

INTERNATIONAL MONETARY FUND

**Dealing with the Revenue Consequences of Trade Reform**  
(Background Paper for Review of Fund Work on Trade)

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February 15, 2005

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## I. INTRODUCTION

1. **The revenue from trade taxes has become less important over the last 20 years or so, but continues to be a major source of government finance in many low- and middle income countries.** In sub-Saharan Africa, for instance, trade taxes accounted, on average, for about one-third of total tax revenue in the early 1980s; now they account for about one-quarter. 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—may fear a substantial cost in terms of lost revenue, and hence be reluctant to pursue trade reform beyond the point at which it poses no risk to trade tax revenues.
2. **This paper 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 thus seeks to identify ways in which any constraint on future liberalization posed by the fear of revenue losses can be eased. Section II outlines broad trends in trade tax revenue and overall tax revenue over the past two decades. Section III discusses the main issues of principle that arise in dealing with the revenue implications of trade liberalization. Section IV examines the broad evidence on the extent to which countries have in fact managed to replace trade taxes by other revenue sources, and Section V draws lessons from the contrasting experiences of eight countries. Conclusions are in Section VI.

## II. BACKGROUND: TRADE TAXES AS A SOURCE OF REVENUE

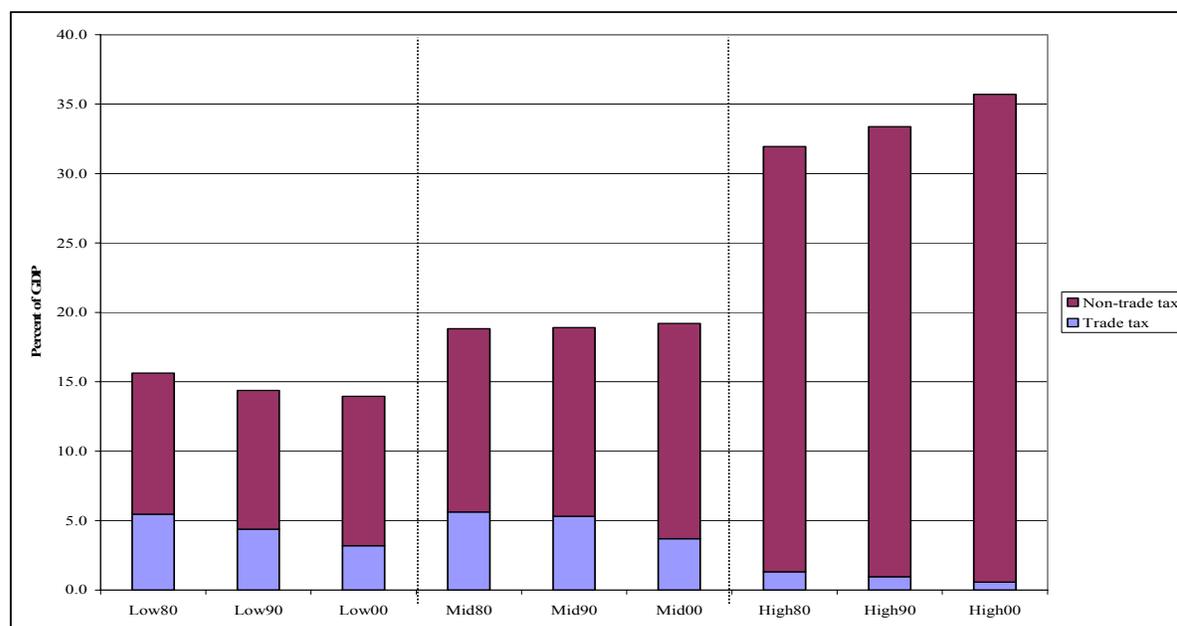
3. **Trade tax revenue typically constitutes between one-quarter and one-third of total tax revenue in low- and middle-income countries,** and only a negligible share in high income countries, as shown in Figure 1. (The dataset used here and throughout the paper, was assembled by the Tax Policy Division (TPD) of the Fiscal Affairs Department (FAD), and is discussed further below. It covers 125 countries (97 low- and middle-income, and 28 high income countries)<sup>1</sup> over the period 1975–2000.)<sup>2</sup>

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<sup>1</sup> The categorization by income group is by the World Bank classification, and in terms of income levels at the end of the sample period (which will bias downwards the apparent performance of low and middle-income countries as a group, since the most successful of them will have graduated to a higher income group).

<sup>2</sup> Details of the dataset are in Baunsgaard and Keen (2005).

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

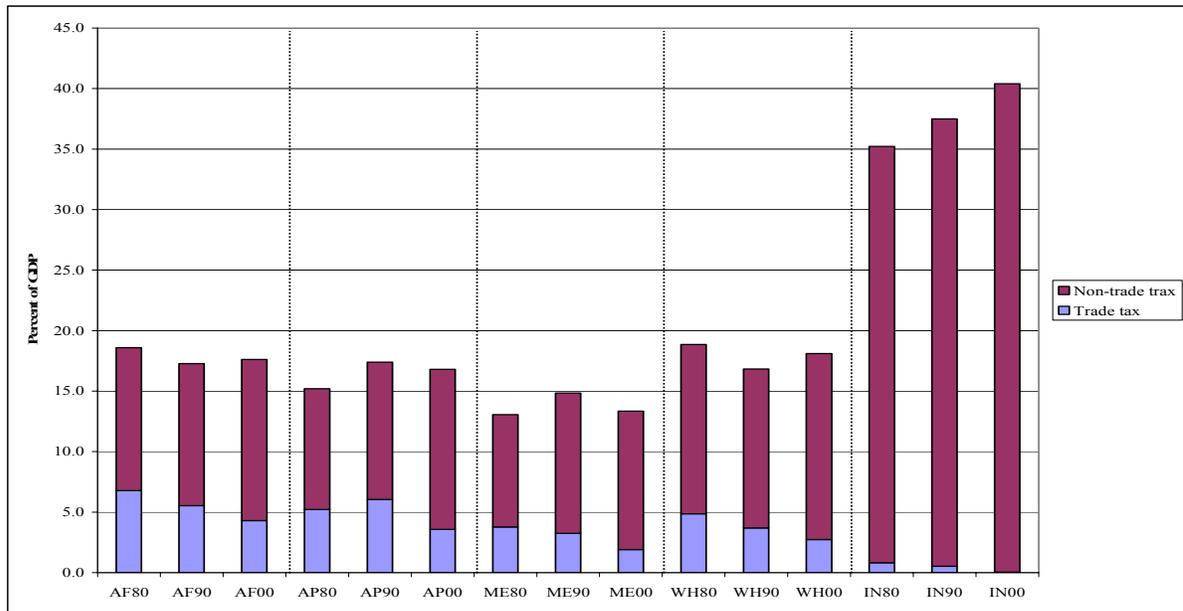


Source: TPD database.

4. **Over the past 20 years, trade liberalization has been associated with a marked decline in trade tax revenue relative to GDP, in both developing and developed countries, and in all regions** (Figures 1 and 2). The reduction is quite marked: amongst middle-income countries, for instance, trade tax revenues as a share of GDP fell by about one-third. This development is closely linked to an overall trend towards trade liberalization—proxied, for example, by a decline in collected import tariff<sup>3</sup> rates—in all regions and income groups, particularly between the mid 1980s and the mid 1990s (Figures 3 and 4). The collected tariff rate has almost halved in all three income groups since the mid-1980s, with the largest absolute decline in the low income group. Collected tariff rates also fell in all geographic regions over this period, with the sharpest absolute declines in Asia and Sub-Saharan Africa.

<sup>3</sup> The collected import tariff rate—tariff revenues divided by import value—is frequently 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 a lowering non-tariff barriers (NTBs) or eliminating tariff exemptions. It is thus a far from perfect indicator of the extent of trade liberalization. (For further discussion, see Ebrill, Stotsky and Gropp (1999)).

Figure 2. Trends in Trade Tax and Total Tax Revenues by Region



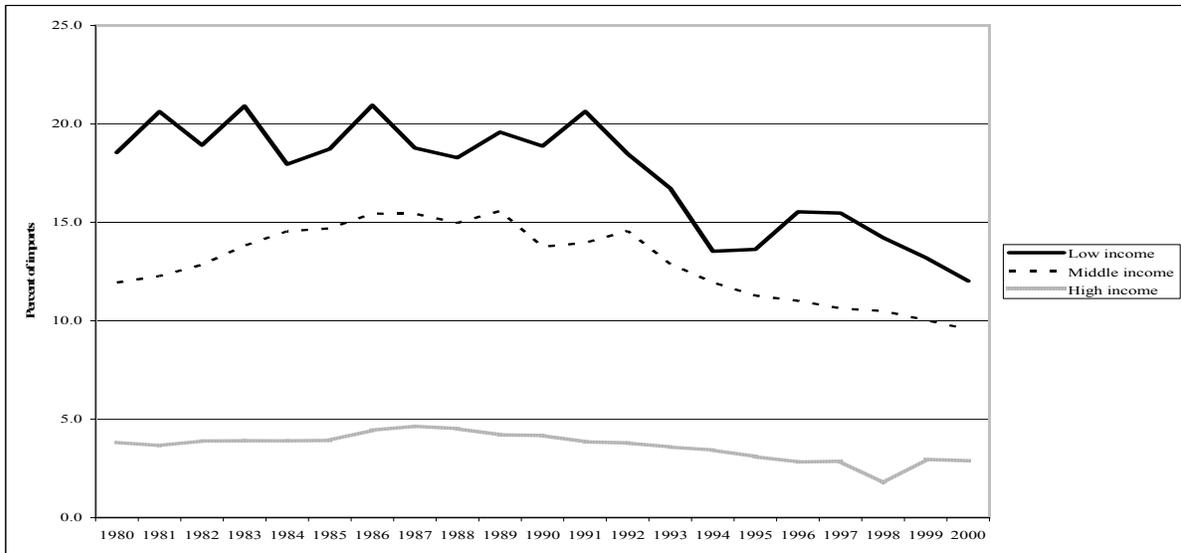
Source: TPD database.

Note: AF= Sub-Saharan Africa, AP=Asia, ME=Middle East/North Africa, WH=Latin America, IN=OECD countries.

5. **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.** Amongst 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. Looking across the regions, experience is mixed: on average there has been less than full replacement of lost trade tax revenues in the middle east, whereas there has been more than full offsetting over the 1990s in both Sub-Saharan Africa and Latin America.<sup>4</sup>

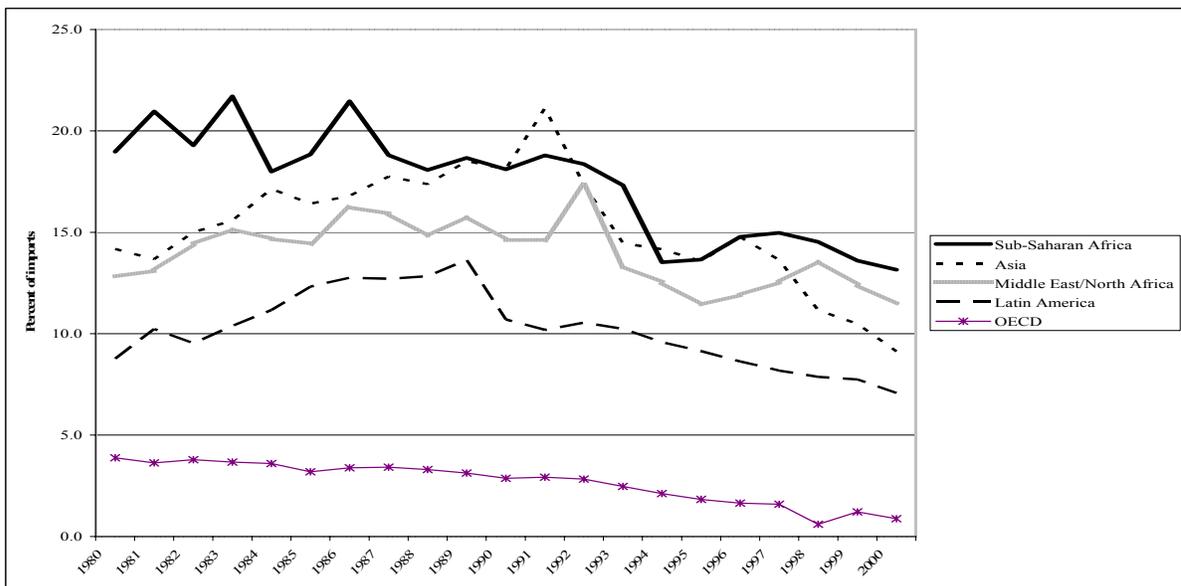
<sup>4</sup> Government Finance Statistics (GFS) data lead to broadly the same conclusions.

Figure 3. Collected Tariff Rates by Income Group



Source: TPD Database.

Figure 4. Collected Tariff Rates by Region



Source: TPD Database.

6. **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 on whether countries are able to deal with such revenue losses.** These questions are the focus of the remainder of this paper, which deals almost exclusively with low- and middle income countries (since high income countries do not rely substantially on trade tax revenues, and have in any event clearly proved more than capable of increasing domestic revenue over and above any losses they may have incurred from declining trade tax revenues).

### III. ISSUES

7. 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.

#### A. Links Between Trade Liberalization and Tax Revenue

8. **As is now widely recognized, trade liberalization does not necessarily 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:

- Reducing non-tariff barriers,<sup>5</sup> by converting them to explicit tariffs and by addressing ineffective or corrupt customs administration;<sup>6</sup>
- Reducing distorting exemptions, or raising low tariffs to establish a more uniform structure;
- Cutting 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;
- Reducing most favored nation tariff rates towards preferential rates, tending to shift import demand towards more heavily tariffed items;

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<sup>5</sup> Econometric evidence of the potentially positive impact on trade tax revenues of easing quantitative restrictions is reported in Ebrill, Stotsky, and Gropp (1999).

<sup>6</sup> World Bank (2004) provides evidence of substantial potential revenue gains from improved trade facilitation. The modernization of customs administration is a key part of the Fund's trade-related technical assistance activities: Keen (2003) provides an account of the key features of the strategies commonly recommended.

- Reducing bound rates, while leaving unchanged the rates actually applied. This clearly has no direct revenue effect—and indeed to the extent that the decreased risk this implies for investors leads to an expansion of trade, trade tax revenue will increase.<sup>7</sup>

9. These issues are discussed at length in Ebrill, Stotsky, and Gropp (1999), Agbeyegbe, Stotsky, and WoldeMariam (2004), and Khattry and Rao (2002). The first two find little impact of trade liberalization on trade tax revenues; the last finds a significant, negative relationship. (The methods and results of these and other studies of the relationship between trade liberalization and revenue are summarized in Appendix I).

10. **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:**

- Collected tariff rates are now low in many countries relative to levels that are likely to be revenue-maximizing: Khattry and Rao (2002) for instance, estimate the revenue-maximizing tariff rate for low income countries to be in the order of 38 percent, while Ebrill, Stotsky, and Gropp (1999) put it at round 24 percent. While the notion of a single revenue-maximizing rate is clearly a dangerous simplification, since many different policies may give the same collected rate, it is notable from Figures 3 and 4 that—with the weighted average collected tariff rate now around 10 percent—many countries now have collected rates far below these levels. And indeed, of the 69 low- and middle-income countries that witnessed declining collected tariff rates over the past 20 years, trade tax revenue as a percent of GDP declined in 60 (Table 1).
- There has also been a marked decline in NTBs over the past two decades in many developing countries, with the apparent exception of South Asia, as shown in Table 2.<sup>8</sup> The unweighted global average NTB index used in constructing the Fund'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.

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<sup>7</sup> This point is stressed, and analyzed further, in OECD (2004). It should also be noted that some trade-related taxes (statistical fees, export taxes) are typically not the subject of WTO commitments, although genuinely free trade would require their elimination too (and the former should not in principle raise revenue in excess of the cost of services provided).

<sup>8</sup> Note, however, that a decrease in the percent of tariff lines subject to NTBs—as shown in the table—does not imply that the volume of trade subject to NTBs has fallen to the same extent.

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

(In percent of GDP)

		Collected Tariff Rate Down	Collected Tariff Rate Up
Total tax revenue up	Trade tax revenue up	7 countries (4L, 3M)	5 countries (3L, 2M)
	Trade tax revenue down	26 countries (4L, 22M)	9 countries (2L, 7M)
Total tax revenue down	Trade tax revenue up	2 countries (0L, 2M)	4 countries (3L, 1M)
	Trade tax revenue down	34 countries (19L, 15M)	10 countries (6L, 4M)
Total		69 countries (27L, 42M)	28 countries (14L, 14M)

Source: TPD database.

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

Table 2. Frequency of NTBs in Developing Countries, 1989–98

(In percent)

Region	1989–94	1995–98
East Asia and the Pacific	30.1	16.3
Latin America and the Caribbean	18.3	8.0
Middle East and North Africa	43.8	16.6
South Asia	57.0	58.3
Sub-Saharan Africa	26.0	10.4

Source: Hoekman (2002).

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.

11. **These concerns on the revenue side may be exacerbated by the short-term expenditure pressures that can arise following trade reform** due, for instance, to increased social outlays for displaced workers, and/or pressures from the formerly protected sectors for increased subsidies (perhaps implicit, in the form of tax concessions). Bangladesh, for instance, established training programs and capital subsidies for entrepreneurs in anticipation of the expiry of the Multi-Fiber Agreement quotas at the start of 2005.

12. **Trade tax reform may have a variety of impacts on revenue in addition to the direct effect through trade tax revenues:**

- 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.
- Liberalization may generate a gradual or one-off depreciation that under normal circumstances (a price elasticity of net imports below unity) increases the value of imports in local currency and so by itself strengthens revenues from import tariffs and (ad valorem) domestic consumption taxes.
- 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).<sup>9</sup> 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.
- 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).<sup>10</sup>

13. **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 are naturally subject to significant uncertainty as to their strength and timing, however. This suggests, and experience tends to confirm (as discussed below), that it

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<sup>9</sup> Inflation-induced effects are analyzed in Agbeyegbe, Stotsky, and WoldeMariam (2004), Adam, Bevan, and Chambas (2001) and Tokarick (1995).

<sup>10</sup> See, for instance, Wacziarg and Welch (2003) and Greenaway, Morgan, and Wright (2002).

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 any revenue loss from trade reform.

## **B. Strategies to Offset Revenue Shortfall from Trade Tax Losses**

14. **Unless the government wishes to reduce the overall tax burden, prudence requires that compensating revenue measures be adopted to offset any loss of trade tax revenues consequent upon trade liberalization.** For developing countries it seems unlikely that a reduction in the tax ratio will be an objective of policy in most: ESAF and PRGF programs, for instance, typically target—whether explicitly though formal revenue targets or implicitly through targets on the primary balance—an increase in the tax/GDP ratio, in particular for countries with relatively low tax/GDP ratios (Gupta, et. al., 2002) and IMF (1997).<sup>11</sup> Whenever it is indeed a policy objective to increase tax revenue—or at least to avoid a reduction—it would be unwise, as noted above, to count on revenue recovery through second round effects. In the context of regional trade agreements, a further level of uncertainty in the revenue impact of trade reform comes from the prospect of trade diversion reducing imports from non-participating countries. All this calls for deliberate measures to offset any anticipated loss of trade tax revenues.

15. **There is great conceptual merit in using domestic consumption taxes—both the excises on particular goods and any general sales tax (the archetype being the VAT)—to offset any revenue loss from tariff reduction.** The basic argument of principle is simple. 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, since 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 also end up strictly better-off as a consequence of the reform.<sup>12</sup> While

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<sup>11</sup> There are exceptions: Kenya, for example, has sought to reduce its overall tax ratio.

<sup>12</sup> 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.

there are several qualifications to this argument and its proper application,<sup>13</sup> 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.<sup>14</sup> OECD (2004) reports simulation results showing sizable welfare gains from this replacement strategy in conjunction with multilateral tariff reductions.<sup>15</sup>

**16. 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 part of excise and VAT revenues are 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.<sup>16</sup> 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

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<sup>13</sup> See Keen and Ligthart (2002). 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.

<sup>14</sup> In principle, there is no impact on income distribution from the shift to domestic taxation of the kind described above, since consumer prices on all goods and services are left unchanged (at least from the 'uses' of funds side of individuals' budget constraints: the trade reform itself will, of course, have effects on the 'sources' side). However, in practice, it is unlikely there will be a perfect match between the reduced tariffs and the increased domestic consumption taxes on each line of goods and services. There is likely to be some twisting of relative prices and hence also some distributional impact. Moreover, the distributional consequences of, say, increasing the VAT rate may be more visible than those of lowering the average tariff rate by the same amount, adding a political economy dimension to such a strategy.

<sup>15</sup> Where there is little domestic production, of course, the shift away from trade taxes achieves little real trade liberalization.

<sup>16</sup> Ebrill et. al. (2001).

relatively little 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.

17. **Other taxes may also have a role in offsetting the loss of revenue from trade taxes.** For example, the efficiency gains from trade liberalization mean an increase in aggregate real incomes (even at unchanged consumer prices), part of which could be captured as government revenue through the income tax. In many cases, additional revenue might also be found from measures—in particular broadening tax bases and strengthening administration—that would be desirable structural reforms even in the absence of any need to raise additional revenue. Reduced import costs may make it easier, for example, to scale back exemptions and other tax advantages offered to exporters.

18. **Dealing with any revenue loss from trade tax reform thus seems feasible even with the relatively weak administrative capacity of many developing countries,** given the range of options often available—and indeed the case studies below illustrate this.

19. **Countries may, however, have reasons to choose not replace lost trade tax revenue from domestic sources.** As noted above, they may take the opportunity to reduce the overall size of government. Or they may simply also choose to pursue a “wait and see” strategy, in anticipation of beneficial revenue effects from increased trade volumes and economic growth. Or it might be that the incentive to recover tax revenue is weakened to the extent that they have reason to believe that lower trade taxes—likely to be well-received by donors—would be met by greater support from abroad.

#### IV. COUNTRY EXPERIENCES

20. **There has been relatively little empirical research on the revenue impact of trade liberalization.** The main studies—whose methods and conclusions are summarized in Annex 1—have addressed two broad questions. One is the impact of trade liberalization on revenues from trade taxes; the other is whether trade liberalization has been associated with a reduction in total tax revenue, from domestic sources as well as trade taxes themselves. Within the latter class of studies, only a few address the still narrower question with which this paper is centrally concerned: whether reductions in trade tax revenues are associated with reductions in total tax revenues. (This is a narrower question because, as stressed earlier, trade liberalization need not be associated with a reduction in trade tax revenues).

21. **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, and in the source of the revenue data.** For instance, Khattry and Rao (2002) and Keen and Simone (2004) both use GFS data, but the former reach a very pessimistic conclusion on the extent to which developing countries have recovered lost trade tax revenues, while the latter find more or less full recovery—a difference that reflects the

difference in the sample used, with Khattry and Rao considering fewer countries but over a longer period. A limitation of both of these studies is the reliance on GFS data, which suffers from a number of deficiencies, notably in the limitation, typically, to central government and in the not-infrequent inclusion under trade tax revenue of domestic tax revenue (including VAT) collected at the border.<sup>17</sup> The TPD data being used in this paper seeks to mitigate these problems by using information from IMF country reports, widely seen as more reliable indicators. Broadly speaking, the TPD dataset—likely to be the more accurate—leads to more pessimistic conclusions as to the extent of recovery of lost trade tax revenue (These data issues—which have an important bearing on understanding of the points at issue in this paper—are elaborated upon in Box 1).

**22. Differences also arise from the methodology used, corresponding to differences in the precise question being asked.** In comparing simple changes over time in the revenue from trade taxes (relative to GDP) and in tax revenue from all sources, in particular, one is implicitly taking into account any indirect impact that the trade policy reform underlying the loss of trade tax revenue may have on revenues from other sources. For instance, if the trade reform generates faster growth, which in turn feeds into revenues from income and other taxes, this will be reflected in a stronger performance of overall tax revenues. By the same token, looking simply at what has happened to the overall tax/GDP ratio, without controlling for other factors, conveys no information as to whether the overall revenue is permanently higher or lower than it would otherwise be, had the country not undertaken trade reform. An econometric approach, in contrast, in which developments in GDP and other potential drivers of overall tax revenue are controlled for, focuses more on the direct response to the trade reform. Any indirect effect on revenues of increased growth, for example, will be attributed directly to the GDP change and not to the reduction in trade tax revenue per se; and

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<sup>17</sup> Taken together, this implies that the level of the overall tax/GDP ratio in GFS data is typically lower and the level of trade tax/GDP ratio typically higher than in the TPD dataset. More important, it also implies that *changes* over time in the tax/GDP and the trade tax/GDP ratio in the GFS dataset must be interpreted with caution, since such changes may merely reflect changes over time in the composition of revenue between central and local taxes, and may fail to reflect changes in balance between revenues from trade taxes and from other taxes that happen to be collected at borders.

Box 1. Data: Differences Between GFS Data and the TPD Dataset

The table below compares the apparent revenue recovery, from the early to late 1990s, in 79 countries that appear in both the GFS and the TPD data set for the period from the early 1990s to late 1990s; the purpose being to give a sense of the differences that are entirely attributable to differences between the datasets (rather than, say, country coverage).

	TPD Data		GFS Data:	
	Total tax/GDP	Trade tax/GDP	Total tax/GDP	Trade tax/GDP
Low income	-0.7	-0.6	0.0	-0.2
Middle income	-0.3	-1.5	0.2	-1.4
High income	1.3	-0.3	0.6	-0.3

In both datasets, middle- and high-income countries appear to have largely succeeded in recovering lost trade tax revenue from other sources. The picture for low-income countries is quite different, however. In the TPD dataset, they have on average suffered a quite marked reduction in trade tax revenues, and recovered almost nothing; in the GFS, they have lost little trade tax revenue, but more than recovered it.

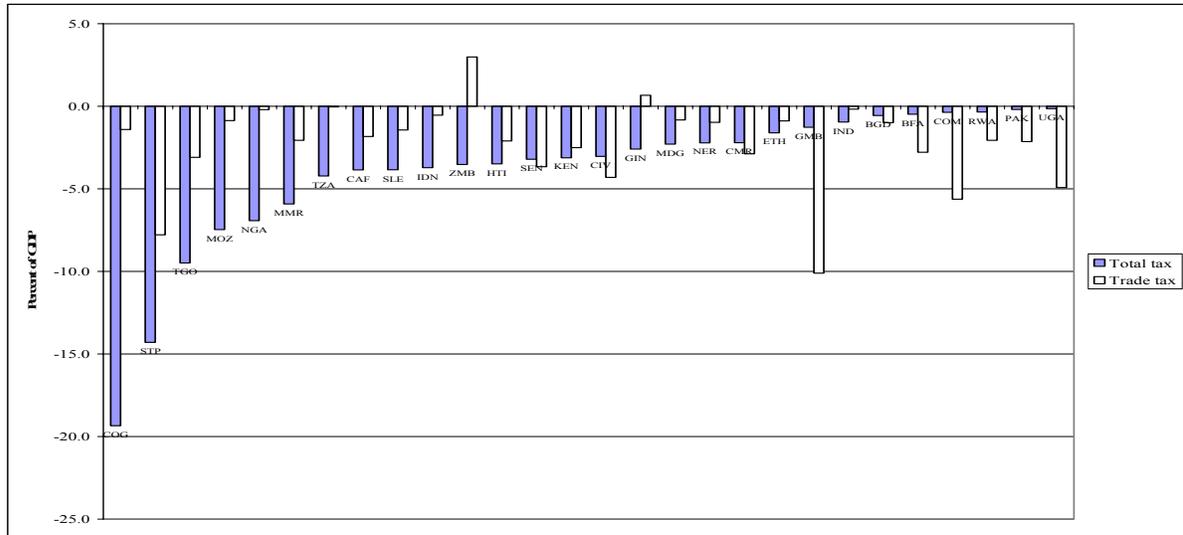
In general, the TPD dataset seems likely to be the more reliable. But both datasets are subject to the usual caveat that definitional changes and other factors may limit comparability over time.

conversely changes in total tax revenues due to unrelated changes in wider economic circumstances (such as a reduction in the size of the hard-to-tax agricultural sector) will be attributed to those changes and not taken to be a response to the trade tax loss itself. In this sense the econometric approach is likely to lead to too pessimistic a view of the revenue impact of trade liberalization. It corresponds to the more prudent approach to analyzing the revenue consequences of reductions in trade tax revenue that was argued above to be more appropriate for policy formation.

23. **Recent econometric work, using TPD data, suggest that low income countries in particular have experienced considerable difficulty in replacing lost trade tax revenues from other sources.** Using a panel of 125 countries over 20 years, Baunsgaard and Keen (2005) find that low-income countries typically recover at most 30 cents for each dollar of lost trade tax revenue, even over the longer-term. 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.

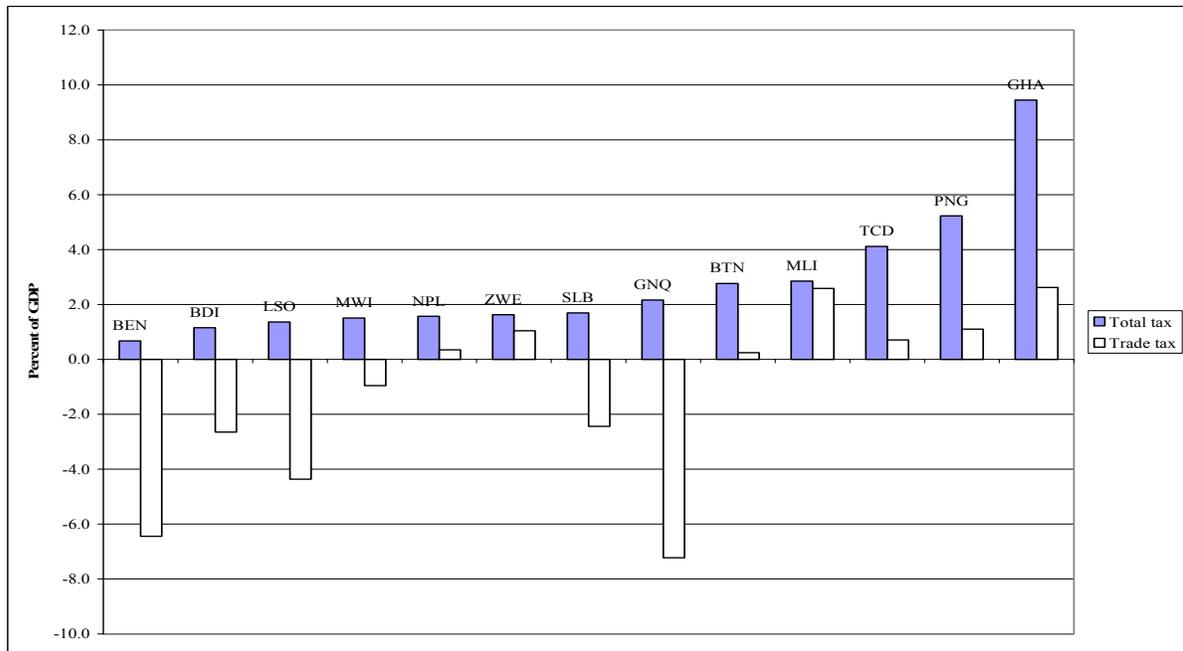
24. **While the evidence thus suggests that revenue recovery has been a real issue for many low income countries, experience varies widely across them.** Figures 5 and 6 illustrate this diversity for low-income countries. Figure 5 focuses on low-income countries in which the overall tax ratio fell between 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 change over the same period in the ratio of trade tax revenues to GDP. Figure 6 focuses on the (far

Figure 5. 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.

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



Source: TPD database.

fewer) low-income countries in which the overall tax ratio rose. While there are clearly many low income countries 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.<sup>18</sup> Figures 7 and 8 provide the corresponding pictures for middle-income countries, with a clear impression of more complete recovery in more countries.<sup>19</sup>

**25. Nearly half of the low-income countries which cut their collected tariff rate over the last twenty years and suffered an associated revenue loss have recovered less than 70 percent of this lost revenue from other sources.** This can be seen from Table 3, which summarizes the country experiences shown in Figures 5 to 8, breaking them down also between those countries that experienced a decrease in the collected tariff rate and those that have experienced an increase.<sup>20</sup> The diversity of experience can again be seen, as can the stronger recovery in middle-income countries, with only about one-third of those that cut their collected tariff rate recovering less than 70 percent of any associated revenue loss.

**26. Although past experience thus indicates that many low-income countries have experienced real difficulty in dealing with the revenue consequences of trade liberalization, there are others that have managed to cope.** The experience of the latter thus bears closer examination as a guide to improved policy formation elsewhere. It is to this that we now turn.

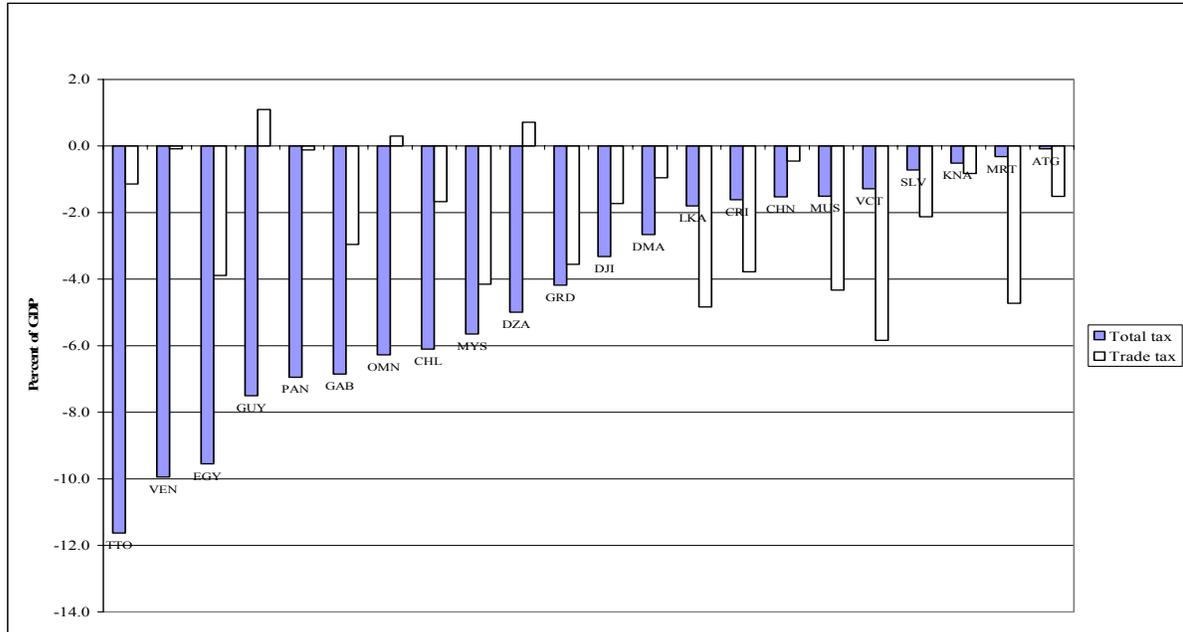
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<sup>18</sup> The econometrics in Baunsgaard and Keen (2005) also point to a number of low-income countries in which revenue recovery has been strong: Benin, Cote d'Ivoire, Gambia, Malawi, Pakistan and Zambia.

<sup>19</sup> One example of a middle-income country that has handled the transition quite well is Tunisia. In 1990, tariff revenues accounted for over 40 percent of total tax revenues; this fell to 31 percent in 1995, 15 percent in 2000, and 8 percent at the end of 2004. Although the tax ratio declined significantly during the first half of the 1990s, it eventually rebounded to about 21 percent of GDP and has remained at that level since 2001.

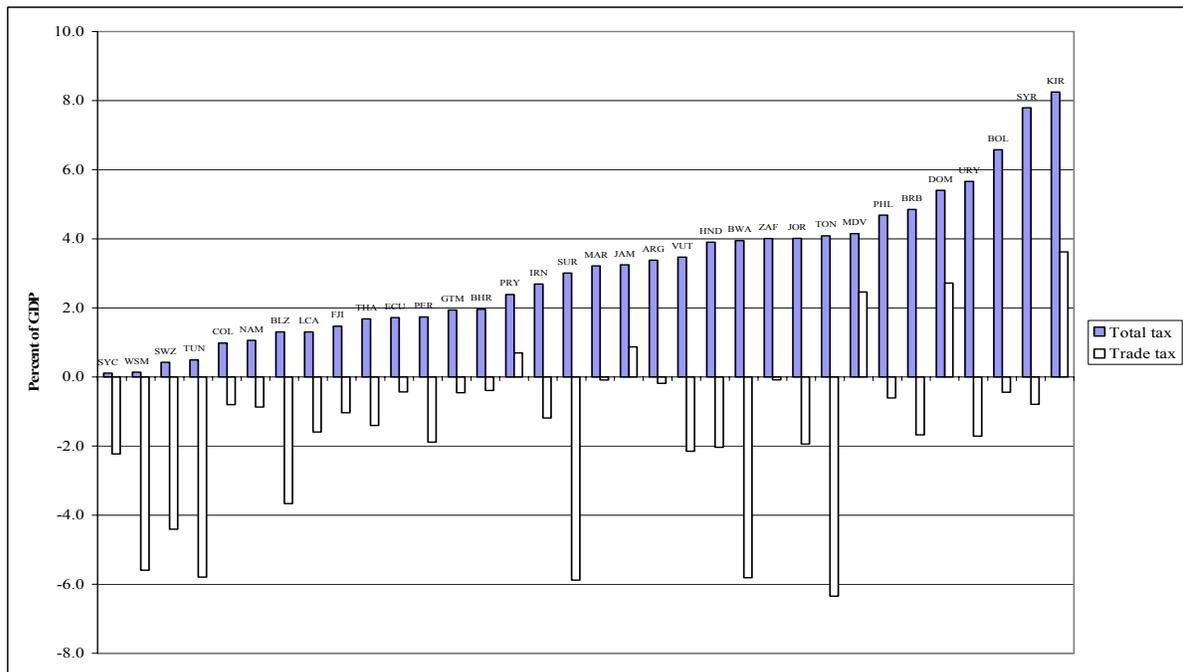
<sup>20</sup> The countries falling into the various cells of Table 3 are listed in Appendix II.

Figure 7. 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 8. 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.

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	
	Fall	Increase
Trade tax/GDP ratio down <u>and</u> recovery rate 1/ less than 70 percent	13L, 13M	6L, 3M
Trade tax/GDP ratio down <u>and</u> recovery rate /1 more than 70 percent	10L, 24M	2L, 8M
Trade tax/GDP ratio up	4L, 5M	6L, 3M

Source: TPD database, low- and middle-income countries only.

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

## V. CASE STUDIES

27. **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. Table 4 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.

28. Notable features of these data are:

- **Those countries which 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 in Section III. B above, domestic consumption taxes have thus played a key role in revenue recovery.
- **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 burden has not been passed only to domestic consumption taxes.

Table 4. 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)
<b>Less than full recovery:</b>							
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	-
<b>Full recovery:</b>							
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.

- All countries in the sample—even 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.** However, one cannot conclude much from a country's overall fiscal position, or from changes in that position, as to whether any failure to replace lost trade tax revenues reflected a deliberate intention to reduce

public expenditure: a country that happily reduced expenditure in parallel with revenues would be observationally equivalent to one that reluctantly cut expenditure in order to preserve its overall balance. The feature of this (small) sample that those countries which did not recover revenue were in no better fiscal shape than those which did suggests, however, that they could little afford to reduce their overall tax revenues.<sup>21</sup>

- **The presence of a VAT does not in itself appear to enhance the ability to recover revenue.** Baunsgaard and Keen (2005) 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.

29. **Closer examination of experiences in these countries<sup>22</sup> suggests a number of further broad conclusions** though the small size of the sample dictates caution in generalization:

- **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.
- **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.
- **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.

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<sup>21</sup> A more elaborate analysis of government balances, grants and expenditure levels before and after trade reform, and in particular the causality between expenditures and the deficit, would be needed in order to more firmly establish whether some of the countries of less than full recovery might purposely have chosen not to offset the loss of trade tax revenues.

<sup>22</sup> This discussion is based on surveys completed by FAD's fiscal economists for these countries. Further detail is in Appendix III.

- **In those countries with high recovery, there has also been a strengthening of income tax revenues**, suggesting that the burden of adjustment has not been borne solely by shifting to taxes on consumption.
- **Fund program conditionality has in most cases not required offsetting or accompanying domestic tax measures, but revenue recovery has been strong where it has.** In both Jordan and Senegal—two of the case study countries with strong revenue recovery—Fund programs explicitly linked trade reform with domestic tax changes: The 1999/2002 program for Jordan stipulated a simultaneous reduction in the maximum tariff rate with an increase in the VAT rate. For Senegal, the 1999--2000 program included a major simplification of the tariff structure together with the unification of the multiple VAT rates into one single rate.

## VI. CONCLUSIONS

30. **Experience has varied quite widely, but many low-income countries and some middle income countries have had difficulty in replacing trade tax revenues** lost as a consequence of trade reform by strengthening their domestic tax systems. Of the low-income countries in which the collected tariff rate declined over the past two decades, roughly half did not manage to recover in any significant way the loss of trade tax revenue. Econometric analysis, controlling more closely for changes in other factors that may affect revenue performance, leads to still more pessimistic conclusions for low-income countries. For middle-income countries, recovery is clearly stronger, with about two-thirds showing significant recovery and the econometric analysis pointing to close to full recovery. In high-income countries, dealing with the revenue consequences of trade reform has not been problematic.

31. **While there remains in many countries scope for further trade liberalization that increases rather than 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.** Many of these countries are likely to face revenue pressures even in the absence of any further trade reform. There is emerging evidence, for example, that corporate tax revenues in low income countries—typically an important source of revenue for developing countries (more so than for the developed countries)—are coming under pressure from intensified international tax competition.<sup>23</sup>

32. **Reductions in tax/GDP ratios in low- and middle-income countries are not confined to those undertaking trade reform.** Table 1 above shows that of the 14 low-income countries in which collected tariff rates did *not* decline over the past two

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<sup>23</sup> See Keen and Simone (2004).

decades, 9 nevertheless experienced a decline in the tax ratio. The same is true for middle-income countries: about 40 percent saw a decline in the tax ratio, regardless of the change in the collected tariff rate. While there are thus problems of revenue mobilization to be faced beyond those associated with trade liberalization, this does not detract from the potential need to deal specifically with the revenue implications of further trade reform.

33. **There are, however, several low income countries that have recovered lost trade tax revenue from domestic sources**, and their experience provides useful lessons for others. It suggests, in particular, that: (1) 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; (2) 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 (3) in contrast to the standard theoretical prescription that consumption taxes take the burden of revenue recovery, the strengthening of income tax can also make an important contribution; and (4) trade liberalization may need to be purposively sequenced with domestic tax reform, with Fund conditionality having a potentially constructive role.

34. **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—though 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.

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## Trade Reform and Tax Revenues: Main Findings of Selected Empirical Studies

Authors; Country Coverage, Time Period; Source of Fiscal Data	Trade Liberalization and Trade Tax Revenue	Issue  Trade Tax Revenue and Total Tax Revenue
Ebrill et al (1999); Model A: 27 countries, 1980–92, World Bank data. Model B: 105 countries, 1980–95; GFS	Not necessarily a negative relation in the short term (and often a positive one), but a negative relation more prominent in the long run.	Based on six case studies: successful offset of declining trade tax revenues in Morocco, Poland and, partly, Argentina; less so in Senegal and the Philippines. Trade taxes increased in Malawi.
Khattry and Rao (2002); 80 countries, 1970–98; GFS	Reduced protection and increased openness adversely affect trade tax revenues.	Changes from early 1980s to late 1990s show that low and upper middle income countries have faced declining total tax/GDP ratios in the wake of trade reform.  Panel data estimation suggests that reduced protection adversely affects overall as well as trade tax revenue, but also a significant negative correlation between trade tax revenue and domestic indirect tax revenue, implying at least a partial offset.
Baunsgaard et al. (2003); early 90s to late 90s; GFS	In the past, trade liberalization has often resulted in increased trade tax revenues. In the future, trade liberalization is more likely to reduce trade tax revenues since collected tariffs on average have fallen noticeably over the past two decades.	In Middle East and Western Hemisphere, indirect taxes have increased more than enough to offset losses of trade tax revenue. In Sub-Saharan Africa, total tax revenue remained broadly constant despite a significant reduction in trade tax revenues. In Asia and Pacific, the offset was not sufficient to recoup loss of trade tax revenues.
Keen and Simone (2004); 108 countries, early 90s to late 90s; GFS	-	On average, all income groups among developing countries managed to increase indirect tax revenue by as much as trade tax revenue fell, but many experienced reduced total tax revenue because of declining corporate tax receipts.
Agbeyegbe et al (2004); 22 countries in Sub-Saharan Africa, 1980–96; GFS	Using panel data estimation, find that trade liberalization is not strongly linked to trade tax revenue.	Using panel data estimation, find that trade liberalization is not strongly linked to overall tax revenue or its components.
Baunsgaard and Keen (2005); 125 countries, 1975–2000; TPD	-	Using panel data estimation, it is found that the recovery of loss of trade tax revenue is insignificant for low-income countries, with the highest point estimates in the order of 30 cents recovered per dollar of lost revenue. Close to full recovery for middle income countries and full recovery for high income countries. Having a VAT in place in not found to be significant for the rate of recovery.

## Changes in Trade Taxes and Revenue Recovery (early 1980s to late 1990s) 1/

	Decline in Collected Tariff ?	
	YES (69 countries)	NO (28 countries)
Trade tax/GDP ratio down, recovery rate /2 less than 70 percent	Total: 26 countries	Total: 9 countries
	Low income: 13 countries	Low income: 6 countries
	Bangladesh	Ethiopia
	Côte d'Ivoire	C.A.R.
	Cameroon	Niger
	Senegal 3/	Sierra Leone
	Kenya	Myanmar
	Haiti	Mozambique
	São Tomé and Príncipe	Middle income: 3 countries
	Madagascar	St. Kitts and Nevis
	Togo	Dominica
	India	Venezuela
	Indonesia	
	Congo, Rep. of	
	Nigeria	
	Middle income: 13 countries	
	El Salvador	
	Mauritius	
	Sri Lanka	
	Costa Rica	
	Malaysia	
	Grenada	
	Djibouti	
	Gabon	
	Egypt	
	China	
	Chile	
	Trinidad and Tobago	
	Panama	

## Changes in Trade Taxes and Revenue Recovery (early 1980s to late 1990s) (cont.)

	Decline in Collected Tariff ?	
	YES	NO
Trade tax/GDP ratio down, recovery rate 2/ more than 70 percent	Total: 34 countries	Total: 10 countries
	Low income: 10 countries	Low income: 2 countries
	Malawi	Burundi
	Solomon Islands	Lesotho
	Equatorial Guinea	Middle income: 8 countries
	Benin	Syria
	Uganda	Bahrain
	Comoros	Iran
	Pakistan	Namibia
	Gambia	St. Lucia
	Rwanda	Botswana
	Burkina Faso	Suriname
	Middle income: 24 countries	Antigua and Barbuda
	South Africa	
	Argentina	
	Bolivia	
	Philippines	
	Guatemala	
	Ecuador	
	Uruguay	
	Barbados	
	Jordan	
	Honduras	
	Vanuatu	
	Fiji	
	Colombia	
	Thailand	
Peru		
Tonga		
Belize		
Swaziland		
Tunisia		
Morocco		
Seychelles		
Samoa		
Mauritania		
St. Vincent and Grenadines		

Changes in Trade Taxes and Revenue Recovery (early 1980s to late 1990s) (concluded)

	Decline in Collected Tariff?	
	YES	NO
Trade tax/GDP ratio up	Total: 9 countries	Total: 9 countries
	Low income: 4 countries	Low income: 6 countries
	Nepal	Tanzania
	Zimbabwe	Bhutan
	Ghana	Guinea
	Papua New Guinea	Chad
		Mali
	Middle income: 5 countries	Zambia
	Paraguay	Middle income: 3 countries
	Algeria	Oman
	Guyana	Jamaica
	Dominican Republic	Maldives
	Kiribati	

1/ Sample of 97 countries, with high income countries excluded.

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

3/ Senegal has a low recovery rate when measured from the early 1980s to the late 1990s, but a high recovery rate when measured from the point when the decline in the collected tariff rate too off (1991) until the late 1990s.

Case Studies: Summary of Policy Initiatives  
Around, Before, During, and After Trade Liberalization

	Major Trade Initiatives	Tax Reform	Comments on Reasons for Revenue Recovery Performance
<b>Less than full recovery</b>			
Kenya	1984-1995: simplification and reduction of tariff rates and NTBs. From 2005: Customs union within EAC.	Major tax reforms since 1986: lowering of income tax; shift from trade taxes to VAT; policy of lowering overall tax burden, especially on the poor.	Combination of lack of commitment, weak tax administration, periodic reversals in trade reform, and deliberate intent to lowering the overall tax burden led to less than full recovery.
Sri Lanka	Since 1977: ongoing reductions in tariff rates and conversion of NTBs to tariff. Exemption of strategic exporters from customs important in driving collected tariffs down. Quasi customs duties still widespread.	In 1998, a turnover tax was replaced by a VAT (at 12.5 percent). In 2002, the single rate structure of the VAT was lost (with rates of 10 and 20 percent established). The introduction of the VAT coincided with a significant drop in custom duties.	Tax administration not ready to handle the VAT. This became particularly apparent after the switch to a two-rate structure. One major problem until very recently was the inability of the administration to check input tax claims in time, resulting in unsubstantiated refunds. Consequently, VAT proceeds fell in tandem with trade taxes.
Egypt	1990-98: major tariff reductions. 2004: reform of tariff structure and significant reduction in average rate.	No major tax changes since introduction of GST. Income tax reductions (PIT and CIT) recently announced.	GST has more than compensated loss of trade tax revenue, but overall revenue mobilization received a low priority over this period.
Cote d'Ivoire	Some reduction and streamlining of tariffs and NTBs, following WAEMU requirements.	After gradual adjustment, the VAT is now compliant with WAEMU requirements, including in having a single rate. Widespread exemptions have substantially eroded income tax revenue.	Political instability since 1993 has contributed to lack of reform. Strong reliance on export taxes (cocoa) exposes revenue to commodity price changes.

**Case Studies: Summary of Policy Initiatives  
Around, Before, During, and After Trade Liberalization (concluded)**

	Major trade initiatives	Tax Reform	Overall Reasons for Revenue Recovery Performance
<b>Full recovery</b>			
Malawi	Major trade reform program from 1990 onwards, including liberalization of imports and in later stages tariff reductions and reductions in NTBs.	Introduction of a VAT-like consumption tax (surtax) in 1989 was followed during the 1990s by base broadening measures (such as a fringe benefit tax, a capital gains tax, a significant broadening of the surtax base, a presumptive tax on small businesses), increase in excises and lowering of income tax rates (both PIT and CIT) as well as the surtax rate. An independent Malawi Revenue Authority became operational in 2000, bolstering tax administration.	A continuous effort to liberalize the trade regime was accompanied by restructuring the tax system: broaden the base, lower the marginal rates, and reorient the tax system toward consumption taxes. In the 2000s, improvements in tax administration and tax rate increases on income taxes and excises helped to increase significantly the revenue to GDP ratio.
Uganda	Major trade reform since 1987: simplification and reduction of tariff rates and NTBs. From 2005: Customs union within EAC	Trade reforms were accompanied by tax reform to broaden bases for income and consumption taxes, including raising selected excises on imports, introducing a VAT, a capital gains tax, tax on dividends and interest, presumptive income tax and the elimination of tax holidays. Administrative improvements during the 1990s were reversed by the end of decade.	Recovery of revenue reflected stable political environment, an increase in formality, a continuous effort to broaden both consumption and in particular income tax bases. VAT compliance continues to be relatively weak, however.
Senegal	Major tariff reform in late 1990s to comply with WAEMU criteria.	The most recent modification of the external tariff rates was accompanied by a unification of the VAT tax rates into a single rate of 18 percent and a reduction in the number of exemptions.	Introduction of a single rate VAT, with relatively limited exemptions, introduction of a large taxpayer unit, generalization of the tax identification number to all tax departments, and strengthening the customs administration in terms of computerization and human resources.
Jordan	From 1989: ongoing, substantial tariff reductions. Average tariff rate declined from 35 percent in 1987 to 15 percent by 2001.	GST, introduced in 1994 as a broad based sales tax, has been brought ever closer to a VAT. Excises streamlined under the SST, also introduced in 1994. Income tax system streamlined and rates lowered in late 1990s and early 2000s, but bases are still narrow.	Success in recovering lost trade tax revenue closely linked to GST and SST and their gradual improvement since 1994. Reflects a deliberate shift away from non-tax revenue and trade tax revenue.

