Republic of Botswana

WORLD BANK GROUP

Public Finance and Mineral Revenues in Botswana

Technical Report

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WAVES

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Abbreviations

BoB	Bank of Botswana
EITI	Extractive Industries Transparency Initiative
GIA	Government Investment Account
GoB	Government of Botswana
MFDP	Ministry of Finance and Development Planning
MMEWR	Ministry of Minerals, Energy and Water Resources
NDP	National Development Plan
P	Pula
PF	Pula Fund
PFM	Public Finance Management
RGI	Resource Governance Index
StB	Statistics Botswana
SBI	Sustainable Budget Index
SWF	Sovereign Wealth Fund
WAVES	Wealth Accounting and the Valuation of Ecosystem Services

1. Introduction

This report is part of an ongoing project under the Wealth Accounting and Valuation of Ecosystem Services (WAVES) global partnership, being carried out by the Government of Botswana (GoB) and the World Bank. The WAVES project has many components, including the preparation of water accounts, mineral accounts, and appropriate macroeconomic indicators. These elements were selected as the first components of the WAVES project following a scoping report prepared in February 2012.[1]

This report is linked to a related assignment on mineral accounting, and focuses on the public finance aspects of mineral revenues. It follows from some earlier work conducted in the same field, in particular Lange and Wright (2004) and the set of mineral accounts prepared by the Department of Environmental Affairs and the Centre for Applied Research (CAR) in May 2007.[2]

The mining sector continues to be the backbone of Botswana's economy, despite efforts to diversify. Mining is still, by some measures, the largest contributor to gross domestic product (GDP), generates the majority of export earnings, and makes a major contribution to government revenues. The use of mineral revenues is, therefore, of critical importance for sustainable development. Botswana has received widespread praise for the way in which it has managed mineral revenues and invested them in education, healthcare, and other forms of assets. In some respects, the country has managed to avoid what is commonly known as the "mineral curse" and "Dutch disease," by using appropriate macroeconomic, exchange rate, and fiscal policies.

However, it is important that past success not lead to complacency, and to recognize that policy changes may be required in response to changing circumstances, both domestically and internationally. As this report will show, the peak of minerals' contribution to government revenues appears to have passed, and the fiscal importance of minerals is likely to decline in future. At the same time, some Dutch Disease and resource curse characteristics can be observed, such as high unemployment, high income inequality, slow growth of non-mining exports, and questionable public spending decisions.

The decision to include the construction of mineral accounts in the WAVES project reflects the importance of the mining sector and the need to ensure that appropriate decisions are taken regarding the investment of mineral revenues to provide for future economic growth.

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[1] *"The Global Partnership for Wealth Accounting and Valuation of Ecosystem Services (WAVES): Report of the Botswana Preparation Phase," prepared for World Bank/WAVES by the Centre for Applied Research and Econsult Botswana, February 2012*

[2] *"Towards Mineral Accounts for Botswana," prepared by the Department of Environmental Affairs and the Centre for Applied Research, May 2007*

This study has the following objectives:

- Exploring the extent to which the government has captured the resource rents from mineral extraction for the country's development and growth;
- Identifying how mineral revenues have been used;
- Identifying any challenges with the appropriation and use of resource rents; and
- Proposing changes, as necessary, in the reporting and accounting framework relevant to the use of mineral revenues.

The report is structured as follows: Section two describes the role and importance of minerals in the economy of Botswana. Section three introduces the concept of resource rent and provides estimates of the resource rent generated by mining during the period 1994 to 2014. Section four covers the generation of fiscal revenues from the mining sector, while section five considers the public finance policy framework and the uses to which mineral revenues have been put, in particular for sustainable economic management. Section six concludes and identifies areas of challenges, from both policy and statistical perspectives.

2. The role of minerals in the Botswana economy

2.1 Introduction

The mining sector has long been the dominant sector of the Botswana economy. For most of the past 35 years, it has been the largest contributor to GDP, the largest contributor to government revenues, and the source of the majority of export earnings. The importance of mineral production to the Botswana economy is summarized in Table 1 below.

Table 1: Economic importance of mining

Macroeconomic Indicator	1985-1994	1995-2004	2005-14
Mining % of GDP	42.2	30.9	22.0
Minerals % of government revenues	50.9	52.0	39.9
Minerals % of merchandise export revenues	77.4	76.9	71.6
Mining % of overall GDP growth	22.1	29.9	-12.8

Source: Econsult Botswana, based on information from Statistics Botswana

Note: export data excludes re-exports of aggregated diamonds

The main driver of mining sector growth and earnings has been diamonds, although there have been smaller contributions from base metals (copper, nickel, and cobalt), coal, soda ash, and gold. This situation has been changing in recent years, and is likely to continue evolving in the future. As will be discussed later, government revenues from minerals appear to have peaked (relative to GDP and to overall revenues). The share of GDP accounted for by the mining sector has been in decline, and—depending on the measure used—may no longer be the largest economic sector. In 2014, the most recent full year for which data is available, mining was the largest economic sector when measuring GDP/value added at current prices, but at constant (2006) prices, mining was the second largest economic sector, after trade, hotels and restaurants.

There are a variety of reasons for the declining economic role of mining in Botswana:

- The diamond mining industry, which is the largest contributor to mining, has reached maturity; production (in terms of carats) peaked in the mid-2000s and has since declined.
- The global financial crisis of 2007–9 and its aftermath led to a sharp reduction in demand for diamonds, as well as lower prices for copper and nickel, and delays in some planned mining investments.
- Economic diversification policies have, to some extent, succeeded; as a result, the non-mining sector of the economy has experienced faster growth than the mining sector.[3]

While it is certain that minerals will remain important to the Botswana economy, the nature of the sector and its economic impact are likely to change as it becomes less important as a driver of growth.

3. Mineral rents

The economic value of a mineral resource is measured by the *resource rent*. This is the economic return earned from the sale of a mineral over and above the costs of extracting the mineral. Resource rent occurs because of the scarcity of a resource.

Unless there are specific policies to recover resource rent from mineral producers, much of it will accrue as "windfall" or "super-normal" profits to mining companies—i.e., a profit that is over and above that which would be normally required to reward the mining company for the capital employed in the mining operation and the risks incurred in mining investment and operation.

In many countries, including Botswana, relevant law prescribes that minerals belong to the state. Mining companies are then given licences entitling them to

[3] *Over the decade from 2004–14, the non-mining private sector grew by 128 percent, while the mining sector shrank by 13 percent (measured in terms of constant price GDP).*

exploit (mine and sell) the mineral resource. However, as the owner of the (unmined) resource, the government is entitled to a return on it.

From an economic perspective, sustainable and equitable resource management requires that the resource rent (or a significant proportion of it) be recovered by the government through appropriate taxes and used for the benefit of all citizens. Non-renewable resources like minerals will eventually be depleted, and the employment and incomes generated by this activity will come to an end. It is especially important that resource rents from minerals be invested in other kinds of economic activity, to replace the employment and income from the mineral-based industries once they are exhausted. In this way, exploitation of minerals can be *economically* sustainable—because it creates a permanent source of income—even though non-renewable resources are, by definition, not physically sustainable, and the revenues derived directly from minerals are consequently unsustainable.

A related exercise under the WAVES project involves calculating the historical value of mineral rents. This exercise had several objectives, including establishing the importance of mineral rents in Botswana; tracking changes over time; and enabling the valuation of Botswana's stock of mineral resources. Furthermore, the rent calculation is an essential input to the present exercise of assessing the effectiveness of fiscal policy in capturing those rents.

Mineral or resource rent can be defined as the value of production minus the costs of production, or equivalently, as the share of the gross operating surplus (GOS) not attributable to the fixed assets used in production. It can be calculated as follows:

Income from sale of resource = value of output

minus intermediate consumption

equals gross value added

minus compensation of employees

minus net taxes on production

equals gross operating surplus (GOS)

minus consumption of fixed capital

equals net operating surplus

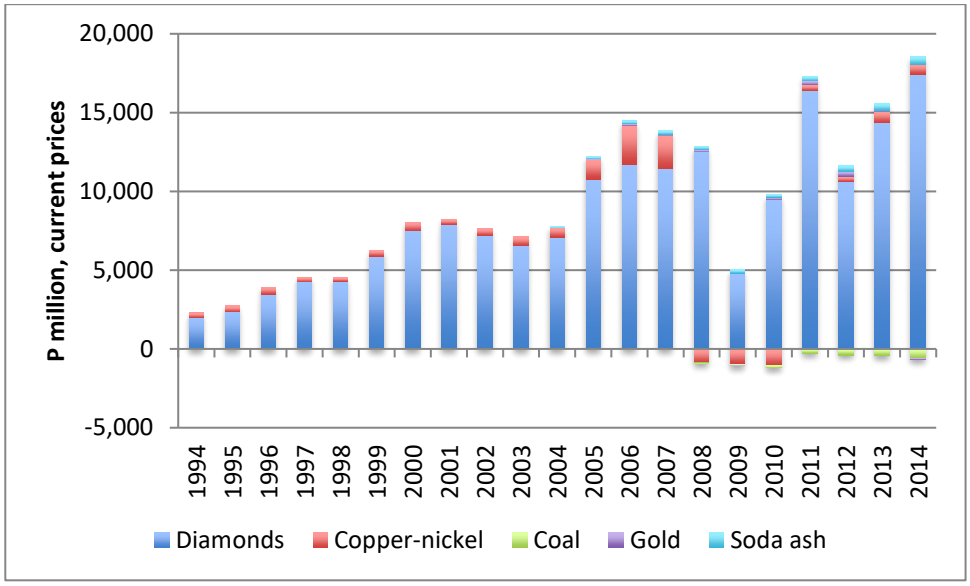
minus normal return to capital

equals net resource rent

The results of the calculation of resource rents are shown in Figure 1, and show that:

- Annual resource rents have been quite volatile, depending on mineral prices and production volumes—indicating that a 5-year moving average of rents gives a more representative long-term trend;[4]
- The impact of the global financial crisis of 2008–9 was very large, causing a sharp fall in resource rents; and
- Overall resource rents are dominated by rents received from diamonds—an average of 94 percent of the total. Rents from copper-nickel have been much smaller, but positive in most years, except for 2008-10. Rents from coal have been consistently negative, although generally small until the last five years, when a large investment program at Morupule sharply increased the level (and cost) of capital employed.

Figure 1: Resource rent, by mineral, 1994-2014 (current prices)



Source: author's calculations

4. Mineral revenues and development policies

4.1 Introduction

This chapter reviews the appropriation of resource rents by the government through taxation and related policies. We start by considering the principles of mineral taxation, and how they are applied in Botswana.

In principle, there is no single "best practice" regarding the taxation of mineral revenues, as governments typically aim to achieve a variety of objectives through fiscal regimes that must apply in a variety of different conditions. These objectives may include the following:

- Securing an "appropriate" share of resource rent;

[4] *Most countries valuing subsoil assets use the moving average approach. These calculations use a lagged 5-year moving average (hence no figures are available for the first four years of the series).*

- Securing "up-front" revenue (i.e. at an early stage of a mineral project's development);
- Securing reasonable stability in the flow of mineral revenues to government;
- Avoiding unduly complex tax regimes that encourage avoidance, are difficult to implement in practice, or impose a high burden on tax administration; and
- Providing incentives (or at least, avoiding disincentives) for the attraction of investment in mining projects.

While easy to lay out in principle, these are more difficult to implement effectively in practice. One reason is that mineral projects are inherently subject to a high degree of uncertainty and risk, especially at an early stage where there may be substantial geological uncertainty. There is also the volatile nature of international commodities markets, as well as the information asymmetry between governments and investors.

To balance the aforementioned objectives, mineral taxation regimes often comprise a mixture of different types of fiscal mechanisms. These may include:[5]

- Fixed fees;
- Royalties;
- Income (profits) taxes (flat rate or variable rate);
- Resource rent taxes;
- Production sharing contracts;
- Withholding taxes (on dividends, interest, management fees, etc.);
- Government equity (paid for or carried);
- Investment incentives; and
- Fiscal stability clauses.

In principle, the "appropriate" share of the resource rent that should flow to the government through the fiscal regime should be close to 100 percent. The point about resource rent is that it is the return to the extraction of a mineral over and above the cost to the investor, including return on capital and an allowance for risk. Hence, even if all the resource rent is taxed away, there should be no disincentive to the investor. Broadly speaking, the effective rate of taxation of profits should therefore be proportionate to the profitability of a mineral project.

In practice, however, the government and the investor may have different views on what an "acceptable" rate of return is. Furthermore, taxes that specifically target mineral rent are typically "back-loaded" (only bring in tax revenues later in a project, once the target rate of return has been achieved), may not offer governments much fiscal stability, and may imply governments bearing a higher share of project risk than it desires. Tax regimes that achieve the resource rent objective (e.g. resource rent taxes, progressive income taxes, production sharing agreements or state equity participation) are often combined with royalties, which provide stability and front loading, but which have the disadvantage of raising marginal costs and reducing the share of a mineral deposit that can be profitably exploited.

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[5] *See Baunsgaard (2001) for more information*

There are other practical difficulties as well. First, there is a commitment and trust problem. Governments may agree to a tax regime that is favourable to mining companies prior to a mining investment, but once the capital (which is largely immovable) is committed, the government may impose a more draconian tax regime to the disadvantage of the investor, who is by then committed; hence, mining investors often will seek legally enforceable pre-commitments from governments, such as through tax stability agreements. Second, there is scope for transfer pricing because investors can transfer profits out of the mining jurisdiction (where taxes may be high) to tax havens or lower-tax jurisdictions. Third—partly to address the transfer-pricing issue—mineral royalties on the gross value of production are by far the simplest kind of tax to impose on mining companies, but have the disadvantage of making some mineral deposits sub-economic, at the margin, by raising the costs of mining.

4.2 Appropriation of resource rents

The policy framework for the taxation of mineral revenues in Botswana involves maximizing the economic benefits for the nation, while enabling investors to earn competitive returns, including a reward for risk. The revenue framework has, therefore, been focused on capturing the lion's share of mineral rents. In this section, we examine the extent to which this objective has been achieved.

In common with many other countries, Botswana uses a variety of mechanisms to appropriate mineral rents. These include:

Royalties. They are laid out in the Mines and Minerals Act (paragraph 66.2), and are levied as follows on the gross market value of production:

Mineral	Royalty Rate
Precious stones (e.g. diamonds)	10%
Precious metals (e.g. gold)	5%
Other minerals (e.g. copper, nickel, coal)	3%

Source: Mines & Minerals Act, 1999

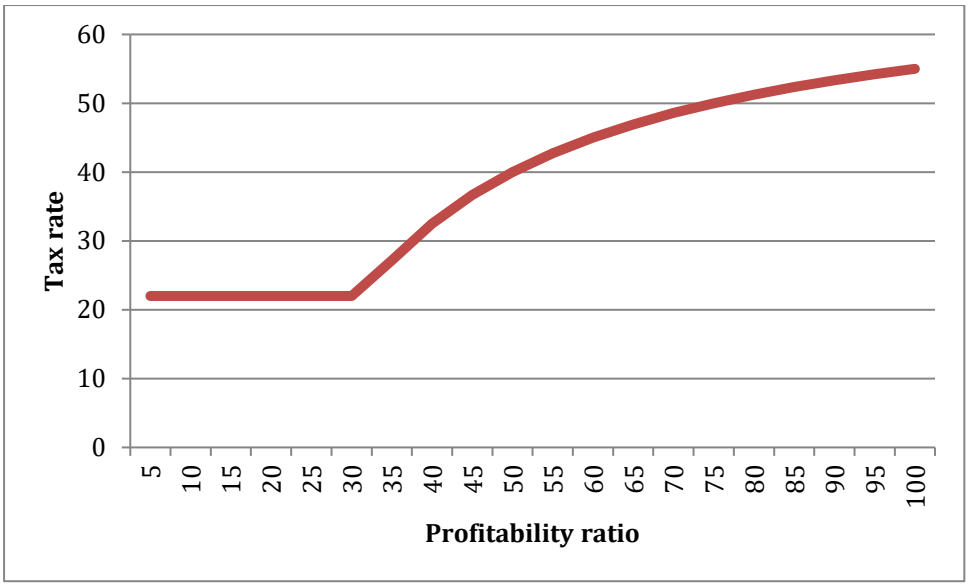
Taxation. Companies that hold a mining licence are subjected to a special taxation regime, laid out in the 12th Schedule of the Income Tax Act. In contrast to normal corporate taxation, which is currently (2015) levied at a rate of 22 percent of taxable profits, mining companies are subject to a variable-rate income tax, whereby the rate of tax is determined by the profitability of the mining enterprise. The aim of this approach is to ensure that a portion of any super-normal or windfall profits accrues to the government as tax revenue. Hence, the rate of tax rises with the profitability of the mining company. The specific formula applied is:

$$Annual\ tax\ rate = 70 - (1{,}500/X)$$

where X is the profitability ratio, given by taxable income as a percentage of gross income, multiplied by 100, provided that the tax rate shall not be less than

the standard company tax rate. This gives a variable profits tax rate as shown below.

Figure 2: Mining tax rate (based on profitability ratio)



Source: author, based on Income Tax Act

This formula is fixed for all mining operations except diamonds, where the tax arrangements are subject to negotiation between the mining company and the government.

Dividends. Under the Mines and Minerals Act, the government is entitled to acquire a shareholding of up to 15 percent in mining companies at the time that a mining licence is granted. Again, diamond mining is an exception; the proportionate government shareholding is a matter for negotiation. The government shareholding is paid for, with the government paying the relevant share of expenses incurred up to the stage of granting the mining licence (as well as being liable for a future share of investment costs, in line with its role as a shareholder). As a shareholder, the government is entitled to receive its proportionate share of any dividends declared by profitable mining companies. The government directly owns shares in four Botswana mining companies: Debswana, BCL, Tati Nickel, and Botswana Ash.[6]

Withholding taxes. Payments of dividends, interest and management/consulting fees made outside of the country are subject to the deduction of withholding tax. The default rate is 15 percent, but this may be varied in the case of a Double Taxation Agreement between Botswana and the receiving jurisdiction.

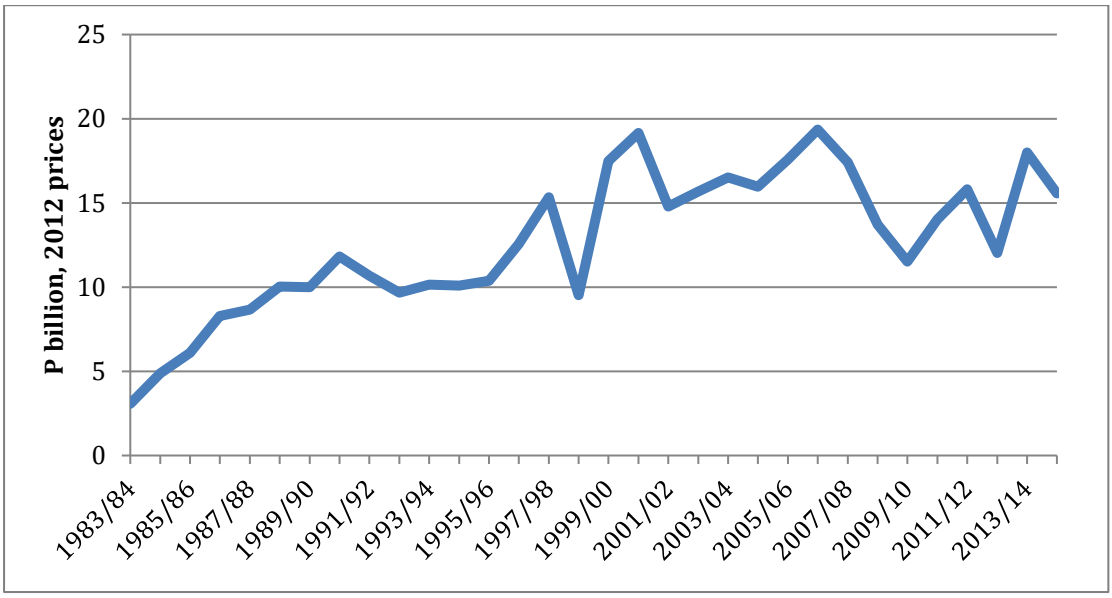
[6] *The GoB also indirectly owns shares in Morupule Colliery, through Debswana. It also owns 15 percent of De Beers (the other 85 percent is owned by Anglo American plc). GoB decided not to exercise its right to acquire shareholdings in several recently-licensed mining companies, including Discovery Metals (copper, silver), Boteti Mining (diamonds), Ghagoo Mining (diamonds), Lerala Diamonds, and Firestone Diamonds.*

Offsetting incentives: accelerated depreciation. In common with many other countries, Botswana allows mining companies to benefit from accelerated depreciation provisions in calculating tax liabilities. Mining capital expenditure can be deducted in full from taxable income; this contrasts with the more normal situation, where only a depreciation allowance can be deducted, i.e. capital expenditure has to be spread over a period of time for taxation purposes.

High-level mineral revenue figures are published in the general government accounts. Overall mineral revenues are divided into two portions: tax revenues and non-tax revenues, the former including profits taxes and withholding taxes, and the latter including dividends and royalties. The government does not publish information on dividends and royalties separately, nor on the revenues received from different companies or different types of minerals.

Mineral revenues have been extremely important for the government, increasing rapidly from the mid-1970s onwards and peaking in real terms in the mid-2000s.

Figure 3: Government mineral revenues (Pula billion, real, 2012 prices)[7]



Source: author's calculations

At their peak, mineral revenues contributed 60 percent of total government revenues, but they have since declined and now account for around 33 percent of the total.[8] As a share of GDP, however, mineral revenues reached their peak as far back as the late 1980s, and have declined from 30 percent then to around 12 percent now. Nevertheless, minerals still account for the largest single contribution to the overall budget, followed by revenues from the Southern African Customs Union.[9]

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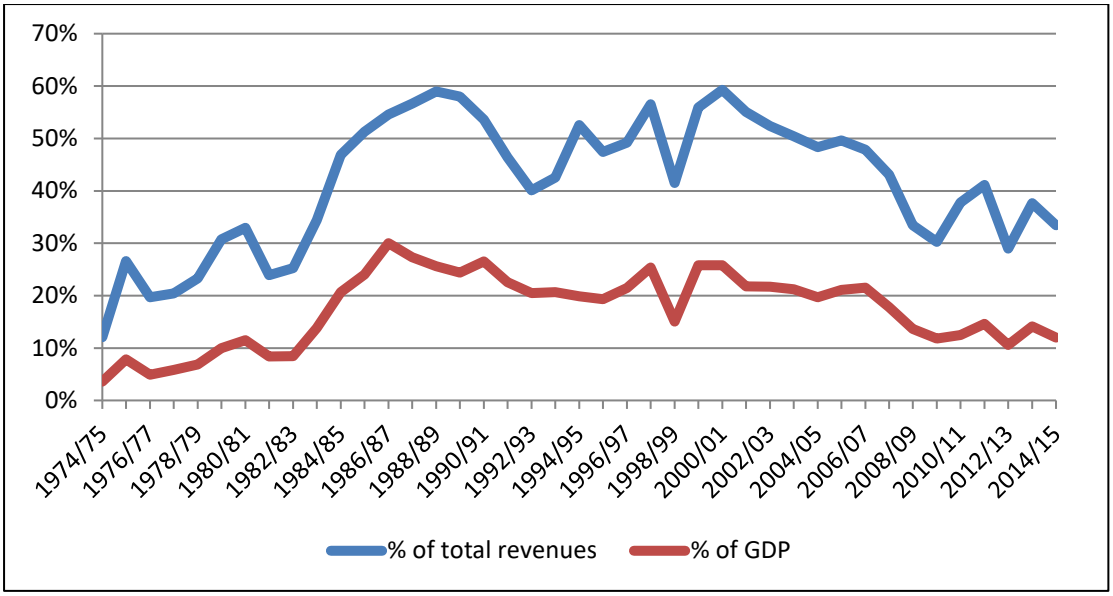
7 *Deflated using the GDP deflator*

8 *Average for last 3 completed financial years*

9 *In 2012/13, SACU revenues exceeded mineral revenues for the first time since 1982/3, but since then minerals have been the largest.*

Figure 4: Government mineral revenues as a share of total revenues and GDP



Source: author's calculations

For present purposes, we are interested in the effectiveness of revenue policy in appropriating mineral rents as government revenues. In this assessment, we concentrate on the period 1983–2014[10].

At a high level, it may be concluded that mineral taxation policy has been quite successful at appropriating rents. Over the period in question, total mineral rents, were P414 billion (measured in real terms, at 2012 prices). Total government mineral revenues over the same period were P407 billion, of which P393 billion can be ascribed to the taxation of rent. By this measure, mineral revenues were equal to 95 percent of mineral rents.

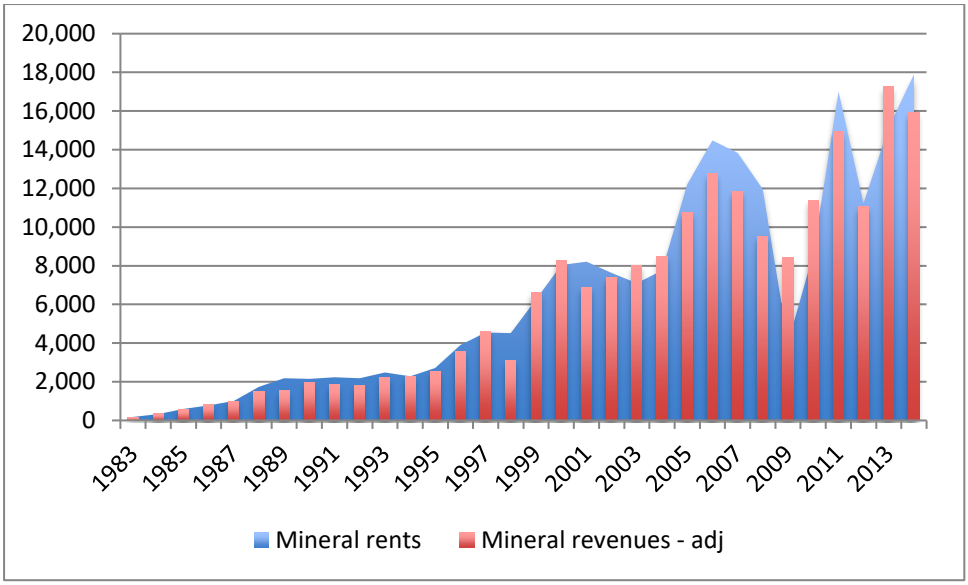
Box: Adjusting Mineral Revenues

Mineral revenues include taxes on profits, dividends, royalties and withholding taxes levied on mining companies. These represent the taxation of mineral rent as well as the taxation of "normal" profits. To assess the effectiveness of policies aimed at taxing mineral rent, it is therefore necessary to adjust mineral revenues to remove the portion derived from the taxation of normal profits. This is done by applying the standard rate of corporate tax to the estimated return on capital used in the mineral rent calculation, and deducting this amount from the total mineral revenues received.

The impact of this adjustment is modest. In the past five years, adjusted mineral revenues equal 93 percent of total mineral revenues. Over the entire period from 1983-2014, the adjustment reduces mineral revenues by an average of 4 percent.

[10] *Detailed data on public expenditure is only available from the 1983/4 fiscal year.*

Figure 5: Mineral revenues and rents (P million, current prices)

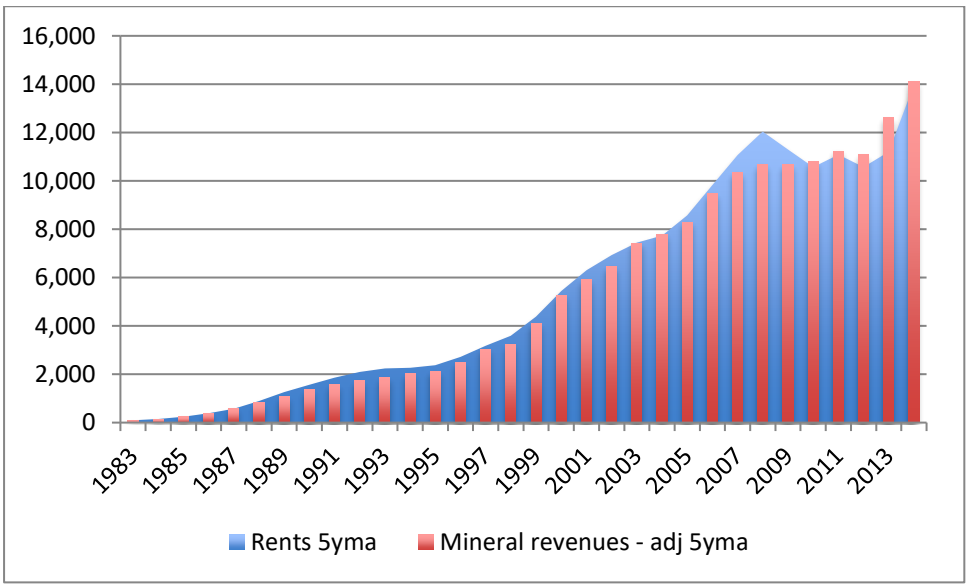


Source: author's calculations

On an annual basis, revenues were less than rents in some years and more than rents in others. This is not surprising, given the nature of the taxation formula, which allows capital expenditure to be offset against tax liability in the year in which it is incurred. However, such spending would only be offset against rents over a longer period as the capital investment is consumed. Hence capital spending has an immediate impact on mineral revenues, but a longer-term and more spread out impact on rents.

When expressed as five-year moving averages, however, mineral revenues track rents generated quite well (see Figure 6).

Figure 6: Mineral revenues and rents (current prices, 5-year moving averages)



Source: author's calculations

5. Uses of mineral revenues

5.1 Budget sustainability

It is generally accepted that for development to be sustainable in a mineral economy, the revenues derived from the exploitation of non-renewable resources need to be reinvested in other assets that will generate future income when the non-renewable resource is exhausted. Following Hartwick (1977) and Solow (1974, 1986), the Hartwick Rule (or Hartwick-Solow Rule) offers a rule of thumb for sustainability in mineral economies: a constant level of consumption can be sustained if the value of investment equals the value of rents on extracted resources at each point in time (World Bank, 2006). In other words, depletion of natural capital requires a compensating increase in other forms of capital (Lange and Wright, 2004).

The policy adopted towards mineral revenues in Botswana broadly follows this approach. The public finance policy framework specifies that, broadly speaking, revenues derived from minerals, being derived from the sale of an asset, should be used to finance investment in other assets. The intention is twofold: first, to preserve the country's overall asset base; and second, to provide the basis for the generation of income that can replace mineral income when it eventually declines. The corollary to the asset replacement principle is that recurrent (non-investment) spending must be financed from recurrent (non-mineral) sources.

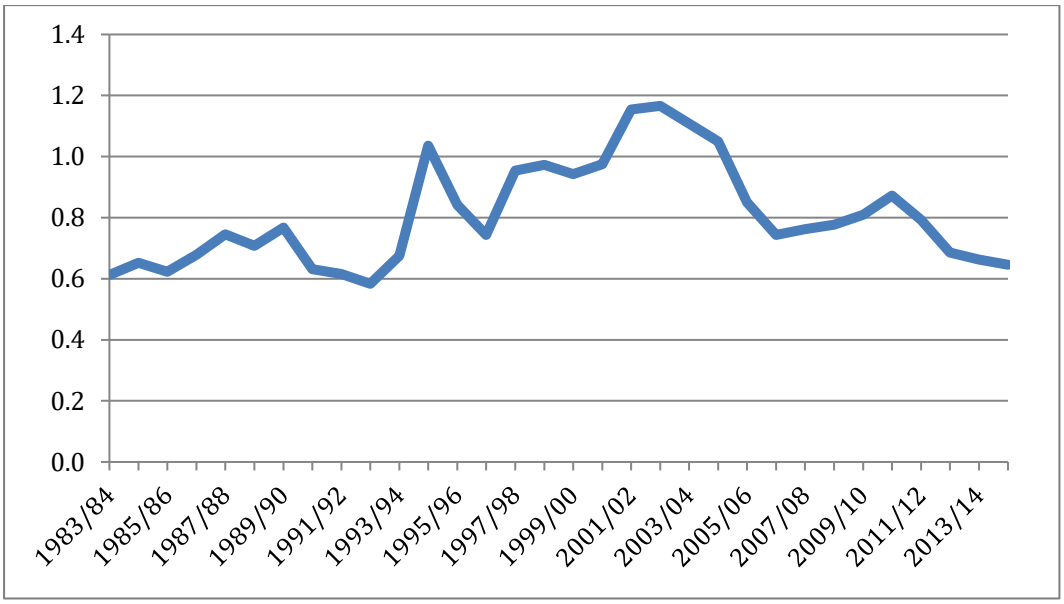
Even when adopting similar principles for managing mineral revenues, different countries take different approaches to implementation. Some have explicit legal or regulatory frameworks regarding the allocation of mineral revenues to spending, investment and saving. Some countries channel mineral revenues directly into segregated funds, whether for short-term parking or long-term investment; such funds may have rules regarding drawdowns or withdrawals, as well as rules on inflows.

In Botswana, mineral revenues are not institutionally segregated, but are paid into the general revenue pool (consolidated fund). As will be discussed below, while there are guidelines relating to the spending of the share of total revenues that is derived from minerals, there is no statutory basis underpinning these guidelines.

The implementation of the asset-preservation principle has historically been monitored through the Sustainable Budget Index (SBI), defined as the ratio of non-investment spending to recurrent revenues. An SBI value of more than 1 means that non-investment spending is being financed in part from mineral (non-recurrent) revenues; a value of less than 1 means that mineral revenue is either being saved or spent on public investment, while recurrent spending is being financed from non-mineral (recurrent) sources, which is interpreted as being sustainable. In calculating the SBI, the normal budget classification of expenditure is adjusted so that recurrent spending on education and health is classified as investment in human capital.

For most of the period since 1983/84 (the start of the current data series on public spending), the SBI has been less than 1 and the budget has, therefore, been "sustainable"; however, it remained above 1 between 2001 and 2005, after having been on an upward trend for many years, indicating that part of recurrent spending was being financed by mineral revenues. Since 2006, the SBI has been well below 1, as the share of spending on development and health and education in the budget rose sharply.

Figure 7: Sustainable budget index



Source: author's calculations, based on data from the Ministry of Finance and Development Planning (MFDP)

However, the SBI has no statutory basis, nor is it even firmly entrenched in public policy—for instance, neither the SBI or the principle underlying it are mentioned in the current National Development Plan 10, the Macroeconomic Outline for the Mid-Term Review of NDP10, or in recent Budget Strategy papers issued by MFDP. According to some MFDP officials, it is still used internally as a tool for assessing budget sustainability. However, this is only part of its function. Part of the reason for having the SBI in the past was as a simple way of obtaining buy-in for the principal of investing rather than consuming mineral minerals – with the intended audience including the public, officials in spending ministries, and politicians. If it is only used in the background by officials in MFDP in preparing and assessing budget projections, then part of the intended role of the SBI – which is as a public education tool – is inevitably being lost, making the principle more difficult to put into practice. Regarding its monitoring function, this also has to be public, otherwise its role in ensuring accountability is lost.

5.2 Expenditure: trends in public sector asset accumulation

Although the SBI suggests that mineral revenues should be devoted to asset accumulation, i.e. investment, it does not provide any guidance regarding the composition of public investment expenditure, i.e. how public investment should be divided between different types of assets—human capital, physical capital,

and financial assets. Nevertheless, expenditures on the different classes of assets can be traced easily, reflecting ex-post policy priorities as laid out in the National Development Plan and other policy documents.

Total mineral revenues during the period 1983/84 to 2014/15, at 2012 prices, were P406 billion. If the SBI constraint had not been observed, these could, in principle, have been devoted to spending on the different types of assets, or on recurrent spending.

Table 2: Total government revenues and spending, 1983/84–2014/15 (real, 2012 prices)

Category	**Pula** Billion
Mineral revenues	409.8
Total investment (physical and human capital)[11]	476.5
of which: Education spending	186.4
Health spending	66.6
Other development (investment) spending[12]	223.6
Net financial savings (March 2015, at 2012 prices)	38.6
Recurrent revenues, excluding grants and sale of property	474.2
Recurrent spending, excluding health and education	382.6
Recurrent budget balance	91.2

Sources: authors' calculations, based on data from MFDP. Note: deflated using GDP deflator

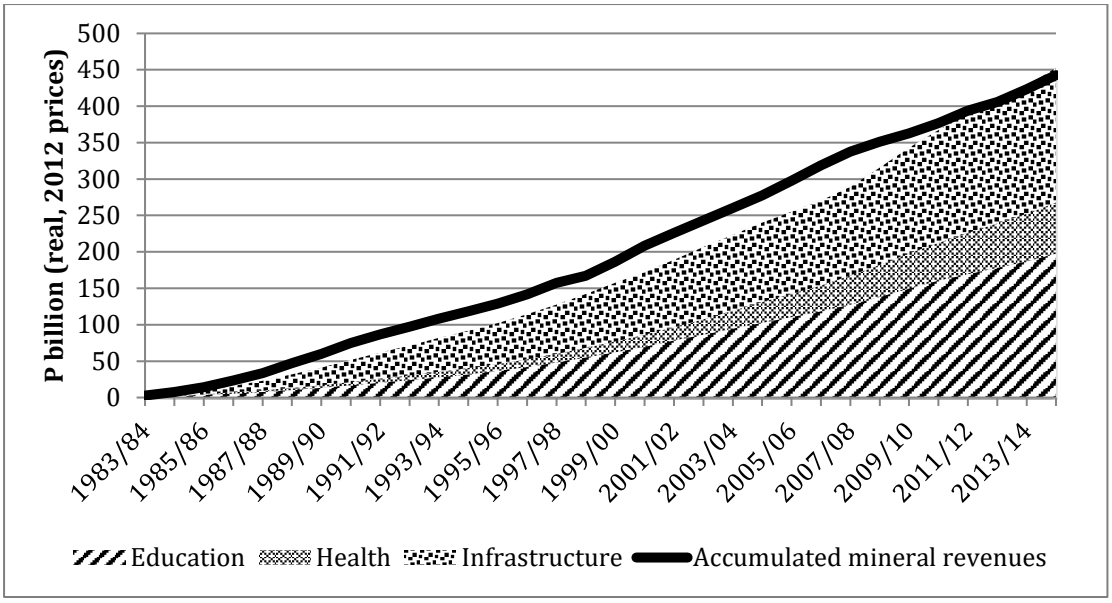
The data in Table 2 and Figure 8 show that, across the period analysed, mineral revenues have been entirely devoted to investment in physical and human capital assets, and have not been used to finance recurrent spending, which has been financed by recurrent revenues over the period as a whole, if not in all individual years. Indeed, total investment spending exceeds mineral revenues, which means that part of investment has been financed from recurrent revenues. Public investment spending has been divided between physical assets (47 percent), education and training (39 percent), and health spending (14 percent).

In addition, a relatively small amount – P42.8 billion as of March 2015, equivalent to P38.6 billion at 2012 prices – has been accumulated as net financial assets by the government.

[11] *These figures for investment exclude: (i) government net lending; and (ii) grants to productive enterprises under the Financial Assistance Policy (FAP) scheme. Net lending is included under financial assets. FAP grants totalled P3.2 billion in real terms.*

[12] *The figure for physical assets includes all spending that is classed as "development" in the government accounts, excluding health and education development spending. Most development spending is devoted to physical investment, either directly or via capital injections to public enterprises (such as the water, electricity and telecommunications utilities). Some expenditure classified as development is not fixed investment (see discussion below).*

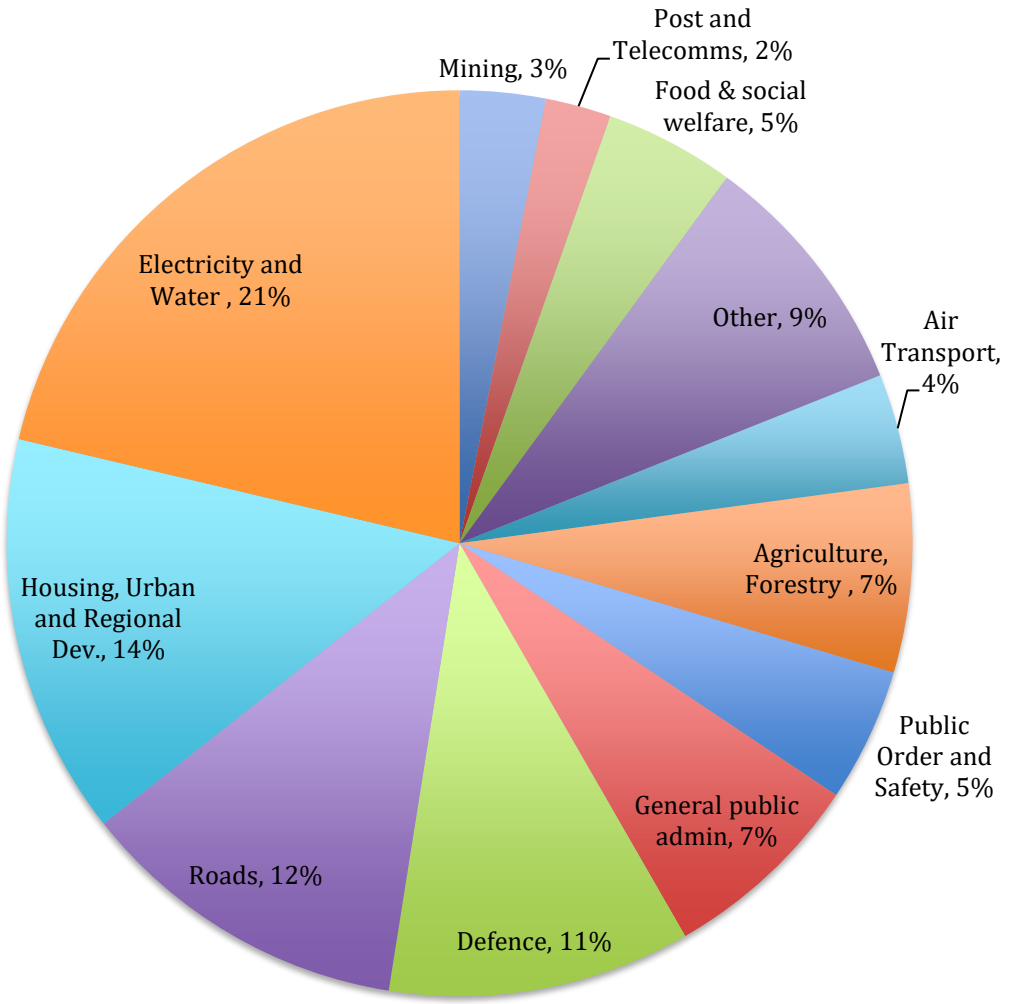
Figure 8: Accumulated mineral revenues and public investment (real)



Source: author's calculations, based on data from MFDP

Physical investment—excluding health and education facilities—has been across a range of assets, with the three largest areas of investment being electricity and water (21 percent); housing and urban infrastructure (14 percent), and roads (12 percent) (see Figure 9).

Figure 9: Allocation of development spending, excluding education and health, 1983/4–2014/15



Source: author's calculations, based on data from MFDP

5.3 Investment in financial assets

As Table 2 shows, there has been some accumulation of financial assets by the government. As of March 2015 (the end of the period under consideration here), the government's net financial assets amounted to around 9 percent of the mineral revenues received over the entire period (all measured in real terms in 2012 prices). In this section, we discuss how the allocation of revenues to financial assets is made, and how net financial assets are defined and calculated.

Although there has been rapid growth in public spending, during most of the review period the budget has been in surplus, resulting in the accumulation of financial assets. Public finance decision-making has generally been cognizant of the limits imposed by absorptive capacity constraints, and the government has felt no obligation to spend all mineral revenues when there were concerns about overheating the economy, or when suitable investment opportunities could not be found. As a result, there were 15 consecutive years of budget surpluses from

1983/84 to 1997/98. The situation has changed in recent years, however, and the earlier public finance discipline has arguably been eroded as mineral revenues have declined. As a result, there were budget deficits in eight of the 15 years since 1998/99.

The result of budget surpluses over many years is that, initially, significant financial assets were accumulated. It is important to note that these assets are accumulated as a fiscal residual rather than through any process of targeting specific amounts of financial savings. However, as noted below, these assets have been substantially depleted.

The government's financial assets take various forms. Budget surpluses are accumulated as government savings balances at the BoB, into the Government Investment Account (GIA). The GIA appears on the liabilities side of the central bank's balance sheet.[13] Due to the nature of the accounting arrangements between the GoB and the BoB, some of GoB's financial savings also appear in the form of the BoB's currency and market revaluation reserves, which also are balance sheet liabilities for the BoB (like the GIA). As the sole shareholder of the BoB, the revaluation reserves are rightly part of the GoB's financial assets. Offset against these financial assets are the government's debt liabilities, including domestic debt (bonds and T-Bills) and foreign borrowing. Therefore, the government's net financial savings position is the balance of its financial savings at the BoB (the GIA plus revaluation reserves) and its domestic and foreign borrowing.[14]

Historically, the government has accumulated significant financial savings and undertaken very little borrowing. As Figure 10 shows, the GoB's net financial savings reached 115 percent of GDP in the late 1990s. The savings then were partially depleted by the decision to establish a new pension fund for government employees, which involved financing the contingent liabilities accumulated under the previous, unfunded government pension plan. Net financial savings were partially rebuilt in the mid-2000s, although only recovering to around 62 percent of GDP in 2008, but then were substantively depleted following the global financial crisis and several years of large budget deficits (which were financed by a mixture of draw-downs of savings and new borrowing). After reaching a low point of 14 percent of GDP in 2011, the GoB's

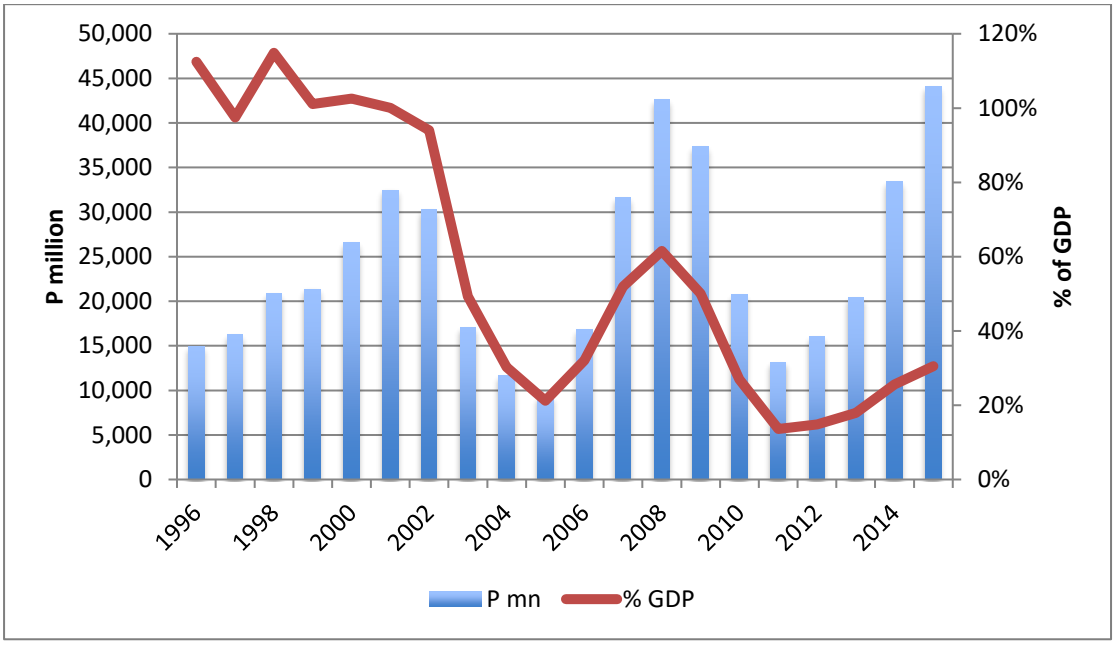
[13] *These surpluses are distinctly different from the foreign exchange reserves, which appear on the assets side of the BoB balance sheet. The foreign exchange reserves do not directly belong to the government, and the government only has an indirect claim on part of the reserves. This is a distinction that is not widely understood.*

[14] *The figures reported here also include some relatively small additional amounts in calculating the overall net financial position, including lending to parastatals; central and local government deposits in commercial banks; and local government borrowing from banks. It does not include the value of GoB's shareholding in De Beers, Debswana and other mining companies, or parastatals (state-owned enterprises).*

net financial savings have since risen modestly, to reach 31 percent of GDP by early 2015.[15]

It is striking that during nearly 40 years of mineral exploitation, the government effectively decided not to accumulate mineral revenues in the form of financial savings to any significant extent. The thinking is that investment in physical assets and human capital will provide future income, rather than living off of income from financial assets. The net financial savings that the government holds amount to approximately 10 percent of mineral revenues received over these years. While this may not have been an explicit strategy, the net effect of various policy decisions has been to invest almost all mineral revenues received into investments in physical and human capital, rather than in financial assets.

Figure 10: Government financial savings (P million and % of GDP)



Source: author's calculations, based on data from MFDP and BoB

It is important to note that although the government accumulated financial assets during part of the mineral development period, this was not pursued as an active policy. Botswana has never had any rules requiring a specified proportion of mineral revenues to be paid into a dedicated fund; they are simply combined with other general revenues in the consolidated fund. Importantly, there were no rules regarding the payment of any mineral revenues into the GIA.

There is a similar situation on the expenditure side: the SBI is a "principle" used, to some extent, in budget formulation, but there is no mechanism to force compliance nor any penalty for non-compliance. The parliament can pass any budget, whether or not it meets the SBI principle, given that there is no legal backing for the SBI. In theory, financial savings accumulated over many years of budget surpluses can be used to finance any level of spending and any size of

[15] *All dates in this paragraph refer to the position at the end of the government financial year in March.*

budget deficits – until the savings are depleted of course. There is no legal requirement for financial savings to be preserved for future generations.

Hence compliance with the SBI is entirely dependent upon a responsible executive (to draw up sustainable budgets) and a responsible legislature (to approve sustainable budgets). Because additions to or drawdowns from government financial savings are residual driven (i.e. by budget surpluses or deficits), the emphasis for sustainability is on responsible public finance processes and decision-making.

This mechanism provides flexibility; for instance, during the global financial crisis of 2008-9, the government was able to run large deficits by drawing down in accumulated savings, and hence minimise the impact of the global crisis on the economy. However, it has resulted in relatively small financial asset accumulation.

5.5 Outstanding issues

Quality of public investment

While there have been many achievements in Botswana's management of mineral revenues and their accumulation as assets, and the country is often used as an example of how newly emerging mineral producing countries should manage their resources, the record still has a few shortcomings.

Although the SBI—and its corollary, the maintenance of assets—is a convenient rule of thumb, it has not always been implemented as intended. Two particular issues have become apparent. First, for the SBI to be effective, resources need to be invested in high return projects. Second, the classification of investment spending for SBI purposes needs to exclude "unproductive" development spending, which should be classified as consumption and paid for by recurrent revenues.

Regarding the first issue, investing in public assets is not, in itself, sufficient to ensure that the investment is productive and will generate future income once minerals are depleted.

Concerns have been expressed regarding the productivity and economic impact of many public investment projects. For compliance with the SBI rule to be effective in meeting its objectives, it needs to be supplemented with effective project appraisal analysis, appropriate project selection and prioritization systems, and effective monitoring and evaluation. While these skills and processes may have been in place in earlier years, it is widely agreed that these disciplines have dissipated lately—in part because it is extremely difficult to maintain such discipline in an environment of prolonged fiscal surpluses and a "soft" budget constraint. As the World Bank's Botswana Public Expenditure Review noted:[16]

[16] *World Bank (2010)*

> Botswana has in the past been seen as a best-practice leader in terms of its programming of public investment, but discipline appears to have been lost gradually over time. The historic abundance of resources appears to have weakened the attention paid to cost-benefit analysis of projects. This is apparent in the emergence over the years of project delays and increasing costs. Problems that should be identified at the screening and appraisal stages of projects are not. Deterioration in project performance has ensued. With poor *ex ante* scrutiny of economic benefits, *ex post* returns from public investment have fallen, even if this has not been accurately measured. Poor planning, including poor financial management and procurement planning, is evidenced by constant delays in project implementation. Close to 50 percent of all projects suffer implementation delays in one form or another (p. xiii).

Furthermore, while in the earlier years of mineral-financed spending, economic and social needs largely coincided, in the later years many of the most important economic investment needs have been met and spending has been increasingly driven by social and political needs, often with minimal economic benefits.

The above concern relates largely to investment in physical assets, but there are similar concerns regarding the quality of much of the investment in human capital through education and training. Despite a very high level of investment in human capital, widespread skills shortages persist in the private sector, and unemployment is high among educated young adults.

Classification of public spending

The second concern relates to classification of spending. Some categories of investment spending are more appropriately considered to be maintenance of human capital (such as large portions of health expenditure and spending on welfare programs) that may be justified for social reasons, but do not add to the stock of capital in economic terms—any more than the maintenance of roads, while essential, can be considered net investment. This has become particularly important in the past two decades, with very high levels of health spending (on HIV/AIDS), and on social welfare programmes, some of which are classified as development spending despite being clearly recurrent in nature.[17]

The above two concerns relate to the way in which the SBI has been implemented in practice, and could be resolved relatively easily. Taking them into account, we have recalculated the allocation of spending of mineral revenues over the period 1983/4–2014/15, making the following adjustments to the definition of investment:

- excluding recurrent health spending
- excluding development spending on food and social welfare

[17] *For instance, the Ipelegeng scheme – which provides public employment for able-bodied unemployed adults as a social safety net - is classified as development spending despite being largely recurrent in nature.*

Table 3: Mineral revenues and adjusted spending, 1983/84–2014/15 (real, 2012 prices)

Category	Pula Billion	% of Mineral Revenues
Mineral revenues	409.7	100%
Total investment (physical and human capital)	419.4	102%
Of which: Education spending	186.4	45%
Other development spending, incl. health	233.0	57%
Net financial savings (March 2015, in 2012 prices)	38.6	9%

Source: author's calculations

These figures show that, even with the adjustments made, the broad conclusions do not change: 100 percent of Botswana's mineral revenues have been devoted to asset accumulation.

The SBI can therefore be made more useful as a guide to sustainability with adjustments such as those above, involving reclassification of certain expenditure items so that investment and consumption are more precisely defined. It also requires improvements in the process of project appraisal in the public sector, so that low return projects are excluded.

Balance between investment and savings in financial assets

The SBI does not directly address the issue of how the accumulation of assets from mineral revenues should be split between physical, financial, or human capital. Implicitly, when combined with a rigorous system of project appraisal, it should ensure that mineral revenues are invested in high-return projects, and that any remaining mineral revenues are accumulated as financial assets. As high-return public investments are completed, it is likely that an increasing proportion of mineral revenues will be invested in financial assets. However, this requires a highly disciplined public finance system; in practice, the danger is that as high-return public investments are completed, mineral revenues will be devoted to low-return public investments rather than financial assets, for political economy reasons. In this case, public investment may not be effective at generating future income when minerals are depleted. The accumulation of financial assets as a residual therefore contrasts with alternative approaches that focus on the deliberate accumulation of sufficient financial assets (for instance, in a sovereign wealth fund) capable of yielding an annuity income to replace mineral income.[18]

Stabilisation or future generations fund?

Financial assets are accumulated by mineral economies for two main purposes: stabilisation, i.e. responding to fluctuations in export earnings and/or fiscal revenues, and providing an annuity income for future generations, when mineral assets have been depleted. The second objective does not necessarily require *financial* assets; Botswana's strategy has involved accumulating other assets that

[18] *Of course, financial assets can also be badly invested, mismanaged or misappropriated, so a return is not guaranteed.*

will generate a future return. However, as discussed above, a certain proportion of financial assets may be useful as insurance against poor quality public investment decisions.

For stabilisation purposes, however, financial assets are essential, as they need to be drawn down to compensate for earnings volatility.

In Botswana's case, both objectives are cited as reasons for accumulating financial assets in the Government Investment Account and its counterpart, the Pule Fund portion of the foreign exchange reserves. However, there is no formal demarcation of these financial assets into the two portions, nor any formal prescription as to how large each of the two components should be.

The need to shrink government

A further danger of the current approach is that it leads to an unsustainably large public sector. Due to the very high economic rents generated from diamond mining and the very high share of these rents accruing to the government, the level of fiscal revenues and spending in Botswana relative to GDP has been very high, leading to a very large government sector in the economy. Once diamonds are depleted, even if economic diversification is successful and new sources of growth are found, fiscal revenues will inevitably decline as a share of GDP and it will be necessary for the government to shrink in relative terms. This is a difficult transition, and additional fiscal rules will be necessary to ensure that the government is of a sustainable size. The challenge is especially acute in Botswana given that the ratio of non-mining revenues to GDP is far below that of upper-middle income country peers (IMF, 2016).

A final concern relates to the conceptual underpinning of the SBI. While the Hartwick Rule (reinvest all mineral revenues in other productive assets) is a useful rule of thumb, it is not necessarily optimal for developing countries. The analysis in Collier, van der Ploeg, and Venables (2008) and Collier (2012) shows that an optimal savings/investment path involves devoting some portion of resource revenues to consumption, especially in the early years of the exploitation of a mineral resource, and that savings/investment should asymptotically approach 100 percent of resource revenues as the resource nears depletion. While it is beyond the scope of this paper to go into the details of the different approaches, it is important to note that the Hartwick Rule principle of investing all resource rents may not be theoretically optimal. Nevertheless, in practice the Hartwick rule is easy to understand, and provides a convincing narrative for building public support for the investment (rather than consumption) of mineral revenues.

Box 1: A possible new fiscal rule?

The 2015-16 Budget Strategy Paper[19] proposed the introduction of a new fiscal rule, stating that 60 percent of mineral revenue will be invested in new capital development projects, while 40 percent is saved for future generations. The expenditure rule is accompanied by a revenue target of collecting a minimum of 30 percent of non-mineral revenues to non-mining GDP, to ensure adequate availability of non-mineral revenues to finance recurrent expenditures.

The government's objective is to contain government spending within 30 percent of GDP as expressed in the mid-term review of the NDP10. Although described as a fiscal rule, only the first component really deserves this description, as it is under the control of policymakers, while the first is an aspirational objective rather than a rule that can be implemented.

The proposed fiscal rule makes no explicit mention of the Sustainable Budget Index, or targeting it as a formal objective.

The new expenditure component of the rule is potentially far-reaching in that it would introduce an explicit financial savings commitment for the first time. It would also reduce the level of resources available for spending on investment in physical and human capital. In contrast to the historical record of accumulating net financial assets equivalent to only 10 percent of mineral revenues, this would rise to 40 percent. It is likely that this would lead to an increase in the size of the government's net financial assets relative to GDP, and hence provide both a larger financial cushion to cope with shocks, and a future financial income.

However, the most recent Budget Strategy Paper (2016/17)[20] makes no mention of the new fiscal rule, leaving it open whether it might be introduced in the forthcoming NDP11 covering the period from 2017-2023.

6. Transparency

Transparency is particularly important in a mineral economy, where many fiscal transactions occur in a sector of the economy that has few linkages to the bulk of the population. The government may therefore be less accountable when compared to a situation where the fiscal revenues are largely raised from taxes levied on the population. Mineral economies also tend to have a high level of investment spending, and transparency can help citizens to ensure that such capital spending is effective. Finally, there are important issues regarding the distribution of the benefits of mineral exploitation between current and future generations, and again, transparency helps to underpin effective public debate in this area.

[19] *MFDP (2014) Budget Strategy Paper, 2015/16 (September)*

[20] *MFDP (2015) Budget Strategy Paper, 2016/17 (September)*

Botswana paints a mixed picture when it comes to transparency regarding mineral revenues and spending. Data are published on government revenues and spending, in reasonable detail, but as the relevant publications are not available online – only in hard copy, and even these publications are not easy to obtain – access is effectively restricted.[21]

Government finances are subject to the scrutiny of the Auditor-General, who publishes an annual report, but this is typically several years behind schedule, and again, is not available online. Even when discrepancies or irregularities are identified, there are no clear procedures for taking action against those responsible.

Independent monitoring of budget processes is weak. No budget performance reports are published. Monthly revenue and expenditure data are published in the BoB's *Botswana Financial Statistics*, typically with a lag of 3-6 months, but this is highly aggregated, e.g. total recurrent spending, with no breakdown by function, ministry or budget line item. Detailed disaggregated expenditure data are only available a year after the end of the relevant budget year. No information is published on the actual disbursement (rather than allocation) of funds to service delivery units. Some scrutiny is provided by the Public Accounts Committee of Parliament, but this is ad hoc.

As noted above, the government accounts include information on total mineral revenues but not by mineral, company, or type of payment. Botswana has not subscribed to the Extractive Industries Transparency Initiative (EITI), and does not meet the EITI Standard (EITI, 2015).[22] While the governance and fiscal regime for all non-diamond minerals is laid down in the law and is not subject to negotiation, for diamonds – the most important mineral – it is discretionary. No information is published on contracts with mining companies, tax arrangements, or environmental impact assessments. There is no freedom of information law.

Debswana is the largest company in the country and directly responsible for at least 20% of GDP. It is privately held but makes very little information public. While there is an annual report to stakeholders, this contains no financial statements or details of payments to GoB (see Debswana, 2015). There has recently been some improvement in the disclosure of information relating to Debswana; for instance, information is now published annually on the size of the company's mineral reserves. However, this is an initiative of Anglo American, the majority shareholder of De Beers, rather than of Debswana itself.

In the past, the Department of Mines of MMEWR has published an annual report including production volumes by company and mineral, and royalty payments, but the most recent one is from 2008. The Minerals Policy Committee - one of

[21] *They key publications, published by MFDP, are the annual Financial Statements and Tables, and Estimates of Expenditure from the Consolidated and Development Funds, which can only be obtained from the Government Printer Bookshop.*

[22] *In particular, Botswana does not disclose company-level payments to / receipts by government.*

the most important entities in determining policy towards mining companies - has never published any minutes.

The Revenue Watch Institute compiles a Resource Governance Index (RGI) for various resource-based economies around the world. The RGI includes measures related to Institutional and Legal Setting, Reporting Practices, Safeguards and Quality Controls, Enabling Environment, State-Owned Companies, Natural Resource Fund, and Sub-National Transfers. Botswana scores relatively poorly, at 47/100, and is ranked 30 out of 58 countries in the 2013 RGI. The worst score is on reporting practices, at 50/58, which is ranked as "failing."

Transparency is also important for Sovereign Wealth Funds (SWFs). As noted above, Botswana's Pula Fund (PF) is not an independent entity but an accounting sub-division of the BoB's balance sheet. Basic financial statements for the PF are published annually, including information on the extent to which the GoB has a direct claim on the PF, but there is little other detail beyond high-level statements of investment policies. No detail is provided on the assets held by the Pula Fund, on investment guidelines, on the asset managers employed by the Fund or their performance. No rate of return on the PF is published.

An international assessment of SWF transparency is published by the Sovereign Wealth Fund Institute. The Linaburg-Maduell Transparency Index is based on 10 principles relating to SWF transparency to the public. As of mid-2015, the PF received a score of 6/10, and is ranked 30th out of 52 funds (SWF Institute, 2015).

This lack of transparency is a problem because it makes it more difficult for civil society to undertake independent scrutiny of government expenditure and investment; to engage government on service delivery performance; and to help prevent the emergence of inefficiencies and corruption. However, this is a relatively new issue in Botswana. Given the country's history as a relatively efficient government with low levels of corruption, there has arguably been little need for such scrutiny. With declining expenditure efficiency, and some concerns about rising corruption, it will take some time for effective civil society scrutiny to develop, even with improved data availability and transparency.

7. Social and economic development policy and achievements

The application of mineral revenues to public investment has been an important factor in the social and economic transformation of Botswana since the country's Independence 50 years ago. Broadly speaking, Botswana has been transformed from one of the poorest countries in the world in 1966, to an upper-middle income country with a GDP per capita of almost USD8,000 as of 2015.[23]

At Independence, Botswana saw a major backlog of social and economic infrastructure. This was in the context of extremely constrained financial resources, with high dependency on donor funding. It was only in the 1970s, as

[23] *See e.g. Acemoglu & Robinson (2013); Iimi (2007) for a comprehensive overview.*

mineral revenues began to flow, that the government gained some financial autonomy.

Medium-term spending priorities are laid out in National Development Plans (NDPs), which typically cover 5-7 years. Underlying these priorities are a set of national policies relating to education, health, housing, water provision, electrification, etc. These policies are usually determined after a national consultation process, and are typically in place for several years before being revised.

In education and health, the emphasis has been on progressively improving both the depth and breadth of public provision. In education, the emphasis has been on firstly providing universal primary education, then three years of universal secondary education, followed by higher transition rates to upper secondary and tertiary education. A similar approach has been followed in healthcare, with an initial emphasis on extending primary healthcare to the entire population, followed by upgrading district, primary and referral hospitals. The HIV/AIDS epidemic that emerged in the 1990s imposed major additional demands on healthcare. In response, government rolled out a programme providing free anti-retroviral therapy to all eligible citizens, through the public health service.

Table 4 provides information on select measures of public service and infrastructure provision, comparing the situation immediately after Independence with the most recent data available (2009-15).

Table 4: Provision of select public services and infrastructure

Indicator	1967	1991	2009-14
Primary education			
No. of schools	252	626	821
No. of pupils	71,577	298,812	340,065
No. of teachers	1,713	9,833	15,042
Pupil/teacher ratio	42	30	23
Secondary education			
No. of schools	9	172	283
No. of pupils	1,854	73,909	172,669
No. of teachers	111	4,312	14,081
Pupil/teacher ratio	17	17	12
University			
No. of students (degree courses)	100	3,567	41,051
Health			
Nurses	194	2,679	5,816
Pop/nurse	3,100	495	337
Doctors	17	252	819
Pop/doctor	35,294	5,263	2,394
Hospitals	9	29	31
Infrastructure			
Roads (tarmac) (km)	7	4,200	6,616

Sources: Republic of Botswana, 1967; Statistics Botswana, 2003, 2012, 2014, 2015; HRDC

With increased public service provision, there has been considerable progress on a range of social development indicators. In particular, education-related inputs

and outputs have improved a great deal. Similar improvements have been seen with most health and demographic indicators, although the impact of HIV/AIDS caused a reversal in the direction of some indicators in the early 2000s. There has also been a high level of investment in social and economic infrastructure, leading to increased access to water, sanitation and electricity (see Table 5).

Table 5: Selected social development indicators

Indicator	1971	1981	1991	2001	2011
Health/Demography [1]					
Crude birth rate (per 1000)	45.3	47.7	39.3	28.9	25.7
Crude death rate (per 1000)	13.7	13.9	11.5	12.4	6.25
Natural rate of increase (% per annum)	3.1	3.4	2.7	1.7	1.9
Total fertility rate (births per woman)	6.5	6.6	4.2	3.3	2.7
Infant mortality rate	97.0	71.0	48.0	56.0	17.0
Under 5 mortality	152	105.0	63.0	74.0	28.0
Life expectancy at birth (years)	55.5	56.5	65.3	55.6	68.0
Economic [2]					
GDP per capita (constant 2005 US$)	797.6	1,938.2	3,894.7	4,672.9	6,476.1
GDP per capita (current 2005 US$)	177.3	1,038.2	2,767.9	3,078.3	7,697.4
Education [2]					
Literacy rate, adult (% of people aged 15 and older)	41 [3]	-	68.6	81.2	86.7
Literacy rate, female adult			71.3	81.8	87.1
Literacy rate, male adult			65.4	80.4	86.7
Primary completion rate, total (%)	42.0	77.8	89.1	91.5	97.7
Primary completion rate, female (%)	44.5	90.6	96.9	94.4	99.2
Primary completion rate, male (%)	39.5	65.1	81.2	85.7	96.3
School enrolment, primary (%, net)	40.9	76.8	87.5	82.3	90.3
School enrolment, female, primary (%, net)	44.6	83.2	91.0	84.0	90.9
School enrolment, male, primary (%, net)	37.2	70.4	84.1	80.7	89.7
School enrolment, secondary (%, net)	5.7	15.3	38.6	52.5	60.8
School enrolment, female, secondary (%, net)	5.5	17.5	42.4	56.1	65.2
School enrolment, male, secondary (%, net)	5.9	13.2	34.7	48.9	56.4
School enrolment, tertiary (%, gross)	-	1.2	4.2	6.0	17.9
School enrolment, female, tertiary (%, gross)		0.8	3.5	6.0	20.4
School enrolment, male, tertiary (%, gross)		1.6	4.8	6.1	15.4

Infrastructure [2]					
Electricity consumption (kWh per capita)	-	527.9	794.0	1134.4	1602.7
Improved sanitation facilities (% of population with access)	-	35.7 [4]	40.8	53.2	64.0
Improved water source (% of population with access)	-	-	92.5	95.1	96.8
Telephones lines (fixed) (per 100 people)	0.6	0.8	2.3	8.3	7.5

Sources: [1] Statistics Botswana (2014); [2] World Bank World Development Indicators; [3] Hanemann (2005); [4] WHO/UNICEF (2015)

There are no direct linkages between mineral revenues and expenditure on social and economic development. However, the rapid growth of mineral revenues and the fact that these have been entirely devoted to investment has meant that much more human development has been achieved than was anticipated at Independence.

8. Concluding comments and the way forward

8.1 Key conclusions

This review of mineral revenues, spending and investment enables some key conclusions to be drawn:

- Mining taxation policy has focused on appropriating resource rents and has been generally successful at doing so. During the period 1994-2014, 95 percent of calculated rents have been received by the GoB as mineral revenues.
- Public finance policy has aimed to convert mineral revenues into other assets—including produced (physical) capital, human capital, and financial assets—and not to use mineral revenues to finance recurrent spending. This objective has largely been achieved, with recurrent spending financed from recurrent revenues and mineral revenues used to accumulate other assets.
- Public sector asset accumulation has largely resulted from investment in physical capital and human capital. Accumulation of net financial assets by the GoB has been limited, with only 9 percent of mineral revenues used in this way.
- There are concerns about the quality of some public-sector investment decisions, and whether the resulting assets—in terms of both human capital and physical capital—will generate sufficient future income to replace income from mineral assets.
- No information is publicly available regarding the returns on different types of public investment – whether in physical, human or financial assets.

8.2 Way forward

Looking ahead, the public finance investment framework needs further refinement to consider the following:

- Ensuring that sustainable budgeting, for instance through the SBI, is formalised in the fiscal framework;
- Reviewing the classification of different types of expenditures so that what is classified as development spending accurately reflects investment in assets;
- Achieving an appropriate balance of investment of mineral revenues between broad categories (physical assets, human capital, and financial assets);
- Establishing an effective framework for ensuring that public sector investment is focused on high-return projects that will generate future income when mineral deposits are depleted, through appropriate project appraisal, selection, and monitoring;
- Introducing an explicit provision for the accumulation of financial assets, rather than it being a by-product or residual after budgeting decisions have been made;
- Introducing policy rules (rather than just procedural rules) regarding drawdowns of accumulated financial assets;
- Formally demarcating financial assets into a portion accumulated for the purposes of stabilisation (responding to volatility in export earnings and fiscal revenues) and a portion preserved for the benefit of future generations;
- Publication of data on the return on financial assets held by the government.

8.3 Lessons for other countries

What can other countries learn from Botswana's experience in mineral revenue management and expenditure, especially now that Botswana has reached the stage of being a mature mineral producer? In many respects, the Botswana experience is a positive one, with many examples of policy and practice that are relevant to other countries. Botswana has an effective and efficient mineral fiscal regime, and these revenues have been invested in social and economic development. Sufficient financial resources have been accumulated to provide effective stabilisation buffers. However, Botswana's experience also has some distinctive characteristics that make it more difficult to replicate; these include the very high rents entailed in diamond mining, and the fact that the bulk of that mining is done by one company.

The following are the main lessons of general relevance:

Mining fiscal regime: Botswana has effectively appropriated the large majority of mineral rents, while leaving mining investors with sufficient return to compensate for the cost of capital and risk. This has been done through a combination of fiscal mechanisms, including ownership stakes. The fact that the fiscal regime is laid out in various laws, and has little scope for project-by-project

negotiation, has contributed to the predictability and objectivity of the fiscal regime: while Botswana is not a low-tax regime for mining investors, it is a predictable one. In the diamond sector negotiations are allowed, although in practice all new diamond-mining firms are subject to the same terms as other mining firms and there is little or no potential for negotiation. The effectiveness of Botswana's fiscal framework in appropriating mineral rents suggests that limiting scope for negotiations, as far as possible, can be a positive approach.

Guidelines vs rules: On the expenditure side, Botswana's mining fiscal regime has been based on guidelines rather than strict rules or legislation regarding the allocation of revenues to financial savings, investment, or recurrent spending. The principles embodied in the guidelines (save or invest all mineral revenues) have generally been followed. Guidelines provide some flexibility to enable spending to respond to changing circumstances. However, they are highly dependent on having a strong public finance management framework in place, which ensures that public investments are subjected to proper appraisal, and that funds are not spent on low return projects. For guidelines to work, there must also be a high-quality macroeconomic policy framework, ensuring, for instance, that exchange rates do not become overvalued and that borrowing is minimised (i.e. that internal and external balance is maintained).

Although the guidelines approach was effective in Botswana for many years, it is now evident that the approach has some vulnerabilities. The first is that strict PFM discipline is difficult to maintain over a period of decades when there is a "soft" budget constraint. The second is that when the fiscal regime comes under pressure, due perhaps to a maturing mineral sector, and the relative decline in the return on non-financial assets, guidelines are difficult to enforce. But while there may then be a case for shifting to reliance on rules (e.g. to prevent the excessive drawdown of financial assets), this will not be a conducive environment for introducing new rules. In other words, if rules are likely to be necessary at some point in time, they should be introduced early on, when times are good, even if they are not strictly needed at that time.

Investment of mineral revenues: Botswana has adhered to the principle that all mineral revenues must be saved or reinvested in economic, social or human capital. This has been achieved even though it is a policy principle rather than a hard-and-fast legally enforceable rule. Furthermore, the outcome has been to devote the clear majority of mineral revenues to investment in physical and human capital, with only a small proportion devoted to financial assets. From a national perspective, this has led to the conversion of mineral wealth to economic, social and human capital. The implicit assumption is that these types of assets offer higher rates of return than financial assets. To the extent that financial assets have been accumulated, these largely serve stabilisation purposes rather than as a source of future annuity income (fund for future generations).

One drawback of this approach is that it is not well suited to accommodating long-term changes in the optimum structure of asset allocation over time. As the

initial investment needs are provided for, the return on social/economic/human capital assets is likely to decline, and the relative return on financial assets will increase. Put differently, the share of financial asset accumulation should increase over time.

However, this is difficult to achieve in practice. To some extent, the government is built around the delivery and operation of investment projects, which leads to an expectation that this will continue, both within government and the larger population. Spending generates aggregate demand, while financial asset accumulation does not, and the economy needs other sources of growth to compensate for lower public investment spending. Similarly, a high level of government spending leads to a large public sector that can crowd out the private sector and inhibit the emergence of more diversified growth.

Sovereign wealth funds: A further lesson from Botswana is that an SWF works well if it invests only in financial assets, outside of the country. The investment and asset allocation process then becomes a primarily technical, objective process, largely insulated from domestic pressure, especially political factors. Once an SWF can invest domestically, there are two disadvantages. First, it means that the SWF is not playing a role of offsetting Dutch Disease pressures and contributing to macroeconomic balance. Second, it is vulnerable to the pleadings of special interests and rent-seeking groups. To the extent that mineral revenues are used to fund real (rather than purely financial) investments, these should be done through the budget rather than off-budget through the SWF.

Transparency: Botswana has not paid particular attention to the transparency of policy formulation and implementation. This may not have been a big issue when the underlying quality of policy was good and financial resources were abundant. However, when difficult decisions need to be made, transparency could arguably assist in building public understanding for some of the resulting choices. Transparency also contributes to the structure of checks and balances that underpin better decision-making.

Expenditure management rules: Botswana began the mineral era with strong expenditure rules in place, designed immediately after Independence for an environment of highly constrained financial resources. These helped the country to effectively manage the initial upsurge in mineral revenues. Over time, however, these rules have become less effective, and the political problems in maintaining expenditure discipline in the face of a soft budget constraint have been huge. A lesson for other countries is that it is essential to maintain discipline regarding effective project appraisal and other mechanisms to ensure the effectiveness of public spending, even when resources are apparently abundant.

Broader lessons: in some respects, the challenges facing mineral economies, from a fiscal perspective and more broadly, can be divided into two. The first is, "don't mess up." This is surprisingly difficult, but Botswana has been one of several mineral economies that have used the mineral windfall to build living standards in terms of both real incomes and social development, on a sustained

basis. The second challenge is to manage the transformation to *not* being a mineral economy, as mineral deposits are eventually depleted, or at the very least mineral exploitation reaches a plateau and is no longer the primary driver of growth or source of fiscal revenues (and thus declines in relative terms). This is arguably even more difficult to achieve than the first challenge. Botswana has had much less success in this area. Although the economy is less dependent on minerals than it was at its peak, economic diversification has mainly come from non-tradeables (a classic Dutch Disease outcome) and exports remain highly dependent on diamonds. Botswana's lesson is that policy needs to focus on both challenges, and not just the first one.

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Appendix: Returns on government financial assets

No information is published regarding the overall returns that the Government of Botswana (GoB) receives on its financial assets held at the Bank of Botswana (BoB). Hence little is known about whether the financial assets that have been accumulated from part of mineral revenues are being reinvested in a way that is increasing the nation's wealth and compensating for mineral depletion. While there is some information on the direct payments that government receives from BoB, the overall return also includes changes in asset values, and these can only be estimated directly.

The return that GoB receives from its financial assets held at BoB comprises several components. The GoB has two relationships with BoB: it is both a depositor and the sole shareholder. As a depositor, it has two accounts: the Government current account, and the Government investment account (GIA). The balance in the GIA broadly corresponds to the GoB's direct share (investment) in the Pula Fund portion of the foreign exchange reserves.[24] Some of the return components that GoB receives are related to its status as a depositor, others to its status as shareholder. Furthermore, returns may be earned as budgetary transfers, non-budgetary transfers, or revaluation adjustments.

1. **Dividends**. GoB does not receive interest on its deposits at BoB. However, it receives an annual dividend, which is based on the estimated long-term SDR rate of return on the Pula Fund. The dividend is agreed in advance and is paid to GoB in instalments (generally quarterly) during the year. For GoB, dividends count as budgetary income. [Item 1]

2. **Net profits**. In addition to dividends, GoB may receive a distribution from BoB's "residual net income" (the Bank of Botswana Act, Section 6, requires that all profits of the bank be distributed to the government). This transfer also counts as budgetary income. [Item 2]

3. **Transfers to/from GIA.** The dividend is paid out of GoB's net distributable income (after operational and expenses associated with monetary operations). However, it may happen that the income available for distribution is insufficient to pay the pre-determined dividend. In this case a transfer is necessary from the GIA to the BoB to ensure sufficient funds for distribution. In other years, there may be a transfer to the GIA from BoB.[25] Transfers to/from the GIA are a "below the line" financing item that is not included in the government budget. [Item 3]

4. **Revaluation gains/losses.** BoB also enjoys a return from asset revaluations. This mainly emanates from currency exchange rate changes, given that its assets are mainly held in foreign currencies but its liabilities are in pula;

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[24] *The correspondence is not complete, because a small portion of the GIA is held in the Liquidity Portfolio.*

[25] *Need to ascertain what determines whether surplus BoB income over the agreed dividend is distributed into the budget as "net residual income" or as a transfer to the GIA.*

in most years, there are positive currency revaluation gains. There are also revaluations arising from movements in the market value of assets. To the extent that these gains (or losses) from currency and asset revaluations are unrealised, they cannot be distributed as income. A portion of these revaluations are applied to the value of the GIA deposits [Item 4], and the remainder are applied to the currency and market revaluation reserves on the BoB balance sheet [Item 5].

Government returns from BoB therefore comprise the following:

Table 6: Components of return on government financial assets

Description	Item	Accounting treatment	Definition/data source (BoB Annual Reports, in all cases)
Dividend	1	GoB budget income	Financial statements – distribution
Residual net income	2	GoB budget income	Financial statements – distribution
Transfer to/from GIA	3	Financing item - adjustment to GIA	Financial statements – distribution
GIA revaluation gains/losses	4	Financing item - adjustment to GIA	Annual change in GoB Pula Fund balance, less GoB investments in Pula Fund. Notes to financial statements – Pula Fund, and statement of cash flows for government investments
Revaluation reserve gains/losses	5	BoB reserve adjustment	Included in annual change in values of revaluation reserves - financial statements – statement of financial position, but cannot be directly identified.

The task of calculating the return on the GIA is complicated by the need to determine which of the above returns are attributable to GoB as depositor and which are attributable to GoB as shareholder. Items [1] and [4] are returns directly attributable to the GIA deposit. Items [1] and [2] make up total budget income. Items [2] and [3] are more appropriately attributed to the shareholder as they are residual adjustments, even though they are credits/debits to the GIA. Item [5] is clearly a shareholder return.

The return on GoB deposits at BoB can be calculated (approximately[26]) by comparing the different return items with the GoB portion of the Pula Fund. Items [1] and [4] give the total return on the GIA as an investment portfolio. Items [1] and [2] show how much GoB is earning as a budget revenue item. Using all items [1-4] may be considered a broad measure of the return on the GIA but some of these items may be considered shareholder returns.

The total GoB investments at BoB comprise deposits plus shareholders' equity. The bulk of the latter is made up of (non-distributable) revaluation reserves. By comparing the total of all returns with total investments (GIA plus revaluation reserves), an overall return on GoB's financial assets at BoB can be calculated, using the data sources noted above.

Table 7: Estimates of returns on components of government financial assets

Return on:	Return	Average, 2005-2014)	Average, 1997-2014
GIA	Budget [1,2]	3.4%	4.3%
GIA	Investment (dividends plus GIA revaluation) [1,4]	10.1%	9.0%
GIA	Total (all credits & debits) [1,2,3,4]	11.7%	8.9%
Shareholders' funds	All (Budget + GIA adjustments + revaluation gains) [1,2,3,4,5]	12.7%	9.0%

Source: author's calculations

The above figures are nominal returns. Over the period 2005-14, average inflation was 8.1%, and from 1997-2014 it was 8.3%.

Concluding comments

Of the overall returns to GoB from its investments at BoB, a relatively small proportion is distributed as budgetary income to GoB; hence the majority of investment returns are reinvested.

The average real investment return on the GIA over the period 2005-2014 (which included the global financial crisis) was around 1.8 percent. This may be considered somewhat low for a long-term investment portfolio. A pension fund with a long-term investment portfolio would expect a real return closer to 5 percent. However, total returns (including revaluations) on the GIA were higher, at 3.3 percent in real terms, which is a more respectable performance given that

[26] *The calculation is approximate because a small portion of the GIA is held in the Liquidity Portfolio rather than the Pula Fund*

this included the period of the global financial crisis and furthermore that GoB may be more risk-averse than a private pension fund.

These returns cover the most recent decade. However, over the longer period since 1996, when the current arrangements were introduced, returns have been less impressive, with a long-term real rate of return on the GIA averaging only 0.7 percent over this period.