

NBER WORKING PAPER SERIES

THE POLITICAL ECONOMY OF GOVERNMENT REVENUES IN POST-CONFLICT RESOURCE-RICH AFRICA:
LIBERIA AND SIERRA LEONE

Victor A.B. Davies
Sylvain Dessy

Working Paper 18539
<http://www.nber.org/papers/w18539>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
November 2012

We gratefully acknowledge funding from the NBER Africa Project for this research. We appreciate the intellectual support of Simon Johnson, the lead co-chair of the project responsible for reviewing this research, and that of Sebastian Edwards and David Weil, the other lead co-chairs. We have benefited from comments on the paper by participants at the NBER Africa Project conference in Zanzibar, Tanzania, in August 2011. Research assistance from Alvin Johnson in Liberia, Alimamy Bangura in Sierra Leone, Francis Andriarinason and Safa Ragueed from Université Laval, Canada is gratefully acknowledged. Elisa Pepe, coordinator of the project, has provided diligent and timely support. The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, its management, or the NBER.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2012 by Victor A.B. Davies and Sylvain Dessy. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

The Political Economy of Government Revenues in Post-Conflict Resource-Rich Africa: Liberia and Sierra Leone

Victor A.B. Davies and Sylvain Dessy

NBER Working Paper No. 18539

November 2012

JEL No. O11

ABSTRACT

This paper examines the post-war strategies of Liberia and Sierra Leone to generate revenues from their natural resources. We document the challenges faced by the government of the two countries, contrasting measures taken to address these challenges as well as the outcomes. We complement the analysis with an analytical model which explores the implications of exploiting natural resources in the aftermath of a civil conflict before public management institutions are developed, as observed in Liberia and Sierra Leone. The key lesson is that resource-rich countries emerging from conflict face a difficult trade-off between relatively large longer-term gains which accrue when institutional capacity is developed prior to exploiting the resources, and smaller short-term revenues that come with immediate exploitation of the resources. The findings call attention to the potential role of the international community in developing post-conflict countries' natural resource and revenue institutional capacity, as well as transparent corporate and government institutions for resource management.

Victor A.B. Davies

International Monetary Fund

vdavies@imf.org

Sylvain Dessy

Laval University

sdes@ecn.ulaval.ca

1. Introduction

Liberia and Sierra Leone have been hailed as success stories of political transition from civil war in Africa, having emerged from it as budding democracies. Sierra Leone has had two peaceful postwar elections, the second of which was won by the opposition, while Liberia has elected Africa's first female president. However, at the end of the war, the two countries faced the daunting challenge of resuscitating collapsed government revenues to help finance the peacebuilding and reconstruction process. Government revenues plummeted in Liberia from around US\$240 million just before war onset in 1989 to about US\$46 million at the onset of peace in 2003, and in Sierra Leone from 17% of GDP in the 1970s to around 12% at the end of the 1991-2001 civil war.

Natural resources were a key element of the revenue challenges facing Liberia and Sierra Leone. Both countries are endowed with a variety of natural resources with considerable scope for revenue generation. However, the resources sometimes played a pernicious role in the economy before the war and helped to fuel the conflict in the two countries. In wartime Liberia, the warlord Charles Taylor presided over commerce in gold, timber and rubber (Reno 1998). Taylor godfathered an arms-for-diamonds trade with the Sierra Leone rebels (UN 2000), prompting UN sanctions on export of diamonds and timber from Liberia.⁴ In pre-war Sierra Leone, diamonds were at the epicenter of a thriving underground economy with the bulk of the diamonds smuggled abroad. The diamond mines attracted thousands of young quasi-criminal illicit diggers, generating a recruitment base and financing for the rebellion (Reno 1998, Smillie et al 2000). Thus, natural resources posed risks to the peace process while offering considerable scope for revenue generation in post-war Liberia and Sierra Leone.

The objective of this paper, therefore, is to examine and draw lessons from the strategies adopted by Liberia and Sierra Leone to generate revenues from their natural resources.

⁴Charles Taylor is currently standing trial in The Hague for war crimes and crimes against humanity for his role in the Sierra Leone civil war.

As part of the analysis, we develop an analytical model to illuminate the revenue challenges facing a resource-rich country emerging from conflict. We find that after the war, despite weak resource management capacity, the governments of Liberia and Sierra Leone initiated the process of exploiting their natural resources, offering large fiscal concessions. In Sierra Leone the government argued that generous fiscal concessions were necessary to attract foreign investors to a high risk environment. However, the fiscal concessions that both countries offered were often perceived to be overly generous, while in Liberia, the government revealed a preference for initial payments seemingly at the expense of longer-term benefits. Concerns endure that, despite revisions, some current exploitation contracts still offer overly generous fiscal concessions to exploiting companies. Moreover, fiscal terms vary, creating an uneven playing field which could discourage investment and distort incentives towards lobbying for better contract terms.

Against this backdrop, our analytical model illuminates the revenue challenges facing a government emerging from conflict in a resource-rich country like Liberia or Sierra Leone. We assume the government has a choice between two revenue rehabilitation strategies. The first, the impatience strategy, is to contract a multinational mining company to exploit the resources right away and share the profit with the company. However, the mining cost is the company's private information, providing an incentive for the company to cheat by inflating it. The second strategy, patience, is to defer exploitation of the resource, and rely on alternative tax instruments while developing resource management capacity. The model analyzes the challenges associated with the impatience strategy which the government is likely to pursue given the urgent need to generate revenues to consolidate the peace process. The findings call attention to the potential role of the international community in developing post-conflict countries' natural resource and revenue institutional capacity, as well as transparent corporate and government institutions for resource management.

While both countries initially adopted an impatience revenue strategy, Liberia appears to have made more progress towards developing tax and resource management capacity.

According to the World Bank 2011 Doing Business Index, the process of paying taxes is more efficient in Liberia. Time spent to pay taxes per year is 158 hours in Liberia and 357 hours in Sierra Leone. Liberia has made efforts to develop a fiscal framework for natural resources with the help of the international financial institutions. Both countries have taken measures to introduce transparency in the management of natural resources and reduce the risk of the resources fuelling conflict. They have enacted legislation setting aside a share of the revenues for local communities, and have joined the Extractive Industries Transparency Initiative (EITI). Liberia has gone much further, becoming Africa's first EITI compliant country in 2009. Sierra Leone is yet to reach that stage. Liberia also appears to have made more efforts to fight corruption in public management. Between 2005 and 2010, it moved from a rank of 137 out of 158 countries, to 87 out of 178 countries, on Transparency International's Corruption Perception Index while Sierra Leone's rank deteriorated from 125 to 134. Unsurprisingly, Liberia's revenue-to-GDP ratio has been higher: 30 percent in 2010 compared to Sierra Leone's 13 percent. That national income statistics have not been compiled in Liberia for many years suggests caution in the interpretation of this ratio, however.

The rest of the paper is structured as follows. Section 2 provides a context for the study with an overview of political and economic developments in Liberia and Sierra Leone. Section 3 analyses the two countries' post-conflict strategy to raise revenues from their natural resources. Section 4 discusses international initiatives to support revenue rehabilitation in post-conflict resource-rich countries. Section 5 presents the model. Section 6 concludes.

2. The Post-conflict Context in Liberia and Sierra Leone

In this section we present a brief outline of the socioeconomic and political context characterizing post-conflict Liberia and Sierra Leone. The two countries share a border and many features. The civil wars in the two countries have been blamed on similar factors: State

failure in the 1980s, induced by a sharp decline in economic and political governance (Reno 1998). In Liberia, a military coup by Sergeant Samuel Doe in 1980 ended the 130 year aristocracy of the Americo-Liberian ethnic group – descendants of resettled freed slaves from the United States – but only magnified the underlying problems of corruption, nepotism and repression (Liberia Poverty Reduction Paper 2005). Charles Taylor launched the rebellion on Christmas eve, 1989, with the declared goal of remedying the country’s myriad problems. That year, Liberia’s per capita income was US\$400, less than half of its level in the early 1970s while its external debt stock was 319 percent of GNI, compared with about 30 percent in the mid-1970s (Table 2.1).

Insert Table 2.1 here

Splinter groups emerged in the rebellion. ECOMOG, a force assembled by the Economic Community of West African States (ECOWAS), intervened in 1990, using bases in Sierra Leone. The intervention prevented Taylor from taking complete power but left him in control of much of the country outside of the capital, Monrovia. In 1997, ECOMOG conducted presidential elections which Taylor won. However, Taylor failed to transition from warlord to statesman. He sought to eliminate political opponents, godfathered an arms-for-diamonds trade with the Sierra Leone rebels, and kept most of the trade in Liberia’s natural resources off-budget (Economist Intelligence Unit 2007). The country soon returned to war. In 2003, with rebels closing in on Monrovia, Taylor agreed to relinquish power to an interim government and to go into exile. In 2005, elections were conducted which were won by Mrs. Ellen Johnson Sirleaf.

Turning to Sierra Leone, the roots of the 1991-2001 civil war have been linked to the political leadership of the preceding years that emphasized informalization and control of markets and their reward, and replacement of political competition with a struggle for political favour (Reno 1998). There was extensive intervention in key markets for rice (the

staple food), foreign exchange, diamonds and agricultural exports while political and civil opposition was curtailed, culminating in a one-party state in 1978. By the mid-1980s, burgeoning black markets, dysfunctional infrastructure and high unemployment were the norm. About 80 percent of the population was estimated to live below the poverty line of US\$1 a day. The inflation rate sometimes exceeded 100 percent while government revenues were about 8 percent of GDP, down from 17 percent in the 1970s (Davies 2007). Real GDP growth was negative (Table 2.2). The rebellion was launched in 1991 with help from Charles Taylor's rebel movement in Liberia. Like in Liberia, the declared aim was to redress the economic and political malaise afflicting the country. The rebels pursued their campaign despite a military coup in 1992. The military transferred power to an elected government in 1996 which was overthrown by the military in alliance with the rebel movement in 1997. The West African force, ECOMOG, intervened to reinstate the elected government in 1997. The war finally ended in 2002.

Insert Table 2.2 here

The war in Liberia claimed 270000 lives (Liberia Poverty Reduction Strategy 2005) from a pre-war population of about three million, compared with 50000 deaths in Sierra Leone, from a pre-war population of about 4.5 million. In Liberia, much of the fighting took place in Monrovia, damaging much of the infrastructure, unlike in Sierra Leone where much of the fighting was outside of Freetown. At the end of the war, Monrovia had no running water or public electric supply, unlike Freetown.

The UN has staged two of its largest peacekeeping operations in the two countries to help end the civil war. It deployed 17000 peacekeepers in Sierra Leone and a similar number in Liberia. The two countries have emerged from civil war as budding democracies. Sierra Leone has conducted two peaceful post-war elections, with the opposition winning the second. Liberia has also conducted two peaceful post-war elections. It elected Mrs.

Helen Johnson Sirleaf, Africa's first female president, in the first elections in 2005, and re-elected her in the second in November 2011.

Liberia and Sierra Leone are both resource-rich coastal economies. Diamonds have played a prominent role in Sierra Leone for good or ill. They accounted for 90 percent of exports and some 15 percent of GDP in the 1960s and 1970s and about a quarter of revenues. Iron ore, timber and rubber (mainly from large-scale plantation agriculture) have historically been Liberia's leading exports. Sierra Leone has discovered oil (though the commercial viability is yet to be confirmed) while iron ore is set to become its leading export from 2012. Liberia is also actively prospecting for oil. Agriculture is the dominant economic activity, accounting for 60 percent of GDP in Liberia, and 50 percent in Sierra Leone.

At the end of the civil war, Liberia and Sierra Leone embarked on an IMF-supported economic reform program. In Liberia, a key conditionality was the operation of a cash-based balanced budget. The Liberian economy is highly dollarized with a US dollar component of over 70 percent of broad money. The two countries have benefitted from forgiveness of almost all their debt to the multilateral financial institutions after reaching the completion point of the Highly Indebted Poor Countries (HIPC) initiative. As a result, the external debt stock has fallen in Liberia from over a thousand percent of GNI in 2003 to 12 percent in 2010 and in Sierra Leone from 193 percent of GNI in 2000 to 23 percent in 2009.

3. Revenue Measures and Outcomes

In this section we focus on the strategies adopted by Liberia and Sierra Leone to generate revenues from their natural resources. To provide a context for the analysis we start with a review of the institutional framework for revenue administration.

3.1. Revenue Administration, Policy and Outcomes

Liberia and Sierra Leone implemented a number of measures to rehabilitate and reform their collapsed revenue infrastructure. In 2003, Sierra Leone set up the semi-autonomous National Revenue Authority to supervise “all aspects of revenue collection”. Hitherto, customs duties and income taxes were collected independently while other revenues like licence fees for mobile telephone operators and fishing vessels were collected by the line ministries. Other African countries such as Ghana and Uganda have set up a similar revenue authority, seeking to improve coordination of revenue collection activities, reduce duplication, and insulate revenue administration from undue external influence.

However, unlike the pattern observed in other countries, following the setting up of the National Revenue Authority, Sierra Leone’s revenue to GDP ratio fell from 12.3 percent in 2003 to 11.9 percent in 2005 and to 11.7 percent in 2009. A 2007 report on the Authority highlighted the following problems: too many departments and vehicles, weak internal control over revenue collection, and political nepotism (Presidential transition team report, 2008). The Sierra Leone experience suggests that the fundamental governance problems facing revenue institutions should be addressed prior to the setting up of an independent revenue authority. In Liberia, customs duties and income taxes are collected by two departments in the Ministry of Finance. Plans are underway to set up an independent revenue authority.

Both countries have moved towards automating customs revenue collection by introducing the Automated System for Data Analysis (ASYCUDA) developed by UNCTAD. Automation could eliminate a major source of private revenues for corrupt customs officials; and reduce the scope for duty evasion. Unsurprisingly, it has met with major obstacles in both countries. Nevertheless, Liberia was able to operationalize within 18 months the more sophisticated, internet-based ASYCUDA World in the Freeport of Monrovia which handles 85% of the country’s trade. In Sierra Leone, efforts are still ongoing to operationalize the

less sophisticated ASYCUDA++.⁵

In the area of tax reform, Sierra Leone introduced a value-added tax in 2010 to replace the domestic and import sales tax. The aim has been to replace inefficient production and sales tax with a less distortionary tax, to increase revenue and improve tax efficiency. Plans are underway to implement the VAT in Liberia by 2013. Table 3.1 examines indicators of the ease of paying taxes from the World Bank Doing Business Index. The table suggests that prior to 2012 – the indicators for any year are based on statistics as of June the previous year – paying taxes was easier and more efficiently organized in Liberia than in Sierra Leone. For instance Liberia ranked 85 and 84 out of 183 countries in the 2010 and 2011 ease of paying taxes index, compared with Sierra Leone’s 160 and 159. In 2012, Sierra Leone’s ranking improved considerably to 76 out of 183 countries, while Liberia’s deteriorated to 98. Liberia’s tax administration has been much more efficient in terms of minimizing the time spent to pay taxes: an average of 158 hours a year from 2008 to 2012, compared with 357 to 399 hours in Sierra Leone. However, the number of payments required per year in Sierra Leone has been slightly fewer, 29, compared with 32 in Liberia. Total taxes payable by businesses – the sum of all taxes and mandatory payments like employer contribution to employee social security – appears to have been inordinate in Sierra Leone prior to 2012: about 236 percent compared to about 44 percent in Liberia. Such a high rate of taxation would have been a recipe for tax evasion. As of writing, details were not available about the reforms undertaken in Sierra Leone that has resulted in the improvement in its 2012 ranking on the overall ease of paying taxes and the reduction in total taxes payable.

Insert Table 3.1 here

⁵Liberia has faced some logistical challenges in the implementation of ASYCUDA: The Free Port of Monrovia has no electric power supply. A 20 KVA generator was bought which is operated for 10 hours every day. The ASYCUDA system is operated during those ten hours. Limited band width for internet access is another constraint.

Tables 3.2 and 3.3 below provide statistics on government revenues in Sierra Leone and Liberia. The tables indicate that revenues from natural resources have been modest in Sierra Leone with mining revenues (including from diamonds) accounting for less than 4 per cent of total revenues (less than 0.4 per cent of GDP) post-war. This figure excludes payroll taxes and personal income taxes of employees in mining companies. When these are included, mining revenues were about US\$28 million in 2010 (12 per cent of total revenues and 1.5 per cent of GDP). The country has been unable to generate large revenues from the exploitation of alluvial diamonds despite exports of over a hundred million dollars in recent years (Appendix Table 3.1) due to the difficulty of policing the resource. The deposits are widely dispersed and can be mined with simple hand-held tools, facilitating illicit mining, and smuggling to evade taxes. Thus, export taxes have been kept low – 3 percent initially and then 6 percent in 2010 – to reduce the incentive for smuggling. Production of diamonds from Kimberlite deposits began in 2003 by the Koidu Holdings company. Kimberlite deposits are spatially concentrated and require capital intensive mining techniques, precluding illicit mining and hence offering better revenue prospects.

In Liberia, revenues from natural resources have apparently also been modest in the post-war period. An exception is one-off initial payments totalling US\$80 million made between 2009 and 2011 by four iron ore mining firms upon signing of mining concessions. It is not clear under which category these payments have been recorded in Table 3.3. Iron ore production was scheduled to start by the end of 2011. While rubber has been the main export, accounting for 40-95 percent of total exports (Appendix Table 3.2), details of its fiscal contribution are lacking. The export of timber, a major pre-war source of revenue, was banned by the UN till 2007. Subsequently, stumpage fees (a percentage of the FOB price of timber) and land rental fees accounted for 5 per cent of total revenues in 2010.

Sierra Leone and Liberia have relied heavily on international trade taxes over the years. These have accounted for 50-60 per cent of total revenues in Sierra Leone, and 30-40 per cent in Liberia. Petroleum imports have been taxed heavily generating import duties

of over ten percent of total revenues in Sierra Leone. In Liberia, maritime revenues – registration fees from foreign ships flying the Liberian flag – have been a major source of revenues especially before the end of the conflict in 2005, accounting for 18-29 per cent of total revenues.

Insert Table 3.2

Insert Table 3.3 here

3.2. Natural Resource Revenue Strategies

With the onset of peace the governments of Liberia and Sierra Leone quickly embarked on the exploitation of natural resources. However, the institutional capacity to negotiate and implement contracts was weak while a defined fiscal regime for natural resources was lacking. Moreover, there were existing contracts that wartime governments had hastily signed. Unsurprisingly the fiscal terms initially agreed were perceived to give less than full value to the two countries for their natural resources. The rush to exploit natural resources was to be expected in Liberia in particular. It had a large unelected transitional government from 2003 when the war ended to 2006 comprising members of various warring factions. In Sierra Leone, the government in power in 2002 at the end of the conflict was elected in 1996, and re-elected in 2002.

In Liberia, Mrs. Johnson Sirleaf's elected government, upon taking office in January 2006, decided to renegotiate all natural resource agreements entered into by the transitional government. The new government also subjected the 300-plus members of the transitional government to a special audit, many of whom, including the leader, were subsequently convicted of corruption (Economist Intelligence Unit 2007). The new government went on to sign iron ore mining agreements with Arcelor Mittal, the leading global steel producer, in 2006, and later with three other mining companies. Following widespread concerns about

generous fiscal concessions, the government renegotiated the contract with Arcelor Mittal.

In Sierra Leone, Koidu Holdings began to mine kimberlite diamonds in 2003, having purchased the mining rights from Branch Energy, based on an agreement signed during the war. The government signed an agreement for the mining of rutile with Sierra Rutile in 2001, and bauxite with Sierra Minerals Holdings Limited in 2004. The government of President Koroma, elected from the opposition in 2007, signed iron ore mining contracts with London Mining in 2009, and with African Minerals in 2010. Like in Liberia, widespread concerns about generous fiscal concessions led to renegotiation of contracts. Petroleum exploration agreements, signed from 2001, were the only exception. The prospects of petroleum discovery were seemingly poor at the time.

Despite the sometimes repeated revisions, concerns endure that current exploitation contracts still offer overly generous fiscal concessions as well as considerable scope for fiscal abuse. Notably, in Sierra Leone, the government bridged a loan from the European Union to provide start-up capital for Sierra Rutile, bearing much of the production risk, and set the royalty rate at a meagre half a percent. The government argued that generous fiscal concessions were necessary to attract foreign investors at a time when the country was perceived as a high risk environment. African Minerals, an iron ore mining company in Sierra Leone, enjoys “duty and excise-free import of all equipment and consumables for company and contractors throughout mine life”. The norm in the industry in other countries is to limit duty-free imports to the start of production. Moreover, the difficulty of distinguishing contractor’s imports intended for use by African Minerals from those intended for other purposes represents a potential source of revenue loss for the government.

Another concern is that fiscal terms vary within a sector, creating an uneven playing field. This could discourage investment by signalling unpredictability and lack of policy consistency; and could also produce an incentive for investors to lobby for better contract terms. Tables 3.4 and 3.5 below which summarize key fiscal terms in iron ore contracts in Liberia and Sierra Leone, show that in Liberia in particular, there are differences in

the tax rates, royalties, and exemptions on import duties. This has been the result of case-by-case negotiations to resolve overlaps and ambiguities caused by the existence of a number of laws governing the fiscal terms of natural resource contracts – the New Minerals and Mining Law, the Liberian Revenue Code, and the Investment Incentive Code of 1973. Some terms of individual contracts are inconsistent with existing legislation. For instance the income tax rate agreed with BHP Billiton and China Union in Liberia is 25 per cent compared with 30 per cent in the Liberian Revenue Code.

Insert Table 3.4 here

Insert Table 3.5 here

In Liberia, the government revealed a strong preference for initial payments. The preference for initial payment, the main biddable item in iron ore contracts, led to major fiscal concessions and to renegotiation of the Bong mines iron ore contract already awarded by competitive bidding. The fiscal terms (other than initial payment) for the contract were initially fixed and declared not open to bidding or negotiations. China Union won the bid with a signature bonus of US\$40 million. However, before the contract was signed, following the onset of the global financial crisis, China Union argued that, in the face of falling commodity prices, the signature bonus could only be maintained if major fiscal concessions were awarded. The government agreed to this, rather than turn to the second-ranked bidder in the auction which had offered a much smaller signature bonus.

Appendix Table 3.3 summarizes natural resource contract award mechanisms in Liberia and Sierra Leone. In Sierra Leone, there has been no clear institutional framework for awarding contracts unlike in Liberia which has a centralized framework coordinated by an investment commission and involving line ministries. Liberia has moved towards competitive bidding for the award of contracts in forestry, iron ore mining, and petroleum exploration. However, as noted above, the competitive bidding process has sometimes

been accompanied by direct negotiation with the successful bidder, resulting in a revision of bid terms.

There have been considerable delays in payments and the start of production in Liberia. In the iron ore sector, China Union delayed for over a year in payment of signature bonus while production by Arcelor Mittal was delayed by the global recession which created cash flow problems for the company. Only one of the seven Forest Management Contractors (awarded between October 2008 and September 2009) and three of the nine Timber Sales Contractors (awarded between June 2008 and July 2010) had started exporting by early 2011. Two Forest Management Contractors had still not paid tax arrears for the previous tax year while none had paid area fees and the land rental.

4. Revenue-Rehabilitation Initiatives by the International Community

In recent years the international community has perceived revenue rehabilitation in post-conflict environments as a key element of its approach to building a legitimate and effective state as the basis for durable peace. This section highlights key initiatives that have been undertaken to rehabilitate revenues in resource-rich countries emerging from conflict and to address other related challenges.

4.1. Preventing the use of natural resources to fuel conflict

The UN imposed sanctions on diamond exports from Sierra Leone, Angola and Liberia during the civil war in these countries in an effort to stop the use of diamonds to finance conflict. It then adopted in 2000 an international certification scheme for rough diamonds. The scheme was succeeded by the Kimberley Diamond Certification Process launched in 2003 as “a joint government, industry and civil society initiative to stem the flow of conflict diamonds to finance wars against legitimate governments”. The scheme requires member

governments to certify shipments of rough diamonds as ‘conflict-free’. As of January 2012, the Kimberley Process had 50 participants, representing 76 countries – including Liberia and Sierra Leone and other post-conflict countries – with the European Union and its member states counting as a single participant. Member countries account for nearly 100 percent of the global production of rough diamonds. The international diamond industry and civil society organizations also participate in process. However, the benefits of the scheme for countries that are no longer in conflict are likely to be limited, given that the initiative was designed primarily for countries in conflict.

4.2. Increasing transparency and accountability in the management of natural resources

The Extractive Industry Transparency Initiative (EITI) aims to strengthen governance by improving transparency and accountability in the extractives sector in resource-rich countries in general (including non-conflict countries). The EITI supports improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas and mining. The EITI is a coalition of governments, companies, civil society groups, investors and international organizations. It is a global standard that promotes revenue transparency and provides a procedure for monitoring and reconciling company payments and government revenues at the country level. Each implementing country creates its own EITI process which is overseen by participants from the government, companies and national civil society. In October 2009, Liberia became the first country in Africa, and the second in the world, to attain EITI compliant status – a stage in which a country is considered to have met all EITI requirements. Fourteen countries are now EITI Compliant while twenty one, including Sierra Leone, are at the initial “candidate status” stage. Other countries have signaled their intent to implement the EITI.

Another initiative has been “Publish What You Pay” – a global network of civil society

organizations which campaigns for transparency in the extractive industries. The initiative calls for companies to “publish what you pay” and for governments to “publish what you earn”. It was motivated by a report published by the advocacy organization Global Witness on the role of the oil and banking industries in the misappropriation of state assets in Angola during the civil war. Publish What You Pay membership currently spans 60 countries including Liberia and Sierra Leone.

4.3. Strengthening revenue collection and administration

The World Bank, IMF, African Development Bank and bilateral donors have provided technical and financial assistance to help countries emerging from conflict rebuild their revenue collection and administration capacity. Notably, donors have funded the setting up of a semi-autonomous independent revenue authority in Uganda and Sierra Leone; and the automation of customs revenue collection in Liberia and Sierra Leone which involved the setting up of the ASYCUDA software system. Donors have sometimes used conditionality to address concerns that aid might substitute, rather than develop, domestic revenue capacity. The European Union conditioned its 2002 budget support to Mozambique – which experienced civil conflict from 1977 to 1992 – on increases in domestic revenue (Boyce and O’Donnell 2007). One of the benchmarks in the Afghanistan Compact of 2006, which sets out the framework for international assistance, was an increase in the revenue/GDP ratio from 4.5 percent in 2004-05 to 8 percent in 2010-11 (Boyce and O’Donnell 2007).

4.4. Preventing illegal exploitation of natural resources

Liberia has adopted a Chain of Custody certification scheme for timber and timber products which partly financed the civil war. The Chain of Custody scheme, a requirement by the UN for lifting sanctions on timber exports, is a traceability system that confirms that taxes have been paid and certifies that the timber product comes from an ethically well managed source. The Switzerland-based Société Générale de Surveillance (SGS) was hired

in October 2007 to build, implement and eventually transfer the Chain of Custody system to Liberia's Forestry Development Authority (FDA).

Also, the government of Liberia has signed Voluntary Partnership Agreements (VPA) with the European Union to ensure that all timber products exported to the European Union are of legal origin. The VPA is a bilateral agreement between the European Union and wood exporting countries which aims to improve forest governance and ensure that the wood imported into the European Union has complied with the legal requirements of the partner country. There is no obligation for any country to enter into a VPA with the European Union. However, once agreed, VPAs are legally binding on both parties, committing them to trading only in wood products that can be verified as legal.

4.5. Managing the wealth from the natural resources

In 2011 the IMF launched the multi-donor Topical Trust Fund on Managing Natural Resource Wealth to finance technical assistance to low-income and lower-middle-income countries endowed with oil, gas, and minerals to help them deal with the associated economic policy challenges. The trust fund seeks to help build macroeconomic policy capacities and assist countries to get a fair share of their natural resource wealth, and invest and spend it wisely. The Netherlands, Norway and Switzerland have made contributions to the trust fund which concentrate on capacity building in five areas:

- extractive industries fiscal regime;
- extractive industries revenue administration;
- fiscal policies and public financial management specific to resource-rich countries;
- natural-resources-related financial asset and liability management; and
- statistics for natural resources.

The trust fund will serve 15-20 countries from a group of 50 eligible countries that have substantial current or prospective extractive industry revenue. Country commitment to reform will be a key selection criterion.

4.6. Enhancing the benefits of natural resources to host communities

Such initiatives have been prompted by widespread concerns that host communities benefit little from the exploitation of natural resources. One such initiative is the Peace Diamond Alliance in Sierra Leone sponsored by the United States Agency for International Development (USAID). In 2002, USAID brought together producers, buyers, advocates, Sierra Leone government officials and heavyweight industry players such as DeBeers and Rappaport to form an alliance for the first time to monitor diamond royalties and fees, inform miners of the value of stones, start addressing environmental degradation, and reduce exploitation of miners, especially children. Training was provided to help miners assess the true value of rough diamonds before making a sale. USAID also began a pilot program to give miners access to credit at reasonable terms to purchase mining inputs and avoid getting into serious debt. These strategies were designed to help miners sell their stones to the highest bidder.

Generally, donors and domestic and international advocacy groups have advocated for measures to distribute some of the revenues from natural resources to the host communities. As a result, in Liberia the law stipulates the allocation of revenues from timber as follows: 10 percent of log export fees and of stumpage fees to the Protected Forest Areas Network; 30 percent of land rental fees to forest communities; 30 percent to counties; and 40 percent to general revenues. In Sierra Leone the Mines and Minerals Act imposes a one percent expenditure tax on mining companies for community development. Also half of the 20 percent profit sharing tax on Koidu Holdings, a company mining diamonds from Kimberlite sources, is paid directly to the mining community. With regard to alluvial diamonds, the government initially levied a three percent tax on exports –subsequently increased to six percent – and distributed half a percentage point to the diamond mining communities. (The half a percentage point was the rate when the export tax was three percent. We lack information about whether this rate may have increased at the higher export tax rate of

six percent.)

5. A Model of Post-Conflict Revenue Rehabilitation

In this section, we provide a framework for analyzing the revenue rehabilitation challenges confronting post-war Liberia and Sierra Leone. Consider a benevolent government aiming to raise revenue to finance the peace consolidation process in the aftermath of a civil war. The country is endowed with a stock, θ , of a given natural resource, say iron ore, which requires a large capital outlay to exploit. The government has a choice between two revenue strategies. The first is to contract a multinational mining company to mine the resource right away — the impatience strategy. The other strategy is to delay exploiting the resource, and in the meantime, rely on alternative non-resource tax instruments while developing the public management institutions that will ensure the government gets good value for the resource — the patience strategy.

But in the aftermath of a devastating conflict, as in the case of Liberia and Sierra Leone, weak administrative capacity and a low non-resource tax base may limit the scope for raising non-resource tax revenues. Therefore, the government may have no choice but to adopt the impatience strategy. In what follows, we highlight the challenges confronting an impatient government in a post-conflict environment.

5.1. The Payoff to Impatience

Suppose the government considers a contract requiring that the mining company pays a fraction $\lambda \in [0, 1]$ of the gross receipts, less the mining cost. Denote gross receipts by π , and let the reported mining cost, k , be restricted to the closed interval $[k_0, \pi]$. This implies that the reported mining cost cannot be less than the true cost, k_0 , and cannot exceed total receipts, $\pi < +\infty$. Under this contract, the government will receive a share $\lambda(\pi - k)$ of the profit, with the remaining share accruing to the company, $(1 - \lambda)(\pi - k)$.

An important feature of the model is that the mining cost, k , is the company's private information, providing an incentive for the company to cheat by inflating it. Aware of this, the government may need to invest a level of public funds, θ , to uncover the scheme used by the multinational firm to misrepresent the level of the mining cost. Transfer pricing is one possible misrepresentation scheme that the company could use.

The sequence of events under this revenue rehabilitation strategy is as follows. First, the government signs a contract with the mining company to mine the resource. Next the mining company decides whether or not to cheat by inflating the mining cost, k . If it decides to cheat, it declares a mining cost k , which in turn gives rise to a net government revenue,

$$\underline{R} = \lambda(\pi - k) - \theta, \quad (5.1)$$

if cheating is not detected and

$$\bar{R} = \lambda(\pi - k_0) - \theta \quad (5.2)$$

if it is. In the latter case, the multinational firm is assumed to repay all the money owed the government. After that, nature moves to reveal whether or not misrepresentation of the mining costs is detected. We denote as ρ the probability that misrepresentation of the mining cost is uncovered. Next, nature moves again to reveal whether or not the peace process is consolidated. Finally, the economy ends.

Let

$$\sigma = k - k_0 \quad (5.3)$$

denote the extent of mining cost misrepresentation by the multinational firm, i.e., the fictitious amount by which the true mining cost, k_0 , is inflated. We make the following assumption.

A.1. *The probability, ρ , that cheating is detected is given by:*

$$\rho = \phi f(\theta, \sigma), \quad (5.4)$$

with (i) $f_\theta > 0$, (ii) $f_\sigma > 0$, and (iii) $f_{\theta\theta} < 0$, where $\phi \in (0, 1)$ denotes a scalar measuring the productivity of the detection technology available to the government.

Furthermore,

$$\varepsilon_\sigma < 1, \quad (5.5)$$

where

$$\varepsilon_\sigma = f_\sigma \frac{\sigma}{f(\theta, \sigma)}$$

denotes the elasticity of the probability that cheating is detected with respect to the size of the payoff from cheating.

Assumption A.1 implies that poor institutional capacity is an issue not only when the post-conflict government chooses to adopt a "patience strategy", but also when it elects to follow the "impatience strategy", because of the need to mitigate perverse incentives to the multinational firm. Indeed, a low ϕ implies a poor institutional environment that impedes government capacity to fight corruption in mining. This may also happen if accountability mechanisms are weak. Condition (5.5) on the other hand states that the probability that cheating is detected is not too sensitive to the size of the payoff from cheating. This can happen when a large proportion of overseas transactions affecting the cost of mining occurs between the multinational and its parent company, thereby maximizing the secrecy of the mining operations.

Another important feature of the model is that government revenue is an input in the peace process (for instance, it could be used to enhance job-creation for former combatants). We thus add the following assumption:

A.2. *The probability that the country returns to war, p , is a decreasing function of the*

level of government revenue, R , invested in the peace process:

$$p = 1 - \gamma R \tag{5.6}$$

where $\gamma \in (0, 1)$ is a scalar.

Assumption A.2 highlights the political salience of revenue rehabilitation in the aftermath of civil war and other devastating conflicts. It implies that government ability to rehabilitate state revenue is crucial to lasting peace, which is necessary for sustaining rebuilding efforts. Indeed, the lower the state revenue, R , the higher the probability that the peace process will collapse, leading to a recurrence of the conflict.

We define the expected payoff from following the impatience strategy in the process of revenue rehabilitation to be the expected value of the probability that the peace process is consolidated, $1 - p$: $V = E(1 - p)$. The objective of the post-conflict government is to maximize the expected value of this probability. This expected value can be written as follows using the definition of p :

$$V = \gamma [\rho \bar{R} + (1 - \rho) \underline{R}]. \tag{5.7}$$

From (5.7), substituting in (5.1), (5.2), (5.3), and (5.4), re-arranging, yields a reformulation of this expected payoff as follows:

$$\bar{V}(\theta, \lambda, \phi, \sigma) = (\lambda(\pi - k_0) - \theta - \lambda\sigma[1 - \phi f(\theta, \sigma)]) \gamma. \tag{5.8}$$

To fully highlight the challenges facing a post-conflict government that adopts the impatience strategy, we need to specify the government choice of the level of public funds invested in mitigating corruption.

5.1.1. Government Response to Cheating

Taking the level of cheating $\sigma = k - k_0$ as a proxy for the incidence of corruption in this post-conflict country, the implications of the impatience strategy for government revenue may arguably depend on (i) the productivity of the cheating detection technology, ϕ , (ii) the level of corruption, σ , and (iii) the share of mining revenues accruing to the government, λ .

Therefore, a benevolent government's problem is to choose θ so as to solve:

$$\max_{\theta} \bar{V}(\theta, \lambda, \phi, \sigma)$$

Since by assumption A.1 the function f is strictly concave in θ , the optimal choice, θ^* , must therefore satisfy the following necessary and sufficient condition:

$$\phi f_{\theta}(\theta, \sigma) \lambda \sigma - 1 = 0. \quad (5.9)$$

Applying the *Implicit Function Theorem* to (5.9) yields the government optimal choice of anti-corruption action as follows:

$$\theta^* = \Theta(\phi, \lambda, \sigma) \quad (5.10)$$

where

- (i) $\Theta_{\phi} > 0$
- (ii) $\Theta_{\lambda} > 0$
- (iii) $\Theta_{\sigma} > 0$

as an implication of Assumption A.1. In other words, government effort to thwart corruption in mining extraction is higher (i) the more productive the detection technology,

(ii) the higher its claim to the mining revenues, and (iii) the higher the firm's payoff from cheating.

5.2. The Determinants of the Effectiveness of the Impatience Strategy

We now discuss factors that bear on the effectiveness of a post-conflict revenue rehabilitation strategy based on impatience.

With the above result, we can now reformulate the optimal government payoff from following the impatience strategy as follows using (5.8):

$$\bar{V}^*(\phi, \lambda, \sigma) = (\lambda(\pi - k_0) - \Theta(\phi, \lambda, \sigma) - \lambda\sigma[1 - \phi f[\Theta(\phi, \lambda, \sigma), \sigma]])\gamma$$

Hence the following proposition which is obtained by a straightforward application of the *Envelope Theorem*:

Proposition 1. *Let Assumption A.1 and A.2 hold. Then, in a post-conflict environment, (i) access to a more productive cheating detection technology raises the expected payoff from adopting an impatience revenue rehabilitation strategy (i.e., $\partial\bar{V}^*/\partial\phi > 0$), (ii) as does government's ability to secure a favorable mining deal (i.e., $\partial\bar{V}^*/\partial\lambda > 0$). Furthermore, (iii) this expected payoff decreases with the size of the payoff from cheating (i.e., $\partial\bar{V}^*/\partial\sigma < 0$).*

Proposition 1 highlights the challenges facing a post-conflict government pursuing the impatience strategy for rehabilitating state revenue. First, detection of cheating is difficult because of weak institutional capacity for monitoring mining activity. Second, the government is often in a weak bargaining position relative to mining companies: It often lacks the technical capacity and international experience to secure a good deal for its natural resources. In these circumstances, as demonstrated in Section 4, the international community could play a critical role to help ensure the country gets a fair share of the natural resource benefits. First, it could use aid to raise ϕ —the productivity of the cheating detection technology. The international community could also use aid, especially technical

assistance, to strengthen the government's negotiating capacity, raising λ , the government share of mining revenues. Third, the international community could pressure both the government and exploiting companies to be transparent in their actions.

5.3. Synthesis

We have developed a model to highlight the revenue rehabilitation challenges facing Liberia and Sierra Leone at the onset of peace. A key conclusion of the analysis is that prioritizing the development of public management institutions prior to the exploitation of the natural resources is required for a country to get full value for its natural resources. This conclusion concurs with Stiglitz (2007) who discusses the problems facing developing country governments in dealing with multinational oil exploitation companies. However, our analysis qualifies this conclusion: in the absence of alternative fiscal instruments, even a benevolent government might be forced to exploit the resources prior to developing sound public management institutions.

Although Liberia and Sierra Leone seemingly rushed to exploit their natural resources at the onset of peace, by several measures, Liberia appears to have pursued a more patient revenue rehabilitation strategy over time. It has developed a fiscal framework for the natural resource sector, with the help of the international financial institutions, and has also realized much more improvement in fighting corruption. Between 2005 and 2010, it moved from a rank of 137 out of 158 countries, to 87 out of 178 countries, on Transparency International's Corruption Perception Index while Sierra Leone's rank deteriorated from 125 to 134. Liberia's revenue-to-GDP ratio of 30 percent in 2010 is much higher than Sierra Leone's 13 percent. However, we hesitate to advance this as evidence that Liberia's patience has paid off because national income statistics have not been compiled in Liberia until recently, raising doubts about the reliability of GDP estimates.

The model is based on a number of simplifying assumptions which can be relaxed, such as a benevolent government. With a not-so-benevolent government or a government

with a short-time horizon, the tendency towards impatience would only be stronger. For simplicity, the government rehabilitation strategy was presented as a stark choice between patience and impatience. In reality, the choice of strategy would lie in between and could change over time. Lastly, we assumed that under the patience strategy, with time, strong public management institutions can be developed. However, we ignored the question of how long that may take, if ever.

6. Conclusion

At the end of their respective civil conflicts, Liberia and Sierra Leone initially adopted an impatience strategy to generate revenues from their natural resources, opting to initiate right away the process of exploiting the resources despite weak public management capacity. Unsurprisingly, the generous fiscal concessions often granted exploiting companies raised concerns about whether the two countries were getting good value for their resources. Such concerns endure despite the corrective measures that both countries have taken with the revision of mining contracts and efforts to develop public management capacity.

A key lesson from the two countries' experience and our analytical model is that resource-rich countries emerging from conflict face a difficult trade-off between relatively large longer-term gains from their natural resources and smaller short-term revenues. With a narrow non-resource fiscal base, the need to consolidate the peace process may make adoption of the impatience strategy inevitable. Moreover, other factors, notably elections which generate huge spending pressures, may also induce impatience. The international community can mitigate the potential costs of impatience in revenue generation by providing assistance to enhance the capacity of countries emerging from conflict to manage their natural resources especially with regard to the negotiation and implementation of contracts with exploiting companies. Home countries of exploiting companies can help by setting and enforcing ethical standards for exploiting companies in their activities abroad.

Similarly, as demonstrated by ongoing initiatives, the international civil society can advocate for such standards and monitor the activities of both the government and resource exploiting companies.

References

- [1] Adam, C., P. Collier and V.A.B. Davies (2008). Postconflict Monetary Reconstruction, *World Bank Economic Review* 22,1, 87-112.
- [2] Boyce, J.K. and O'Donnell (2007) "Policy Implications: The Economics of Postwar Statebuilding" in Boyce J.K. and M. O'Donnell (eds) *Peace and the Public Purse*, Boulder and London: Lynne Rienner Publishers.
- [3] Davies, V.A.B. (2007). Sierra Leone's Economic Growth Performance, 1961-2000 in B. Ndulu et al (editors), *The Political Economy of Economic Growth in Africa 1960-2000*, volume 2: Country Case Studies, Cambridge University Press.
- [4] Davies, V.A.B. (2005) "Liberia and Sierra Leone: Interwoven Civil Wars" in A.K. Fosu and P. Collier (editors) *Postconflict Economies in Africa*, Hampshire and New York: Palgrave Macmillan and International Economic Association.
- [5] Davies, V.A.B. (2000). Liberalization and Implicit Government Finances in Sierra Leone, *African Economic Research Paper* 125.
- [6] Erasmus, L., J. Leichter, and J. Menkulasi (2009). Dedollarization in Liberia—Lessons from Cross-country Experience, *IMF Working Paper* WP/09/37.
- [7] Giovannini A. and M. De Melo (1993). Government Revenue from Financial Repression, *American Economic Review*, 83,4.
- [8] IMF (2005) "Liberia: Selected Issues and Statistical Appendix" *IMF Country Report* No 05/167.
- [9] Morris, S. (1995). Inflation Dynamics and the Parallel Market for Foreign Exchange, *Journal of Development Economics*, 46, 295-316.
- [10] Presidential transition team report. (2008). Freetown: Government of Sierra Leone.

- [11] Reno, W., (1998). *Warlord Politics and African States*, Lynne Rienner Publishers: Boulder and London.
- [12] Richards, P., (2005). To Fight or to Farm? Agrarian Dimensions of the Mano River Conflicts (Liberia and Sierra Leone), *African Affairs*, 104/417, 571-590.
- [13] Smillie I., L. Gberie and R. Hazleton (2000). *The Heart of the Matter: Sierra Leone Diamonds and Human Security* (Ottawa: Partnership Africa Canada).
- [14] Stiglitz, Joseph (2007). What is the Role of the State? in Macartan Humphreys, Jeffrey D. Sachs, and Joseph E. Stiglitz eds., *Escaping the Resource Curse*. Chapter 2.
- [15] UN (2000). Report of Panel of Experts Appointed Pursuant to UN Security Council Resolution 1306 (2000), Paragraph 19, in Relation to Sierra Leone, S/2000/1195”.

Tables

Table 2.1. Liberia: economic indicators

Year	GDP (current million US\$)	Real GDP growth (annual %)	GDP per capita (constant 2000 US\$)	Population, (million)	External debt stocks (% of GNI)	Total external debt stock (current million US\$)
1970-79	580	3.0	800	1.6	42	600
1980-84	940	-2.5	650	2.0	106	900
1985-89	930	-6.4	522	2.2	230	1670
1990-94	250	-30	130	2.0	-	2190
1995-99	280	33	114	2.3	830	2480
2000	560	26	199	2.8	723	2810
2001	543	3	195	3.0	747	3000
2002	560	4	196	3.1	721	3270
2003	410	-31	131	3.1	1028	3600
2004	460	3	131	3.2	1027	3830
2005	530	5	133	3.3	940	3920
2006	610	8	138	3.5	937	4160
2007	735	9	144	3.6	669	3790
2008	840	7	148	3.8	465	3130
2009	880	5	148	4.0	257	1670
2010	1000	6			12	115

Source: World Development Indicators 2010.

Table 2.2. Sierra Leone: economic indicators

Year	GDP (current US\$)	Real GDP growth (annual %)	GDP per capita (constant 2000 US\$)	Population	Total external debt stock (% of GNI)	Total external Debt stock (current million US\$)
1970-79	658	2.7	280	2.9	31	211
1980-84	112	2.9	290	3.3	54	589
1985-89	807	-0.6	260	3.8	131	942
1990-94	758	-2.8	230	4.1	201	1371
1995-99	801	-5.7	180	4.0	164	1228
2000	636	3.8	150	4.2	193	1190
2001	806	18.2	172	4.4	154	1200
2002	936	27.5	210	4.5	150	1355
2003	991	9.3	221	4.7	158	1520
2004	1096	7.5	228	4.9	157	1630
2005	1240	7.2	236	5.1	131	1540
2006	1422	7.3	245	5.3	93	1270
2007	1664	6.4	254	5.4	19	312
2008	1955	5.5	261	5.6	21	399
2009	1942	4.0	265	5.7	23	444
2010		4.9		5.7		770

Source: World Development Indicators 2010.

Table 3.1. The ease of paying taxes in Liberia and Sierra Leone

	Year	Country rank (ease of paying taxes)	Number of payments per year	Time (hours per year) needed to pay taxes	Total tax payable (% of gross profit)
Liberia	2008	119/178	37	158	81.6
	2009	59/181	32	158	35.8
	2010	85/183	32	158	43.7
	2011	84/183	32	158	43.7
	2012	98/183	33	158	43.7
Sierra Leone	2006	-	20	399	163.9
	2007	-	20	399	277
	2008	145/178	22	399	233.5
	2009	160/181	28	399	233.5
	2010	160/183	29	357	235.6
	2011	159/183	29	357	235.6
	2012	76/183	29	357	32.1

Notes: Total tax payable is the sum of all taxes and mandatory payments like employer contribution to employee social security. Source: Doing Business Report (various years): International Finance Corporation.

Table 3.2: Government Revenues in Sierra Leone

Year	Total revenues (million USD)	Total revenues % GDP	Composition of total revenues (%)					
			Income tax	International trade taxes		Road user charges	mining revenues	other non-tax revenues
				Excise duty on petroleum import	Other International trade taxes			
2000	73	11.4	26	12	50	3	2.5	
2001	105	13	26	10	50	3	1.9	
2002	114	12.2	26	12	14	3	1.8	
2003	123	12.3	25	13	12	3	2	
2004	132	11.9	26	12	47	5	3.6	
2005	144	11.9	28	11	42	6	2.5	8
2006	167	11.8	28	13	40	8	3	5
2007	180	10.8	27	12	42	6	3.5	6
2008	222	11.4	30	8	42	7	2.8	6
2009	223	11.7	28	13	40	7	2.7	6
2010	253	13.3	30			5	2.4	5

Notes: Other non-tax revenues include license fees paid by fishing vessels and by mobile phone companies; fines; rent of government lands and buildings; fees and charges. Mining revenues include mining licence fees, prospecting rights, mining leases and royalties. Source: Government of Sierra Leone.

Table 3.3: Government Revenues in Liberia

Year	Total revenue (million USD)	Total revenue (% GDP)	Key components of total revenues %						
			Personal income tax	Corporate profit tax	Taxes on international trade	Petroleum sales tax	Maritime revenue	Stumpage /land rent	Other
2000	79		12	6	29	9	23	8	13
2001	65		9	7	29	9	17	13	16
2002	73	13	9	10	23	8	18	18	14
2003	46	11	9	4	37	5	29	4	12
2004	68	15	17	11	40	1	20	0	11
2005	77	15	15	22	38	1	12	0	22
2006	11	19		28	44	3	11	0	14
2007	175	24		29	42	2	8	0	19
2008	201	25	11	10	39	3	7	0	30
2009	211	25	17	12	38	4	6	1	22
2010	275	30	14	9	32	4	6	5	30

Source: Government of Liberia

Table 3.4: Liberia: Comparative Iron Ore Fiscal Terms

Fiscal terms	BHP Billiton	China Union	Arcelor Mittal	Putu	Liberia Revenue Code stipulation
Royalty	3%-4.25% depending on price.	3.25%-4.5% depending on price	4.5%	4.5%	4.5%
Income tax rate	25%	25%	30%	30%	30%
Depreciation of development costs (years)	5	5	15	5	5
Import duties	Exempt 12 years from production	Exempt 10 years	\$400,000 for 5 years;	Exempt till production	Exempt till production
Upfront payment (million US\$)	15	40	15	10	-
Government equity participation	None	None	15% minimum	No	-

Source: Government of Liberia

Table 3.5: Sierra Leone: Comparative Iron Ore Fiscal Terms

Fiscal terms	African Minerals	London Mining
Royalty	3% on gross sales price of iron ore	3% on gross sales
Income tax rate	25% over mine life	6% for first 3 years, then 25%
Import duties	Duty and excise-free import of all equipment and consumables for company and contractors throughout mine life	20% of prevailing rate (in effect 1%)
Upfront payment (million US\$)	None	None
Government equity participation	10 per cent "free" share in one of the parties in the project	None
Explicit review process	Yes	No

Source: Government of Liberia