



Working Paper 5

Caught in a Trap: Zambia's Mineral Tax Reforms

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David Manley

Summary

Any investment that involves unrecoverable costs relies on the good faith of the government not to raise taxes after costs have been incurred. Unfortunately, features inherent within the political economy of natural resource industries, and particularly within poor countries, makes a stable investment environment difficult to achieve. Indeed, some suggest that countries may fall into a trap in which one episode of instability breeds the conditions for future instability, creating a vicious circle that prevents a country fully benefiting from its mineral wealth.

The recent rise in commodity prices is one feature that has influenced reforms in mineral industries around the world. While the general determinants are becoming better understood, each country may offer new insights into this problem. This paper focuses on Zambia's experience to understand what determined the tax reforms there. In addition, it explores the successes and failures of the mechanisms used to ensure a stable investment environment in Zambia.

The paper finds that contract clauses between mining companies and the Zambian government provided some stability, even if no arbitration has so far occurred. In addition, certain tax structures imposed so far have not provided any protection. This paper suggests a better enabling environment, including greater diversification and government administrative capacity, may make these strategies more successful in the future.

Keywords: Resource taxation; tax policy; mineral rich countries; resource curse; bargaining theory; economics and politics; Zambia

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The views expressed in this study are those of the author and do not necessarily reflect the view of any allied institutions.

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Acronyms

DA: Development Agreements

ETR: Effective Tax Rate

LME: London Metal Exchange

MMD: Movement for Multiparty Democracy

PR: Patriotic Front

ZRA: Zambia Revenue Authority

ZCCM: Zambia Consolidated Copper Mining

ZCCM-IH: Zambia Consolidated Copper Mining Investment Holding company

Introduction

Since independence in 1964, the Zambian government's involvement in the mining sector has ebbed and waned: from ownership and operational control to taxation. Having nationalised the mining industry in 1969, state-ownership lasted 30 years until 2000. This paper concentrates on the relationship between the government and the mining sector from this point to the present day. It covers the formation of the privatisation deals and the subsequent breaking of those deals in 2008, and the ensuing three years of tax reforms.

Zambia's experience is not unusual. Expropriation by government and general fiscal instability appear to be quite common in natural resource industries. This is of course a worry for the private sector, but can also be quite damaging for the host country.¹

To attract investment, Zambia must provide a stable fiscal and political environment. Arbitrary changes to the tax regime, broken contracts and the threat of outright expropriations are not conducive to this objective. To explore the causes and possible solutions to this instability, this paper will apply the insights of bargaining theory.² Applied in this context, it sees the changing tax structures as the result of the shifting balance in bargaining powers between the mining companies and the government. To a large extent the story fits this theory, but the paper highlights areas Zambia's reform process that provide a greater level of detail to our understanding of this framework. In addition, on the basis of this analysis, the paper considers the success and failures of efforts to stabilise the tax regimes, as well as the suitability of those that were not imposed. To this extent, section 1 of this paper will discuss the ways in which bargaining theory applies to the reform of mining taxation, sections 2 and 3 will look at the structure of the four tax regimes, and at the factors and shifting powers that influenced those structures. Section 4 will address the changes to the tax structure after 2008, and section 5 will offer some policy suggestions for the future taxation of the mining sector. Section 6 will conclude.

¹ Duncan (2006) has found significant reductions in mineral output in countries that expropriate.

² Part of the branch of economics called Game Theory, the two terms are often interchangeable. The concepts in this type of economics are often applied to understanding how two or more entities might behave in reaching agreements to divide some economic resource. See Muthoo (2000)

1. Bargaining Theory

1.1. A model of tax bargaining

Expropriation can be broken down into “direct”, meaning the state takes direct ownership of mining assets, or “creeping”, where the government takes a greater share of the proceeds. Both types of expropriation are common in the world of natural resource extraction. Extraction industries have witnessed cycles of expropriations globally, and often these correspond to the cycle of commodity prices (Chang, Hevia & Loayza, 2009).³ While fewer direct expropriations have occurred since the latest surge in commodity prices at the start of the millennium, there has been a global wave of tax increases across various resource extraction industries (Daniel & Sunley 2010). With regard to Zambia, the government broke the agreements it signed with the mining companies at privatisation in 2008 and has since implemented two further tax regimes, in 2009 and 2012. These expropriations are damaging to both investor and country. Understanding why they occur and how to prevent them is crucial.

Bargaining theory can be helpful. We can model the investment packages and tax regimes as a ‘bargain’ struck between the government and the mining company over how to share the proceeds of the mining project.⁴ Each side must weigh up the options available to them. In theory, the resulting investment package reflects the difference in these options. For instance, consider a government with an natural resource. To secure value from this resource, the government can choose between offering a private mining company a contract in which the mining proceeds are shared, extracting the resource itself, or leaving it in the ground. For the mining company, its choice is between the share of the proceeds negotiated with the government, or the next best investment. The process is iterative. For instance, if the mining company has an alternative strategy that promises a greater return than the government contract, the government must respond by offering a higher share of the mining proceeds or settle with one of its other choices.

From this it can be seen that the higher the value of the alternatives a side has, the greater its bargaining power and the more of the mining proceeds it can extract. The value of these outside options can therefore be described as each side’s relative bargaining power. This becomes useful in the context of mining tax reforms, and the stability of tax regimes over time. Once the initial contract has been made, each side has a series of further options. For example, three simple choices for the government might be between remaining with the status quo, increasing a tax rate or direct expropriation. The mining company’s options might include accepting the new tax deal, or moving operations to another country.⁵

This array of options is captured in the obsolescing bargaining model which predicts that before investment is undertaken, power will be with the mining company. At this point it can choose to invest in a wide range of projects: with a large array of options, bargaining power is with the

³ Hogan *et al.* (2010) explain that indirect expropriations where at least some of the value of the project is taken by the government, for example, via a tax increase, can also be considered as part of the same problem.

⁴ The mining company providing operational specialism and the investors providing capital can be distinct entities. A simplifying assumption in this paper is that all related parties on this side are part of the mining company.

⁵ Winters (2007) this provides a good example of how this framework can be applied to understanding the behaviour of natural resource relationships.

mining company. However, bargaining power shifts to the government once investment occurs. For mining, investment involves a large proportion of sunk costs, expenditure that cannot be reversed (Barham, Chavas & Coomes 1998).⁶ For the mining company, sunk investment increases the costs of choosing to move operations. This increases the costs of moving operations in the face of expropriation. Therefore, the higher these costs, the greater the bargaining power the government enjoys.

Another common factor in many natural resource projects is that one of the bargaining parties is a sovereign government. Unlike interactions between two private agents within the same legal jurisdiction, the investor cannot be sure of any legal redress should the deal go awry. This lack of legal protection for private companies means expropriations become less costly for governments (Hogan, Sturzenegger & Tai 2010). The above two elements help to explain why expropriations are common in natural resource industries.

A further factor is the commodity price cycle, which suggests why expropriations appear to be cyclical and come in waves across the world. Fluctuations in prices alter the relative value of the project in relation to the options available to each party. At low mineral prices, for example, investors may seek to put their capital in alternatives that offer a higher return. This may prompt the government to offer a lower tax rate or more favourable share of risks. In periods of high prices, mining assets offer relatively better returns than alternatives. The government can now afford to be less generous in its incentives to investors.

However, a significant restraint on the government is that its actions alter the returns it can hope to achieve in future projects. Having expropriated one project, mining companies, and indeed any other investor who deals with the government, will discount the expected returns from a future project in line with the possibility that the government will expropriate again. Investors may request compensation for such a risk, reducing the potential returns that the government can expect to achieve (Jensen & Johnston 2010).⁷ In this way, the government's response to investors' fears can reduce the benefits of expropriation. However, public pressure also plays a role in our bargaining model. If the public perceives the country is not benefiting from the extraction of natural resources, such pressure may force the government to expropriate. In our model this can be seen as a cost to keeping the status quo – if the government does not expropriate it will face the wrath of the people. Public pressure concerns are particularly relevant in the context of mineral extraction in developing countries, where the government often has a weak mandate.

1.2. Privatisation trap

An emerging idea is that countries can fall into a trap in which political risk and low investment become self-perpetuating (Summers 2010).⁸ There are two forces at work.

The first relates to the findings of the resource curse literature: that low-income, resource rich countries tend to have weak or sub-par institutions, such as the judiciary and public finance management, which are the very institutions needed to prevent expropriation. As a consequence investors perceive a higher probability of expropriation in countries without strong

⁶ Barham, Chavas, & Coomes give a detailed account of the impact of sunk costs on the investment behaviour of extractive industries.

⁷ Jensen & Johnston provide empirical evidence showing that natural resource economies partially compensate for the increased level of political risk by offering corporate tax incentives to firms.

⁸ Larry Summers calls the phenomenon a 'privatization trap'.

institutions are seen. With such risks, government must compensate by offering a more attractive investment contract. If investors worry that a country will expropriate, they will demand a contract that includes a more favourable risk allocation, or they will take their investment elsewhere. However, if the project becomes a success then the resulting returns will be skewed towards the investor: the firm will earn windfall profits, which then become a valuable target for expropriation.⁹ Given potential pressure from the public and the low costs of expropriation to the government, such an act becomes more likely. In other words, the system can be self-fulfilling: the perception that the country might expropriate increases the chances of expropriation (Summers 2010).

There is a further element to the trap for low-income countries. A lack of diversification in government revenue and poor administrative capacity within the government lend support for quantity or revenue-based taxes such as royalties, which provide a more reliable source of revenue than profits taxes and are easier to calculate.¹⁰ Despite these advantages, the resulting allocation of risks can be destabilising. Royalties are more regressive than profit-based taxes: when prices rise, profit-based tax revenue will increase faster than royalty tax revenue, given the government's ability to collect both sources of tax revenue. This means that the mining company is left with greater profits, which makes expropriation more valuable.

Such taxes mean that the mining company is faced with the possibility of having to pay a royalty even when it is making losses.

1.3. Proposed solutions

There has been no single answer to the problem of expropriations. At best we can apply a variety of solutions in the hope of mitigating the risk. Here are three proposals that have been suggested, which can be classed as:

- Contracts that impose a cost to expropriation;
- Contracts that reduce the benefits from expropriation; and
- Contracts that allow an orderly process of renegotiation.

Stability clauses are the most widely used of the solutions presented here. Their aim is to provide the investor with the legal means to inflict a cost upon the government should that government undertake an action outside that stipulated in the contract. Such clauses can include freezing the entire fiscal and regulatory code, or allowing flexibility within individual tax rates so that the overall burden of taxation does not increase.

To impose a cost on government action, stability clauses typically include some recourse to an international arbitrary body, for example to the World Bank's International Centre for Settlement of Investor Disputes. Yet enforcing these contracts still appears to be difficult; companies have brought few cases before a court (Daniel & Sunley 2010). However, stronger international institutional frameworks and greater involvement in international financing markets by countries may strengthen this recourse.¹¹ In addition, few court cases does not prove that stability clauses are ineffective. As will be seen in the case of Zambia, the mere possibility of arbitration may be

⁹ This is supported by Chang, Hevia & Loayza, (2009) who find that 'contracts for the exploitation of natural resources between governments and private companies are such that commodity price windfalls are mostly appropriated by private firms.

¹⁰ Collier (2010) suggests that such taxes might be necessary in cases of severely low capacity.

¹¹ Gould & Winters (2007) show that the strengthening of international arbitration institutions such as the World Bank may have contributed to the observed decline in expropriations in the natural resource industry after the 1970s.

a sufficient deterrent. In the context of our bargaining framework, an expected cost of international arbitration that is only 50 per cent likely to occur may still be sufficient to prevent, or at least delay expropriation (Marsh 2000).

A second method of enforcing the contract is to ensure the benefit from expropriation is low. A tax regime that captures windfall profits eliminates the need to capture the same profits via expropriation.¹² Designing such a tax requires a mechanism that can capture the windfall profits, but without overly reducing the expected returns for the investor. Such taxes have to be designed well. If the tax is too onerous it may reduce the project's expected return and the investor will demand compensation in some other respect. Administrative difficulties may also be a problem. A tax base net of costs is more likely to limit the impact on expectations of returns than one based on revenues. Yet calculating costs is more difficult for the tax administrator, and hence tax avoidance is more likely. Therefore a trade-off exists, use a tax that should limit the impact on the incentive to invest but face the risk of tax avoidance, or choose a simpler tax (not requiring the calculation of costs) that is likely to damage investment incentives yet reduces the risk of tax avoidance. Although this may not be a straight trade-off between these two options, since the mining company may be willing to face a simpler tax to avoid the risk of expropriation. The problem, therefore, is one of finding a progressive tax that does not overly damage expected returns, captures sufficient windfall profits to reduce the risk of expropriation while allowing the company to pay a price for such insurance.

The third suggestion is to accept that there may be pressures to expropriate but to ensure that such reforms are done within an orderly framework. Renegotiation clauses, in effect, attempt to bring some form to the incomplete parts of a contract. In principle this may ease the costly transition from one tax regime to another. How this is actually done, however, remains questionable, and hence such clauses remain unpopular (Hogan, Sturzenegger & Tai 2010).

2. Zambia's Fiscal Regimes since 2000

This section describes the key details of the four fiscal regimes imposed on the Zambian mining industry from privatisation in 2000 to 2012. Section 1 suggested that the way in which the tax regime is structured is a result of bargaining between the mining companies and the government. This is important as it allows us to map the shifts in bargaining power, which are reflected in the risks and returns of each side. Knowing the perceived risks and returns can also help to predict stability, as a tax regime in which the mining company earns large windfall profits, for instance, without any return to the government is inherently unstable.

¹² Engel & Fischer (2010) suggest a cap on profits above a certain threshold, or a progressive tax on revenues if moral hazard is a likely problem.

2.1. Fiscal regime details

The Zambian government has levied four fiscal regimes on the mining sector:

- Development Agreement (DA) Regime¹³
- 2008 Regime
- 2009 Regime¹⁴
- 2012 Regime

Tables 2.1 and 2.2 compare the direct tax types and allowances for each of these regimes.

Table 2.1 Profit-based tax details across the four tax regimes

	DA	2008	2009	2012
Profit tax types				
Company Income Tax rate (% of profit base)	25%	30%	30%	30%
Variable Profit Tax in effect? (See below for details)	No	Yes	Yes	Yes
Profit tax base details				
Capital Depreciation Allowance (% of annual capital expenditure)	100%	25%	100%	100%
Loss carry forward (maximum years)	15 to 20 years (depending on company)	10 years	10 years	10 years
Allowed Debt to Equity ratio	2:1	3:1	2:1	2:1

Table 2.2 Revenue-based and other tax details across the four regimes

	DA	2008	2009	2012
Revenue tax types				
Mineral Royalty	0.6%	3%	3%	6%
Windfall Tax	No	Yes	No	No
Other tax types				
Export duty (on copper anodes)	No	15% (but with some waivers)	15% (but with some waivers)	10% (but with some waivers)
Withholding profit tax	0%	15% on services only	15% on services only	15% on services only

¹³ Different tax agreements were made with each mining company in their Development Agreements with the government. In 2003 these will be unified, allowing the smaller mining companies to pay the same tax rates as the larger mines. The tax regime described here relates to this unified tax regime.

¹⁴ For a full review of the 2009 regime see Conrad, R (2011).

The privatisation of the Zambian copper mining industry was accompanied by tax agreements with the new owners of the privatised mining assets. These Development Agreements (hereafter referred to as DAs) were signed between 1997 and 2004. The details were different for each company and were confidential. Even access within government and by the tax authority appears to have been extremely limited. Each agreement included a stabilisation clause which prevented the government from increasing the burden of tax on each mining company for 15 to 20 years, depending on the mine in question (Fraser 2007).

A number of conditions arose which led to the government breaking the DA contracts, which I will look at in the next section. Here, it is worth exploring some of the key details of the various tax structures.

Zambia imposed two taxes that, in different ways, were designed to capture windfall profits. The Windfall Tax (which appeared in 2008, but was removed from subsequent regimes) operated like a variable rate royalty.¹⁵ By changing the tax rate as the copper price changed, it attempted to capture some of the windfall profits. Its tax base was sales revenue of the company. By not including costs in the tax base this made it easier to administer, but could potentially tax too great a slice of profits for companies.

The Variable Profit Tax (also introduced in 2008, but remained for successive regimes) used the following function to calculate the tax rate, which is applied to the same taxable profits as the Company Income Tax:

$$\text{Variable Profit Tax rate} = 15\% - (15\% * (8\% / c))$$

Where c = taxable profits / sale revenue

Formula is only applicable if c is greater than 8%, otherwise tax rate equals 0%.

By including costs within its tax base, the costs and benefits of this tax were the reverse of the Windfall Tax: it would be harder to administer, but less damaging to mining companies' baseline.

2.2. Payments to ZCCM Investment Holdings

As part of the DAs, ZCCM Investment Holdings (ZCCM-IH), the government's holding company responsible for managing the state's shares in the mining companies, received payments via price participation agreements and dividends. The details of these participation agreements were not well publicised, but they appear to have worked by applying a tax on a proportion of the sales revenue of each mining company once the prevailing copper price went above a certain threshold; a similar mechanism as the Windfall Tax applied in 2008. In addition, it appears that this tax was only applicable until a certain cumulative value of tax had been paid by the mining company. The revenue from this appears to have been significant, Adam (2010) states that this revenue source amounted to 2 per cent of export earnings in 2005, compared with 0.6 per cent of export earnings for the rest of the tax regime. However, the government

¹⁵ It was calculated each month from the gross sales revenue of the taxpayer (in the same manner as the Mineral Royalty at the same time), using an increasing tax rate that depended on the average London Metal Exchange cash price (for copper) or the Metal Bulletin price (for cobalt). The first \$2.50 per lb was not taxed. The next \$0.50 per lb was taxed at 25 per cent, the next \$0.50 per lb was taxed at 50 per cent, while any value above \$3.50 per lb was taxed at 75 per cent. The initial proposal for the Windfall Tax did not allow it to be deductible against taxable profits for the calculation of company income tax, but this was soon removed.

could not benefit from this as it was paid to ZCCM-IH, which has yet to pay a corresponding dividend to government (*ibid*).

This is also true of the potential dividend earnings from the government's 10 to 20 per cent shares in the mining companies. These shares were held by ZCCM-IH into which the dividends and proceeds from the price participation agreements were paid. While in principle ZCCM-IH would then pay a dividend to the government and other minority shareholders, the privatisation arrangements had ensured that a large proportion of the liabilities of the former nationalised mining company, Zambian Consolidated Copper Mines (ZCCM), including pension liabilities, were held by ZCCM-IH, rather than the private owners.

2.3. Revenue response to price changes

An important aspect of the fiscal regimes described in this paper is the degree to which government revenue increases in response to changes in the mineral price. Three factors are considered here. Firstly, a series of effective tax rates are calculated for each of the four fiscal regimes over a range of possible copper prices. These calculations do not include the effects of depreciation, ring-fencing and loss carry forward provisions that combine to reduce government revenue in the early years of mining operations. The effect of these instruments in each of the four regimes is discussed next. Lastly, the fiscal regimes are analysed with regard to the susceptibility to tax avoidance. A fiscal regime that is susceptible to tax avoidance is likely to be less responsive to price changes, as mining companies seek to reduce their tax burden.

Effective tax rate response to price changes

To understand how each of these tax regimes may have affected the industry, the Effective Tax Rate is measured for a stylised mining company. This is used to illustrate the risk/return characteristics of the tax regime and should not be seen as a reliable estimate of the true tax burden on mining companies in Zambia.

An effective tax rate (ETR) is defined in this paper as:¹⁶

ETR = Total value of tax payments / before-tax profits

The ETR therefore shows the proportion of before-tax profits that accrue to the government. The remainder (1 – ETR) is the proportion of before-tax profits that accrues to the mining company. An ETR can measure the proportion of total project return over the lifetime of a project. Here, a simpler measure is used for two reasons: it avoids the issue of modelling a complete project and the assumptions that would require; it also allows a dissection of tax burden across different prices.

Table 2.3 below shows a step-by-step calculation of the ETR for a mining company with unit costs of \$3,000, and unit copper price of \$6,000 under the 2008 regime. For simplicity and to clearly show how the ETR changes in response to price, it is assumed that there are no capital costs, nor previous costs carried forward so depreciation and loss carry forward provisions are not included in the calculation. Export duty is also not included since many mining companies were given waivers on this tax. Withholding tax is also not included for simplicity.

¹⁶ Daniel *et al.* 2010, give a summary of the tools used to evaluate mineral fiscal regimes. The effective tax rate measure used here is one such tool.

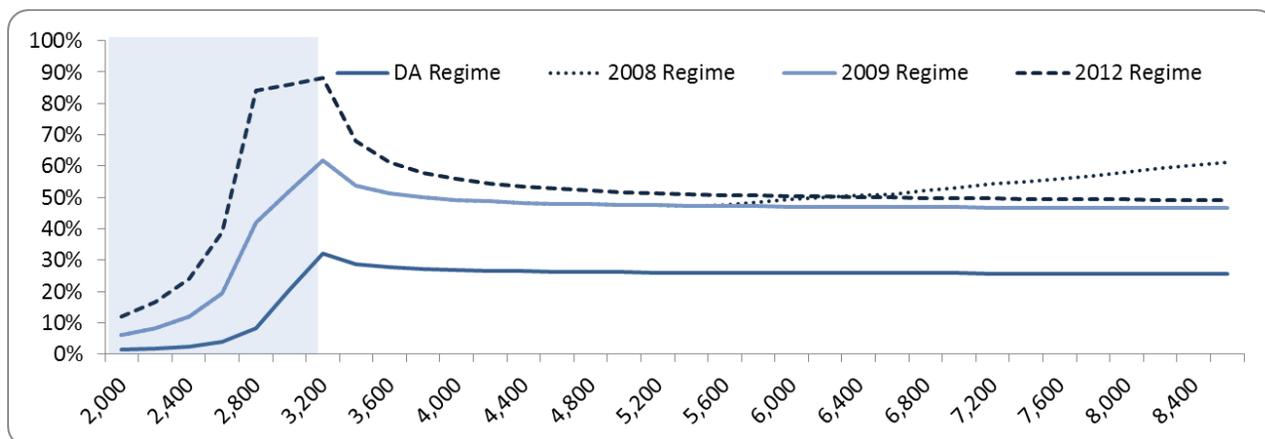
Table 2.3 Example calculation of ETR under the 2008 Regime

Tax item	Calculation	Notes
Unit price ("Revenue")	\$6,000	Assumed
Unit cost ("Cost")	\$3,000	Assumed
Before-tax Profits	\$3,000 (= \$6,000 - \$3,000)	Revenue less Cost
Mineral Royalty base	\$6,000	Mineral Royalty base equals Revenue
Mineral Royalty payable (@ 3%)	\$180 (= \$6,000 * 3%)	
Windfall Tax base	\$490 (= \$6,000 - \$5,510)	Revenue between \$5,510 (the first Windfall tax threshold) and \$6,000, the prevailing unit price.
Windfall tax payable	\$122.5 (= \$490 * 25%)	Prevailing price is greater than \$5,510 and less than \$6,612. Therefore applicable rate equals 25%.
Company Income Tax base	\$2,697.5 (= \$6,000 - \$3,000 - \$180 - \$122.5)	CIT base is Revenue less Cost less MR payable less Windfall Tax payable
Company Income Tax payable (@ 30%)	\$809.25 (= \$2,697.5 * 30%)	
Variable Profit Tax base	\$2,697.5	Equal to CIT base
Variable Profit Tax rate	$c = \$2,697.5 / \$6,000 = 0.4495$ Variable Profit Tax rate = $15\% - (15\% * (8\% / 44.95\%))$ = 12.3%	Variable Profit Tax rate = $15\% - (15\% * (8\% / c))$ Where $c = \text{taxable profits} / \text{sale revenue}$
Variable Profit Tax payable	\$332.6 (= \$2,697.5 * 12.3%)	
Total tax payable	\$1,444.4 (= \$180 + \$122.5 + \$809.25 + \$332.6)	MR + WPT + CIT + VPT. Constituents do not sum due to rounding.
Effective Tax Rate	48.2% (= \$1,444.4/\$3,000)	ETR = Total value of tax payments / before-tax profits

When revenue-based taxes are payable but profits are negative, the ETR measurement can become difficult to interpret, as the ETR calculation produces a negative value. For example, in scenario one (see below), the ETR curve would be a hyperbola. To avoid this, a modified ETR is used. This can be interpreted as the proportion of profits payable in tax when profits are positive, and the proportion of losses that are payable as tax (i.e. the royalty payment) when profits are negative. In the first example here, this break occurs at \$3,000. At this point, unit costs equal price.

The modified ETR shows the proportion of surplus, or deficit when profits are negative, that accrues to the government; the remainder accrues to the mining company. Therefore the higher the modified ETR curve is the more of the mining surplus that accrues to the holding company. Conversely, when the mines are making a loss, which in scenario one is when prices are below \$3,000, the modified ETR shows the proportion of total losses that are attributed to paying taxes, effectively this is when the mining company must pay a royalty tax. Figure 2.1 shows this modified ETR for the four tax regimes in scenario one.¹⁷

Figure 2.1 ETR for a mine with unit costs of \$3,000/tonne at different mineral prices



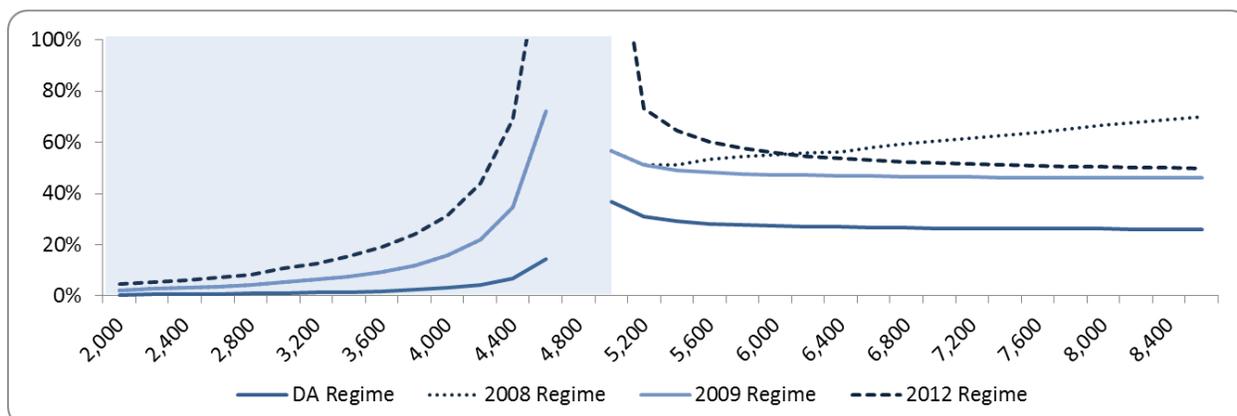
In this illustration, the 2012 regime places the greatest tax burden on the mine when prices are between zero and \$6,300. And, only when prices are particularly high (relative to unit costs) does the 2008 regime have the highest ETR. The progressivity with respect to price is almost wholly attributable to the Windfall Tax. This also shows that the 2012 regime is more regressive than the 2008 regime: the tax rate is higher at low prices (when profits are low) and lower when prices are high (when profits are high). The DA regime has a very low ETR for all prices.

It is important to correctly interpret the spike when the price is \$3,000. At this point the mine's only loss is from paying royalty, hence the modified ETR is 100 per cent, however, the absolute value of this loss is only as large as the royalty payment. Still, it highlights the regressive property of the mineral royalty: at low profits or even losses, the mining company must still make substantial mineral royalty payments.

Figure 2.2 shows the modified ETR for a mining project with unit costs of \$5,000 per tonne. This value is chosen to represent the unit costs that some of the 'high-cost' mines in Zambia might currently operate at (World Bank 2011). Under such an assumption, the 2012 regime still has the highest modified ETR for prices up to \$6,000, but is then overtaken by the 2008 regime. This illustrates the weakness of the Windfall Tax in the 2008 regime: it could not adjust the tax burden to different cost structures, meaning the tax burden can be high even if profits are not. The same effect is present in the 2012 regime as it has a relatively high royalty rate, although the magnitude is less.

¹⁷ Calculations are shown in table 2.3 for one price only (at \$6,000). The ETR at other prices is calculated in the same manner allowing the price to vary.

Figure 2.2 ETR for a mining company with unit costs of \$5,000/ tonne



All four tax regimes allow a mining company to delay paying tax at the start of an investment project. This is done in two ways. The higher the depreciation rate, the more investment costs a company can claim in the first years of investment. All but the 2008 allow a company to claim all investment costs in the year in which the investment is made. This reduces the amount of tax the company will pay in the early years of an investment. The loss carry forward provision, which all the regimes have, increases this delay as the losses claimed in the first year are rolled over to subsequent years.

These provisions work to reduce the tax payable on income. Revenue from the Mineral Royalty and Windfall Tax was not affected by these measures, which meant the government could enjoy some revenue as long as the mining companies made sales. The DA regime, however, had a mineral royalty rate of 0.6 per cent, so the revenue protection from this source would have been significantly less than the other tax regimes which had Mineral Royalty rates of at least 3 per cent.

The effect of tax deductions on the responsiveness to price changes

All four fiscal regimes allowed deductions to taxable profits such as the depreciation allowance, and loss carry forward provisions. Since mining operations typically incur large costs upfront these deductions can ensure that taxable profits are zero for many years. Revenue responsiveness to price changes is therefore diminished during the first years of operations. Tax types not based on taxable profits (such as the Mineral Royalty) can provide some revenue during this period. However, the DA regime lacked this safeguard. The particularly low Mineral Royalty rate (at 0.6 per cent) resulted in insignificant government revenue over first six years after privatisation, as figure 3.2 in the next section shows.

Risk of tax evasion and avoidance

The above illustrations make some simplifying assumptions. First, the possibility that mining companies might avoid or evade taxes is not captured.¹⁸ It is likely that the actual tax burden was reduced by such practices in all of the tax regimes. Some of this is a reflection of the poor capacity of the Zambian authorities to administer taxes, which is considered later in the paper. However, some of the tax regimes made it easier to avoid taxes, and harder for the tax authorities to administer the same taxes. In particular, profit-based taxes, which involve the

¹⁸ A company that avoids taxes is behaving legally to reduce its tax base, a company that evades taxes is doing so illegally.

calculation of both revenue and costs of a company are more difficult to administer than revenue-based taxes which require only the calculation of revenue. The DA regime relied almost exclusively on the Company Income Tax (profit-based) so was most at risk from tax avoidance. The other tax regimes had higher rates for Mineral Royalty, so these revenue streams were less likely to be reduced by such practices. Other details added to this effect. Table 2.4 shows five elements of the tax structure that decreased the risk of tax avoidance. It shows that the DA regime was devoid of all these measures which could have allowed mining companies to reduce their tax payables.

Table 2.4 Tax avoidance protection in each tax regime

Type of protection	How it works	DA	2008	2009	2012
Royalty base uses LME price	Avoids relying on realised prices provided by mining company	No	Yes	Yes	Yes
Related party transactions use LME price	Avoids relying on realised prices provided by mining company	No	Yes	Yes	Yes
Hedging tax base separate from operational tax base	Prevents reduction of taxable profits through various derivative trading strategies	No	Yes	No	Yes
Ring-fencing	Avoids new investment projects reducing profits of older projects.	No	Yes	Yes	Yes

2.4. Competitiveness

The final analytical dimension is the competitiveness of the tax regimes. Without a full timeline of tax rates, it is difficult to know to what extent the DA regime was competitive in 2000, but there are indications that it was significantly lower than Zambia's competitors, see below. As the CEO of one mine was quoted as saying:

Going through the Development Agreements for the two companies which we own ... I would say they are very fair, very reasonable... It must be one of the more attractive places to invest in globally in terms of new mining ventures. (Fraser 2007)

Zambia's tax rate rose after this, bringing it closer to the global average, but tax rates around the world also increased, lessening any changes to Zambia's relative competitiveness. By the end of the decade, many mineral producing countries had also increased their tax rates (Daniel D. et al 2010).

Tables 2.5 and 2.6 show a snapshot of tax regimes in major copper producing regions as of 2011. If tax regimes have not changed too radically over the last decade, then this suggests much of Zambia's tax structures are not too far removed from global norms. The DA regime mineral royalty rate of 0.6 per cent is, however, the lowest in this group.

Table 2.5 Selection of tax rates of major copper producing countries, as of 2011

Country	Royalty Rate (on copper)	Company Income Tax Rate	Type of Excess Profit Tax Used
Zambia (DA)	0.6%	25%	No
Zambia (2008)	3%	30%	Yes
Zambia (2009)	3%	30%	Yes
Zambia (2012)	6%	30%	Yes
Australia	4% (New South Wales) 18% (Northern Territory)	30%	Yes, introduced in 2011
Canada	15% (British Colombia) 5 to 10% (Saskatchewan)	Canada: federal rate 18% (2010), 16.5% in 2011 Plus provincial taxes (Ex. British Colombia 10.5% in 2010, 10% in 2011; Sask. 10%)	No
Chile	0 to 5%	Chile: 20% First Category Tax + Global Complementary + Additional Tax on Non-residents	No
China	2% plus 7rmb per tonne	25%	No
DRC	2%	30%	No
Indonesia	4%	25%	No
Kazakhstan	5.7%	20% plus 15% branch profits tax	0-60% on portion of net income that exceeds 25% of deductions
Mongolia	5%	10% for first MTN 10bn (c.\$7.5 m); 25% thereafter	New variable royalty based on price from Jan 2011. Rates from 5% to 15% when output is concentrated.
Peru	1 to 3%	30%	No
Russia	8%	20%	No
South Africa	Unrefined: $0.5 + (\text{EBIT} / (\text{gross sales} * 9)) * 100$, max 7% Refined: $0.5 + (\text{EBIT} / (\text{gross sales} * 12.5)) * 100$, max 5%	28%; branch profits tax of 33%	No
United States	2 to 5%	15-35% on residents/ 30% branch profits tax (AZ 6.97%, NV – no tax) ^a	No

Source: Conrad (2012)

Table 2.6 Treatment of taxable profits

Country	Treatment of Development Expenses	Ring-fencing	Thin Capitalisation (debt-to-equity ratio)
Zambia (DA)	Immediate	No	2:1
Zambia (2008)	Over 4 years	Yes	3:1
Zambia (2009)	Immediate	Yes	2:1
Zambia (2012)	Immediate	Yes	2:1
Australia	Immediate	No	3:1
Canada	Immediate	No	2:1
Chile	Immediate	No	3:1
China	Amortised	Yes	2:1
DRC			
Indonesia	Amortised	Yes	No specific rules
Kazakhstan	Immediate	Yes	Specific formula
Mongolia	Pre-production expense, 5 years	No	
Peru		Yes	3:1
Russia	Immediate	No	3:1
South Africa	Immediate	Yes	3:1
United States	70% in first year, straight line in next 5 years	No	1.5:1

Source: Conrad (2012)

3. Bargaining Power

3.1. Conditions generating DA regime

Section 2 showed that the DA regime was particularly favourable for the mining companies at privatisation. This section details how this was the result of the Zambian government's low bargaining power.

The first option for the government at privatisation could have been to remain with the status quo: continue running its nationalised mining company, the Zambian Consolidated Copper Mines (ZCCM). This had already proved costly for the government and indications were that it

would remain that way. ZCCM's financial performance had declined in the years leading up to privatisation in 2000 (see Table 3.1). Furthermore, ZCCM's financial accounts suggested that these losses, on the whole, were shouldered by the government and thus a particularly large burden for Zambia. For instance, in 1998, losses amounted to 9 per cent of GDP.

Table 3.1 ZCCM's profitability up to privatisation

Year	Pre-tax profit margin	Pre-tax Income/GDP
1990	17%	2%
1991	17%	3%
1992	13%	2%
1993	19%	4%
1994	-14%	-3%
1995	na	na
1996	-1%	0%
1997	-14%	-4%
1998	-47%	-9%
1999	-25%	-3%

Source: ZCCM annual reports, CSO

This performance was partly attributed to the low levels of investment in the 1980s and 1990s. Capital was needed, not only to open up newer ore bodies, but also to maintain existing operations.¹⁹ But the government could not afford to continue to cover ZCCM's operating losses, nor to finance the necessary investment projects.²⁰ This is evidenced by the significant debt accumulated by the government and the reluctance of lenders to continue financing the government's operations. Central government debt stood at 193% of GDP in 1996, (although this was lower than the 277% at the start of Zambia's liberalising period in 1991).²¹ Neither could Zambia continue to rely on external assistance as loan conditions from international donors were contingent on the completion of privatisation of the mining sector (Craig 2001; Lungu 2008).

An alternative to bailing out the mining industry was to let it collapse, but this was not viable either. A collapse would have eliminated Zambia's main source of foreign exchange and cause widespread unemployment. Formal employment was already very low; falling 14 per cent, from a high of 546,000 in 1992 (just before liberalisation policies started), to 467,000 in 1998 (Central Statistical Office). Of this, the mining industry contributed 11 per cent or 57,000 jobs before the first wave of privatisation in 1997. Although a comparatively small amount in a population of almost 10 million (as of 2000), each job was comparatively well paid and supported an extended network of family dependants (Committee of Economic Affairs and Labour 2009).

Public pressure on the government was also growing. The critical problem was the fall in prosperity compared with the seemingly successful days of national control of the mining industry. Copperbelt residents were accustomed to a reasonable level of economic well-being.

¹⁹ Craig (2001) says that in 1992, \$2 billion of new investment was required to maintain operations and to open up the Konkola mine to supplement the declining reserves in the old mines such as Nchanga.

²⁰ Edith Nawakwi, the finance minister, was quoted as saying that the Zambian government had been forced to give the equivalent of \$1m a day to the industry. (Taxing Questions Programme two, 2007, BBC world service)

²¹ World Bank Development Indicators. Found at <http://data.worldbank.org/indicator>

By the early 1970s, the Copperbelt was in effect a collection of well-run and prosperous company towns populated by a relatively well-educated, well-paid and heavily urbanized labour force that both enjoyed high quality cradle-to-grave welfare provision, courtesy of the mining houses. (Adam 2010)

Yet following the liberalising policies of the Movement for Multiparty Democracy (MMD, which won power in 1991) in which ZCCM was forced to reduce its work force in response to low profits, the Copperbelt experienced a long decline between the 1990s and early 2000s. In terms of direct mining employment, 81,300 people were employed in the industry in 1975. This fell to 39,996 in 2001. Unemployment was a likely influence on the election results of 2001, although the dominant themes were corruption and the unpopularity of Frederik Chiluba, the president. While the MMD had enjoyed success in the 1991 and 1996 elections, gaining over 70 per cent of the vote in each, it won only 27 per cent in 2001. Although this won them the election, having gained more seats than any other party, it was a steep decline from previous elections.

A further contribution to the country's poor bargaining power, was that Zambia was not competitive compared to other investment destinations. Mining investment in general was slumping. Since 1970, real copper prices had been on a long-term downward trend (see Figure 3.1), expectations of future copper prices appear to have been low, and by 1998, copper mining investment was falling world-wide (Craig 2001).

Figure 3.1 Copper price in 2011 prices, \$ per metric tonne



US Bureau of Labour Statistics , US Geological Survey (copper prices), and Author's calculations

In addition, Zambia's assets, in particular, were probably relatively uncompetitive. In 2009, almost all of Zambia's mines had operating costs in the top quartile of the world's copper mines (World Bank 2011). These relatively high costs can be partly explained by the age of the mines, many of which had been in operation since the 1930s, as well as the lack of investment in ZCCM.

These problems meant that few investors were attracted to ZCCM's assets without significant price and tax discounts. When ZCCM was unbundled and separate packages offered for sale, few received substantial bid offers. For example, 'Package A', which contained the Nchanga mine and represented about 60 per cent of ZCCM production attracted only one bid, although, as Craig (2001) points out, this may have been the result of coordination among bidders to secure the assets at below market value. Even after privatisation in 2000, demand for Zambia's

assets was low as reflected by the sale of Konkola Copper Mines. The government found a buyer only in 2004, selling the mines for \$50m to Vedanta. In 2005, Vedanta had made an operating profit of \$52m (Haglund 2010).

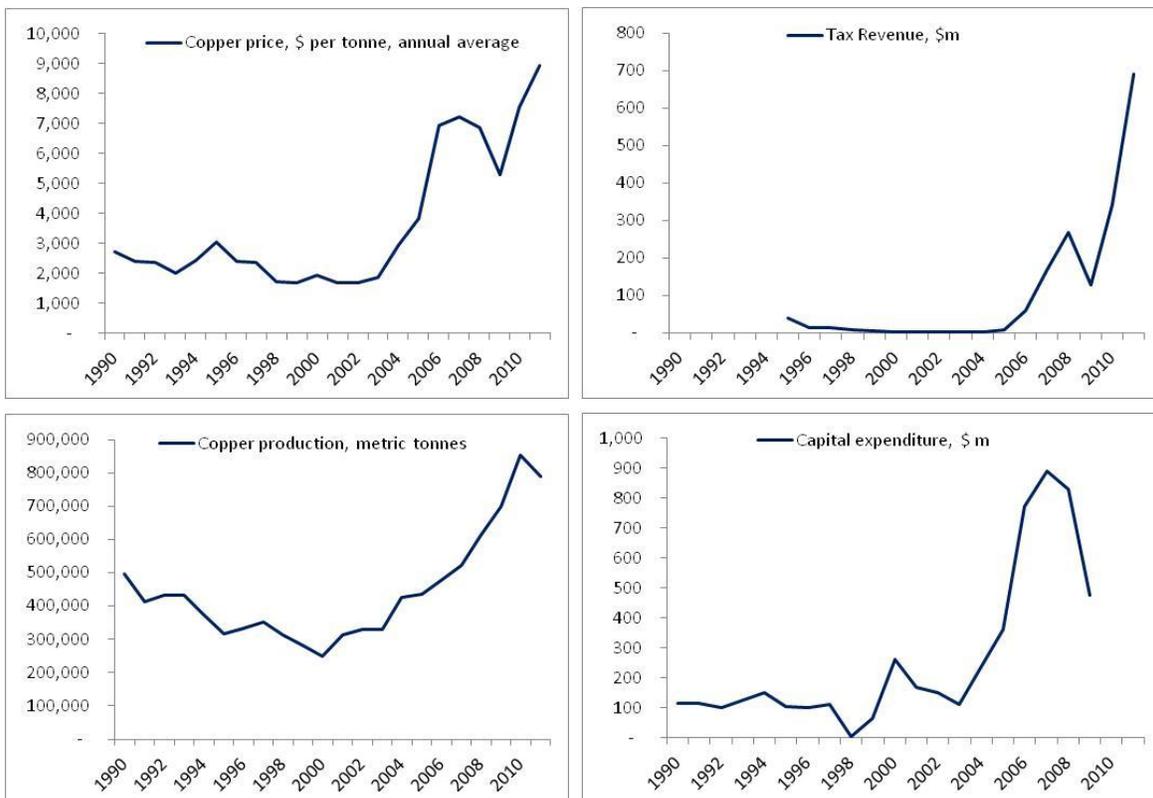
Using our bargaining theory, Zambia then had little option but to provide the mining companies with agreements packed with incentives. This power, however, was to shift as the prices of copper increased and the government found itself in a stronger negotiating position.

3.2. Conditions generating further tax reform

After the government had seemingly ‘sold the family silver’, the next decade saw a slow shift in power away from the mining companies. There were three factors that influenced this shift, each of which were exacerbated by a number of other circumstances:

- public pressure, generated by the rise in copper prices and fall in economic conditions;
- the high investment which represented high sunk costs for the industry; and
- the threat of arbitration, which gave the government some pause for thought before completely overhauling the tax regime.

Figure 3.2 Copper price, production, tax revenue and capital expenditure in Zambia’s mining industry



3.2.1. High company profits and low tax revenues spark public pressure

For the first four years after privatisation in 2000, comparatively little changed. Copper prices fluctuated below \$2,000/tonne; annual investment was only a little above pre-privatisation days; and tax revenues and dividends were negligible. Only in 2004 did circumstances change. Prices started to rise and continued to do so until 2008 when they reached \$7,500/tonne. Figure 3.2 shows the changes in four fundamental variables in this period.

Critically, despite these rises in price, investment and production, the most important variable for Zambia, tax revenue, did not change appreciably. From 2005, tax revenue did improve somewhat, but this was not commensurate with the growing production and prices that the public could observe. For instance, from 2000 to 2007 a total of \$246m was collected in tax compared with an estimated \$12,240m worth of copper exports. This amounted to 3.4 per cent of total tax revenue during this period.²² Furthermore, from privatisation to the present, only one dividend has been paid by the industry and this has gone to repay liabilities from pre-privatisation not to benefit the government's budget.²³ Importantly, while Figure 3.2 shows that tax revenues did finally increase, this was too late; tax revenues only reached significant levels by 2010, after Zambia had broken the DAs.

As this trend continued, there was a growing perception within society that the mines had gotten the better deal. An important element of this was a public campaign by opposition politicians, academics and local and international NGOs. Because of the secrecy surrounding the DAs, the campaign was the only way to inform the public. In 2004, opposition politicians began requesting information from the government, supported by academics and local NGOs. According to Dymond (2007), NGOs, trade unions and academics 'made the government wake up to the fact that there has not been much benefit to Zambia from high copper prices'. International NGOs and academics, via these reports as well as blogs²⁴, provided a significant amount of research expertise, such as publishing reports advocating for change in Zambia.²⁵

A key problem was that these perceptions were based on observing production and prices. No one, except the mining companies themselves, knew what the costs were, and hence could not tell if the industry was really making extraordinary profits. As was the case for the authorities at the time, and even today, it is not possible to determine how much return the mining companies make. At least one mining company recognised that the companies had got 'an absurdly good deal' (Fraser 2007). Conversely, other companies argued that their costs were rising. Figure 3.3 shows the unit costs as stated by two large mining companies.

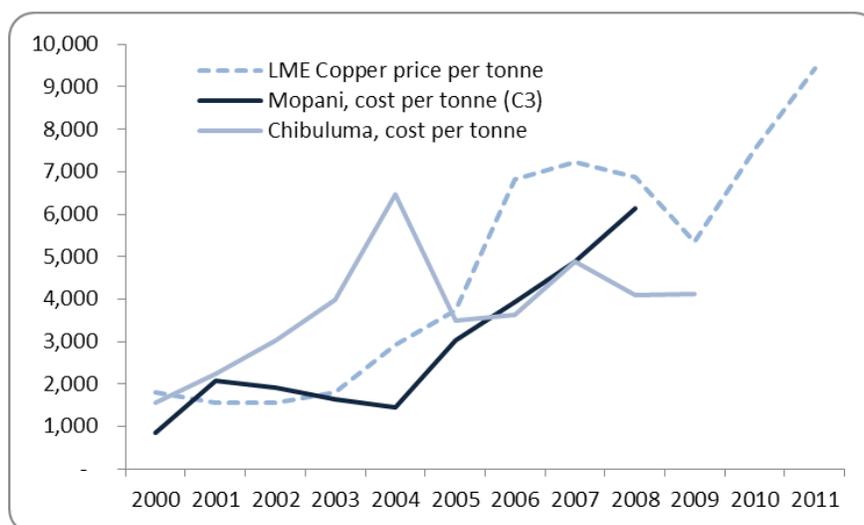
²² Estimated by using average annual London Metal Exchange (LME) copper price multiplied by total production in 2007. Production information from Bank of Zambia.

²³ Kansanshi declared a dividend of \$18.1 million to ZCCM-IH, the state holding company of mining assets in May 2010. (State House, 2010). Despite this income from ZCCM-IH, the Zambian government has not benefited. According to recent ZCCM-IH annual reports, no dividend has been declared by the holding company itself (ZCCM-IH annual reports 2005 to 2011).

²⁴ See ZambianEconomist.com and minewatchzambia.blogspot.co.uk

²⁵ Examples include: Dymond (2007); Christian Aid (2007); Fraser (2007); Lambrechts (2009)

Figure 3.3 Unit costs and LME average annual price, \$/ metric tonne



Source: World Bank (2011); Chamber of Mines (2010), Bank of Zambia.

Regardless of whether the data were true or not, it was the public perception that the mines were reaping high profits that fuelled calls for reform. Several elements of the DA regime exaggerated this problem. Section 3 showed that under the DA regime, rising mineral prices did not affect taxes during the early years of the investment project. Once the industry had eliminated the losses it carried forward each year, tax revenues would increase, but this did not satisfy the public who were not willing to wait.

Secondly, the Development Agreements, and indeed much of government's interaction with the mining industry, was shrouded in secrecy. To this day, these agreements have been kept confidential and only made public via a leak. This secrecy even prevented some government institutions whose task it was to regulate the industry (Fraser 2007). In addition, there were no statistics on the amount of tax paid by the mines at the time. This made it almost impossible for the public to monitor the government and industry, which automatically bred an atmosphere of distrust and fuelled public pressure for reform. This weakened what social-contract the people had with both the government and the industry. They were being asked to trust that tax revenue would eventually flow, yet there was no evidence to support such a belief. Indeed, the fragments of information that did appear, via the efforts of the concerned parties described above, suggested that Zambia was almost giving away its mineral wealth.

Lastly, the lack of tax revenues also prompted accusations of tax evasion and avoidance, and it became clear that the authorities lacked the capacity to administer taxation. This was not helped by the structure of the tax regime itself, being as it was, based predominantly on profits and lacking in safeguards against tax planning practices. The lack of ring-fencing was particularly damaging, as the rush of investment after 2004 could be used to reduce the taxable profits of those assets that were already in operation.

3.2.2. Economic factors

Compounding the lack of tax revenues in the face of increasing copper prices was the poor state of the local economy in the Copperbelt, the main mining district in Zambia. Privatisation did not significantly improve economic life in the Copperbelt. The fall in employment which had

begun in 1991, did reverse after privatisation, but it was still below the pre-1991 heights. However, as with the tax revenues, the increase may have been too little too late. It was only after the breaking of the DAs and the 2008 tax reforms that employment increased substantially.

Figure 3.4 Formal employment in Zambia's mining industry



Source: Central Statistics Office, Zambia

It is more difficult to measure the impact on local industry and this second indirect source of employment. The nationalised companies had often procured inputs from the local industry. The Development Agreements included clauses that were meant to encourage use of local suppliers as much as possible,²⁶ but the extent to which this was followed is uncertain. Some mining companies did procure a significant amount from local suppliers, while others preferred to import (Haglund 2010; Christian Aid 2007). Given the increasing use of technology in modern mining, it is unlikely that the local economy could provide a significant share of inputs to the mining industry (Auty 2006). This fall in demand for local production may have contributed to the growing resentment in the Copperbelt (Christian Aid 2007).

3.2.3. Political factors

The lack of tax revenues, as well as a depressed economic environment, created resentment among the public. The build-up in public pressure was clearly demonstrated in the 2006 election. Although slightly better than 2001, the MMD still only managed to win 40 per cent of the vote. In particular, the MMD lost support in the two urban conglomerations of Lusaka, the capital, and the Copperbelt. At least part of the discontent was underpinned by the failure of the mines to benefit Zambians. As Charles Husband, a mining specialist at the World Bank, observed:

Part of [the reason] why the MMD lost the election on the Copperbelt, was that the population around the mines [were] not seeing any benefits. So there has been a backlash, tremendous pressures. (Haglund 2010)

It is difficult to determine whether the government moved to reform the mining tax regime because of mounting public pressure or because of the election results. While the election

²⁶ Development Agreements, available from <http://minewatchzambia.blogspot.co.uk/>

results showed the government the cost of not reforming taxes, the growing public hostility towards the mines also represented a cost to the industry of resisting reforms. This hostility was forcibly demonstrated by a growing number of strikes during this time. This fed the pressure for change, as not only were they campaigning for better pay but also tax reform – both to increase taxes on the mining industry and use these proceeds to reduce taxes for the mining workers, and increase spending in the mining districts (*Lusaka Times* 2008). Guy Scott, the leader of the opposition Patriotic Front added to the pressure on the mines in 2008 when he promised to lead a demonstration against the industry in the Copperbelt if it refused to accept tax reform.

3.2.4. Immovable assets

In addition to this growing pressure for tax reform, the increasing capital expenditure by the industry likely represented a falling cost to expropriation for the government. As Figure 3.4 shows, following the rise in copper price, capital expenditure in the mining industry rose considerably. Given the nature of mining, many of these assets, such as the mining shafts and pits, would have been immovable. This may have increased the bargaining position of the government, as companies could not move them in response to a tax hike. Fraser (2007) shows that the mines themselves recognised that given the large investments they had made, they would have to stay in Zambia until they could make enough return.

3.2.5. Arbitration

The increasing windfall profits, the rising public pressure for change and the growing capital expenditure all combined to make expropriation more attractive. Yet, the government only imposed tax reforms in 2008. A strong deterrent was the threat of international arbitration promised in the DA contracts. The Development Agreements had stipulated that any contract disputes would be handled by the International Centre for Settlement of Investment Disputes.²⁷ While this failed to prevent the government reforming taxes in 2008 without any arbitration case being made by the mining industry, it represented a significant enough threat for the government to delay tax reform for much of the decade. Even in 2007, when calls for reform were particularly strong, for the government team tasked with exploring possible reforms, the most significant obstacle appears to have been the possibility of arbitration if Zambia broke the DAs.²⁸

4. The Reform Process

By 2007, the underlying conditions had created an environment ripe for tax reform. Yet, there followed four years of instability in which the 'official' tax regimes of 2008 and 2009 were not honoured by the industry. To some extent these changes still match those predicted by the bargaining framework. The effective tax rate follows the cycle of copper prices throughout this period, but a number of other factors were also important in explaining the reform process. This section describes these details.

²⁷ See, for example, clause 22 of Mopani Copper Mines' Development Agreement contract. Available from minewatchzambia.blogspot.co.uk

²⁸ Author's interview with a Zambian government official. Lusaka, September 2011.

4.1. The 2008 regime

The first point was that the Zambian government broke the stability clauses within the DAs without any negotiation with the mining industry. This was roundly criticised (Lungu 2008) and appears to have taken the mining companies by surprise even though they had previously appeared willing to negotiate (Committee of Economic Affairs 2007). It is difficult to know whether the sudden reforms damaged government-industry relationship, making future negotiations more difficult. Other countries which were also undertaking reforms at this time offered their industries the chance to negotiate, with graduated 'paths' to paying the new tax regimes.²⁹ But, while Zambia's move may have been dramatic, there was also a logic to it. By imposing a high tax rate, the government could start negotiations with the industry using this as the baseline, rather than negotiating up from the DA regime. In addition, given the lengthy delays that had already occurred to get this far, combined with the mounting public pressure, the government may have been worried that any negotiation would drag on, and that only a sudden reform would placate the public.

4.1.1. Mining companies' bargaining power

Underlying these two issues was the fact that the mining companies still had some bargaining power to call upon.

Firstly, the industry could have invoked the stabilisation clauses in the Development Agreements. Some elements in the industry stated that they were considering arbitration, but it appears that they would use this as a bargaining tool rather than automatically use the 'nuclear option' (Daniel & Sunley 2010). For instance, a senior mining executive from a mining house said:

We have Development Agreements in place and they still have a decade to run. We will go ahead with international arbitration if this fiscal regime goes ahead, but we trust it will not come to that. (MiningMX 2008)

This could be seen as a case of brinkmanship as the arbitration option was costly to both parties. There was a strong chance that the government would lose if arbitration was chosen. On the other hand, a long public court case may have damaged the mining companies as well, both in terms of their international and local image. Public demonstrations in the Copperbelt³⁰ and frequent labour strikes showed that the industry's social contract was already weak; taking a poor developing country to court may not have improved this. Given the potentially high costs of this strategy, the mines were probably looking for alternative ways out.

A second threat at the industry's disposal, was the reduction of investment in Zambia. In a parliamentary hearing in 2008, the Chamber of Mines argued that the new tax regime would lead to cuts in investment, job losses and a recession. At the same hearing, First Quantum Minerals said:³¹

²⁹ For example Tanzania allowed for renegotiations while Chile gave mining companies a choice of 'paths' which they could take in migrating to their proposed new tax regime. (Daniel D. & Sunley, 2010)

³⁰ Mine Watch: February 29, 2008

³¹ Mine Watch: February 29, 2008: FQM also questioned its investment of its Bwana Mkubwa mine, 'leading possibly to a loss of 600 jobs'

If government says it wants to take so much from the mining companies through high taxes, then we can also decide to stop developing the industry and this will not be a good thing to do.

This was probably not a credible threat, at least in hindsight. The mines had invested a great deal by this stage, much of which was irreversible. In addition, as investments often linked previous projects, such as new smelters to process output from established mines, stopping further investment would harm the returns made on existing projects. Even among the incumbent mining companies, other statements appear to have undermined this threat. For instance, Konkola stated:³²

We shall continue to increase our investments despite the new mineral taxes. Our US\$1 billion investment in the KDMP [Konkola Deep Mine Project] and the smelter project are on track.

Connected to this was the silent threat from potential future investors. Even if the incumbents' threats were not credible, this potential cost was. Although the minister of finance had argued that the tax proposals were competitive, investors would perceive the breaking of contracts as a political risk.

With the strength of these threats, the industry had enough bargaining power to erode the tax proposals both before and after they were made applicable in April 2008, and to refuse to pay what they saw as the most egregious parts of the proposals with little response from the authorities.

A particular source of contention was the imposition of the Windfall Tax. The initial proposal was that the Windfall Tax would be applicable alongside the Variable Profit Tax and would not be deductible against the Company Income Tax. This would have resulted in a very high effective tax rate when prices were high enough to trigger the top 75 per cent rate of the Windfall Tax.³³

Partially because of the seemingly unreasonableness of the proposal, and partly because of the residual bargaining power of the industry, the mining companies lobbied successfully to amend this problem. This meant that from April 2008 when the proposals become law, the Variable Profit Tax would only apply in months in which the Windfall Tax had not been paid, an apparently complex concession.³⁴ However, even after this victory, the majority of the industry still refused to pay the tax. This suggests that these companies, seeing that they had won one battle, decided they were strong enough to carry on and further erode the government's position. Indeed, the government then responded by agreeing to limit the tax to only the first 25 per cent

³² Mine Watch: April 7, 2008

³³ In the model shown in section 3, for a mine with costs of \$5,000 per tonne and prices of \$7,000 (similar to the average price at the time) the ETR would be 67.2 per cent when the Windfall Tax is not deductible and both Windfall Tax and Variable Profit Tax are applicable at the same time. When the final 2008 regime is considered, Windfall Tax is deductible and the two taxes are not applicable at the same time, the ETR is 52.3 per cent.

³⁴ The government had acquiesced to this demand to some degree, yet despite the new tax regime becoming law, only two companies out of eleven had complied with the payment of windfall taxes. Even those that did pay added disclaimers to their tax accounts stating that payment of taxes did not imply acceptance of the tax regime, so that the possibility of arbitration would still be available to them. Committee of Estimates (2008).

threshold, so that the second and third thresholds with rates of 50 per cent and 75 per cent would not be applicable.³⁵ But again, most companies refused to pay the Windfall Tax.

4.1.2. Further shifts in bargaining power

Having proposed a particularly high tax regime, the government then conceded on some parts. Two events changed the balance of power further and resulted in greater dilution of the 2008 regime. On August 19, 2008, President Levy Mwanawasa died, sparking an election which saw finance minister Ngandu Magande replaced by Situmbeko Musokwotwane. There were concerns that the new leadership might not be as focused on the reforms as Mwanawasa and Magande.

The second, possibly more influential, event was the global financial crisis which precipitated a large fall in copper prices and a fall in investor confidence. After a continual rise since 2004, the price of copper peaked in July 2008 before falling to \$3,000 per tonne by January, 2009. Over these months, a number of mining operations halted production or reduced employment.³⁶ By September 2009, a Committee of Economic Affairs and Labour report said that 10,000 jobs had been lost in the mining sector due to the crisis: a fifth of the industry, or two per cent of total formal employment in the country (Committee of Economic Affairs and Labour 2009). The document also reported research findings from one NGO that said this would affect 60,000 dependants. This would have been a serious concern for the government. Given the dependence of many in the Copperbelt towns on these mines, the result was severe economic hardship for its citizens (*Irin News* 2009).

4.2. The 2009 regime

With the 2008 reforms still in dispute and a fast declining copper price, the government announced the 2009 mining tax reforms. This gave the industry a number of concessions relative to the previous regime, although the effective tax rate was still higher than under the DA contracts. However, almost immediately after the 2009 regime was enacted, conditions improved and the threat of industry closures was lifted. In hindsight, these concessions appear to have been too excessive and one could accuse the government of overreacting to the crisis, but at the time there was little certainty over how the financial crisis and the resulting drop in copper prices would play out.

Despite the concessions, the industry continued to pay taxes according to the DA regime, not the 2009 regime, and negotiations on further reforms continued. Local and overseas NGOs and opposition parties strengthened their lobbying campaign, clamouring for a return of the Windfall Tax. A key part of their argument was that because the Zambian Revenue Authority (ZRA) did not have the capacity to properly administer profit-based taxes, the Windfall Tax should be used until capacity improved. By this time a specialised mining tax unit had been established within the ZRA. Assuring the public that the ZRA now had the capacity to administer the current tax

³⁵ First Quantum Minerals (2008) shows there was some confusion over this. It refers to a ZRA communication with First Quantum that reads: "... will with immediate effect be required to pay windfall tax on a provisional basis at a flat rate of 25% at any price above the first trigger price ...".

³⁶ Bwana Mkubwa laid off 286 workers. Luanshya halted production in December 2008. All 1,740 employees were to be laid off. Chambeshi Metals Plc shut down. Mopani Copper Mines laid off 1,000 of its 16,000 employees by the end of February 2009. Konkola Copper Mines laid off 700 of its workforce of 15,000 after shutting down its smelting plant. (Reuters, 2008), (Lusaka Times, 2008a), (Afrik-News, 2009)

regime, the government publicly stated that the Windfall Tax would not return (*Lusaka Times* 2010).

The impending election was also a significant threat for the mining industry. The opposition party had campaigned during the 2006 elections on a platform of increasing mining taxes and had only narrowly lost. Without funds to secure votes, it was feared the ruling MMD party might lose, ushering in a more populist anti-investor administration. It was in the industry's interest to conclude a deal with the incumbent government to reduce public and budget pressures; the cost of this deal may have been less than the anticipated cost of a populist administration. Some agreement appears to have been concluded in November 2010. A ministerial statement says that the industry agreed to adhere to the 2009 regime and pay some of the debts owed from the 2008 regime; particularly that arising from the Windfall Tax, although this was now calculated at a reduced 25 per cent flat rate, rather than the variable structure originally proposed.³⁷

4.3. The 2012 regime

Although tax revenues increased quickly after this deal, it was not enough to save the MMD, nor the industry. In September 2011, the Patriotic Front and its leader, Michael Sata, won the elections. Many parties lobbying for a return of the Windfall Tax expected to be satisfied with the new government. Yet, despite their previous promises, the PF's budget included no such reform. Instead, the government doubled the Mineral Royalty rate. This potentially was even more damaging for the industry than a Windfall Tax. Section 3 estimated that the increase in Mineral Royalty resulted in an effective tax rate for the 2012 regime that was higher than that of the 2008 regime under certain price conditions, producing a more regressive tax system in general.

While it is arguably the case that the industry still had the protection of the DA stability clauses, , there was little the mining companies did in the face of this latest rise in tax rates. There has so far been few public complaints by the mining companies. In addition, there is also less public pressure for further increases. This has probably been relieved by the comparatively high returns Zambia is now enjoying from the industry, and a lack of any political party to back the cause for further tax rises, given that the PF party, the former voice of tax reform, is now in power. For instance, the new tax regime saw Company Income Tax and Mineral Royalty accounting for 11.6 per cent of tax revenue in 2011, significantly higher than in previous years (ZRA).

However, the new driver for potential reforms is the worry that poor global economic conditions and increased global copper supply will precipitate a price bust. It remains to be seen how this affects Zambia's mining tax regime, and Zambia itself. Even before the 2012 regime came into effect, the Mines Minister, Wylbur Simuusa, stated that the mineral royalty rate may fall again in 2013 (Reuters, 2011). Although not necessarily indicative of actual government policy, such uncertainty does not suggest an entirely stable tax regime.

With copper prices remaining high, reports suggest investment does not appear to have fallen (*Lusaka Times* 2012). But this may be hiding the true cost of the story. Firstly, investors' perceptions of political risk in Zambia have probably been heightened due to the abrupt changes to the taxation system. Zambia's ranking in the Behre Dolbear survey fell from 16 in

³⁷ Ministerial statement (2010) The statement refers to another 10-year stabilisation clause. However there has been no further reference to this in government statements.

2007 to 19 in 2010, precipitated by falls in the areas of Corruption and Tax Regime (Dolbear 2006 to 2010). In the Policy indicator of the Fraser Institute survey, Zambia also fell from 50 in 2007/2008 to 35 in 2010/2011 (McMahon & Cervantes, 2005 to 2010).

In addition, the industry is also being hit by greater strike action. For mining companies whose goals are to deliver returns to investors, this is little different from an increase in taxes. It also makes Zambia less competitive. Miners' wages are low, but the World Bank (2011) indicates that labour productivity is also low, and wages make up a large proportion of total costs, making Zambia less competitive. Strikes and the resulting closure of mining operations represent a costly way to increase Zambia's share of benefits from its mineral wealth. It also adds to the risk premium future investors may require from Zambia, hurting the country in the future.

These developments diminish the returns future investors can expect from mining in Zambia. All things being equal, future tax bargains may include a greater compensation to investors for this. As the discussion on the natural resource trap in section 1 suggests, such developments can help create the conditions for further instability in the future.

5. Policy Analysis

This section highlights three issues which influenced the stability of Zambia's mining tax regime and makes some suggestions on how to make them stronger:

- The stabilisation clause in the Development Agreements;
- The success and failure of the Windfall Tax and Variable Profit Tax; and
- The role of tax administration capacity

5.1. Fiscal stabilisation clauses

While ultimately, the fiscal stabilisation clauses were not sufficient to dissuade the government from breaking the DAs, this paper suggests that they at least helped delay the pending tax reform for a number of years. The delay was crucial for the mining industry, as the years from 2004, when copper prices started to rise, until the reforms in 2008 saw a total of \$3 billion in investment (Chamber of Mines 2011). Without the threat of arbitration, the government may have been inclined to respond sooner to public pressure and risk damaging the nascent investment flows into the industry. As Daniel and Sunley (2010) suggest, the stability clauses at least did their job of protecting the industry while it grew.

On the other hand, the stabilisation clause may have exacerbated the instability caused by the shift in bargaining power. By preventing the tax regime from adjusting to new conditions, it allowed a build-up in public pressure. By 2008, this pressure may have forced the government to overreact: imposing a much higher tax rate than was tolerable (witness the initial proposed treatment of Windfall Tax) and a lack of negotiation with the industry. A smoother adjustment, might have avoided the more chaotic years of negotiation after 2008. However, by looking at the example of other countries, such as Tanzania, which renegotiated a break with their stability clauses, suggests less drastic actions were available to the Zambian government..

The literature suggests the use of 'renegotiation clauses' to allow an orderly renegotiation of the contract. Zambia is a good example that shows how chaotic the breaking of stability clauses can be. The tax reform process, started in 2008, has never been formally resolved. There continues to be some uncertainty over the status of the tax regime which may be depressing investment. A formal structure to guide this process would probably have been beneficial.

5.2. Response to price changes

Political pressure to break the fiscal stability clauses originated from a failure of the DA regime to provide significant government revenue when copper prices increased. This failure was the result of the tax structure, specifically the low mineral royalty rate (at 0.6 per cent), no excess profit tax (the variable profit tax and windfall tax was introduced in 2008), 100 per cent depreciation allowance, loss carry forward provision. In addition, the poor capacity of the tax authority and lack of tax avoidance safeguards may have contributed to low taxable profits during this period. Would a fiscal regime more responsive to price changes have been more stable?

Such a fiscal regime may well have reduced political pressure for reform, but the bargaining conditions prevented it. The perceived riskiness of investment in Zambia prompted companies to seek terms that could increase the likelihood of making a quick return (and hence a delay in tax payments). The strong bargaining position of mining companies allowed them to successfully secure these terms. The result was an unresponsive tax regime.

Many of the tax instruments in the DA regime had the effect of delaying tax payments. In a country with well-funded, diversified government finances, such a delay might be tolerable. In Zambia this was not the case. The poor bargaining position forced the DA regime on the country, but the country could not tolerate it, and political pressure ensured eventual rejection of the deal. Zambia was caught in a trap.

Conditions for the government did improve by 2008, but given the failure of the Windfall Tax, such improvement may not have been enough. While bargaining power had shifted it was not sufficient for the government to have complete freedom of action. Low administrative capacity, and possibly a flawed negotiation process contributed to this failure.

The manner in which the Windfall Tax was imposed did not help. The tax was imposed in an environment of an increasing tax burden (not helped by the lack of deductibility against other tax bases) and the breaking of the Development Agreements without negotiation. A more managed process in which mining companies are given some years to adjust to a new tax regime might have increased the chances of the Windfall Tax being accepted. Another approach might have been to propose variants to the Windfall Tax. Chile, for instance, levies a variable rate tax whose tax base includes some cost items but not all those included in a standard company income tax base. This may have been more acceptable to the high-cost mines that were most opposed to the Windfall Tax, while still being relatively easy to administer. However, it may also have been the case that the government simply did not have the resources and institutional structures to undertake this sort of negotiation and the development of proposals.

The issue of diversification is an important one. Without any alternative income, pressure for tax reform was greater. The problem of diversification is less of a worry now. Having gone through the first wave of investment in the industry, Zambia now has a group of mines that are providing significant revenues to the treasury. This opens up policy options for the government. Tax

regimes offered to future investors can now afford to employ tax designs that allow companies to delay the point at which they start paying taxes. This gives much greater leeway for Zambia. Firstly, it gives them more bargaining chips to extract concessions in other areas. Secondly, it might reduce public pressure for reform, making the tax regime more stable, itself a benefit to the mining companies.³⁸

Given the inherent instability of the DA regime, was the industry short-sighted in agreeing to the privatisation contracts? The industry may have thought it could make a sufficient return before it was hit by some form of expropriation. However, much of the investment appears to have been made only a few years before 2008, following the rise in prices. Investment, prices and public pressure appear to have risen together, reducing the ability of the industry to make sufficient returns. As such, the industry must strive to make a sufficient return on these investments under a climate of greater instability – witness the changes made in 2012 and the increased strike activity. Copper prices may be high enough that a decent return is still being made, but a more reasoned approach to begin with may have given the industry an even better environment now. Although such analysis benefits from the power of hindsight.

5.3. Capacity building

A recurring theme in this paper has been the lack of government capacity, not only in calculating the true taxable base of mining companies, but also in the ability to propose different tax designs during the course of negotiations. The impact of this can be seen in a number of ways. Firstly, an inability to extract the correct amount of tax may have increased the tax gap and the potential benefits from expropriation. It also produced sufficient doubt that the mining companies were paying less than they should. This was compounded by the potential confusion over how the DA regime allowed companies to legally reduce their tax payments. The focus on much of the lobbying efforts by NGOs, particularly in 2009 and 2010, was the potential tax abuse undertaken by mining companies. Accusations of tax avoidance and evasion damaged the credibility of the industry and the government who were thought to be complicit in this behaviour. This fuelled the demands for reform that produced such instability. It limited the ability of policy makers to understand the credibility of threats used against them. Parliamentary records show that the industry's claims were questioned by parliamentarians (Committee of Estimates 2008 and 2009), but no reports were published that provided strong evidence to the contrary. There was one report that indicated that one company's costs were lower than stated: the leaked audit report. Although this report was produced in 2010, long after arguments over the 2008 tax reform were concluded.³⁹ The government did employ outside specialists in the 2008 reforms, but the confused manner in which they were handled suggests greater capacity in government would have been beneficial.

Finally, the lack of capacity limited the scope of policy options available to the government. Greater capacity to administer more complex tax types would have allowed Zambia to offer more digestible taxes than the Windfall Tax. Tax authorities may always suffer from a lack of information to administer taxes perfectly, but the greater the capacity, the lower the costs of imposing profit-based taxes, allowing both parties to benefit.

³⁸ This highlights one benefit from employing tight ring-fencing arrangements. Where such regulations are not in place, the new investments may be used to reduce the taxes paid by the mature mines, limiting the effects of diversification within the mining industry.

³⁹ Report available from <http://www.scribd.com/Zambian-Economist/d/48512375-Pilot-Audit-Report-Mopani-Copper-Mine-Summary>

In some ways, if this is true, one may wonder why any government would not make the effort to improve their tax authority and civil service. Even the costs of installing a complete team of international experts would be small in comparison with the large amounts that can be earned from natural resource extraction.⁴⁰ This may be too simplistic. Changing any organisation is difficult, particularly a civil service in a country without a long tradition of such institutions. Dropping in an international team of experts, would not be free from complications.

In any case, both the government and donors have recognised the benefits of greater tax administration capacity. A team of experts was hired in 2007 to work alongside the Zambian government staff who prepared the 2008 tax reforms, and there has been some donor support for the ZRA, firstly to conduct pilot audits of mining companies, and later, in 2011, a cooperative programme between the IMF, the Norwegian Tax Authority and the ZRA. A Mining Tax Unit has also been established within the authority. Even with these efforts, it is likely that it will take some time before Zambia's lack of capacity stops being a constraint on its fiscal choices.

There are some relatively quick and painless methods that have recently been taken that effectively enhance capacity. **Table 2.**Table 2.3 shows that the loopholes for tax abuse have slowly been closed. Elements such as ring-fencing and the treatment of hedging income have made ZRA's job easier. Unlike the investment in capacity in ZRA, this approach should produce immediate results.

6. Conclusion

Zambia's mining tax reforms were, and still remain, an emotive subject in the country, and have often invoked claims of corruption and malpractice by government and industry alike. Whether these claims are true or not, this paper has shown that much of the mining tax reforms in Zambia can be analysed through the less emotive approach of a bargaining framework. Using this framework, the tax reforms can be attributed to the pendulum swing in bargaining powers of the government and mining companies. Importantly, the paper also shows the frictions and harmful dynamics that this pendulum swing produced.

Firstly, the level of political risk initially perceived may have encouraged mining companies to adopt a short-term strategy of making a return as quickly as possible. Coupled with the government's low bargaining power, this produced a tax regime that was inherently unstable. The increase in copper prices revealed this instability. The result was as the obsolescing bargaining models predicts. But the resulting tax reform was not a clean process. It produced years of instability, a breakdown in relations between Zambians and the industry, and contributed to political change. This probably increased the perceived risk to future investors.

In addition, the latest 2012 tax regime is probably more regressive than the other regimes. In some ways, the 2012 regime may benefit Zambia, given its still low capacity to administer taxes, and provide revenue sooner than a more profit-based regime would do. On the other hand it will make a number of marginal investment projects nonviable, risking lobbying pressure for a future reduction in taxes. The problem of diversification is also less of an issue now, given that Zambia

⁴⁰ For further discussion of this issue see Calder (2010).

has a group of mature mines paying taxes. This gives policy makers greater leeway to use more progressive tax structures that allow companies to recoup their costs before taxing their profits.

The paper has questioned to what extent the safe-guards against instability employed in Zambia worked, and whether other solutions proposed in the literature may have improved the situation. It shows that, while not foolproof, legally-binding contracts to stabilise tax rates have a potentially strong role to play, although they themselves may exacerbate the costs of reform when it occurs. Combined with some form of renegotiation clause may help limit this problem, although how this is actually done may be difficult.

Zambia's story suggests that a stable tax regime needs to show some response to prices in the short-term (to appease public pressure), alongside some means to allow companies to expense investment costs (to attract investors). These two objectives may be contradictory and a trade-off is required. There may be a case for a tax whose base is not affected by capital allowances, and possibly using a progressive and relatively small rate. Such a tax would provide at least some revenue to the public during periods of high prices, dissipating public pressure, yet not be too damaging to expected returns for investors. If such a tax can indeed act to dissipate public pressure, a mining company may be willing to pay for the assurance. The Windfall Tax had a similar aim, but the history of confusion over this tax in Zambia has made such a policy unviable now.

Whatever tax types are proposed, the paper shows that they must be implemented in an enabling environment. Building capacity to regulate a mining industry, in particular, is one element within the control of government, and provides a range of benefits from reducing the corroding problem of tax abuses, creating greater tax policy options, and ultimately providing government with an additional form of bargaining power.

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