Deloitte Access Economics

Resource rent taxes

Minerals Council of Australia

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Dear John

Resource rent taxes

There have been recent changes in a number of important policy areas of significance to the mining sector.

Against that backdrop, and in accordance with our proposals dated 9 February and 9 July 2011, this report considers the rate of tax applied to resource rents in Australia.

Yours sincerely,

Chris Richardson
Director
Deloitte Access Economics Pty Ltd

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Executive Summary

Resource rent taxes have the potential to raise revenue for the community in a way that does less damage than Australia's current patchwork of royalties.

Yet resource rents cannot be accurately measured.[1]

The minerals tax debate of 2010 fell between these two stools – a desire to tax resource rents on the one hand, but on the other hand a failure to recognise that taxing something which can't be accurately identified in the first place leads to important 'collateral damage'.

The extent of that collateral damage is mostly a function of the tax rate adopted.

Why so keen to tax minerals?

Taxes cause most harm – that is, they change behaviour most – when families and businesses can readily react to the tax by switching to less taxed activities.

In contrast, immobile tax bases are best. Indeed, in recent years tax economists and modellers have increasingly focussed on 'the mobility principle': in essence, the view that, if what is being taxed cannot 'move', then it can be taxed at very high rates with no damage to incentives, and hence no damage to behaviour.

In turn, the view that 'mobility' matters combined with the rise of models which could readily model mobility to see 'mobility' form a key focus in the minds of policymakers.

Accordingly, the Henry Review recommended a resource rent tax, and the Government responded by proposing a Resource Super Profits Tax (RSPT) set at a rate of 40%.

One bucket, not two

That proposal raised some important issues for Australia. In particular, this report focuses on the necessary gap that arises between the theoretical attraction of taxing 'resource rents' versus what actually happens when you try to do just that.

If two buckets emerged from a mine – one labelled 'profits earned by the mineral' and the other 'profits earned by the miner' – then it would be possible for a resource rent tax to target only the former and to result in little distortion to decision making by miners.

However, only one bucket of profits exists, and no accounting rules can successfully distinguish the 'profits earned by the mineral' from the 'profits earned by the miner'.

The RSPT's mechanical rules were complex, as George Fane (2010) noted:

[1] For example, KPMG Econtech (2010b, page 12) noted that: *"The main challenge in implementing a tax on resource rents is that those rents are generally not directly observable."* Similarly, Henry Ergas (2010) noted that *"Pure rents are not of this world"*, and that *"No known tax can completely solve the problem"*.

"… anyone who is not confused by the RSPT cannot have understood it. The accounting rules are too hard for economists, the economics is too hard for accountants and it is all too hard for everyone else."

Any formula will show more 'super profits' have been earned – and more minerals tax is owed – when miners work harder or smarter. That necessarily makes this class of tax on the effort and entrepreneurial expertise of miners as well as a tax on mineral resource rents.

And that's a problem. Any income that is not resource rent but is taxed as though it is automatically becomes more highly taxed than most other forms of business income in Australia.

Just how big an effect that is becomes a direct function of the tax rate.

What rate related risks did that create?

Why is it very important that any accounting formula can only be a proxy for taxing resource rent, and therefore picks up more than resource rent alone? Because the theory around resources rent taxes and their theoretical superiority relies on correctly spotting resource rents in the single 'bucket' of miners' profits.

The inability to separate that single 'bucket' into its components means you are also taxing some things that are mobile.

And therein lies the problem.

In particular, you pick up 'firm-specific' or 'entrepreneurial' rents associated with being good at what you do.

That means the better you are at mining (or certain types of mining), the greater the additional tax you now have to pay on being good at what you do.

Other things equal, by adding an extra layer of tax – one that affects good miners most of all – you make it more likely still that the next greenfield mine will be developed offshore rather than here at home in Australia.

It is important to note that the problems potentially associated with such taxes are closely linked to the rate of the tax. Development wouldn't head offshore if the resource rent tax raised the same dollars as the royalties it replaced. Had the proposed RSPT not added to the overall tax take, then its efficiency benefits would have outweighed the impact of its heavy marginal tax rates on entrepreneurial effort.[2]

However, the RSPT as proposed would have more than doubled the tax take from royalties. That risked pushing Australian development options up the global cost curve, leaving firms better off pursuing offshore options instead – all the more so because of the supply side constraints they face in both labour and capital.

[2] To be exact, two taxes can raise the same revenue but impose very different amounts of deadweight loss. That said, if the RSPT had merely replaced royalties, then it is likely that it would have been much of a muchness.

That is, the RSPT risked sending mining investment overseas – a risk magnified by its 40% tax rate.

> The point here is simple. Although minerals aren't mobile, new investment in them is. As all impacts are felt at the margin for greenfield projects, the cost impact of resource rent taxes set at 'high' rates would be to send some greenfield developments towards Canada, Indonesia, Brazil and others.
>
> Were that to occur – were the rate of resource rent tax struck 'too high' – then that would see mining activity in Australia drop below where it would otherwise have been. And because mines are very long lived assets, any such effects would necessarily last for decades to come.

The key change in the move to the MRRT: the rate

The proposed RSPT had several important flaws. But it was the RSPT's proposed tax rate which was central to the policy debate – and ultimately formed the basis for the MRRT compromise emerging from consultation with major Australian miners.

That compromise saw the headline tax rate reduced to 30% (rather than the 40% under the proposed RSPT), and the inclusion of an extraction allowance of 25% of taxable profits (effectively reducing the tax rate to 22.5%).

It also saw a narrowing of the tax base – both across minerals (to coal and iron ore) and via an increased uplift rate of the long term government bond rate plus 7%.

Those changes addressed a number of the concerns surrounding the RSPT outlined above. That said, the MRRT was – necessarily – a compromise crafted amid election-related pressures, and it too has its flaws.

Indeed, the reduction in the headline rate to 30% is a de facto recognition that those flaws exist, and that they are magnified by a higher tax rate.

By reducing the headline rate and including the extraction allowance, the MRRT proposal got the important part right – a lower rate. That is because, as Deloitte Access Economics has consistently stressed, the effects of any design flaws in a resource rent tax are turbocharged if rates are too high.

In particular, the more that a resource rent tax 'accidently' extracts from the 'profits earned by the miner', the more that it encourages development overseas instead of development in Australia.

A higher tax rate for the MRRT could therefore pose similar risks to those raised by the original RSPT proposal, including (1) capturing part of the reward for miners' efforts and expertise, and hence (2) pushing Australian mining investment back in the global 'queue'.

Wider issues

That said, although the focus of this report is on the tax rate, mining taxes raise many issues that go well beyond the rate at which those taxes are struck. For example, a key theme during the 2010 mining tax debate was the efficiency benefits of resource rent taxes.

However, the efficiency issues raised by resource rent taxes are more complex than widely recognised. There are two main reasons – practical shortfalls, and academic concerns.

On the practical front, and as the rest of this report notes, you can't succeed in separating out resource rent from the entrepreneurial return to the miner, meaning that there are unavoidable efficiency losses arising simply because the tax base is more than just "rent".

Yet the academic literature reveals that questions of efficiency can be more complicated than merely relating to whether the tax base is solely "resource rent". Indeed, academic opinion on the relative efficiency of resource rent taxes is more divided than has been widely recognised, in part because of the role played by "real options".

Transitional issues are also vital, though the MRRT was a considerable advance on the original RSPT model. In particular, **absent grandfathering, market valuation is a sensible second best:** Short of allowing existing investments to remain subject to the former taxation regime (the approach adopted for the PRRT), allowing the option of market valuation of existing assets (rather than book values, as per the original RSPT approach) is a well-established principle for easing the transition to new tax arrangements.

Second, the lower the rate, the less the concerns that arise: The RSPT would have more than doubled the tax take under the current royalties regime – meaning that the shift in the weight of tax regimes for existing mines would have been sharp. However, the matching shift in the MRRT is less – although the royalty take is a hard floor (that is, miners in the MRRT regime will by definition have to pay more tax), the relative shift is smaller. That of itself also takes some heat out of the issues arising on the MRRT transition.

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1 Minerals taxation – the theory

When taxes cause us to change our behaviour, that results in economic costs.

Yet tax theorists have long been aware that taxes do distort behaviour.

A key aim of tax design is therefore to limit the extent to which taxes change our behaviour:

- A generally accepted 'rule of thumb' for tax policy is that the economic costs of a tax are larger the more responsive demand or supply is to a change in price.
- Accordingly, the more efficient taxes tend to be those that apply to markets with relatively less responsive supply and demand, because a change in the rate of tax will have a more limited impact on the efficient allocation of economic resources.

That economic backdrop means that tax economists and economic modellers have increasingly focussed in recent years on 'the mobility principle': in essence, the view that, if what is being taxed cannot 'move', then it can be taxed at very high rates with no damage to incentives, and hence no damage to behaviour.

Hence 'resource rents' – the return to the minerals themselves – are seen as a logical tax base, as the minerals can't move in response to higher tax rates.

As the then Treasury Secretary, Ken Henry, argued in testifying before a Senate committee on 27 May 2010, those tax rates could be very high indeed. When asked *"if we took the [Resource Super Profits Tax] rate to 70 per cent or 80 per cent would that make a difference?"*, he replied *"In concept it should not make a difference."*

When pressed further, *"What if it went to 100 per cent?"*, Dr Henry replied *"At 100 per cent we might find that the government had to finance all of the investment itself. I do not want to make too much of this, but other countries—take Norway, for example—have managed to attract very substantial amounts of private capital investment while taking 95 per cent of the profits."*[3]

Similarly, computable general equilibrium models – able to avail themselves of increasing computing power – have become more focussed on modelling 'mobility' with respect to tax matters.

Or, in other words, **the view that 'mobility' matters combined with the rise of models which could readily model 'mobility' to see the latter form a key focus in the minds of policymakers.**

[3] http://parlinfo.aph.gov.au/parlInfo/download/committees/estimate/13174/toc_pdf/7667-1.pdf;fileType%3Dapplication%2Fpdf

1.1 Why tax mineral rents?

Natural resources have therefore been of considerable interest in the recent tax debate in Australia because natural resources are immobile, meaning that the Henry Review saw less risk that the point of production would shift to a lower taxing jurisdiction, reducing both tax revenue and national income.

Indeed, much of the theory around resources rent taxes and their theoretical superiority rests on the point that these are resources which are not mobile.

Mining investment, however, is mobile.

And that is important. As the Henry Review itself noted, if a tax is applied to rents that are mobile – including rents that are also available offshore – then the theory breaks down:

> *"In an open economy, the impact of a tax on economic rents will depend on the mobility of the rent. Economic rents can be characterised as either firm-specific (or mobile) or location-specific.*
>
> *Investment generating mobile rents (arising from factors such as management know-how, a brand or a businesses' possession of a particular technology) can be moved from one jurisdiction to another.*
>
> *Location-specific rents may arise from exploitation of natural resources, existing fixed investments (such as factories), agglomeration (where businesses obtain benefits from co-location such as economies of scale), attractive local infrastructure, public services and institutions or consumer preference for domestically produced over imported goods.*
>
> *For a mobile rent, source-based taxes can reduce investment. Investors will simply shift the investment to a lower tax jurisdiction so they can receive a greater share of the rent. In contrast, a source-based tax on a location-specific rent will not distort investment decisions."*

That latter distinction is vital, with taxes on mobile 'firm-specific' rents being less than the picture of perfection presented by taxes on immobile resource rents.

1.2 Can 'resource rents' be accurately identified?

Defining and measuring the appropriate resource rent tax base is much more complex for governments than the minerals taxation theory might suggest, as:

- Miners' profits are made up of more than rent, and;
- Miners' rents are made up of more than just 'resource rent'.

First, company profits include a normal return to capital – the level of profit required to compensate investors for the costs and risks of running the business. As Parker (2009) noted:

> *"When economists talk of "rent" we do not mean all profits, but only part of profits. Specifically, rent means that part of profit which exceeds the risk adjusted required return on capital – in other words, "super-profits."*

Second, there is also a difference between taxes on 'resource rents' and taxes on 'super profits'.

Third, implicit in much of the discussion of resource rents is that, even if it doesn't currently do so, the tax law can accurately identify 'resource rent'. The Henry Review (2009) said that:

> *"The finite supply of non-renewable resources allows their owners to earn above-normal profits (economic rents) from exploitation. Rents exist where the proceeds from the sale of resources exceed the cost of exploration and extraction, including a required rate of return to compensate factors of production (labour and capital). In most other sectors of the economy, the existence of economic rents would attract new firms, increasing supply and decreasing prices and reducing the value of the rent. However, economic rents can persist in the resource sector because of the finite supply of non-renewable resources. These rents are referred to as resource rent."*

Yet the accurate identification of resource rents is arguably at the heart of whether – or to what extent – these types of taxes can actually achieve what the Henry Review hoped.

For example, KPMG Econtech (2010b, page 12) noted that: *"The main challenge in implementing a tax on resource rents is that those rents are generally not directly observable."* Similarly, Henry Ergas (2010) noted that *"Pure rents are not of this world"*, and that *"No known tax can completely solve the problem"*.

As Ergas also notes, when you tax rents, you pick up more than just resource rents, and *"a tax on them is a tax on effort, and will cause distortions that increase with the tax rate"*.

In particular, you pick up 'firm-specific' or 'entrepreneurial' rents associated with being good at what you do.

In turn, that means the better you are at mining (or certain types of mining), the greater the additional tax you now have to pay on being good at what you do.

There are a couple of problems with that. As all the literature notes, the key to taxing without hurting efficiency – without killing the golden goose – is not to tax mobile rents.

As the Ergas article also notes, the better way to successfully tax resource rents without also taxing entrepreneurial effort is to auction off mine permits in the first place.[4] This

[4] The Henry Review (2009) covers this at pages 219-20. So too does the 31 May 2010 article by George Fane. Every other instrument apart from auctions will face a trade-off between leaving rents with the miner and discouraging investment and innovation. A key issue with any system of mining taxation is how good or bad a job it does relative to that trade-off. Royalties create a distortion at the margin, but that distortion must be viewed in terms of the tax/effort trade-off. Royalties are essentially a fixed charge per unit, so on all infra-marginal units, the miner retains the full gain from cost cuts or revenue increases.

shares the uncertainty (ex ante) between buyers and sellers, and does not seek to come in later and change the rules about profit sharing.

As the Henry Review (2009, at page 220) notes:

> *"If designed poorly, resource taxes can distort investment and production decisions and thereby erode the return to the community."*

Moreover, **the effects of any design flaws are turbocharged if rates are too high**.

Or, in other words, rent taxes were widely promoted as "perfect" through the 2010 tax debate, but that debate – with some honourable exceptions – rapidly forgot what economists have long known: that we can't readily measure rents.

Although tax law can, by definition, identify profits earned after allowance for a range of deductible expenses (including the cost of capital), that is just a mechanical formula, and the resultant residual is unlikely to be 'resource rent'.

In fact, much of the debate among economists in 2010 on these issues missed the point. Taxing resource rents may be a thing of beauty. But **if we can't perfectly measure them, then we can't perfectly tax them. Indeed, at higher rates we risk doing notable damage to the decisions made by businesses.**

2 The proposed RSPT of 2010

The Henry Review proposed a resource rent tax, and on 2 May 2010 the Government responded with a proposed Resource Super Profits Tax (RSPT).

The essential policy aim of the RSPT was to pull off a double – raising the average tax rate for the minerals sector while lowering marginal tax rates for marginal operators.

That was important because, as KPMG Econtech (2010a, p.59) note, *"While the marginal tax rate determines the distortionary impact of the tax, the average tax rate determines the revenue."*

2.1 Two buckets, one tax

It is hard to separate out the different types of rents which may be included in miners' profits.

If two buckets emerged from a mine – one labelled 'profits earned by the mineral' and the other 'profits earned by the miner' – then it would be possible for a resource rent tax to target only the former and to result in little distortion to decision making by miners.

However, only one bucket of profits exists, and no accounting rules can successfully distinguish the 'profits earned by the mineral' from the 'profits earned by the miner'.

And the RSPT did not try to identify the differential component of resource rent – like all resource rent taxes, it was simply a set of mechanical rules.

And the rules for the proposed RSPT were complex, as George Fane noted:

> *"… anyone who is not confused by the RSPT cannot have understood it. The accounting rules are too hard for economists, the economics is too hard for accountants and it is all too hard for everyone else."*

That the RSPT did not attempt to identify resource rents means that the proposed tax was indeed a 'super profits tax' rather than a 'resource rent tax', as it would also necessarily have captured a portion of mining gains other than the pure resource rent.

Although the RSPT was sold on the basis of recouping a 'fair return' on common ownership of mineral resources, it did not (and could not) isolate the resource component of mining industry 'rents'.

Because you can't observe resource rents, the accounting used to apply a resource rent tax simply uses a proxy based on a mechanical set of rules. The resource rent tax – however specified – merely assumes that all profits above a certain threshold are no longer 'normal profits' and are instead 'super profits'.

Hence the rules underlying the original RSPT proposal, if applied to other sectors, implied that the likes of Australia's banks and breweries must have been doing a lot of mining of minerals in their spare time – and that they'd been better at it than the miners for some decades.

2.2 What rate related risks did that create?

Why is it very important that resource rent taxes can, at best, only tax a proxy for resource rent, and will therefore pick up more than resource rent alone?

Because the theory around resources rent taxes and their theoretical superiority rests on the fact that these are resources which are not mobile. You can tax them within an inch of their life and they will still stay where they are.

Minerals are perhaps the perfect example of that, as Sorensen and Johnson (2009) note.

Yet this is only fully true if:

- it is practical to isolate the mineral part of a mining operation from the rest;
- the mineral in question is in global short supply; and
- the country applying such a tax is not going ahead of rates in other nations.

But what if you cannot separately identify and tax resource rents, as the latter are not directly observable?[5]

In that case, when you tax 'super profits', you are also taxing some things that are mobile.

And therein lies the problem. **As resource rents aren't directly observable, any proxy for them must necessarily be just that, a proxy.**

What all too many have already forgotten is that **resource rent taxes necessarily tax more than just resource rents, and scoop up some mobile rents – in particular entrepreneurial effort, but more generally any rent other than resource rent itself**.

Hence, for example, a reduction in business costs due to improved efficiencies adds to entrepreneurial returns – meaning that miners who are simply better at doing their job will be taxed more under any resource rent tax:

- Arguably pure rents – at best – are only discovered ex post and, even then, if they are taxed retrospectively, that action fouls the nest for future similar attempts to catch them after the event as a result of rational expectations effects.
- Or, in other words, taxing estimated rents after the event will typically tend to deter future investment no matter how carefully crafted the tax is, and how competitive its rate is in global terms.

[5] KPMG Econtech (2010b, page 12) note that: *"The main challenge in implementing a tax on resource rents is that those rents are generally not directly observable."*

Say there is $1,000 of super profits left on the table after the formula adopted for a given resource rent tax has been applied. Moreover, to simplify the analysis further, assume that money on the table has only two components – $600 of resource rents, and $400 of firm-specific rents (the entrepreneurial return earned by businesses for being good at doing what they do).

Had the 40% RSPT gone ahead, it would have taken $400 off the table. The miner can't do anything about the $240 in rent they've lost – those resources are only ever going to be available in Australia rather than elsewhere.

But they can and will do something about $160 they just lost that was otherwise a return to a well run firm. That additional return to entrepreneurial effort is still available in Canada and Brazil and Indonesia.

However, it is no longer available in Australia.

In turn, taxing the latter – these mobile components of the overall rent earned by the firm – is where the RSPT tax would have led to behavioural change.

2.3 Broader efficiency issues

Taxes aim to be efficient, fair and simple.

Efficiency relates to whether taxes distort the choices made by families or businesses.

And, as the Henry Review itself noted, that is what makes resource rent taxes potentially attractive: if they succeed in only taxing "rent" (the return to the mineral itself), then the academic literature suggests that they can have less (or even no) impact on behaviour.

How can they do that? As all the literature notes, the key to taxing without hurting efficiency – without killing the golden goose – is not to tax rents that are mobile.

The essential argument is that resource rent taxes do not affect investment decisions because, even after the tax is applied, the net present value of investment projects remains positive. For example, in an article in *The Australian,* Ross Garnaut (2010) said: "*It [a resource rent tax] is neutral for the simple reason that if 100% of cash flows, positive and negative, discounted at any rate, generates a positive net present value, then (100 minus X)% of cash flows will also generate positive net present value, where X is the percentage rate at which the Brown Tax is applied.*"

This broad take on rent taxes – that they are very efficient taxes – dominated much of the reporting of the 2010 mining tax debate.

However, the efficiency issues raised by resource rent taxes are more complex than widely recognised.

There are two main reasons for that – practical shortfalls, and academic concerns.

On the practical front, and as the rest of this report notes, you can't succeed in separating out resource rent from the entrepreneurial return to the miner, meaning that there are unavoidable efficiency losses arising simply because the tax base is more than just "rent".

Yet the academic literature reveals that questions of efficiency can be more complicated than merely relating to whether the tax base is solely "resource rent". Indeed, academic opinion on the relative efficiency of resource rent taxes is more divided than has been widely recognised.

For example, Ball and Bowers (1984) find that the nature of uncertainty in mining can in fact cause investment in marginal projects to fall rather than rise under an RSPT-style tax, as marginal projects still involve a gamble rather than a guaranteed marginal outcome.

Similarly, in the context of a "pure" resource rent tax (RRT), Smith's 1999 paper (*The Impossibility of a Neutral Resource Rent Tax*) summarised Fraser's (1993) finding that *"with low enough expected profitability and/or high enough levels of uncertainty, the RRT will have a net investment deterring effect at any value of the threshold rate that is low enough for the government ever to obtain any tax revenue"*. Smith's own conclusion is that *"There is, in fact, no neutral set of RRT parameters that the taxing authority could apply"*.

Or, as Parker (2009) puts it, *"… real world resource rent taxes generally do not perfectly risk share between the private partner and the government"*.

There is an additional point worth noting here. Hausman (2010) argues that even the supposedly "pure" version of resource rent taxation – the cash flow rent tax as proposed by Brown – fails the neutrality test, because it ignores the presence of 'real options'.

Hausman notes:

> *"the Resource Super Profits Tax (RSPT) is not neutral and instead distorts economic activity when significant sunk and irreversible investment exist. ... The reason for the failure of the proposed RSPT to be neutral is that it ignores real options. Real options arise from sunk and irreversible investments where an option exists to delay a project to await further information. Real options are valuable, like financial options, and when they are extinguished a cost to the firm occurs. Real options are especially important in industries such as mining where most investment is large, sunk and irreversible."*

The presence of uncertainty gives rise to options. Suppose a mining firm has identified coal reserves which it thinks could be enough for forty years, and the company is considering spending $50 billion to mine the area. To be sure, the company decides to spend five years researching the area to make sure the reserves are in fact sufficient to justify building the mine – at a cost of say $1 billion.

This is a real option[6]. If, in five years' time, the company discovers that the coal reserves are not as substantive as it first thought, then the company may well drop the project in favour of others with better returns.

[6] Real options are essentially the same as financial options except they relate to real (that is, tangible) assets, as opposed to financial assets.

These real options are valuable – as Hausman notes, valuing real options is a literature in itself. To the extent that the real option prevents the company from losing out by investing in a project it would later regret, then the economic value of the real option may be far more than just the $1 billion on R&D costs in the above example.

However, the RSPT did not allow real options as a deductible expense, and the company would essentially be taxed on conducting the research. Hence, instead of spending five years researching (and being taxed on that research), the company decides to 'risk it' and proceed with the coal mine based only on its preliminary research – or, more likely, to 'not risk it'.

So, because the value of real options would effectively have been taxed under the RSPT, firms would have had less incentive to pursue them. The result could be an over (or under) exploitation of mineral reserves relative to what would have occurred had the real option been pursued.

Hausman notes that investment in sunk and irreversible projects is especially sensitive to market uncertainty. *"If the market believes that even a small chance exists that a government in the future may not honour its full commitment, quite large decreases in investment are likely."*

Perhaps most importantly, the 'simple' view of the efficiency of resource rent taxes implicitly assumes that all projects with a positive NPV will get the green light. However, in the real world resources are constrained, and mining companies must allocate their available resources (such as labour and capital) to only the most cost effective projects.

Indeed, the availability of capital has been particularly constrained following the global financial crisis, while the availability of skilled mining workers has been stretched even tighter as the miners of the world struggle to feed the burgeoning industrial commodity demand of emerging economies.

Or, in other words, we live in a world where supply of labour, capital and financing is scarce, and so the standard NPV analysis gives way to cost effectiveness analysis.

Hence companies will naturally choose projects with the highest NPVs. If the tax regime in another country were unchanged at the same time as a resource rent tax in Australia comes into effect, then it is entirely possible that the relative attractiveness of investment in Australia as opposed to other countries will be affected.

It is important to note that the problems associated with the proposed RSPT were closely linked to the rate of the tax.

Development wouldn't head offshore if the RSPT had raised the same dollars as the royalties it would have replaced. Had the RSPT not added to the overall tax take, then its efficiency benefits are likely to have outweighed the impact of its heavy marginal tax rates on entrepreneurial effort. [7]

[7] To be exact, two taxes can raise the same revenue but impose very different amounts of deadweight loss. That said, if the RSPT had merely replaced royalties, then it is likely that it would have been much of a muchness.

However, the RSPT would have more than doubled what would have been the tax take from royalties. That is the equivalent of adding 7.5% to the cost of mining in Australia.

That would have pushed Australian development options up the global cost curve, leaving firms better off pursuing offshore options faster than they would otherwise have done before the RSPT was introduced – all the more so because of the supply side constraints they face in both labour and capital.

That is, the RSPT risked sending mining investment overseas – a risk magnified by its 40% tax rate.

By reducing the return on entrepreneurial effort available in Australia, it would have had an impact on the business case for developing a mine in Australia relative to developing a mine overseas.

This effect was highlighted by Hausman (2010), who noted that:

> *"... firms can decide to pursue projects in other countries with more favorable tax treatment. Since firms have limited human capital resources, companies will pursue projects with higher NPVs after tax, so that the proposed RSPT is not neutral with respect to these decisions. Thus, the proposed super tax will deter new mining projects in Australia."*

Indeed, the Henry Review itself acknowledged the existence of these effects (2009, at page 233):

> *"A high tax rate may discourage firms with firm-specific rent from exploring and producing resources in Australia where access to capital is limited and may cause them to relocate to countries that undercharge for the exploitation of their resources."*

That is, global supply side constraints combined with the 40% rate of the RSPT would have pushed Australian mining projects back in the global cost curve, meaning that firms would have been better off pursuing offshore options faster and earlier than they would have done in the absence of the RSPT.

And they would have kept doing so until Australia's greenfield options returned in relative ranking to where they were prior to the RSPT being applied.

In turn, as mines are long-lived assets, that may have taken decades.

Given the design of any resource rent tax cannot be perfect (because such rents can't be accurately separated out, and any accounting formula will necessarily scoop up mobile rents as well), then the rate of tax becomes a crucial issue.

Higher rates tend to increase the distortions created by resource rent taxes.

Given these imperfections, an alternative approach would be to let the rate adjust to offset these shortcomings. As ABARE has argued, if the discount rate is to be set as low as the bond yield, then ABARE would propose a lower tax rate as an offset:

> *"… the tax rate [on PRRT] is reduced from the current 40 per cent to a level that ensures reasonable returns for both the investor and the government (with the latter representing the return to the community from the extraction of the resource)."*

That is, if the design of the tax, including the discount rate, is to be aimed at the broadest theoretical tax base – ignoring the problems with that approach noted above – then it would be best to trim the tax rate.

3 The new MRRT

The proposed RSPT had several important flaws. Its tax base was problematic, picking up more than pure resource rent, while the RSPT's grandfathering – or effective lack of it – increased sovereign risk and hence reduced long run expected incomes.

But it was the RSPT's proposed tax rate which was central to the policy debate – and ultimately formed the basis for the MRRT compromise emerging from consultation with major Australian miners.

Major changes under the MRRT proposal include:

- Only iron ore and coal projects with annual resource profits above $50 million are subject to the tax.
- The headline tax rate is reduced to 30% (rather than the 40% under the RSPT proposal).
- An extraction allowance of 25% of taxable profits is available, effectively reducing the tax rate further still to 22.5%.
- MRRT losses can be transferred to other iron ore or coal projects or carried forward at the long term government bond rate (LTBR) plus 7%.
- Improved arrangements for existing projects, including choice of book or market value, and accelerated depreciation provisions.
- Unused credits uplifted at LTBR plus 7%
- State royalties creditable but not refundable or transferable.

Those changes address a number of the concerns surrounding the RSPT outlined above. In particular, the changes recognise that entrepreneurial effort was unfairly included in the tax base for the RSPT, that the proposed uplift rate was too low, and that the tax lacked fairness for existing investments.

That said, the MRRT was – necessarily – a compromise crafted amid election-related pressures, and it too has its flaws.

Indeed, the reduction in the headline rate to 30% is a de facto recognition that those flaws exist, and that they are magnified by a higher tax rate.

By reducing the headline rate and including the extraction allowance, the MRRT proposal got the important part right – a lower rate.

Indeed, the very existence of the extraction allowance was a recognition that 'rents' cannot be separately identified, that any 'resource rent tax' necessarily taxes more than 'resource rents', and that the effective rate of tax needed to acknowledge this unintended side-effect – taxing the entrepreneurial effort of miners.

Or, as the Heads of Agreement of the MRRT noted, *"An extraction allowance equal to 25% of the otherwise taxable profit attributable to the extraction process* ***(i.e., this to only tax the resource profit****"*. (emphasis added)

That is because, as Deloitte Access Economics has consistently stressed, the higher the rate, the worse the impact on investment.

In effect, the effects of any design flaws in a resource rent tax are turbocharged if rates are too high.

In particular, the more that a resource rent tax 'accidently' extracts from the 'profits earned by the miner', the more that it encourages development overseas instead of development in Australia.

Any renewed push for a higher tax rate for the MRRT therefore poses similar risks to those raised by the original RSPT proposal, including:

- Capturing part of the reward for miners' efforts and expertise, and
- Pushing Australian mining investment back in the global 'queue'.

In turn, the latter risks deferring part of Australia's mineral production over a period of decades, stepping away from Australia's short term comparative advantage. By delaying mining investment we would consciously choose to do less of one activity where our value added is high, and hence we force capital and employment into areas where value added is much lower.

The mobility of part of the tax base in response to tax changes – no matter how cunningly that tax base is designed – effectively limits the tax rates that should be placed on minerals. As a result, the optimal rate for a resource rent tax is dependent on:

- the national 'willingness to wait',
- the return to waiting if the next few decades see unusually high mineral margins
- the alternative tax regimes on offer in competing jurisdictions and
- the mobility of investment over time across jurisdictions.

Both history and economics point to the high industrial commodity prices and profits of the last handful of years as an aberration against the longer term trend. Mineral prices have in fact fallen in comparison to other prices across the hundred and sixty years for which we have relatively good data.

That said, Australian policymakers have pointed to the next couple of decades as likely to be different to that longer term trend. There are some three billion people sharing in the new phase of industrial revolution. Accordingly, with supply seen as struggling to catch up to demand, the next twenty to thirty years may see the greatest returns to mineral development.

Indeed, if miners believed that future margins would keep rising strongly they would simply leave minerals in the ground, the fact that they are desperately investing in new supply indicates that they see this as the time to extract the best margins on their mineral deposits.

Hence deliberately delaying development in Australian mining may shift future mining output into a period in which relative returns are lower rather than higher.

Accordingly, the matching policy conclusion is equally clear – that **the potential return to Australia and Australians from mineral development is highest now, and that holding out for a higher but later return would risk missing the peak of a large and extended global cycle in relative mineral prices and margins.**

4 The transition and other design issues

The rate of tax is, of course, not the only key issue to be considered in designing resource rent taxes.

As last year's mining tax dispute illustrated, transition issues constitute a further critical element of tax design, one with important implications for the efficiency of resource rent taxes.

At the same time, it is useful to clear up some misconceptions that exist regarding certain features of resource rent taxes, and of the MRRT in particular. Areas where there has been some confusion include:

- the appropriate treatment of financing costs (in particular, whether interest should be allowed as a deduction under the MRRT); and
- the question of whether the MRRT is 'anti-infrastructure'.

These are just a handful of the many issues that arise in this area, but they serve to illustrate the wide effects of getting tax issues wrong – and even the confusion that arises when getting tax issues correct.

4.1 The RSPT's poor transition implications

The original RSPT raised important transition issues. The RSPT aimed to see the Government share risks with the miner – getting more tax from a successful project, but handing back its share of the losses on unsuccessful projects.

Yet, by definition, existing mines are the successful ones. As the RSPT would have simply gathered these existing mines up into the tax base straight away, it would have seen the Government creaming off its share of the successes while avoiding its share of past losses.

Like most taxes with large retrospective impacts, this latter feature of the proposed tax was clearly unfair. It boosted perceptions of 'sovereign risk' in Australia: Governments were not a 'silent partner' risking taxpayer funds in establishing existing mines, but the RSPT implied that they still wanted large returns from them.

That is, RSPT didn't share the downside risk, but wanted its share of upside gains. The RSPT automatically cherry picked the winners of history without picking up the costs of the failures.

Mines that had failed or where mine ownership had changed due to past financial difficulties would have paid a lot less tax, but they are no longer around – or would not have been eligible under the RSPT rules to claim the deductions associated with their past losses.

Moreover, **the proposed transition to the RSPT:**

- Provided deductions for existing capital at book value, rather than the equivalent value of all of their upfront investment costs at the time they were made factored up to present values by the long term Government bond rate.
- Denied existing projects access to the 'full loss offset' provisions applying to new mines by ruling out the transfer or refund of losses for these projects.

That is, some key features of the RSPT which helped to justify its use of the long term Government bond as an appropriate uplift factor were not going to apply to existing mines, which would have resulted in higher taxes applying to these existing projects than on new investments under the RSPT.

> As George Fane – author of one of the pioneering works in this field of taxation – wrote in The Australian on 31 May 2010 (Reputation of the nation on the line), *"Applied to existing successful projects with no compensation for past investment, [the RSPT] would be equivalent (economically, if not legally) to the nationalisation, without compensation, of 40 per cent of the equity in the relevant projects.*
>
> *Unless the government proposes to search out all those who have invested in failed projects and refund them 40c per dollar of losses, plus accumulated interest since 1901, or whenever, then a rent tax applied to existing successful projects, with past investment carried forward at the government bond rate, is equivalent to the nationalisation with less than full compensation of part of the equity in the relevant projects. …*

Relative to existing State royalty arrangements, the RSPT would have (1) shifted more risk onto Government revenues rather than mining companies, and (2) shifted the timing of tax liabilities from the early years of a project's operational life toward the later years.

Both of these changes reflected theoretical advantages of the original RSPT model – reducing the impact of taxes on output and investment choices and taxing companies when ability to pay is greatest.

However, in practice both of these changes would have been unfair to existing projects.

- By definition, those projects which were operational had the RSPT been introduced would have been closer to (or already past) the point of initial taxation than new projects commenced after the rules are changed.
- They were also much more likely to be successful, due to survivor bias. By surviving at least some of the initial costs associated with mining production, these projects have already passed what is generally the toughest test of viability in the mining sector.
- That combination would have tended to increase Government tax receipts from existing projects, both relative to the current royalty regime and relative to new projects developed with the certainty of the new RSPT rules.

- It also relieves the Government of its share of the project risk – providing more certain RSPT revenues than those available from new projects.
- Note that, by disadvantaging existing producers, such an outcome clearly points to the sovereign risks associated with new rules that are not accompanied by appropriate grandfathering provisions.

What's different under the MRRT transition?

The latter itself raises a number of issues, and has been the subject of a number of submissions to the Policy Transition Group (PTG) that the Government set up to examine the MRRT.

Three brief points are worth making:

- **First, absent grandfathering, market valuation is a sensible second best:** Short of allowing existing investments to remain subject to the former taxation regime (the approach adopted for the PRRT), allowing the option of market valuation of existing assets (rather than book values, as per the original RSPT approach) is a well-established principle for easing the transition to new tax arrangements. In particular, this change as between the RSPT and the MRRT reduces the 'asymmetric risk' seen in the original approach to the transition, whereby the Government would have taxed the winners without reimbursing the losers.
- **Second, the lower the rate, the less the concerns that arise:** In addition, the RSPT would have more than doubled the tax take under the current royalties regime – meaning that the shift in the weight of tax regimes for existing mines would have been sharp. However, the matching shift in the MRRT is less – although the royalty take is a hard floor (that is, miners in the MRRT regime will by definition have to pay more tax), the relative shift is smaller. That of itself also takes some heat out of the issues arising on the MRRT transition.
- **Third, consultation counts:** One of the problems with the original RSPT model was the lack of consultation. In contrast, the very existence of the PTG and the process around it allowed those affected by the MRRT to explain their views and air their concerns. Although the latter have not to date been fully addressed, they have been considered and acted upon – thereby taking some heat out of the issues arising on the MRRT transition.

4.2 Deducting interest from resource rent taxes

The non-deductibility of interest for MRRT purposes is an area which has generated much debate in the media.

In particular, some argue that the MRRT is a discriminatory cost on companies requiring debt funding.

For example, AMEC (2011) argues that *"Small and emerging mining companies have vastly different equity and debt raising profiles; balance sheets that are structured differently to larger conglomerates; and limited cash flow".*

However, economic and financial theory does not support those arguments.

The first point is that in an efficient market (with no taxes, perfect competition, and full information), a firm should be indifferent over whether a project is financed by debt or by equity.

This is because the value of a firm, or of an investment project, should not depend on its financing structure – a proposition known as the Modigliani-Miller (M-M) leverage irrelevance theorem (Pagano 2005).

This was recognised by the Policy Transition Group's report to the Government on the MRRT and revised PRRT: the value of the resource extracted by a mining company should be independent of an entity's choices about the way it finances its mining operations (see page 51).

Consider two mining projects with the same expected life, payoffs and risk: one financed solely by debt, the other solely by equity. These two projects should be worth the same. If they weren't, arbitrage profits could be made by selling stakes in the more expensive project and buying stakes in the cheaper project (remembering that both projects have the same expected payoffs).[8] Hence, the situation where the projects are valued differently cannot be welfare maximising as there are unutilised gains from trade.

Now suppose that interest were allowed as a deduction against the MRRT. The above example would be changed since the project financed purely by debt would now have a higher expected payoff. In fact, equity financed projects would never go ahead in this world, because it would always be preferable to finance projects purely by debt.

This situation cannot be optimal because there would be more debt and less equity than would occur if interest were not allowed as a deduction against the MRRT.

The Treasurer Wayne Swan made some comments about the non deductibility of interest in his economic note of 26 June 2011.[9] He pointed out that:

> *"This is standard for resource taxes, and is the same approach used for the Petroleum Resource Rent Tax and royalties.*
>
> *Some people may be confused because they are able to deduct their interest costs from company tax, perhaps forgetting their lenders must pay tax on those same interest receipts. The MRRT achieves the same neutrality in a far more practical manner by treating debt- and equity-financed investments the same.*
>
> *Providing an interest deduction for the MRRT, or royalties, would mean that the returns from mines financed by debt are taxed less heavily than the returns from mines financed by equity. Instead, the MRRT imposes the same charge regardless of how the mine is financed."*

[8] The tax deductibility of interest against company tax means that some preference for debt is likely in reality, but this is partly offset by an increased likelihood of bankruptcy. For more detail see Pagano (2005).

[9] http://www.treasurer.gov.au/DisplayDocs.aspx?doc=economicnotes/2011/023.htm&pageID=012&min=wms&Year=&DocType=4)

Other commentators have made much the same point. For example, Garnaut (2010) noted that under a resource rent tax, *"financial expenses (most importantly, interest on debt) are not allowed as deductions, as they are part of the return on investment."*

Similarly, the Henry Review, in its discussion on rent based taxes noted that *"rent-based taxes seek to tax the economic rent associated with the underlying activity, irrespective of the form of financing. They do not therefore provide a deduction for interest or financing costs incurred at the investor level."*

Or, in other words, the lack of deductibility for interest is an essential design feature for this type of tax – and introducing any such deductibility would introduce problems unnecessarily.

4.3 Infrastructure and the MRRT

Another contentious aspect of the MRRT is its treatment of infrastructure.

For example, some argue the MRRT penalises future investment in infrastructure given that it doesn't allow infrastructure investment to be deducted against the tax.

The answer to this quandary is not as clear cut as the interest deductibility discussed above.

That said, it is well noted in the literature that resource rent taxes should be levied at the mine gate – or, in other words, when the minerals are in their first saleable form.

Extending a resource rent tax beyond the mine gate makes no sense, because by that stage you are picking up value added to the mineral, rather than the value added by the mineral.

That would be reaching into the value added by the infrastructure.

Hence, the cost of using infrastructure is subtracted from revenue before the tax is levied.

The proposed RSPT's treatment of infrastructure had raised a number of concerns. Hausman's paper (2010) examined the RSPT's infrastructure rules in the context of the railroad investments of miners. He noted two concerns.

- The first concern was that, although current period infrastructure costs were deductible, past investments in such infrastructure were not. This could create a perverse incentive for the miner to sell off its railroad to third parties, who would then charge for the use of the railroad (because that way the cost of using the railway would be deductible). Hausman noted this would create a loss of productive efficiencies that arise through the integration of mining operations and infrastructure such as railroads.
- The second concern was that the miner would not be compensated for the risk it undertook in building the railroad. Even if the railroad were deducted under the RSPT, Hausman argued, the regulator would probably use the traditional 'cost of service' approach to estimate the value of the railroad – this would involve estimating the historic costs of operating the railroad). However, that would not reward the miner for the notable risk it took to build the railroad in the first place (that is, the risk that iron ore or coal prices might not hold up in the future).

Hausman's concerns are valid, and they were shared by other respected commentators, notably George Fane.[10]

Although the extent to which the MRRT's incidence falls at the mine gate rather than beyond is still the subject of detailed legislative design, it seems clear the policy intent, as outlined by the Heads of Agreement and the report of the Policy Transition Group, is that the value added by the miner beyond the mine gate by the likes of infrastructure associated with secondary processing and/or transport should not be counted as part of mining revenue.

The Terms of Reference for the PTG picked up on the Heads of Agreement for the MRRT, stating that:

> *"Taxable profit is to be calculated by reference to: The value of the commodity, determined at its first saleable form (at mine gate) less all costs to that point [and] ... Arms length principles on all transactions pre and post first saleable form."*

This latter point – that arm's length principles should apply to all transactions before and after the taxing point – goes to the heart of this infrastructure debate. After all, although the detailed legislative design remains underway, with arm's length pricing for the services provided by downstream assets, including infrastructure assets, it seems clear that infrastructure assets are outside the scope of the MRRT.

Indeed, as the PTG's report (2011) notes:

> *"Profits derived from the beneficiation or any other downstream processing of coal or iron ore are not intended to fall within the scope of the MRRT. This is achieved through specifying a taxing point early in the production chain, and applying arm's length principles in valuing the resource at the taxing point."*

The difficulty here particularly lies in the latter step – correctly valuing iron ore and coal at the mine gate – given that these commodities typically aren't sold at the mine gate in the first place.

Provided that valuing the minerals as they pass through the mine gate is correctly achieved, then it is not correct to argue that the MRRT penalises new investment in infrastructure beyond the mine gate by not allowing it as a deduction to a resource rent tax applying inside the mine gate.

[10] See http://www.theaustralian.com.au/news/opinion/reputation-of-the-nation-on-the-line/story-e6frg6zo-1225873225249

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Appendix A: The MRRT

As noted in Chapter 4, the MRRT was – necessarily – a compromise crafted amid election-related pressures, and it too has its flaws.

The clear policy gain under the MRRT is that it taxes quasi-rents less heavily (its lower tax rate is, in other words, substantially less punitive on mature projects).

Whereas the RSPT was equivalent to the Government acquiring an equity share in the project in return for bearing a share of allowable costs, the MRRT is equivalent to a call option – the Government gets some of the upside, but doesn't share in the downside.

More broadly, the MRRT:

- has a modest base (that is, only iron ore and coal projects with an annual resource profit of more than $50 million). That means that royalties (and the distortions they produce) continue to affect marginal projects that will not pay the MRRT,
- still taxes managerial effort (just rather less than the RSPT would have done), and
- due to the abandonment of loss offset, imposes high effective rates on risky projects.[11]

The latter factor is an additional reason to be wary of the rate at which the MRRT is struck. There is a standard result in the incentives literature that relates the tax rate to the information asymmetry, and shows the pretty broad conditions under which the non-linear social cost result holds, meaning that the marginal deadweight loss rises fairly rapidly with the tax rate.

The result is to shift some risky projects overseas, or deter them altogether.

[11] The MRRT alters the ex ante distribution of returns and reduces expected returns on all projects. The greater the variance in a project's returns and/or its covariance with the market, the more it reduces the expected return. As projects with more non-diversifiable risk require a higher rate of return, it discourages those projects.

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