Review and Restructure of Zambia's 2008 Mining Windfall Tax

Webby Banda¹ and Bunda Besa²

^{1,2}Mining Engineering Department, University of Zambia, P.O Box 32379, Lusaka, Zambia

Email: webby.banda@unza.zm or webbybanda@yahoo.com

Abstract

Zambia is richly endowed with mineral wealth. However, it is still encapsulated in the resource curse conundrum. This is because the benefits of mineral wealth have not translated into public development. This has sparked a lot of debate among the Zambian citizenry as to whether the mineral fiscal policies instituted over time have been robust in capturing mining revenue. One issue has always stood out in these mineral taxation debates and this is the reintroduction of the 2008 mining windfall tax. Though this is the case, the Zambian citizenry has not been informed of the various issues leading to its revocation. This paper tries to undertake a critical review and restructure of this tax instrument to rectify the inherent technical lapses in its design. This has been realized by treating the payable amount of this tax as a deductible expense in the income statement and by indexing the trigger prices for inflation. The results of this research indicate that the restructured tax instrument has the potential of maximizing the capture of windfall gains without imposing a higher than normal average effective tax rate and marginal effective tax rate on a mining firm's pre-tax cash flows. This in turn retains capital to the mining firm for further exploration and other mine developmental activities. However, this tax needs to be balanced with other tax instruments for greater efficiency and effectiveness in its application. Advancing this cause calls for a sound judgement on the part of policy formulators.

Keywords: 2008 mining windfall tax, Zambia, Average effective tax rate, Marginal effective tax rate

1.0 Introduction

Windfall tax can be defined as a tax levied on the gross sales value in which the rate fluctuates with the price of the mineral (Manley, 2013). Appiah (2013) defines windfall tax as “a levy that governments employ to collect extra rent generated by mining companies during times of windfall profits, arising from high mineral prices or discovery of unusually high-quality deposits”. This tax is economic rent¹ based and aims to capture windfall gains. A windfall gain is a sudden, unanticipated piece of good fortune. Therefore, this fortune should accrue to the citizenry of the Host State (HS) where mining is being undertaken rather than to a foreign-dominated mineral enterprise². However, it should be noted that this tax is not based

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¹ Economic rent is surplus revenue over and above the sum of production costs and a minimum return on capital. See Otto *et al.* (2006) for a detailed discussion on economic rent.

² However, another school of thought argues that this fortune should accrue to the mining firms in order to provide them with the incentive to undertake exploration in areas previously inaccessible.

on the strict principles of economic rent because it does not encompass operating costs in its computation process. Windfall tax targets prices that are above the range of prices extractive industries use in their economic estimates. It acts as a safety valve that controls the capture of revenue influx occurring in long sustained periods of high prices as a result of higher supply relative to demand (International Council on Mining and Metals (ICMM), 2009). Strong support for its implementation lies in the fact that it does not distort investor decisions that would have been made in its absence. In public finance, a tax that does not distort investor decisions when legislated is termed to be neutral³ (Banda and Besa, 2016). Apart from these advantages, the windfall tax reinforces the fiscal stability of mineral fiscal agreements. It does this by capturing large amounts of revenue in times of high mineral prices and becomes inapplicable at lower price levels. This financially blankets the companies against loss. Additionally, this helps to douse the electorate's motivation to mount pressure on the government to undertake unilateral alteration of fiscal terms in periods of high prices. Designing mineral fiscal frameworks that encourage efficient resource development and a stable fiscal environment augments the magnitude of revenue to be shared (Sunley and Baunsgaard, 2001).

Despite these advantages, this tax has found little or no application in most jurisdictions. This has been attributed to the fact that no country has been implementing the windfall tax correctly. Most countries that have advocated and implemented the tax instrument have done this with flaws in its design, some of these countries include Zambia, Mongolia, and the United States of America (USA). This paper, therefore, seeks to review Zambia's 2008 windfall tax to undertake a restructuring process that will rectify the flaws in its design.

2.0 Historical events leading to Zambia's 2008 windfall tax introduction

Zambia's ownership structure of the mines has made a transition from private hands to national ownership and back to private hands. In 1969, the Zambian government through the Matero reforms had gained majority ownership in the mining companies (Lungu, 2009). This was necessitated by the need to maximize revenue generation which was to be channeled for infrastructure development. Full state control of the mines was achieved in 1972 under the hospice of the United Nations Independence Party (UNIP) government led by President Kenneth Kaunda. It is important to note that during this period no substantial reinvestment was made in the mining industry. This led to the de-rehabilitation of most production facilities leading to contracted production values. Low copper prices coupled with these low production values led to a myriad of sector economic problems which stifled foreign exchange gains and export earnings. This fact contributed to the UNIP government being unpopular within the Zambian society. In 1989, there were large industrial unrests in the mineral sector which proliferated the unpopularity of the UNIP government. By 1990, Fredrick Chiluba who was the leader of the Zambia Congress of Trade Unions (ZCTU)⁴ formed the Movement for Multiparty Democracy (MMD) and ascended to power in 1991. Fredrick Chiluba's campaign was mostly centered on adopting a neoliberal approach to

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³ See Daniel *et al.* (2008).

⁴ See <http://www.zctu.org.zm>

economic management which was centered on privatizing state-owned enterprises. In 1997 and 2000, the state embarked on a huge privatization program under the leadership of President Fredrick Chiluba⁵. However, it must be mentioned that the privatization of the mines was not the sole wish of the Zambian government but rather there was persistent pressure from the World Bank and IMF for Zambia to undertake structural reforms to its mining sector before any donor funding was receipted. Despite, the pressure from Civil Society Organisations (CSOs) not to privatize, the Zambian government went ahead and privatized. The Mines and Minerals Act of 1995 facilitated this process. It also allowed the government to enter into Development Agreements (DAs), which were binding contracts between mining firms and investors on a project by project basis. Making a transition from a background of low copper prices and loss-making mines, the government needed to sign agreements that were lopsided in favor of the mining investor. These agreements were supposed to be instrumental in attracting FDI in the sector. To further attract FDI, the DAs had a proviso of fiscal stabilization agreements. These agreements committed the government not to alter mineral fiscal policies for 15-20 years. If one party felt the other party was not holding part of the bargain it had the right to seek an arbitration process. It must be put on record that most of the DAs that were signed at privatization stage were not made available to the public for review and scrutiny⁶. These controversies surrounded the DA's taxation era. However, the following were some of the features of the DAs:

- Mining firms were allowed to carry forward their losses for 15-20 years on a “first-in, first-out basis”.
- Mining companies were further allowed to claim capital allowance on capital investment at a rate of 100%
- Corporate Income Tax was reduced from 35% to 25%
- Export duty exemption was provided
- There was the signing of fiscal stability agreements committing the government not to alter mineral fiscal policies for 15-20 years. This fact made the DAs legally binding.

After the presidential rule by Fredrick Chiluba which lasted for 10 years from 1991 to 2000. President Levy Patrick Mwanawasa ascended to power under the same party (MMD). The MMD government being led by President Mwanawasa faced internal and external pressure to revise the DAs signed in the privatization era. This was because the mining industry which was once faced with low copper prices was now characterized by a boom in these prices. This made the electorate to have a perception of low gain in mineral resource revenue. Due to this pressure, the government was under duress to unilaterally alter the mineral fiscal policies. In 2008 the Mwanawasa government enacted the 2008 Mines and Minerals Development Act which canceled the DAs to implement a uniform mineral tax system across the sector. This of course brought about mixed feelings on the investors' side as some mining corporations did not recognize it as legally binding. As such, some companies threatened to

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⁵ However, the Zambian Government still retains minority shareholding in a number of mining companies through Zambia Consolidated Copper Mines Investment Holding (ZCCM-IH)

⁶ Some Development Agreements are available from <http://www.minewatchzambia.blogspot.co.uk>.

take the matter to international courts. The mineral fiscal regime that was introduced in 2008, post the DAs had the following tax structure

- Corporate Income Tax (CIT) stood at 30%
- Mineral royalty stood at 3% of the gross revenue
- A withholding tax of 15% on interest, royalties, management fees, and other bases was implemented.
- A variable profit tax of 15% was enacted when the ratio of taxable income to sales exceeds 8%.
- A windfall tax to be triggered at different cobalt and copper price threshold was implemented
- The capital allowance which stood at 100% was reduced to 25%
- The reference price on which taxes were to be based was the price tenable at the LME, metal bulletin, or any other metal exchange market recognized by the Commissioner-General.

These measures were expected to bring an additional \$415 million into government coffers from the mining industry in 2008 (Lungu, 2008). However, this taxation regime was short-lived when President Mwanawasa died in that year. The succeeding President, Mr. Rupiah Banda did not possess the late president's doctrine of mineral taxation, coupled with the pressure from the mining investors made him abolish the windfall tax in April 2009. This was justified by its inherent weaknesses which made the entire tax regime have an Average Effective Tax Rate (AETR)⁷ beyond normal (Banda, 2016). It is estimated that the Marginal Effective Tax Rate (METR) of the 2008 regime was above 80% in some cases, while the AETR was only 47% (Economic Association of Zambia (EAZ), 2008).

3.0 Technical review of the 2008 windfall tax instrument

This section undertakes an in-depth technical review of the windfall tax instrument applied to copper and cobalt in 2008. This tax instrument was not to be applied to any person solely carrying on mineral processing activities. However, mineral processing that was done in conjunction with mining constituted mining operations. It should be noted that the payable amounts of this tax instrument were supposed to be remitted monthly to the Zambia Revenue Authority (ZRA).

3.1 Application of the 2008 windfall tax on copper

Table 1 depicts the trigger prices of the 2008 windfall tax related to copper. The windfall tax was calculated on a cumulative basis using three rates. These include 25%, 50%, and 75%.

Table 1: Trigger prices of the 2008 windfall tax related to copper (ZRA, 2008)

DESCRIPTION OF TRIGGER PRICE	AMOUNT (\$/t)
First trigger price	5,512
Second trigger price	6,614
Third trigger price	7,716

⁷ See Daniel *et al.* (2008) and Devereux and Griffith (2003)

(a) Definitions of technical terms

The following are the definitions of the parameters used in the equations of windfall tax.

- (i) Monthly Average Price (MAP):** This is the weighted average London Metal Exchange (LME) copper price in respect of a calendar month. This parameter is expressed in United States (US) dollars per metric tonne. It is calculated by Equation 1

$$MAP = \frac{Q_1 P_1 + Q_2 P_2 + Q_3 P_3 + \dots + Q_{n-1} P_{n-1} + Q_n P_n}{Q_n} \quad [1]$$

Where:

Q_n = The quantity of copper or recoverable copper sales in metric tonnes in a calendar month

P_n = The corresponding London Metal Exchange daily closing cash seller price in United States dollars per metric tonne for Grade A cathode

n = The aggregate number of copper or recoverable copper sales invoiced in the relevant calendar month

- (ii) Ruling Exchange Rate (RER):** This is the Bank of Zambia monthly average Kwacha to the United States dollar currency exchange rate.

(b) Computation of windfall tax payable on copper

The following list provides the standard application of the 2008 windfall tax on copper:

- Where the average monthly price does not exceed the First Trigger Price (FTP) windfall tax is not payable
- Where the average monthly price exceeds the FTP but does not exceed the Second Trigger Price (STP), windfall tax is calculated using Equation 2

$$WT = (RER * Q_n) [25\% (MAP - FTP)] \quad [2]$$

Where:

WT = Windfall tax payable for the month (\$).

- Where the average monthly price exceeds the STP but does not exceed the Third Trigger Price (TTP) windfall tax is calculated according to Equation 3

$$WT = (RER * Q_n) \{ [25\% (STP - FTP)] + [50\% (MAP - STP)] \} \quad [3]$$

- Where the monthly average price exceeds the TTP, windfall tax shall be calculated by Equation 4

$$WT = (RER * Q_n)\{[25\% (STP - FTP)] + [50\% (TTP - STP)] + [75\% (MAP - TTP)]\} \quad [4]$$

3.2 Application of windfall tax to cobalt

Table 2 depicts the windfall trigger prices related to cobalt.

Table 2: Trigger prices of windfall tax related to cobalt (ZRA, 2008)

DESCRIPTION OF TRIGGER PRICE	AMOUNT (\$/t)
First trigger price	55,116
Second trigger price	77,162
Third trigger price	88,18

(a) Definitions of technical terms

The following are the definitions of the parameters used in the equation of windfall tax for cobalt.

- (i) **Monthly Average Price (MAP):** This is the weighted average Metal Bulletin cobalt cash price in respect of a calendar month. It is calculated by Equation 5

$$MAP = \frac{Q_1 P_1 + Q_2 P_2 + Q_3 P_3 + \dots + Q_{n-1} P_{n-1} + Q_n P_n}{Q_n} \quad [5]$$

Where:

Q_n = The quantity of cobalt or recoverable cobalt sales in metric tonnes in a calendar month.

P_n = The corresponding Metal Bulletin daily closing cash seller price in United States dollars per metric tonne.

n = The aggregate number of cobalt or recoverable cobalt sales invoiced in the relevant calendar month.

- (ii) **Ruling Exchange Rate (RER):** This is the Bank of Zambia monthly average Kwacha to the United States dollar currency exchange rate.

(b) Computation of windfall tax payable on cobalt

The standard application of the 2008 windfall tax on cobalt is the same as that of copper explicated in Section 3.1.

3.3 Pitfalls associated with Zambia's 2008 windfall tax instrument

There are two criticisms of the 2008 windfall tax instrument (EAZ, 2008)

- Firstly, unlike mineral royalties, windfall tax payments could not be deducted from profits for income tax purposes. This meant that in times of high mineral prices the

mining company would pay colossal sums of CIT and windfall tax. This increased the tax burden to levels above normal.

- Secondly, the tax instrument was too onerous, given the rest of the tax regime burden.

Additionally, the trigger prices were rigid. Since copper and cobalt prices are expressed in monetary terms, their value depreciates over time. Therefore, these trigger prices must account for inflation. This paper tries to rectify these lapses by treating the windfall tax instrument as a deductible expense in the income statement and by indexing the trigger prices for inflation.

4.0 Rectification of the 2008 windfall tax instrument

This section presents the rectification process of Zambia's 2008 windfall tax instrument. It begins by illuminating the inflation indexation process of the trigger prices. This is then proceeded by an explication of the effects of treating the windfall tax as a deductible expense in the income statement.

4.1 Indexing copper and cobalt windfall trigger prices for inflation in US dollar terms

Inflation rate applied to windfall trigger prices can mathematically be defined as:

$$\mu = \frac{CP_2 - CP_1}{CP_1} * 100\% \quad [6]$$

Where:

μ = Inflation rate (%)

CP_1 = Consumer price index in the first month of the fiscal year

CP_2 = Consumer price index in the month windfall tax is payable within the fiscal year

Indexing the FTP for inflation gives:

$$= (FTP * \mu) + FTP \quad [7]$$

$$= FTP(1 + \mu) \quad [8]$$

Similarly, indexing the STP and the TTP for inflation gives:

$$= STP(1 + \mu) \quad [9]$$

$$= TTP (1 + \mu) \quad [10]$$

The following redefine the application of the windfall tax instrument after indexing the trigger prices for inflation.

- Where the average monthly price does not exceed $FTP(1+\mu)$ windfall tax is not payable
- Where the average monthly price exceeds $FTP(1+\mu)$ but does not exceed $STP(1+\mu)$, windfall tax shall be calculated using Equation 11

$$WT = (RER * Q_n)[25\% (MAP - FTP(\mu + 1))] \quad [11]$$

- Where the average monthly price exceeds $STP(I+\mu)$ but does not exceed $TTP(I+\mu)$, windfall tax shall be calculated according to Equation 12

$$WT = (RER * Q_n)\{[25\% (STP - FTP)(\mu + 1)] + [50\%(MAP - STP)(\mu + 1)]\} \quad [12]$$

- Where the monthly average price exceeds $TTP(I+\mu)$, windfall tax shall be calculated by Equation 13

$$WT = (RER * Q_n)\{[25\% (STP - FTP)(\mu + 1)] + [50\% (TTP - STP)(\mu + 1)] + [75\% (MAP - TTP)(\mu + 1)]\} \quad [13]$$

The windfall tax equations above apply both to copper and cobalt. These equations reflect an indexation process related to the US dollar.

4.2 Treatment of windfall tax in the income statement

Another rectification of the 2008 windfall tax is to treat it as a deductible expense in the income statement. This means that in times of high mineral prices, the investor will disburse a colossal sum of windfall tax and a reduced amount of Corporate Income Tax (CIT). This provision reduces the AETR of the CIT in times of high mineral prices when the two tax instruments are applied concurrently. Equation 14 shows the AETR of the CIT when the windfall tax is treated as a deductible expense in the income statement.

$$AETR_{CIT} = \frac{(NPV_{\beta} - NPV_{\alpha}) * CTR}{NPV_{\gamma}} \times 100\% \quad [14]$$

Where:

$AETR_{CIT}$ = Average Effective Tax Rate for CIT (%)

NPV_{β} = Net Present Value of income before tax (\$)

CTR = Corporate Income Tax Rate (%)

NPV_{α} = Net present value of the payable amount of windfall tax (\$)

NPV_{γ} = Net present value of a mining firms pre-tax cash flows (\$)

The same principle used to calculate the AETR of the CIT can be extended to calculate the AETR of the entire tax regime when windfall tax is treated as a deductible expense in the income statement. Equation 15 shows the AETR of a mineral tax regime as a whole.

$$AETR_{TR} = \frac{(NPV_{\beta} - NPV_{\alpha}) * (CTR + TR_0) + P_0}{NPV_{\gamma}} \times 100\% \quad [15]$$

Where:

$AETR_{TR}$ = Average Effective Tax Rate of mineral tax regime (%)

NPV_{β} = Net Present Value of income before tax (\$)

CTR = Corporate Income Tax Rate (%)

NPV_{α} = Net present value of the payable amount of windfall tax (\$)
 NPV_{γ} = Net present value of a mining firms pre-tax cash flows (\$)
 TR_o = Total tax rates of other taxes that use taxable income as a base (%)
 P_o = Payable amounts of other taxes (\$)

As can be deduced from the restructuring process, indexing the windfall trigger prices for inflation pushes these prices high (i.e. by a factor of $1+\mu$) thus giving financial relief to high-cost mining companies during inflation periods. This is because the high-cost companies will be able to attain some profit before the tax kicks in. This is consistent with adhering to the *ability to pay principle*. Additionally, treating the windfall tax as a deductible expense in the income statement will reduce the AETR of the CIT and the taxation regime as a whole. This means in times of high mineral prices the mining company will pay windfall tax but a reduced amount of CIT. This reduces the tax burden of the mining firm whilst disbursing a fairly substantial amount of revenue into government coffers. The restructured model of windfall tax in this research paper is based on the principle of economic rent and thus does not affect the operating cost of a mining company. This is because it kicks in during high mineral prices. This gives a windfall share of profits to the government whilst returning a substantial profit to the mining company for continued operation. In times of low price outcomes, this tax will be inapplicable as it is concerned with taxation at high mineral prices. Therefore, the tax will give financial relief to mining investors during periods of low mineral commodity prices. This will benefit the government and the state as a whole as it will help retain mining investment. The rectification process has shown that it is possible to reintroduce a robust windfall tax structure in the Zambian mining industry. However, this calls for a sound judgement on the part of mineral policy formulators to advance this cause.

5.0 Conclusion

This paper has undertaken a critical review and restructure of Zambia's 2008 windfall tax. The technical lapses of this tax instrument have been rectified by treating it as a deductible expense in the income statement and by indexing the trigger prices for inflation. Following this undertaking, it was concluded that these rectification's aid to reduce the AETR of the CIT and the entire tax regime in general. This promotes a win-win situation between the mining investor and the government. Since windfall tax is more concerned with optimal taxation it is only right for it to be implemented in the Zambian mining sector. This is because it will act as a safety valve for capturing revenue influx in times of high mineral prices whilst giving financial relief at low prices. However, to prevent the implementation of a futile windfall tax on the sector as that seen in 2008, a proper restructured scheme as the one being proposed in this paper must be legislated. Also, the windfall tax must be harmonized with other tax instruments to generate a robust tax regime. This calls for a sound judgement on the part of mineral policy formulators.

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