Economic Impact Assessment (EIA) of
proposed changes to the mining tax regime in South Africa

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Introduction

This study has been commissioned by PwC as part of a response (on behalf of clients) to the Davis Tax Committee's *First Interim Report on Mining* and should be read together with an overview of the investment climate in mining, researched and written by the author.

Methodology

The following table provide a concise overview of the methodology that was followed to determine the coefficients required for an econometric modelling exercise, aimed at assessing the negative impact on the country's gross domestic product (GDP) flowing from the proposed amendments to the mining sector tax regime in South Africa.

Table 1: Methodology for a macroeconomic impact assessment of proposed amendments to South Africa's mining sector tax regime (proposed change of the capital allowance to 40:20:20:20)

Step	Methodology & data sets
1	Determination of the ratio between turnover and value added in nominal rand terms by the mining sector, based on national accounts data and the Annual Financial Statistics (AFS) of Stats SA
2	Determination of the profit after taxation of the mining sector, based on the AFS data
3	Calculation of the ratio between dividend payments to shareholders and after tax profits available for capital formation in the mining sector, based on AFS data
4	Determination of the ratio between turnover by the gold mining sector and turnover of the whole mining sector, based on AFS data
5	Determination of the additional tax revenues emanating from the proposed change of the capital allowance to 40:20:20:20 (payable by the case study company) over a period of four tax payments, commencing with quarter three, 2015 and ending with quarter one, 2017, based on the PwC analysis
6	Calculation of the ratio between the tax payments determined in step 5 and the value added by the case study company (using the ratio determined in step 1 as a proxy for the total mining sector)
7	Determination of the values by which the mining sector's ability to expand capital formation will be curtailed as a result of lower after tax profits, based on the ratios determined in steps 3 & 6 and the gross value added by the mining sector in Q 2: 2015 (national accounts data), over seven quarters
8	Calculation of the ratio between dividends received by households and total dividends received for the economy as a whole, based on national accounts data. This step is necessary in order to isolate that portion of dividends received that is most closely correlated to private consumption expenditure.
9	Determination of the values by which private consumption expenditure will be curtailed as a result of lower after tax profits, based on the ratios determined in steps 3, 4, 5 & 8 (over a period of seven quarters)

A note on fiscal neutrality

It is important to note that the results of the EIA pertain to a scenario where the additional tax revenues generated by the proposed change to the capital allowance formula for mining are sterilised, in the sense that no neutrality exists with regard to government expenditure. This would be the case where the additional tax revenues are not earmarked for specific expenditure programmes or where these revenues are effectively utilised for the reduction of government debt.

However, in the event of the additional tax revenues being utilised for the funding of government expenditures (capital or current), some portion of the loss of output determined by the EIA will be cancelled out. In such a case, the difference between the negative impact on GDP (via higher taxes) and the positive impact (via higher state expenditure) will depend on the degree to which multiplier effects within the input/output tables differ.

Due to the current fiscal policy stance it is highly unlikely that additional taxation revenues will be channelled to specific or even general government expenditure programmes.

Bureaucratic delays that are characteristic of government expenditure programmes (especially for capital expenditure) will in any event result in a delay between the loss of effective demand (via the taxes) and increased demand (via state expenditure), which is guaranteed to lead to a lower level of GDP during the time-period where this time lag occurs – an impact that will remain present in the form of structurally lower GDP during ensuing time-periods.

A further caveat is the obvious underlying assumption of the modelling exercise that the mining sector will maintain the same profitability levels as for the sample data period. The values determined in steps 7 & 9 were utilised to prompt the econometric model to forecast a GDP scenario under the assumptions of lower after tax profits in the mining sector, which would ultimately lead to a decline in the demand components for capital formation and private consumption expenditure.

Results of the EIA

The results of the econometric model (GDP impact) were further analysed in terms of the impact on total demand in the economy; formal employment; informal employment; and the three major groups of taxation revenues, utilising input/output table methodology and relevant multipliers.

Input/output table analysis records economic transactions between the different industries of a country, which makes it possible to quantify the effect on employment and taxation revenues that flow from a permanent change in GDP or aggregate demand.

For the purposes of this study, the change in GDP flowing from lower capital formation and household consumption (determined by the econometric model) was converted to a demand effect, in order to prompt multiplier effects based on demand/employment and demand/taxation ratios.

The effects of the short-term decline in the demand for a particular supplier's product are divided into a direct, indirect and induced effect, which captures all the linkages in the value added chain of a particular industry (or individual producer), as well as the effect of changes in household consumption expenditure (created as a result of the initial change in demand).

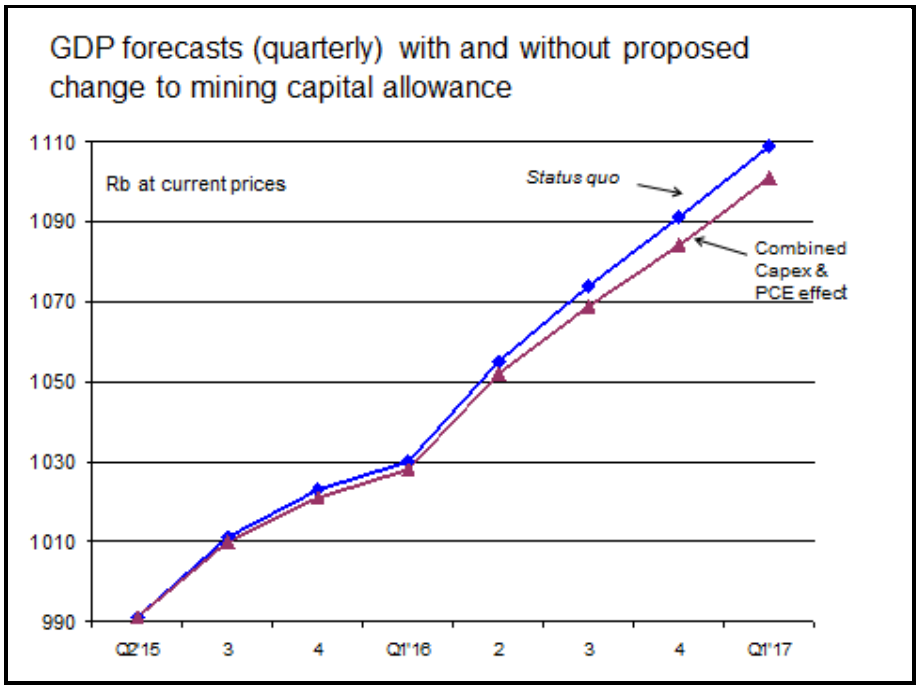
The final results of the EIA are depicted by table 2.

Table 2: Summary of results of the economic impact assessment of proposed changes to the capital allowance for mining companies

	Number	R million
Decline in GDP (as per econometric model)		29 166
Decline in total demand in the economy		9 559
Loss of formal sector jobs (private sector)	48 972	
Loss of informal sector jobs (private sector)	12 118	
Decline in personal income & wealth taxes		1 090
Decline in corporate tax		913
Decline in VAT & other indirect taxes		1 725

All the coefficients of the model were statistically significant and the adjusted R-squared indicates that 99% of the variation in GDP can be explained by these variables.

The negative macroeconomic impact on the country's total output (GDP) thus determined (over a period of seven quarters) is also illustrated by the figure.



Notes that serve to clarify the econometric model variables and assumptions are presented as an annexure.

Conclusion

This study has attempted to quantify the negative impacts of proposed changes to the capital allowance formula for the mining sector by utilising objectively verifiable data from a case study company to calculate industry-specific taxation/value added ratios (as a first step).

These were then used to determine the values by which capital formation in mining and household consumption expenditure were likely to decline over a two-year period, followed by an econometric modelling exercise to determine the impact on the overall economy, which is substantial.

Any periodic re-assessment of a country's particular taxation regime should be welcomed, as it allows for omnipresent changes to business processes and the structure of the domestic & global economy to be taken into account as part of the relentless pursuit of higher levels of international competitiveness.

It is abundantly clear, however, that the proposed changes to certain aspects of mining taxation in South Africa are ill-timed. Apart from the fact that the local mining sector is battling with the effects of a five-year commodity price slump and labour market volatility, the alignment of capital allowance treatment with that of manufacturing will lead to a higher tax burden for the mining sector.

In turn, this will translate to lower demand and lower output in the economy, followed by lower employment and lower taxation revenues induced by the linkages involved in the mining supply chain. The net result would undoubtedly translate into an erosion of the country's global competitiveness.

It is proposed that the *status quo* be retained for the mining tax regime in South Africa, until such time as a meaningful recovery of metal and mineral commodity prices has occurred and a number of other uncertainties that impact negatively on the mining investment climate have dissipated.

Thought could then be given to mining tax amendments that take a number of relevant factors into consideration, including the following:

- Wage costs
- Commodity prices (in US dollar terms)
- Exchange rate trends
- Progress with supporting further beneficiation of the particular commodity
- Progress with broad-based BEE, particularly share incentive schemes
- A macroeconomic impact assessment of any future proposed changes