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IMF Working Paper

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—Why Are They Low and How Can We Raise Them?**

by Bernardin Akitoby, Jiro Honda, and Keyra Primus

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Prepared by Bernardin Akitoby, Jiro Honda, and Keyra Primus¹

Authorized for distribution by Michael Keen

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ABSTRACT

Raising revenues has been a formidable challenge for fragile and conflict-affected states (FCS), a fact confirmed once again in the COVID-19 crisis. Nonetheless, achieving sizable gains in tax collection in fragile environments is not impossible. This paper—with empirical analyses and case studies—contributes to policy discussions on tax reform in such challenging environments. Our analyses show that many FCS achieved some recovery of tax revenues, even though they found it challenging to sustain the momentum beyond three years. We also find that changes in the quality of institutions (e.g., government effectiveness and control of corruption) are a key contributory factor to their tax performance (much more so than for non-FCS). Next, we look into the tax increase episodes of four countries (Liberia, Malawi, Nepal, and the Solomon Islands). Although each FCS is unique, their experiences suggest two lessons: (i) tax reforms can be pursued even with initially weak institutions; and (ii) strong political commitment is important to sustain reform efforts and realize long-lasting, sizable gains.

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I. INTRODUCTION

1. **Fragile and Conflict-Affected States (FCS) face formidable economic and structural challenges.**² These challenges are inextricably linked to the structural features of their economies, such as poor governance, weak institutional capacity, as well as political and social instability, while facing dire economic and developmental challenges. These institutional weaknesses all suggest difficulty in achieving sustainable and inclusive growth and in securing macroeconomic stability (IMF, 2008). The latest estimates suggest that by 2030, half of the world's poor will live in fragile countries (Commission on State Fragility, Growth and Development, 2018). Therefore, FCS are typically trapped in a syndrome of interlocking characteristics which makes it difficult to develop sustained progress. Those countries that are trapped in a low-level equilibrium appear to be in a political and economic limbo that can last for years (Carment and Samy, 2017). This makes the transition out of fragility neither simple nor rapid. The inability of FCS to raise sufficient tax revenue is strongly associated with the constraints they face in building resilience (Deléchat et al., 2018).

2. **Building tax capacity is critical for FCS to improve state building and development.** As noted in Besley and Persson (2009) and Gaspar et al. (2016a, 2016b), increasing tax collection is important for economic growth and development. Therefore, to exit from fragility, the ability to mobilize revenue is undoubtedly a key factor. This was underscored in IMF (2017a), which pointed out that 90 percent of countries that graduated from fragility had substantially improved their CPIA sub-score for "efficiency of revenue mobilization." This underscores the fact that enhancing revenue—specifically tax revenue—is a pressing policy issue that is high on the agenda for many FCS.

3. **Enhancing tax collection is also critical for facilitating the post-COVID-19 recovery.** As elaborated in IMF Fiscal Monitor (April, 2020), in response to the COVID-19 pandemic, ramping up public health expenditure is the number one priority, and many countries are allocating more fiscal resources to the health sector by increasing spending on monitoring, containment, and mitigation. Countries, including FCS, are also experiencing a fall in fiscal revenues as economic activity and trade decline. These developments are putting pressures on their fiscal balances, resulting in further increase in public debt. After the pandemic recedes, temporary tax measures implemented to mitigate the economic fallout should be lifted and compliance should be strengthened to help rebuild tax bases. Moreover, it would be even more

² FCS are defined as having either weak institutional capacity, as measured by the World Bank's Country Policy and Institutional Assessment (CPIA) score (average of 3.2 or lower), and/or experience of conflict (signaled by presence of a peace-keeping or peace-building operation). The IMF classified 39 countries to have met these criteria in the most recent three-year period (Appendix I). This list was updated in Baer et al. (2020) to include 42 countries. This paper uses the IMF (2017a) list of FCS and considers the countries that were FCS during the period when tax reforms were undertaken. It is important to note that FCS do not always progress in a linear manner. Some FCS can start off in conflict/disaster, move to post-conflict/post-disaster, then fall back into conflict.

important to generate fiscal resources for addressing development needs and safeguarding debt sustainability through enhancing revenue mobilization.

4. **Furthermore, increasing fiscal revenues is paramount to meet the Sustainable Development Goals (SDGs) and to support immediate spending needs.** IMF 2019b shows that delivering on the SDG agenda will require additional spending in 2030 of US\$0.5 trillion (15 percentage points of GDP) for the low-income country group, which includes most FCS. This substantial increase in additional spending would need to be supported at least in part by an increase in domestic tax collection. Improving tax revenue is pivotal to address pressing infrastructure needs and meet critical social spending needs. Mobilizing domestic revenue is also important to provide and maintain basic public services, promote stability and achieve development (Akitoby et al., 2019). In view of the recent declining trend of aid flows to FCS³, enhancing tax collection is paramount to assist FCS in reducing aid dependency.

5. **How can FCS improve their tax revenue performance?** This paper attempts to answer this question by empirically examining the key features of tax performance in FCS and exploring the cases of specific countries which achieved long-lasting, sizable gains in tax revenue. All of these cases have been identified as substantial tax revenue mobilization episodes by Akitoby et al., (2018).

- Our analyses point to the sustainability of tax reform efforts and the quality of institutions as two important factors to achieve sizable gains. While many FCS demonstrated some recovery of tax revenues after the peak of fragility, their reform efforts generally only lasted for 2–3 years, failing to catch up with non-fragile countries. We also find that changes in the quality of institutions is a key contributory factor to their tax performance (much more than it is for non-fragile states), and thus even a marginal improvement in institutions could bring large revenue increase.
- Based on the experiences of four FCS (i.e., Liberia, Malawi, Nepal, and Solomon Islands), several key lessons can be drawn.^{4, 5} Each of the four countries achieved sizable increases in tax revenues by 7–20 percentage points of GDP over about a decade (Table 1). Their reform experiences point to the importance of targeting a country's high potential sector (e.g., the logging sector in Solomon Islands) and starting with reform steps with immediate effects to build momentum. Tax reforms can be pursued even with initially weak institutions, while political commitment is important to sustain reform efforts (e.g., over ten years) and realize long-lasting, sizable gains.

³ Many IMF staff reports discuss the decline in donor aid to FCS in recent years (e.g., IMF Country Report No. 17/381).

⁴ Although Nepal was removed from the list of FCS in 2017, tax reforms were undertaken during the period when the country was classified as an FCS. The other three countries remain in the FCS country list.

⁵ The analyses—based on these selective country experiences—do not allow conclusive discussions for all FCS. Nevertheless, their experiences are suggestive and are worth being considered in exploring an approach for tax reforms in FCS.

Table 1. Fragile and Conflict-Affected States Achieving Large Tax Increases

	Reform period	Total years	Tax increase (Percent of GDP)	
			Total	Annual average
Liberia	2004-12	9	7.5	0.8
Malawi	2002-13	12	11.0	0.9
Nepal	2007-19	13	12.8	1.0
Solomon Islands	2002-13	12	19.8	1.7

Sources: Country authorities and authors' estimates.

6. **Notably, this paper presents an important contribution to policy discussions for FCS.** There have been few attempts to determine the factors affecting tax revenue mobilization in FCS, using both an empirical and a case study analysis.

7. **The rest of the paper is organized as follows.** Section II presents stylized facts on tax performance in FCS in comparison to non-FCS. Section III presents empirical analyses on the pace of tax collection recovery in FCS and the factors that contribute to tax revenue. In Section IV, a narrative assessment (e.g., case studies) is used to discuss countries that successfully improved their tax performance. The final section discusses the key lessons learned, drawing from the findings in the econometric analysis and the tax reform episodes.

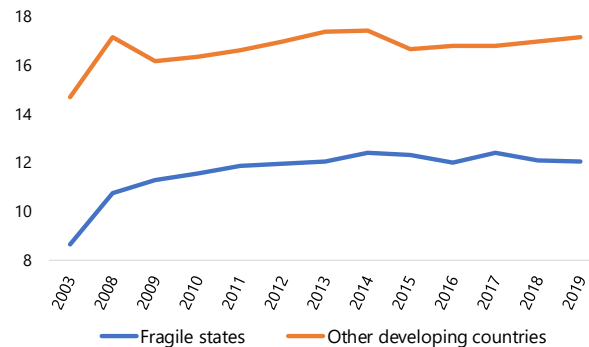
II. STYLIZED FACTS

8. **This section documents the tax performance of FCS, in comparison with non-fragile developing countries.** In view of the data limitation in early years, the analysis in the paper focuses on the developments since the early 2000s.⁶ The following stylized facts are drawn based on recent performance in FCS:

⁶ Securing credible data for countries under fragile economic environments is technically challenging. Based on the database for WEO, we confirmed the data availability and crosschecked with other sources (e.g., IMF staff reports), as needed.

- **Overall tax performance in FCS has been constantly weaker than in other developing countries (Figure 1).** For the last decade, tax collection for FCS has on average hovered around 11.5–12.5 percent of GDP. Compared with other developing countries (defined as low-income countries and emerging markets, excluding FCS), their tax revenues have been consistently lower by 4–6 percentage points of GDP.

Figure 1. Tax Revenues in Fragile Country States and Developing Countries
(Percent of GDP)



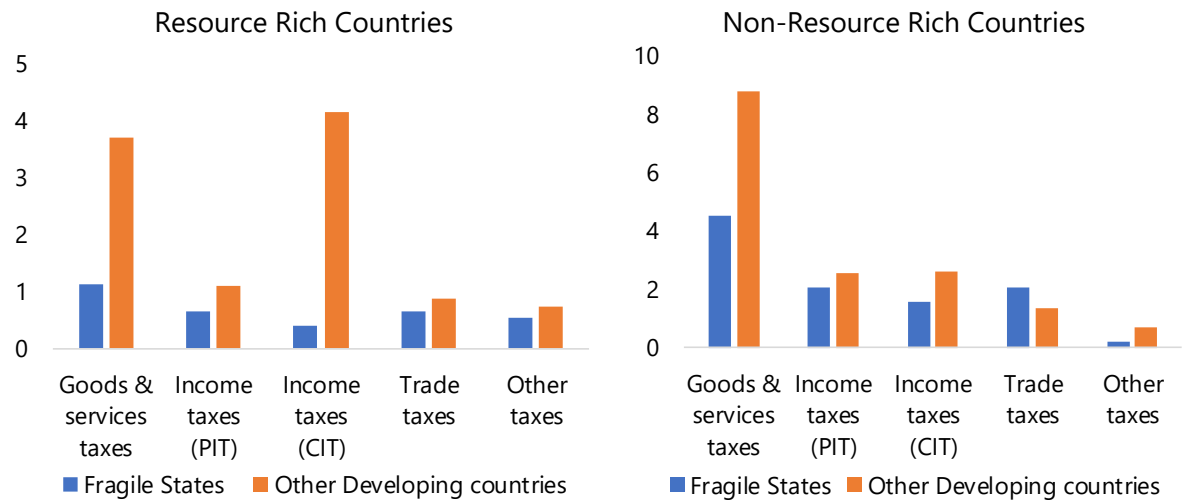
Source: WEO.

- **FCS's tax collection on goods and services are the weakest, compared with non-fragile developing countries (Figure 2).** Compared with non-FCS, FCS collect far less taxes on goods and services⁷—both in resource rich⁸ and non-resource rich countries. This may reflect significant social or political challenges to implement (or enhance) a broad-based tax, where social or political stability is not fully secured (in fragile environments) and/or a social protection system is not established. IMF (2017a), Baer et al. (2020), and Mansour and Schneider (2019) note that FCS should rely more on easier tax handles such as taxes on goods and services, and excises, given that they exhibit a high concentration at their collection points—in particular, at customs border posts and for large companies.

⁷ For the analysis in this paper, goods and service taxes are separated into VAT, excise taxes, and general (other) goods and services taxes.

⁸ For resource rich countries, non-commodity revenue is computed by subtracting total commodity revenue as well as grants from general government revenue.

Figure 2. Tax Revenues by Type
(Percent of GDP, median value, 2019)



Source: WEO.

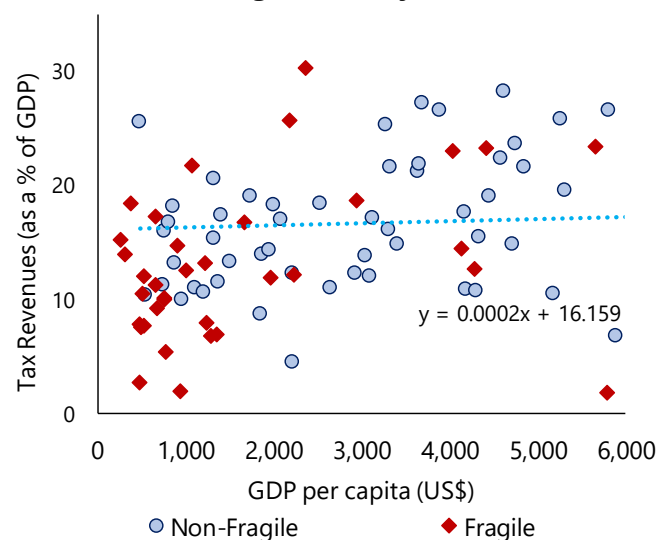
- **With some exceptions, the tax-to-GDP ratios in FCS are generally lower than non-FCS of the same income level (Figure 3).** Looking at the trend

line for non-FCS at the same income peer, most FCS—about 80 percent of the total FCS—are placed below the line (not reaching the trend average of the income peer of non-FCS). Tax revenues of some FCS deviate from the trend by even more than 10 percentage points of GDP.

- **The analysis (Figure 3) suggests that there may be other contributory factors—besides fragility—behind the poor revenue performance.** While a vast majority of FCS are below the trend line, some FCS are placed higher than the trend line, suggesting that being in fragile status may not necessarily be an absolute factor for weak tax performance. It is also important to note that having a high revenue ratio (which is a very important step toward sound economic development) is not sufficient to escape fragility.

- **The COVID-19 outbreak is expected to cause a drop in domestic revenue.** Tax revenue in FCS is projected to decline from 12 percent of GDP to 11.3 percent of GDP in 2020,

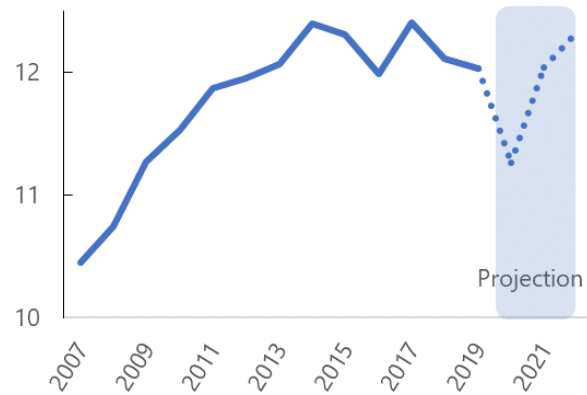
Figure 3. Tax Revenues by Income Level in Fragile and Non-Fragile Country States (2019)



Source: WEO.

before recovering in 2021 (Figure 4). The outbreak may affect tax collection through multiple channels. Preventative and containment efforts for COVID-19 can slow down economic activities and thus adversely affect tax collection. Moreover, lockdowns involving the closure of government offices and businesses are expected to obstruct pertinent administrative processes for revenue collection (as they are rarely automated in FCS). Some FCS—in an attempt to mitigate the impact of the pandemic—have also implemented tax waivers on specific import items (Malawi), granted tax relief for most-affected businesses (Solomon Islands, Togo), and reduced consumption tax on additional goods (Somalia). In addition, taxpayer compliance is expected to deteriorate during the economic crisis, leading to further revenue losses.⁹ These projections are subject to significant uncertainty, and the magnitude of the shock and the pace of the eventual tax recovery could widely differ by country, in light of the experiences with the Ebola outbreak (Box 1).

Figure 4. Tax Revenues in Fragile Country States
(Percent of GDP)



Source: April 2020 WEO.

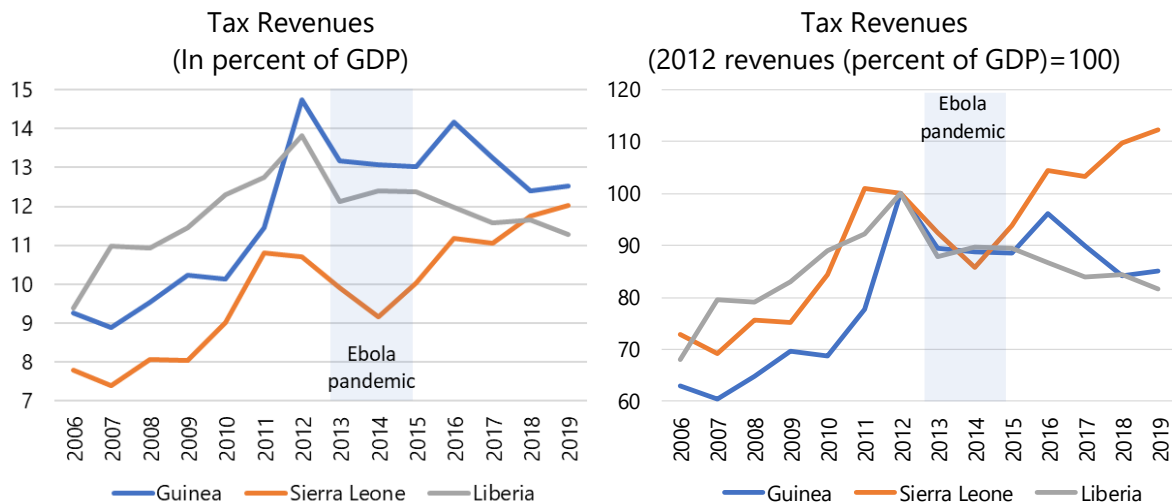
⁹ IMF (2020b) highlights that the far-reaching lockdown of private and public sectors implemented in many countries to contain the spread of COVID-19 is significantly impacting revenue administrations' operations. It further argues that, when COVID-19 is contained and lockdown measures are loosened, revenue agencies will have to be ready to reinvigorate their operations, restore the normal functioning of the revenue and trade systems, safeguard tax collection and recover compliance to pre-crisis levels.

Box 1. Tax Revenue after the Ebola Outbreak in Guinea, Liberia, and Sierra Leone

The 2014-15 Ebola crisis was the largest Ebola outbreak in history and took a devastating toll on the people of Guinea, Liberia and Sierra Leone. Ebola infected over 28,000 people and caused more than 11,000 deaths in the three countries.

Following the Ebola outbreak, tax collections in these countries declined significantly (by about 1½ percentage points of GDP). IMF country documents unanimously point to the adverse impacts of the outbreak, which weakened economic activities, eroded revenue base, and weakened compliance with tax regulations. In Liberia, it is reported that arrears in tax obligations arose at end-2014 reflecting financial difficulties facing taxpayers as a result of the shocks.

Among the three countries, the pace of recovery after the outbreak widely differed by country. While all of them had gradually increased tax collection before the outbreak, the momentum for tax increase has not been maintained in Liberia and Guinea. In Sierra Leone, however, tax collection reached a pre-Ebola level in 2016 (a year after the end of the outbreak), while the momentum apparently continues.¹



Source: WEO.

¹ The increase in tax revenues in 2016 in Sierra Leone is partly associated with the one-off factors mainly related to arrears payments from mineral companies and a capital gains tax from the sale of a mineral company (IMF Country Report No. 17/154).

III. EMPIRICAL ANALYSIS

9. **The stylized facts—the weak revenue performance of FCS relative to non-FCS—raise the question of what causes such weak performance in FCS.** Specifically, despite all the capacity building efforts by international partners for these countries, are FCS not recovering tax revenues after the tax revenue troughs? If yes, why are they performing constantly weaker than

non-FCS? Furthermore, what are the key determinants of their tax revenues? To answer these questions, this section empirically examines the pace of tax revenue recovery and explores the determinants of tax revenues.

Pace of Tax Increase (Event Study Analysis)

10. **To scrutinize the pace of tax revenue recovery, we now examine the behavior of tax revenues around the year of the weakest revenue performance using an event study approach.** Although not necessarily implying causality, our results help to understand subsequent revenue developments following the weakest revenue performance. As the year of the weakest tax performance (often reflecting the peak of fragility) may also be associated with conflict, we disentangle the analysis from post-conflict developments.¹⁰ Specifically, following most closely Gourinchas and Obstfeld (2012), we specify a fixed-effects panel to capture the dynamic of tax revenues during an 11-year window around the tax revenue troughs (defined as the year of the lowest tax-to-GDP ratio during 1995–2017).¹¹ The specification is the following:

$$y_{i,t} = \alpha_i + \sum_{j=-5}^5 \beta_j D_{t+j} + \varepsilon_{i,t}$$

Where y is tax revenue, α_i is the country fixed-effect, D_{t+j} represents the 11 dummy variables taking the value of 1 in period $t + j$ (where t is the year when tax collection was the lowest during the sample period), and β_j is the conditional effects of tax performance over the event window relative to tranquil times.

¹⁰ Data relating to the conflict period (and three years after the conflict period) are removed from the analysis for countries in which conflict-related incidents were reported and found to impact on tax revenue (based on IMF (2004); Collier and Hoeffler (2004); and various IMF staff reports).

¹¹ These troughs are usually associated with the peak of fragility (often associated with weakening of institutional capacity). During such periods, administrative capacity tends to weaken, including through a change in staff or key directorates, the inability to implement tax reforms, or a temporary break away from maintaining basic revenue collection principles, all of which could lead to low tax collection. For example, a low institutional index in Comoros and Eritrea was associated with low tax capacity (tax-to-GDP level below 6 percent) (Akanbi, 2019).

11. **The results suggest that tax recovery after the weakest revenue performance tends to be sustained up to 2–3 years (Figure 5).** On average, the tax collection of FCS steadily improves by 3.5 percentage points of GDP from the lowest level, over a period of three years. While tax policy and revenue administration reforms coincided with the observed revenue increase after the trough, causality cannot reliably be established given the lack of additional micro-evidence or natural control groups for most reforms. For instance, some of the revenue increase may be associated with improved macroeconomic environment.^{12, 13} The momentum for tax recovery, however, is short-lived. After three years, FCS recover the level of tax collection, though the momentum of tax increases is not sustained over time. Not being able to sustain the momentum for revenue increase is apparently a factor behind the weak revenue performance of FCS.

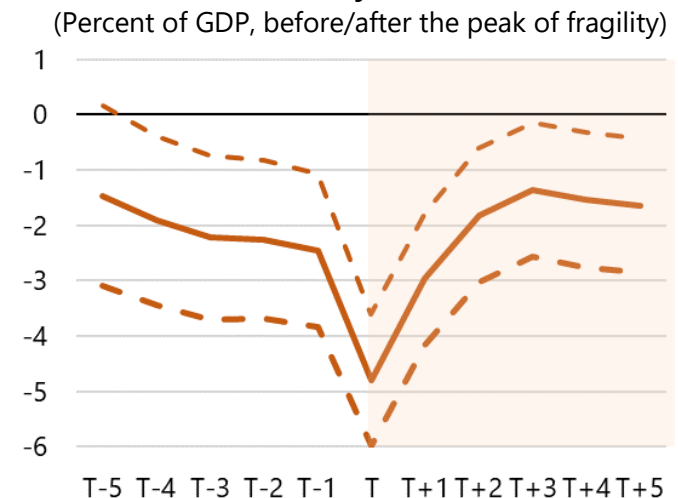
Determinants of Tax Revenues

12. **Previous research revealed that economic and institutional variables affect tax collection in developing countries.** Gupta (2007) used fixed and random effects specifications to examine the determinants of tax revenue efforts in developing countries. The study found that structural factors such as per capita GDP, agriculture share in GDP, ratio of imports to GDP, and foreign aid significantly affect revenue performance. Ghura (1998) applied a panel data analysis to sub-Saharan Africa and found that variations in tax revenue to GDP ratios were influenced by the level of corruption. Similarly, evidence provided by a system-Generalized Method of Moments (GMM) panel model in Imam and Jacobs (2007) showed that corruption is a contributory factor to the low revenue collection in Middle East countries. Using a random effects panel data analysis, Epaphra and Massawe (2017) found that good governance—measured in terms of government effectiveness, regulatory quality, rule of law and voice and accountability—tends to raise tax revenue generation in African countries. Furthermore, evidence provided by a cross-sectional analysis showed that countries with a more unstable and polarized political system have an inefficient tax structure—in the sense that tax collection is more costly to administer (Cukierman et al., 1992).

¹² For instance, some of the revenue increase may be associated with improved macroeconomic environment. For further details on how reform efforts coincided with the tax recovery, see Akitoby et al. (2018).

¹³ These results should be interpreted with caution due to the wide confidence interval.

Figure 5. Recovery of Tax Revenues in Fragile Country States



Note: Dotted lines denote the confidence interval.

Sources: WEO and WoRLD.

13. **This study uses a fixed-effects econometric analysis to examine the factors affecting tax revenue in FCS.**¹⁴ We specify a fixed-effects panel in the form below:

$$y_{i,t} = \alpha_i + \lambda_t + \beta X_{i,t} + \epsilon_{i,t}$$

Where: $y_{i,t}$ is the log of the tax-to-GDP ratio for country i at period year t ; $X_{i,t}$ is a vector of independent variables; α_i and λ_t represent a full set of country and time fixed effects, respectively; and $\epsilon_{i,t}$ is the error term. The sample comprises annual data from 2000 to 2017. Data were constrained to this period due to limited availability of information for FCS prior to 2000. The main data sources are IMF's World Economic Outlook (WEO) database, FAD Tax Policy Revenue Analysis Tool (RAT)¹⁵, and the publicly available World Revenue Longitudinal Database (WoRLD).¹⁶ The tax revenue data exclude grants and non-tax revenue.

14. **Independent variables are selected based on the findings in the literature.** Similar explanatory variables were selected based on other studies in the literature (e.g., Gupta (2007), Epaphra and Massawe (2017) and IMF (2018)). The structural variables include real GDP per capita growth, trade openness, net official aid, inflation, and the share of agriculture in total output. Per capita GDP growth is included to control for the impacts of business cycles. Trade openness captures the degree of liberalization. The inflow of foreign aid, once used productively, is expected to improve revenue performance. Changes in macroeconomic policy in the previous year are likely to affect revenue collection from different taxes in the following year. Therefore, the lagged value of inflation—which gauges the effect of macroeconomic policy—is included as a regressor. Also, given the large share that agriculture contributes to GDP in FCS, and its different regime of taxation in many countries, this variable is also included. Furthermore, income inequality (as measured by the GINI index) is included to capture the relationship between tax collection and the income gap.¹⁷ Higher spending on education is included as a regressor because it is associated with more qualified staff and it has a positive relationship with tax morale.¹⁸ Public spending on education is also a proxy for social spending, which is low in many FCS. Institutional and governance variables include the indices for control of corruption, government effectiveness, and political stability (based on the Worldwide Governance Indicators). Among these variables, government effectiveness and the control of corruption tend to be highly correlated with the performance of revenue-specific institutions (Box 2).

¹⁴ Given the small number of countries in the FCS sample (19), using GMM can produce biased estimates.

¹⁵ See Mylonas, Victor, 2019. "Revenue Analysis Tool (RAT)" [IMF Technical Notes and Manuals](#) (Forthcoming), International Monetary Fund.

¹⁶ General government (GG) data are used wherever available, if not, central government (CG) tax revenue data are used as a proxy for GG data.

¹⁷ Several empirical studies include income inequality as an explanatory variable for tax performance (e.g., IMF, 2018; Fenochietto and Pessino, 2013). It is presumed that a more even income distribution should facilitate collection as well as voluntary taxpayer compliance (Fenochietto and Pessino, 2013).

¹⁸ Higher education levels are related positively to tax morale because educated people can better understand the importance of government intervention or policies that enhance tax collection (e.g., Rodríguez, 2018).

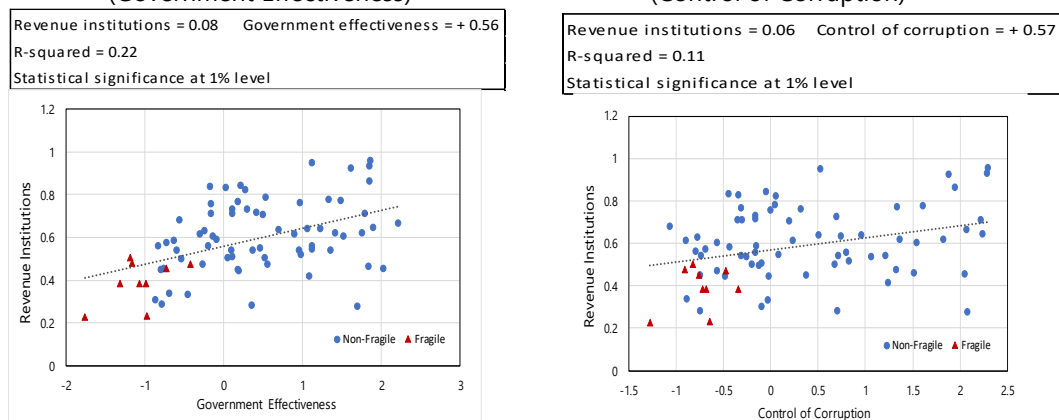
Box 2. General Institutions and Revenue-Specific Institutions

This box examines the relationship between general institutions and revenue-specific institutions. Following IMF (2019a), the paper uses selective indicators from the International Survey on Revenue Administration (ISORA), which contains relevant institutional measures related to tax administration.¹ The relevant indicators derived from the database are related to risk management, public accountability, third party information and limits on discretionary power. These indicators are averaged, with equal weights, to derive an overall revenue institution index. In light of the lack of historical ISORA data, this paper undertakes a simple cross-section regression and correlation.

Following Akanbi (2019), we also confirm a positive relationship between general institutions (government effectiveness, control of corruption) and revenue institutions. A higher government effectiveness index is associated with better revenue institutions (Figure 6). Post-conflict countries have a long history of political instability, which has caused a lack of proper management (and deterioration) of revenue institutions. Meanwhile, structural and economic factors have led to inefficiencies in governance. In FCS, poor governance of revenue agencies has coincided with weak administrative practices and a drag on reforms, both of which impeded tax collection.

A lower control of corruption index corresponds to weaker revenue institutions (Figure 6). This is particularly important in FCS because in 2015, two thirds of the FCS were among the countries with the highest corruption levels in the world, as measured by the Corruption Perceptions Index (CPI) from Transparency International.² Also, corruption—including through tax loopholes in exchange for bribes and undervaluation or underdeclaration of goods at customs—reduces revenue collection. IMF (2018) and IMF (2019a) also find similar evidence that control of corruption is associated with an increase in government revenues.

Figure 6. Cross-Section Correlation Between General Institutions and Revenue Institutions
(Government Effectiveness) (Control of Corruption)



Sources: IMF (2019a) and WGI.

¹The data source is the participant review tables for ISORA 2016 (<https://data.rafit.org/>). ISORA uses an online data collection platform (called Revenue Administration Fiscal Information Tool—RA-FIT) developed and administered by the IMF. Akanbi (2019) points out that the performance of general state institutions—using measures for government effectiveness, the control of corruption, and freedom to trade—and of revenue-specific institutions are highly and positively correlated, implying that countries with good state institutions tend to have good revenue institutions as well.

²In general, FCS are characterized by less favorable ratings in governance indicators (IMF, 2015).

Results

15. **The regression results highlight that improving institutional variables is more relevant in FCS than in non-FCS (Table 2).**^{19, 20} Control of corruption, government effectiveness, and political stability are important determinants of tax collection in FCS. This underscores the importance of improving governance and political stability in proceeding with effective tax reforms. This finding is not surprising, as FCS typically suffer from weak institutions, high corruption, and/or instable political conditions, all of which would preclude tax collection efforts. In the non-FCS group, control of corruption, government effectiveness, and political stability are not significant, suggesting a possible nonlinear relation between tax performance and the institutional variables. This implies that changes in institutional capacity may have a different marginal impact in those countries that have very weak initial conditions (the FCS) compared to those with stronger institutional capacity.²¹

16. **Tax performance can also be explained by other factors.** GDP per capita growth is an important indicator for both FCS and non-FCS. This indicates that tax collection is boosted by buoyant economic activity. Government expenditure on education is positive and significant in the non-FCS group, indicating that more investment in education could lead to higher education levels—which relate positively to tax morale (Rodríguez, 2018). IMF (2018) also notes that higher spending on education could give governments incentives to collect more taxes (e.g., by increasing tax rates) to finance new spending levels. Government expenditure on education is insignificant in the FCS group. This may possibly reflect the low efficiency of their spending, often associated with the weak institutional capacity in the group. Similar to other studies in the literature (Fenochietto and Pessino, 2013), the share of the agriculture sector is statistically significant in FCS. As FCS tend to have large informal sectors and a large share of agriculture in total output, this constellation of factors often pushes FCS towards a lower level of tax collection and a narrower tax base. In non-FCS, the results also suggest weaker tax performance with larger agriculture sector. In FCS, the effect of inflation is slightly negative and statistically significant, possibly reflecting that high inflation tends to reflect macroeconomic imbalances with dire economic challenges in the country group. To the contrary, inflation has no impact on tax revenue in non-FCS.

17. **The results do not support the role of trade openness, income inequality and net aid for tax performance in FCS.** Although the coefficient for trade openness shows a positive

¹⁹ The Hausman specification test was performed and confirmed that the null hypothesis of no correlation between the effects and the error term is rejected. Therefore, a fixed effect model should be used rather than a random effect model.

²⁰ Given the high correlation between each institutional variable and GDP per capita (Appendix II), we also estimate the model without GDP per capita. We also consider different combinations of control variables. For all these cases, our main results remain unchanged.

²¹ This result is also confirmed using the interaction terms of institutional variables with FCS dummies. While most of the interaction terms are statistically significant, none of the institutional variables (without FCS dummies) is statistically significant (Appendix III).

sign in FCS, it is not statistically significant. Furthermore, income inequality is not a significant determinant of tax revenue in FCS. In contrast, in non-FCS, the results point that lower income inequality and higher trade openness contribute to tax performance. The insignificant results on net official aid in FCS may suggest that in these countries, large aid would not necessarily imply aid dependency demotivating tax reform efforts.

Table 2. Empirical Results on Tax Revenues (Fixed Effect)

	Fragile states			Nonfragile states		
	(1)	(2)	(3)	(4)	(5)	(6)
Control of corruption	0.183** (2.138)			0.0237 (1.233)		
Government effectiveness		0.150* (1.691)			0.0139 (0.686)	
Political stability and absence of violence/terrorism			0.0713** (2.142)			0.0102 (0.893)
Real GDP per capita growth	0.00800*** (3.969)	0.00809*** (3.998)	0.00823*** (4.099)	0.00306*** (2.642)	0.00312*** (2.689)	0.00302*** (2.594)
Trade openness	0.000940 (1.323)	0.000797 (1.122)	0.000767 (1.085)	0.00156*** (6.038)	0.00159*** (6.123)	0.00160*** (6.109)
Consumer prices, period average, percent change (lag)	-0.00239*** (-4.641)	-0.00234*** (-4.490)	-0.00248*** (-4.834)	-0.000331 (-0.973)	-0.000336 (-0.987)	-0.000330 (-0.969)
Agriculture sector, value added (% of GDP)	-0.0122*** (-3.787)	-0.0124*** (-3.821)	-0.0112*** (-3.377)	-0.00480*** (-3.247)	-0.00498*** (-3.389)	-0.00489*** (-3.312)
Government expenditure on education (% of GDP) (lag)	-0.00667 (-0.430)	-0.0134 (-0.826)	-0.00747 (-0.481)	0.0143*** (3.179)	0.0141*** (3.127)	0.0138*** (3.074)
Net official aid received (% of GDP)	-0.00180 (-0.907)	-0.00111 (-0.571)	-0.00122 (-0.631)	-0.00816*** (-4.552)	-0.00810*** (-4.517)	-0.00800*** (-4.423)
Gini index (lag)	-0.00103 (-0.236)	-0.00273 (-0.623)	-0.00156 (-0.359)	-0.00506*** (-3.357)	-0.00494*** (-3.275)	-0.00501*** (-3.321)
Constant	2.572*** (10.94)	2.665*** (10.34)	2.481*** (10.76)	2.748*** (34.41)	2.739*** (34.41)	2.739*** (34.34)
Observations	298	298	298	1,201	1,201	1,199
R-squared	0.455	0.451	0.455	0.320	0.320	0.319
Number of ifscodes	19	19	19	78	78	78

z-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: Time dummies are also included.

Source: IMF staff estimates.

18. Building on these empirical findings, it would be important to investigate how FCS can strengthen institutions (reflected in governance indicators) to increase tax collection.

The results highlight the importance of improving institutions in FCS. As general institutions are highly associated with revenue-specific institutions, one can hope to find lessons from tax reform experiences of FCS that could contribute to substantial revenue increases, often starting from very weak institutions at the outset. To investigate this, the next section examines specific country experiences of tax reforms. For all of these cases, some/all of these institutional variables improved following the initiation of their tax reforms.

IV. CASE STUDIES

19. **To draw lessons for FCS, we consider countries that achieved sizable, sustained increases in tax revenues.** This paper focuses on four episodes of large tax revenue mobilization in FCS, namely in Liberia, Malawi, Nepal, and Solomon Islands. The paper selects episodes with two criteria. First, all the cases have been identified in Akitoby et al. (2018) as episodes of substantial tax revenue mobilization.²² Second, in addition to the gains in tax revenue achieved during the tax reform period identified in Akitoby et al. (2018), these countries achieved increases in their tax-to-GDP ratios beyond 7 percentage points and sustained most of it over a long period. The case studies provide detailed information on the tax policy and revenue administration reforms undertaken during the tax reform period to achieve these gains.²³ While these countries enhanced tax collection over a long period, this does not imply that there remains no scope to further increase tax collection or strengthen revenue performance.

20. **However, given the heterogeneity of FCS, there is no one-size-fits-all reform.** FCS are heterogeneous in their economic structure, sources and degree of fragility, and macroeconomic performance (IMF, 2017a). As a result, it is not desirable to view FCS as a unified group. Having said this, two high-level lessons emerge from the case studies: (i) tax reforms can be pursued even with initially weak institutions; and (ii) strong political commitment is important to sustain reform efforts (e.g., over ten years) and realize long-lasting, sizable gains.

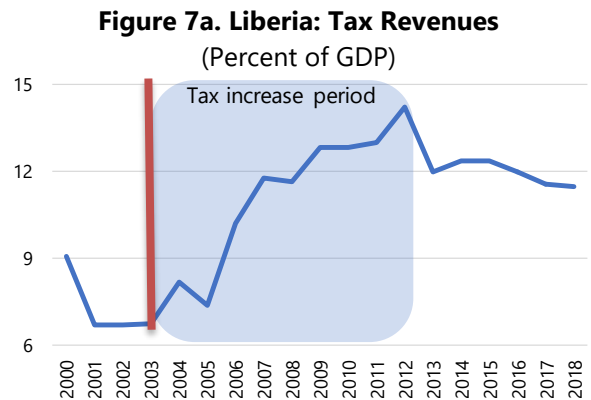
21. **Each case study is structured as follows:** (i) a short background section gives the political and economic context; (ii) the tax reform strategy is outlined to describe the fiscal reform measures undertaken; and (iii) the outcome of the strategy is highlighted.

²² In identifying the episodes of large tax revenue mobilization, Akitoby et al. (2018) focused on countries with more tangible tax revenue mobilization results: (i) countries that have increased their tax-to-GDP ratios by a minimum of 0.5 percent each year for at least three consecutive years (or 1.5 percent within three years); (ii) countries with beyond average increases in their tax-to-GDP ratios; and/or (iii) countries with better tax performance compared with peers in the same income group (utilizing the approach used in von Haldenwang and Ivanyna (2012)).

²³ An in-depth analysis of each episode was conducted based on IMF country reports (including staff reports and TA reports). We also consulted with staff who were engaged with the four countries during the reform period.

A. Liberia

Following the signing of a peace agreement in 2003 (after more than a decade of internal conflicts), Liberia undertook reforms in tax and customs administration, as well as tax policy, with political commitment, supported by technical support from Liberia's international partners. Following the decade-long reform efforts, total tax revenues more than doubled from 6.7 percent of GDP in 2003 to 14.2 percent in 2012 (Figure 7a). It should be noted that the tax reform was initiated at a time when these key institutional indicators were among the lowest in the world.



Note: The red line represents the end of the conflict period.
Sources: Country authorities and authors' estimates.

Background

22. **Following the civil war that ended in 2003, Liberia faced severe social and economic difficulties.** After about fifteen years of intermittent conflict through 2003, Liberia's physical infrastructure was largely destroyed. Poverty was pervasive; real GDP per capita (in 2005 prices) was estimated to have declined by almost 90 percent from US\$1,269 in 1980 to US\$163 in 2005. In 2006, unemployment reportedly stood at over 80 percent, and a similar percentage of the population subsisted on less than US\$1 a day, with no access to basic health, education, and other social services. Liberia's human capital had eroded, and public institutions were largely dysfunctional. On the revenue front, the tax base had been severely eroded by the granting of tax concessions, poor administration, extremely low tax morale, and widespread governance problems. Liberia was heavily dependent on trade and income taxes; the contributions of domestic sales and excise taxes were very small (IMF, 2017b).

23. **With the newly elected President Ellen Johnson-Sirleaf, economic reforms gained momentum, assisted by Liberia's international partners.** Until 2005, the pace of reform implementation under the former government was slow and governance problems re-emerged. In early 2006, the newly elected President Ellen Johnson-Sirleaf expressed commitment for economic reforms and called for IMF support for developing a program to strengthen economic performance.²⁴ A staff-monitored program (SMP) in 2006 paved the way toward a Fund-supported financial program and the eventual HIPC debt relief in 2008. Moreover, Liberia's key international partners (US, EU, UN, and ECOWAS) jointly formulated the Governance and

²⁴ It should be noted that the government, under President Johnson-Sirleaf, took action to implement structural reforms to address governance issues, reestablish macroeconomic stability, rebuild institutional capacity, and improve Liberia's infrastructure.

Economic Management Assistance Program (GEMAP) in 2005 to strengthen economic governance and financial management, and rebuild Liberia’s key economic institutions.²⁵

24. **Throughout the reform period, Liberia’s international partners, including the IMF, provided intensive support for capacity building.** After the Accra Peace Agreement in 2003, IMF technical support began with a basic short-term and medium-term actions list to increase government revenue (IMF, 2017b). After the January 2006 presidential election, Liberia’s reform program proceeded rapidly. To support the program, the IMF coordinated with other donors and took a multi-faceted approach towards the delivery of technical support in tax policy and administration. Technical support was delivered in phases on a range of topics, to help create a tax system based on sound economic principles, broad tax bases, and limited discretionary tax policy. In 2011, the IMF launched a multi-year technical support program financed by the Tax Policy and Administration Topical Trust Fund (TPA-TTF). It focused on strengthening the revenue administration organization, defining the organizational structure, administrative and operational frameworks, building a comprehensive risk strategy for large taxpayers, and building the capacity of the Liberia Revenue Authority (LRA) to serve taxpayers.

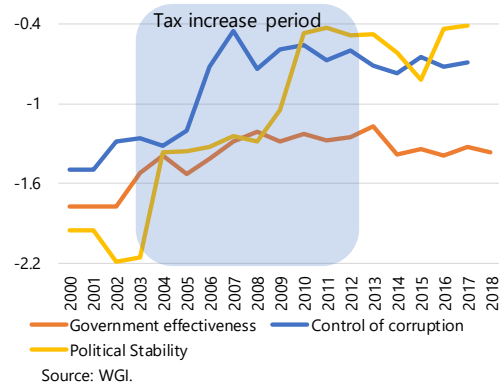
25. **The tax reform started when key institutional indicators were low, followed by their subsequent improvement.** During the reform period, control of corruption was strengthened substantially at an initial period, with gradual improvement in government effectiveness (Figure 7b). There was also substantial improvement in the political stability index, which is indicative of the shift in the political atmosphere when the new president was elected.

Reform Strategy

26. **The government implemented a broad range of reforms to enhance the efficiency of revenue collection and broaden the tax base.** A key focus of the government was the pursuit of a tax reform program—centered on efforts to strengthen both the policy and legislative framework, as well as to enhance the administrative capacity. In the meantime, addressing inherited governance issues in tax collection was also a major task.

27. **In the initial phase, the tax reform focused on short-term measures to broaden the tax base, increase indirect taxes, and strengthen revenue administration.**

Figure 7b. Liberia: Institutional Indicators
(Index)



²⁵ The GEMAP framework, among others, provided for internationally recruited financial controllers with binding cosignature authority in major revenue collecting agencies.

- *Expanding the taxable base for the goods and services tax (GST)* by: (i) applying it on all goods and services; (ii) expanding definition of import duty paid value to include c.i.f. value plus import duty, fees, and excises paid); and (iii) expanding the definition of domestic supplies on the sales price to include excise taxes. While broadening the tax base, annual turnover for entities subject to the GST was set at a high level to ease both cost of compliance and the administrative burden. Given the low level of tax administration capacity, it aimed at limiting the number of taxpayers that could be effectively controlled and monitored by tax administration.
- *Reducing duty and tax exemptions on rice and petroleum.* The government rationalized the extensive list of duty exemptions and drafted a legislation for the tax exemptions policy in 2007, and passed the revenue authority law.²⁶
- *Utilizing excise taxes.* A uniform excise tax of 15 percent was applied for imported and domestic alcoholic beverages. The excise tax on cigarettes was increased to 15 percent and higher excises were also levied on cell phone usage, air travel, and hotels.
- *Strengthen the capacity to classify and value goods for customs purposes.*
- *Reorganizing domestic tax revenue administration on the basis of taxpayer segmentation.* The authorities reorganized domestic tax revenue administration on the basis of taxpayer segmentation and strengthened the large taxpayers unit, including its capacity to conduct an audit of large taxpayers.
- *Enhancing transparency of resource flows and the extractive industry.* Improving transparency from key revenue generating agencies, such as the National Port Authority, Roberts International Airport, the Liberia Petroleum Refining Corporation, the Forestry Development Agency, and the Bureau of Maritime Affairs helped to increase tax collection. Also, tax revenues performed well as a result of inflows from the extractive industry.

28. **In the early years of tax reform, the lack of facilities, equipment, and logistics was a major constraint for tax administration reforms.** In undertaking reforms which led to a more professional tax administration, computers and vehicles were needed by auditors and for arrears collection staff. The office facilities were in poor condition. Supplies of stationery and basic equipment were lacking, particularly in the large and medium taxpayer divisions.

29. **At a second phase, the authorities implemented more fundamental tax reform measures.** With technical support on tax policy from the IMF, the government also aimed to increase tax collection from domestic-oriented activities, while further strengthening tax and customs administration.

²⁶ Import duty exemptions were widespread. In addition to embassies and international organizations, all international and local nongovernmental organizations and religious groups, public corporations, and a large number of companies enjoyed duty-free privileges. Imports for investment projects qualifying for incentives were also exempted from duty. Intermediate goods used in agriculture were also exempted, while duty on raw materials and capital equipment and machinery for manufacturers in "essential" industries paid a 5 percent tariff compared with 15 percent paid by nonessential industries.

- *On tax policy, the authorities stepped up efforts to remove tax and custom exemptions.* Specifically, they reduced tax and tariff exemptions, clarified the regulations regarding tax exemptions for individual investors, and implemented measures to contain tax exemption abuse among nongovernmental organizations. Moreover, to enhance collection from property taxes, the authorities updated the unit values on which land and building taxes were based.
- *On tax administration, the government continued to strengthen the segmentation of taxpayers and enhance the utilization of information systems.* Strengthening the segmentation of taxpayers involved the creation of large, medium, and small taxpayer divisions. Under the new organizational structure for the administration of domestic taxation, large, medium, and small taxpayers have their own operational units for taxpayer services, returns and payments, collection enforcement, and audit. Also, as part of the Standard Integrated Government Tax Administration System (SIGTAS) project, large, medium, and small taxpayers were re-registered and issued new Tax Identification Numbers (TINs). The issuance of new TINs helped to improve information sharing and coordination between the tax and customs offices. Notably, the operations of the Bureau of Internal Revenue (BIR) were computerized through implementation of the Integrated Tax Administration System (ITAS).
- *Customs reforms were mainly driven by introducing information systems and restructuring the customs authority.* The Automated System for Customs Data (ASYCUDA) was rolled out at the major entry ports, and the government increased the level of tax revenues coming from domestic sources. A strategic plan for the Bureau of Customs and Excise (BCE) was developed, and the structure of the BCE was reorganized. Taxpayers services were improved by establishing a one-stop customer care center and rolling out the ASYCUDA.

Revenue Outcomes

30. **Liberia's tax revenues increased by 7.5 percent of GDP over nine years.** The tax-to-GDP ratio increased steadily reflecting progress in implementing tax reforms. Specifically, the revenue increase was driven by an increase in trade taxes, by 3.33 percentage points of GDP in nine years, and through customs reforms. Also, the curbing of tax exemptions was a contributory factor to improving tax collection. Furthermore, through the TINs re-registration exercise, the authorities developed the capacity to identify taxpayers and their tax obligations and collect and process useful information for analyzing the behavior of taxpayers and preparing risk mitigation strategies. The increase in tax revenue was not sustained, partly reflecting changes in the income tax reporting base from presumptive to actual, legal issues in the forestry sector, and lower imports.²⁷

²⁷ The government imposed a moratorium on timber exports at end-2012 following abuses in the allocation of permits in the forestry sector.

Figure 7c. Liberia: Tax Revenues by Type
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

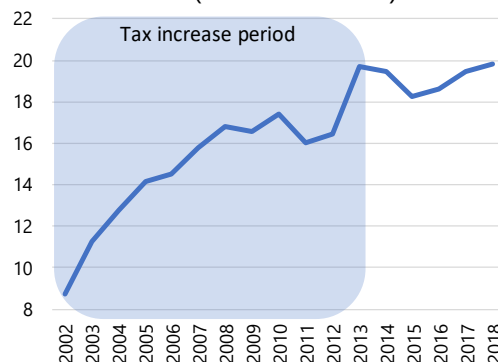
31. **Liberia’s experience highlights the importance of strong leadership, properly-sequenced reform steps, and capacity building by international partners.** Based on its experiences in engaging with Liberia, IMF (2017b) notes that, in FCS, reform can be sustained through properly sequenced and innovative capacity building approaches, championed by strong leadership in the government.

32. **Strong political drive for tax reforms—supported by technical support from Liberia’s international partners—was a major factor in sustaining tax reforms over time.** The reform-minded government drove the economic reforms, expressed full commitment for economic reforms, and called for IMF support to develop a program to strengthen economic performance. Liberia was an intensive recipient of technical support. After the January 2006 presidential elections, the IMF coordinated with other donors to deliver technical support on a range of topics that, among other areas, focused on building capacity in revenue administration and tax policy. Liberia’s experience suggests the importance of political commitment as well as a stable political environment to implement tax reforms consistently over time.

B. Malawi

Malawi achieved a substantial increase in tax revenue of 11 percentage points of GDP during 2002–2013 (Figure 8a). The authorities’ reform efforts included strengthening administration in the tax and customs offices, reviewing tax rates, and tightening exemptions. Such reform efforts led to initial gains. While there were changes in political administrations, the reform efforts were sustained.

Figure 8a. Malawi: Tax Revenues
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

Background

33. **In the early 2000s, Malawi faced several fundamental economic challenges.** The uneven implementation of economic policies in the past left the country with a high debt burden that consumed a large share of government revenue. The economy was inefficient, partly because of insufficient public infrastructure, unreliable utilities, and inadequate institutions. Malawi was buffeted by bad weather that worsened an already delicate food security balance, and by high rates of HIV/AIDS and other infectious diseases.

34. **The new Minister of Finance, who took office in January 2002, publicly announced the need for a decisive turnaround from previous expansionary fiscal policy.** Such a policy change was needed to establish macroeconomic stability, halt the increase in public debt, and create an environment conducive to private sector-led growth. Owing to a prolonged period of expansionary fiscal policies, Malawi's public domestic debt increased rapidly.²⁸ The 2002/03 budget envisaged significant adjustment, reducing the fiscal deficit by over 2 percent of GDP.

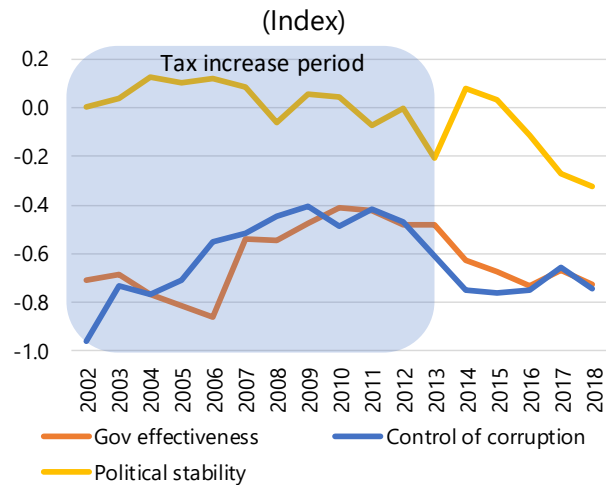
35. **The government first initiated tax reform and later increased petroleum products and electricity tariffs to address the country's economic problems.** After President Bingu wa Mutharika was elected in May 2004, the government initiated a tax reform process, and the Minister requested an IMF technical support mission to look at the revenue implications of reform options, with the goal of improving the structure of the system without losing revenue. Building on this, when the new administration took office in early 2012 (the former vice president was elected as the president following the death of the former president), they made further progress in tax reforms (see below). In 2013, GDP growth rebounded, mainly on account of an improved harvest and increased availability of foreign exchange. However, during that year, the cashgate scandal caused donors to suspend financial assistance.²⁹

²⁸ The fiscal expansion in 2000–02 came mostly from policy decisions to bail out parastatals, augment civil servants' wages, increase other low-priority public spending (such as travel and representation), and reduce income taxes.

²⁹ The government responded quickly to the cashgate scandal by launching a forensic audit and developing a short-term action plan of corrective measures in consultation with development partners. Following consultation with key stakeholders, the authorities adopted a new PFM strategy, which had to be implemented for donor resumption of budget support.

36. **During the reform period, Malawi also showed improvements in some institutional indicators (Figure 8b).** In particular, the government effectiveness index improved but still remained in negative territory. The political stability index fluctuated during the reform period, but declined overall. Although the index for control of corruption improved over the period, there was a notable decline in 2013 to 2016, which coincided with the occurrence of the cashgate scandal.

Figure 8b. Malawi: Institutional Indicators



Reform Strategy

37. **Reform measures—in areas of tax policy and administration—were well sequenced over time.** Initially, the reforms focused more on tax policy measures, which were supported by reforms in revenue administration—in particular the establishment of the revenue authority.

38. **Tax policy measures contributed to initial gains.** Specifically, the authorities took the following measures:

- *Extending the surtax to wholesale and retail levels and replacing it with a VAT.* A standalone surtax legislation was created in 2001. Effective November 2002, the surtax was extended to the wholesale and retail sectors, which helped in expanding the tax base (though the rate was eventually lowered from 20 percent to 17.5 percent in mid-2003, and further reduced to 16.5 percent in 2009). In many respects, the new law followed best international practices for a VAT, though its major weakness was that it contained an excessive list of goods and services that were either exempt or zero-rated. In 2005, the government replaced the Surtax Act with a VAT Act. The surtax system already had features of a VAT such as credit mechanism and taxation of goods and services at wholesale and retail stages.
- *Introducing a bracket creep in the personal income tax in 2001/02, and introducing an additional income tax bracket at a 40 percent rate from incomes in excess of MK 1,200,000.*
- *Increasing excise taxes on alcohol, tobacco, and petroleum products.*
- *Removing implicit subsidies on fuel, which helped to boost fuel tax revenues.*

39. **Tax exemptions were further reformed.** On withholding taxes, the authorities removed the withholding exemption on payments to tobacco growers who belong to clubs; and reduced the withholding tax rate from 7 to 3 percent. This reform was revenue enhancing, as about 80

percent of the tobacco was produced by growers who belong to clubs.³⁰ Furthermore, on personal income tax, the MK 40,000 exemption for contract gratuities payable at the end of an employment contract was repealed and a new 10 percent tax was imposed on the income of pension funds.

40. **Administration reforms were enhanced through the following measures:**

- *Establishing a fully functional revenue authority.* The Malawi Revenue Authority (MRA)—established in 1999—became fully operational and tax administration improved significantly by 2002. This brought the responsibilities of the old Customs and Excise department and Income Tax department into one agency. While MRA had initially been equipped with only a handful of qualified auditors, without sufficient tools and information to do their job properly, MRA gradually built technical capacity, by investing in training and capacity building, as well as recruiting additional staff to support key functional and support areas.
- *Reorganizing domestic tax revenue administration on the basis of taxpayer segmentation.* The large taxpayer office (LTO) was established in November 2007. LTO audit resources were then enhanced, and audit capacity was strengthened in specialized sectors. The LTO administered the largest contributors to domestic tax revenue, and its performance proved the value of a segmented approach to taxpayer management.
- *Integrating income tax, VAT, and domestic excise management under one accountability structure.* The Domestic Taxes Division (DTD) was created in 2008. This replaced the old structure with a more efficient function-based model found in many modern revenue agencies. It also allowed complete review of outdated business procedures and implementation of improved and integrated procedures.
- *Rolling out customs administration reforms.* To enhance customs operations, the ASYCUDA++ automated customs system was deployed further to remote, lower volume border stations, while IT connectivity for upcountry tax and customs stations was improved. The LTO, customs risk management, and tax investigations departments were linked to ASYCUDA to facilitate information exchange. The use of computerized cargo scanners introduced non-intrusive cargo controls and supported domestic revenue mobilization efforts.
- *Increasing the VAT registration threshold.* The threshold was increased from MK 2 to 6 million in 2009 to ease administrative burden.
- *Introducing a small business tax.* A small business tax based on 2 percent of turnover (discussed below) was concurrently introduced for unincorporated businesses (excluding professionals) with turnover between MK 2 and 6 million.
- *Streamlining requirements for withholding so as not to burden compliant taxpayers.*

³⁰ This is difficult to see in the revenue figures as tobacco sales in 2011 were substantially below 2010 in both volume and price per bale.

41. **MRA utilized extensive technical support from the IMF.** Technical support was provided in the areas of tax policy and administration. Many short-term expert assignments also assisted the MRA to: (i) build the DTD institutions, including the headquarters and the launch of the LTO; (ii) complete an initial business process review (BPR) exercise; (iii) institute project management arrangements; (iv) develop an IT strategy; (v) plan for implementation of taxpayer self-assessment; and (vi) improve capacity for customs administration.

Revenue Outcomes

42. **During the period of 2002 to 2013, the tax-to-GDP ratio increased by 11 percentage points.** The substantial improvements in tax revenue—partly owing to robust economic growth—were largely on the back of progress in the delivery of the modernization agenda, as well as policy changes. Notable improvements were made in the performance of income tax in various forms and indirect tax (VAT and excise) collections, through improved VAT efforts which helped to broaden the tax base (Figure 8c).

Figure 8c. Malawi: Tax Revenues by Type
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

43. **The tax administration modernization program transformed tax administration in the MRA.** The tax administration department developed into an integrated (direct and indirect taxes), function-based, and segment-focused organization. Creation of an LTO has provided a focus on around 400 large taxpayers who pay 70 percent of domestic taxes and their particular needs and risks that increasingly arise from international trade and investment, including the growing importance of mining.

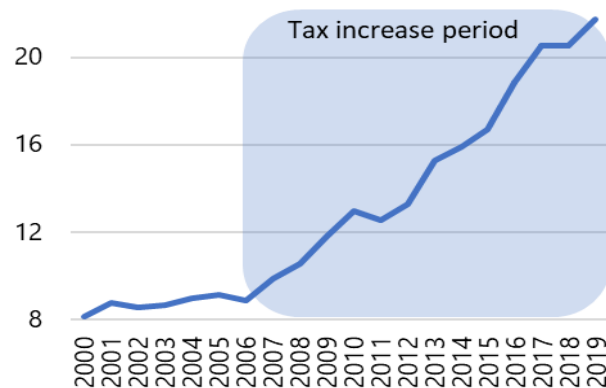
44. **Political commitment and public support helped maintain reform momentum.** The government under President Mutharika stated from the outset that improving the competitiveness and equity of the tax system was a key concern. The government's efforts to achieve fiscal sustainability over the medium term were built on measures to strengthen domestic revenue mobilization. In light of this, the government focused on implementing key

fiscal reform measures. Revenue mobilization efforts were supported by the MRA, which had a strong and well-skilled internal affairs directorate. Overall, managing the political environment and ensuring commitment by key stakeholders, while addressing governance issues, helped Malawi to pursue revenue reforms that yielded gains in tax collection.

C. Nepal

Nepal achieved cumulative increases in tax revenues of 12.8 percentage points of GDP over thirteen years (Figure 9a). While this achievement was owed to a significant rise in imports (fueled by substantial growth in remittances), tax administration reforms—aiming at reducing tax evasion—have also played an important role. Nepal has implemented medium-term revenue administration strategies since 2009.

Figure 9a. Nepal: Tax Revenues
(Percent of GDP)



Note: The red line represents the end of the conflict.
Sources: Country authorities and IMF staff estimates.

Background

45. **Since a major political transition in 2006, the country has been undergoing a gradual transition to a federal democratic state.** After the end of the decade-long civil conflict in 2006, the interim government takeover from the monarchy, and the comprehensive peace agreement between the government and the Maoist party set the stage for a transition to a new democratic governance structure.

46. **Nepal's history of civil conflict, political instability, poor governance, and weak structural reform reduced economic growth.**³¹ Growth prospects in Nepal have been contingent on political stability. Thus, political tensions and long insurgency have dampened economic growth. To-date, per capita GDP in Nepal has barely increased, and output per capita remains the lowest in the region.

47. **Strong growth in remittances helped to support tax collection and reduce poverty.** Remittances from an estimated 2.2 million workers abroad (8 percent of the population) increased significantly from 9 percent of GDP in 2000 to almost 30 percent of GDP in recent years. The growth in remittances, which outpaced GDP growth, fueled a sharp increase in imports

³¹ Efforts were made by various governments to strengthen governance. The government of Nepal took steps to improve transparency by creating the CIAA (Commission for Investigation of Abuse of Authority) and a National Vigilance Centre (NVC) to enforce accountability of politicians and bureaucrats. The authorities also created an investigation section for intelligence within the LTO and approved a Public Procurement Act in 2007.

and consumption. It is also important to note that the dramatic increase in remittances was critical to revenue performance because it led to higher tax collection on imports and domestic taxes. Poverty has been declining, from over 50 percent of the population in 2003/04 to 24 percent in 2010/11, thanks in part to rising remittances.

48. **Enhanced revenue collection was deemed critical to ensure the sustainability of the budget.** Though Nepal has maintained a cautious budget stance, spending needs heightened partially to increase spending in some areas to improve the provision of public goods and address the legacy of the civil conflict. In conjunction with relatively strong revenue collection, it kept the public debt to GDP ratio on a declining path.

49. **To help implement these reform measures, Nepal has received extensive support in capacity development for tax policy and administration.** Specifically, the IMF and other donors provided technical support on reforms for the Inland Revenue Department (IRD) and the Department of Customs (DOC).

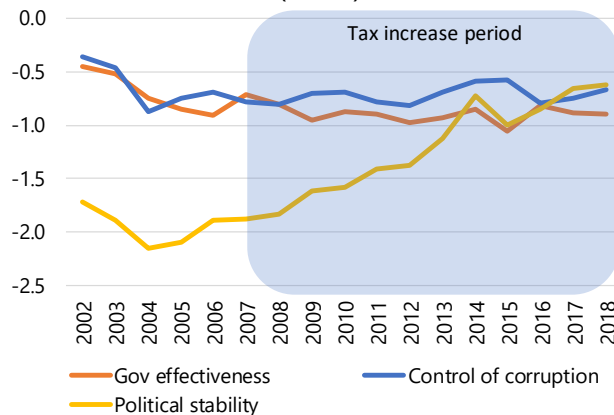
50. **Nepal experienced marked improvement in its political stability index during the reform period (Figure 9b).** This improvement in the political

atmosphere coincided with the political transition the country underwent in 2006. By contrast, the indices for control of corruption and government effectiveness remained somewhat stable (but declined when compared to the early 2000s) during the period when fiscal reforms were undertaken.

Reform strategy

51. **Reform efforts were focused on sustained efforts to strengthen revenue administration.** To assist the authorities, donors (including DANIDA, GIZ, USAID, ADB, and World Bank) and the IMF (in the later stage) provided capacity development to address identified weaknesses in revenue administration. Based on this support, the authorities outlined a program of administrative reforms and their intention to enhance fiscal transparency. The IRD implemented the Strategic Plan (2012/13 to 2016/17) and the supporting Reform Plan (2012/13 to 2014/15) to strengthen tax administration, followed by its Second Strategic Plan for 2018/19 to 2022/23. The DOC implemented its Customs Reform and Modernization Strategies and Action Plan (CRMSAP) for 2013 to 2017, its fourth such formal strategy to improve customs administration since 2003. The current (fifth) CRMSAP covers 2017 to 2021.

Figure 9b. Nepal: Institutional Indicators
(Index)



Source: WGI.

- *Strengthening the Large Taxpayer Office (LTO).* The authorities enhanced the operational efficiency of the LTO in the IRD by undertaking a number of measures. They include automation to improve taxpayer service, and computerization to step up data sharing between the revenue departments. Furthermore, they focused on improved audit approaches for large taxpayers to strengthen enforcement.
- *Strengthening taxpayer records and information management systems.* Effective January 2007, the IRD made compulsory electronic tax deduction at source (ETDS) for all large taxpayers, and introduced technology to improve recordkeeping and reduce tax evasion. The measures undertaken to computerize income tax returns resulted in 95 percent of LTO taxpayers filing electronically for the year 2010/2011. The IRD mobilized domestic revenue through expanding the registration base during 2010–2011. The IRD also used information technology and expanded e-services for registration and filing, and established an internal monitoring system to set annual targets for core functions.
- *Modernizing tax administration and collecting tax arrears.* The tax administration adopted more modern procedures. These included the introduction of self-assessment and a focus on supporting voluntary compliance, including: (i) new Taxpayer Service Offices (implemented 2010–2012); (ii) the use of automation including e-filing and more payment options; (iii) performance measurement and monitoring systems; and (iv) an incentive scheme for staff. As a result of efforts to target and clear old debt, total arrears collections increased, although the overall level of debt outstanding rose.
- *Enhancing computerization and strengthening operations in customs.* As part of its new three-year reform program, information sharing improved among offices by establishing a wide area network (WAN) between headquarters in Kathmandu and the five largest customs offices by mid-March 2007.³² Customs processes were further automated within the existing ASYCUDA system, with assistance from AsDB and UNCTAD. In addition, the DOC streamlined customs clearance procedures at the largest customs point in Birgunj and implemented a selectivity module (risk-based clearance in six offices). To improve customs administration, the government amended the Customs Act to rationalize the tariff regime. Drawing from the Customs Reform and Modernisation Action Plan (CRMAP, 2013–2017), the DOC has strengthened customs valuation processes and Post Clearance Audit (PCA), and controlled revenue leakage, and balancing trade facilitation and regulatory intervention.
- *Addressing excise leakages.* To address excise leakages, the IRD fully operationalized a new monitoring regime.

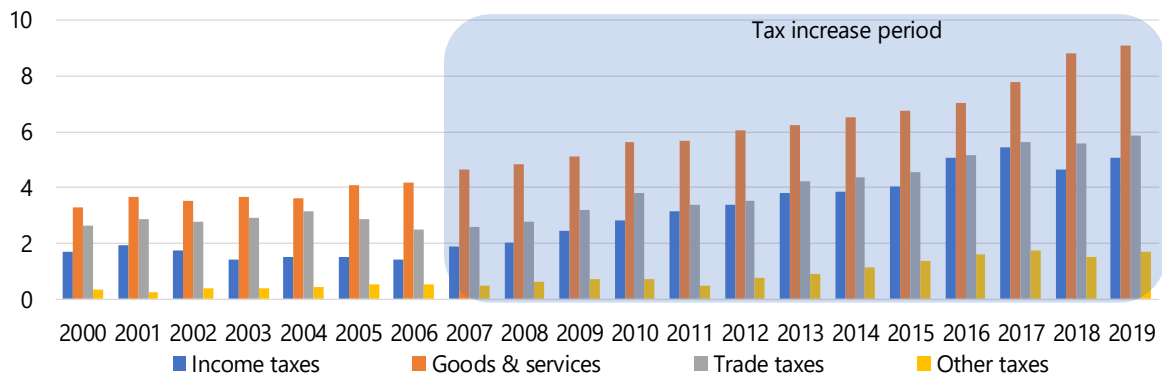
³² Custom reforms were implemented under medium-term strategies. The first four-year Strategic Customs Reform and Modernization Plan for 2009–13 (CRM) was developed with IMF technical support, followed by the 2013–17 Customs Reform and Modernization Strategies and Action Plan (CRMSAP).

52. **On the tax policy side, also contributing to the increase in revenue were higher customs duty rates, higher excise taxes, and an increase in the VAT threshold.**³³ The government increased customs duty rates on selected imports and raised excise taxes on alcohol, beer, and cigarettes. In addition, the government increased the VAT threshold from NPR 2 million to NPR 5 million and introduced a presumptive turnover tax at 1.5 percent for companies with taxable turnover above NPR 2 million but below the VAT threshold.³⁴

Revenue Outcome

53. **Tax collection has consistently increased since 2006.** Tax-to-GDP ratio increased from 9 percent of GDP in 2006 to nearly 22 percent of GDP in 2019, driven by higher customs duty rates on selected imports and a broadening of the excise tax base (Figure 9c). In addition, the increase in tax revenue was supported by reforms in customs administration (which were associated with an increase in import-related taxes) and the IRD. A significant rise in imports (fueled by substantial growth in remittances) boosted revenue.³⁵

Figure 9c. Nepal: Tax Revenues by Type
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

54. **The initial reform measures to strengthen the LTO supported revenue mobilization efforts.** The LTO was fully operationalized in the IRD and the increase in audits helped to strengthen enforcement for large taxpayers, while the audit function of the IRD in general was strengthened through the adoption of a risk-based approach.

³³ When the VAT was introduced in 1997, it had a single tax rate with a NPR 2 million threshold and limited exemptions and applied a zero rate only to exports. However, exemptions expanded over the years. Excise taxes that were streamlined to 11 items in the 1990s now apply to over 50 items. The Income Tax Act of 2002 modernized the income tax system, but tax incentives and exemptions expanded over the years.

³⁴ Initially, the VAT (introduced in 1997) had a single tax rate with an NPR 2 million threshold and limited exemptions, and applied a zero rate only to exports.

³⁵ The DOC generally administers customs duties, but it also collects VAT and excise taxes imposed on imports. As of 2011, tax revenue collected by the DOC was estimated at 44 percent of total tax revenue.

55. **VAT collection increased steadily, with improvement in VAT C-efficiency.** Net VAT collection increased from 3½ percent of GDP in 2005/06 to 5¼ percent of GDP in 2013/14. The higher imports, underpinned by robust consumption, substantially contributed to the increase in VAT revenue. Furthermore, C-efficiency, a major yardstick for VAT performance, also improved, from 0.28 in FY2005/06 to 0.42 in FY2012/13, likely with enhanced tax administration capacity.³⁶

D. Solomon Islands

Solomon Islands increased its tax collection from 10 percent of GDP in 2001 to nearly 30 percent in 2013 (Figure 10a). The revenue increase was mainly attributed to an expansion in the tax base and strengthening revenue administration. In particular, the reforms undertaken strategically focused on better utilizing Solomon Islands' main export good (logs) and curbing tax exemptions.

Figure 10a. Solomon Islands: Tax Revenues
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

Background

56. **Economic and social conditions deteriorated markedly in the early 2000s following the ethnic violence which erupted in 1999.** Real GDP shrank for four consecutive years through 2002. Meanwhile, exports declined, inflation increased substantially to the double-digits, basic infrastructure was destroyed, and the private sector contracted considerably. The government's finances also weakened considerably when the hostilities began. Domestic revenues declined by 10 percent of GDP between 1999 and 2002, due to the fall in economic activity, as well as the granting of large customs duty remissions. As a consequence, the overall budget deficit increased from 4 percent of GDP in 1999 to 11 percent of GDP in 2002—substantially above the budget target of 3 percent of GDP.

57. **From 2003, economic activity began to recover, driven by the logging industry.** Real GDP growth grew by 5 percent in 2003, on the back of rising exports, and the budget deficit was reduced sharply to 1.5 percent of GDP. Also, the level of international reserves increased sharply, inflation fell back to single-digit levels and there were signs that private investment had recovered. Economic performance depended heavily on the logging sector. In 2007, the industry accounted for 65 percent of exports, and almost 20 percent of tax revenue. The sharp increase in logging activity was in part the result of the issuance of new licenses, re-entry into former logged

³⁶ It is important to note that C-efficiency can be increased if governments deny giving VAT refunds (Keen, 2013).

areas, the approval of tree-felling operations to allow palm oil and reforestation projects to occur, and continued strong demand from major log importers such as China.

58. Although the political situation in the Solomon Islands regained some order after 2003, it generally remained fragile.

The Regional Assistance Mission to the Solomon Islands (RAMSI) helped to maintain peace and order after 2003, focusing on strengthening the country's institutional capacity and preventing future conflict. The government took steps in this direction through examining the root causes of the ethnic tensions and by preparing a Political Integrity Bill to enhance political stability.

59. The presence of RAMSI apparently contributed to the improvement of stability in Solomon Islands.³⁷ As a result, the indices for control of corruption and political stability improved during the reform period (Figure 10b). The index for governance effectiveness improved substantially after 2001, but later fluctuated.

Reform Strategy

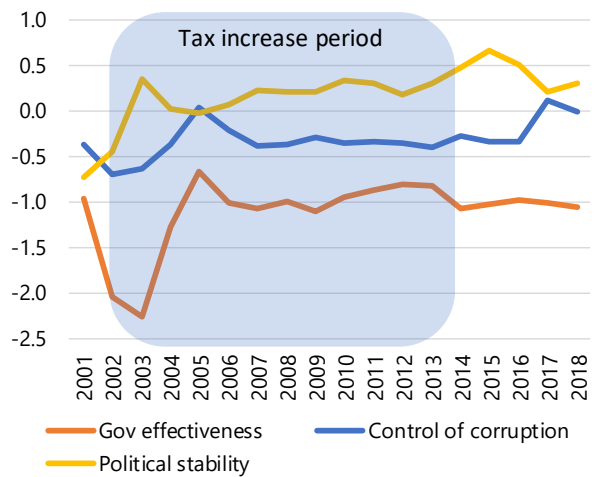
60. Revenue increases at an initial stage (early 2000s) were largely driven by temporary measures. The improvement was partly attributable to a tax amnesty and the payment of back taxes (1 percent of GDP).³⁸ While the logging tax receipts rose substantially, this was based on a significant increase in the level of deforestation. Neither of these sources of increased revenue was sustainable. Tax exemptions and incentives were still extensive in all major taxes.³⁹ In response to a request from the authorities, an IMF mission through the Pacific Financial Technical Assistance Centre (PFTAC) mission visited Honiara in May 2005 to help design a strategy and action plan to modernize Solomon Islands' tax system. Overall, tax reform was largely supported by TA in tax administration and tax policy, mainly from PFTAC (tax administration and tax policy)

³⁷ RAMSI was a partnership between the people and Government of Solomon Islands and fifteen countries of the Pacific. RAMSI provided assistance to the Solomon Islands Inland Revenue Division (IRD) as part of its Financial Management Strengthening Program. RAMSI intervention helped stabilize the economy and allowed both an increase in timber production and in tax revenue.

³⁸ See IMF (2005) and IMF Country Report No. 04/258 for further discussion on the impact of the tax amnesty on tax revenue collection.

³⁹ According to the IMF (2005), the Custom and Excise Division records suggest that revenue forgone from import duty exemptions alone was about 4 percent of GDP. The Forestry Department Audit Report indicated that revenue forgone from log duty exemptions alone in 2004 was 1.5 percent of GDP.

Figure 10b. Solomon Islands: Institutional Indicators (Index)



Source: WGI.

and the Solomon Island's international partners, such as the New Zealand Inland Revenue Department that provided revenue administration support under RAMSI TA.

61. Tax reforms then focused on better targeting the country's main export good (logs), curbing tax exemptions, and combatting tax evasion.⁴⁰

- Tax collection from the logging industries was enhanced by: (i) increasing reference prices; and (ii) improving tax compliance. Specifically, increases in reference prices of logs in 2008 and 2010 boosted tax revenue significantly. To align the taxable price more closely with world market, an automatic adjustment mechanism was adopted at end-September 2010 to determine the price of logs. Furthermore, to enhance tax compliance, the monitoring of the industry was enhanced.⁴¹
- An improvement in the tax exemptions process, higher indirect taxes, and revenue from new gold production also helped achieve sizable tax gains over time. The increased focus on transparency and control around the management of tax exemptions resulted in an annual decline in the number and value of tax exemptions granted. Given political pressure, rather than attempting to repeal the ability to grant exemptions, the authorities adopted a subtler approach, which also directly addressed corruption. First, the granting of exemptions was required to be made public along with the revenue loss involved. Then the granting of exemptions was moved to a formalized public service committee, which directed reductions in tax exemptions in 2007 and 2008. Effective 2013, the public service committee reviewed requests for exemptions and made recommendations to the Minister of Finance, who cannot overrule the proposed recommendations. This process caused the number of exemptions being issued to fall substantially. In addition, selected import duties and excises were increased. Also, tax collection from gold exports helped to increase tax revenue.
- On revenue administration, early reforms aimed at laying the foundation of a functional administration. To improve compliance, the authorities increased human resources by adding new staff to the IRD and customs. Tax collection was also boosted by a targeted amnesty relieving taxpayers who voluntarily disclosed underreporting from penalties and an increased focus in arrears collection. The authorities also strengthened core functions, such as taxpayer registration, and implemented measures to bring businesses back into the tax net. Enforcement actions were also taken against several large taxpayers to collect income tax and customs-related arrears. Better taxpayer outreach, improvements to income tax and GST administration were also factors that supported the increase in tax revenue.
- Fighting against tax evasion through enhanced auditing led to significant gains. Major successes in auditing included the first conviction and imprisonment of a prominent

⁴⁰ The increase in revenue collection was driven by logging export duties and tax administration efforts (see Solomon Islands: IMF Country Report No. 10/359).

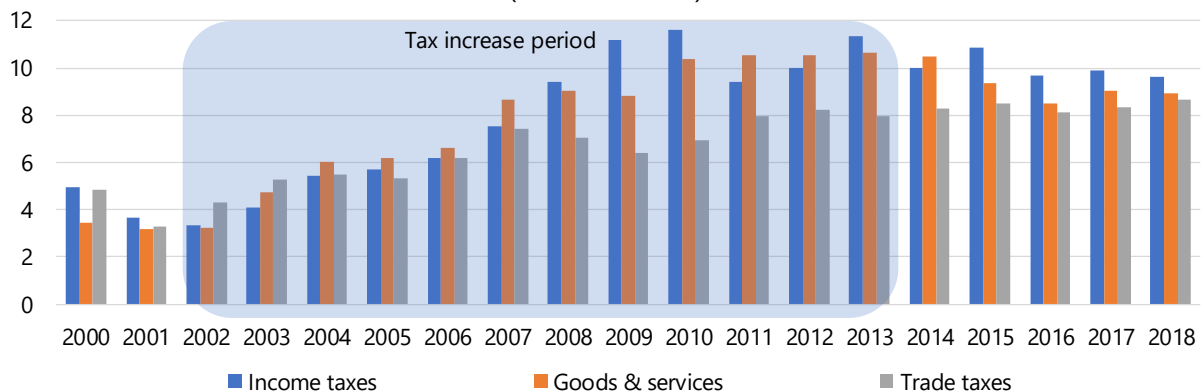
⁴¹ Anecdotal evidence suggests that only 30–40 percent of log shipments are inspected, resulting in foregone tax revenues of nearly 4 percent of GDP in 2007. The authorities made efforts to enhance monitoring and curb revenue losses.

businessman for tax evasion, and an increase in the amount of tax assessed as a result of audit activity from \$11.2 million in 2006 to \$191 million in 2011 (Murray et al., 2014). The Customs Valuation Act was approved in 2010 to strengthen inspection procedures, implement WTO valuations, introduce post-clearance audit, and increase penalties for evasion of duties.

Revenue Outcome

62. **Solomon Islands tax-to-GDP ratio almost tripled from 10 percent of GDP in 2001 to nearly 30 percent in 2013.** The substantial increase in tax revenue was mainly driven by tax reforms in the logging sector, as well as strengthening revenue administration and enforcement actions, which led to higher trade revenue. In addition, curbing tax exemptions, combatting tax evasion, and improving transparency helped to boost tax revenue. The increase in tax revenue was not sustained as a result of the economic slowdown and the adverse terms-of-trade shocks, in particular a decline in logging output and prices (logging tax revenue fell).

Figure 10c. Solomon Islands: Tax Revenues by Type
(Percent of GDP)



Sources: Country authorities and IMF staff estimates.

63. **Tax administration efforts made gains.** In particular, successful efforts to bring businesses back into the tax net, an expansion in taxpayer registration, and the collection of tax arrears supported tax collection. Further, the level of tax compliance improved, with aggressive enforcement and audit and collection efforts on customs administration.

64. **Tax reform efforts are sustained, with strong political commitment and support under RAMSI.** The government's commitment to advance fiscal reforms and to focus on improvements in revenue administration helped to increase tax revenue. During the tax reform period, the authorities continuously undertook measures to improve the tax system and revenue collection. Solomon Islands also implemented reforms in the logging industry, and improved monitoring to increase tax compliance in the sector. In addition, an improvement in the tax exemptions supported revenue mobilization efforts. These measures, along with political commitment, helped to secure gains in tax revenue.

V. POLICY LESSONS AND CONCLUSIONS

65. **This paper highlights the importance of sustained tax reform efforts, as a key factor for success.** While this is true for all countries, it is particularly important for FCS, given that most FCS fail to sustain tax increases beyond three years. To exit from a fragility trap, the efforts should be sustained over a longer period. All the case studies pursued tax reforms over a long period and achieved sizable gains over a decade. While this may require political stability (to ensure the continuity of tax reforms), it could be achieved despite the change in administration (e.g., Malawi).

66. **While institutions are important for all countries, the impact of improving institutions on tax performance is particularly large in FCS.** This could be seen as a factor resulting in a fragility trap, given the structurally weak institutions of FCS. This empirical finding, however, should be interpreted as suggesting that even a marginal improvement in the quality of institutions (as reflected in institutional indices) could lead to large revenue increases. In fact, as demonstrated in the case studies, tax reforms can be pursued even with initially weak institutions, while political commitment is important to sustain reform efforts (e.g., over ten years) and realize long-lasting, sizable gains.

67. **Achieving sizable gains in tax collection in fragile environments is challenging but not impossible.** Although the structural features hinder tax collection in many FCS, a few others were able to achieve sizable tax revenue increases. In fact, many FCS face serious challenges with poor governance, weak institutional capacity, as well as political and social instability. Nonetheless, some FCS sustained tax reform efforts over a long period and achieved tax collection as large as 7.5–20 percent of GDP over 9–13 years. This suggests that there is considerable scope for FCS to improve tax performance, despite the challenges that they face.

68. **Despite the heterogeneity of FCS, the case studies point to a few high-level lessons for tax revenue reforms:**

- **Reforms in both revenue administration and tax policy are important to improve tax collection.** As FCS have weak administration, more attention was initially geared towards building administrative capacity. To this end, Baer et al., (2020) also highlight that priority should be to use administrative capacity on effective collection points. It is also important to note that a well-designed tax system and effective revenue administration are key to ensure stable tax revenue yields over time. Regarding tax policy, in most cases multiple tax policy instruments were used simultaneously to boost tax collection (e.g., Liberia, Nepal).
- **Collecting taxes from a country's high potential sector would lead to efficient tax collection.** Fairly targeting at a country's high potential sector could enable efficient tax collection (e.g., in Nepal, this relates to consumption with remittances from workers abroad and the logging sector in Solomon Islands).
- **Reform steps with immediate effects should be initially sought to meet pressing needs, while a medium-term strategy can help to properly sequence reform measures.** A tax

reform strategy often started with reforms steps with immediate effects to build momentum (e.g., reforming indirect taxes on goods and services, such as excises; curbing exemptions; focusing on large high value taxpayers and high risk cases; establishing an LTO; and enhancing risk-based audit). In some cases (e.g., Liberia), with support from international partners, medium-term reform strategies were prepared, helping to properly sequence reform measures with a focus on ensuring the basics of tax administration covering the core tax functions of registration, filing, payment, and accurate reporting, supported by taxpayer service, are in place.

- ***As capacity is built, a more structured Medium-Term Revenue Strategy (MTRS)⁴² approach to tax system reform can be applicable to a fragile state context.*** Specifically, those states entering a more developed stage of institutional capacity—when the country has emerged from the immediate post-conflict/disaster stage to a more stable (but likely still vulnerable) stage of institutional capacity—can benefit from the MTRS approach, while needing to take into consideration other reforms that are taking place across government and the economy.

69. **To sustain tax reform efforts over a long period, apparently strong political commitment, supported by international partners, play an important role.** The factors behind the sustained reforms in these episodes are difficult to verify. The paper, however, reveals that, for most of these episodes, tax reform is often driven by strong political leadership, while capacity building support (e.g., by international partners) also play an important role. Political commitment helped to facilitate coordination by relevant agencies and encourage implementation of tax reforms (e.g., Liberia and Nepal). It is important to note, however, that political commitment is a necessary but not a sufficient condition for successful tax reform. To help strengthen capacity and institutions, international partners play an important role to facilitate the reform process. TA and capacity development in the fiscal area from IMF and other development partners were instrumental in helping FCS to build tax capacity.⁴³

70. **Sustained tax reform efforts are particularly important, following the COVID-19 outbreak.** Many FCS are now experiencing a drop in domestic revenue, owing to COVID-19 shocks, through multiple channels. While they may be able to achieve some recovery in the coming years, the authorities should take this opportunity to enhance and sustain their reform efforts, more than offsetting the decline in domestic revenue and achieving steady gains over a sustained period.

⁴² The MTRS concept was introduced in a report to the G20 on “Enhancing the Effectiveness of External Support in Building Tax Capacity in Developing Countries,” prepared by the Platform for Collaboration on Tax (IMF, OECD, UN and WBG) for the July 2016 G20 Finance Ministers meeting. This report can be found at: <https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Enhancing-the-Effectiveness-of-ExternalSupport-in-Building-Tax-Capacity-in-Developing-PP5059>.

⁴³ Three of the four countries (i.e., Liberia, Malawi, and Nepal) were intensive IMF TA recipients during 2004–2014, and the improvements in their tax-to-GDP ratios coincided with the increased TA (IMF 2017a). The support from other donors has also been instrumental in supporting countries reform efforts. For instance, Nepal’s DOC has worked with several agencies including ADB, UNCTAD, USAID, and World Bank.

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Appendix I. Fragile Country States by Income Groups

Low-Income Countries (20)	Lower Middle Income Countries (13)	Upper Middle Income Countries (6)
Afghanistan	Congo, Republic of*	Angola*
Burundi*	Côte d'Ivoire	Bosnia and Herzegovina
Central African Republic	Kiribati	Iraq*
Chad*	Kosovo	Libya*
Comoros	Micronesia	Marshall Islands
Congo Democratic Republic*	Myanmar	Tuvalu
Eritrea	São Tomé and Príncipe	
Guinea*	Solomon Islands*	
Guinea-Bissau	Sudan	
Haiti	Syria	
Liberia*	Timor-Leste*	
Madagascar	West Bank and Gaza	
Malawi	Yemen	
Mali		
Nepal		
Sierra Leone		
Somalia		
South Sudan		
Togo		
Zimbabwe		

Source: IMF 2017a.

Notes: (i)*Resource-rich FCS; and (ii) in the updated list, 42 countries are considered to be FCS. These are: Afghanistan, Burundi, Cameroon, Central African Republic, Chad, Comoros, Côte d'Ivoire, Democratic Republic of Congo, Djibouti, Eritrea, Guinea, Guinea-Bissau, Haiti, Iraq, Kiribati, Kosovo, Lebanon, Liberia, Libya, Madagascar, Malawi, Maldives, Mali, Marshall Islands, Micronesia, Myanmar, Papua New Guinea, Republic of Congo, Sao-Tomé and Príncipe, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Syria, Tajikistan, The Gambia, Timor-Leste, Togo, Tuvalu, Yemen, and Zimbabwe (see Baer et al., 2020).

Appendix II. Statistical Summary

	Tax to GDP (log)	Control of corruption	Government effectiveness	Political stability	Real GDP per capita growth	Trade openness	CPI, lag	Agriculture	Education spending, lag	Net aid	Gini coefficient
Tax to GDP (log)	1										
Control of corruption	0.4209	1									
Government effectiveness	0.4907	0.8127	1								
Political stability	0.4186	0.6129	0.5141	1							
Real GDP per capita growth	0.1003	0.0333	0.0913	0.0214	1						
Trade openness	0.3665	0.1178	0.1086	0.312	0.0625	1					
CPI, lag	-0.1485	-0.115	-0.1383	-0.1278	-0.0008	-0.0325	1				
Agriculture	-0.5168	-0.4164	-0.5686	-0.3513	-0.094	-0.1881	0.0349	1			
Education spending, lag	0.4734	0.3241	0.3089	0.3265	-0.0511	0.2381	-0.0664	-0.1982	1		
Net aid	-0.2877	-0.1705	-0.3922	-0.0794	-0.0587	0.0095	0.0185	0.6343	-0.1194	1	
Gini coefficient, lag	0.0462	0.2965	0.1529	0.1592	-0.1279	-0.0905	-0.063	-0.1953	0.1737	-0.0719	1

	Obs	Mean	Std. Dev.	Min	Max
Tax to GDP (log)	2,761	2.59	0.64	-1.20	3.99
Control of corruption	2,584	-0.41	0.70	-1.87	1.72
Government effectiveness	2,574	-0.42	0.69	-2.48	1.57
Political stability	2,565	-0.30	0.94	-3.31	1.45
Real GDP per capita growth	2,673	2.50	5.80	-62.38	121.78
Trade openness	2,658	82.49	37.36	0.17	376.22
CPI, lag	2,672	7.86	21.65	-72.73	550.00
Agriculture	2,738	14.77	12.06	0.09	79.04
Education spending, lag	2,556	4.26	2.14	0.79	14.54
Net aid	1,729	5.38	7.24	-2.27	81.80
Gini coefficient, lag	2,304	41.17	8.46	16.20	64.80

Source: IMF staff estimates.

**Appendix III. Empirical Results on Tax Revenues with Interaction Terms
(Fixed Effect Model)**

	Developing Countries		
	(1)	(2)	(3)
Control of corruption	-0.00315 (-0.126)		
Control of corruption * Developing Fragile States	0.164*** (2.786)		
Government effectiveness		-0.0125 (-0.474)	
Government effectiveness * Developing Fragile States		0.0696 (1.178)	
Political stability and absence of violence/terrorism			0.00336 (0.230)
Political stability and absence of violence/terrorism * Developing Fragile States			0.101*** (4.026)
Real GDP per capita growth	0.00712*** (7.333)	0.00726*** (7.468)	0.00703*** (7.278)
Trade openness	0.00160*** (6.052)	0.00156*** (5.877)	0.00154*** (5.827)
Consumer prices, period average percent change (lag)	-0.00172*** (-6.560)	-0.00173*** (-6.534)	-0.00175*** (-6.682)
Agriculture sector, value added (% of GDP)	-0.00969*** (-7.037)	-0.00996*** (-7.247)	-0.00866*** (-6.238)
Government expenditure on education (% of GDP) (lag)	0.0133*** (2.639)	0.0127** (2.476)	0.0122** (2.430)
Net official aid received (% of GDP)	-0.00355*** (-3.307)	-0.00298*** (-2.814)	-0.00336*** (-3.203)
Gini Index (lag)	-0.00216 (-1.341)	-0.00255 (-1.587)	-0.00230 (-1.438)
Constant	2.637*** (31.46)	2.643*** (31.17)	2.625*** (31.60)
Observations	1,499	1,499	1,497
R-squared	0.328	0.324	0.335
Number of ifscodes	97	97	97

*** p<0.01, ** p<0.05, * p<0.1

Note: Time dummies are also included.

Source: IMF staff estimates.