



# What do we know about the sharing of mineral resource rent in Africa?



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## ABSTRACT

Governments that lack the capacity to mine resources themselves have to attract foreign direct investment. However, since resources are not renewable, countries need to capture a 'fair' share of mineral resource rent to promote their development. While the sharp rise of the world prices of most minerals multiplied the total natural resources rents by 2.3 between 2002 and 2008 (World Bank, 2015), tax revenue earned by African governments from the non-renewable natural resource sector only grew by a factor of 1.5 (Mansour, 2014). The sharing of mineral resource rent between governments and investors is often criticised for being unfavourable to African governments. But what do we really know about the sharing of mineral resource rent in Africa? The aim of this study is to review theoretical and empirical studies on rent sharing in Africa and to note their limitations regarding knowledge of the actual sharing of mineral rent.

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## 1. Introduction

Over half of African countries produce mineral resources, and 20 of the continent's 54 countries are considered to be rich in natural resources according to International Monetary Fund (IMF) criteria (IMF, 2012). Although it harbours around 30 per cent of all minerals on the planet, Africa is still the continent where least use is made of mineral resources. Expenditure on exploration, however, has risen significantly over the past decade. A record was set in 2012, when Africa accounted for 17 per cent of the global exploration budget (for all minerals combined), estimated at 23.42 billion USD<sup>1</sup>—overtaking Canada and taking second place behind Latin America. While the Democratic Republic of the Congo is the country where expenditure on exploration is highest, West Africa has become a priority region for expenditure on searching for gold deposits. The mining sector thus presents a number of issues for the development of countries.

In most cases natural resources are public property, and the relationship between investors and governments is complex. Governments that lack the capacity to mine resources themselves have to attract foreign direct investment, but since resources are

not renewable countries need to capture a 'fair' share of mineral resource rent to aid their development.<sup>2</sup> From the point of view of mining companies, the role of governments is to maintain a stable system that is favourable to business. The characteristics of the sector – namely irreversibility of investment and uncertainty as to whether a project will be profitable (extraction costs, sale price of the mineral extracted, etc.) – make the extraction of natural resources particularly sensitive to economic policy decisions. Decisions on taxation can have consequences that are crucial to the sector's development.

So far, mining taxation systems have adapted to changes in the price of raw materials. In the 1980s–1990s, commodity prices were low and governments granted companies a large number of tax and non-tax concessions for various periods of time. The mining sector has been liberalised (Campbell, 2004) and African countries are developing their tax systems to attract foreign investors (Otto,

<sup>2</sup> All the big multinationals in the sector have a presence in Africa: Glencore Xstrata (iron in Mauritania, zinc in Burkina Faso, copper and cobalt in DR Congo, nickel in Tanzania, copper, cobalt and zinc in Zambia, zinc in Namibia, chromium in South Africa, etc.); Rio Tinto (aluminium in Cameroon and Ghana, bauxite in Guinea, ilmenite in Mozambique, copper and ilmenite in South Africa); Anglo American (diamonds in Botswana, Namibia and South Africa, platinum in Zimbabwe, iron and manganese in South Africa); Barrick (copper in Zambia); Newmont (gold in Ghana); AngloGold Ashanti (gold in Ghana, Guinea, Mali, Namibia, DR Congo and South Africa); and Kinross (gold in Ghana and Mauritania).

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<sup>1</sup> SNL Metals Economics Group: Worldwide Exploration Trends 2013.

1998; Land, 2007). Exceptions to general law are becoming a key component of tax frameworks to reduce the tax burden of multinationals and hence to make deposits more profitable. Between 2002 and 2008, the sharp rise of the world prices of most minerals multiplied the total natural resources rents by 2.3, against only 1.5 for tax revenue earned by African governments from the non-renewable natural resource (Mansour, 2014). 110 nations recently amended their mining codes or are planning to do so (Otto et al., 2006 and Appendix 1). The current political context of the sector is strained: governments want to keep a more important share of the mining rent compared to the previous decades, and companies fear 'hold-ups'<sup>3</sup> or expropriations similar to what occurred in Latin America (Daniel et al., 2010; Duncan, 2006).

The development of taxation systems and tax competition between countries (Land 2007) highlight the lack of a theoretical and/or empirical consensus on the issue of how mineral resource rent should be shared. It now appears to be vital to build a win–win relationship, and hence to find ways of achieving a fair sharing of revenue between governments and investors (Blake and Roberts 2006; Daniel et al., 2010). The aim of this study is to review theoretical and empirical studies on rent sharing in developing countries. Re-examining the definition of resource rent and the concept of fair sharing between investors and government helps to understand the debates. Reviewing the empirical studies carried out on the subject will then make it possible to identify the existing tools used to analyse sharing of resource rent, and their weaknesses.

## 2. Theoretical approaches: definition of rent and optimal taxation

The main criticism of taxation is that it causes economic distortions which lead to loss of economic efficiency and well-being for society (Sandmo, 1979). In theory, taxing up to 100 per cent of rent would not change investment and extraction decisions. A rent tax seems to be close to a neutral tax. In practice, however, there are many obstacles to apply a neutral tax instrument to the sector, including geological uncertainties and constraints on production capacity at the global level. Governments, therefore, try to create a tax system to capture a proportion of rent that is deemed to be fair, whilst encouraging private investors to explore, develop and exploit minerals. This first section examines the definition of rent and the theoretical foundations that support neutrality in its taxation, and then the tax instruments and other fees which are charged to the sector.

### 2.1. Taxation of rent and economic efficiency

The definition of rent that is most widely used today is: 'the excess of revenues over all costs of production, including those of discovery and development, as well as the normal return to capital' (IMF 2012: page 5). Although the definition appears to be straightforward, rent is still difficult to understand.

Ricardo (1817) defines rent in terms of difference of agricultural land fertility. He observes that for the same level of output the least fertile land requires the greatest amount of labour or capital, and that if the price does not cover costs production occurs at a loss and output is not brought to the market. It is, therefore, the most productive, that is, the most fertile, land that will yield a larger profit. The rent is a long-term rent, which therefore depends on differences in fertility between land and

corresponds to the difference between the marginal cost of production and the sale price. Rent does not play a role in setting the sale price of the resource; rather, it is a result of this price-setting. According to Garnaut and Clunies Ross (1975, 1983), this 'differential rent' or 'pure rent' is the defining characteristic of mining industries – the fact that production conditions, which depend on the characteristics of the exploitation of the resource (location, difficulties in terms of exploitation, quality of the resource, etc.), cannot be identically reproduced. This means that taxing up to 100 per cent of the differential rent generated by the sector should not alter the allocation of resources within the economy: it is a neutral tax.

From the second half of the nineteenth century onwards, the concept of rent expanded to encompass all advantageous situations which made it possible to increase the revenue of an economic operator (Khan, 2000;<sup>4</sup> Otto and Cordes, 2002; Otto et al., 2006). Economic rent generally stems from private property and limited supply: contracts, patents, barriers to entry into certain markets, and so on.<sup>5</sup> The task of valuing rent is complicated, as long-term rent can differ from short-term rent.

In the short term, production continues for as long as the sale price covers variable costs such as labour and energy (McDonald and Siegel, 1985). If the market price is below the average total cost of production but equal to or greater than the average variable cost, the activity yields a short-term 'rent', also known as 'quasi-rent'. This quasi-rent corresponds to the difference between the revenue generated by the activity and the variable production costs – the cost of fixed factors valued at the market price (Otto et al., 2006). Quasi-rent can, however, be greater than fixed costs alone when the revenue generated by the activity covers all variable costs and some of the fixed costs.

Mining activity comprises three stages: exploration, development and extraction (Garnaut and Clunies-Ross, 1983). During the first two stages (exploration and development), investments are large and constitute fixed costs which cannot be reversed by the investor. At the end of first stage, quasi-rent corresponds to expected revenue less exploration and development costs of the deposit. At the end of the second stage, quasi-rent corresponds to expected revenue less extraction cost. Total rent, which takes into account all costs associated with the various stages of the project and all revenue generated by the project, can be less than the sum of quasi-rents. Therefore, seeking to achieve neutrality of taxation entails seeking to tax, not quasi-rents, but rent valued over the entire lifetime of the project (Boadway and Keen, 2010).

In a dynamic view of rent, Hotelling (1931) introduces the issue of inter-temporal management of non-renewable natural resources. How should one allocate a given quantity of resources between different periods of time, so as to maximise the utility derived from the extraction and consumption of the resource? He then defines 'scarcity rent'. The extraction of a resource generates a cost of use which corresponds to the opportunity cost of reducing stock for future use (Tilton, 2004). The producer then seeks to maximise the net present value of the project – revenue less the various costs over time. The investor increases his output until the sale price covers the marginal cost of production and the opportunity cost. Valuing this opportunity cost is therefore of crucial importance, as this determines the taxable rent and alters investment and extraction decisions.

Whilst the aim of the tax system is to capture rent throughout the lifetime of the project, leaving the required minimum return

<sup>4</sup> The author distinguishes between at least six different types of rents.

<sup>5</sup> If the factor of production is public property, which is available in an unlimited quantity and accessible to everyone, there is no rent (this applies to the environment, for example).

<sup>3</sup> Opportunistic behaviour on the part of governments which are tempted to increase the tax burden once investments have been made.

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