between this minimum level and the threshold price level (the price at which imports enter the EU) and possibly higher. When production is at a level that threatens the floor price, the Commission buys surplus sugar into intervention from 'A' and 'B' quota production. However, given the export arrangements intervention rarely occurs.

Guaranteed prices for refined sugar are set annually and are then translated into minimum beet prices for producers. Refiners therefore must pay beet producers 58% of the intervention price as a minimum, while processors receive 42% of the intervention price.

The sugar regime has specific provisions for both the export and import of sugar. Exports can be of two types of sugar – surplus quota sugar and 'C' sugar. The former is exported onto world markets with the aid of export refunds. Such refunds are necessary to ensure that the sugar refiners can actually export, the refunds making up the difference between the (high) internal EU price and the (lower) world market price. The value of these subsidies varies each year depending on the relative level of prices in the two markets, while the final level of export refunds will determine the level of the levy imposed on 'B' quota sugar. 'C' sugar is exported without support and as such is sold at the going world market price.

As with all products covered by the CAP, there is a common tariff imposed on all non-EU imports that is set at a level higher than the internal guaranteed price to protect domestic producers.

There is, however, an exception to this arrangement and that is the provision for preferential imports from ACP countries. Under the Lomé (now Cotonou) Convention, the EU agrees to buy a predetermined, but fixed, volume of imports from a range of countries that are exempt from the duties normally applied to imports and that are purchased at a price that is roughly equivalent to the EU's internal intervention price. The vast majority of such 'preferential' sugar flows to the UK for refining.

Table 1. ACP export quotas in tonnes (1998/9)

Barbados	50,312.4
Belize	40,348.8
Congo	10,186.1
Côte d'Ivoire	10,186.1
Fiji	165,348.3
Guyana	159,410.1
Jamaica	118,696.0
Madagascar	10,760.0
Malawi	20,824.4
Mauritius	491,030.5
St Kitts Nevis	15,590.9
Swaziland	117,844.5
Trinidad & Tobago	43,751.0
United Republic of Tanzania	10,186.1
Zambia	0.0
Zimbabwe	30,224.8
Total	1,294,700.0

Source: ACP (www.acpsugar.org/acpstats1.htm)

The Uruguay Round Agreement covered agricultural products for the first time. For the sugar sector, the emphasis was placed on reducing distortions to trade, either via import restrictions or through export subsidies. In the case of the EU, the system of a guaranteed minimum import price based on a variable levy had to be replaced with fixed import tariffs.

The new policy had to be introduced in mid-1995 and the EU was further tasked with reducing the fixed tariff by 20% in relation to the 1986–88 base period, over the six-year period of 1995/6 to 2000/1. In effect this meant that the import tariff on white sugar was introduced at 507 ECU/tonne in 1995/6 and had to be reduced gradually to 419 ECU/tonne by 2000/1. However, there is a 'Special Safeguard Clause' that allows the EU to impose an additional tariff if the import price falls below 90% of a so-called trigger price of 531 ECU/tonne.

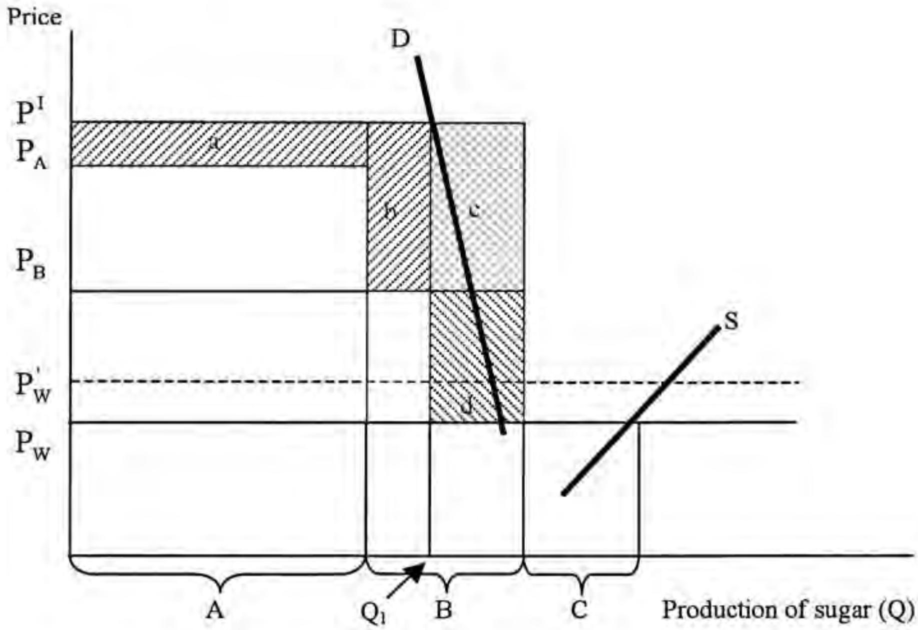
More significantly for the EU, the Uruguay Round Agreement required its policy on export subsidies and volumes to be altered. In 2000/1, the volume of subsidised exports had to be some 21% lower than the base period of 1986/7–1988/9 while the total expenditure on export subsidies had to be 36% lower than the same base period.

Implications of the sugar regime

The principles of the EU sugar market regime are illustrated in Figure 1, with production of sugar divided into A- and B-quotas and C-production. The production of A-sugar is paid the guaranteed price P_A, and the production of B-sugar the price P_B, whereas the production of C-sugar is paid the prevailing world market price P_W. The prices of A- and B-sugar are linked to the intervention price P^I by charging the production of A-sugar a levy of 2% and the production of B-sugar a maximum levy of 37.5%.[2] Domestic consumption of sugar in the EU (Q_I) is given by the intersection of the intervention price P^I and the demand curve (D). Excess supplies of A- and B-sugar ($A + B - Q$) are exported to the world market at the price P_W, the costs of exports (equal to the shaded area $c + d$) being covered by the revenue from levies on A- and B-production (equal to the shaded area $a + b + c$). The provision of export support through levies on production might be viewed as cross-subsidisation of exports, and incompatible with the regulations of WTO. Certainly the provision for B-sugar is subject to reduction commitments according to the WTO agreement.

If the scale of the supported exports in the inter-

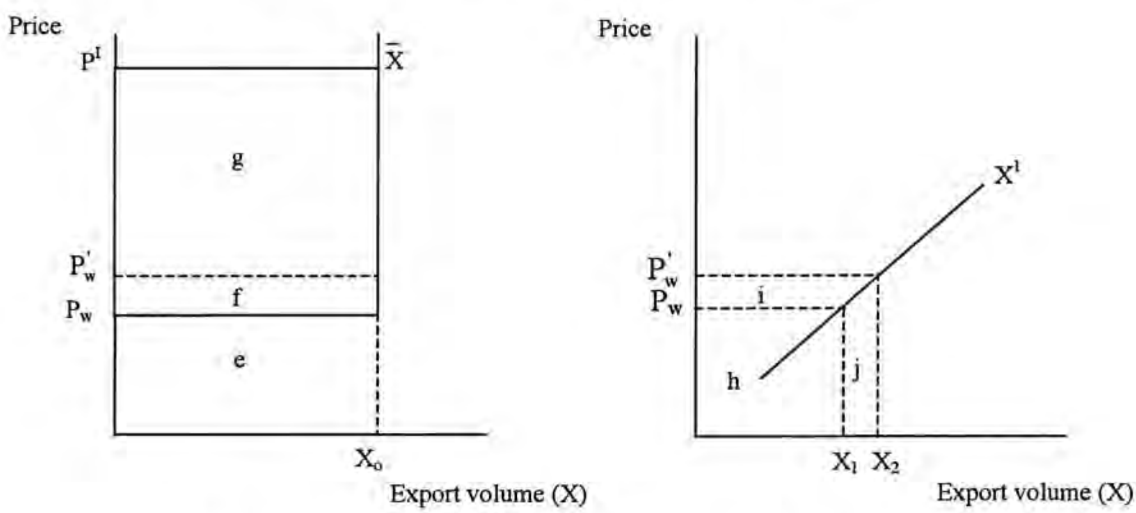
Figure 1. EU sugar scheme



national market is relatively large then one may for some purposes wish to distinguish between the actual world price and a post-reform world price. Reduced exports by the EU, both of those eligible for export port and those not (because of reduced incentives to produce for a protected market), may reduce world supply sufficiently to shift the world price upwards

The implications of the sugar protocol arrange ments for the sugar export earnings of the respectiv ACP countries are illustrated in Figure 2. On th quota set for protocol exports ($P(a)$), the price receive by the ACP exports can be approximated by P^I.

Figure 2. Export revenue and income transfers for sugar protocol countries



(a) Protocol exports

(b) Non-protocol exports

The total revenue for an export quota of X_0 is given by the area $(e + f + g)$. When compared with the prevailing world price (P_W), this constitutes an additional income transfer of area $(f + g)$. If the world price is variant with the scale of these EU imports from ACP countries (an equivalent amount of which can be re-exported at world prices by the EU), then this income transfer is a reasonable approximation for valuing the rent accruing to the ACP exporters. In the case of wider reforms of the EU's sugar regime, one might anticipate a rise in the world price of sugar (e.g. to P_W). In which case the total rent transfer associated with the sugar protocol would be better viewed as being equivalent to the area g in Figure 2.

In Part (b) of the figure we recognise that the protocol exporters may generate sugar export earnings from exporting (volume X in Figure 2) beyond their protocol quotas, but at world prices. The export earnings at the prevailing world price are represented by area h. Again, any reforms of the EU regime that raised the world price to would increase export earnings on non-protocol exports to non-EU destinations to $(h + i + j)$. The net effect of EU sugar reforms that reduced the EU import (or intervention) price to P_W would therefore reduce the export earnings of the protocol exporters by $(g - i - j)$.

Impact of current EU sugar regime on sugar protocol countries

The methodology employed is based on Figure 2. We initially base the estimates on the annual average (2001) International Sugar Agreement (ISA) daily price (19.04 US cents/kg) to proxy the world price (P_W) and the average unit value of ACP exports to EU adjusted uniformly for annual (2001) average c.i.f. on London daily price (2.42 US cents/kg) to represent the EU intervention price (P^1).

Table 2. Estimates of current income transfer (2001)

	Value of sugar exports to EU (in US$ million)	Volume of sugar exports to EU (in tonnes)	Total income transfer to ACP exporters[a] (US$ 000, 2001 prices)	Share of total transfer (%)
Barbados	27.2	51,488	16,150.7	3.3
Belize	24.9	47,070	14,798.8	3.0
Congo, Republic of	1.1	2,050	660.1	0.1
Côte d'Ivoire	5.5	10,400	3,268.2	0.7
Fiji	82.1	155,386	48,754.2	9.9
Guyana	102.5	193,945	60,879.4	12.4
Jamaica	78.1	147,720	46,399.3	9.5
Kenya	2	3,789	1,186.9	0.2
Madagascar	8.3	15,731	4,924.1	1.0
Malawi	20.6	39,051	12,219.7	2.5
Mauritius	304.2	575,421	180,714.7	36.9
St Kitts	0	0	0.0	0.0
Suriname	0	0	0.0	0.0
Swaziland	94.9	179,510	56,377.2	11.5
Trinidad & Tobago	24.7	46,699	14,678.4	3.0
Uganda	0	0	0.0	0.0
United Republic of Tanzania	7.5	14,105	4,473.1	0.9
Zambia	8.1	15,395	4,796.2	1.0
Zimbabwe	33.5	63,434	19,887.1	4.1
Total	**825.2**	**1,561,194**	**490,167.8**	**100.0**

[a]Based on unit value of actual imports of ACP exporters to EU, adjusted for c.i.f. Alternative estimates based on the negotiated import price under the sugar protocol were also made.

At this stage (i.e. without reform to the EU regime) it is assumed that the world price of sugar is unaffected by the ACP trade. The results of this decomposition of the value of ACP sugar exports to the EU are reported in Table 2.[3]

The first two columns of Table 2 report on the value and volume of sugar exports to the EU in 2001 of the protocol exporters. Note that we report here on all the quota-owning countries under the Sugar Protocol, some of which (St Kitts, Suriname and Uganda) did not export any sugar to the EU in 2001.

The estimated value of the total income transfer component of the total sugar export earnings (of all the protocol countries in 2001) to the EU is US$490.2 million (2001 prices). This is equivalent to just under 60% of the total value of these countries' sugar exports to the EU.

Mauritius receives the largest share (36.9%), and Mauritius plus Fiji, Guyana, Jamaica and Swaziland receive about 80% of the total transfer. This concentration indicates that any EU sugar reform which lowers the EU import price to the ACP protocol exporters will have very uneven adjustment implications across the countries involved.

The transfer is expressed relative to the current value of total sugar exports and to the EU, and of total exporters in Table 3. Given the uniform treatment of protocol exporters by the EU and that (not surprisingly) all these countries only export to the EU under the protocol provisions, the total transfer constitutes a very uniform share of the value of protocol exporters sugar exports to the EU. For every dollar's worth of sugar exports to the EU, the EU pays about 60 cents over the current world price of raw sugar. Alternatively viewed, each dollar's worth sugar exported to the EU would only generate about 40 cents if sold at the world price. Thus the greater the relative share of sugar exports to the EU in total sugar exports, the more that the ratio in the second column of Table 3 tends towards that in the first column. Thus, Barbados exports sugar only to the EU and the share of the transfer in total sugar exports is the same of it is in sugar exports to the EU (59.4%). Similarly Kenya, Mauritius, Jamaica, Guyana, Tanzania and Trinidad and Tobago export sugar predominantly to the EU only. By contrast, for several of the

Table 3. Current income transfer relative to trade levels

	Transfer as % of the value of:		
	Sugar exports to EU	Total sugar exports	Total exports
Barbados	59.4	59.4	7.1
Belize	59.4	43.5	8.9
Congo, Rep	60.0	6.7	0.0
Côte d'Ivoire	59.4	24.9	0.1
Fiji	59.4	48.8	8.6
Guyana	59.4	53.6	12.7
Jamaica	59.4	58.1	3.8
Kenya	59.3	59.3	0.1
Madagascar	59.3	51.8	0.5
Malawi	59.3	45.4	3.9
Mauritius	59.4	57.2	11.9
St Kitts	–	–	–
Suriname	–	–	0.0
Swaziland	59.4	35.4	7.0
Trinidad & Tobago	59.4	53.4	0.3
Uganda			0.0
United Republic of Tanzania	59.6	59.6	0.6
Zambia	59.2	15.8	0.6
Zimbabwe	59.4	26.3	1.1
Protocol total	59.4	47.3	2.1

African economies (e.g. Congo, Côte d'Ivoire, Zambia and Zimbabwe), the greater importance of sugar exports to non-EU markets reduces the importance of the transfer relative to total sugar exports.

How important the transfer is in total exports depends upon the size and degree of diversification of a country's exports. For many of the countries the transfer is small relative to total exports. For some, however, it is moderately important (<4% for Jamaica and Malawi), for others rather important (up to nearly 10% for Barbados, Belize, Fiji and Swaziland), and for some it is extremely important (over 10% for Guyana and Mauritius).

In Table 4, we express the total current transfer in per capita terms (total transfer divided by total population) and as a percentage of GDP (total transfer divided by GDP) for each country.

The transfer per capita figures show a very marked variation, depending on the allocation of the transfer across countries and on the size of countries in population terms. For some of the African economies the transfer translates into a negligible per capita transfer. Consider Kenya, Congo (Rep), Côte d'Ivoire, Madagascar, Tanzania and Zambia, for whom the transfer is equivalent to less than a dollar per person. By contrast for some of the small economies the transfer is rather substantial in per capita terms; over fifty dollars per person, for instance, for Swaziland, Fiji, Belize and Guyana. In the case of Mauritius it is equivalent to 150 dollars per Mauritian.

What these absolute amounts of transfer per capita translate into in relative terms depends on average incomes (GDP per head) in each country. We can gauge this from the transfer to GDP values in the second column of Table 4, since this is the same as the transfer per head as a ratio of the GDP per head. Thus, for instance, elimination of the current transfer would be (in accounting terms) lower per capita GDP in Madagascar by 0.1% and in Fiji by 2.9%. In relative terms, therefore, a dollar's worth of transfer implies a larger increase in per capita income the poorer the country. Thus, although the transfer per capita is three times larger in absolute terms for Mauritius than Swaziland. Its elimination would lower GDP per head more in Swaziland (–4.3%) than in Mauritius (–4.0%).

The transfer is most important in relative income terms for Guyana, where the transfer represents 8.7% of GDP. Indeed the particularly sensitive countries might be viewed as all those where the transfer to GDP constitutes more than 1% of GDP; namely Belize, Fiji, Guyana, Mauritius and Swaziland.

Table 4. Current income transfer to relative domestic and per capita income

	Transfer per capita ($)	Transfer as % of GDP
Barbados	60.2	0.6
Belize	59.9	1.9
Congo, Rep	0.2	0.0
Cote d'Ivoire	0.2	0.0
Fiji	59.2	2.9
Guyana	79.4	8.7
Jamaica	17.2	0.6
Kenya	0.0	0.0
Madagascar	0.3	0.1
Malawi	1.2	0.7
Mauritius	150.6	4.0
St Kitts	–	–
Suriname	–	–
Swaziland	51.3	4.3
Trinidad & Tobago	11.3	0.2
United Republic of Tanzania	0.1	0.0
Uganda	–	–
Zambia	0.5	0.1
Zimbabwe	1.6	0.2
Protocol total	3.0	0.6

The impact of EU policy regime on EU and world prices

The impact of an import tariff

Before the Uruguay Round of the GATT was agreed, the EU operated a system of support prices protected by a variable import levy (VIL). The level of the VIL changes with world prices and is simply the difference between the threshold price and the world price. Under this arrangement, the guaranteed internal price in the EU, set by policymakers, is insulated from movements in world prices such that if world prices fall, the VIL will increase and vice versa.

Under the Uruguay Round agreement, the VIL was replaced with a fixed-rate tariff that was to be reduced over a six-year period. By moving to this system, the EU was no longer able to insulate its domestic price from world price movements and thus it was less able to 'protect' it. Thus, if world prices were to fall, the price at which imports entered the EU would also fall and vice versa. As the tariff is reduced, the relationship between world and EU prices becomes closer until the point where, after complete removal of the tariff, the prices equate. The impact on world markets is to see the level of imports into the EU rise.

The impact of an unit export refund

The use of export subsidies is to provide exporters with a per-unit payment to allow them to sell their exports onto the world market when domestic prices are supported to a level above world prices. If the domestic guaranteed price is fixed then the unit export refund will vary with world prices. As the guaranteed price is reduced then, all other things being equal, the unit export refund is reduced.

By setting a guaranteed price that lies above world price levels, the policymaker will induce greater production of the product. The experience within the EU is that this has moved production of many crops to levels that lie above domestic consumption needs. The excess production then needs to be sold onto the external (world) market, but clearly this can only be done with the use of unit export refunds. There is no impact on the domestic price of this policy, but it does lead to downward pressure on world prices.

Under the Uruguay Round (UR) settlement, the EU has agreed to reduce its volume of subsidised exports as well as its total expenditure on subsidised exports. These goals can be achieved in a number of ways. First, if the guaranteed price is reduced then in effect the incentive to produce is reduced and thus the excess supply is also reduced. In turn this means the volume available for export will decline. The effect on world prices is to see them rise, all other things being equal, as the volume of subsidised supply decreases. In turn, this would imply a reduction in the size of the unit export refund as world prices rise and EU prices fall. In the extreme case of no guaranteed price, the world price and domestic price will equate.

Second, if the export refund is fixed and then reduced, then the volume of exports that can be supported is reduced. Again, this implies that world prices will rise and hence exporters from third countries will benefit.

Evaluation of policy reforms

A number of studies have sought to evaluate the impact of sugar policy reform at a number of levels, varying from single country (or trading bloc) level to global liberalisation of the world market. Clearly, such a task is not simple and the results depend on the assumptions employed, with the result that the impact of similar reforms produce quite different outcomes from a range of models.

Borrell and Pearce (1999) provide a summary of works that examine liberalisation in sugar markets in a number of scenarios. Table 5 replicates some of this information.

Focussing firstly on liberalisation of EU policies alone, there have been several studies which have attempted to measure the impact of reform of both domestic and international aspects of the EU's regime. A report by NEI (2000, p. 37) provides a 'quick and dirty static estimate' of the impact of a 10% reduction in EU production quotas on world prices. Simply by using a correlation between EU stock/consumption ratios and New York spot prices, they suggest a 10% cut in quotas would lead to a 1.5 million tonne reduction in supply (assuming no increase in 'C' sugar). In turn, this supply reduction would lead to an increase in world price of about $15/tonne or 8% of world price.

Frandsen et al. (2001), using a general equilibrium type approach, show how two different scenarios, cutting quotas and cutting intervention prices, can impact on the EU and third countries. The former would lead to a more inefficient distribution of production in the EU and would into impact on production and trade in third countries. If, however, the latter route is chosen and 'B' sugar is eliminated via price reductions, border protection falls by 25% and the EU sees production falling by 19%. The shortfall in supplies is met by exports from third countries, generally non-ACP such as Brazil, and world trade increases by 10% as subsidised EU exports diminish.

The longer term impact of EU policies suggested

Table 5. Summary of the impact of liberalisation on world market prices

Authors	Study base period	Price effect % change	Scenario
Anderson and Tyers (1986)	1987	10%	Liberalisation by East Asia and Western Europe
OECD (1988)	1979–81	1.1%	Reduction in assistance to OECD sugar producers
Webb, Ronigen and Dixit (1987)	1984	53%	Complete trade liberalisation, 12 commodities
Huff and Moreddu (1990)	1982–8	5.25	Multilateral trade liberalisation
Martin et al. (1990)	1980–83	60	Multilateral trade liberalisation
Lord and Barry (1990)	1990	10–30%	Multilateral trade liberalisation
ABARE (1993)	2000 baseline	5.30%	Implementation of UR agreement
USDA (1994)	2000 baseline	2–5%	Implementation of UR agreement
UNCTAD (1995)	2000 baseline	5%	Implementation of UR agreement
Wong, Sturgiss and Borrell (1989)	1985–2004 simulation	8%	OECD price liberalisation
Wong, Sturgiss and Borrell (1989)	1985–2004 simulation	33%	Liberalisation of Japan, EU and US markets

Source: Adapted from Borrell and Pearce (1999), Table 11, p. 18

by Borrell and Duncan (1992) is viewed as reducing world prices by about 17%, which leads to lower annual incomes for Australia and Brazil of $160 million (in 1984 prices).

Borrell and Pearce (1999) use a model of trade behaviour in 24 regions for seven types of sweeteners (the Global Sweetener Model) to compare the outcomes in 2008 of the results of liberalising all markets in 2000 by retaining existing policies. In the case of liberalisation, EU prices fall by 25% while world prices rise by 38%, and EU imports increase by 7 million tonnes.

Borrell and Hubbard (2000) use a simplified version of a G-TAP model to examine the costs of the EU and the impact liberalisation would have, using a simulation-based approach. They suggest that liberalising EU policies completely would lead to an increase in consumption in the EU of 7 million tonnes while exports would be 5 million tonnes lower. In addition, if all OECD countries dismantle their policies, the world price would rise between 30 and 38%, while EU sugar prices would fall by 40%. CEFS (1999) show that a 25% increase in world prices would result from the CAP regime for sugar being removed but that a 50% drop in the EU price would be required to make it equate with the world price.

CIE (2002) extend Borrell and Pearce's (1999) work using the GSM and suggest that doubling import quotas by 2012 will lead to world prices rising by only 3% and EU prices falling by 9.2%. However, export subsidies will need to rise to deal with increased surpluses. Alternatively, halving the intervention price by 2012 will cause EU and world prices to equate, EU prices falling by 49% and world prices rising by 16%. Finally, they examine the effect of halving export subsidies by 2012 and the results show that this would raise world prices by 1% while complete removal raises them by 2%.

Other papers have a more global view of liberalisation. Tyers and Anderson (1986) suggest liberalisation by East Asia and Western Europe would cause world prices to rise by 10% whereas the OECD's evaluation of a 10% reduction in assistance to OECD sugar producers would only lead to a 1% rise in world prices.

Multilateral trade models give different results. Huff and Moreddu (1990) suggest a 25% rise in world prices would result from this form of policy reform, while Martin et al. (1990) suggest a 60% rise. Lord and Barry (1990) are more conservative and suggest multilateral liberalisation would result in a rise of between 10 and 30%.

Simply implementing the Uruguay Round agreements would raise world prices by between 2 and 5% (USDA, 1994), 5% (UNCTAD, 1995) and by 5.3% (ABARE, 1993).

In terms of the ACP countries, the EC (2000) believed that a 25% reduction in the EU sugar price would result in an income loss of 250 million ECU per annum. Borrell and Hubbard (2000) imply such a cut in prices would lead to a loss of 400 million ECU per annum. However, some of this loss would be partly offset by selling more exports on the world market where prices would rise by the aforementioned 30–38%.

Impact of reduction of EU export subsidies on ACP countries

In addition to the possibility of reductions in subsidised exports by the EU resulting from the current case brought at the WTO by Brazil and Australia, there are other potential sources of reform of EU and other OECD countries' sugar policies that may have an impact on world and EU policies. It will be instructive therefore to compare the implications for ACP export earnings of varying intensities of sugar trade policy reforms; marginal reforms that might follow from the current WTO case through to total reforms that fully liberalised OECD (including EU) policies.

Current WTO case

Under the Uruguay Round Agricultural Agreement the EU made commitments relating to sugar on import duties, on the volume of subsidised exports and on the total value of export subsidies. The case brought by Brazil and Australia relates to the volume of subsidised exports. In the year 2000/01 the subsidised quantity had to be 21% lower than in the base period (1986/7–1988/9). These limits do not include either the export of sugar quantities equivalent to the preferential imports from the sugar protocol ACP countries, India, Brazil and Cuba, or sugar exported as food aid. Net of these quantities, the quantity of (directly or explicitly) subsidised exports for the base period (1986/90) was 1,612 ('000 tonnes). As a result, the UR agreement implied a commitment to limit subsidised exports to 1,273.5 ('000 tonnes).

Table 6 shows the three-year average (up to 2000/1) level of exports by the EU; with 2,643 ('000 tonnes) of sugar exported with refund and 3,141 ('000 tonnes) of 'C' sugar exported. If we take 1,700 ('000 tonnes) as being equivalent to the preferential and other exports excluded from the UR commitment and view the UR commitment defining 'subsidised' exports to exclude 'C' sugar, then it is clear that there is no breach of the UR commitment; (2,643–1,700) ('000 tonnes) being less than 1,273.5 UR limit. If, however, we take combined exports of exports with export refunds and 'C' sugar exports as capturing the quantity of subsidised exports, then total 'subsidised' exports net of preferential sugar would be (2,643+3,141–1,700) or 4,084 ('000 tonnes). Reducing this to the UR limit, would require a reduction of 'subsidised' exports of 2810.5 ('000 tonnes) or by 68.8%.

Table 6. Exports to third countries by EU countries (three-year average for 1998/99, 1999/00 and 2000/01) ('000 tonnes)

	Sugar exported with export refund	'C' sugar exports
Denmark	164	126
Germany	332	881
Greece	7	0
Spain	70	139
France	836	1,107
Ireland	8	19
Italy	266	34
Netherlands	51	156
Austria	25	164
Portugal	47	0
Finland	17	3
Sweden	36	50
Belgium	494	135
UK	290	327
EU '15'	2,643	3,141

Source: European Commission

Other wider reforms

The scale of wider reforms is, of necessity, difficult to specify quantitatively, except in the case of full liberalisation. In order to set an approximate limit on the effects of OECD sugar reform we investigate the impact on ACP export earnings and income transfers of a removal of all import and export distortions by all OECD countries. Our representation (based on an assessment of the evidence reviewed in the previous section) of the price adjustment process imposes a full equalisation of prices ($P^e_w = P^e_{EU}$) at 26.28 (cents/kg). For less extreme reforms we consider two other cases; the possible effects of further multilateral trade negotiations (MTN) and major CAP reform. The nature of the reforms assumed and the associated world and EU price estimates are summarised in Table 7.

These four sets of price (P_w and P_{EU}) combinations are used to re-estimate the change in income transfer to the ACP sugar protocol countries, relative to the present (2001) estimated level identified in Table 2.

Alternative simulated reform effects on sugar protocol exporters

For each policy reform case we derive two sets of estimates, one assuming constant quantities of exports being supplied by each ACP sugar protocol exporter to the EU and non-EU markets and one with quantity adjustments assuming unitary export supply elasticity. The perfectly inelastic values might be thought as representing either shorter term outcomes or ones where there are capacity (e.g. land area) constraints on supply expansion or land or other factor specificities that restrict diversification out of sugar into alternative activities. Certainly in the case of the less ambitious reforms then there may be little incentive to reduce production below protocol quotas, if the return to protocol sugar production remains significantly higher than to non-EU export sugar or to alternative forms of agricultural activity. For these circumstances the perfectly inelastic results may be better focused on. For longer term effects and for large-scale sugar reforms it may be more appropriate to focus on the unitary elastic supply values. A unitary value is chosen for presentational reasons, rather than because there are strong priors or clear indicators from the existing empirical work about the appropriate elasticity to use for each country. Agricultural export supply is often viewed as being relatively inelastic in supply, but it can be expected to more elastic downwards in the long run if production becomes uncompetitive as received prices fall. Note, therefore, for the present exercise that the unit elastic results will understate the fall in income transfer from the EU if export supply is more elastic, while overstating the fall if export supply is less elastic.

The simulations explicitly identifies the change in income transfer to each of the protocol exporters and for these countries as a whole (all in 2001 prices); the fall in the gross income transfer from the EU, and the net effect once allowance is made for the increase in export earnings from any sales to non-EU markets at the raised world price P_w.[4]

Table 7. Summary of sugar trade policy reform simulations

Reform option	Nature of reform simulation represented	Simulated prices (cents/ kg)	% change relative to 2001
(A) Current WTO case	Reduction of EU subsidised exports to UR commitment (assuming 'C' sugar is implicitly subsidised)	P_w = 22.28 P_{EU} = 47.12	+17% -7%
(B) (A) + Further MTN reforms	Further reduction of EU export market distortions by 21 percentage points Reduction by EU of import-side distortions by 20 percentage points	P_w = 24.54 P_{EU} = 42.23	-16% +29%
(C) (B) + Major CAP reform	Elimination of EU export subsidies on sugar Further reduction of domestic market distortions by 20 percentage points	P_w = 25.01 P_{EU} = 37.88	+31% -25%
(D) Full OECD liberalisation	Removal of all OECD export subsidies Removal of all OECD protection of domestic production	P_w = 26.28 P_{EU} = 26.28	+38% -52%

The results for simulation A ('Current WTO case') are set out in Table 8. Overall there is a predicted decline in the net income transfer of $16 million if export volumes remain fixed and a decline of $13.4 million if volumes adjust (unit elastic case). This overall net decline is between about 2.7% and 3.3% of the current (2001) transfer. There is, however, marked inter-country variation in the pattern of effects. For all the countries currently receiving an income transfer from the EU there is a decline in the direct or gross transfer, as a result of the imposed fall in the EU import price; this being consistently greater if there is quantity adjustment also (i.e. in the unit elastic case). By contrast there is a rise in income on non-EU sugar exports following the world price rise. Overall, it is not sufficient to offset the direct, gross fall, but for some countries it is. As a result six countries (Congo, Côte d'Ivoire, St Kitts, Swaziland, Zambia and Zimbabwe) are predicted to gain in net income terms (of supplies are fixed), and seven (above, plus Belize) if there are quantity adjustments. By contrast, a few countries more than offset these gains, with Mauritius predicted to experience a net income loss greater than the overall loss (for both elasticity assumptions). Indeed in the unit elastic case the net losses represent about 10% of the current transfer for both Mauritius and Jamaica, about 7.5% and 5% respectively for Guyana and Fiji.

This mixed pattern of country results is driven by two factors. Firstly, any reforms required to satisfy the EU's Uruguay Round Commitments will concentrate relatively narrowly on subsidised exports. It will as a result have greater impact on world than EU import prices. In this simulation of the 'Current WTO case' we assume that the former rises by 17% and the latter only falls by 6%. This is important when we consider the second critical factor, namely the marked inter-country differences in the relative

Table 8. Estimated change in gross and net income transfer to sugar protocol exporters with 'Current WTO case' (US $'000, 2001 prices)

	Change in: (fixed supplies)			Change in: (unitary elastic export supply)		
	Transfer from EU	**Non-EU Xs earnings**	**Net transfer**	**Transfer from EU**	**Non-EU Xs earnings**	**Net transfer**
Barbados	−1709	0	−1709	−1822	0	−1822
Belize	−1563	1551	−12	−1666	1815	149
Congo, Rep	−68	1507	1439	−73	1763	1690
Cote d'Ivoire	−345	1296	951	−368	1517	1149
Fiji	−5159	3044	−2114	−5498	3563	−1936
Guyana	−6439	1892	−4547	−6863	2214	−4649
Jamaica	−4904	298	−4606	−5227	349	−4879
Kenya	−126	0	−126	−134	0	−134
Madagascar	−522	203	−320	−557	237	−320
Malawi	−1296	1066	−231	−1382	1247	−135
Mauritius	−19104	1957	−17147	−20361	2290	−18071
St Kitts	0	567	567	0	663	663
Suriname	0	0	0	0	0	0
Swaziland	−5960	10976	5016	−6352	12844	6492
Trinidad & Tobago	−1550	471	−1079	−1652	551	−1101
Uganda	0	0	0	0	0	0
United Republic of Tanzania	−468	0	−468	−499	0	−499
Zambia	−511	3782	3271	−545	4426	3881
Zimbabwe	−2106	7181	5075	−2245	8403	6158
Protocol total	−51832	35790	−16042	−55243	41880	−13363

importance of EU and non-EU sugar trade among the individual ACP protocol exporters. The net gaining countries are those with a relatively high share of non-EU exports; all with over 50% of their total trade with non-EU countries, while the major losers are those with a high share of their sugar trade directed towards the EU.

The qualitative pattern of the results for the first simulation is generally repeated across all the reform cases considered. It is in general the magnitude of the gross and net income transfers that change. Figure 3 summarises the changes in transfers for the 'Current WTO case' and the three wider reforms simulated for the ACP protocol countries combined.[5]

Figure 3 illustrates the progressive increase in the fall in gross and net income transfer through simulation A to D. It also illustrates that the gross loss (or direct loss of income on EU exports) consistently exceeds the net loss (adjusted for increases in non-EU export earnings), and that overall both gross and net income declines are greater where there is allowance for quantity adjustments (with unitary elasticity). Note that the overall, actual (current) income transfer is about \$490 million, and therefore for neither assumptions about quantity adjustment is the transfer fully eliminated in net terms.

Given the mixture of net gainers and losers in the simulations, it means that the national shares of the actual current transfer understates how the burden of the losses falls on specific countries. Take the case of Mauritius, with 36.9% of the actual (current) total transfer. It is evident that Mauritius accounts for a larger proportion of the overall net fall (c. 45%). However, the nature of the quantity adjustment assumed makes a significant difference in this case to whether the actual transfer is fully eliminated or not. Mauritius' current transfer is \$180.7 million. With fixed supplies it would fall in net terms by \$134.6 million and by \$199.6 million if export supply is unitary elastic following a total liberalisation of OECD sugar markets.

Alternative perspectives: Effects on non-protocol ACP sugar exporters and importers

Since reforms will affect the world as well as the EU import price of sugar, any reform may affect the imports or exports or both of the non-protocol ACP countries. The clear expectation from the earlier analysis and empirical simulations is that reforms will raise the world price of sugar, and in doing so raise the cost (or opportunity cost) of importing sugar and the earnings from exporting sugar. For illustrative purposes we have taken the current volumes of imports and exports of 39 non-protocol ACP countries, and re-valued this trade at the world prices predicted for the two extreme policy reform cases ('Current WTO case' and 'Full OECD liberalisation'). We are assuming no quantity adjustments, and so may over-state the increase in the import cost and understate the export earnings increase. Subject to this caution, one can take some guidance from Table 9 as to the scale of the effect on non-protocol countries as a whole and to the distribution of the gains and losses across countries. (Section (a) reports the change in export values, Section (b) in import values and Section (c) on the net effect.)

The table shows this group of countries as a whole to be worse off in net terms: –\$121 million from full liberalisation and –\$54 million from limited liberalisation). Indeed the vast majority of countries would lose in net accounting terms. Although there are several countries whose export earnings will rise, there are only a few that gain in net terms (Dominican Republic, Ethiopia, South Africa and Papua New Guinea). Indeed if export supply is responsive (even if import demand is not very), the number of countries who would be net gainers from liberalisation is likely to increase.

Summary conclusions

Initially we take the world price of sugar as given, and estimate the total income transfer to each sugar protocol exporter arising from the excess in 2001 of the EU import price over the world price. The estimated total value of the income transfer element for all the ACP protocol exporters of the current EU sugar regime is about \$490 million in 2001 (at 2001 prices), which is equivalent to nearly 60% of the total value of these countries' sugar exports to the EU.

Mauritius receives the largest share of the transfer (c. 37%), with Mauritius, Fiji, Guyana, Jamaica and Swaziland receiving about 80% of the total transfer.

Figure 3. Summary gross and net income transfer losses for all protocol countries

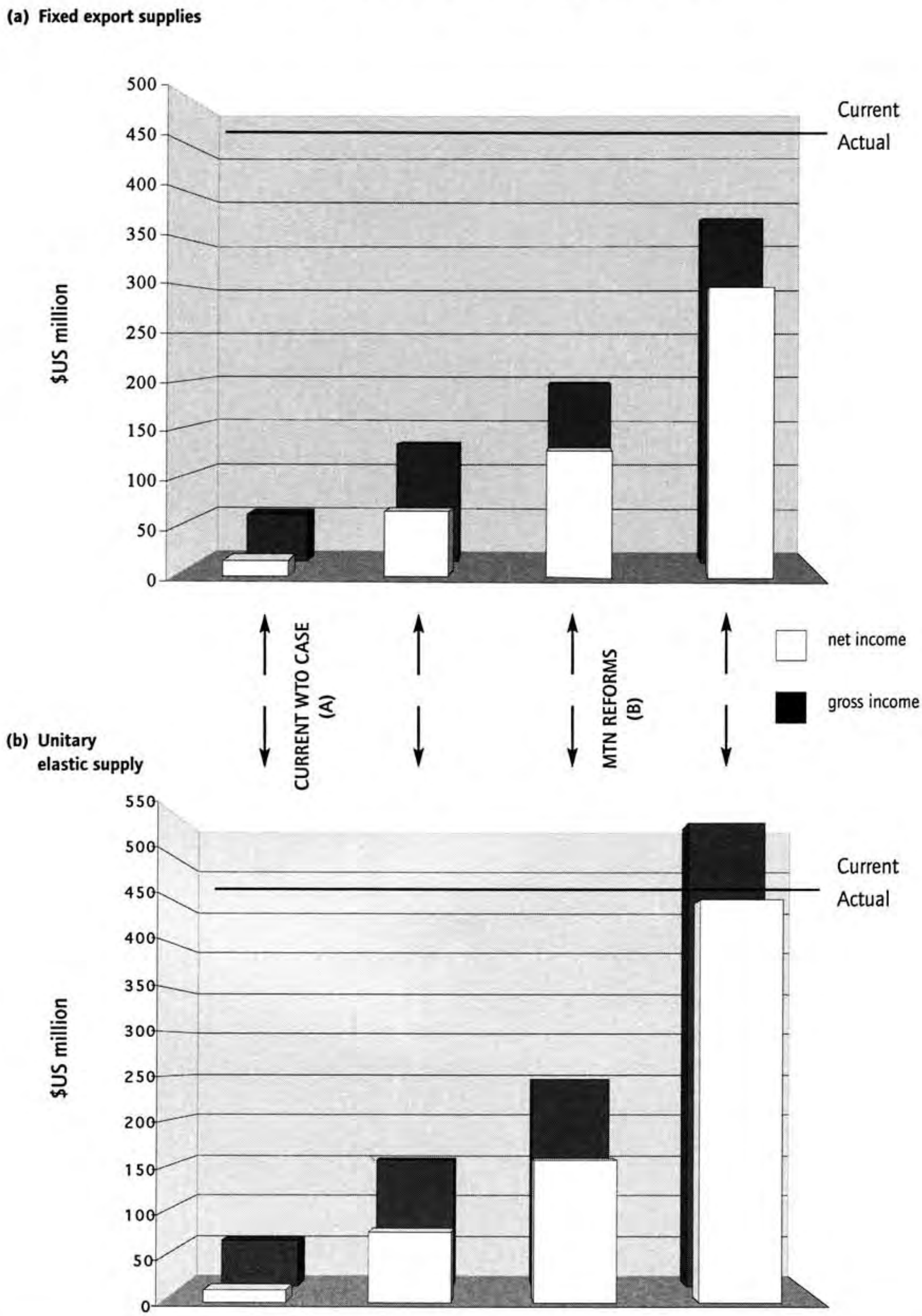


Table 9. Estimated change in value of sugar exports, imports and net trade of non-protocol ACP countries

	(a) Exports		(b) Imports		(c) Net Trade	
	Current WTO case (000 US$)	Full OECD liberalisation (000 US$)	Current WTO case (000 US$)	Full OECD liberalisation (000 US$)	Current WTO case (000 US$)	Full OECD liberalisation (000 US$)
	(assuming fixed quantities)		(assuming fixed quantities)		(assuming fixed quantities)	
Angola	1,134	2,534	5,133	11,470	−3,999	−8,936
Bahamas	0	0	272	609	−272	−609
Dominican Rep.	5,050	11,285	842	1,882	4,208	9,402
Haiti	0	0	5,214	11,652	−5,214	−1,1652
Benin	4	10	632	1,412	−627	−1,402
Botswana	0	0	1,484	3,317	−1,484	−3,317
Burkina Faso	0	0	679	1,516	−678	−1,516
Burundi	0	0	64	143	−64	−143
Cameroon, United Rep.	380	850	1,093	2,443	−713	−1,593
Cape Verde	0	0	1,142	2,552	−1,142	−2,552
Central African Rep	0	0	38	85	−38	−85
Chad	0	0	839	1,875	−839	−1,875
Comoros	0	0	267	597	−267	−597
Djibouti	0	0	414	925	−414	−925
Eritrea	0	0	249	555	−249	−555
Ethiopia	1,620	3,620	1,078	2,410	542	1,210
Gabon	0	0	0	0	0	0
Gambia	2,106	4,706	4,025	8,995	−1,919	−4,289
Ghana	3	7	5,750	12,848	−5,747	−12,841
Guinea	0	0	2,280	5,094	−2,280	−5,094
Guinea Bissau	0	0	99	221	−99	−221
Liberia	0	0	272	608	−272	−608
Mali	1	1	1,517	3,391	−1,517	−3,390
Mauritania	0	0	4,436	9,912	−4,436	−9,912
Mozambique	1,200	2,682	1,752	3,916	−552	−1,233
Namibia	0	0	1,484	3,317	−1,484	−3,317
Niger	0	0	1,369	3,060	−1,369	−3,060
Nigeria	0	0	39,187	87,566	−39,187	−87,566
Rwanda	324	724	648	1,449	−324	−725
Senegal	0	0	2,029	4,534	−2,029	−4,534
Sierra Leone	0	0	434	970	−434	−970
Somalia	2,430	5,430	7,266	16,236	−4,836	−10,806
South Africa	39,399	88,039	5,689	12,713	33,709	75,326
Sudan	1,933	4,319	3,083	6,889	−1,150	−2,570
Togo	0	0	986	2,204	−986	−2,204
Uganda	0	0	1,111	2,482	−1,111	−2,482
Congo, Dem Rep.	0	0	372	830	−372	−830
Papua New Guinea	285	637	26	58	259	580
Western Samoa	0	0	0	0	0	0
Non-protocol total	54,852	122,571	109,169	243,946	−54,317	−121,375

Any reforms of the EU sugar regime that lower the EU import price can be expected therefore to have uneven adjustment implications across the ACP sugar protocol (SP) countries.

Although the current transfer is equivalent to about 60% of the sugar export earnings from EU sales for all the countries, there are marked variations in the importance of the EU sugar market and of sugar trade. As a result the current transfer ranges from being equivalent to about 12% of Mauritius and Guyana's total exports, down to accounting for considerably less than one percent of the value of total exports in several, in particular African, countries.

The current income transfer also makes very different contributions to income and production across the protocol countries. For six countries (Barbados, Belize, Fiji, Guyana, Mauritius and Swaziland) the current transfer is equivalent to over $50 per head of their population. In the case of Mauritius it is equivalent to $150. The significance of these figures in GDP terms depends on the size and average incomes of the economies. It is only for five countries that the total transfer is equivalent to more than 1% of GDP, but for some the percentage is substantial (e.g. Guyana at 8.7% and Mauritius at 4%). It is for these countries that there are corresponding significant production and employment implications arising from the transfer and its removal.

Any reform of the EU sugar regime will tend to lower the EU price and reduce the world price. Taking sensible indicators from the existing literature, we argue that full liberalisation of all OECD sugar markets and trade would raise the world price by 38%. This would in turn imply a 52% reduction in EU import prices, as prices equalised with full liberalisation. We take these values as our basis for representing the effects of alternative degrees of reform on world and EU prices, if reforms we progressively intensified reforms from the current situation. For all of the policy simulations we find that:

- The protocol exporters overall will experience a fall in the net income transfer; the fall increasing as the degree of OECD liberalisation increases (from about $16 million for the partial reform to nearly $300 million for full liberalisation (with fixed quantities or $13 million to c. $450 million (with quantity adjustments)).
- There will be protocol countries that consistently gain and lose in net income transfer terms. The losers (e.g. Barbados, Fiji, Guyana, Jamaica and Mauritius) are those that export sugar only or predominantly to the EU and the gainers (e.g. Congo, Cote d'Ivoire and Zambia) are those with significant exports to non-EU markets. The scale of the individual net losers tends, however, to be considerably larger in absolute terms than the net gainers. For example the largest net gainer from partial reform ('Current WTO case') is Swaziland (+$6.5 million), while the greatest net loss is that experienced by Mauritius (–$18 million).
- The magnitude of both the net gains and net loses from reform tend to increase if allowance is made for the possibility of export-quantity effects.

Besides identifying the importance of the changes in net income transfer relative to the individual countries' trade, income and production levels, this chapter also illustrates that non-protocol ACP countries will be affected by changes in world prices of sugar. The reforms can be expected to raise both the cost of sugar imports and earnings on sugar exports. Again there are also likely to be net gainers and losers from reform in this set of countries.

Reforming the EU sugar regime, whether it is piecemeal change or complete liberalisation, has significant effects on the ACP sugar protocol exporting countries in terms of changes in transfers of income. The extent to which this varies between the countries depends on their reliance on sugar exports for export earnings and also the degree to which they rely on the EU as their main sugar trading partner. Countries relying heavily on sugar exports, and in turn heavily on the EU market, will be highly vulnerable to the negative effects of EU policy reform. These countries will need to diversify their export base away from sugar through policy initiatives of their own and with EU support.

Endnotes

1. In addition to this 'preferential sugar', there are 'special preferential sugar' imports; see above for details.
2. If necessary, a supplementary levy can be applied to cover losses caused by the disposal of Community production in excess in internal consumption.
3. For earlier but comparable estimates of the transfer see MacDonald (1996).
4. It should be noted of course that what is labelled as changes in income transfers might alternatively be interpreted as the changes in sugar export earnings from the EU ('transfer from EU'), in sugar export earnings from non-EU markets ('non-EU Xs earnings'), and in total sugar export earnings ('net transfer').
5. The detailed results for the other cases are available from the authors on request.

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