Constructing a Composite Index of Market Access

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ICTSD

International Centre for Trade
and Sustainable Development

Issue Paper No.23

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FOREWORD

Trade barriers are often opaque and difficult to compare. All too often, an exporter faces costs well in excess of a simple tariff when seeking entry to a market. The principles underlying the WTO's July 2004 Framework Agreement, the 2001 Doha Declaration and the Agreement on Agriculture commit Members to reducing barriers to their markets and lowering their tariffs. However, to date, there exist few tools to measure the changes in market access that will take place at the conclusion of the Doha Round, or those that may result from any other trade agreement. The Composite Index of Market Access (CIMA) has been conceived as a tool to help trade policy-makers and other stakeholders to address this challenge.

As part of the ICTSD project on Tropical Products, ICTSD - with the collaboration of the Institute for International Trade Negotiations - organised a Dialogue on Tropical Products, Trade, Natural Resources Management and Poverty in Salvador, Brazil in December 2007. The objective of the meeting was to determine a better sense of how the WTO agricultural negotiations on tropical products can increase benefits for developing country exporters of these products and identify elements of a pro-poor, pro-sustainable development agenda for tropical commodities. The participants, a group composed of trade negotiators, academics, and farmers' representatives, identified the need for an instrument that would allow analysts to compare the market access barriers, across countries, resulting from subsidies, tariffs, and non-tariff barriers such as sanitary and phytosanitary measures, technical barriers to trade, and private standards.

As part of the work programme that resulted from the Salvador de Bahia dialogue, ICTSD commissioned this paper by Professor Timothy Josling. The ideas it contains have been subjected to a rigorous peer review process involving government officials, academics, and civil society which culminated in an Advisory Panel meeting in Washington, D.C., in July 2008. The Panel helped refine the CIMA methodology and recommended a list of products and markets to study as part of a set of pilot studies. We are currently in the process of commissioning these studies and putting the CIMA concept into practice.

The World Bank and IMF have developed a number of indices aimed at measuring trade restrictiveness, as a result of work they conducted to understand the impact of structural adjustment programmes on recipient countries' policies. Additionally, the OECD's Producer Support Estimate (PSE) provides a methodologically consistent means of comparing the level of domestic support on agriculture amongst its members. These tools, though useful for their intended purpose, fail to address the needs of developing country exporters trying to assess the costs they face in entering a given market. CIMA is intended to provide a clear and concise tool for this purpose.

The CIMA project is not intended to provide a comparison of the barriers faced by different tropical products. Rather, the project is meant to illustrate the actual costs faced by exporters of selected tropical products when trying to penetrate developed country markets. While liberalisation through tariff reduction may partially achieve the aim of facilitating access for tropical products, the CIMA project highlights the fact that tariff reductions are only a part of the puzzle that trade policy has to solve.

The CIMA methodology can be used in many ways, including ensuring a more rational mana-gement of actual barriers to access, and hence, enhancing developing country opportunities to trade. It can also be useful in negotiations for further liberalization. Using the CIMA approach would help shift the focus from the number and complexity of support measures, as well as standards, to a uniform and comparable index so that negotiators may conclude more transparent

and equitable trade agreements in the future. We hope this study, and the CIMA initiative, is of import to the reader and of help to the policy-maker.

Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

INTRODUCTION

The Dialogue on Tropical Products, organized by ICTSD and ICONE in Bahia in December 2007, identified the need for a "composite index of protection" that would include not just tariffs but other factors that affect market access for tropical products such as non-tariff trade barriers and the impact of domestic subsidies.[1] These ideas were elaborated in an ICTSD Concept Note (ICTSD, 2008). In subsequent discussion it was agreed that "protection" was a term with some ambiguity when used for non-tariff barriers, such as health and safety standards, and I have chosen here to refer to the index as a Composite Index of Market Access (CIMA) to emphasize that these issues can all be encompassed in the term "market access".

The CIMA discussed in this paper includes all costs that must be borne by the exporter in gaining access to the domestic market. To make it a market access index, and to distinguish it from other protection indicators, it is suggested that it be calibrated to increase with improvements in market access: the index could have a maximum of 100, for instance, indicating no restrictions on market access – a summit that had been scaled. This current paper attempts to move this idea forward by discussing the options available for such an index and the way in which it could be operationalized.

The inclusion of domestic subsidies in the importing countries in such an index requires special care. Subsidies do not change the terms of market access for the overseas exporters as such, but they do influence the nature of the competition for those markets. So the relative values of the CIMA will therefore be an indicator of the degree of competition, reflecting any subsidy that domestic competitors get as well as any preferences that other exporters receive. So a major analytical consideration in constructing CIMA is to express the market access indicator in such a way that it shows up the impact of subsidies on the competition from both domestic producers and other exporters faced by particular exporting countries.

This paper opens with a discussion of the use to which a CIMA could be put: this is essential before defining the indicator itself. The second section builds a simple indicator with the characteristics that are appropriate for the intended uses. A third section develops the indicator by means of a stylized example, demonstrating the behavior of the indicator under several scenarios. A fourth section considers some conceptual and practical issues related to the construction of the indicator. A fifth section compares the CIMA to other indicators in terms of usefulness, underlying rationale and ease of computation. A final section concludes the paper.

USES FOR A COMPOSITE INDEX OF MARKET ACCESS

Before any indicator of market access can be constructed it is important to be specific as to how it is intended to be used. Any indicator must have a relatively unambiguous interpretation in the context in which it will be employed: the use of indicators that were designed for other purposes can pose significant problems. At present no indicator matches the description mentioned above, combining fiscal and regulatory hurdles with subsidies and competitive conditions. So the approach below is to identify the use of the indicator, construct a conceptual index based on that use and then consider the practical issues of how to measure it and make it operational. Such measurement issues themselves, while important, are subsidiary to the construction and interpretation of the indicator itself (see Josling, 1993).

The objectives of the Composite Index of Market Access, as identified at the Bahia meeting, include its use "in better appreciating and visualising the real magnitude of trade liberalization achieved during the Doha Development Round" and the provision of "a powerful tool in pursuing further liberalization and effective reform". Any reduction in market access barriers, whether by tariff reductions or by less costly ways of meeting standards, should therefore show up as an increase in the market access index. The index should be capable of an easy interpretation, to be useful in visualizing the extent of liberalization achieved and desired. A CIMA must therefore be comparable among countries for the same commodities, and where appropriate should be able to be compared across commodities.[2] As a tool to assist in negotiations it needs to give a clear indication of whether any particular negotiated outcome could result in "real" liberalization.

To be useful as an indicator in the context of both information dissemination and trade negotiations, the CIMA needs to be:

- easily comprehended,
- based on readily available data, and
- capable of replication.

These conditions imply that it should be appropriate as a "headline" number that can be taken by governments as reliable and not biased toward one position or another.

Indicators are a description of the current situation, not estimates of the impact of changes in policy or market conditions. So the CIMA does not purport to indicate the quantitative impact of the policies that are represented, for which a model is required. Changes in CIMA can of course be used in a model, and thus the indicator can be "calibrated" in terms of export volumes or other policy objective. Moreover, it would be instructive to compare CIMA levels with results from other methods of examining the trade effects of market access barriers, such as gravity models.[3] Such comparisons would provide a validation of the CIMA and enhance its credibility.

Other approaches to the measurement of protection have had as their objective the estimation of the benefits to be gained from the removal of trade barriers. This requires the concept of a welfare function whose value can be maximized. An indicator of market access, however, does not necessarily have to reflect the magnitude of the benefits gained, so long as a shift in the value of the indicator can be interpreted as an improvement or deterioration (i.e. it has to be ordinal but need not be cardinal) for the exporter. However, it is useful to have an indicator that has some bounds, so as to be able to have a broad idea as to how it relates to "ideal" conditions. [4]

A key issue in interpretation is that of coverage of all the various factors that influence market access. How "comprehensive" should a composite indicator be? Should it capture all the many factors that combine to influence market access? Or should it focus on a subset of measures that are significant in a negotiating context? The approach that I have taken here is that the index should not attempt to be comprehensive in that it includes all elements that influence market access. It is enough to

include those that are (a) significant enough to be of concern to exporters and (b) to be in the realm of policy in the sense that negotiations among countries could be imagined to reduce such factors and improve access. It is "composite" in that it combines relevant different market access barriers: it is not intended as including all possible barriers.

Should such an index include policy measures by all governments, including that of the exporter as well as the importer? If the purpose were analytical there would be merit in including all government policies. But in this context to do so would risk losing sight of the main purpose of the indicator and divert attention from the main task: to highlight the impact of the policies and regulations of importing countries on the ability of exporting countries to access their markets. So the focus should be on the policies that are of concern to exporters and amenable to negotiation. Hence the impact of actions of the exporter government would not be considered in the CIMA suggested below: they can be thought of as reactions to the policy environment in which trade takes place rather than conditions of market access *per se.*

A SUGGESTED CIMA

This section develops a possible market access indicator that includes tariff levels, costs of compliance with government mandated SPS/TBT measures, any costs associated with meeting private standards (taking into account the premia that are paid for achieving such standards), excise duties on the domestic market, and any subsidies granted to the domestic producer that give an incentive to production (specific subsidies rather than general subsidies).

Figure 1: Price Ladder for an Exported Tropical Product - Single Country CIMA
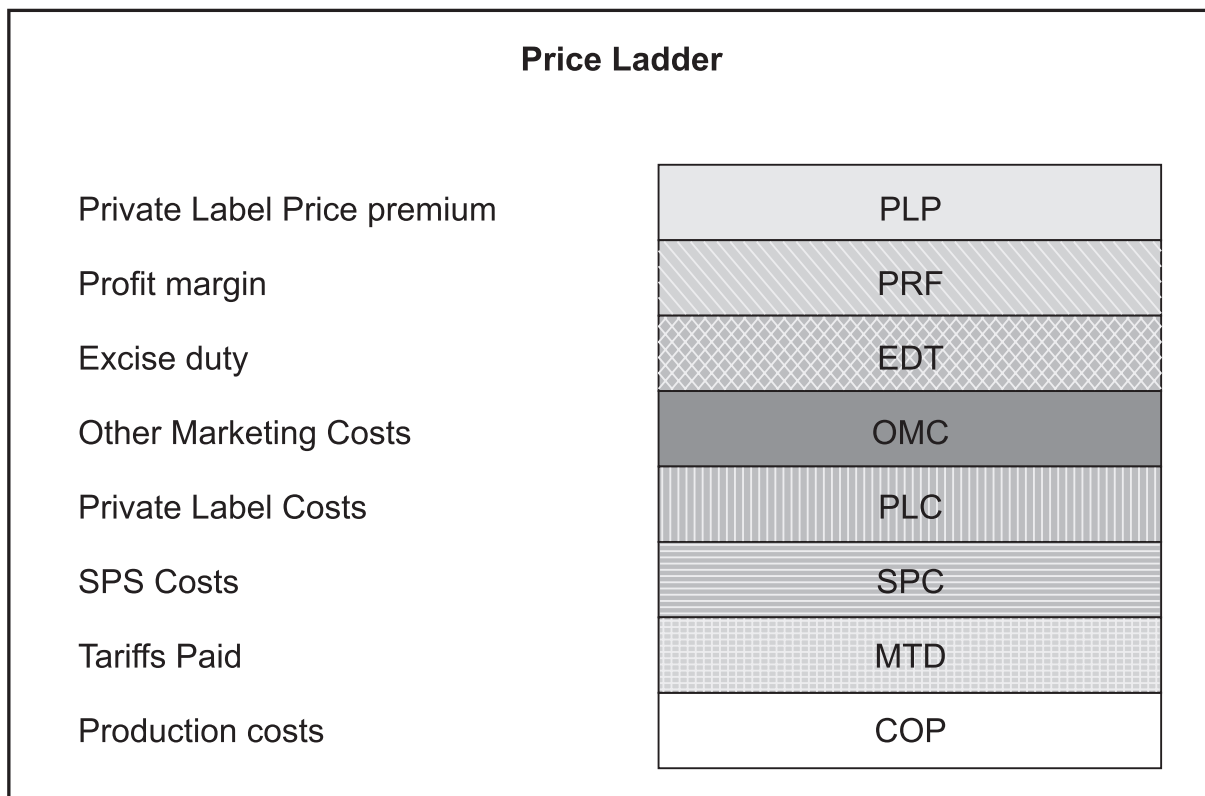
The basis of the indicator suggested here is a simple price ladder, a per-unit decomposition of the revenue from selling a particular product. Figure 1 shows one such a price ladder for a good that incurs costs to meet both private and public standards but receives a premium price for meeting the private label requirements. The height of the ladder is the price received by the exporter (PRX).

The components of the exporter price are shown as segments of this simplified ladder as follows:

- The price premium (PLP) that is received by the exporter for fulfilling the private standards where these are over and above the publicly required SPS/TBT standards.
- The profit margin (PRF) as a residual of revenue over costs
- Excise duty (EDT) paid on sales in importing country
- Other marketing costs (OMC) including shipping and handling
- Private label costs (PLC) that are incurred in meeting the standards demanded by the private
- Costs associated with meeting SPS and TBT requirements (SPC)
- Tariffs and other duties paid on importation (MTD)
- Costs of production (COP) net of subsidies granted to domestic producers (SUB).[5]

The relationships among the per-unit amounts that make up the ladder is given by the identity:

$$PRF + PLP = PRX - EDT - OMC - PLC - SPC - MTD - (COP - SUB)$$

The definition of a market access indicator comes down to deciding what elements of this price ladder to classify as a market access "barrier" as opposed to just a cost of doing business. I suggest that the elements that are included as barriers to market access (BMA) be the excise duty, the other marketing costs, the private label costs over and above the price premium, the costs associated with SPS conformity, and the tariffs and duties that are paid on importation. Subsidies paid by the importing country would be treated as lowering the cost of market access. Thus the basic equation would be:

$$BMA = EDT + OMC + (PLC - PLP) + SPC + MTD - SUB$$

This could be expressed as a proportion of the total returns:

$$BMAprop = \frac{BMA}{PRX}$$

Or expressed as a percentage:

$$BMA\% = (\frac{BMA}{PRX}) \times 100$$

The CIMA would then be defined as the extent to which this fell short of 100:

$$CIMA = 100 - BMA\%$$

The CIMA would reach 100 when BMA = 0. This would only be true if there were no excise duties and tariffs and if the private price premium fully offset the costs of meeting both the private and the public standards as well as other marketing costs. Such a situation would be rare.[6]

The CIMA would approach zero when the market access costs were sufficient to absorb all the revenue, leaving nothing for the cost of production. Again this would be rare and certainly not the basis for trade. So the range of the CIMA for existing trade lies between 0 and 100 with the extremes not likely in practice. Obviously, the CIMA could be negative for trade that does not take place.

This index would meet the specifications outlined in the Bahia Dialogue by including both tariffs and private market access costs. However, the role of subsidies needs to be made explicit. As argued above, a subsidy that benefits exporters and is paid by the importing country government should be counted in the net price received by the exporter: in effect it goes toward paying market access costs.

However, such subsidies are likely to be scarce and including them is more for completeness than practical relevance. Subsidies are more likely to be paid to domestic producers, to help them compete with foreign suppliers. If these are included as indicated above, as reductions in the cost of production (or equivalently as an increase in the price received by the producer) then the CIMA for the domestic producer will be increased. The subsidy is picked up not in the CIMA for the exporter but in the measure for the domestic producer.

Figure 2: Price Ladder for two Exporters and a Domestic Producer — Relative CIMA

Price Ladder		
Exporter 1	**Exporter 2**	**Domestic Producer**
PLP	PLP	PLP
PRF	PRF	PRF
EDT		
OMC	EDT	EDT
PLC	OMC	OMC
SPC	PLC	PLC
MTD	SPC	SPC
		SUB
COP	COP	COP

This suggests that the real significance of the CIMA is enhanced when calculated for both the country concerned and also the competitors of that country in the export markets for tropical products. The competitors may in some (but not all) cases include the domestic producers in the importing country. The market access barriers that different exporting countries face are not always the same, and the domestic producers may receive a subsidy. A simple extension of the price ladder and BMA/CIMA calculations above can show differences among suppliers. Figure 2 shows three such price ladders: one each for two competing suppliers and one for the domestic producer. The second exporter will have different production costs and may face different tariffs, depending on the trade relations between the second exporter and the importer. In the example, the second exporter has duty free entry into the importer market. This will show up in a higher profit margin if both are in fact exporting: if the original exporter cannot make a profit then the market will be left to the preferred supplier.

The importance of including a price ladder for the domestic supplier (if there is any domestic production capacity) lies in the ability to compare marketing costs and the costs of meeting public and private standards among all sources of supply. In general one would expect many of the costs to be similar: domestic production would generally have to

meet the same public and private standards, and excise taxes would apply to both supply sources. However, subsidies are more likely to be in evidence for domestic producers, and will show up as a negative "barrier to market access" for the domestic producer.[7] Indeed if the subsidy is large enough, the CIMA for domestic producers could be above 100.

This notion that each competitor has a specific CIMA is important in expressing the element of competition among suppliers. If all suppliers face the same CIMA then the implication is that marketing costs and the costs of meeting public and private standards are (in total) the same for all three sources of supply. To highlight the differences among the CIMAs, a relative ranking can be calculated that compares the CIMA for any country with that for other competitors. Thus the comparative CIMA indicator will pick up any difference in the SPS/TBT costs between foreign and domestic producers as well as the influence of tariffs and duties and of subsidies.

IMPLEMENTATION AND INTERPRETATION ISSUES

This section will illustrate the suggested calculation of the CIMA (with particular options chosen where choices will need to be made). Data needs will be summarized, but the source and location of those data will not be explored at this paper.

The implementation of the CIMA can be illustrated with a simple numerical example. Table 1 (with accompanying figure) shows the calculations for the BMA and CIMA from the elements identified in the price ladders described above. In this example, two exporters of a tropical product compete in two import markets. Exporter X1 faces an MFN tariff in market A but has tariff free entry into market B. Exporter X2 has duty-free access to Market A but not to Market B. The import competing producer in Market A has a subsidy that in effect offsets the cost of meeting SPS standards.

Taking the final price for the product as 100 (without loss of generality) the figure illustrates a case where the cost of production is somewhat higher in the domestic economy (in many cases it will be significantly higher and no domestic

Table 1: Calculation of a CIMA for Two Exporters and Two Import Markets

Case 1   Stylized CIMAs for two exporters and two markets

	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	25	0	0	0	20	0
SPC	10	10	10	10	10	10
PLC	5	5	5	5	5	5
PLP	6	6	6	6	6	6
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	10	0	0	0
PRF	-2	23	23	23	3	18
BMA	47	22	12	22	42	22
BMA prop	0.47	0.22	0.12	0.22	0.42	0.22
BMA %	47	22	12	22	42	22
CIMA	**53**	**78**	**88**	**78**	**58**	**78**
Relative CIMA	-35	-10	0	0	-20	0

production of the tropical product will be feasible). An import duty of 25 units is levied on imports into A from exporter X1, and one of 20 units is imposed on imports into B from X2. The costs of meeting SPS and TBT requirements (10 units) are taken to be equal in all cases among suppliers, as is the cost of meeting private standards (5 units) and the price premium (6 units) that this will gain. Other marketing costs are also assumed equal (3 units) and all supply is subject to a 10 unit excise duty upon sale in the domestic market. The subsidy granted by the government of country A to its own producers is set at 10 units. Profits are highest when a subsidy is paid and when no tariff is charged. The BMA as a percentage of the selling price ranges from 12 percent for domestic produces in import market A to 47 percent for exporters X1 into that market.

Stylized CIMA calculations for two exporters (X1 and X2) competing in two import markets (A and B) with domestic producers (MA and MB)
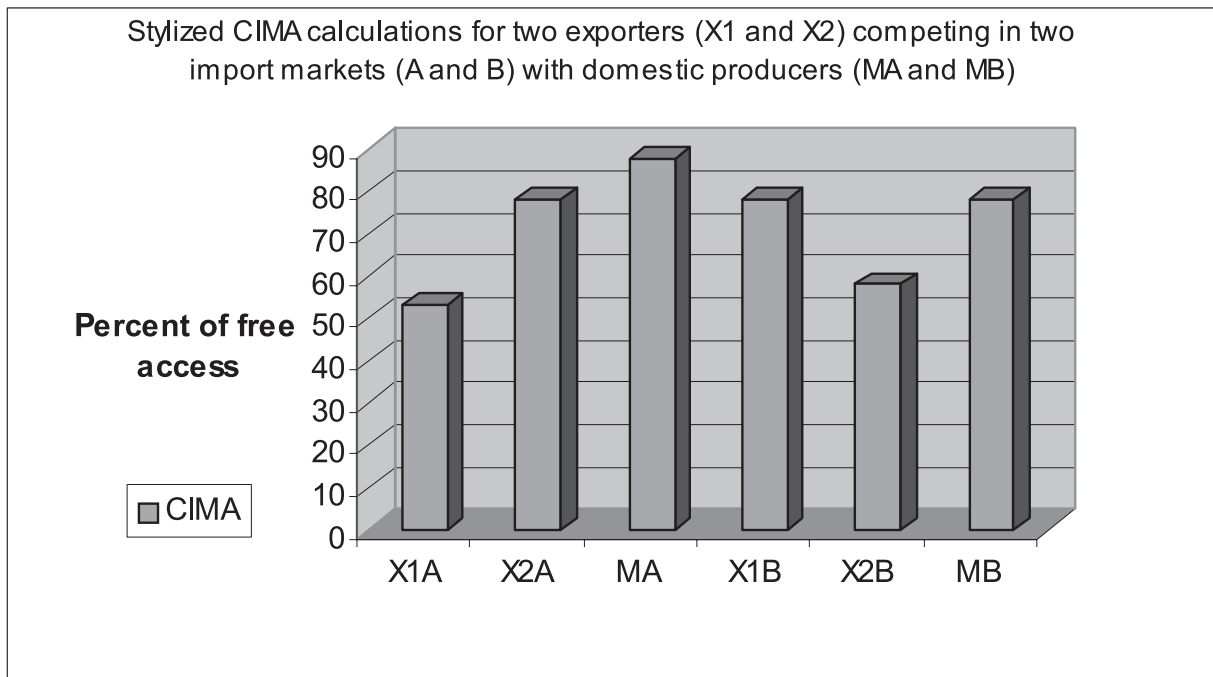
Source: Author's calculations

The CIMA reflects the combined results of this degree of market access. As shown in the table and illustrated in the graph, the CIMA for the non-preferred supplier in market A is only 53 percent, compared to the CIMA for the domestic producer of 88 percent. In market B the preferred supplier (X1) faces a CIMA of 78 percent, the same as the domestic producer, who faces the same costs and receives no subsidies. In this case it is the non-preferred supplier that faces the lowest CIMA of 58, and thus has a lower relative level of access (by 20 points) than the other competitors.

The simple example can be used to show that changes in the market access constraints and the degree of competition among suppliers are reflected in the CIMA. Case 2 (Table 2) illustrates a situation where the tariffs are removed by both importers (A and B) from the exports of X1 and X2. As one would expect, CIMA scores for both exporters go up in those markets where previously there had been a tariff. Each exporter faces a CIMA of 78 percent, reflecting the excise duties that remain and the private and public standards to be met. Domestic suppliers in the importing country A still have the benefit of a subsidy and this gives them a CIMA of 88 percent.

Table 2:   Calculation of CIMA with Elimination of Tariffs in Importers

Case 2   Tariff reduction in import markets A and B

	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	0	0	0	0	0	0
SPC	10	10	10	10	10	10
PLC	5	5	5	5	5	5
PLP	6	6	6	6	6	6
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	10	0	0	0
PRF	23	23	23	23	23	18
BMA	22	22	12	22	22	22
BMA prop	0.22	0.22	0.12	0.22	0.22	0.22
BMA %	22	22	12	22	22	22
CIMA	**78**	**78**	**88**	**78**	**78**	**78**
Relative CIMA	-10	-10	0	0	0	0

Stylized CIMA calculations for two exporters (X1 and X2) competing in two import markets (A and B) with domestic producers (MA and MB)
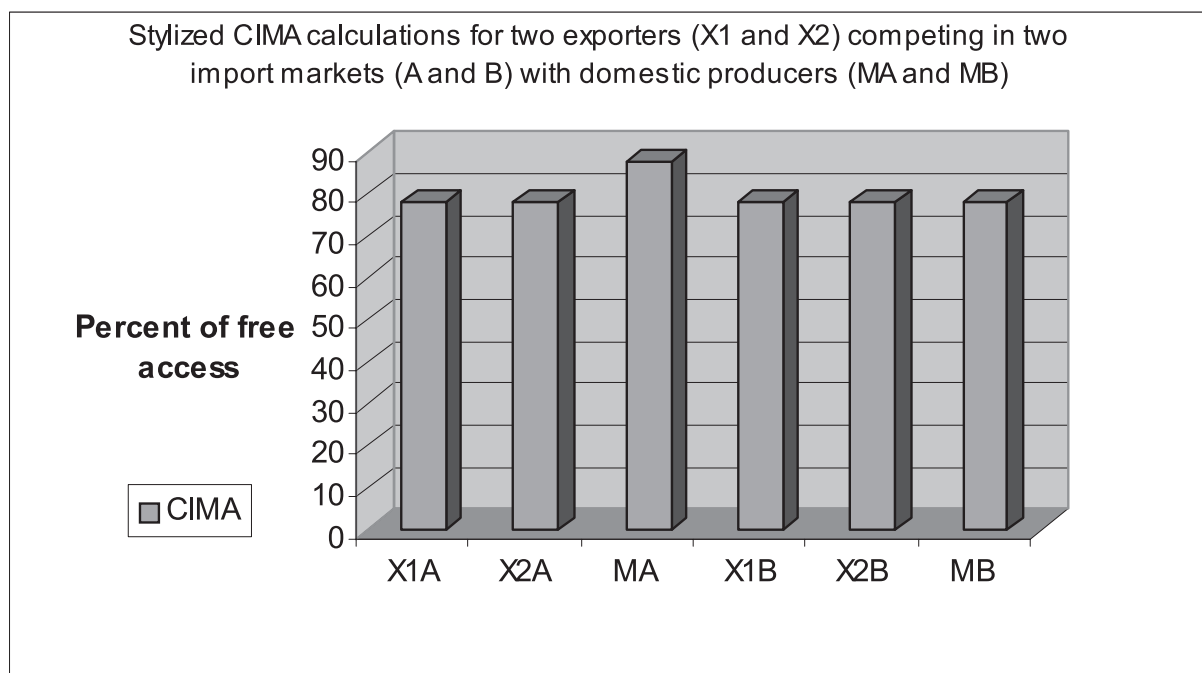
Source: Author's calculations

In case 3, the assumption is made that the cost of complying with the public SPS and TBT standards is reduced from 10 to 5 units, perhaps as a result of changing the regulations themselves or improving the efficiency of meeting the standards. The CIMA responds as expected (see Table/ Figure 3) relative to case 1. The cost decreases show up as improved market access for exporter X1 in market A, at 58 percent of the level that it would be if "free" from access barriers. The preference for exporter X2 and the subsidy for the domestic producer ensure that the relative

CIMA for exporter X1 in market A is still 35 points below the most favored competitor (the domestic industry). In market B the situation is reversed, with X1 having access as good as the domestic producer, and a CIMA of 83 percent of barrier-free access.

Table 3:   Calculation of CIMA with a Reduction in the Cost of Complying with SPS and TBT Standards
Case 3   SPS cost reduction

	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	25	0	0	0	20	0
SPC	5	5	5	5	5	5
PLC	5	5	5	5	5	5
PLP	6	6	6	6	6	6
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	10	0	0	0
PRF	3	28	28	28	8	23
BMA	42	17	7	17	37	17
BMA prop	0.42	0.17	0.07	0.17	0.37	0.17
BMA %	42	17	7	17	37	17
CIMA	58	83	93	83	63	83
Relative CIMA	-35	-10	0	0	-20	0

Stylized CIMA calculations for two exporters (X1 and X2) competing in two import markets (A and B) with domestic producers (MA and MB)
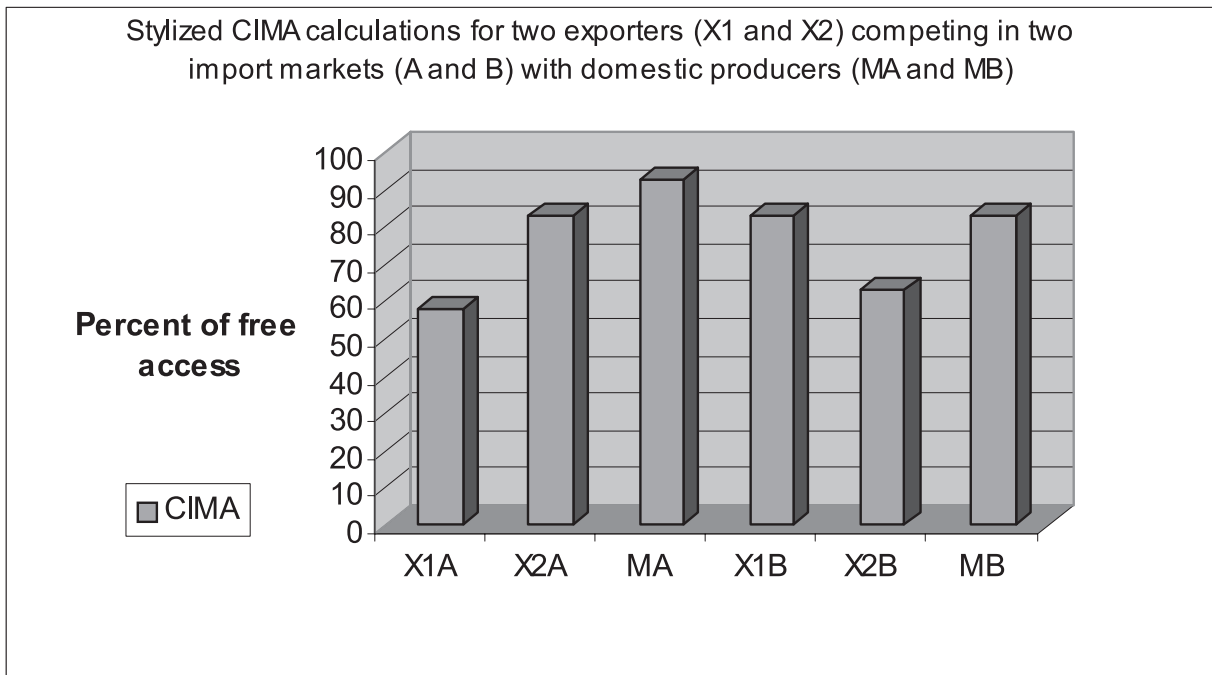
Source: Author's calculations

Case 4 shows the effect of increasing the price premium that is paid when the private label standards are followed.[8] The increase from 6 to 10 units effects all sources and increases the CIMAs across the board, pushing the domestic producers in Market A who benefit from a subsidy to a CIMA of 92 percent of free market access (see Table 4). The subsidy, along with a net premium for private label sales, in effect covers most of the costs associated with meeting standards as well as the excise duty and other marketing costs.

Table 4: Calculation of a CIMA when the Price Premium for Private Label Standards is Increased
Case 4   Private price premium increase

	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	25	0	0	0	20	0
SPC	10	10	10	10	10	10
PLC	5	5	5	5	5	5
PLP	10	10	10	10	10	10
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	10	0	0	0
PRF	2	27	27	27	7	22
BMA	43	18	8	18	38	18
BMA prop	0.43	0.18	0.08	0.18	0.38	0.18
BMA %	43	18	8	18	38	18
CIMA	**57**	**82**	**92**	**82**	**62**	**82**
Relative CIMA	-35	-10	0	0	-20	0

Stylized CIMA calculations for two exporters (X1 and X2) competing in two import markets (A and B) with domestic producers (MA and MB)
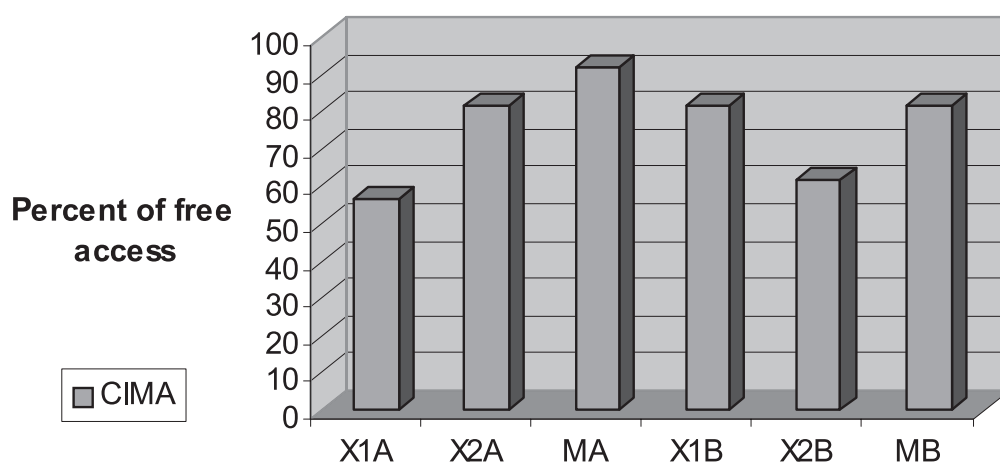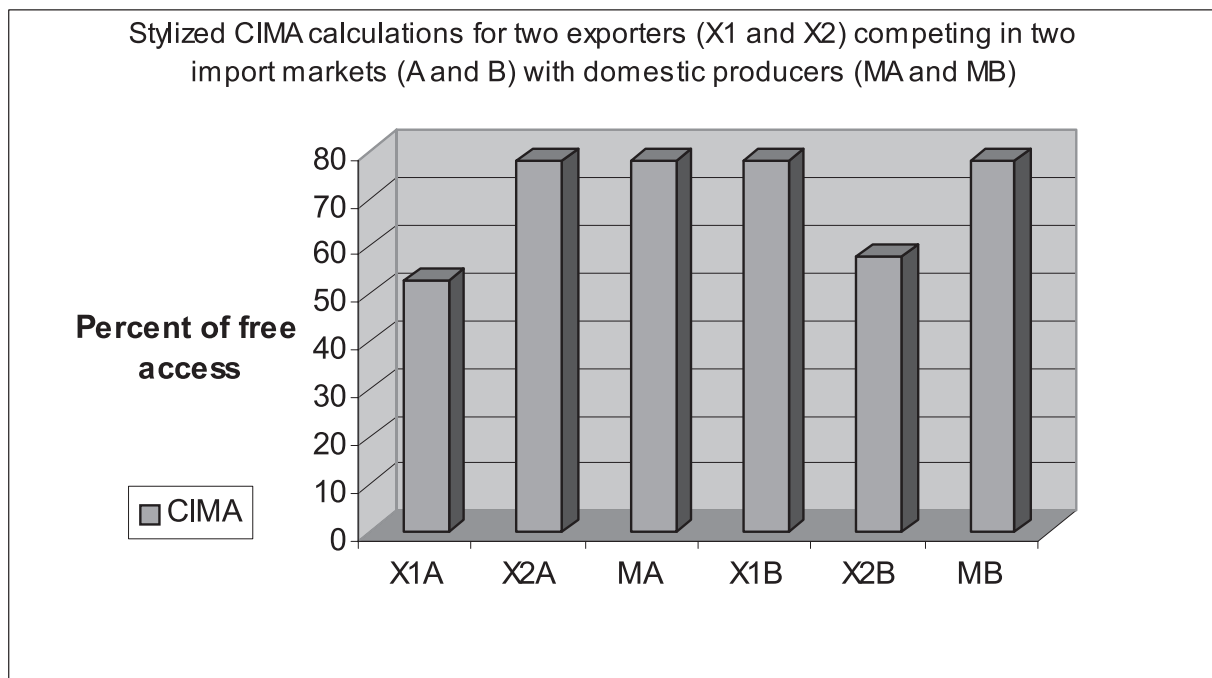
Source: Author's calculations

In Case 5 it is assumed that the domestic subsidy for the produces in Importer A is removed, by negotiation or by domestic policy change. This reduction of the subsidy from 10 units to zero removes the advantage that the domestic competitor has in the market. As the tariff remains, the CIMA for X1 stays at 53 percent, but X2 with the advantage of duty free access now competes on equal terms with the domestic producer. In Import market B the reverse is true, as it is X1 that has duty free access and faces an unsubsidized domestic competitor.

Table 5:   Calculation of CIMA when Domestic Subsidies have been Cut in Market A

Case 5   Subsidy elimination

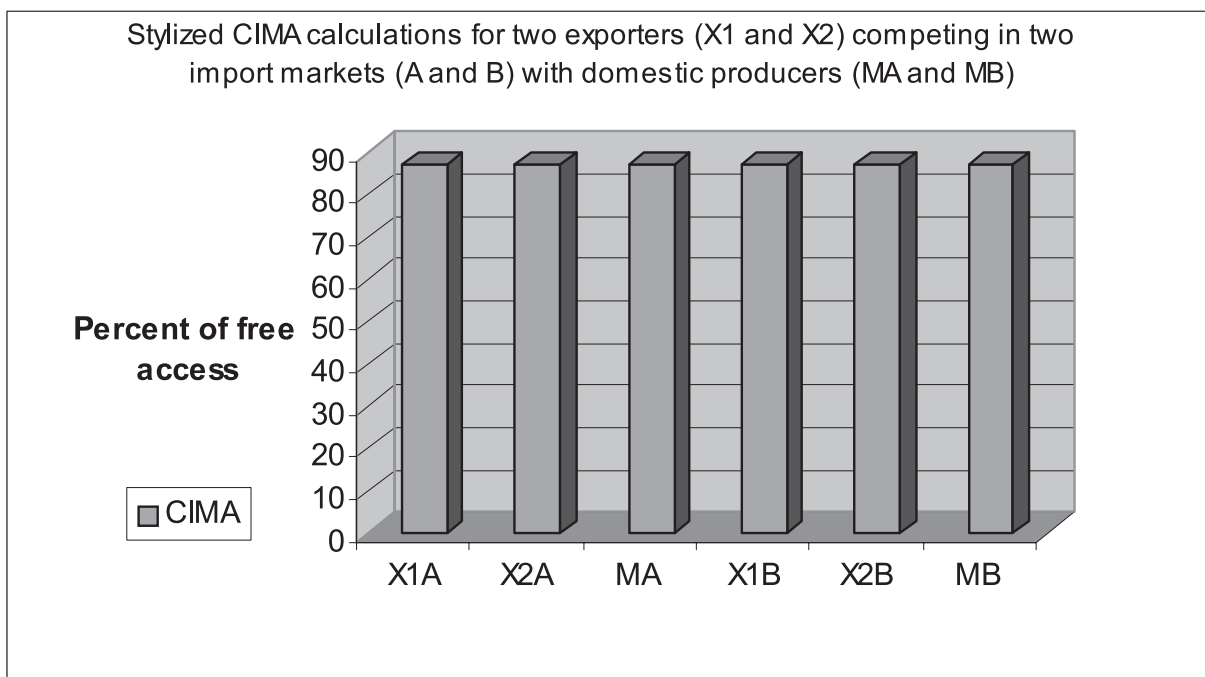|	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	25	0	0	0	20	0
SPC	10	10	10	10	10	10
PLC	5	5	5	5	5	5
PLP	6	6	6	6	6	6
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	0	0	0	0
PRF	-2	23	13	23	3	18
BMA	47	22	22	22	42	22
BMA prop	0.47	0.22	0.22	0.22	0.42	0.22
BMA %	47	22	22	22	42	22
CIMA	**53**	**78**	**78**	**78**	**58**	**78**
Relative CIMA	-25	0	0	0	-20	0

Source: Author's calculations

Case 6 combines the effect of removing the tariff, cutting SPS compliance costs, increasing the private label premium and removing the subsidy on domestic production. The CIMA is now equal across the sources of supply at 87 percent, reflecting the remaining 10 unit excise duty and the 3 unit "other marketing costs" (see table 6).

Table 6: **Calculation of CIMA when Tariffs are Removed, SPS Costs reduced, Price Premia are Increased and Subsidies Eliminated**

Case 6 **All four policy changes**

	X1A	X2A	MA	X1B	X2B	MB
PRX	100	100	100	100	100	100
COP	55	55	65	55	55	60
MTD	0	0	0	0	0	0
SPC	5	5	5	5	5	5
PLC	5	5	5	5	5	5
PLP	**10**	**10**	**10**	**10**	**10**	**10**
OMC	3	3	3	3	3	3
EDT	10	10	10	10	10	10
SUB	0	0	0	0	0	0
PRF	32	32	22	32	32	27
BMA	13	13	13	13	13	13
BMA prop	0.13	0.13	0.13	0.13	0.13	0.13
BMA %	13	13	13	13	13	13
CIMA	**87**	**87**	**87**	**87**	**87**	**87**
Relative CIMA	0	0	0	0	0	0

Stylized CIMA calculations for two exporters (X1 and X2) competing in two import markets (A and B) with domestic producers (MA and MB)

Source: Author's calculations

The results of these calculations, repeated for (say) a dozen suppliers and five major import markets for a typical tropical product, would give a cross-section of the market access situation. They would form the basis for a discussion of market access issues in the context of negotiations. These calculations can be further analyzed in a couple of dimensions. First one can quantify the conditions of competition in particular import markets. Figure 3 shows the competition for Markets A (top graph) and B (bottom graph), with the two exporters and the domestic producer facing somewhat different CIMA percentages. This comparison is particularly useful in specific discussions (perhaps within a bilateral context) related to market barriers such as contested SPS regulations, domestic subsidies and the competitive effect of preferences.

Figure 3: Competition in Markets A and B among two exporters and domestic producers
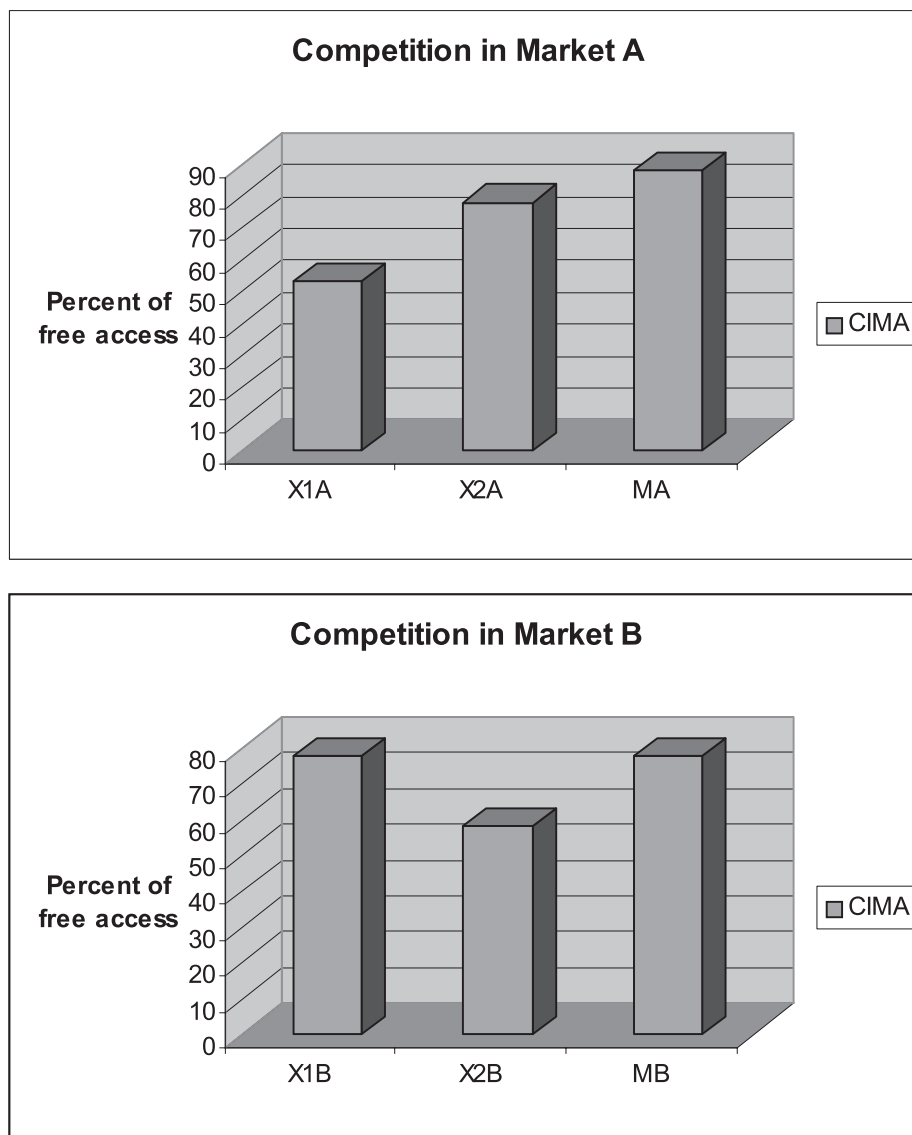
An examination of several import markets would show similarities and differences in access faced by particular exporters. Negotiations among suppliers and consuming countries could start with this information.

The second dimension is to compare access among markets, using the same information. Figure 4 shows the market access index for exporters X1 and X2 separately into the two import markets. This information is more likely to be of interest in the context of export strategy for a particular exporter. Rather than emphasize competitive conditions, it focuses on the relative openness of different markets and thus can help to set priorities for trade policy. For the exporter of tropical products, data of this type over time can give some indication of the trends in relative openness of the markets into which they sell.

Figure 4: Comparative Access into Different Markets, Exporters X1 and X2
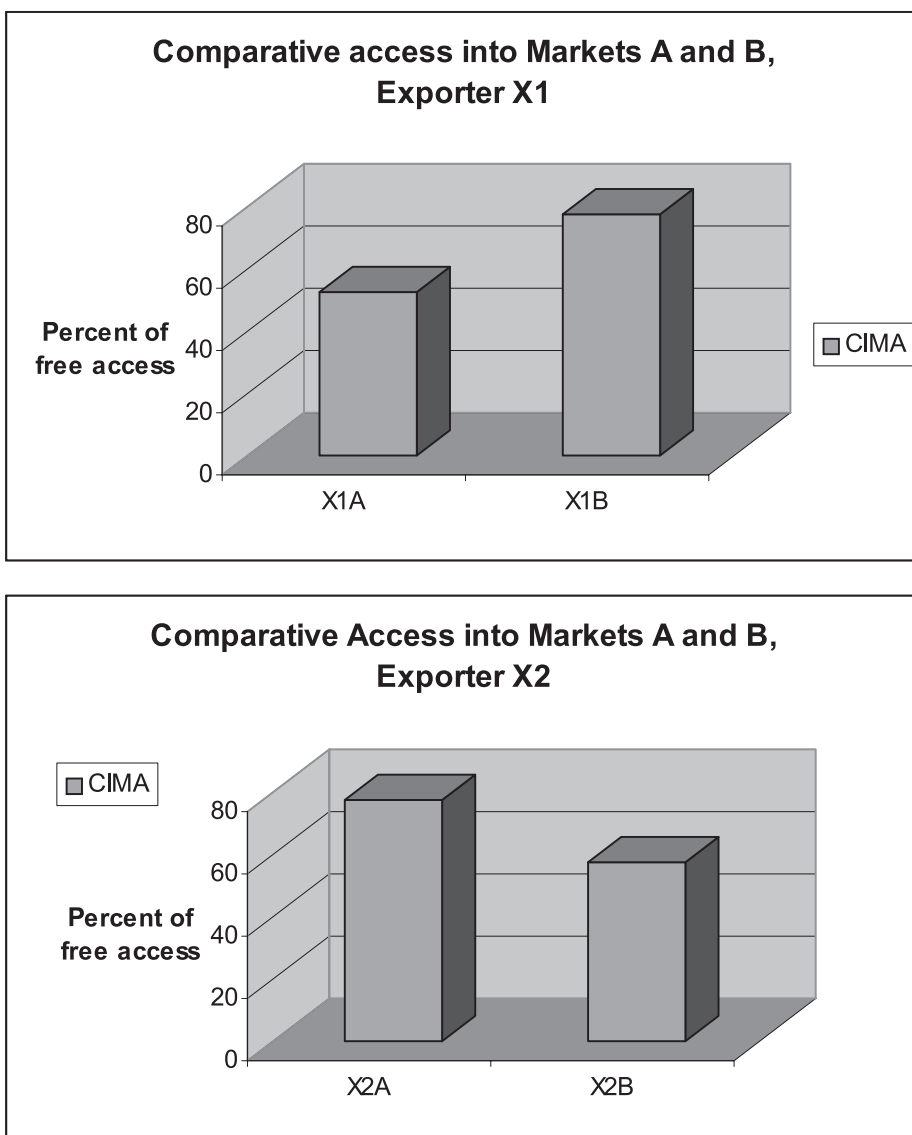
OPERATIONAL ISSUES

The leap from a simple concept to a convincing and practical indicator requires a number of decisions. These are of both a conceptual or analytical kind and a practical or empirical nature. This section will discuss some of these: there will be others that I have not included here.

Aggregation. One obvious problem of both a conceptual and an empirical nature is that of aggregation. The CIMA developed here can be applied at a very disaggregated level, a single firm selling a consignment of a tropical product to an importing firm in (say) a developed country. The CIMA so calculated would be quite specific to that firm, as others will have different marketing and compliance costs. However, some elements will tend to be the same for all firms. Tariffs and excise taxes will tend to be common, the first among exporters from the same country and the second for all sources of a product sold on a particular market. Transportation and other marketing costs may be similar, particularly if these are services purchased from other sectors. Costs of meeting private standards and the premia associated with particular private marketing chains will however differ among firms and suppliers. Compliance costs for meeting SPS standards can also differ by firm, sometimes as a result of size or location. So the calculations for the individual firm may be interesting internally but not very useful for negotiations or informational purposes.

Some calculation of an average CIMA for an exporting sector would seem to be more meaningful in a negotiating context. But it may be difficult to construct an index on the basis of aggregate data. Marketing and compliance costs are not typically collected at a sector level, with the possible exception of situations where the marketing is done by a parastatal organization. So in these circumstances one could imagine surveys being used to assess marketing costs, though these surveys could be challenged when used as a basis for trade

negotiations. Requirements imposed on the private sector to report costs would carry their own hazards, of incomplete or selective reporting. At an intermediate level it may be possible to put much of the burden on exporter trade associations that will have an incentive to see such data used to improve market access. Before using in a trade negotiation, one would expect some vetting of the numbers by the importing country authorities as to the reliability of the calculations.

Market structure. The market for tropical products rarely conforms to the textbook model of international trade, with individual firms, labeled by their country affiliation, selling a product in an open market to other firms located in the importing country who send it up the distribution chain. In reality, the exporting firm can be a part of the same commercial entity as the importing firm, and the purchase of the product may have been made within the exporting country. This type of market structure raises problems for any type of indicator. Costs may not be so available if they relate to intra-firm operations. Prices may be either unavailable or be merely accounting devices to apportion the economic benefits between segments of the same firm. On the one hand the actual distribution of the costs and profits within a firm may not matter so long as the costs of importation and of meeting standards are adequately captured. On the other hand if negotiations are to take place among countries it may add complications if the location of ownership of the firms is not the country whose government is attempting to improve market access.

TRQs and Variable Tariffs. The calculation of a CIMA depends on accepted data on tariffs. Normally this would be the most accessible and least controversial aspect of the market barriers. But two-tier tariffs, associated with the use of tariff-rate quotas (TRQs) add a complication. An additional variable that one would need to

complete the calculation of the CIMA is the level of imports relative to any TRQs that may exist. The impact of a TRQ will depend on whether the quota is filled or not, and whether there are above-quota imports. This data is not difficult to find, but may need to be incorporated into the database from which the index is calculated. A two-part tariff will give two different CIMAs: one for within-quota sales and one if the quota is already filled. In economic terms there are intermediate situations where the price will fall somewhere between the "within" and "above" quota levels. But from the viewpoint of information for negotiations it is easier to treat the two situations as alternatives rather than try to calibrate a CIMA that includes both possibilities.

Just as the CIMA is dependent on the rate of quota fill, so it may also vary over time, as the level of tariffs will often be seasonal. In practical terms this will entail dating the CIMA as to which time period it applies. Tariffs that vary with world prices are no longer allowed under WTO rules, but some residue of these variable levies still exists (price bands, maximum tariff-inclusive prices, etc.). In these cases one again will need to be specific as to what conditions apply and provide a conditional CIMA or a range of values as appropriate.

Transport costs. One issue that complicates the simple price ladder approach is how to deal with transport costs and other marketing charges that are not closely related to government policy. The issue is two-fold: over how much of the supply chain to measure prices and costs; and which of the costs to treat as unrelated to policy decisions. It is not particularly useful in the present context to follow the price ladder below the point at which the product is available for shipment abroad. This captures the meeting of standards for export, but would not include the costs of preparing the product for domestic marketing. If a product is shipped across a land border the natural point of reference would be the transfer of title from exporter (or agent) to importer (or agent). If significant ocean transport costs are involved then the difference between the FOB and CIF prices will present a choice: calculating CIMA at FOB prices will reflect a decision that the transport costs are marketing costs that act as market access barriers, albeit not through direct action of the importer government. CIMA calculations will tend to show imperfect market access merely due to the "natural protection" of distance to market. But, if CIF prices are taken as the basis for calculation (i.e. transport costs are included below the line as an extension of production costs) then it is less likely to focus in negotiation on the actions that importing governments could take to facilitate trade through reductions in transport and handling cost. On balance it would seem that the discussion about market access will be more fruitful if transport costs are not included in the BMA.

Quality and grading. The assumption in the current example of a CIMA calculation is that a product coming into a country has to conform to one set of standards (SPS and TBT) before being allowed to enter the market, and another set of (possible) standards before qualifying for "private label" premia. In reality, the situation is much more complex. The importing country authorities may have absolute standards for health and safety but also relative standards for various grades and qualities. In principle there will be a different CIMA for each grade. And if imports come in that do not meet the additional requirements for a private label then these will also face a different CIMA. This poses a problem for determining a single CIMA for a product, but it also highlights the fact that market access does indeed differ even for the same product depending on quality and (increasingly) the method of production. A CIMA that ignored such variations would be less useful. At one extreme, each different quality could be treated as a different product. In practice it is probably easier to think of a range of CIMAs for the differentiable goods.[9]

As difficult to handle are cases where the quality of an export item could be improved so

as to meet the standards in the importer market but for some reason the exporter chooses to export to a lower-price market. The loss of the potential trade revenue is not captured by the CIMA, as in this case the compliance costs will be measured in terms of the standards of the lower-priced market. However, an examination of the CIMA for the higher-priced market would reveal whether the meeting of the higher standards is profitable. So the exporter can also derive useful information about the alternative export opportunities that emerge as quality is raised to meet more stringent standards.

Unprofitable trade. Another issue that will arise when calculating CIMAs is what to do about trade that never takes place? If the CIMA is based on data from actual trade flows then it will only pick up the market access conditions where exporters are currently finding it profitable to sell. For the purposes of negotiations it is important to extend the calculations to potential trade flows. Thus the existence of trade should not be necessary to calculate the market access barriers. Clearly the data on tariffs is available for non-trade

situations. The cost of meeting standards will need to be implied from parallel calculations, such as from exports by other countries, or constructed from industry sources.

Start-up Costs. The calculation of compliance costs for particular standards offers its own challenges. To enter a market may require heavy investment in both equipment and personnel, amounting to an upfront cost that can be prohibitive, in particular to small firms. This raises the possibility that market access costs may be high initially and then decline once the standards are met.[10] The costs per unit can thus be misleading. Other aspects of cost can also be difficult to allocate over a small volume of trade. The cost of delays in certification of a source of supply can be very real to a firm wishing to export, but be difficult to capture in an accounting approach to costs. Once again it is necessary to be specific as to which costs are included in the CIMA. And one can in that calculation specify the range of values of the CIMA from the costs of starting up an export activity to incrementally increasing the output for an established export flow.

RELATIONSHIP TO OTHER INDICATORS

This section discusses the properties of the CIMA in the context of the range of indicators that have been used in the past, including nominal and effective protection coefficients, individual commodity and aggregate tariff equivalents, producer and consumer subsidy equivalents, and trade restrictiveness indicators, and how well they meet the objectives identified in a previous section. Each of the existing indicators can be compared to the CIMA in terms of whether they are well suited to trade in tropical products.

Nominal rates of protection (NRP), based on comparisons between domestic and world prices, have a long history.[11] The difference between the returns to exporters and the value of the product when sold on the domestic market has an intuitive appeal as an indicator

of barriers to market access. Price comparisons are more direct than tariff levels, though if the tariff were the only instrument of protection the two measures should be comparable. They are, of course, more data intensive than tariff rates. The NRP can capture non-tariff measures in so far as these are reflected in cost differences, but if an export product cannot gain access to a market then the price comparison is meaningless. Similarly, quota-constrained access will pose problems for price comparisons, as in-quota and out-quota supplies will have different prices as far as the exporters is concerned.

The BMA that is used in constructing the CIMA has many of the properties of the NRP. It is a price comparison measure within the construct of the price ladder. But the NRP does not

include the incidence of domestic subsidies, and so it says little about competitiveness of foreign suppliers. The BMA as defined above includes the subsidies as an offset to the costs. The proportionate (and percentage) BMA takes the full price as a base (as does the PSE, see below) rather than the "world" price: if needed it could always be transformed to reflect the price net of costs in a particular market. The advantage of the formulation used here is that there is no need to construct a world price just to use it as a base. But the information content of both formulations remains the same.

The related measure of effective protection (EP), that includes the level of input tariffs and measures effect of protection on the value added, is instructive for some policy evaluation purposes but not for trade policy discussions on tropical products. Adding data about input use increases the uncertainty of the measure and it is not clear what is added to the interpretation. Specifically, an indicator of effective protection helps to highlight the relative magnitude of protection of value added in selected sectors in the import market, and hence to answer questions about resource allocation. But whether an exporter can use this information in negotiations is by no means clear. Effective protection can be reduced, for instance, by increasing the tariffs on the input items (usually raw materials) and this rebalancing of protection may not be in the interest of the exporter.

Similarly, measures that aim to calculate the domestic resource cost (DRC) of production (in the importing or the exporting country) are not suitable as market access indicators. DRCs need information about factor use, which adds disproportionately to the data problems. And once again these measures are suited to domestic policy-making rather than to trade negotiations.

It is of course possible to convert all the BMA components into tariff equivalents. Tariff equivalents (TE) have an intuitive appeal, as

they calculate the tariff that would have had a similar impact on trade volumes as the costs identified. They would seem to be well suited to trade negotiations, as these typically include tariff reductions by formula or by "request and offer" mechanisms. However the calculation of a tariff equivalent requires detailed knowledge of the markets concerned and of the elasticities of supply. And they would in any case need to be modified to include the level of subsidies.

Subsidy measures have a usefulness, a history and a literature of their own, often unrelated to tariff measures. Producer and Consumer Subsidy Equivalents were developed to provide information on the impact of border and domestic policy instruments on domestic producers (PSE) and consumers (CSE).[12] They are not, and were not intended to be, measures of market access *per se*.[13] The Market Price Support (MPS) element of the PSE, as computed annually by the OECD for its members (and occasionally for some other countries) is intended to reflect market access conditions by comparing domestic prices with those in world markets. But, as a result of the way in which they are assembled and presented, this is not always an appropriate indicator to use in the context of tropical products.[14] The OECD PSE database, however, may be a valuable resource for calculating elements of the degree to which domestic competitors are being supported. At least for the overlap commodities such as sugar, which are both included in the OECD database and of interest to tropical product producers, it would be important to make clear the differences between the OECD measures of PSE and the CIMA and to take advantage of the complementarities.

More complex indicators, such as the Trade Restrictiveness Indicator (TRI), are of interest mainly in the context of distortions to the domestic economy from border protection. They can incorporate domestic subsidies in a simple form, but for reasons of intelligibility and transparency they are poorly suited for the detailed disaggregated commodity market access indicators of interest in the case of

tropical products. They are more useful as an attempt to capture the impact of tariff structures on the economy as a whole.

The fact that CIMA shares data with several of these alternative measures suggests that the performance of the indicators as policies change will be similar. This is illustrated in Figure 5, below, which plots the CIMA with both import tariffs and the PSE as tariff levels decline. An absolute tariff of 50 units on exports from X1 to market A is reduced to zero in five stages. The graph shows the CIMA rising from 28 to 78 percent, reflecting a tariff drop from 135 percent to zero. The PSE as a percentage falls from 50 percent to zero (as it is based on the full price of 100 units).

Figure 5: Comparison of CIMA with Tariff levels and PSEs as trade is liberalized
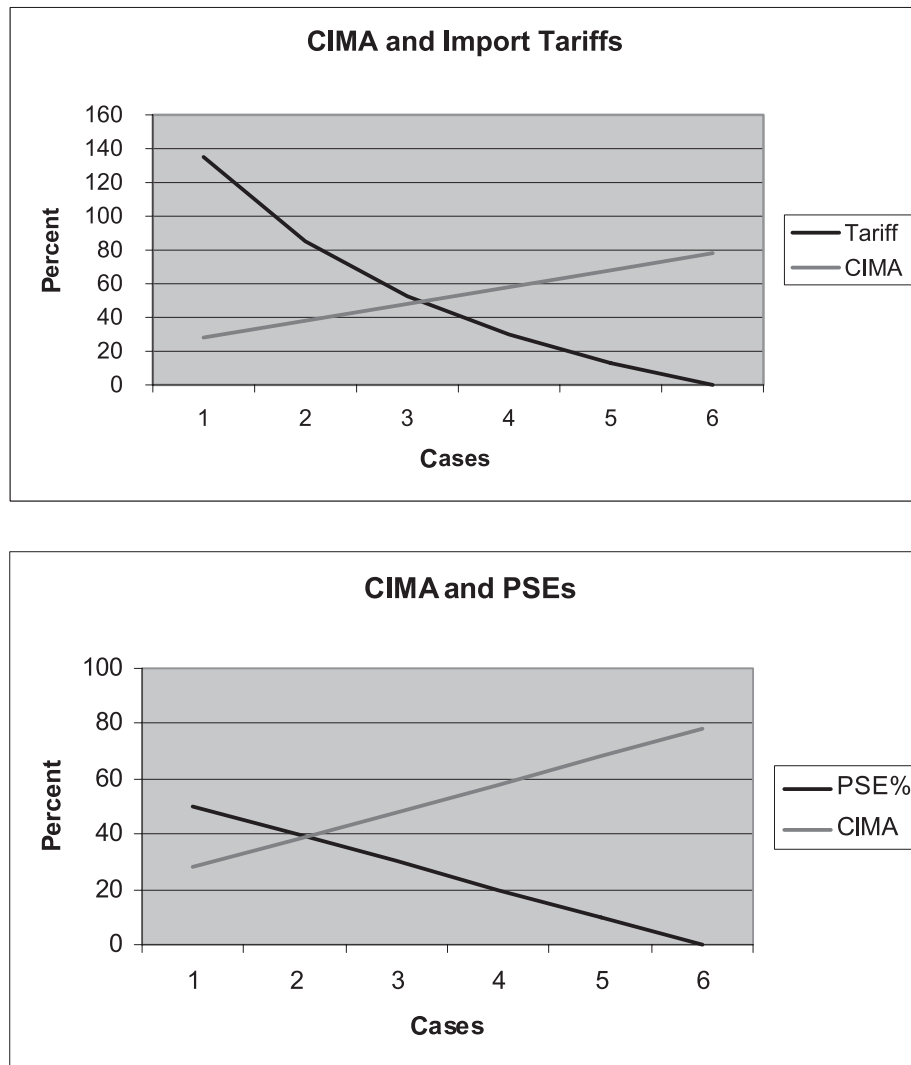
SUMMARY

The indicator suggested here is simple, comprehensible and easy to calculate. The main constraint is access to reliable data from the private sector on the breakdown of costs incurred in meeting public and private standards as well as of the prices received. The market access index suggested would effectively have a lower limit of zero, where no trade is possible as total trade costs would equal the gross return to exporters: nothing would be left for production costs. The upper limit would effectively be one hundred, where exporters face no tariffs and all import-specific compliance costs are reimbursed or reflected in a premium on the price received on the importer's market. The domestic competitor can have a higher market access index if there were significant subsidies that more than offset the cost of compliance.

Such an indicator could be readily used for information on which to base negotiations as it would be sensitive to improvements in market access through reductions in tariffs and subsidies as well as to lower costs (or reimbursement through higher prices) for meeting public and private standards.[15] Sharp changes in the CIMA could be particularly useful as a way of pointing up problems and focusing attention on the solutions. It would also be useful as an input into models that could estimate the impact on trade volumes and the level and distribution of the burden of trade barriers. Indeed, the use of a CIMA in conjunction with gravity models and other ways of estimating the impact of standards on trade would be instructive and add a degree of support to these other methods. The indicator can also have a value in terms of domestic policy. The calculation of compliance costs and market access barriers can provide the basis for focused assistance to exporting firms and sectors.

If such an indicator is considered appropriate for information in connection with negotiations, the main substantive issues are the level of aggregation at which to measure the CIMA; the scope of the subsidies that would be included (do they have to be product-specific?); the base to use (with or without the market access barriers); the treatment of transport costs (i.e. the use of FOB or CIF prices); and the extension to trade that does not presently take place (construction of counterfactual costs).

The ICTSD Concept Note suggests that the next step, after an examination of the conceptual basis for a CIMA, would be a "test" on a limited basis. I would suggest that this be carried out on three or four examples chosen from the list of tropical and diversification products. Market access conditions for these products could be studied for three major exporters competing in three major import markets. Possible candidates could be as indicated in the table. This would allow a range of conditions to be explored and represent a full test of the robustness of the indicator to inform and support discussions about market access that go beyond tariff negotiations.

Table 7: Possible Test Cases

Product	Exporting countries			Importing countries		
Bananas	Ecuador	Philippines	Cameroon	US	EU	Japan
Rice	Uruguay	Vietnam	US	Philippines	Switzerland	Korea
Mangoes	India	South Africa	Mexico	US	Australia	Chile
Poultry	Brazil	China	US	Canada	India	Saudi Arabia

ANNEX - COUNTRY STUDY GUIDE

This guide is intended to provide the necessary information to those undertaking the CIMA country studies to allow them assemble the data, complete the calculations and present the results and accompanying qualitative interpretations in a consistent way. The results of the country studies will be used in the compilation of a synthesis report that will use these results to address issues of market access for tropical products from developing countries. The benefit of deriving a consistent index across countries (and eventually across commodities) is that improvements in market access can be measured, monitored and negotiated.

Objective of Country Studies

The country studies are intended to yield estimates, based on data collected from primary as well as secondary sources, of the full range of costs faced by exporters when they sell into import markets. The costs include the duties and taxes paid to the importing country government and the expenses incurred in complying with health and safety standards. In addition, the costs of selling into the import market include the expense of complying with private standards, both those required by individual firms and those of international private standard-setting bodies. Where subsidies are given on the production and export of the good concerned (in this case rice) these should also be estimated, so

The three initial studies will focus on rice exports from Uruguay, Vietnam and the US. Clearly, each country has significant differences in such matters as data availability, the structure of its rice sector and the public policies that influence export costs. Perfect comparability is unattainable, but the aim should be to obtain and process data in a way that allows as much scope for comparison as possible. This will in turn allow those synthesizing the country studies to be able to make informed judgments about the comprehensive state of market access and ways that this access can be improved.

as to be able to calculate the relative market access of competing suppliers (or domestic producers in the importing country where appropriate).[16]

Each country study should stand by itself as a coherent account of the costs involved in selling rice on major foreign markets.

The comparison across countries is undertaken in the synthesis report. However, the country studies can provide valuable information that will enrich the synthesis report. The description of the sections of the report below attempts to make clear where these complementarities can be achieved.

Overview of Method

The method of calculating an indicator of market access is based on the notion of a price ladder, from production costs (COP) all the way through to final selling price for the exporter (PRX) in the importer market. The steps in the ladder are the defined costs, taxes and subsidies that make up the difference between production costs and final revenue. There will also be an element of profit (or loss) in the price ladder, normally a residual. The steps in the ladder are expressed as costs and returns per unit of the product. Table 1 gives a

summary of the categories of costs and prices: later sections of this guide will provide more detail on the nature of these categories.

The central importance of the ladder is that it ensures consistency and completeness. The actual completion of the ladder through the calculation of the individual steps is a check on the consistency of information gleaned from different sources. Completeness is assured, as the relationship between the parts of the ladder is an identity (See Table 1):

$$PRX = PLP + PRF + EDT + MTD + TRA + OMC + PRC + SPC + PLC + TAX + COP \; *$$

(Where PRX=Exporter selling price; PLP=Price Premium (private 'label') over other export sales; PRF=Profit in chain (not allocated); EDT=Excise duties in importing country; MTD=Import tariffs and duties; TRA=Transport costs, shipping, insurance; OMC=Domestic costs to port; PRC=Processing costs; SPC=Costs of meeting health standards; PLC=Costs of meeting private standards; TAX=export government taxes (less subsidies); COP=Cost of production (excluding compliance costs).

So the key issue in completing the ladder is making sure that on balance it gives a plausible and defensible relationship between the individual components. The information used in the synthesis report will focus on the market access barriers, primarily those included in the elements EDT, MTD, PLC, SPC and TAX. But the significance of these elements depends on their relation to PRX and COP. Hence there is a need for some attention to be given to each of the parts of the price ladder to ensure balance overall.

The "policy" elements under the control of the importer government and private sector can be summed to derive an indicator of "Barriers to Market Access" (BMA) as follows:

$$BMA = EDT + MTD + (PLC-PLP) + SPC$$

For certain purposes it is useful to include exporter government policy as well, in an adjusted BMA'. Some part of the market access barriers result from the actions of the exporter's government when taxes exist.

$$BMA' = BMA + TAX$$

Data Gathering Format

Data gathering is facilitated by following a standard format and adding qualifications where the standard format does not easily apply. The suggested format involves six components:

1. A description of the rice sector

2. The price of rice at various levels of the marketing chain

3. The costs incurred in producing and processing rice

4. The subsidies and taxes given by governments

The description of the rice sector

The first section of the report should describe the key features of the rice export trade for the country concerned and the production and processing structures that underpin that trade. It should include the following information:

The value of TAX will be negative if there are subsidies to production or exports.

The BMA (and the BMA') can be related to PRX, the final returns for the exporter, either as a proportion or as a percentage.

$$BMAprop = \frac{BMA}{PRX}$$

$$BMA\% = BMAprop*100$$

This allows the Comprehensive Index of Market Access (CIMA) to be calculated as the degree of market access:

$$CIMA = 100-BMA\%$$

For comparisons among countries, where the commodity-specific taxes and subsidies in the exporting country are relevant to the issue of competitiveness, the adjusted BMA would be used this would give an adjusted CIMA representing an index of market access including exporter-government taxes and subsidies:

$$CIMA' = 1-BMA'$$

5. The construction of the price ladders

6. The calculation of the CIMAs

Components 1, 5 and 6 form the basis for the country report, and should be presented in a Word file with links to tables in Excel spreadsheets where appropriate. Components 2, 3 and 4 should be presented in annexes and consist mainly of tables with some explanatory text. The tables should also be linked to the Excel spreadsheets where the data resides.

- Structure of the industry and output of rice in three recent years. How much rice was produced and how much exported? To which markets did the exports go (identify the three or four most important)? What is the typical farm size? Do exports appear to come

from larger farms? How concentrated is the domestic marketing chain? Roughly how many rice processors (hullers and millers, etc.) are there in the country? Does the state play a role in rice trade (through parastatals or support purchases)?

- Nature of the commodity traded. Is rice production primarily Indica (long grain) or Japonica (short and medium grain)? What proportion of rice is exported rough and how much is white or polished? What is the proportion of brokens (i.e. high quality – 5 percent broken or low quality 35 percent broken) in trade? Are there any specific quality traits or consumer attributes that are being satisfied by exporters (e.g. organic rice)?

- The process of exporting. Illustrate the steps from farm to processor to exporting firms to the distributer in the major import markets identified above. This can conveniently be done by means of a flowchart.

- The main barriers as seen by the industry. What are considered as the main market access barriers? Are these tariff barriers, SPS requirements, competition with domestic producers, competition with subsidies of other exporters, or other impediments? Are there private standards that need to be met for particular markets (such as GlobalGap)?

This section is intended to highlight the particular nature of the rice export activities in the country. It will also facilitate the production of the synthesis report by placing the countries in the context of the world market for rice but also pointing to the differences among the three case study countries.

Price levels

This section should anchor the price ladder. The costs (next section) will have to "squeeze in" between the prices at various levels of the market chain. Prices are often easier to find than costs, but are also sensitive to quality, location, season, etc. So it becomes a matter of judgment as to which prices to take as "firm" and which to treat as approximations when constructing the ladder.

- Price to the farmer. What price have farmers received for paddy rice in the last three years? Are there significant price differences depending on quality? Is there an "export grade" that fetches a higher price?

- Price at the processor level. How much do processors pay for rice? Do they pay a premium for quality? How much do they charge for rice after it is processed (i.e. milled rice, parboiled, etc.)

Costs

This section will fill in the spaces between the steps in the price ladder. Where estimates of costs exist they can be treated as data to be reconciled with the prices. Where no cost data is available then it is reasonable to substitute price differences for costs.

- Price at the shipping point. What are the reported FOB prices for export rice? Are there quality differences in the export product that are reflected in prices?

- Price in the importer market. What are the CIF prices reported by major importing markets (the three or so identified above)? Are these comparable to the "average unit value" calculable from volume and value import statistics? Are there any clear differences between import prices for rice from the country under study and major competitors (this will be taken up in the synthesis report: any observations here would be useful material for that process)?

- Exchange rates used in converting prices. Tables in the report should be in US$ per metric ton. Conversion rates used should be recorded.

- Cost of production. Costs of production are available for some commodities and some countries. However, these will be very specific to individual farm types, technologies, seasons and regions of the country. As the focus of the study is on

market access, the price at farm gate can be taken as equal to the farmers costs[17].

- Cost of transport. Transport costs have an obvious place in the price ladder. However their measurement creates problems, as they will differ for firms at the same level of the marketing chain. Where good estimates of transport costs exist they should be used. Otherwise, they can be implied through the price differences assembled in the previous section.

- Cost of processing. Depending on the number of processors, this cost should be relatively easily available and fairly uniform. If there are different technologies in widespread use, it would be worthwhile noting the cost differences. Also any connection between quality and processing cost may be important information.

- Cost of overseas shipping. Transportation rates and associated insurance costs are the main difference between FOB and CIF prices. Standard shipping rates may be applicable, but bulk shipments of rice could have extra costs as a result of the need to fumigate or otherwise prevent spoilage in

transit. It is assumed that these costs are set by the private trade and not directly influenced by public policy, but if there are cases where this is not so they should be noted in the country study.

- Cost of compliance. This is both the most important and the most problematic aspect of costs. Country study authors will presumably have to rely heavily on individuals familiar with the trade. The price ladder approach is designed to make sure that estimates are in line with reality: if trade exists the cost of compliance cannot be prohibitive. On the other hand, it is useful also to note any cases where costs are reportedly too high, and therefore no trade takes place. (Price ladders for non-existent trade are discussed in a later section). The compliance costs will include actions taken at each stage of the marketing chain. It will be important to identify those that are a condition of exports and keep them separate from those that are just the normal costs of meeting standards in any market (such as the domestic market). Separate costs for different export destinations are also important to note.

Subsidies and taxes

The inclusion of taxes and subsidies granted by the domestic government is an important part of the "comprehensive" part of the CIMA. Taxes charged by the exporting country (specific to rice) will reduce the ability for those producers to compete with other exporters. Subsidies given to domestic producers will boost their ability to compete. The subsidies and taxes can be grouped under four headings:

- Subsidies to domestic producers and to domestic processors. This item should only include subsidies specific to rice farmers and rice processors. Tax exemptions should be included as subsidies, but again only when specific to rice. Subsidies are more common in developed countries, but should be included in developing countries where

they exist. Subsidies should be converted to per unit equivalents so as to be combined with prices and costs.

- Subsidies to firms conditional on exports. Export subsidies exist in some countries and should be noted. Where they are occasional, the amount can be calculated as an average of the past three years. Export subsidies can also be paid through export credit guarantees, the write-off of losses by state trading enterprises, or the donation of rice as food aid. In principle the export subsidy equivalents of these measures should be estimated. Data on profits and losses of state trading enterprises may be difficult to collect. Informed guesses may have to be made in such cases.

- Taxes in exporting country. Some countries maintain export taxes. Collecting per unit tax amounts in these circumstances should be attempted. General taxes that do not relate specifically to rice need not be isolated.

- Taxes in importing country. Import duties and excise taxes on the domestic market should be recorded. Particular note should be made of any tariff reductions as a result of preferences in particular (important) markets. Where there are tariff rate quotas (different tariffs for within- and above-quota imports) this should also be noted. In this case, information as to whether the quota is filled is particularly useful. If a particular country imposes a ban on imports from the country under study then this should be noted.

Building the price ladders

The construction of the price ladder for any typical export shipment is at the heart of the calculation of the CIMA. In fact, in any country study there are likely to be a family of CIMAs depending on circumstances. It would be useful to construct variants for different qualities and different import markets. In some cases the calculations can take into account the difference between large and small enterprises, or between traditional and modern technologies. This does not require totally separate calculations: there may only be differences in one or two elements in the price ladder, such as tariff levels, producer prices, or cost of compliance to meet a private standard. The number of ladders in each country study is at the discretion of the authors of those studies. The decision rule should be whether the additional ladder adds usefully to the interpretation of the results.

Calculation of CIMAs

The step from the price ladders to the CIMAs is governed by the formulae shown above. The formulae should be entered in the spreadsheets so as to ensure replicability. A summary table of CIMAs corresponding to the different price ladders should be included.

Content of Country Study Report

The outcome of the country studies will comprise the report and the data. The task of reporting the results of the country study should be facilitated by following a common way of presenting the calculations. The suggested approach has four parts:

- Context and Issues. This would reflect the results of the activity mentioned above (The Description of the Rice Sector) which would provide the context for the analysis of rice market access. Of particular value would be the comments of people within the industry on their perception of the significance of trade barriers.

- Data Sources and Adequacy. This section of the report should give a view of the main sources of data that were used and the difficulties encountered in completing the data set. Interviews with people familiar with the rice export trade should be included as "data sources" for this purpose.

- Results, including price ladders and CIMAs. The price ladders produced in the analysis should be presented in the report in a convenient form. Where several ladders representing different types of produce or processor or different rice qualities are estimated, these should be presented, with some indication of which ones are the most typical. The CIMAs should be calculated for the price ladders and also presented as a table.

- Conclusions and qualifications. The country study authors should add their

own conclusions based on the calculations made and their consonance with qualitative information. In addition, any major quali-fications to the results (pending policy changes, weak links in the data, volatile prices, etc.) should be included.

In addition, the description and presentation of data would be in Annexes to the Report, in particular on:
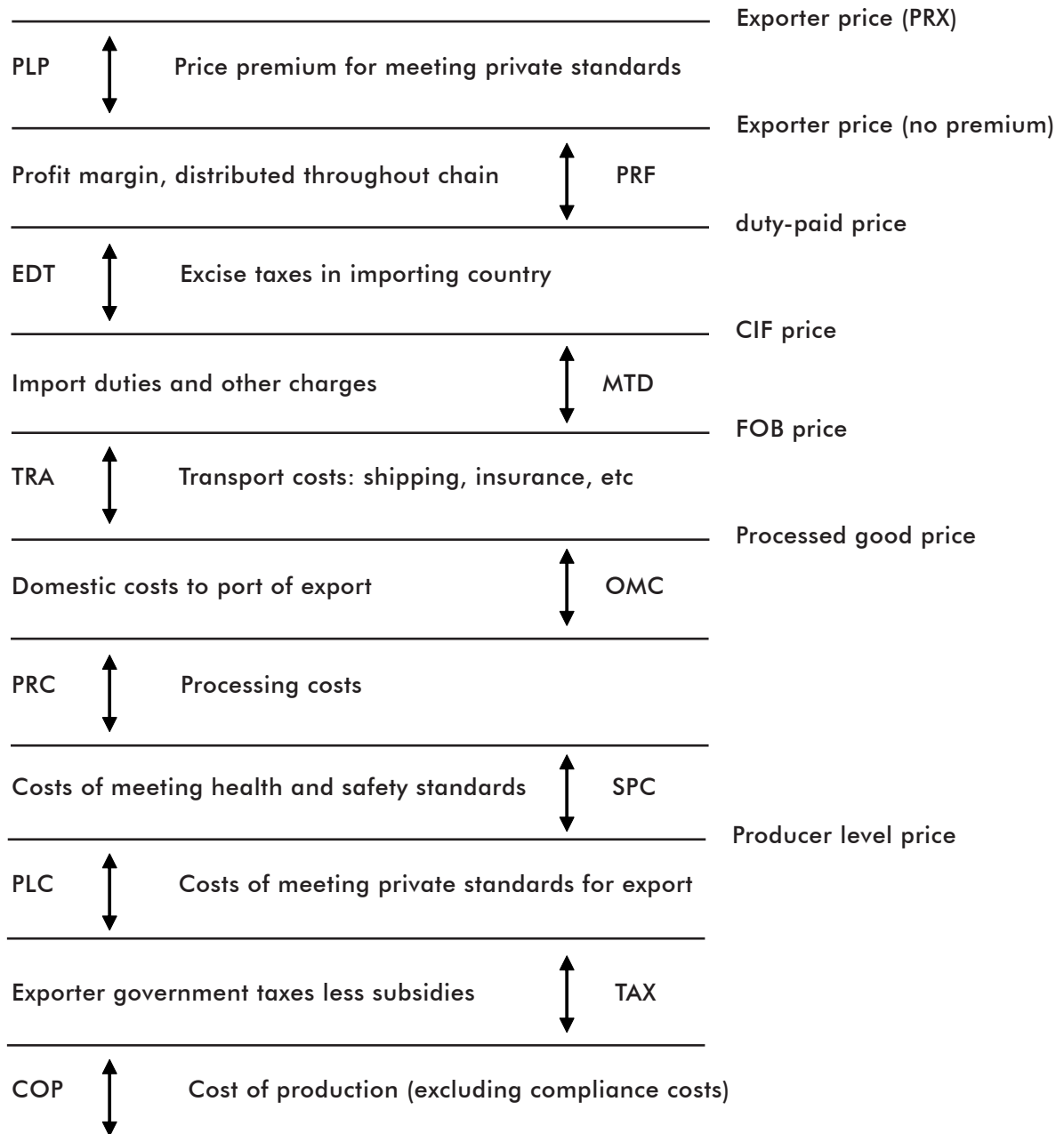
- Prices: Tables should be included that collect together information about prices at different levels of the export of rice. Besides their use in the country study itself, price data will help the process of comparing across exporters.

- Costs: Tables should consolidate data on costs at various stages, particularly the cost of compliance with importer standards (public and private). These too provide a basis for the synthesis report to match these across countries.

- Subsidies and Taxes: Tables of subsides, tariffs and other taxes applied on the exported product in both the importing country and the exporting country will be very useful in generating comparative results, as well as providing essential information for the country study.

As it is anticipated that the tables in both the text and the annexes would contain links to the Excel spreadsheets used to collate the data and make calculations, the spreadsheets should be submitted along with the report. A suggested framework for the spreadsheets is included in the accompanying file **CIMA country guide.xls**. This includes separate worksheets for:

- Sector description data

- Data for the price ladders (one worksheet each for prices, costs, subsidies/taxes)

- Price ladders

- Calculations of CIMA

Additional worksheets can be used for such items as graphs, formatted tables for the text, etc.

Table 1: Components of Price Ladder

		Exporter price (PRX)
PLP	↕ Price premium for meeting private standards	
		Exporter price (no premium)
Profit margin, distributed throughout chain	↕ PRF	
		duty-paid price
EDT	↕ Excise taxes in importing country	
		CIF price
Import duties and other charges	↕ MTD	
		FOB price
TRA	↕ Transport costs: shipping, insurance, etc	
		Processed good price
Domestic costs to port of export	↕ OMC	
PRC	↕ Processing costs	
Costs of meeting health and safety standards	↕ SPC	
		Producer level price
PLC	↕ Costs of meeting private standards for export	
Exporter government taxes less subsidies	↕ TAX	
COP	↕ Cost of production (excluding compliance costs)	

ENDNOTES

1. At the Bahia Dialogue, "Participants agreed that work on the composite index of protection is needed. As market access becomes increasingly influenced by non-tariff barriers, and the effects of subsidies become more apparent, it would be useful to establish and determine the composite index of protection (tariffs + domestic support + non-tariff barriers (sanitary, phytosanitary (SPS)/technical barriers to trade (TBT)/private standards)) imposed on tropical products."

2. The ICTSD Concept Note suggests that the CIMA need not be comparable across commodities (so as not to compare apples and oranges). But expressed as a percentage of (import or export) price such a comparison may still be useful. Aggregation across commodities poses the familiar problems of weighting but is otherwise possible.

3. Gravity models seek to identify bilateral trade flows that differ from those that one would expect on the basis of proximity, income levels and other identifiable factors. This difference is a useful indicator of trade barriers, but it is difficult to identify individual policies that may be behind such barriers. As a consequence a model-based indicator is unlikely to be feasible as an instrument for negotiation.

4. See Masters (2003) for a clear discussion of the use of cardinal indicators for policy evaluation, and the issues that may cause bias. See also Josling and Valdes (2003) for a broader discussion of policy indicators.

5. Subsidies paid by the exporting country government are deliberately excluded from the CIMA, as they are considered a reaction to market access barriers rather than a reduction of those barriers themselves.

6. One could make it easier for the index to reach 100 by excluding the other marketing costs from the definition of BMA. But some of these marketing costs are themselves policy-related, and could be reduced through negotiation (as in the trade facilitation discussions in the DDA).

7. The subsidies discussed here are those that relate directly to the production and marketing of the product in question. This would suggest that subsidies of a general nature (de-coupled from production and price of the tropical product or its close substitute) be omitted. One could of course pro-rate such non-specific subsidies, but that would make the use of the index for negotiation much more contentious.

8. The same example can be interpreted as showing the impact of reducing the cost of meeting the private standards (PLC).

9. An obvious example of this issue is the difference between organic and conventional products (such as coffee). The CIMA could well be different for organic coffee certified under national (or international) processes.

10. In some cases there may be the need for continuous improvements in technology to maintain access to markets. Such continuous investments should be captured in the CIMA if capital costs are included.

11.   Masters (2003) traces the NPC back to Adam Smith who compared British cereal prices with those on the continent of Europe as a reflection of the effect of the Corn Laws.

12.   For a description of the PSE and CSE as it is calculated by the OECD see Cahill and Legg (1997).

13.   The FAO developed the PSE and CSE as part of a monitoring of "international agricultural adjustment" in the 1970s (Josling, 1973). Their potential use in trade negotiations was discussed in Josling, Pearson and Tangermann (1987). The Aggregate Measure of Support (AMS) used in the Uruguay Round Agreement on Agriculture is a distant cousin of the PSE: it includes a mix of support from administered prices and direct payments. The AMS is not a suitable candidate as an indicator of market access.

14.   See ICTSD Concept Note (ICTSD, 2008) for a more detailed discussion of the PSE in this context. The MPS should include the cost of any extraordinary measures that have to be taken to sell in a particular market as a part of the price difference between the domestic and world markets. But that would depend upon whether the data was carefully calibrated with respect to whether it met particular standards. More to the point, the PSE calculations are not made on a regular basis for tropical products.

15.   It is unlikely that the CIMA itself would be the direct object of the negotiations, as that would put too much focus on the calculation of an indicator and confuse the actions required with the measures of the need for those actions. The CIMA would however represent a "scorecard" for the evaluation of the outcome of the negotiations on particular types of policy.

16.   Further details of the uses to which these estimates will be put are found in ICTSD (2008) and Josling (2008).

17.   This is a practical consideration. The focus of the country studies is on the barriers faced by exports. The extent to which farmers cover their costs is relevant to the broader policy question of agricultural trade policy but not to the specific issue at hand. Market barriers will tend to reduce farm receipts whether or not those receipts are sufficient to ensure an income for the farm enterprise.

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