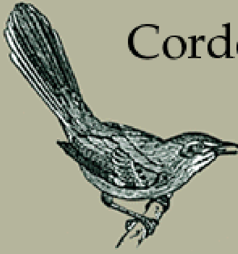


Cordell Hull Institute

Trade Policy Analyses

Vol. 7, No. 2 April 2005

DEVELOPING COUNTRIES…

Lessons from Trade Reform and Revenue Loss

Thomas Dalsgaard

GOVERNMENT revenue from trade taxes has become less important over the last twenty years or so, but it continues to be a major source of government finance in many low- and middle-income developing countries.[1] On average, it accounts for about one-quarter of total government revenues in the low-income countries and one-fifth in middle-income countries. As a consequence, even countries persuaded that they would enjoy substantial growth or other benefits from further trade liberalization – whether unilateral, in the context of regional agreements, or within a prospective multilateral Doha Round agreement – may fear a substantial cost in terms of lost revenue and thus be reluctant to pursue trade reform.

This paper, concerned throughout with developing countries, reviews the evidence on the revenue implications of trade reform and reports on a series of case studies, focusing on the question of how countries can best safeguard their total tax revenue when trade liberalization reduces their receipts from trade taxes. It therefore seeks to identify ways in which any constraint on future liberalization posed by the fear of revenue losses can be eased. The next section outlines, by way of background, broad trends in trade tax revenue and overall tax revenue over the past two decades. The third section discusses the main issues of principle that arise in dealing with the revenue implications of trade liberalization. The fourth section examines the broad evidence on the extent to which countries have in fact managed to replace trade taxes by other revenue sources; and the fifth section draws lessons from the contrasting experiences of eight countries. Conclusions are drawn in the last section.

Trade Taxes as a Source of Revenue

Trade tax revenue is an important component of government revenue in most low- and middle income countries (Figure 1). It typically

In a second Trade Policy Roundtable meeting on Developing Countries in the WTO System – following a meeting on October 20, 2004, with three World Bank economists – the Cordell Hull Institute focused on April 13, 2005, on the macro-economic and financial aspects of trade reform with three economists from the International Monetary Fund in Washington, DC.

The meeting was held at the Washington offices of Steptoe & Johnson, just south of Dupont Circle (pictured above).

Reproduced here is the presentation by **Thomas Dalsgaard** (above)

About the Author

Thomas Dalsgaard, Senior Economist in the Tax Policy Division of the IMF's Fiscal

Affairs Department since August 2004, was earlier head of the Management Secretariat at the Danish Oil and Gas Corporation, Copenhagen (2003-04).

Before that he was head of the Tax Policy Division in the Danish Ministry of Finance (2001-03), where he began his career.

Earlier, in 1998-2001, Dr Dalsgaard was a Senior Economist in the Economics Department of the Organisation for Economic Cooperation and Development (OECD) in Paris.

Other Speakers

Besides Dr Dalsgaard, the other IMF speakers were **Hans Peter Lankes**, chief of the Trade Policy Division, and **Udaibir S. Das**, chief of the Exchange Regime and Debt & Reserve Management Division.

Robert Vastine, president of the U.S. Coalition of Service Industries, and chairman of the Presidential Advisory Committee for International Trade in Services, also spoke.

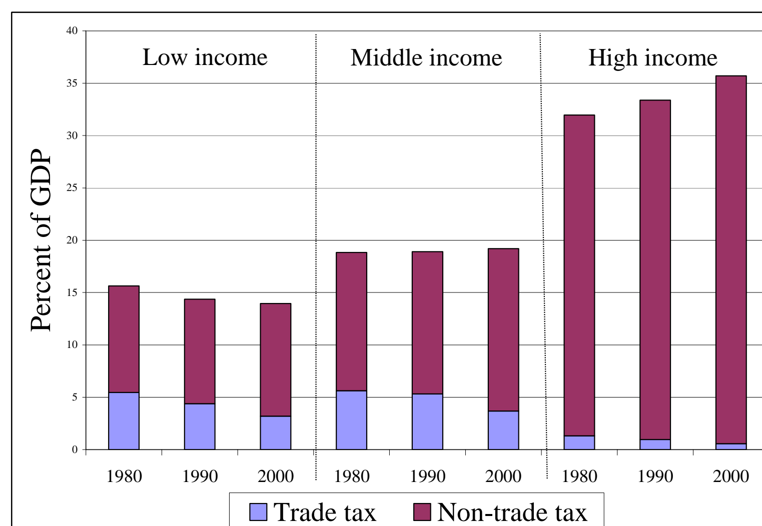
The other speakers were **Claude Barfield**, of the American Enterprise Institute, **Robert Rogowski**, of the U.S. International Trade Commission, and **Peter Ehrenhaft**, of Miller & Chevalier, attorneys-at-law.

About the Meeting

Integrating developing countries into the world economy is an important aspect of the Doha Round negotiations. But serious differences are surfacing not only between developed and developing countries but also within the two groups.

constitutes between one-quarter and one-third of total tax revenue in these countries, whereas it only plays a marginal role for high income countries.[2]

Figure 1. Trends in Trade Tax and Total Tax Revenues by Income Group



Source: TPD database.

Over the past twenty years, there has been a marked decline in trade tax revenue relative to GDP: trade tax revenue as a share of GDP fell by almost half among low-income countries and about one third among middle-income countries. This development is closely linked to an overall trend towards trade liberalization – proxied, for example, by a decline in collected import tariff rates (Figure 2).[3] The collected tariff rate has almost halved in all three income groups of developing countries since the mid-1980s, with the largest absolute decline in the low-income group.

There are signs in these broad group averages that some poorer countries have been unable (or unwilling) to recover lost trade tax revenues through strengthened domestic taxation. Among low-income countries, total tax revenues as a percent of GDP have on average declined in parallel with trade tax revenues. Middle-income countries, on the other hand, have managed to maintain total tax revenues broadly unchanged, while in high-income countries they have increased.

The prospects for further trade liberalization are likely to depend in part on the extent to which they will cause trade tax revenue to decline further and, too, on whether countries are able to deal with such revenue losses. These questions are the focus of the remainder of this chapter, which deals almost exclusively with the experiences of, and challenges facing, low- and middle-income countries.

Differences are surfacing over development and preferential treatment in various forms. Negotiators look as if they are being diverted from the WTO core business, which is trade liberalization – only a small part of development.

The WTO system, which is a framework of contractual agreements, is about enlarging the size of the pie – not about divvying out shares.

Many developing countries are resisting the idea of trade liberalization for a variety of reasons, thereby contributing to the difficulties in making progress in the negotiations as a whole.

Some say they rely heavily on the revenue generated by tariffs. And others are concerned that the reduction of MFN tariffs by developed countries will result in the erosion of the tariff preferences they enjoy in those countries' markets.

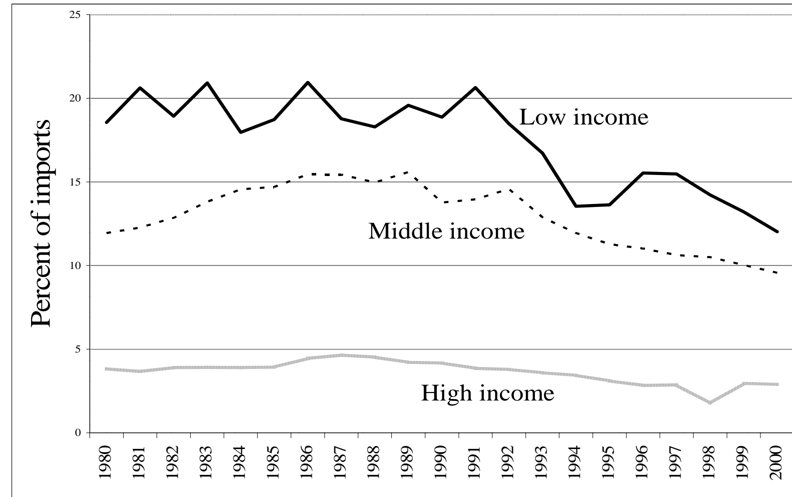
But even where tariffs are not involved, as in the liberalization of trade in services, developing countries are reluctant to engage in market-access negotiations, saying they do not have service providers that would benefit from access to developed-country markets.

Figuring out how these issues can be addressed has been considered by *inter alia* the IMF, which has undertaken a great deal of economic analysis of trade policy and related issues. This work has been summarized in a *Review of Fund Work on Trade.*

Trade Policy Roundtable

The Cordell Hull Institute's Trade Policy Roundtable is

Figure 2. Collected Tariff Rates by Income Group



Source: TPD Database.

Main Issues of Principle

This section considers possible pressures on revenues from further trade liberalization and – as a prelude to examining actual experiences – the prescriptions of theory as to how the revenue loss may be made up.

Links Between Trade Liberalization and Tax Revenue

It is widely recognized that trade liberalization does not necessarily have to reduce revenue from trade taxes – in which case, of course, no issue of identifying alternative revenue sources arises. This is most likely to be the case when liberalization involves:

(a) reducing non-tariff barriers, by converting them to explicit tariffs and by addressing ineffective or corrupt customs administration,

(b) reducing distorting exemptions, or raising low tariffs to establish a more uniform structure,

(c) reducing tariffs that are initially set, for protective reasons, at such high levels that a reduction will cause trade volumes to increase by more than enough to offset the direct revenue loss from lower rates, and/or

(d) reducing most-favored-nation (MFN) tariff rates towards preferential rates, tending to shift import demand towards more heavily tariffed items.

sponsored by eight international law firms in Washington, DC: Akin Gump Strauss Hauer & Feld, Arnold & Porter, Hogan & Hartson, Miller & Chevalier, O'Melveny & Myers, Sidley Austin Brown & Wood, Steptoe & Johnson and Wilmer Cutler Pickering Hale & Dorr.

These issues are discussed at length in three analyses: an IMF occasional paper by Liam Ebrill, Janet Stotsky and Reint Gropp published in 1999;[4] an IMF working paper by Terence Agbeyegbe, Dr Stotsky and Asegedech WoldeMariam published in 2004[5] and a *World Development* article in 2002 by Barsha Khattry and Mohan Rao.[6] The first two find little impact of trade liberalization on trade tax revenues; the last finds a significant, negative relationship.

Eventually, however, trade liberalization must reduce trade tax revenues – simply because free trade ultimately means no trade taxes – and many countries are now likely to be in this situation. Three points can be made:

Table 1. Distribution of Low- and Middle-Income Countries by Change in Trade Tax Revenue and Collected Rate (early 1980s to late 1990s

	Collected Tariff Rate Down	Collected Tariff Rate Up	Total
Trade tax revenue down	60 countries (23L, 37M)	19 countries (8L, 11M)	79 (31L, 48M)
Trade tax revenue up	9 countries (4L, 5M)	9 countries (6L, 3M)	18 (10L, 8M)
Total	69 countries (27L, 42M)	28 countries (14L, 14M)	97 (41L, 56M)

Source: TPD database.

Note: L = low-income, M= middle income countries.

1. Collected tariff rates are now low in many developing countries relative to levels that are likely to be revenue-maximizing: Drs Khattry and Rao, for instance, estimate the revenue-maximizing tariff rate for low-income countries to be in the order of 38 percent, while Drs Ebrill, Stotsky and Gropp put it at round 24 percent. While the notion of a single revenue-maximizing rate is clearly a dangerous simplification, it is notable from Figure 2 that – with the average collected tariff rate having declined to 10-15 percent – many countries now have collected rates far below these levels.

2. Of the 97 low- and middle-income developing countries in the sample, trade tax revenue as a percent of GDP declined in 79 (Table 1). Among the trade reformers, i.e. countries where the

collected tariff rate fell over the period, the proportion of revenue losers were even larger: 60 out of 69 countries.

3. There has also been a marked decline in non-tariff barriers (NTBs) over the past two decades in many developing countries (Table 2). Moreover, the global average of the NTB index used in constructing the IMF's Trade Restrictiveness Index has declined from 1.83 in 1997 to 1.70 in 2004 (on a 3 point scale, with 3 being the most restrictive), suggesting that the scope for revenue-enhancing trade liberalization through tariffication is narrowing.

Table 2. Frequency of NTBs in Developing Countries, 1989–2000 (in percent)

Region	1989–94	2000
East Asia and the Pacific	30.1	5.5
Latin America and the Caribbean	18.3	15.3
Middle East and North Africa	43.8	8.5
South Asia	57.0	13.3
Sub-Saharan Africa	26.0	2.3

Source: World Bank (2004).

1/ Figures are regional averages of percentage of tariff lines subject to core NTBs, including all types of quantity restrictions and price administration or control as well as monopolistic trading channels.

Trade tax reform may have a variety of impacts on revenue in addition to the direct effect through trade tax revenues. Four points can be made:

1. When (as is normally the case) consumption taxes are levied on tariff-inclusive prices, there will be a direct impact on revenues from those other taxes.

2. Liberalization may generate a gradual or one-off depreciation that, under normal circumstances, increases the value of imports in local currency and so by itself strengthens revenues from import tariffs and (*ad valorem*) domestic consumption taxes.

3. Exchange-rate movements and a worsened fiscal position related to reduced trade tax revenues may also be associated with

higher inflation, which in turn will impact real tax revenues to the extent that the domestic tax system is less than fully indexed (with, for example, fiscal drag arising from unchanged nominal brackets in the personal income tax system, or increased corporate taxation consequent on depreciation allowances being based on historic cost).[7] These effects will be muted, however, to the extent that the tax system is eventually adjusted to any change in the level of prices and/or the permanent inflation rate.

4. Liberalization may also have an impact on growth – indeed, that is commonly a main rationale for undertaking it – which may in turn have a positive impact on the level of revenues (although not necessarily on revenues relative to GDP).[8]

The full implications of trade reform for government revenue thus depend on a range of considerations, most of which point to a "second-round" increase in overall revenue. These effects, however, are subject to significant uncertainty as to their strength and timing. This suggests, and experience tends to confirm (as discussed below), that it is generally not prudent to presume that effects through exchange-rate movements, inflation or economic growth will automatically compensate for the direct loss of trade tax revenues, in particular over the medium to long term. Some policy response is likely to be needed to deal with the revenue loss from trade reform.

Strategies to Offset Revenue Shortfall from Trade Tax Losses

Evidently, countries may opt to reduce the overall tax burden, by reducing spending, as trade tax revenue decreases. Notwithstanding the scope for making public spending more efficient and better prioritized, many low- and middle-income developing countries may find it hard to reduce the overall level of spending, as this may already be suppressed, and since the need for increasing spending on social and physical development remains substantial in most of these countries. Moreover, many low- and middle-income countries are running chronic budget deficits and/or are facing serious problems of government debt accumulation.

In practice, for most countries, prudence therefore requires that compensating revenue measures be adopted to offset any loss of trade tax revenues consequent upon trade liberalization. For this purpose, there is great conceptual merit in using domestic consumption taxes – both the excises on particular goods and general sales taxes (the archetype being the value-added tax (VAT) – to offset such losses.

The basic argument is simple.[9] Consider, for instance, a strategy of matching each one percentage point reduction in the tariff rate on some final consumption good with a one point increase in the corresponding domestic tax on consumption on that same good.

For a small open economy – one, that is, which can have no impact on prices in world markets –this will leave the price faced by consumers unchanged. It will also preserve the efficiency gain from the tariff cut, since the change in the consumption tax does not offset the effect of bringing the prices faced by domestic producers closer to those in world markets. The government's total tax revenue, however, will go up, for these revenues are now collected on all consumption, domestically-produced as well as imported. That increase in government revenues could, in turn, be used to alleviate – by subsidies or targeted tax incentives – the transition of those sectors that stand to lose from trade liberalization and/or to reduce consumption taxes to ensure that consumers end up strictly better-off as a consequence of the reform.[10] While there are several qualifications to this argument and its proper application, it points to a coherent and simple strategy for securing the efficiency benefits of trade liberalization without jeopardizing revenue and, moreover, without significantly affecting the distribution of the tax burden.

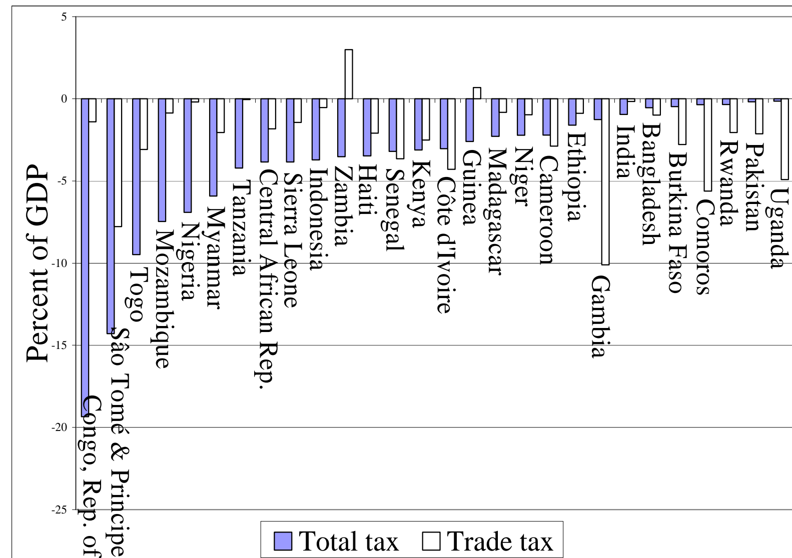
This strategy, focused on a shift towards domestic consumption taxes, also has considerable practical merit. One of the major attractions of trade taxes as a source of revenue in developing countries is the convenience of border controls in monitoring transactions and hence levying tax. But a considerable proportion of excise and VAT revenues is also collected at the border, using much the same administrative machinery as is used to collect customs revenue. It is not uncommon, for example, to find that developing countries collect more than half of their VAT revenues from imports.[11] In this important respect, shifting from trade taxes to domestic consumptions preserves the convenience of border controls as handles in collecting tax revenue. By the same token, the VAT shares the merit of tariffs in reaching informal traders, who purchase imports but may be both outside and have relatively few dealings with the formal domestic sector. And, indeed, in a number of countries the introduction of the VAT was synchronized with trade liberalization so as to achieve broad revenue-neutrality.

Experiences of Developing Countries

There has been relatively little empirical research on the impact on total tax revenue of trade liberalization. Studies of the extent to which lost trade tax revenues have been recovered from domestic sources reach somewhat different conclusions, reflecting differences in country and time samples, methodologies and in the source of the revenue data.[12] Recent econometric work, using the same set of data as here, suggest that low- income developing countries in particular have experienced considerable difficulty in replacing lost trade tax revenues from other sources. Using a panel of 125 countries over twenty years, Thomas Baunsgaard and Michael Keen, of the IMF, found that low-income countries typically recover at most 30 cents for each dollar of lost trade tax

revenue, even over the longer-term.[13] For middle-income countries, recovery is noticeably more complete, and perhaps as high as one dollar for each dollar lost. For high-income countries, and unsurprisingly, revenue recovery is hardly an issue, reflecting the fact that tariffs are for them instruments of protection rather than revenue recovery.

Figure 3. Changes in Total Tax and Trade Tax Revenues (early 1980s to late 1990s), for Low-Income Countries in which Total Tax Revenue Declined

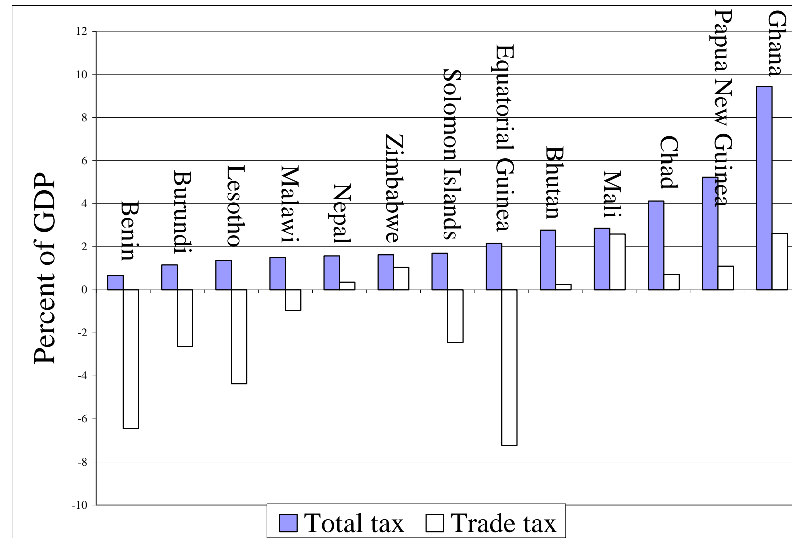


Source: TPD database.

While the evidence suggests that revenue recovery has been a real issue for many low-income developing countries, experience varies widely across them. Figures 3 and 4 illustrate this diversity for low-income countries. Figure 3 focuses on low-income countries in which the overall tax ratio fell between the early 1980s and the late 1990s (starting on the left with those in which this fall was greatest), showing the amount of this fall and the in which overall revenue has fallen in the face of a decline in trade tax revenues – and several in which revenues fell even more than could be accounted for by reductions in trade tax receipts – there are also a number which have partially or wholly managed to maintain total tax revenues largely unchanged in the face of declining trade tax revenues (including, for example, Pakistan and Uganda). Indeed, some countries (including, for example, Benin and Malawi) have increased total tax revenues despite a decline in trade tax revenues. Figures 5 and 6 provide the corresponding pictures for middle-income countries, with a clear impression of more complete recovery in more countries.

Nearly half (thirteen countries out of 27) of the low-income developing countries that cut their collected tariff rate over the last

Figure 4. Changes in Total Tax and Trade Tax Revenues (early 1980s to late 1990s), for Low-Income Countries in which Total Tax Revenue Increased Recent Assessments



Source: TPD database

Table 3. Distribution of Countries by Changes in Collected Tariff Rate, Trade Tax Revenues and Total Tax Revenue (early 1980s to late 1990s)

	Collected Tariff Rate	
	Down	Up
Trade tax/GDP ratio down and recovery rate 1/ less than 70 percent	13L, 13M	6L, 3M
Trade tax/GDP ratio down and recovery rate /1 more than 70 percent	10L, 24M	2L, 8M
Trade tax/GDP ratio up	4L, 5M	6L, 3M
Total	27L, 42M	14L, 14M

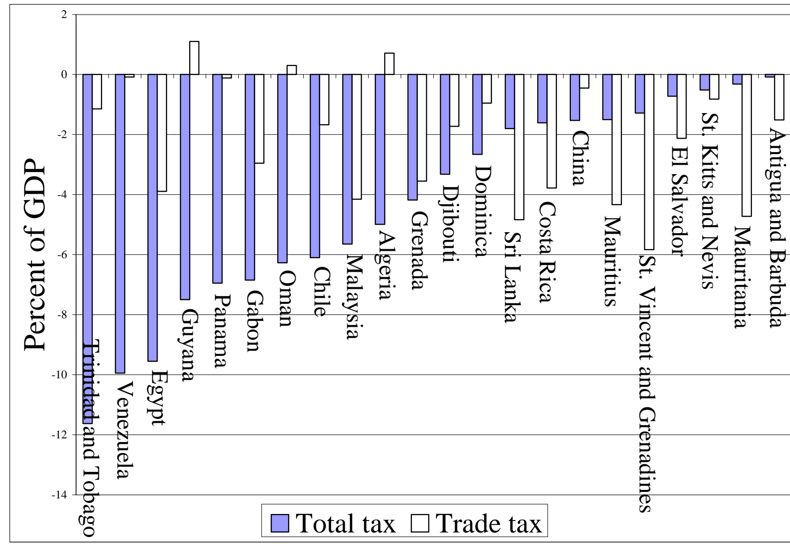
Source: same as table 1. L = low-income, M = middle-income countries.

1/ The recovery rate measures the extent to which lower trade tax revenue are offset by increases in revenue from other taxes.

twenty years and suffered an associated revenue loss have

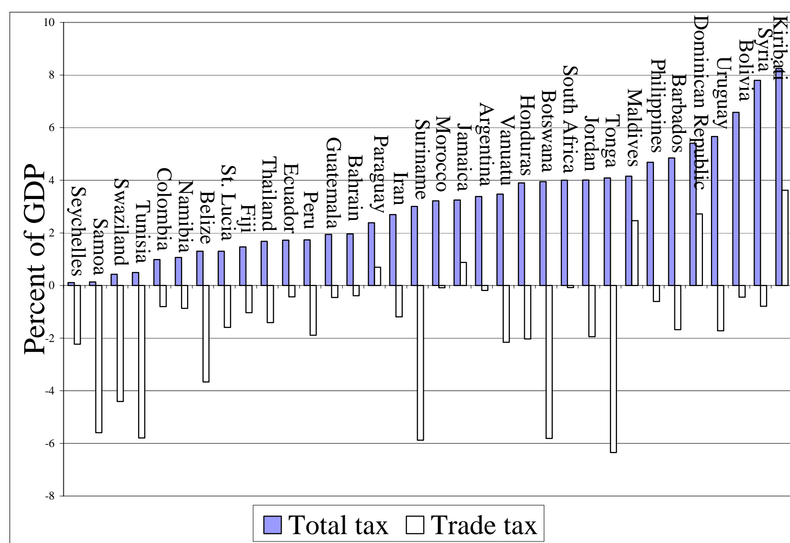
sources. This can be seen from Table 3, which summarizes the country experiences shown in Figures 3 to 6, breaking them down also between those countries that experienced a decrease in the collected tariff rate and those that have experienced an increase. The diversity of experience can again be seen, as can the stronger

Figure 5. Changes in Total Tax and Trade Tax Revenues (early 1980s to late 1990s), for Middle-Income Countries in which Total Tax Revenue Declined



Source: TPD database.

Figure 6. Changes in Total Tax and Trade Tax Revenue (early 1980s to late 1990s), for Middle-Income Countries in which Total Tax Revenue Increased



Source: TPD database.

recovery in middle-income countries, with only about one third (thirteen countries out of 42) of those that cut their collected tariff rate recovering less than 70 percent of any associated revenue loss.[14] The same pattern is found for countries in which collected tariff rates increased, although these countries overall seem to have fared slightly better in sustaining trade tax revenues – indicating, as one would expect, that trade reformers are more exposed to trade tax losses than non-reformers.

Case Studies of Eight Countries

This section explores in more detail the experience of a sample of eight countries. These have in common a decline in the collected tariff rates over the past twenty years, but differ in the extent of revenue recovery. In Kenya, Sri Lanka, Egypt and Cote d'Ivoire lost trade tax revenues were not replaced. In Malawi, Uganda, Senegal and Jordan, they were. Appendix Table summarizes the performance of these eight countries in terms of the collected tariff rate, change in various tax revenue components and the average annual general government balance.

Those developing countries that did recover total tax revenue all also increased domestic consumption tax revenue, often by an amount broadly corresponding to the loss of trade tax revenue. On the other hand, where total revenue was not maintained, domestic consumption tax revenue as a percent of GDP remained unchanged or fell (with the exception of Egypt). Consistent with the principles set out above, domestic consumption taxes have thus played a key role in revenue recovery.

1. The performance of income tax revenue was also stronger in the countries that recovered trade tax losses, pointing to a generally stronger capacity to mobilize domestic tax sources in these countries. Interestingly, and perhaps importantly, where revenue has been recovered, the adjustment has thus taken place not only through domestic consumption taxes but through other taxes as well.

2. All countries in the sample – including those that have not recovered lost trade tax revenues – had fairly large average fiscal deficits (net of grants) over the period, indicating a tight budgetary situation and little room for revenue reducing policies.

3. The presence of a VAT does not in itself appear to enhance the ability to recover revenue. Dr Baunsgaard and Dr Keen reach a similar conclusion in their econometric analysis, finding that the degree of revenue recovery is not systematically related to the simple fact of whether or not a country has a VAT.

Closer examination of experiences in these countries suggests a number of further broad conclusions:

4. Revenue recovery requires a committed and continuous effort to broaden tax bases, by purging exemptions, simplifying rate structures and improving administration (for example, by establishing a large taxpayer unit and introducing taxpayer identification numbers). Revenue recovery in Senegal and Uganda, for instance, clearly benefited from substantive administrative reform. Conversely, where commitment and focus are weak – as appears to have often been the case in Egypt, for example – revenue recovery can be very poor.

5. The design and implementation of the VAT is important. In Sri Lanka and Egypt, for example, the VAT remained flawed by design weaknesses (such as excessive exemptions, multiple rates, only partial refunds on capital goods) and weak administration. In Senegal, on the other hand, the VAT worked relatively well, with a single rate and few exemptions. It is not the simple presence or absence of a VAT that matters in itself, but the quality of the design and implementation of that VAT, and the commitment of the authorities.

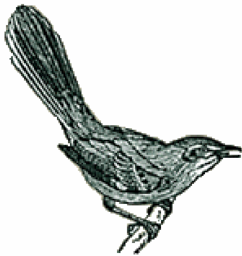
6. Excises also play an important role in the transition from trade taxes to domestic consumption taxes, since excisable goods are often a large part of the import base.

Conclusions

Experience has varied quite widely, but many low-income developing countries and some middle-income countries have had real difficulty in replacing trade tax revenues lost as a consequence of trade reform by strengthening their domestic tax systems. Of the low-income countries that undertook trade reform over the past two decades, and as a result witnessed a decline in trade tax revenue, roughly half did not manage to recover the revenue loss by raising other taxes. For middle-income countries, recovery is clearly stronger, with about two-thirds showing significant recovery. In high-income countries, dealing with the revenue consequences of trade reform has not been problematic.

While some developing countries might deliberately have chosen to reduce their tax/GDP ratios following trade reform, most low-income countries struggle with large deficits and a pressing need to increase development expenditures. Hence, to the extent that further trade liberalization reduces trade tax revenues, there is a risk of significant revenue problems for many low-income countries, potentially intensifying revenue challenges that they face from other sources, such as the erosion of the corporate income tax through international tax competition. The revenue challenges are not confined to trade-reformers, but these are more exposed.

There are, however, several low-income developing countries that have managed to recover lost trade tax revenue from domestic sources, and their experience provides useful lessons for others.



The **mockingbird** is the state bird of Tennessee. Cordell Hull represented a district of Tennessee in the Congress of the United States, and was elected a senator from there, before becoming U.S. Secretary of State (1933-44).

"The mockingbird is known for fighting for the protection of his home – falling, if need be, in its defense. Mockingbirds are not intimidated by animals larger than themselves and have been known to attack eagles"

– Diana Wells, *100 Birds and How They Got Their Names* (Chapel Hill, NC: Algonquin, 2002)

Trade Policy Analyses

Papers in the online series, *Trade Policy Analyses*, are published by the Cordell Hull Institute, which is a non-profit organization incorporated in the District of Columbia and is tax exempt under Section 501(c)(3) of the Inland Revenue Code.

The Institute's purpose is to promote independent analysis and public discussion of issues in international economic relations.

The interpretations and conclusions in its publications are those of their respective authors and do not purport to represent those of the Institute which, having general terms of reference, does not represent a consensus of opinion on any particular issue.

Copyright © 2005 by the Cordell Hull Institute

Permission is granted to quote from the paper, but it would be appreciated if the source could be acknowledged in the usual way.

It suggests, in particular, that:

(a) revenue recovery requires a committed and continuous effort, over several years, to broaden tax bases by purging exemptions, simplifying rate structures, and improving revenue administration;

(b) strengthening the domestic consumption tax system, through the excises and, in particular by means of a simple, broad-based VAT, has a crucial role to play; and

(c) in contrast to the standard theoretical prescription that the offsetting revenue comes through domestic consumption taxes, strengthening of the income tax can also make an important contribution; and

(d) trade liberalization may need to be purposively sequenced with domestic tax reform.

While revenue considerations might come to be an obstacle to further trade liberalization, experience also shows that this need not be the case. There are success stories, and the central components of that success are clear. The difficulties are ultimately not so much technical ones – although the proper design and implementation of accompanying domestic tax reforms is not a trivial task – so much as that of commitment to the reforms widely recognized as necessary to strengthen domestic tax systems.

Members will want to match progress on reaching agreement on these modalities in Hong Kong with progress in other areas of the negotiations to which they individually attach importance – for example, services, trade-remedy laws, S&D treatment or trade facilitation. Considerable time will be needed in 2006 to complete the negotiations and complete the legal drafting in these areas.

Appendix Table. Case Study Countries: Changes in Collected Tariff Rate, Revenue Components and Government Balance 1/

	Collected Tariff Rate	Total Tax Revenue	Trade Tax Revenue	Domestic Consumption Tax Revenue	Income Tax Revenue	General Government Balance (annual average)	VAT? (Introduction date)
Less than full recovery:							
Kenya (1981)	-11.7	-5.9	-4.2	-0.1	-0.7	-4.0	Yes (1989)
Sri Lanka (1989)	-15.5	-4.4	-4.6	-1.1	0.1	-8.1	Yes (1998)
Egypt							

(1989)	-24.2	-2.6	-1.2	2.2	1.9	-5.2	Yes (1991)
Cote d'Ivoire (1981)	-26.3	-6.0	-6.4	-0.6	-0.1	-7.1	Yes (1960)
Average of above countries	-19.4	-4.7	-4.1	0.1	0.3	-6.1	-
Full recovery:							
Malawi (1984)	-22.0	2.5	-1.4	2.3	2.1	-6.2	Yes (1989)
Uganda (1990)	-16.6	2.8	-2.7	4.4	1.2	-2.9	Yes (1996)
Senegal (1991)	-28.1	0.1	-4.8	3.4	0.2	-0.8	Yes (1961)
Jordan (1986)	-5.7	5.3	-0.7	5.5	0.5	-5.8	Yes (1994)
Average of above countries	-18.1	2.7	-2.4	3.9	1.0	-3.9	-

Source: TPD dataset and (for general government balances) World Economic Outlook database, September 2004.

1/ Figures are changes relative to the year in which the collected tariff rate peaked (shown in brackets in the first column) until 2000. All in percent of GDP, except that collected tariff is in percent of import value.

[1]This chapter is based on a paper on "Dealing with the Revenue Consequences of Trade Reform", Background Paper for the Board Review of Fund Work on Trade (Washington, DC: International Monetary Fund, 2005). The author is grateful for comments received from colleagues at the Fund, in particular Michael Keen and Hans Peter Lankes, as well as participants in the Cordell Hull Institute's seminar in Washington, DC, on April 13, 2005. The views expressed in the chapter are those of the author and do not necessarily represent those of the IMF or IMF policy.

[2]The dataset used throughout this chapter is assembled by the IMF's Tax Policy Division and covers 97 low- and middle-income countries and 28 high-income countries (following the World bank classification) over the period 1980-2000.

[3] The collected import tariff rate – tariff revenues divided by import value – is often used as a proxy for the level of tariff protection, but changes in this rate do not capture other important elements of trade liberalization such as lowering non-tariff barriers (NTBs) or eliminating tariff exemptions. It is thus a far from perfect indicator of the extent of trade liberalization. (For a further discussion, see Liam Ebrill, Janet Stotsky and Reint Gropp, "Revenue Implications of Trade Liberalization", Occasional Paper No. 180 (Washington, DC: International Monetary Fund, 1999).

[4] Ebrill, Stotsky and Gropp, *op. cit.*

[5] Terence Agbeyegbe, Stotsky and Asegedech WoldeMariam, *Trade Liberalization, Exchange Rate Changes and Tax Revenue in Sub-Saharan Africa*, IMF Working Paper 04/178 (Washington, DC: International Monetary Fund, 2004).

[6] Barsha Khattry and J. Mohan Rao, "Fiscal Faux Pas? An Analysis of the Revenue Implications of Trade Liberalization", *World Development*, Washington, DC, Vol. 30, No. 8, 2002, pp. 1431-44.

[7] Inflation-induced effects are analyzed in Agbeyegbe, Stotsky and WoldeMariam, *op. cit.*; Christopher Adam, David Bevan and Gerard Chambas, "Exchange Rate Regimes and Revenue Performance in Sub-Saharan Africa", *Journal of Development Economics*, __________, Vol. 64, 2001, pp. 173–213; and Stephen Tokarick, "External Shocks, the Real Exchange Rate, and Tax Policy," *Staff Papers*, International Monetary Fund, Washington, DC, Vol. 42, 1995, pp. 175-204.

[8] See, for instance, Romain Wacziarg and Karen H. Welch, *Trade Liberalization and Growth: New Evidence*, NBER Working Paper 10152 (Cambridge, MA: National Bureau of Economic Research, 2003), and David Greenaway, Wyn Morgan and Peter Wright, "Trade Liberalization and Growth in Developing Countries", *Journal of Development Economics*, Vol. 67, 2002, pp. 229-44.

[9] Michael Keen and Jenny E. Ligthart, "Coordinating Tariff Reduction and Domestic Tax Reform," *Journal of International Economics*, Vol. 56, 2002, pp. 489-507. One qualification deserves particular comment. The argument in the text requires that the rate structure of the new domestic consumption tax mimic in full the tariff structure that is being replaced, in order to leave all consumer prices unchanged. Since most countries apply multiple tariff rates, the reform strategy requires that there also be multiple rates of domestic consumption taxation. But such multiple rates can create their own problems (multiple rates of VAT, for instance, increase the likelihood that refunds will have to be paid even on goods sold domestically). That does not invalidate the argument in the text, however, but simply means that there would be further welfare gains by combining the shift away from trade taxes along the lines in the text by a movement towards a more uniform consumption tax system.

[10] In a similar vein, a simple strategy for removing an export tax so as to improve efficiency and increase revenue, is to replace it by a tax on domestic production levied at the same rate.

[11] Ebrill, Keen, Jean-Paul Bodin and Victoria Summers, *The Modern VAT* (Washington, DC: International Monetary Fund, 2001).

[12] "Dealing with the Revenue Consequences of Trade Reform", *op. cit*.

[13] Thomas Baunsgaard and Keen, *Tax Revenue and (or?) Trade Liberalization*, IMF Working Paper 05/112 (Washington, DC: International Monetary Fund, 2005).

[14] These proportions are only altered slightly if the cut-off point for what is considered to be a substantial degree of revenue recovery is raised from 70 to 80 percent. In the latter case, two low- income countries changes from recovery to non-recovery (Rwanda and Burkina Faso), while there is no change among the middle-income countries.