The Fiscal Regime for Uganda's Mining Sector: A Need for Reform?

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Contents

Key messages

- The Ugandan government has declared its intention to enact a new fiscal regime for the mining sector. To attract much needed investment into the sector, this regime must be stable, and should therefore impose a tax burden that is neither too high nor too low.
- This analysis of Uganda's current regime using a hypothetical gold project suggests that it has no critical weaknesses and is not in urgent need of revision. However, making the regime more progressive to slightly reduce the tax burden on smaller, higher-cost mines could increase investment prospects and lower the potential for widespread granting of investment incentives.
- Making the regime more progressive will require the government to compromise on at least one of its other likely objectives. Of the four reforms considered in this analysis, one that introduces either a variable rate royalty or a variable income tax could be the best option for Uganda. However, the government should evaluate the various possible combinations of tax changes before revising the regime.

Executive summary

There is growing discussion within Uganda about the need to increase the public benefits from the country's mining sector. The government has declared its intention to enact a new fiscal regime for the sector. This has coincided with growing optimism that the country will resume large-scale mining after decades of only artisanal and small-scale activity. However, for Uganda's potential to be realized, significant investment in exploration and development is necessary.

This brief is a response to a request by the Ministry of Finance, Planning and Economic Development to review the prevailing fiscal regime and inform the government's approach to revising it. The design of the fiscal regime will likely have a significant effect on the ability of the country to attract the investment it needs. A critical element will be the regime's stability. Frequent changes could reduce investors' confidence that they will make a sufficient return on their investments, and thus deter investment. To reduce pressure from companies, the government or other stakeholders for future changes, Uganda will need to impose a tax burden that is neither too high nor too low.

My modeling of Uganda's current fiscal regime for a hypothetical gold project suggests that it has no critical weaknesses. It is not in urgent need of revision, and therefore the government could decide to focus its reform efforts on other areas. However, revising the fiscal regime may still be beneficial. While the regime appears to place a reasonable tax burden on larger, lower-cost mines, the higher tax burden faced by smaller, higher-cost mines could deter investment in these types of mines or encourage investors to request investment incentives from the government. Granting of such incentives can lead to a fragmented and opaque taxation system, which is difficult to administer, provides opportunities for corruption, increases public perceptions of not getting a good deal and encourages other requests for incentives even if they are unnecessary.

Considering these results, I explored how the current regime could be revised to slightly reduce the tax burden imposed on small, high-cost mines, but without also reducing the tax burden imposed on larger, lower-cost mines. The five scenrious, including four possible reforms, that I considered in detail are:

- *Regime A.* Current regime.
- *Regime B.* The fixed rate royalty is replaced with a variable rate royalty based on gross sales revenue.
- *Regime C.* The rate at which capital is depreciated is accelerated to six years.
- *Regime D.* The standard corporate income tax is replaced with a variable income tax.
- *Regime E.* The corporate income tax rate is reduced to 10 percent and a resource rent tax is introduced.

I evaluated these regimes against four criteria that are likely to cover the primary concerns of governments when setting fiscal terms for their mining sectors.

1 *Overall government take.* The government's share of company profits across the lifetime of a mine, and whether this represents the maximum tax burden that a company can bear without deterring investment.

2 *Reliability at low profit levels.* The ability to generate revenue for the government when company profits are low.

3 *Progressivity as profits change.* The ability to tax companies more as their profits rise, and to tax them less as their profits fall.

4 *Tax base simplicity.* The government's exposure to tax avoidance risks.

My analysis highlights that the government will always have to make trade-offs when designing the fiscal regime. Each of the four reforms that I evaluated requires the government to compromise on at least one of its likely objectives.

Author's assessment of performance of reform examples against possible government objectives

	Government take for small mine	Reliability at low profit levels	Progressivity as profits change	Tax base simplicity
A. Current regime	Poor/fair	Good	Poor	Fair
B. Variable rate royalty	Fair	Fair	Fair	Poor/fair
C. Accelerated capital depreciation	Fair	Poor/fair	Poor/fair	Fair
D. Variable income tax	Fair	Fair	Fair	Fair
E. Lower corporate income tax plus resource rent tax	Fair	Poor	Good	Poor

If the government decides to reform the regime to provide some relief to future small, high cost mines, the right reform to undertake will depend on which objectives and concerns matter most to it.

If the government decides that improved progressivity is important but not enough to warrant a significant reduction in revenue reliability or greater tax avoidance risks, then Regime E would not be appropriate.

Regimes B and D may be better options for the government. They both offer a reasonable balance between the conflicting objectives of reliability and progressivity. Moreover, while Regime B could increase reliance on profit taxes when the variable rate royalty results in lower royalties, neither of these regimes generates significantly greater tax avoidance risks. However, because Regime B would reduce royalty payments in the early stages of a mine and for smaller mines overall, the government would need to manage it carefully.

Regime C provides neither strong reliability nor significant progressivity. However, accelerated capital depreciation does offer some early tax relief and therefore should lower investor risk, particularly for smaller mines. Because it does not increase tax avoidance risks, this reform could also be useful to consider.

This review is intended to merely demonstrate some of the options available to the government, however. I only looked at one tax change at a time, and at only one version of that tax change. It is possible that the optimal reform would comprise changes to a number of taxes. I advise that the government evaluates the various possible combinations before revising the regime.

Finally, my analysis of the fiscal regime using a gold project together with recent International Monetary Fund (IMF) analysis of the regime for an iron ore project should provide a relatively comprehensive picture of the fiscal regime. However, the government would still benefit from assessing how the regime performs when applied to other minerals before making any generally applicable reforms.

Introduction: Realizing Uganda's mining potential

Since the discovery of oil in 2006, Ugandans have focused on the promise that its oil sector offers for the country's development. Little attention has been given to the mining sector. However, this is beginning to change. There is growing discussion within Uganda of the need to increase the benefits that the mining sector generates for the country. A new Mining and Minerals Policy was finalized in May 2018.[1] In his budget speech for 2018/19, Matia Kasaija, the Minister of Finance, Planning and Economic Development, set out the government's intention to enact a new fiscal regime for the mining sector.[2]

These reform efforts are partly a result of growing optimism that the country will resume large-scale mining after decades of only artisanal and small-scale activity. After significant activity in the 1960s and 1970s, Uganda's mining sector went into decline. During this period, artisanal and small-scale mining (ASM) generated little government revenue and limited benefit for the wider country. Weak regulation resulted in unlicensed activities, tax evasion, suspected smuggling and negative environmental and social impact. As noted in the new Mining and Minerals Policy, these challenges largely remain for ASM.[3]

The large-scale Osukuru phosphate and Isingiro tin projects are expected to start producing imminently however, and a large-scale gold mine in the eastern district of Busia was recently granted a mining lease. A national mineral survey was completed in 2014 that identified other potential deposits of minerals including uranium, nickel, copper and gold, and suggested that mineral-rich belts in the Democratic Republic of Congo (DRC) and Tanzania may extend into Uganda.[4] The attractiveness of the country's geological potential has increased since then according to mining investors surveyed by the Fraser Institute. Its geological potential is perceived to lag behind that of its neighbors, but exploration by private companies is ongoing.[5] However, significant investment will be needed for further exploration and the development of large-scale mines for Uganda's potential to be realized.

In addition to Uganda's geology, other factors will also determine whether investors are attracted to the country. Empirical evidence shows that political stability, the regulatory environment and the quality of infrastructure have a significant impact on attracting investment in a developing country.[6] In comparison to other Sub-Saharan African countries, Uganda scores relatively well in the World Bank's Ease of Doing

1 The draft can be found here: www.oilinuganda.org/wp-content/media/2018/05/Minerals-and-Mining Policy-2018.pdf
2 Ministry of Finance, Planning and Economic Development, Budget Speech for Fiscal Year 2018/19 (2018), 20.
3 Ministry of Energy and Mineral Development, *Draft Mining and Mineral Policy for Uganda* 2018 (2018), 15-16.
4 Diana Taremwa Karakire, "Putting Uganda on the global mining map," *Mining.com*, 24 March 2015, accessed 15 August 2018, www.mining.com/web/putting-uganda-global-mining-map/.
5 Taylor Jackson and Kenneth Green. *Annual Survey of Mining Companies 2016* (Fraser Institute, 2017), 21. Uganda's score increased from 41 in 2014 to 50 in 2016. Tanzania scored 57 and the DRC scored 81 in 2016. (Uganda was not given a score in the 2017 survey due to an insufficient response from mining investors.)
6 See for example: The World Bank, *Global Investment Competitiveness Report 2017/2018: Foreign Investor Perspectives and Policy Implications* (2018), 6. Respondents to this survey were multinationals in general, but I believe these results are broadly applicable to mining investors specifically.

Business Index and World Governance Indicators of regulatory quality and rule of law.[7] Mining investors surveyed by the Fraser Institute also do not appear particularly concerned about the country's policy environment. However, given the current size and structure of the mining sector, the Ugandan government will have limited experience of managing large-scale projects, which will bring regulatory risks for investors. Moreover, the Ease of Doing Business and Fraser Institute surveys highlight infrastructure weaknesses.[8] Control Risks, a political risk consultancy, also notes that infrastructure "poses a significant obstacle to investment" and that "electricity supply remains unreliable."[9]

There is also growing evidence that countries with better transparency and accountability may attract more investment.[10] However, as Table 1 shows, the country scored an overall rating of "poor" on the 2017 Resource Governance Index compared to other Sub-Saharan African countries.[11] Uganda's plan to join the Extractive Industries Transparency Initiative (EITI) is an important step in signaling commitment to transparency and accountability to potential investors.[12]

RGI category	Countries
Good	*None in sub-Saharan Africa*
Satisfactory	Botswana
Weak	Burkina Faso, Ghana, Mali, Niger, South Africa, Sierra Leone, Tanzania, Zambia
Poor	DRC, Ethiopia, Guinea, Liberia, Madagascar, Uganda
Failing	Eritrea, Mauritania, Zimbabwe

Table 1. Resource Governance Index category ratings for mining in 2017 for sub-Saharan Africa[13]

Some of these factors may have a greater impact on Uganda's attractiveness to investors than the fiscal regime. However, the design of the fiscal regime is still likely to have a significant effect. A critical element will be its stability and predictability, which investors often cite as the most important aspects of a fiscal regime.[14] Frequent changes to a fiscal regime reduce investors' confidence that they will make a sufficient return. The resulting increase in perceived risk will make investment less likely to happen.[15] Or, as is often the case in unstable fiscal regimes, investors may require clauses in contracts or legislation that prevent any changes in tax over the lifetime of a project.[16] These stability clauses can cause significant difficulties for a government. While a government should be cautious in changing a regime, it should attempt to rectify mistakes in tax policy when it discovers them. However, a stability clause will make it more difficult to do so legally, and overriding the clause will significantly increase investor risk.

7 The World Bank, "Doing Business, Economy Rankings," accessed 3 November 2018, www.doingbusiness.org/en/rankings; The World Bank, "World Governance Indicators," accessed 30 October 2018, info.worldbank.org/governance/wgi/#reports.
8 Jackson and Green, *Annual Survey of Mining Companies 2016*, 57; The World Bank, "Doing Business, Economy Ranking."
9 S&P Global. Proprietary data available from S&P Global Market Intelligence: www.spglobal.com/.
10 See for example: Alexander Malden, *EITI membership boosts mineral exploration attractiveness* (Extractive Industries Transparency Initiative, 2017).
11 Natural Resource Governance Institute, *Resource Governance Index* (2017).
12 Fred Ojambo, "Uganda to Join Transparency Program as It Seeks Mining Investors," *Bloomberg.com*, 2 October 2018, accessed 8 October 2018, www.bloomberg.com/news/articles/2018-10-02/uganda-to-join-transparency-program-as-it-seeks-mining-investors.
13 Uganda's score is actually for its oil and gas sector, but I have not observed a significant difference in transparency and accountability related to the mining sector.
14 See for example: International Council of Mining and Metals, *Mineral Taxation Regimes: A review of issues and challenges in their design and application* (2009), 56.
15 Mario Mansour and Carole Nakhle, *Fiscal Stabilization in Oil and Gas Contracts: Evidence and Implications (Oxford Institute for Energy Studies,* 2016), 6.
16 Philip Daniel and Emil Sunley "Contractual assurances of fiscal stability," in *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, ed. Philip Daniel, Michael Keen and Charles McPherson, (Oxford: Routledge, 2010), 405-424.

Uganda should therefore strive for a fiscal regime that is seen as stable by investors. However, stability can be difficult to achieve and will need to be proven over time. Zambia recently changed its mining fiscal regime for the tenth time since 2000, damaging the country's credibility and eroding trust between government and companies.[17] As this experience shows, Uganda would do best to impose a tax burden that is neither too high nor too low in order to avoid future revisions.

A tax burden that is too low would be damaging for the country. Not only because of the finite nature of its mineral wealth, and the one-off opportunity to use it to support long-term, sustainable development, but also because of the environmental damage that mining causes. Concerns already exist about how mining in Uganda is affecting its natural capital, which point to the importance of environmental and social regulation.[18] They also highlight the need for a mine to generate government revenue and other benefits that exceed the damage it causes. Failure to maximize government revenues may lead to budgetary or political pressures to change the regime in the future. As a result, there tends to be an inverse relationship between low taxes and a regime's stability.[19] Setting a low tax burden to attract investment can therefore be counterproductive. Considering the growing number of disputes between governments and companies, companies are likely to be increasingly wary of investing on terms that will probably be too good to last.[20]

A tax burden that is too high could also create challenges for Uganda. While the regime may raise significant government revenue in theory, it is likely to deter investment and therefore generate less revenue in practice. Over time, the government will be under pressure to attract more investment, which may cause it to lower the tax burden or offer investment incentives to individual companies. The resulting uneven fiscal regime would be more difficult to administer, could encourage corruption and is likely to undermine public confidence that the country is getting a good deal.[21] Indeed, tax waivers previously granted to mining projects in Uganda appear to already be raising questions from civil society.[22]

Designing a fiscal regime that is neither too high nor too low is even more challenging given that circumstances frequently change. Mineral prices are inherently volatile and global investment trends fluctuate. At the country level, the health of public finances and political conditions can undergo significant shifts. As a result, a regime that initially appeared to be optimal can be later seen as too high or

17 David Manley. *Ninth Time Lucky: Is Zambia's Mining Tax the Best Approach to an Uncertain Future?* (Natural Resource Governance Institute, 2016); Chris Mfula. "Zambia hikes mining taxes in 2019 budget to rein in debt," Reuters, 28 September 2018, accessed 29 September 2018, www.reuters.com/article/zambia-budget/corrected-update-2-zambia-hikes-mining-taxes-in-2019-budget-to-rein-in-debt-idUSL8N1WE3Y7; Odd-Helge Fjeldstad, Caleb Fundanga and Lise Rakner "The rise and fall of the mining royalty regime in Zambia," in *Lifting the Veil of Secrecy: Perspectives on International Taxation and Capital Flight from Africa*, ed. Odd-Helge Fjeldstad, Sigrid Klæboe Jacobsen, Peter Henriksen and Honest Prosper Ngowi, (Bergen: Chr. Michelsen Institute, 2017), 123.

18 See for example: Global Witness, *Under-Mined* (2017).

19 International Council of Mining and Metals, *Mineral Taxation Regimes: A review of issues and challenges in their design and application*, 57.

20 For example, the former CEO of Acacia, the mining company that is in the middle of a significant dispute with the Tanzanian government, acknowledged that "the industry can be its own worst enemy when it sits down and agrees these terms, it's gonna come back and bite us. And in this case it has." Jon Yeomans. "Acacia boss Brad Gordon: The mining industry can be its own worst enemy." *The Telegraph*, 12 March 2017, accessed 5 October 2018, www.telegraph.co.uk/business/2017/03/12/acacia-boss-brad-gordon-mining-industry-can-worst-enemy/

21 Natural Resource Governance Institute, *Natural Resource Charter* (2014), 19.

22 See for example: Acomai Isabella. "First things first; Government should sort out uncollected fees and royalties." *Platform for Extractive Industries Information*, 7 October 2018, accessed 12 October 2018, www.plexii.org/index.php/plexii-blog/first-things-first-government-should-sort-out-uncollected-fees-and-royalties

too low in the eyes of the government, companies or other stakeholders.

The Ugandan government therefore faces a difficult balancing act. To support the government to achieve this balance when undertaking its planned revision of the fiscal regime, I review the prevailing regime and provide examples of how it could be revised in this brief.

I review the regime for metallic minerals, and base my analysis on a gold project. While Uganda has the potential to produce a range of metallic minerals, discussions with government officials indicate that ongoing gold exploration is yielding promising results. This analysis is intended to complement and update that of the IMF published in December 2017, which focused on the regime for bulk minerals through the assessment of an iron ore project. [23] Since the IMF analysis was undertaken, there have been some changes to the regime. Together, these analyses should provide a relatively comprehensive picture of the fiscal regime.

I used an adapted version of the IMF's Fiscal Analysis of Resource Industries (FARI) economic model to evaluate the Ugandan regime.[24] My approach to economic modeling corresponds with emerging leading practices for the evaluation of tax regime and the design of tax regimes employed by policy advisers, companies, investors and institutions such as the IMF.[25] Governments also increasingly use these models across the region.[26]

The model and data I used are available on the Natural Resource Governance Institute's website: www.resourcedata.org/dataset/uganda-mining-tax-analysis. I provide further information on my approach to modeling the fiscal regime in subsequent sections.

23 International Monetary Fund, *Technical Assistance Report—Fiscal Regimes for Extractive Industries: Next Phase* (2017), 55-57.
24 A template of the FARI manual and a user guide that explains all the concepts and workings of the model are available here: www.imf.org/external/np/fad/fari/.
25 Diego Mesa Puyo and Oana Luca. *Fiscal Analysis of Resource Industries (FARI)* (International Monetary Fund, 2016).
26 African Natural Resource Center, *Running the Numbers. How African Government Model Extractive Projects, Analytical Report* (2017).

Uganda's current fiscal regime

The current fiscal regime, set out across a number of laws and regulations, includes royalties, income tax, duties and fees.[27] The same regime applies across different minerals with the exception of the royalty. Table 2 summarizes the main components of the fiscal regime for metallic minerals including gold.

Table 2. Main components of Uganda's fiscal regime for metallic minerals[28]

Fiscal term	Details
Annual license fee	UGX 100,000 per hectare[29]
Royalty	5% on gross sales net of smelting and refining costs
Corporate income tax	30%
Depreciation of exploration capital	100%
Depreciation of development expenditure	For buildings: initial allowance of 20%, then straight line of 5% per annum For plant and machinery: initial allowance of 50%, then declining balance of 30% per annum
Loss carry forward	Unlimited
Dividend withholding tax	15% for non-residents
Interest withholding tax	15% for non-residents
Import duty	For capital goods: 0% For intermediate goods: 10%
Value added tax	Exports are zero-rated

27 These laws and regulations are the Mining Act 2003 as amended, Mining (Amendment) Regulations 2011, Income Tax Act 1997 as amended, Value Added Tax Act 1996 as amended and East African Community Customs Management Act 2004 as amended.

28 I do not include all of these fiscal terms in my analysis. For example, I do not include the annual license fee, as it would represent a minor proportion of government take from a large-scale project. See the appendix for further details on my modelling approach.

29 Equivalent to around USD 25 per hectare based on the current exchange rate.

There are two issues to note about the fiscal regime at this point. First, while I assumed a corporate income tax rate of 30 percent in my analysis, the corporate income tax regime that is currently applicable to mining companies is unclear. Prior to the 2015 amendment of the Income Tax Act, the government applied a variable income tax of between 25 and 45 percent to mining companies.[30] The amendment introduced a fixed income tax rate of 30 percent.[31] This change is reflected in the Uganda Revenue Authority's compilation of updated domestic tax laws in 2017.[32] However, though this updated version of the law suggests that the 2015 amendment repealed the variable income tax when it introduced the fixed income tax, the actual amendment does not appear to do so. This appears to have caused significant confusion. For example, the Uganda Revenue Authority's published summary of the 2017/18 tax structure suggests that the variable income tax is still the applicable regime for mining companies.[33] The other issue to note about the fiscal regime is that, in many cases, depending on the multinational corporate structure of a mining company, double taxation treaties between Uganda and other tax jurisdictions may significantly reduce the effective rates of withholding taxes.[34]

30 The government designed this so that the rate of tax was higher when a mine was making larger profits. It was previously provided for in Paragraph 2, Part II of the Third Schedule in the Income Tax Act.
31 Section 27 of the Income Tax (Amendment) 2015, which replaced Part IX of the Third Schedule in the Income Tax Act 2000.
32 Joseph Okuja. *Domestic Tax Laws of Uganda* (TASLAF Advocates & Consultants, 2017).
33 Uganda Revenue Authority, Uganda's tax structure FY 2017/18 (2017), 9.
34 For example, given the current double tax treaty between the countries, a company that invests in a mine in Uganda but receives financing from the Netherlands would pay withholding tax on dividends of 0 to 5 percent and a withholding tax on interest of 10 percent—not the statutory rates of 15 percent. Martin Hearson and Jalia Kangave. *A Review of Uganda's Tax Treaties and Recommendations for Action* (Institute of Development Studies, 2016), 15.

A framework for assessment

There is no universal best design for a mining fiscal regime. Good practice guides provide only a basic structure that governments can follow, leaving numerous decisions for a government to make.[35] In evaluating mineral fiscal regimes, analysts use a variety of measures and criteria.[36] I focus on four criteria that are likely to cover the primary concerns of governments when setting fiscal terms for their mining sectors.

1 *Overall government take:* the government's share of company profits across the lifetime of a mine, and whether this represents the maximum tax burden that a company can bear without deterring investment.

2 *Reliability at low profit levels:* the ability to generate revenue for the government when company profits are low.

3 *Progressivity as profits change:* the ability to tax companies more as their profits rise, and to tax them less as their profits fall.

4 *Tax base simplicity:* the government's exposure to tax avoidance risks.

These criteria all relate to the stability of a fiscal regime. A regime that does not always generate some revenue or that fails to give the government a share of any windfall profits is likely to lose the support of the government and the public. A regime that allows for significant tax avoidance would have a similar effect. However, given the need to set taxes at a level that will attract investment, it is difficult to design a fiscal regime that performs well across all these criteria. Trade-offs usually exist. Fiscal regime design should therefore be based on a government's priorities. In the rest of this section, I discuss what these priorities might be for the Ugandan government. However, priorities are inherently subjective and are best chosen by the government and other stakeholders themselves.

The next parts of this section analyze how the current fiscal regime in Uganda, Regime A, compares with regimes in other gold mining countries on each of these criteria. My focus on gold is based on discussions with government officials that suggest ongoing gold exploration is yielding promising results.

35 See for example: Natural Resource Governance Institute, *Natural Resource Charter* (2nd Edition) (2014).

36 I broadly followed the IMF's approach such as that set out in Puyo and Luca, *Fiscal Analysis of Resource Industries (FARI)*, 35-42; International Monetary Fund, *Fiscal Regimes for Extractive Industries: Design and Implementation* (2012), 50-64.

I created a model to assess the impact of the regimes on three hypothetical mines that produce gold doré. One of these mines is representative of the "average" large-scale gold mine in sub-Saharan Africa. This mine is quite large with reasonably low costs. The other two mines are significantly smaller and face higher costs, as other future mines may be. Indeed, given Uganda's undeveloped sector, current geological potential and infrastructural weaknesses, a smaller, higher-cost mine could be more likely. I discuss my modeling approach in more detail in the appendix.[37]

It is important however to treat the results of this model as only an illustration—the "right" policy for Ghana, Zambia or any other country will not necessarily be the right policy for Uganda. Nevertheless, these comparisons can at least show how far away from "normal" the Ugandan regime is and how it might optimize its policies.

OVERALL GOVERNMENT TAKE

The government's share of company profits across the lifetime of a mine is often the first criterion used to assess a fiscal regime. This is generally measured by the average effective tax rate (AETR), which is the ratio of the present value of government revenue over the present value of a project's pre-tax profits.[38]

I found that Uganda's regime captures a relatively large share of company profits for the government. This is consistent with the IMF's analysis of the regime for an iron ore project. My modeling suggests that this would be the case across mines of different size and cost. For each of the hypothetical mines that I modeled, I calculated that the government take is higher than the 40 to 60 percent range that the IMF has estimated is "reasonably achievable" for mining countries.[39] As Figure 1 shows, it is also higher than the regimes of a number of other gold mining countries that I measured. For a small, high cost mine, it has one of the largest government takes.

37 For each criterion, I only show the results for some of the countries that I analyzed so as to clearly depict each data point. The results for all the evaluated countries can be found in the model published alongside this brief.

38 The present value will depend on the time value of money. A shilling received in one year's time will be worth less than a shilling received today. Funds received today are more valuable because they can be put to immediate use and because their receipt is certain rather than variable, as future returns may be. To make money received in the future comparable to money received today, a "discount rate" is applied to money expected in the future.

39 International Monetary Fund, *Fiscal Regimes for Extractive Industries: Design and Implementation*, 29.

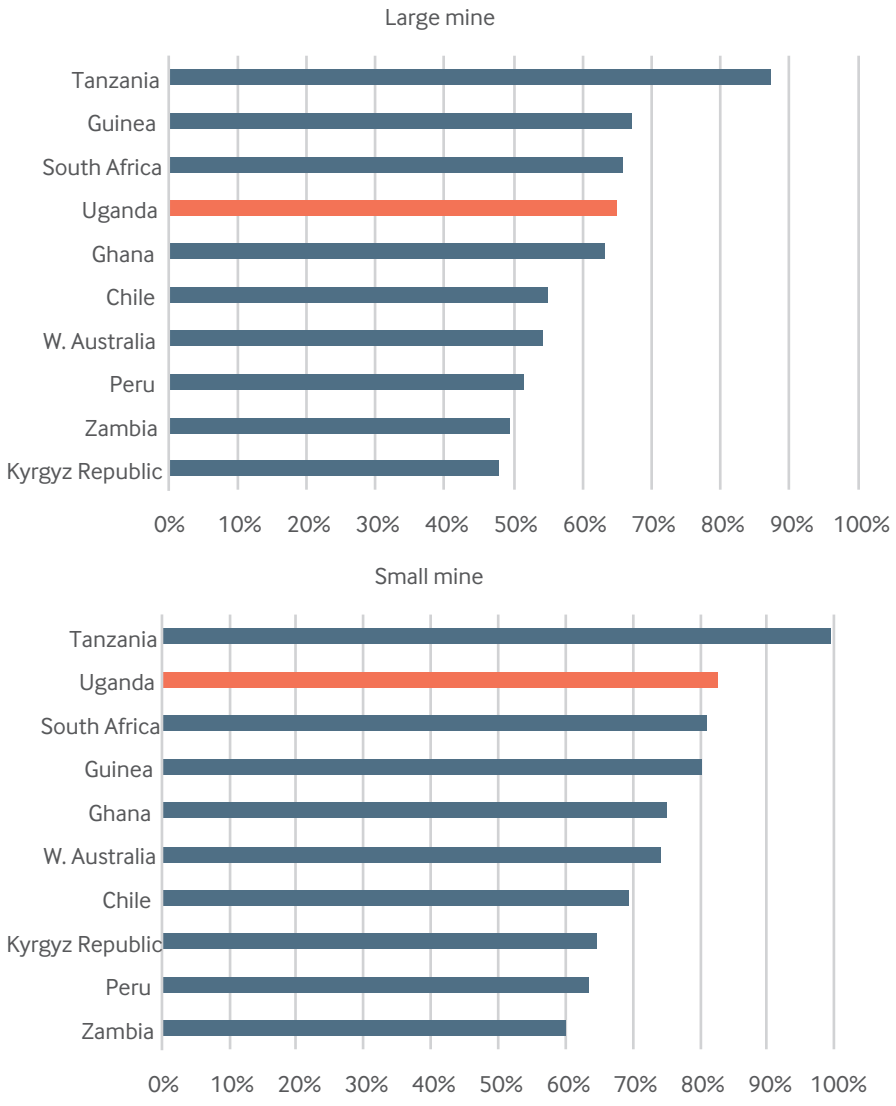

Figure 1. Average effective tax rate for two model mines with gold price of USD 1,300 per ounce

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40 At a discount rate of 10 percent. Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

Broadly speaking, as long as the fiscal regime allows for an expected return that meets the investors' hurdle rate, a project will be a viable investment proposition.[41] My calculations suggest that the mines I model would still be viable under the Ugandan regime.[42] However, the tax burden it imposes on a small, high-cost mine—the type of mine that could be more likely in Uganda—may be too ambitious given it is higher than countries with more established mining sectors and more attractive geology.[43]

Some of the countries I evaluated may be taxing their mines less than they could. However, it is likely that others are taxing their mines as much as they have found is possible without impacting investment. Moreover, some of these countries have offered investment incentives to individual investors, which means that the government take is actually lower in practice. Tanzania is the only country with a higher tax burden for a small mine, because this regime was only introduced in 2017, its impact on investment is yet to be tested.

Considering Uganda's undeveloped sector, promising but still unproven geological potential and infrastructural weaknesses, imposing a higher tax burden than these other countries may prove challenging. Recently announced plans for a large-scale gold project in Busia indicate that investors can still be attracted to Uganda with the prevailing regime. However, it could limit the amount of investment in the mining sector, or encourage investors to request problematic investment incentives from the government. Both of these outcomes could give rise to damaging policy instability in the future.

The difference in the tax burden between the large and small mines provides some indication of how the Ugandan fiscal regime behaves in different circumstances. However, the AETR is only a snapshot of this.

RELIABILITY AT LOW PROFIT LEVELS

The composition of a fiscal regime affects the timing and certainty of revenues. Input taxes are likely to generate revenue as soon as an investment takes place, while gross sales taxes, such as royalties, will be paid once production commences and will continue as long as sales are being made. Profit taxes, on the other hand, may take a number of years before they generate revenue. Periods of low prices or cost inflation can reduce or stop the payment of profit taxes even in the later stages of a project. Minority state equity in a mining project tends to provide even less reliable revenue than do profit taxes. A company reinvesting profits into a project expansion may delay dividend payments. Dividend payments may also be delayed or reduced through abusive practices by the majority shareholder, such as the money being diverted to pay back loans held by related parties. The Ghanaian government, for example, is receiving very limited dividend payments despite holding equity in a large number of mature mining projects.[44]

41 The hurdle rate is the minimum return required by an investor. Investors base their choice of hurdle rates on a variety of factors, including the alternative uses for their capital and the risks they face in a country. For instance, if a country is perceived to be particularly risky for investors, the hurdle rate for projects in that country would be higher than in other countries.
42 Though more sophisticated modeling would be required to determine this with any certainty.
43 Jackson and Green, *Annual Survey of Mining Companies 2016*, 19.
44 Alexander Malden and Edna Osei. *Ghana's Gold Mining Revenues: An Analysis of Company Disclosures* (Natural Resource Governance Institute, 2018), 13-14.

Figure 2 shows the proportion of government revenue paid in the first ten years of a project starting, when it is making no or limited profit. The IMF analysis does not look at revenue reliability in detail. However, I found that the Ugandan regime—with its combination of import duty, royalty and an extended capital allowance for corporate income tax—captures a reasonable proportion of revenues during this period. This contrasts with fiscal regimes like Ghana and South Africa, which deliver a relatively low proportion of revenues when a mine is making low profits.[45]

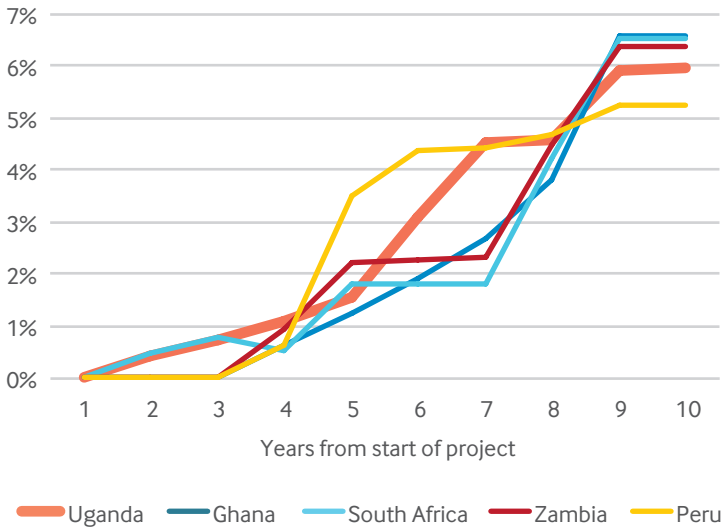

Figure 2. Proportion of total government revenue paid by a mine in each of the first 10 years of operation[45]

Reliability is useful, but it involves trade-offs. Considering that the size of the tax burden is constrained by the need to attract investment, the more revenue that is generated when profits are low, the less revenue is likely to be paid in years when profits are high. There are different factors for the Ugandan government to consider when determining whether revenue reliability should be a priority concern.

Some governments want a fiscal regime that they can rely on to generate at least a minimum amount for their budget each year, whether or not companies make profits. This is particularly the case if the government relies heavily on the mining sector to contribute most of its budget needs. While the Ugandan mining sector will hopefully expand in the coming years, it is likely to remain a relatively small part of the economy compared to many other countries. Even if the government achieves its ambitious goal of mining contributing 7 percent to GDP by 2020,[46] the economy and its tax base are unlikely to be highly exposed to fluctuations in mineral markets. Therefore, if mines pay little tax when profits are low, the effect on total government revenue will probably be limited. The effect on the rest of the economy will largely depend on the amount of local labor, goods and services that future mines use. Considering that it will take time for Ugandan workers and suppliers to build up the necessary capacity, these linkages are likely to be relatively weak, at least initially. On this basis, setting a fiscal regime that lessens exposure to fluctuations in mining operations might not be that important for the government.

45 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.
46 Ministry of Energy and Mineral Development, *Draft Mining and Mineral Policy for Uganda*, i.

A reliable source of revenues can be important to public sentiment, however. If companies pay little revenue in some years, it is more likely that the public will believe the country is not getting a fair deal. This perception could lead people to lose faith in the fiscal regime and encourage unhelpful policy instability.[47] Significantly reducing the reliability of revenues could therefore be risky, particularly if this was achieved by lowering the royalty. Royalty payments are shared between the central government (80 percent), local governments (17 percent) and owners or lawful occupiers of the land subject to minerals rights (3 percent). Any reduction in the royalty would therefore directly reduce the benefits for the communities most exposed to the social and environmental disruption that mining entails.

PROGRESSIVITY AS PROFITS CHANGE

During the lifetime of a mining project, prices, costs and many other factors constantly change. In the past ten years, the gold price has been as high as $1,900 per ounce and as low as $700 per ounce.[48] Costs for individual mining project have also fluctuated significantly during this period. Similarly, mining projects across a country can have different costs, types of operations, and quality of ores. Figure 3 shows the global cost curve in 2017, which sets out how much it costs different mines across the world to produce an ounce of gold. Mines that lie on the left hand side of the chart produce gold at a lower cost than mines that lie on the right hand side of the chart. As the chart shows, Ghana had some of the cheapest and some of the most expensive mines in 2017, with others in between. South Africa and Tanzania also have a relatively wide dispersion of costs for different mines. Until a mine has started production it is not possible to tell for sure what the costs will be—especially in countries with limited existing activity. Future mines in Uganda could lie anywhere along this cost curve.

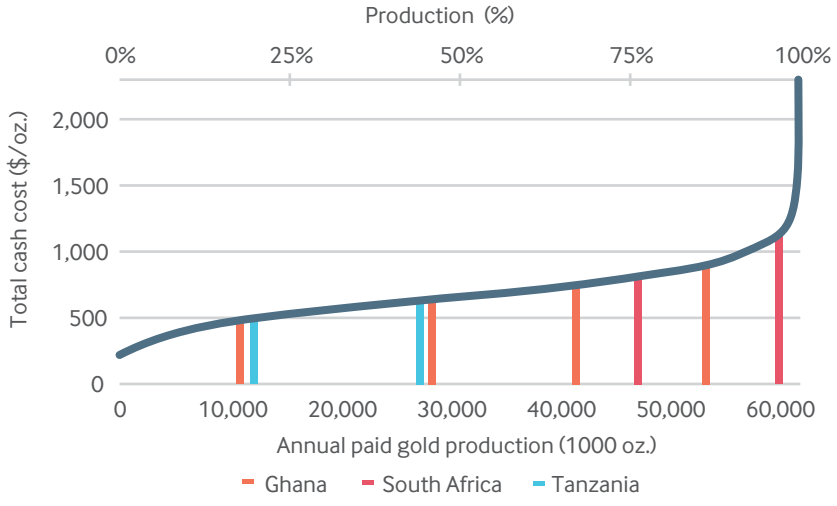

Figure 3. Cost curve for mines producing gold in the world[49]

47 James Otto, Craig Andrews, Fred Cawood, Michael Doggett, Pietro Guj, Frank Stermole, John Stermole and John Tilton, *Mining Royalties: A Global Study of Their Impact on Investors, Government, and Civil Society* (World Bank, 2006), 219.

48 S&P Global. Proprietary data available from S&P Global Market Intelligence: www.spglobal.com/. Prices are for gold bullion on the London Bullion Market

49 S&P Global. Proprietary data available from S&P Global Market Intelligence: www.spglobal.com/. Costs are C1 cash costs (operating costs, transport, treatment and refining charges and royalties) in 2017 USD.

Profit levels can therefore change significantly across the lifetime of a mine, and may vary considerably across different mines. A fiscal regime that accounts for these variations is more likely to attract investment, ensure that production continues when costs increase or prices fall and capture any windfall profits.

In a progressive tax regime, the tax burden is lower for high-cost mines than low-cost mines, because they will make smaller profits at a given price. Similarly, for a mine with given costs, the tax burden will be lower during a price slump than during a price boom. Such a regime can help to make higher cost mines viable, and prevent existing mines from shutting down during periods of low prices or high costs. They also enable a government to share in any windfall profits. Progressivity can therefore encourage policy stability. During a boom, the government and public might expect high payments from mining companies. If the fiscal regime ensures that this happens, these expectations will be met, and the chances of destabilizing changes, which could deter further investment, will be less.[50]

A regressive regime, on the other hand, imposes a higher tax burden on less profitable mines. This can make some low profit mines unviable, reduce the life of mines (as there will be less reserves that can be extracted economically, a concept known as "high-grading"), and increase the likelihood that a mine will shut down when costs increase or prices fall.[51] A regressive regime also risks the government missing out on any windfall profits.

Considering that taxes on inputs and gross sales have to paid regardless of a mine's profitability, fiscal regimes that rely more heavily on them to generate revenue are less likely to be progressive than regimes that place a larger emphasis on profit taxes.

I measured how progressive a regime is by modeling the impact of a change in costs and a change in price on the government share of total benefits.[52]

Figure 4 shows progressivity with respect to a change in the operating cost (with the gold price remaining constant). An upward sloping curve indicates a regressive fiscal regime: the tax burden increases as costs rise and therefore profitability falls. A downward sloping curve indicates a progressive regime. The steeper the curve, the more regressive or progressive the regime is.

50 Mansour and Nakhle, *Fiscal Stabilization in Oil and Gas Contracts: Evidence and Implications*, 19.
51 Otto et al, *Mining Royalties: A Global Study of Their Impact on Investors, Government, and Civil Society*, 164–182.
52 Total benefits in this case are a project's revenues minus operating costs and replacement capital (but not minus exploration and development capital). This cash flow therefore represents the money that is available to pay back the initial investment and provide a return. It is standard practice to use this measure rather than the AETR, purely for graphical reasons: charting the AETR does not clearly illustrate the differences in tax regimes, and is highly dependent on the range of price and cost choices. See Philip Daniel, Brenton Goldsworthy, Wojciech Maliszewski, Diego Mesa Puyo and Alistair Watson, "Evaluating fiscal regimes for resource projects," in T*he Taxation of Petroleum and Minerals: Principles, Problems and Practice*, ed. Philip Daniel, Michael Keen and Charles McPherson, (Oxford: Routledge, 2010), 202.

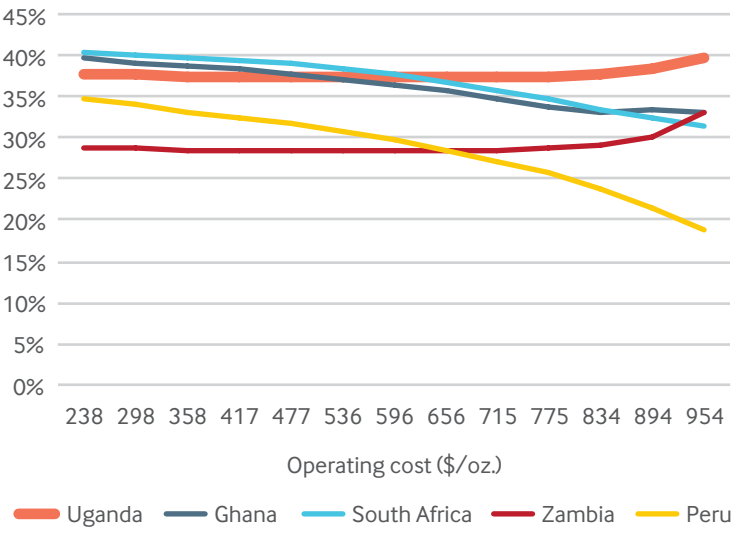

Figure 4. Government share of total benefits with respect to changes in operating cost[53]

Regime A, the current Ugandan regime, is quite unresponsive to the costs of a mine. However, as suggested by the analysis of AETR across the different mine profiles, it starts to become slightly regressive at higher costs. This results from the regime's import duty and royalty accounting for a larger share of a project's cash flow, which is not fully compensated by the reduction in corporate income tax payments. This outcome differs from that of the IMF analysis presumably, at least in part, because at the time of analysis, the regime contained a variable income tax rather than a standard corporate income tax. Therefore, while the tax burden appears reasonable for low and medium cost mines, the current regime could create challenges for investment if Uganda's future mining projects face high costs.

South Africa and Peru have the most progressive regimes out of the countries that I analyzed. The import duty and royalty in the South African regime also account for a larger share of a project's cash flow as costs increase. However, the variable profit tax that is levied in place of the standard corporate income tax is more responsive to higher costs. The Peruvian regime, which has no or little import duty and an operating margin tax rather than a royalty, significantly reduces the tax burden as costs increase. It is therefore most likely to be able to attract investment for high cost mines.

53 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

The Ugandan regime responds progressively to changes in the gold price (with costs being held constant). However, as Figure 5 shows, it is much less progressive than a number of other regimes. This is mainly because of the larger tax burden that the Ugandan regime places on a mine at lower prices. In contrast to Uganda, Ghana imposes little or no import duty and South Africa uses a royalty that has a rate that varies with price. Peru's regime is also very progressive with respect to price changes given its use of an operating margin tax rather than a royalty.

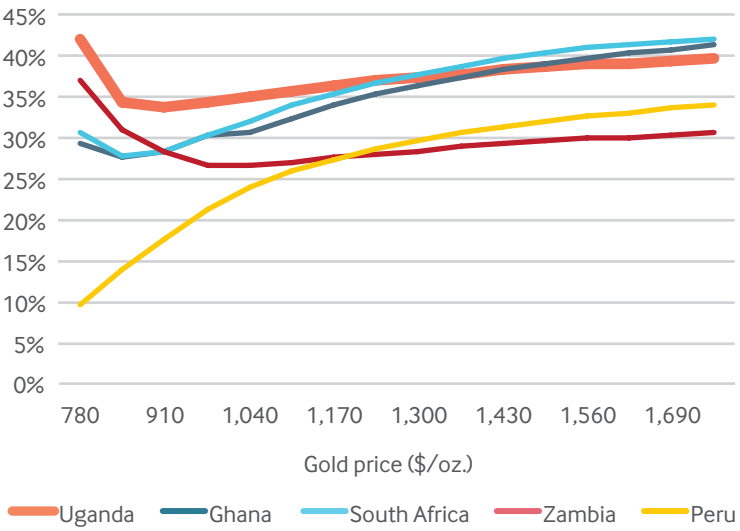

Figure 5. Government share of total benefits with respect to changes in gold price[54]

A progressive fiscal regime could be important for Uganda in its attempts to attract investment. At this stage, it is difficult to predict what type of mines the country might host. A fiscal regime that has high taxes for low profit mines may therefore inhibit some if not most projects from going ahead, or encourage the government to grant widespread investment incentives. A progressive regime should make Uganda attractive to a larger range of investors with different types of mines, giving it a better chance of developing a large-scale sector. Progressivity will also ensure the government benefits from larger revenues if any mines generate windfall profits. However, these advantages usually come at the cost of revenue reliability and tax base simplicity—two other qualities that the Ugandan government is likely to find important.

TAX BASE SIMPLICITY

Tax avoidance by companies is a significant concern for almost all governments. Central to limiting tax avoidance is the accurate measurement of the tax base. However, the base of some taxes is more difficult to measure than others and therefore more susceptible to company manipulation.

Measuring the value of inputs and gross sales is relatively straightforward. For example, to calculate gross sales, a tax auditor must multiply the price of output by the amount produced. Although these tax types are still not simple to measure, and it is still critical for the tax authority to audit taxpayers rigorously, they are simpler to measure than profit taxes. To measure profits, a tax auditor must measure output, price and all the applicable operating, development and finance costs. Most

54 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

tax authorities find this difficult, particularly those that are poorly resourced.[55] Therefore, even if a government were to invest heavily in the tax authority and thoroughly review the tax code to close tax loopholes, both actions that could generate a substantial return, a strong reliance on input and gross sales taxes could be appropriate if tax administration capacity is a particular challenge for a government.[56]

To measure tax base simplicity and the extent to which a regime exposes a government to the risk that companies will avoid taxes, I estimated the proportion of revenues generated from different tax bases.[57] Figure 6 shows this categorization of taxes according to whether they are based on inputs, gross sales, operating profit or corporate profit—ordered from the simplest to the most complex tax base.

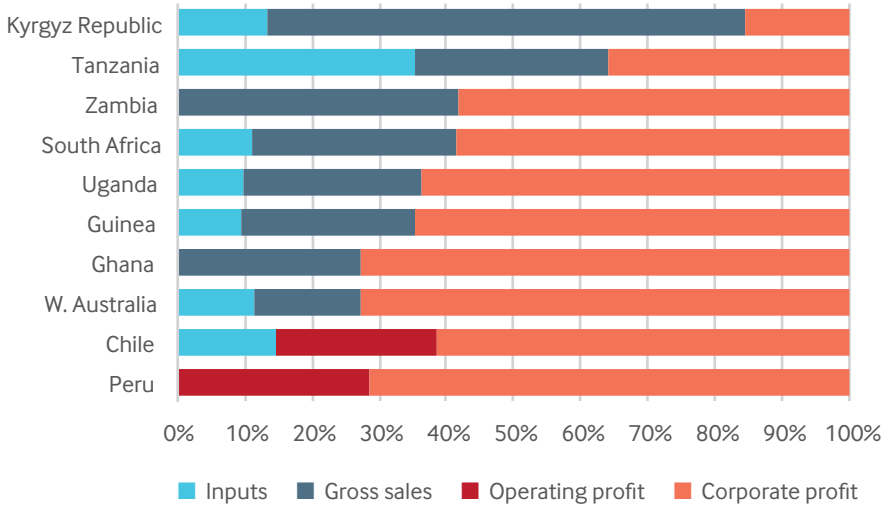

Figure 6. Proportion of total lifetime revenues by tax type[58]

The Ugandan regime does not appear to place significantly more weight on either input and gross sales taxes or profit taxes than most of the other regimes that I analyzed. Figure 6 shows, for example, that Uganda relies on input and gross sales taxes slightly more than South Africa but slightly less than Ghana. In my selection of regimes, the Kyrgyz Republic stands out for generating most of its revenue from input and gross sales taxes, while Peru stands out for generating all of its revenue from profit taxes.

Whether Uganda currently has the appropriate mix depends on the capacity of the Uganda Revenue Authority and other agencies involved in revenue collection.

55 James Otto, "The Taxation of Extractive Industries," in *Extractive Industries: The Management of Resources as a Driver of Sustainable Development*, ed. Tony Addison and Alan Roe, (Oxford: Oxford University Press, 2018), 288 and 292-293.

56 Relying excessively on taxing inputs and gross sales can perpetuate tax administration issues. It can inhibit capacity development to measure mine profits over time. It also makes it unlikely that the tax authority will be sufficiently informed about mining costs to help policymakers design and review the fiscal regime. International Monetary Fund, *Fiscal Regimes for Extractive Industries: Design and Implementation*, 19.

57 This is my own measure of the complexity of the tax regime and the risk of tax avoidance. It is simplistic in that it does not measure provisions in a specific fiscal regime that increase or decrease the difficulty in measuring the tax code. For example, net back provisions for royalties increase measuring difficulty, but this is not measured here.

58 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018. Note that absolute revenue is not equal across each regime, so the absolute value of revenue may be higher in a regime with a lower proportion. This result also assumes that the statutory withholding tax rate on dividends (treated as a corporate profit-based tax) is the effective rate. In reality, it is likely that double taxation treaties reduce the effective withholding tax in many cases.

There are various indications that some capacity challenges exist. For example, Uganda collects less tax on corporate income and profits (as a percentage of GDP) than many other African countries.[59] Widespread exemptions appear to partly explain this low collection, but capacity constraints are likely to be another cause. Uganda received a weak score for key tax administration indicators on the United Kingdom Department for International Development's most recent Public Expenditure and Financial Accountability assessment.[60] The Ugandan Auditor General raised concerns about the government's ability to collect mining revenue in its 2017 report, and others have recently raised similar concerns.[61] Additionally, my own discussions with government officials have revealed concern about existing capacity to collect profit taxes from mining companies.

These capacity concerns suggest that Uganda is sensible not to rely as heavily on profit taxes as other countries that I analyzed. However, the appropriate mix will also depend on how the government decides to weigh these concerns against the importance of profit taxes for the regime's progressivity.

A CASE FOR REFORM?

My modeling of Uganda's current fiscal regime for a hypothetical gold project suggested that it has no critical weaknesses. It is not in urgent need of revision, and therefore the government could decide to focus its reform efforts on other areas. However, revising the fiscal regime may still be beneficial. While the regime appears to place a reasonable tax burden on larger, lower cost mines, the higher tax burden faced by smaller, higher cost mines could deter investment or encourage the government to offer investment incentives that lead to other problems. This is of particular concern because Uganda's undeveloped sector, current geological potential and infrastructural weaknesses mean that the country could be more likely to host a smaller or costlier mine.

Table 3 summarizes my evaluation of the current regime. I give it a score relative to the fiscal regimes for the other countries I examined. This score is somewhat subjective, since there is not yet an established quantitative method for evaluation. This is particularly the case for ranking the progressivity of each regime, since a fiscal regime can be progressive under one range of costs or prices and regressive under another range. However, I believe this at least provides a basic summary of the more detailed analysis in this brief.

Government take for small mine	Reliability at low profit levels	Progressivity as profits change	Tax base simplicity
Poor/fair	Good	Poor	Fair

Table 3. Author's assessment of performance of current fiscal regime against possible government objectives

59 OECD, "Revenue Statistics - African Countries: Comparative tables," accessed 30 October 2018, stats.oecd.org/Index.aspx?QueryId=71591.

60 It received a C (with A being the highest score and D being the lowest) for revenue risk management and auditing. UK Department for International Development, *Uganda Public Expenditure and Financial Accountability (PEFA) Assessment 2016* (2017), 45.

61 Office of the Auditor General, *Annual report of the Auditor General of the results of audits for the year 2017* (2017), 32-34; National Planning Authority and Africa Centre for Energy and Minerals Policy, *The Second Annual Mining and Mineral Sector Development Scorecard* (2018), 26.

Examples of possible reforms

Though my analysis indicated that there is not a pressing need for Uganda to revise its current fiscal regime, the government may consider undertaking reforms to increase the regime's progressivity. The reforms I explored aim at slightly reducing the tax burden imposed on small, high-cost mines, but without significantly reducing the tax burden imposed on larger, lower-cost mines. I only reviewed one tax change at a time in an effort to isolate the effects of each tax change and provide the government information on the broad reform options. Further analysis is necessary before I can recommend specific revisions.

Table 4 summarizes the four revised regimes that I analyze in this brief. The remainder of this section describes the regimes in more detail. Other possible reforms I looked at are briefly discussed in this section, and can be found in the model attached to the brief. The appendix sets out the various combinations of these reforms that could be analyzed for the government if useful.

Table 4. Revisions to current regime

Fiscal term	A. Current regime	B. Variable rate royalty	C. Accelerated capital depreciation	D. Variable income tax	E. Lower corporate income tax plus resource rent tax
Royalty	5%	Variable rate (see description below)	5%	5%	5%
Corporate income tax	30%	30%	30%	Variable rate (see description below)	10%
Depreciation of development expenditure	For buildings: initial allowance of 20%, then straight-line of 5% per annum For plant and machinery: initial allowance of 50%, then declining balance of 30% per annum	For buildings: initial allowance of 20%, then straight-line of 5% per annum For plant and machinery: initial allowance of 50%, then declining balance of 30% per annum	Straight-line over 6 years	For buildings: initial allowance of 20%, then straight-line of 5% per annum For plant and machinery: initial allowance of 50%, then declining balance of 30% per annum	For buildings: initial allowance of 20%, then straight-line of 5% per annum For plant and machinery: initial allowance of 50%, then declining balance of 30% per annum
Resource rent tax	No	No	No	No	Yes (see description below)

REGIME B. VARIABLE RATE ROYALTY

The limited progressivity of the Ugandan regime is partly a result of the taxes that are to be paid regardless of a mine's profitability. The largest two are import duty and royalty.

Ghana, for example, offers widespread exemptions on imports for extractives projects. Uganda could consider doing the same, if permitted under the Common External Tariff of the East Africa Community. In addition to the existing exemption on capital goods, it could reduce or remove duty on most intermediate imports.[62] I analyzed the effect of providing an exemption for a limited time period, like Tanzania does. However, I do not cover it in this brief given its limited impact on the reform's performance against the four assessment criteria. The results can be found in the model published alongside this brief.

Considering the potential importance of royalty payments to public opinion, especially because local governments and landowners receive a share, I am cautious about reducing them or proposing a profit-based royalty.[63] However, in Regime B, I did look at replacing the fixed rate royalty of 5 percent with a variable rate royalty with a rate that varies according to gross sales revenue. The royalty rate is higher when revenue is high than when revenue is low. Because revenue is based on sales volume and price, smaller mines face a lower royalty rate at a certain price. Depending on its structure, a variable rate royalty can also be useful for taxing windfall profits based on revenue as a (imperfect) proxy for profits.

I used the rate schedule in Table 5, and imposed it on a marginal basis.[64] Importantly, this schedule is specific to gold projects. The revenue generated by projects involving the extraction of other minerals could be significantly different. Therefore, for the variable rate royalty to have its intended outcome, different schedules are required for different minerals.

Table 5. Hypothetical revenue-based royalty rate schedule for a gold project

Annual gross sales revenue ($ million)	Royalty rate
100	3%
150	4%
200	5%
250	6%
300	7%
350	8%

62 As making imports cheaper can reduce the incentive for companies to source these products from the domestic market, some countries have limited this exemption to goods that are unavailable domestically. See Peter Mullins "International tax issues for the resources sector," in *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, ed. Philip Daniel, Michael Keen and Charles McPherson, (Oxford: Routledge, 2010), 397.

63 For a discussion of the different types of royalty, see James Otto et al., *Mining Royalties: A Global Study of Their Impact on Investors, Government, and Civil Society*, 50-55.

64 A marginal basis means that the first $100 million of revenue is taxed at a rate of 3 percent even if a company has actually generated revenue of $125 million. The residual $25 million is then taxed at a rate of 4 percent. A variable rate royalty can be imposed on a non-marginal basis, which, in this example, would mean the entire $125 million would be taxed at 4 percent. However, this approach can distort company behavior through its generation of cliff-edges whereby a company is better off generating revenue just below a rate threshold than above it.

I also looked at introducing a production sharing arrangement into the regime, as this is an option currently being considered by the government. However, I do not cover it in this brief because if the government receives its production share in cash rather than in kind, this arrangement has the same qualities as a variable rate royalty. That is, it generates revenue for the government as long as production is taking place and the amount of government revenue generated varies with production, price levels or gross revenue.[65] To demonstrate this, I designed a production sharing schedule that performs across the different criteria in the same way that the variable rate royalty in Regime B does. The results of this production sharing regime can be found in my model.

REGIME C. ACCELERATED CAPITAL DEPRECIATION

Capital expenditure results in assets that are useful for a period of time. For tax purposes, the cost of this asset tends to be spread (i.e. depreciated) across its useful life. However, it is relatively common for governments to allow mining costs to be depreciated more quickly. This recognizes that one of the main sources of risk for an investor is the substantial investment required at the start of a mining project and the relatively long period before a mine generates sufficient profit to recoup it. Faster depreciation means costs are deducted sooner, which means less profit tax is paid in the early years of a mine. This lowers investor risk and therefore makes a project a more attractive investment proposition.

The Ugandan regime does not currently allow for accelerated depreciation. It allows a significant cost deduction in the year that the expenditure is made, but then lower deductions thereafter. It takes 17 years for capital costs related to industrial buildings to be fully deducted. In contrast, Zambia allows for capital costs to be depreciated over four years, while South Africa allows for 100 percent depreciation in the year of expenditure. The impact of slower depreciation would be particularly significant on small mines with a relatively short life. A mine that only has 10 years of production would not be able to deduct all of its costs from taxable income if depreciation is spread over 17 years. Therefore if the Ugandan regime were to allow for accelerated depreciation, it should benefit smaller mines more.

In Regime C, I analyzed the impact of allowing capital costs to be depreciated over six years (using the straight-line method). This would align the rate with the current rule for "mining extraction expenditure" that covers some expenditures but not on depreciable assets.[66]

65 If the government chose to receive its production share in kind, the arrangement would still have the same qualities as a variable rate royalty in terms of the timing and scale of the payment. However, how the government decides to use the physical product would determine how it ultimately benefits from this revenue stream. For example, whether the government immediately sold the product through a typical market transaction or retained it in a strategic reserve to draw down in the future. In any case, the government should be cautious in deciding to take payment in-kind. If it does so, it should draw on the experiences of other countries to avoid some of the common pitfalls. See for example: Natural Resource Governance Institute, *Primer: Commodity Trading* (2015), 5-6.

66 Section 89A of the Income Tax Act (as amended) defines "mining extraction expenditure" as expenditure on an interest in a mining right, mining information or social infrastructure.

REGIME D. VARIABLE INCOME TAX

Another option for increasing progressivity of the regime is to revise the corporate income tax. The current regime, Regime A, imposes a tax of 30 percent irrespective of a mine's profitability. A tax with a variable rate could impose a lower tax rate on less profitable mines and a higher tax rate on more profitable mines. I looked at this reform in Regime D.

The Ugandan regime had a variable income tax until the 2015 amendment of the Income Tax Act. The rate was determined by this formula:

$$Y = 70 - 1500/X$$

where Y is the tax rate and X is the ratio of taxable corporate profit to gross revenue ("profit ratio").

The rate of tax was therefore based on a sliding scale, but with a minimum rate of 25 percent and a maximum rate of 45 percent.

I analyzed the effect of reintroducing the former variable income tax in place of the current corporate income tax. However, I found that it increases government take for both the small and the large mine. Even for the small, high cost mine that I modeled, the formula for this tax results in an average tax rate greater than 30 percent. This result is inconsistent with the IMF analysis, which suggests that the variable income tax should be lower than the standard corporate income tax rate on mines with low profitability margins. Without access to the IMF's modeling, it is difficult to definitively determine the reason for this difference. However, I found that a mine's profitability has to be extremely low to benefit from this relief—possibly so low that investors would not invest in this mine anyway. Therefore, while I agree with the IMF's suggestion that the Ugandan regime benefited from having a variable income tax, I think a more progressive version would need to be considered for it to function as intended. The results of reintroducing the variable income tax in its original form can be found in my model.

I have made the variable income tax modeled in Regime D more progressive by adjusting some of its components. For illustrative purposes, I reduced the minimum tax rate to 10 percent. This means less profitable mines will face a lower tax rate. I also modified the formula so that the tax rate increases more gradually as the profit ratio rises. The formula I used is:

$$Y = 68 - 1500/X$$

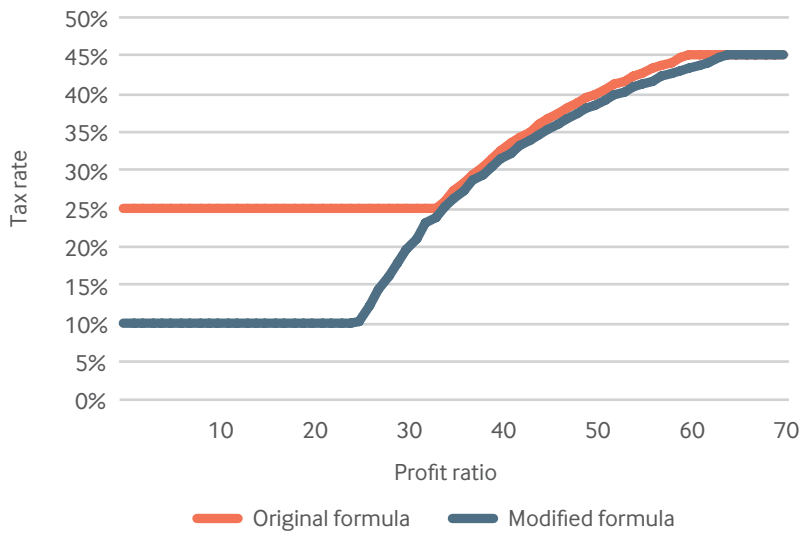

Figure 7. Effect of original and modified variable income tax on the tax rate

REGIME E. LOWER CORPORATE INCOME TAX, PLUS RESOURCE RENT TAX

The final regime I evaluated has a greater mix of taxes than the other regimes. Regime E introduces a resource rent tax, which is only payable when a mine is making a certain amount of profit. I set this tax at a rate of 25 percent, and imposed it on net cash flow once the project has generated a return after corporate income tax of at least 12.5 percent (an assumed required rate of return for investors).[67] Regime E also reduces the corporate income tax rate from the current rate of 30 percent to a lower rate of 10 percent.

These combined changes should mean that mines that are not making large profits face a lower tax burden than in the current regime, but the government is still able to capture a reasonable share of revenues from mines that are making large profits. The variable rate royalty in Regime B and the variable income tax in Regime D can also provide for this progressivity. However, by maintaining the current royalty, Regime E could be more palatable to the public. In addition, by having separate taxes for normal profits and windfall profits, it may have greater flexibility. Finally, the standard corporate income tax regime is likely to be one of the better-constructed and more stable areas of a country's tax system, and so maintaining it rather than introducing a different version can be advantageous. Regime E's mixture of royalty, corporate income tax and windfall taxes is in line with advice from the IMF, the Natural Resource Charter and other good practice guides.[68]

67 This is achieved by providing an uplift of 12.5 percent on net cash flow when it is negative. Once the net cash flow turns positive, the investor will have not only recovered their costs but also earned a return of 12.5 percent.

68 Natural Resource Governance Institute, *Natural Resource Charter*, 17-19.

Evaluation of reform examples

In this section, I show how the current regime and the four reform examples compare with each other. I base this analysis on the criteria used previously. I also evaluated these reforms against the regimes in other gold mining countries. I do not show many of these results here, but they can be found in the model published alongside this brief.

OVERALL GOVERNMENT TAKE

The government would continue to capture a relatively large share of company profits under any of the potential reforms were introduced. For each of the hypothetical mines that I modeled, I calculated that every revised regime generates a government take in excess of 60 percent. However, as Figure 8 shows, some reforms have more effect than others.

Most of the reforms succeed in slightly lowering the tax burden for the small mine while maintaining a similar tax burden on the large mine, with the exception of Regime C. Allowing faster capital depreciation lowers the tax burden for both mines, though it does provide greater relief to the small mine.

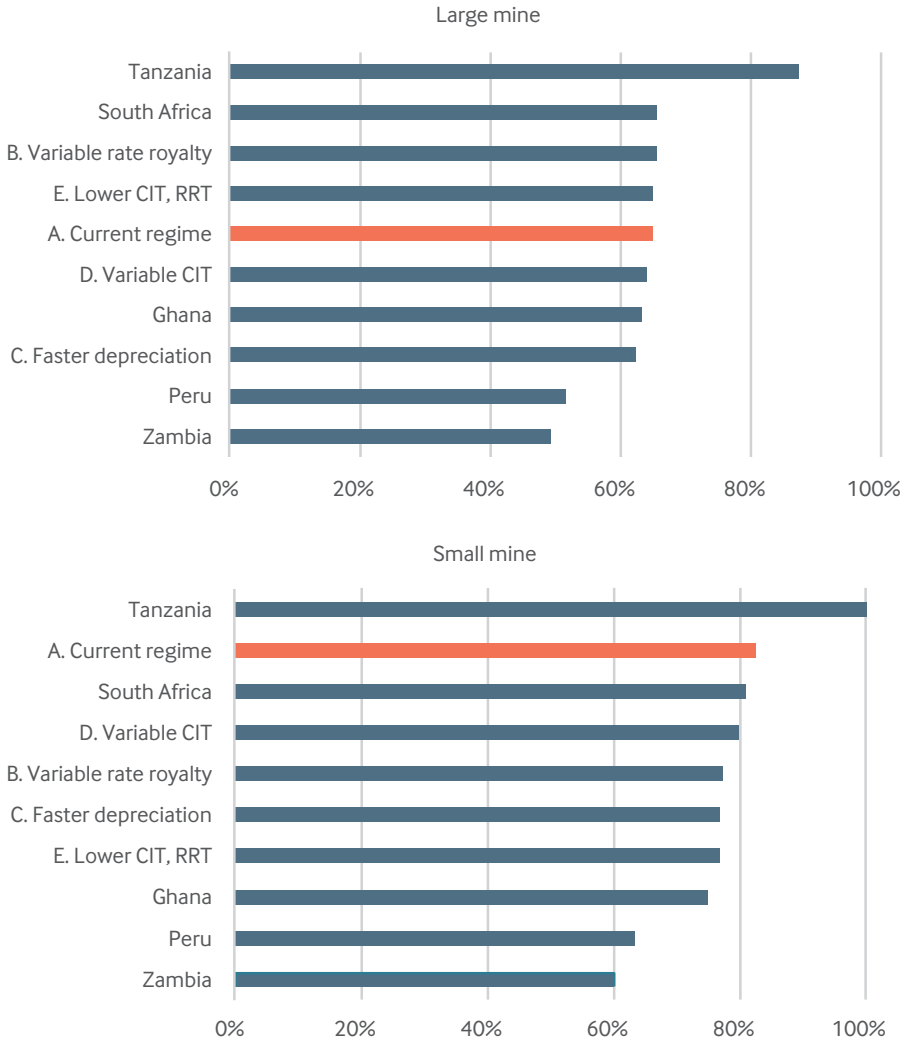

Figure 8. Average effective tax rate for two model mines with gold price of $1,300 per ounce[69]

69 At a discount rate of 10 percent. Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

RELIABILITY AT LOW PROFIT LEVELS

Some of the reforms have a significant impact on revenue reliability. As Figure 9 shows, with the revenue-based variable rate royalty in Regime B and the variable income tax in Regime D, government revenue will be more limited in the early years of a project as production gradually ramps up. Regime C, which allows for accelerated capital depreciation, delays corporate income tax payments. The lower corporate income tax rate in Regime E results in lower revenues when the mine does not make sufficient profit to trigger the resource rent tax. However, both of these regimes generate larger government revenue over time as the mine becomes more profitable than do other regimes. These timing differences highlight one of the trade-offs that governments often have to make.[70]

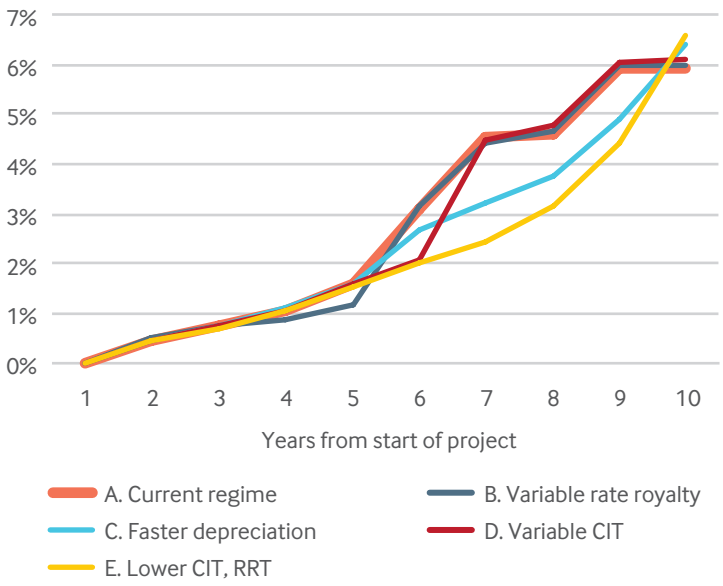

Figure 9. Proportion of total government revenue paid by a mine in each of the first 10 years of operations[70]

PROGRESSIVITY AS PROFITS CHANGE

Only two of the revised regimes—Regimes D and E—are considerably more responsive to the operating costs of a mine than the current regime. Regime D demonstrates the greatest progressivity. It has the highest government take when costs are low, but also provides significant relief as costs increase and the corporate income tax rate falls. Regime E imposes a lower tax burden than Regime D at low costs, but given the resource rent tax, still higher than the current regime. As costs rise, the tax burden falls as the resource rent tax is no longer triggered and only the lower 10 percent corporate income tax applies. When costs are very high, Regimes D and E both tax profits at a rate of 10 percent and therefore impose the same tax burden.

70 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

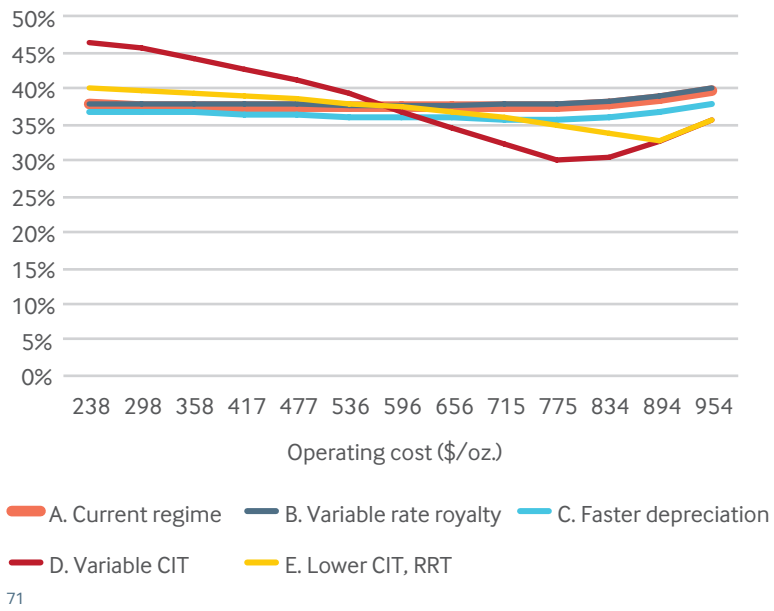

Figure 10. Government share of total benefits with respect to changes in operating cost[71]

71

All of the revised regimes show varying degrees of progressivity with respect to a change in the gold price. Regime D is again the most responsive, followed by Regime E. The variable rate royalty makes Regime B also progressive. Because the rate varies with gross sales revenue, it is not responsive to a change in costs, but is responsive to a change in price. It provides for the lowest tax burden out of the revised regimes when prices are very low. Regime B does not generate significantly larger revenues than the current regime at high prices, at least in its current form. However, the government's current share from profitable mines appears reasonable.

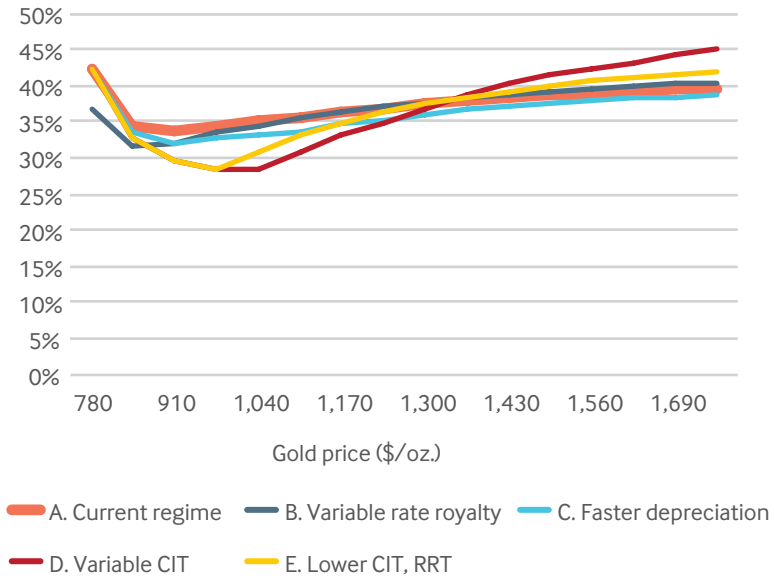

Figure 11. Government share of total benefits with respect to changes in gold price[72]

71 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.
72 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

TAX BASE SIMPLICITY

Two of the possible reforms could change the tax base and therefore the potential for tax avoidance. As Figure 12 shows, the impact of the variable rate royalty on the mix of tax types depends on the type of mine on which the regime is imposed. For a large mine, it does not differ significantly to the current regime but does slightly reduce the government's dependence on profit taxes. However, for a small, high cost mine, the royalty rate will be lower than under the current regime resulting in a greater reliance on profit taxes.

Despite Regime E having a similar mix of tax types as the other regimes, the inclusion of a resource rent tax may also give rise to greater tax avoidance risks. If the same rules for treatment of revenue and costs are used for corporate income tax and resource rent tax, there should not be any additional risk.[73] However, if the rules differ, the Uganda Revenue Authority may find it difficult to administer them both effectively given the greater administrative burden and larger scope for mistakes.

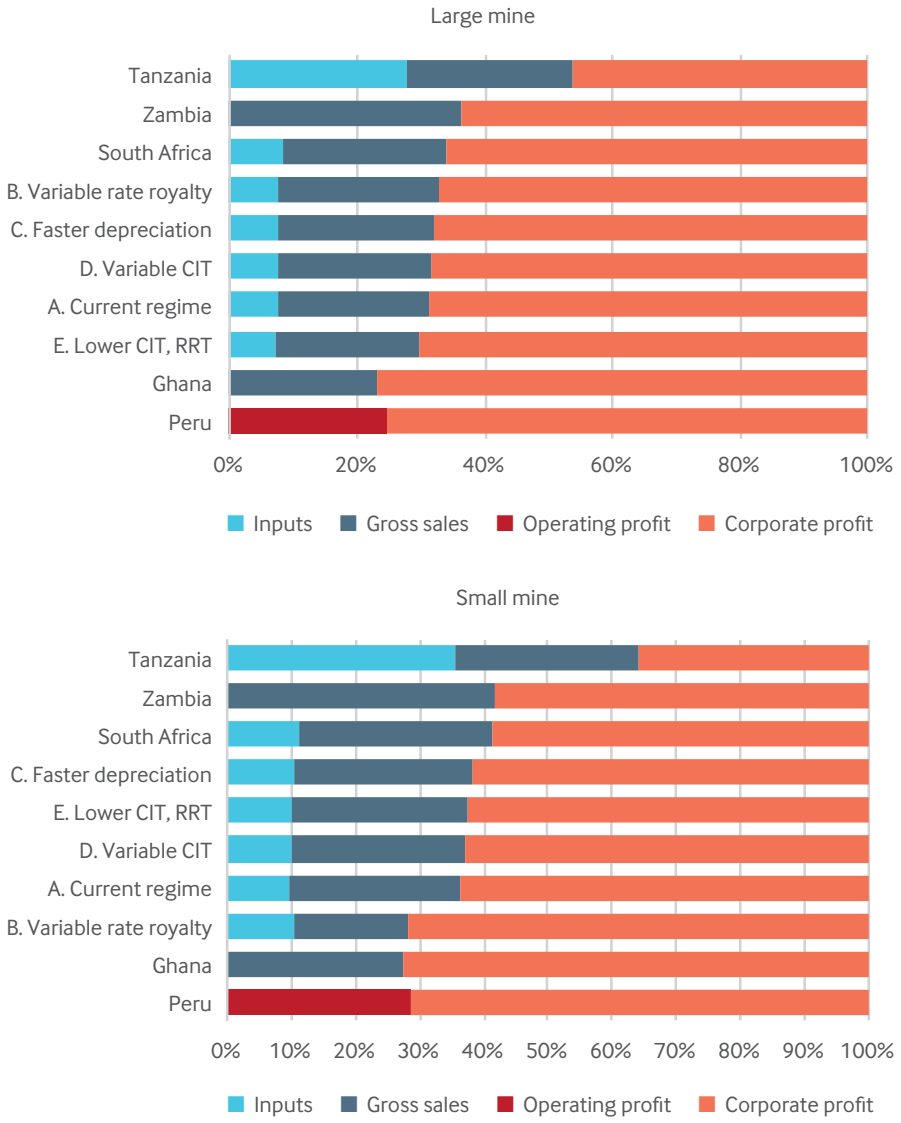

Figure 12. Proportion of total lifetime revenues by tax type[74]

73 Jack Calder, *Administering Fiscal Regimes for Extractive Industries. A Handbook* (International Monetary Fund, 2014), 20.
74 Natural Resource Governance Institute, NRGI mining tax model for Uganda, 2018.

Conclusion

There is increasing optimism that large-scale mining will soon resume in Uganda, but significant investment will be needed for its potential to be realized. The design of the fiscal regime will likely have a significant effect on the ability of the country to attract this investment. A critical element will be the regime's stability. To reduce the future pressure for changes from companies, the government or other stakeholders, Uganda will need to set a tax burden that is agreeable to both potential investors and its citizens. The government's plan to enact a new fiscal regime will therefore need to be informed by analysis of how different regimes perform across mines of different size, cost and profitability. It will also need to take into account how much weight investors place on the tax burden relative to other factors such as political stability, the wider regulatory environment, the quality of infrastructure and transparency.

My modeling of Uganda's current fiscal regime for a hypothetical gold project suggests it has no critical weaknesses. It is not in urgent need of revision, and therefore the government could decide to focus its reform efforts on other areas. However, revising the fiscal regime could still be beneficial. While the regime appears to place a reasonable tax burden on larger, lower-cost mines, the higher tax burden faced by smaller, higher-cost mines could deter investment in these types of mines or encourage the government to offer investment incentives that lead to other problems. However, my analysis also highlights how the government will always have to make trade-offs when designing the fiscal regime. Each of the four reforms that I evaluated requires the government to compromise on at least one of its likely objectives. Table 6 summarizes these results by comparing the performance of the revised regimes with the current regime.[75]

Table 6. Author's assessment of performance of reform examples against possible government objectives

	Government take for small mine	Reliability at low profit levels	Progressivity as profits change	Tax base simplicity
A. Current regime	Poor/fair	Good	Poor	Fair
B. Variable rate royalty	Fair	Fair	Fair	Poor/fair
C. Accelerated capital depreciation	Fair	Poor/fair	Poor/fair	Fair
D. Variable income tax	Fair	Fair	Fair	Fair
E. Lower corporate income tax plus resource rent tax	Fair	Poor	Good	Poor

75 This assessment is somewhat subjective, since there is not yet an established quantitative method to calculate it. This is particularly the case for ranking the progressivity of each regime, since a fiscal regime can be progressive under one range of costs or prices and regressive under another range. However, I believe it at least provides a basic summary of the more detailed analysis in this brief.

Each of the four reforms succeeds in lowering the burden for smaller, high cost mines without lowering the burden for larger mines. They are able to do this because they are more progressive than the current regime.

The lower tax burden on smaller mines comes at the cost of reduced revenue reliability. Regime E, with its lower corporate income tax, is particularly weak in this area. Introducing a variable rate royalty or a resource rent tax into the regime could also increase tax avoidance risks. While a variable rate royalty would reduce reliance on profit taxes for a large mine, it could result in a lower royalty than the current regime for a smaller mine and therefore increase reliance on profit taxes. A resource rent tax could also create tax administration challenges if it has significantly different rules to corporate income tax. Therefore, if the government decides to revise the regime, the right reform to undertake will depend on which objectives and concerns matter most to it.

If the government decides that improved progressivity is important but not enough to warrant a significant reduction in revenue reliability or greater tax avoidance risks, then Regime E would not be appropriate. Indeed, discussions with government officials have indicated that because of capacity concerns, it is unlikely they would consider implementing a reform that introduces another profit tax.

Regimes B and D could represent better options for the government. They both appear to offer a reasonable balance between the conflicting objectives of reliability and progressivity. While regime B could increase reliance on profit taxes when the variable rate royalty results in lower royalties, neither of these regimes generate significantly greater tax avoidance risks. However, because Regime B would reduce royalty payments in the early stages of a mine and for smaller mines overall, it would need to be managed carefully, especially as government authorities and individuals in the locality of the mines receive a direct share of the revenue. At the very least, the government would need to ensure that all local entities receive the money that they are due (which does not appear to always be the case currently).[76]

Regime C provides neither strong reliability nor significant progressivity. However, accelerated capital depreciation does offer some early tax relief and therefore should lower investor risk, particularly for smaller mines. Because it does not increase tax avoidance risks, this reform could also be useful to consider.

These revisions are intended to merely demonstrate some of the options available to the government, however. As a result, I only looked at a change in one tax at a time, and at only one version of that tax change. It is possible that the optimal reform would comprise changes to a number of taxes. For example, introducing both a variable rate royalty and accelerated capital depreciation may allow for the lowest rate in the variable rate royalty schedule to be higher than that which I looked at, without reducing the relief that the regime provides to smaller, higher cost mines. If so, this combination may achieve the intended outcomes without significantly reducing royalty payments and therefore the amount that government authorities and individuals in the locality of the mines receive. The Appendix sets out how the different reforms that I looked at could be combined. These combinations may or may not achieve the intended outcomes, but evaluation of them would be advisable before the government revises the regime.

76 National Planning Authority and Africa Centre for Energy and Minerals Policy, *The Second Annual Mining and Mineral Sector Development Scorecard*, 27.

Finally, my analysis of the fiscal regime for a gold project together with the IMF analysis of the regime for an iron ore project should provide a relatively comprehensive picture of the fiscal regime. However, the government would still benefit from assessing how the regime performs when applied to other minerals before making any generally applicable reforms. At the very least, before introducing a variable rate royalty, the government would need to assess whether the schedule I looked at for a gold project would still achieve the intended outcomes if applied to a project extracting other minerals. There is likely to be a difference in the amount of revenue that these projects typically generate.

Appendix

MODELING APPROACH

The most widely used approach to modeling the impact of fiscal regimes on mining projects is a discounted cash flow model. For this analysis, I used an adapted version of the IMF's FARI model.

My model is of a single mining project that produces gold doré. Uganda does not currently have any large-scale gold projects to base a profile of this mine on. Therefore, using the S&P Global metals and mining database, I developed a profile with capital costs, production and a lifetime that are representative of the average across Sub-Saharan African gold mines. However, this hypothetical mine is quite large with reasonably low costs. As the effects of a fiscal regime can differ depending on the specific cost and production of a mine, I developed two further mine profiles. These mines have annual production that is a third of the Sub-Saharan African average, with the "small mine" having a lifetime of 10 years and the "small mine with expansion" having a lifetime of around 20 years. The characteristics of these three mines are intended to broadly cover the range of large-scale mines that may exist in Uganda in the future, and are sufficiently different to test how each fiscal regime applies to different mines.

I am unable to predict what the actual operating costs for a new mine in Uganda will be, and so I assumed the average costs for gold mines across the world. I chose operating costs of $600 per ounce (including transport, treatment and refining charges) to place these mine profiles close to the center of the global gold cost curve, based on the costs of mines in 2017. However, I varied this assumption in my evaluation.

Table 7. Key assumptions for modeled mine profiles

Parameter	Large mine	Small mine	Small mine with expansion
Peak production	240,000 ounces	80,000 ounces	80,000 ounces
Production life	20 years	10 years	20 years
Exploration capital	$30	$10	$15
Development and expansion capital	$600 million	$160 million	$210 million
Replacement capital per year	$6 million	$1.6 million	$2.1 million
Operating cost (varied in the evaluation)	$596 per ounce	$596 per ounce	$596 per ounce
Transport, treatment and refining charges (TC/RC)	$4 per ounce	$4 per ounce	$4 per ounce
Operating costs with transport and TC/RC	$600 per ounce	$600 per ounce	$600 per ounce
Pre-tax internal rate of return	27%	23%	25%
Post-tax internal rate of return (under current Ugandan regime)	17%	13%	16%

I also assumed a set of economic factors that would apply to a mining project, including: the global gold price, an investor's hurdle rate and global inflation. For these, I took the values used as common practice by industry and government analysts.

Table 8. Key economic and financial assumptions

Parameter	Assumption
Gold price (varied in the evaluation)	$1,300 per ounce
Investor nominal discount rate	12.5%
Government nominal discount rate	10%
Inflation	2%
Real interest rate	5%
Project leverage (equity/total assets)	50%

I applied the main elements of the Ugandan fiscal regime to each of the mine profiles. However, in line with the IMF's approach in the public FARI model, I did not include the interest withholding tax. To keep the model and my analysis as simple as possible, I also did not include taxes and other fiscal instruments that are likely to comprise a relatively small proportion of total government revenue for a large-scale project, such as annual license fees. Finally, I did not model employment taxes that are ultimately paid by the mine employees rather than the companies.

I have also simplified some elements of the regime. For example, while import duties vary according to trade agreements between countries (e.g., East Africa Community trade rules) and according to the good and services imported, I have assumed one rate for all imported inputs. The East Africa Community Common External Tariff sets a duty of 0 percent for capital goods and 10 percent for intermediate goods, so I have simplified and assumed an import duty of 5 percent for all goods.

In the process of conducting my analysis, I found that applying the fiscal regimes to each of the mine profiles yields broadly similar results. Any notable differences are discussed in the main body of the brief.

POSSIBLE COMBINATIONS OF REFORMS THAT COULD BE ANALYZED

I only looked at a change in one tax at a time, and at only one version of that tax change, in this brief. Table 9 sets out how the different reforms that I looked at could be combined.

Table 9. Possible combinations of reforms

Fiscal term	Combination 1	Combination 2	Combination 3	Combination 4	Combination 5	Combination 6	Combination 7
Royalty	Variable rate	Variable rate	Variable rate	Variable rate	Variable rate	5%	5%
Corporate income tax	30%	Variable rate	10%	Variable rate	10%	Variable rate	10%
Depreciation of development expenditure	Straight-line over 6 years	Buildings: initial allowance of 20%, then straight-line of 5% Plant and machinery: initial allowance of 50%, then declining balance of 30%	Buildings: initial allowance of 20%, then straight-line of 5% Plant and machinery: initial allowance of 50%, then declining balance of 30%	Straight-line over 6 years	Straight-line over 6 years	Straight-line over 6 years	Straight-line over 6 years
Resource rent tax	No	No	Yes	No	Yes	No	Yes

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