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# Nationalising South African mines: Back to a prosperous future, or down a rabbit hole?

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ABSTRACT

Nationalisation is high on the policy agenda in South Africa. This paper considers the case for nationalising the local mining sector from an evidence-based perspective. The relevant evidence is derived from theoretical considerations and related to the known features of the South African mining sector and economy. A strong case against nationalisation emerges, which can be summarised as follows: The mining sector is competitive and therefore a poor candidate for public ownership. Further, the resources sector does not dominate the South African economy nor does it create the risk of Dutch Disease. Nationalising the mining sector will cost the government more than it receives. This is not only a bad idea in itself, but it will limit the scope for distributive policies on the national budget. The contemporary international experience demonstrates the risks of fiscal imprudence. Finally, nationalising the resources sector will undermine support for those very market-based institutions required to achieve a higher long-run growth trajectory.

Keywords: Nationalisation; South Africa; mining sector
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## Introduction

History did not, as it turns out, end twenty years and one month ago with the last gasp of the Soviet Union. Of course, the succession of events would not stop, but that was never the claim for which Francis Fukuyama became so famous; instead, he claimed that "… there is now no ideology with pretentions to universality that is in a position to challenge liberal democracy and no universal principal of legitimacy other than the sovereignty of the people … We have trouble imagining," Fukuyama continued,"… a world that is radically better than our own, or a future that is not essentially democratic and capitalist" (Fukuyama, 1992: 45-46).

While his perspective did not fix a particular role for the state in economic affairs – indeed, Fukuyama was explicitly agnostic on that point – the role of the productive state, as James Buchanan (for example in Buchanan and Musgrave, 2000) calls government's direct participation in the production of goods and services, has as a matter of recorded history, been on the retreat since the 1980s in developed countries and elsewhere.

The research focus of economists has followed suit. A generation ago, readers of the first edition of the New Palgrave Dictionary of Economics found an insightful essay on nationalisation by M.V. Posner (1987), with cross-references to entries such as privatisation, public utility pricing and socialism. Twenty years later, only an essay on privatisation by John Vickers (2008) appeared in the massively expanded second edition of the New Palgrave, with nationalisation nowhere to be found. This soft clue does not, I think, create a distorted picture of our profession's perspective on nationalisation as an important policy option since the 1980s.

In South Africa, the policy debate followed a similar trajectory (see, e.g., the account in Parsons, 1999), as policy makers proceeded with modest privatisation during the mid-1990s, having abandoned any further mention of possible nationalisation shortly after the political transition. Economists could, accordingly, be forgiven for their disbelief when nationalisation reappeared on the fringes of our public debate in 2008 whence it moved to the centre of the ruling coalition's policy agenda.

While the ANC remains formally agnostic, and the smallest alliance partner the SACP is sceptical, the third ally COSATU reversed its previous lukewarm comments on nationalisation to enthusiastic advocacy in recent weeks. Indeed, COSATU's economist Chris Malekane has not only been a vigorous proponent of nationalisation, but has been

quoted as saying that the trade union federation would reject any report critical of nationalisation. COSATU is, at least in the mind of Malekane, only open to a discussion of different models of nationalisation (Shoba, 2011). A number of cabinet ministers have also given their support to the proposal (De Lange, 2011). And our press reported a national survey last month that indicated substantial public support, as much as 57% on the West Rand, 42% on average for Gauteng, and 48% in Bloemfontein. While nationalisation is distinctly less popular in the Western Cape and Eastern Cape, it enjoys nontrivial support at 27% in Cape Town and 25% in Port Elizabeth (Cropley, 2011).

But opinion is divided at the highest level: Other cabinet minister have spoken out against the proposal, including ministers Gordhan, Manuel, Gigaba and Shabangu, as well as ANC Secretary General Mantashe.

In these circumstances, it does not seem prudent to dismiss the debate or engage only at the level of ideology. Governor Marcus of the Reserve Bank argued earlier this year that the debate should be non-ideological (Business Day, 29 March 2011), and Professor Keeton from Rhodes University has been an admirably active participant in this debate with tools of economic reasoning at the ready[2].

It is to participate in this debate that I chose an evidence-based assessment of the possible nationalisation of South African mines as the topic for this presidential address.

## 1. Why do we care?

Nationalisation raises so many issues that it pays to take a step back and use the lens of economic theory to untangle the issues: There is a conceptual world in which the structure of ownership and the composition of balance sheets do not matter, at least not for the efficient organisation of production. This is the world of perfectly enforceable contracts, zero transaction costs and so on. It is a world, so argued Ronald Coase (1937), where there would be no firms to nationalise; it is not where we find ourselves.

When transactions costs[3] are positive, areas of planning, such as firms, facilitate the specialisation and co-operation which has driven the rise in productivity behind the dramatically increased living standards in developed countries (North, 1990). Formal and

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[2] Some of you would have heard his insightful paper with Gregory White at this conference, and if you did not, I urge you to download it from the conference website.

[3] Transaction costs include search costs (for price and location about other sellers and their wares); bargaining costs; drawing up contracts; monitoring contracts; enforcing contracts; protecting property; barriers to entry; agency costs; and co-ordination costs (2010: par. 88)

informal rules of conduct – we call them institutions – structure our co-operation in these settings (North, 1991). In a discussion of nationalisation, we should be particularly interested in those institutions that create and sustain private property.

In the world of the Coase theorem – with no transaction costs, comprehensive property rights and complete contracts – it would not matter, from an efficiency perspective, how property is allocated initially. But in our world, where these costs are not absent and property is only imperfectly defined and protected, the structure of corporate ownership matters greatly. Nationalisation, the transfer of ownership from private to government hands, is an institutional development with consequences of the first order. What this transfer of ownership does is to reassign, to the public sector, the right to make discretionary decisions in the firm's domain on all matters that have not been explicitly settled by contracts; what Oliver Hart (1995) calls the residual rights of control.

To see how this will affect incentives for the nationalised firm, we can look at the three dimensions of institutions in North's classic definition (North, 1984). These three aspects of institutions, (i) constraints on behaviour (or the rules), (ii) monitoring mechanisms, and (iii) the consequences of observed conduct inconsistent with the rules provide a useful summary for the theoretical issues at stake.

Starting with the constraints on behaviour, we run into an immediate difficulty. While there are reasonably developed theories on the behaviour of private firms to explain the conduct of the managers or agents who run these firms on behalf of the share-holding principals, no equivalent theory exists for firms in the public sector (Vickers, 2008).

Of course, the public is, in some ultimate sense, the new principal of the nationalised firm. But we have conceptual difficulties in defining what would serve the welfare of the new principals: the highest net worth for the public sector is one possibility, or perhaps alternatives such as distributional goals or employment. To some, for example Sinnot, Nash and La Torre (2010), these alternatives suggest a trade-off between productivity and equality in this discussion.

We also have a formidable public choice literature, which points to the many factors other than the goals of the public as principal that are likely to influence the decisions of managers at the nationalised firm, including political considerations, the influence of lobbyists and other special interests, the difficulty faced by the public to write 'complete contracts' for the managers, and many more (Schleiffer, 1998; Vickers, 2008).

Not only are the goals different for public firms, but so too are the mechanisms that monitor the behaviour of public sector managers (Alchain, 1977). There is no possibility for shareholder oversight with the intensity experienced on financial markets, nor the ability to tie managerial incentives to stock market performance, as an external assessment of the company's performance. Finally, there is no threat of take-over in the public sector, a threat which disciplines agents in a competitive private sector.

Mentioning potential take-overs leads me from the monitoring mechanisms to the final aspect of North's three-part definition, the consequences of behaviour given the rules and norms. Apart from sidestepping the threat of take-overs, public sector managers are also not disciplined by the threat of bankruptcy. The repeated bailouts of large state-owned enterprises in South Africa in recent years is a familiar demonstration of the 'soft' budget constraints that frequently arise in these cases.

To summarise these points, managers of a nationalised firm face different and less determinate goals, are monitored differently and possibly less effectively, and face different consequences when they act inconsistently with the goals of their public principals.

The contrast between the institutions of the private and nationalised firm will be greater, the more competitive the private industry was prior to nationalisation. This is an important theoretical result, and we will see its empirical echo in the discussion of nationalisation's track record. Since this result is an extension of the fundamental welfare theorem (see for example, Feldman, 1987), it follows that the theoretical results are conditional, and Laffont and Tirole (1993) have long since showed that theory cannot settle the question of public versus private sector efficiency in the production of goods and services; we will have to study the data.

In addition to these microeconomic consequences I have already mentioned, nationalisation also has fiscal consequences. Both nationalisation and privatisation can be motivated by the desire to improve public finances. Since nationalisation typically implies a debt-financed buy-out of private shareholders, the net impact on government's fiscal position will be determined by (i) government's cost of finance, (ii) the subsequent financial performance of the nationalised firms, which is, in turn, (iii) influenced by the scope and enthusiasm for profit-seeking investment by government in the future.

In addition to these fiscal consequences, nationalisation has distributional consequences, and these are likely to be very important in the South African debate. If the firm is nationalised at market value (an issue I will discuss later in the South African context), then the immediate action is neutral from a distributional perspective. But subsequent decisions by firms operating under the incentives created by nationalisation are not likely to be similarly neutral: government's budget, the main vehicle for redistribution in South Africa, will be affected by the financial burden of nationalisation.

Nationalised firms, especially those that become public utilities, typically employ various cross subsidisation schemes, with distributional consequences (Vickers, 2008). The same is true of a potentially more accommodating employment policy by the nationalised firm, less focussed on cost containment than a private sector firm.

Finally, Biais and Perotti (2002) suggested a channel along which the distributional consequences of privatisation or nationalisation might be used to shape political preferences: their argument was that widespread ownership of firms would create stakeholders with political incentives to maintain secure property rights. Nationalisation works in the opposite direction, making more people dependent on the productive decisions of the state, with little incentive to maintain the institutions that support private business.

Let us see if this theoretical perspective can help us understand the nationalisation debate we have seen unfolding in South Africa.

## 2. Can we understand why the debate has gained such traction?

I have already mentioned that the case for nationalisation had few champions for the last twenty years, but I did not mention that we have seen enthusiasm for nationalisation wax and wane before. In the immediate post-War era, the case seemed strong, and by the late seventies, state-owned enterprises accounted for about 10% of world GDP. A period of scepticism and roll-back followed in the 1980s and 1990s, lowering the state's share in global output by 40% by the early 2000s (Meggison and Netter, 2001). In some countries, nationalisation has lately staged a comeback, and these cycles have been described recently by, inter alia, Manzano and Monaldi (2008), Rosa and Pérard (2010) and Chang, Hevia and Loayza (2010).

Through the theoretical lens I mentioned earlier, we can disentangle the various arguments used by proponents of nationalisation in practice. There are four major

strands to this argument, three of which follow directly from the theory, that is (i) an efficiency claim (often tied to a publics goods or natural monopoly argument), (ii) a fiscal claim (often tied to natural resource rents) and (iii) distributional claims, often in very unequal societies. Finally, international financial considerations, such as, a concern with Dutch Disease, might provide a fourth reason for nationalisation.

As stated, there is no time perspective in these arguments, and that will not help us to understand the waves of nationalisation and privatisation we have seen over the last century. One explanation is that preferences shifted: governments used to favour a laissez faire approach, but after WWII the preferences of developed countries in the West and in the developing world evolved to favour a social democracy and nationalisation, only to evolve again towards so-called neoliberalism and privatisation after 1980. Since psychological explanations will not go far to explain the evolution of policy, one is largely left with an ideological account along this route, and the goal paper was to avoid a mainly ideological discussion.

An alternative approach, and the one preferred here, is to take government's preferences as fixed for the purposes of the analysis and to ask what else might have changed to make nationalisation more attractive given these preferences. As Stigler and Becker (1977) would have advised, I look for the explanation within economics first, and only turn to political science, sociology or social psychology if the economic analysis is unproductive.

To use the framework mapped our earlier, we need to look for shifts in (i) the efficiency prospects of firms in the public sector, (ii) fiscal changes, or (iii) changes in income and/or wealth distribution to explain a change in enthusiasm for nationalisation. There is a small literature to turn to on this matter, listing stylised facts correlated with the succession of nationalisations and privatisations as in Chang et al. (2010) or as predictors of nationalisation as in Duncan (2006) for a range of major minerals, and in Guriev, Kolotilin and Sonin (2011) for oil.

Four of these might add up to a fiscal case for nationalising mining companies in South Africa; they are:

1. Firstly, that nationalisation occurs much more frequently in the natural resources sector and in utilities than in other sectors of the economy.

2. Secondly, the occurrence of nationalisation in the resources sector is positively correlated with the real price of these commodities: high commodity prices have been associated with nationalisation and low real prices with privatisation.
3. This can partly be understood from the third stylised fact, that private natural resource companies typically operate with contracts that allow them to appropriate the windfalls from commodity booms.
4. And the integration of commodity markets internationally brings about the fourth stylised fact, that waves of nationalisation are often common to several countries.

Reading these four together gives us one possible explanation for the local policy agenda and the observed rise of nationalisations in the resources sector in Latin America in recent years. This is not to deny that President Morales in Bolivia and President Chavez in Venezuela have ideological arguments for nationalisation. That the ANC Youth League (ANCYL) also has an ideological agenda is plain for all to see; indeed they insist on it (ANCYL, 2010).

The argument is, however, that these ideological arguments find fertile ground when commodity prices are higher, as they have been in recent years, and the proposal then follows to nationalise those companies that are perceived to enjoy unfair windfalls from a commodity boom.

Venezuela and Bolivia also share a fifth stylised fact identified by Chang et al. (2010) and studied more systematically by Chua (1995), namely that endemic or rising inequality is positively correlated with nationalisation, especially when the windfall gains from high resources prices are perceived to be distributed unequally.

Turning now to the South African debate we can as which of these factors appear relevant locally? As far as my reading could detect, those keen on nationalising the mining sector in South Africa have not employed efficiency arguments in their cause. We have not heard that South African mines are inefficient, that the sector is uncompetitive or shown the symptoms of market failure. But we have heard that the nationalised mines will have different goals from those pursued by the current crop of private sector mining houses. The state should use the mines "… to guarantee the flow of resources to critical sectors in our economy", the ANCYL argued in February 2010, "… not in order to maximise profit as the current holders of licenses do" (ANCYL, 2010: par. 24). These

points will be important to bear in mind when the historical track record of nationalisation is considered in the next section.

In contrast to efficiency claims, fiscal and distributional claims have dominated the local discussion. The ANCYL plan for nationalising the mines of May 2010, for example, argues that "… the massive poverty challenges, unemployment and unequal spatial development realities call for an urgent focus on mineral resources" (ANCYL, 2010: par. 5).

In democracies, it is not enough to propose a policy, you have to win electoral support for it. At this point, Duncan's (2006) demonstration that natural resource expropriation has been more likely under democracies becomes relevant, and Pint (1990) gave us the Public Choice explanation for it, that is that the beneficiaries of nationalisation are often concentrated, notably organised labour, while the costs are diffuse and shared by current and future tax payers (Pint, 1990). In a democratic system, there is therefore a policy incentive to pursue nationalisation, possibly sacrificing longer-run economic efficiency for short-run political benefits. Unsurprisingly then, resource nationalisation has also been more common in countries where the economy, and hence the tax base, are heavily reliant on one or a few commodities (Kobrin, 1984; Minor, 1994). COSATU's recent strong support for nationalisation is consistent with this story.

This adds up to an explanation of the nationalisation debate in South Africa, with the following elements: start with the high level of income (and wealth) inequality, which Prof. Leibbrandt discussed on this stage at our previous conference. Add to this a few years of higher commodity prices and the perception that the windfall from these prices has been distributed such that inequality is not lowered and may be increased, together with a democratic political system where a populist leader can mobilise support to serve a majoritarian goal, and we have the South African debate on nationalisation.

## 3. What empirical evidence should inform the debate?

Let me now turn to the empirical evidence on the consequences of nationalisation, because the theoretical ambiguities leave no alternative if one wishes to avoid an outright ideological discussion. What empirical evidence should be summoned in this debate?

There are two major approaches. The first entails investigating the assumptions, which theory tells us will distinguish efficient from inefficient nationalisation. The case to make

is that the private market fails in some way and that government can improve on the situation by a transfer of ownership.

This last point about government's ability to improve on the situation is not trivial, as we have discovered many reasons why governments may do worse even where the private market fails demonstrably. "All solutions have costs", Coase wrote in 1960, "… and there is no reason to suppose that governmental regulation is called for simply because the problem is not handled well by the market or the firm" (Coase, 1960). The same goes for government ownership.

Typically, the assumptions that require investigating in this approach are whether the good or service is a "public good" in the given context, whether there are important externalities, what the degree of competition is in the private market, and whether information costs are a notable problem (Meggison and Netter, 2001: 329).

No strong case has been made locally, or internationally, that the private market for commodities is uncompetitive. The major externality that is considered is the potential distortion of exchange rates when one or a few commodities greatly dominate foreign exchange market outcomes, as is the case in some oil-producing countries. Governments in these countries, with large current account surpluses, want to be careful about the potential real appreciation of their currencies and the risk of Dutch Disease. This is not a relevant concern for South Africa, as I will argue later.

A second, more explicitly empiricist approach, is to study the consequences of historical episodes of nationalisation. The relevant literature is rather small, no doubt connected to the general disfavour of nationalisation over the last thirty years. There is an older literature comprising mostly case studies and often focussing on experiences in the developed world, especially, in Europe.

Economic histories of this kind are useful to understand the mechanics and some of the consequences of nationalisation. Zambia's nationalisation of their copper mines is an often-cited example in the resources sector. The government's decision to nationalise the mines fits the pattern of stylised facts described earlier: high copper prices, and a perception that the private mines were reaping most of the benefits in a society with high levels of inequality. That Zambia's copper nationalisation was a failure is no longer controversial. In fact, this year Zambia's president urged the South African government

to learn from their experience and not to nationalise South African mines (Rampedi, 2011).

But the reasons for the failure are contested. Sophia du Plessis is amongst those who have identified a causal link between the nationalisation and the adverse economic outcomes, with an institutional argument (Du Plessis, 2005). By contrast, the ANCYL (2010: par. 88) has attributed it to "… copper as a strategic commodity in the world economy [having] gradually lost value and significance", though that is not consistent with the facts.

The copper price did not collapse after nationalisation, though the peculiar financial management of the nationalised mines turned the government inadvertently into "a giant copper speculator" in the words of Stoever (1985: 147); and an unhappy speculator at that, who ended up with less revenue form its nationalised mines than they would have received in taxes under a reasonable counterfactual. It was not just poor financial management though; the project was jeopardized by poor mine management, which led to a doubling of costs and lower productivity, even though copper mines elsewhere and even in neighbouring countries maintained and improved productivity (Stoever, 1985).

More recent nationalisations in Bolivia, Venezuela and so on have also been studied in this way, but these case studies do not get us all the way to grasping what the counterfactual would have been.

To identify the outcomes of nationalisation, we need to look beyond individual cases to answer the question formulated by Sam Peltzman 40 years ago; we wish to discover the following "… if a privately owned firm is socialised, and nothing else happens, how will the ownership alone affect the firm's behaviour?" (Peltzman, 1971).

To answer this question, we need data sets with variation across institutions, time and countries or regions. But this is where the nationalisation literature dries up. Happily, there is a way forward as long we regard nationalisation and privatisation as opposite movements along a comparable institutional trade-off.

In that case, we can interpret the results from the much larger literature on the consequences of privatisation as evidence in the case before us. It still leaves us with the considerable problem of endogenous institutions: I have already discussed the many

reasons why firms might be privately or publically owned, creating the real possibility of a selection bias in these data.

Given these problems, natural experiments have become increasingly important in recent years to help answer questions about the differential impact of institutions. Jonathan Karpoff (2001) used an esoteric natural experiment to answer Peltzman's question: he studied the outcome of 35 publically funded and 53 privately funded expeditions to the Arctic between 1879 and 1909. He was able to show that the differences in outcomes were not due to different goals, technology or nationality. Instead large differences in performance (measured as the number of major scientific discoveries, the absences of accidents or deaths, and the health of the participants) were observed along the private-public division of expeditions, with the private ones doing much better. What is more, the public expeditions were better funded.

In Karpoff's (2001) econometrics, these differences in efficiency can only be attributed to differences in the quality of leadership structures, to differences in the speed of adaptation to new information and incentives. However interesting this result may be, one is left wondering whether the result would generalise to more topical activities, such as the mining sector.

A number of papers have asked Peltzman's question in a more general setting: Since the transport sector has often been a target of nationalisation on public goods grounds, it is instructive to consider an industry-specific study of international airlines. Ehrlich, Gallais-Hamonno, Liu and Lutter (1994) investigated the consequences of state ownership for productivity growth and cost increases in 23 international airlines. They found a productivity penalty of 1,5 to 2% per year for state-ownership.

While one might object to the narrowness of the Ehrlich et al. (1994) and Karpoff (2001) studies, these objections fall away for the study of the 500 largest US firms by Boardman and Vining (1989), the 500 largest non-financial Canadian firms by Vining and Boardman (1992) and the 500 largest non-USA firms by Dewenter and Malatesta (2001). While these papers do not all measure the same proxies of efficiency, they all find that after controlling for size, market share, and other firm-specific features as well as macroeconomic features that might impact on the selection of ownership, the private firms are significantly more profitable and, where measured, more productive than either mixed or outright state-owned enterprises.

Do these results hold for developing countries, especially those where the government is suspected of playing an active and positive role in industrial policy? In short, yes. Chinese state-owned and mixed enterprises are less productive than comparable private firms, as found by Tian (2000), and the same was found for Indian firms by Mujambar (1996) and Chong and Lopez de Silanes (2005) for a cross section in Latin America.

These results should not be read as evidence against the earlier theoretical argument that the degree of competition within which firms operate plays an important role in determining the relative efficiency of private firms. The point was made most clearly by another natural experiment, this time the fate of 17 American firms with substantial Japanese and German ownership at the outset of WWII.

The US government assumed control of these firms when it entered the war on the side of the Allies. But the US government acted like a passive investor, leaving the goals and management structures as before, partly because government wanted to optimise the value of the firms with an eye towards later re-privatisation, which did occur. After controlling for industry-specific features, Kole and Mulherin (1997) showed that these temporarily nationalised firms performed no differently on efficiency and profitability measures than their private competitors. Not only did these firms operate in competitive industries, but Kole and Mulherin (1997) argued that they were left to compete like private firms. More generally, the empirical evidence supports the argument that nationalising firms from a competitive private industry and then running with the goals and incentives of a public firm is usually inefficient.

Let me finally turn to the details of the South African case and its likely consequences.

### 4. Summary of the likely consequences of the South African debate

Before I turn to the fiscal case, a brief comment about the possible role of nationalisation in a new industrial policy for South Africa.

South Africa is not amongst those countries where the resources sector causes a massive surplus on the current account, which risks local inflation or nominal appreciation, both of which might cause real appreciation and Dutch Disease. This potential externality is, consequently, no case for nationalising South African mines.

I have already mentioned that nationalisation of the resources sector occurs more typically when the potential fiscal gain justifies the action, and this is happens, more

typically, when one or a few commodities account for a large part of economic activity and the tax base. In Venezuela, for example, the state-run oil company accounts for almost a half of government revenue[4] (Hults, 2007), and in 2005, Bolivian President Morales nationalised the hydrocarbon industry (oil and gas), whence government gets roughly a third of its revenue, equal to 10% of GDP (IMF, 2010).

The comparable data for South Africa is tax revenue of R17.9 billion from the mining sector last year,[5] which was less than 3% of government revenue and just 0.7% of GDP (Budget Review, 2011).

Since the South African debate remains speculative, there is no clear indication of the valuation method that will be used to determine the compensation paid to shareholders in the event of nationalisation. The ANCYL has argued that nationalisation will be 'with or without compensation' depending on the financial position of the particular mine, but the existing South African legal framework does not allow this, nor would the many foreign investment treaties by which government has committed itself to full compensation in the event of expropriation (Keeton and White, 2011). This is relevant given the international composition of the mining companies' shareholders. For example, at the end of last year, nearly 53% of AngloGold Ashanti's shareholders were American, with another roughly 12% residing in the United Kingdom. This leaves very little scope for nationalisation without compensation.

It follows that government will have to pay; and now it is time to see how much government will pay and what it will get in return.

White and Keeton (2011) calculated that government would get an extra R20.9 billion in 2010 terms based on the following assumptions: that government nationalises 60% of the South African operations of the sector and that efficiency is undiminished. To claim these revenues, government would have to buy a 60% stake in the local mines, and this would increase government debt by R970 billion on their calculation,[6] compared with existing debt of R820 (Keeton and White, 2011: 7 and Budget Review 2011). White and

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[4] To be precise, 48% in 2007.

[5] Godsell and Spicer (2011) listed the tax revenue as R17.1 billion. The higher estimate is from White and Keeton (Keeton and White, 2011).

[6] There is reason to believe that the stock market valuation will be the reference point for compensation in these transactions, should they come about. Alternative methods of calculating the value of the firm are time consuming and expensive. For example, the British government took ten years from 1946 to 1956 to do their own calculation of the value of the coalmines they were intending to nationalise, at a very considerable cost of 5.6 million GBP (Pint, 1990: 271). It was so costly and time-consuming that they proceeded with stock market evaluations for other industries.

Keeton's conservatively estimated cost of servicing the additional debt in 2010 terms would be R46.6 billion.

I have approached the same question in a slightly different way for the three largest gold mining companies, AngloGold Ashanti, Goldfields and Harmony. By narrowing the question, I was able to isolate the precise value of the revenue generated by their South African operations and calculate a proportionate share of their market capitalisation and tax payment that can be associated with mining gold in South Africa[7]. It is important to disentangle the revenues for these multinational companies, as the cost effectiveness can vary dramatically in their portfolios, and at least for the gold mines, the South African operations are typically expensive.

If government nationalised the gold mines, it would have to acquire them at the market capitalisation associated with local production and lay claim to all local revenues in addition to the taxes already paid. Government's net worth would rise if local earnings yielded more than the interest rate for the buy-out deal. In step with White and Keeton, I assumed conservatively that the government would have to pay 8% on the associated debt. Would government have gained 8% or more relative to market capitalisation from nationalising these given the mines 2010 results? Would government's net worth have risen in that year of high gold prices? In short, no.

Goldfields yielded 7% relative to market capitalisation on local operations in 2010, while Harmony reported a net loss and Anglogold Ashanti a yield of 1%. At the disaggregated level for large gold mining groups, I have confirmed what White and Keeton (2011) found at the sectoral level, i.e. that nationalising South African mines would cost government more than government would gain, even under the romantic assumption that the mines are run as effectively as under private ownership. It is not too much to say that White and Keeton's, and my own sobering calculations are best-case scenarios. The actual outcome is likely to be worse.

Since the direct distributional impact of the resource sector is limited, while that of the national budget is extensive, it follows that nationalisation will limit the scope for a more equitable distribution of income within South Africa.

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[7] The data was collected from the annual reports of these companies.

What I have said amounts to a strong case against nationalising the resources sector in South Africa, and I will summarise it in a few numbered results:

1. The resources sector in South Africa does not play a dominant role in the economy, nor does it create the kind of externality associated with the risks of Dutch Disease.
2. The resources sector is competitive and therefore a poor candidate for public ownership. The international evidence suggests overwhelmingly that the nationalised firms would be less efficient in these circumstances. Nationalised mines would have confused goals, worse monitoring and worse feedback compared with existing mines.
3. Nationalising the resources sector will cost government more than it receives. This is not only a bad idea in itself, but it will …
4. … limit the scope for distributive policies on the national budget.
5. As a corollary of the annual fiscal burden, the project would raise government debt dramatically at a time when our debt is forecasted to rise sharply for other reasons, and the international experience demonstrates the risks associated with this path.
6. Finally, nationalising the resources sector will undermine support for those very market-based institutions we need in order to achieve a higher long-run growth trajectory.

While economic theory and the international experience help us to understand why we are having this debate, the evidence suggests that nationalising the resources sector in South Africa is demonstrably a poor policy initiative. Nationalisation is not an attractive rediscovery that will lead us back to a prosperous future; instead it will lead us down a policy rabbit hole.

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