Submission to the Senate Select Committee on the Scrutiny of New Taxes

Inquiry into a National Mining Tax

Rents – Taxation Nirvana or a Methodological Blunder?

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Introduction

The Australian Government intends to impose a Mineral Resource Rent Tax ("MRRT") on the iron ore and coal industries in the hope of achieving a better return for the community.[1] The assertion that economic rent taxation is an improvement over current arrangements is at this stage a hypothesis that is yet to be proven by empirical data. According to Pietro Guj, Research Professor, Centre for Exploration Targeting, at the University of Western Australia, no minerals rent tax is in place anywhere in the world.[2] There appears to be no empirical evidence that taxation of economic rents in mining do in fact improve returns to communities without adverse effect on industry and employment. The key problem, already identified by the early proponents of natural resource rent taxation, is the difficulty of identifying such rents clearly and separating them from returns to other factors of production. Further, the fixed-supply assumption of rent generation from natural resources does not always hold true and should be treated as a tentative hypothesis subject to testing. Therefore, perhaps policy makers may want to consider the approximate character of economics, that it is often a description of tendency only, and that applicability of theory needs to be tested against real world situations.

This paper focuses initially on the theory of rents as developed by the classical economists of the 18th century who believed that the most efficient form of taxation is the taxation of land rents. This is followed by a discussion of the "marginalist school" of economics which emerged in the 19th century. Led by Carl Menger this school of economic thought developed a new theory of value by combining the ideas of scarcity and utility. In response to the contradictions found in the classical cost and labour theory of value, Menger introduced the notion that prices were essentially driven by the marginal usefulness of the last purchase. Therefore people's preferences were deemed the main driver of value and not the amount of labour expended which was the classical view. It is then argued that land or natural resources derive value in the same way as all other goods leaving no explanation for any special returns called rents; at least in the sense that rents constitute some type of free lunch or magic pudding. It is the usefulness in the eyes of the final consumers that is paramount and that also drives the values of all capital goods that are used to make consumer goods. It will also be discussed that the value of goods is subject to continual change depending on consumer preferences and the availability of complementary goods. Finally it is concluded that the value of our natural resources is driven largely by our favourable political, regulatory and economic environment rather than something inherent in the resources themselves.

Origins of the Rent Concept

The taxation of economic rents was discussed by Adam Smith as a superior method of taxation. Smith distinguishes between "ground-rent" and "building-rent". The latter is the profit derived from capital that is spent on constructing and maintaining buildings and is governed by the interest of money and competition. The return above what is needed to keep the buildings in operation goes to the "ground-rent". Smith thought that the taxation of "ground-rents" would only affect the owner "who acts always as a monopolist and exacts the greatest rent which can be got for the use of this ground"[3]. Ground-rents are surplus rents derived from some special advantage such as proximity to town centres. This portion of rent is enjoyed without any contribution or effort by the owner and hence should be best suited for taxation. Smith does not consider "ordinary rent of land" an ideal target for taxation as this portion of rent is to some extent due to the effort and skills by the owner which would be discouraged by taxation. Smith acknowledges that he had been unaware of any country in Europe that did in fact tax ground-rents as a separate category. He admits that the reason may be the difficulty in determining what part of the rent does in fact constitute such "ground-rent"[4] but asserts that the differentiation should be possible.

David Ricardo, another classical economist, said that "rent is that portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of the soil".[5]

Ricardo, declared that rents arose out of the differences in yield among productive and less productive land. Ricardo observed that the most productive land would be cultivated first and as populations grew, the land of inferior quality would be cultivated. Because the latter would require more labour than the former, the value of the agricultural product generated by the superior quality land would increase, producing economic rents. Ricardo declared: "The exchangeable value of all commodities, whether they be manufactured, or the products of the mines, or the produce of land, is always regulated…by the greater quantity of labour necessarily bestowed on their production by those…under the most unfavourable circumstances."[6] Taking this logic further, Ricardo points out that other resources such as air and water would also attract rents if supply became limited and successive quantities of inferior air and water would be brought into use. Hence limited supply is a necessary condition for the rents to occur. Similarly, in a chapter about rent in mines, Ricardo says that if there were an abundance of mines then they would yield no rent. In regard to the amount of rent, it is defined as the differences in returns between the richest and poorest mines: "the return for capital from the poorest mine paying no rent, would regulate the rent of all the other more productive mines."[7]

A big supporter of Ricardo was the influential British philosopher and political economist John Stuart Mill. Mill reiterated Ricardo's views on land rents and emphasised the monopolistic nature of the superior returns resulting from limited supply:

> "A thing which is limited in quantity, even though its possessors do not act in concert, is still a monopolized article. But even when monopolized, a thing which is the gift of nature, and requires no labour or outlay as the condition of its existence, will, if there be competition among the holders of it, command a price, only if it exists in less quantity than the demand. If the whole land of a country were required for cultivation, all of it might yield a rent."[8]

Political economist Henry George said that land belongs to all people and that economic rent from land should be shared. Tax on land would be less distorting than tax on capital and labour and therefore George advocated that only land be taxed and that no other taxes were necessary. The Henry George foundation says in regard to economic rent that it constitutes "unearned income" and explains that the owner of land in a favourable location receives higher income for which the owner did not have make any effort. The foundation states that while the classical economists such as Smith, Ricardo and George focused on land due to the structure of the economy at the time, the concept could be broadened to include property and rights such as radio spectrums. [9]

The Marginalist Revolution and Neoclassical Economics

Alfred Marshall, founder of the "Cambridge School" and eminent economist of the 19th century, suggests that it is no easy task to distinguish between what is derived from effort and what is purely a "gift of nature" that is not earned and "that there is a continuous gradation from the true rent of those free gifts which have been appropriated by man, through the income derived from permanent improvements of the soil, to those yielded by farm and factory buildings, steam-engines and less durable goods".[10] Marshall says that the producer surplus or rent is derived from the excess return above what the owner of land needs to be paid to apply capital and labour. This excess return depends on the quality of the soil as well as the relative values of inputs and outputs. The problem arises then that the return can vary with different crops and cultivation methods. Hence "the richness or fertility of the land, we have seen, cannot be measured absolutely".[11] Moreover, prices of raw materials, tools, and crops are continually changing which means that the return from land is continually changing. Marshall emphasises that the ability of the person who cultivates the land will make a difference as to how much can be made from the land. Hence, land in the hands of people with varying abilities will yield different rents. Here it may be useful to draw an analogy with the mining industry today. We could for example speculate that the FMG tenements containing the Cloud Break deposit may never have yielded any returns at all under different owners. Presumably, the previous owners sold those tenements because no superior returns were expected from them. In contrast, FMG management applied the relevant technical skills in order to find the proverbial "needle in the haystack" within those tenements. Management skill was able to transform useless desert into something of value.

The difficulty of separating a special unearned surplus or rent also bothered the economist Frank Fetter. Fetter, the first chairman of Princeton University's Department of Economics and Social Institutions and former President of the American Economic Association, delivered a strong rebuttal of the Ricardian rent concept. In the article *The Passing of the Old Rent Concept*, Vetter building on Marshall's work, explains that Ricardian rent has come under attack constantly since it was first conceived - one reason being the difficulty of dealing with rents in a practical way based on real conditions. Fetter: "the distinction between land and the products of labour is a loose one, impossible to make in practice**.** It is said that the distinction is of no importance to the practical business man."[12] He discusses the loose distinction between that which has been improved through labour and which supposedly has not. As an example Fetter cites bricks which contain soil and have been slightly processed whereas land itself has been altered over time by human action through drainage and mixing of soil.

Subsequently Fetter takes issue with the Ricardian assumption that land produces rent because it is always in limited supply. Fetter explains: “Later, however, it is shown that inventions that will turn the soil deeper, discoveries and new means of transportation that will bring into competition great areas of new land, and improvements that make available the resources before unused are constantly changing the limits of the supply of natural resources, in the economic sense of the word "supply."[13] One can of course easily imagine parallels with the reality of mining today. Rock can be turned into something valuable by the application of new exploration technology and new sources of infrastructure funding. For example recently available Chinese expertise, demand, and investment is making previously uneconomic magnetite deposits valuable today.

This assumption of limited supply as a cornerstone of Ricardian rent was criticized even more strongly by Frank Knight at the University of Chicago: ”The definition given for land to make it fit the description of a fixed supply – is indeed drastic in its limitation. Later, this dogma of unconditional fixity of supply was made the basis for the single tax propaganda….it is utterly fallacious. It should be self-evident that when the discovery, appropriation, and development of new natural resources is an open, competitive game, there is unlikely to be any difference between the returns from resources put to this use and those put to any other”.[14]

A man who was able to make a significant improvement on classical economics was Carl Menger who, according to Joseph Schumpeter, was the “vanquisher of the Ricardian theory” and who put economics on “entirely new foundations.” In a eulogy written in 1921 Schumpeter said: ”Menger is nobody’s pupil and what he created stands.”[15] Friedrich August von Hayek, winner of the 1974 Nobel Prize in Economics, thought it was rare indeed to find someone like Menger who revolutionised a science and yet remained relatively unknown. Menger, the founder of the “Austrian School” of economics, showed that goods derived their value from their ability to satisfy human needs and therefore value did not depend on the amount of labour required or any intrinsic worth.

In his most important work *Principles of Economics* Menger constructs a complete theory of price based on choice and actions of consumers. He starts with the basis of all economic activity, the satisfying of human wants through useful things which are called goods. To qualify as a good there has to be a human need, a causal connection to this need, awareness of this connection, and the ability to apply the good to the satisfaction of a need. If goods can be used to satisfy a need directly, such as bread, Menger calls them “goods of the first order”. Goods which are used to produce first-order goods, such as flour to produce bread, would be classified as “goods of the second order” and in turn, goods to produce flour, such as grain mills and labour services, are referred to as third-order goods.[16] As a result control of goods of higher order allow us to transform them into goods of lower order that can satisfy human needs. But for higher-order goods to be useful we also need to control complementary goods. When a complementary good is unavailable the associated good becomes useless and consequently looses its goods character. Menger cites the example of the American Civil War which stopped the supply of cotton to English cotton mills and in turn caused English cotton workers to loose their goods character as the complementary good, cotton, was unavailable. Another example cited is Hungary were labour shortages often caused grain to spoil in the fields. The crops lost their goods character because the complementary good, labour, was unavailable. According to Menger the fact that goods have no value in themselves is often overlooked:

> "The error that goods of higher order possess goods character by themselves, and without regard to the availability of complementary goods, arises most easily in countries where, owing to active commerce and a highly developed economy, almost every product comes into existence under the tacit, and as a rule quite unconscious, supposition of the producer that other person, linked to them by trade, will provide the complementary good at the right time."[17]

Hence in a country such as Australia today many may not be aware that mineral resources could lose their goods character – and consequently their usefulness and ultimately, their value – if complementary goods such as technical skills and infrastructure building capabilities were unavailable.

What becomes clear is that the large and complex array of higher orders goods derive their usefulness from an indirect causal connection to the satisfaction of a human need and once that need disappears so does the goods character of the dependent higher-order goods.

As the transformation of higher-order goods to lower-order good takes time, it is necessary to try to plan in advance the production of higher-order goods, highlighting the problems of determining future requirements and quantities. Menger stresses the uncertainties involved as a key feature influencing decision making in this context. He then introduces the concept of scarcity by saying that in most situations requirements are larger than available quantities. Humans are thus forced into "economizing" behaviour most important of which is having to choose between the more important and less important needs. Goods subject to this action are referred to as *economic* goods. In contrast *non-economic* goods are goods that are plentiful and consequently not subject to the struggle and competition involved for scarce resources. Menger emphasises that a good can lose or gain this economic character based on the relationship between requirements and availability but is not due to anything inherent in them.

Importantly Menger also states that whether or not goods are derived from nature or labour does not affect their economic character. The same goods can have economic character in some regions and non in others and their character can change over time. Clearly, with growth of populations and a concomitant increase in requirements you would expect some non-economic goods to change into economic goods.

Here Menger introduces the notion of quality and says that if needs can be better satisfied by a better quality good compared to a lesser quality good then the former attains economic character and the latter does not. An analogy with iron ore would be that deposits with high impurities such as alkali, phosphorous, and titanium may have no or limited application today but may over time acquire economic character because:

- depletion of current reserves of low impurity ore
- high demand causing pressure on users find solutions to cope with impurities
- new technologies facilitating application of low quality ores

Because the causality starts with the satisfaction of the original need by the first-order good, the economic character of a higher-order good is dependent on the economic character of the relevant lower-order good. Consequently, it is not possible for the economic character of a lower-order

good to depend on the economic character of a higher-order good. Menger says if one were to try to find an explanation of the economic character of goods by continuously investigating the production processes further and further upstream one would never find an answer as to the "last and true cause of the economic character."[18] This is where Menger begins to shake the foundations of the classical cost-of-production theory of price. Unlike the classical economists who had to come up with special explanations for the price determination for different classes of goods, Menger came up with one consistent theory for all goods based on human action.

It is in the core part of the book, the chapter "Theory of Value", that Menger's departure from Ricardo becomes manifest and where the idea of marginal utility takes shape. The key idea is that if economizing people are aware that satisfaction depends on a *portion* of a quantity of a good and that this specific portion impacts well-being, then that constitutes value. So it is the actual marginal units that are relevant for human choice. Economizing people satisfy their needs in order of diminishing importance and hence the concrete unit subject to the least important need would have to be foregone first if a choice would have to be made in a situation of depleting resources. Consequently it is the least important need that determines the value of all units of a good under the control of economizing people. Hence Menger resolved the diamond/water value paradox which the classical economists were not able to deal with. The classical economists saw a contradiction between value-in-use and exchange value because their labour and production theories of price could not explain why diamonds were expensive but had no useful application whereas water was essential but had a low price. Menger reasoned that "concrete" units of water had little value most of the time but on an island with limited supply each unit of water would command a very high price.

Menger distinguishes between utility and value but for him there was no contradiction. If something is capable of satisfying our needs it is useful and hence has utility. But only if satisfaction depends on concrete quantities of a good that we would attribute value to a good. Therefore, we do not attribute value to a unit of air but we are aware of how useful air is to us.

Menger declares that land should not be treated different than any other economic good and because its value was derived in the same way as all other economic goods which was based on the extent they satisfy concrete portions of our needs.

Menger observed that those economists who correctly found that the value of land could not be traced to labour or capital, then wrongly gave land a special treatment. Menger countered:

> "But the methodological blunder involved in this procedure is easily recognized. That a large and important group of phenomena cannot be fitted into the general laws of science dealing with these phenomena is telling evidence of the need for reforming the science. It does not, however, constitute an argument that would justify the most questionable methodological procedure of separating a group of phenomena from all other objects of observation exactly similar in general nature, and elabourating special highest principles for each of the two groups."[19]

Thus according to Menger, a new theory of value is necessary that is true for all economic goods and explains prices for all goods. Hence land like all other things derives its value from its future services

and it is wrong to consider what happened in the past or whether or not labour or capital had been applied.

> "A piece of land may have been wrested from the sea with the greatest expenditure of human labour; or it may the alluvial deposit of some river and thus have been acquired without any labour at all. It may have been originally overgrown with jungle, covered with stones, and reclaimed later with great effort and economic sacrifice; of it may have been free of trees and fertile from the beginning. Such items of past history are of interest in judging its natural fertility, and certainly also for the question of whether the application of economic goods to this piece of land were appropriate and economic. But its history is of no relevance when its general economic relationships, and especially its value, are at issue. For these have to do with the importance goods attain for us solely because they assure us future satisfactions."[20]

> "It must be further protested against the accepted theory of rent, especially in the form it was expressed by Ricardo, that it brought to light merely an isolated factor having to do with the differences in the value of land but not a principle explaining the value of services of land to economizing men, and that the isolated factor was mistakenly advance as a principle."[21]

Menger goes on to explain that fertility may be a reason for differences in value but it is not the only reason and much less a general principle of value determination.

> "It is evident rather that even the most unfavourably situated and least fertile piece of land in a country where land is scarce would yield a rent, a rent that could find no explanation in the Ricardian theory."[22]

Menger showed that land and by implication, mineral resources, derive value from the same drivers as other factors, which is the degree of usefulness to consumers. Value is not derived from anything inherent in resources but is purely based on the constantly changing judgements of economizing people. Menger said goods can gain or loose their economic character over time which can have implications for judging the future supply of natural resources. Minerals may be limited in supply and are fixed in a situation today but new technologies can lead to new discoveries and new supplies of capital can transform stranded - and therefore currently non-economic - deposits into new supply.

Another economist of the Austrian School, Eugen v. Böhm-Bawerk, gives further explanation why Ricardo erred with his rent theory:

> "In the case of all products of labour, and, consequently, in all goods that constitute capital, it needs no explanation that they and their material services have economic value: were it not so they would not be produced. In the case of the services of land, on the other hand, this is not self-evident. And, therefore, the economist must first exert himself to show why and under what circumstances the use of land receives a value and a price. With a correct value theory, a few strokes of a pen will supply this proof; by means of the doctrines of marginal utility and of complementary goods. Wanting the guidance of such a theory, and entangled in the fetters of the labour value theory, economists gave it a shape which was

> unnecessarily circumstantial and clumsy, and was, at the same time, not very satisfactory in principle."[23]

Böhm-Bawerk, an enthusiastic supporter of Menger, developed further the idea of subjective value emphasising the primacy of human wants in determining value. He, like other followers of Menger, stressed the importance of utility over everything and discarded labour and production cost as having any effect on value. On the other hand, Marshall appears to find the middle ground in terms of the main determinants of value, and hence price. While the classical school focused on supply and the Austrian school on demand, Marshall emphasised the dynamic interaction of the two:

> "We might as reasonably dispute whether it is the upper or the under blade of a pair of scissors that cuts a piece of paper, as whether value is governed by utility or cost of production. It is true that when one blade is held still, and the cutting is effected by moving the other, we may say with careless brevity that the cutting is done by the second; but the statement is not strictly accurate, and is to be excused only so long as it claims to be merely a popular and not a strictly scientific account of what happens."[24]

According to Marshall production costs did matter as these would be taken into account by suppliers who would be constantly making output decisions in response to market prices. Hence over the long run costs would have an impact on price. Only in the short-term and for goods with inelastic supply, prices could move away from production costs and would produce rents. So prices would fluctuate around an equilibrium price but in the long-run would approximate production costs. But clearly, if this were the case then what would be the point to be in business? It was this contradiction between theory and how business people actually behaved that bothered Menger. The reason why Menger became interested in developing a new theory of price was that he saw a glaring discrepancy between what he learned from market participants and what was explained in textbooks. As a journalist for the *Wiener Zeitung* Menger wrote market surveys and what he actually observed led him to believe that prices were ultimately a function of value judgements made by individuals and not by broad aggregates such as firms and households as assumed by the classical economists.

Contemporary Views on Rent Taxation

So what do the text books say about economic rent? One such book defines economic rent as payments to a factor of production that exceed the minimum required to keep the factor in its use.[25] Hence taxing rents will cause no behavioural response – and hence no distortions - because factors will be happy to accept the minimum always. Rents are supposedly created by monopolies and cases where profits exceed factors' opportunity cost which is the case when supply is inelastic.

Another textbook refers to "pure profit" which is the profit after imputed charges for risk taking and capital have been deducted. While taxing accounting profits will affect prices and output, economic theory supposedly predicts that taxing pure profits will not affect prices and output because firms are covering their opportunity costs.[26]

The problem is how do we really know what the minimum required is to keep a factor in production? According to Pasour such a determination can be problematic: "It is opportunity cost that influences

individual choice, however, and the value of the sacrificed alternative to the decision maker cannot be determined by an outside observer". Accordingly, there is an obvious problem with economists having to impose their own standards when making judgements about other people's subjective opportunity costs. Furthermore, Pasour states that is impossible to separate so called rent-seeking activity from the normal profit-seeking behaviour of entrepreneurs. Pasour also cites Demsetz – in the context of problems in identifying rent-seeking waste – who labelled the comparison of imperfect situations to unattainable ideals the "nirvana approach".[27] Indeed, the taxing of rents does seem like an attempt to reach a kind of taxation nirvana. Governments can claim they are correct by definition if they only declare that they will tax in way that does not distort. So proposing to tax only an excess that is not necessary for keeping a factor employed is by definition correct. However, it does seem a logical fallacy if a proposition to be proven is assumed in the premise.

Furthermore, if policy makers justify the taxing of rents due to the assumption that distortions can be minimised by targeting goods with low price elasticity of demand and low price elasticity of supply than the public should question policy makers as to their precise knowledge of the relevant supply and demand curves. Do we know the shapes and slopes of these curves and how they will behave in the future?

The eminent John Tilton, Professor Emeritus – Colorado School of Mines, said that the attempt to tax pure rents is misguided if a country wants to maintain a viable mining industry in the long run because it is precisely the hope for pure rents that drives both exploration and the research that creates new technologies. Tilton warns that such short-sighted public policy could cause adverse effects not only on mining output but also government revenue and could take years to become apparent. [28]

The overriding issue is at what stage taxation starts to become a disincentive to entrepreneurship with the consequential impact on future exploration. Exploration success can be compared to an invention. The inventor invests time and capital and comes up with something that generates super profits. Some people would suggest that this kind of "rent" should be taxed. Conversely, governments have been granting patents for centuries in order to provide incentives for efficient research and development. Patents are given to protect innovation because any expropriation of the rewards from such innovation would presumably hinder scientific progress. Similarly, taking away expected rewards for exploration would equally stifle the quest to find new deposits; it would send the signal that society is not willing to pay for innovation and effort.

At the Global Iron Ore and Steel Forecast Conference in Perth 22 March, Sam Walsh, CEO, Rio Tinto Iron Ore, warned the audience that some miners were boasting about large land holdings with "maps covered like the British Empire". While this may have been a gratuitous swipe at companies like FMG who use large tenement holdings as a marketing tool, the comment does illustrate clearly that mining tenements have no value at all unless there is something of geological significance contained in them. In most cases this knowledge can only be attained after risking millions in exploration expenditure. Hence taxation of mining rents does not constitute taxation of "unearned income" from "gifts of nature" but a taxation of effort and skill.

The notion of economic rent is an awkward relic of Ricardian times, a device that appeared necessary before the marginal revolution. It is much more insightful to look at the notion of superior returns in terms of competitive advantage. Firms are supposed strive for uniqueness in

their operations to gain advantage over competitors. Harvard's Michael Porter identified cost leadership, differentiation, and focus as potential strategies for achieving an edge. [29] The whole point is for companies to enter desirable industries and through innovation achieve a degree of monopoly power. And what are patents but temporary monopolies granted by governments. Warren Buffett said in a letter to his shareholders that one of his goals was to "widening the "moats" around our operating businesses that give them durable competitive advantage."[30] One such moat could be the invention of superior technologies but it could also be entering businesses with high barriers to entry. You should not punish firms for making these kinds of decisions.

I have discussed the problems associated with the determination of rents and the difficulty associated with separating out that component of profit that is deemed "unnecessary" and can thus be taken away. The implementation of the MRRT faces exactly this difficulty and the uncertainty in regard to future government revenues. The Policy Transition Group ("PTG") has in fact highlighted such issues recommending a "safe harbour methodology" and has warned:"Applying the accepted pricing methodologies will involve compliance costs and the potential for uncertainty and disputes." The whole reason for needing a safe harbour methodology is because of the obscure nature of this kind of tax. Recommendation 17 suggests the development "of efficient approaches to allocating costs at the taxing point where existing accounting and administration systems are not aligned to that point." The PTG admits that legislation in this area would "be problematic due to lack of clarity" in regard to currently defined meaning of the taxing point.[31]

There are huge practical issues related to the taxing point particularly in regard to the curious definition of "the earlier of the point of sale and a defined point at which the value of the resources is determined." In the absence of a meaningfully large market for mine gate sales there is just very little date available or precedence that can be used to calculate a mine gate value. The proposed solution, that the ATO provide examples illustrating a taxing point that can apply to a range of mining applications, illustrates the problem: there are numerous ways to come up with a calculation for taxable income and hence there is great potential for gaming the system.

The real practical problem is how to define what this so-called surplus is which you could theoretically tax at a rate of 100 per cent without any consequences. What part of a miner's return is purely to a gift of nature and completely divorced from effort? If you include an entrepreneur's foresight in deciding which tenements to buy, the management skill involved in hiring the right technical talent to direct exploration at the right targets within a tenement portfolio, then it becomes challenging indeed to argue if there is any portion of total return that is attributed to this nebulous concept that some have called "unearned income".

The Importance of the Political and Economic Context in Determining the Value of Mineral Resources

Instead of treating mining rents as unearned "cream" that can simply be skimmed off, it is more useful to consider the environment – the cow pasture so to speak - that made that "cream" economic and how it came about. In the 1950s and early 1960s there was a perception in Australia that the country did not have enough natural resources and that is why export restrictions were put in place. It required the special efforts of visionaries such as Lang Hancock to not only lobby for

these restrictions to be lifted but also to forge the initial relationships with Japan that created the demand which in turn provided the stimulus for further exploration. The long-term sales contracts, construction financing, and equity investment from Japan during the 1960s created the fertile ground on which our iron ore industry could grow. In the 1970s and 1980s Chinese sales contracts and investment provided further necessary support. Capital from the United States and the United Kingdom was also a key factor for our success. It was the stability of government and fiscal regime combined with geographical factors that attracted the vital support in terms of market and capital. Clarity and transparency of systems that allowed money to be raised and for licenses to be granted were important as well. The rise of the JORC code[32] in the 1970s as a standard of resource definition was absolutely critical for establishing a common understanding of confidence levels in resources and reserves. Australia played a pioneering role in the development of JORC and provided a necessary foundation for attracting global capital to the Australian resources sector.

It is useful to recall the earlier comments by Carl Menger[33] that goods' economic character depend on the availability of complementary goods and that in developed economies goods can only retain their economic character as part of a finely-tuned system that also includes supporting industries, and I would add, transparent government policy, including stable fiscal and approval/permitting regimes.

Now looking to the future, the existence of sophisticated supplier industries will play an even more important role in determining both the value of Australian resources and the benefits of mining to the Australian community. Western Australia has already achieved the status of the world's mining capital from a technical standpoint according to Professor Campbell McCuaig, Director, Centre for Exploration Targeting, The University of Western Australia. More than 300 companies are supporting the mining industry in a plethora of sophisticated technical disciplines, ranging from geophysics to computer-aided mine planning. Michael Porter, who has examined over 100 industries globally, has identified "clustering" as an important source of national competitive advantage. Porter discusses the importance of "factor-creating mechanisms" such as education, training, and research that build higher-order and thus sustainable competitive advantage.[34] Sophisticated and demanding buyers, such as the mining companies, force the formation of mutually reinforcing industry clusters of technically advanced supplier industries.[35] These kinds of clusters attract more sophisticated firms and skilled engineers that can play an important role in discoveries of minerals in the future that are invisible with current technologies today. Western Australia has also attracted companies active in exploration in other countries. Consequently, if the current mining boom in Australia ends one day or if more economic deposits are found elsewhere, Australian shareholders of such companies will continue to reap dividends.

Western Australia's sophisticated industry cluster, combined with a stable fiscal and regulatory framework, has become the largest iron ore exporter in the world. The wide swings in policy over the last 12 months could cause irreversible long-term damage to a system that has taken decades to build.

Australia is a sophisticated resource economy, with high levels of knowledge amongst government and the population. Hence it is not surprising that we now turn our attention to adjusting the superior economic entity that has been created. But rather like tuning a fine sports car, adjustments need to be done very carefully or performance will be worse.

General Issues Concerning the Implementation of a New Mining Tax

The government did not offer a consistent rationale for a new mining tax but instead contaminated one issue with a number of conflicting policy goals. For example, superannuation reform was tied to the new tax which enabled the Government to label any opponents to the tax as opponents to superannuation reform. The contradictory nature of the reforms becomes apparent if one considers that the proposed increase in compulsory contributions could be in conflict with existing strict contribution limits.

One frequently cited rationale for new mining taxation is that Australia must save more from the current boom. Clearly, when demand is in excess of an economy's productive capacity, government should try to aim for a contractionary policy, and during a slow-down an expansionary policy maybe appropriate. We are fortunate to have a system of automatic stabilizers. As incomes rise, so do tax revenues, and when incomes fall, so do tax revenues. Both corporate income tax and WA iron ore royalties are percentages of net income and revenue respectively, and hence move in sympathy with the economic cycle. If there was a genuine intention to "save" from the current boom there should have been a discussion about investing the windfall in tax receipts from the current boom.

To date no empirical data or analysis has been provided that shows any justification for the tax rates of either the RSPT[36] or the MRRT. It seems, the fact that the PRRT's[37] rate is 40% may have been used as precedence but is this a good enough reason for coming up with rate for a new tax that is very different from the PRRT? Is there sufficient evidence showing beyond any doubt that the PRRT has been in fact been a success? According to the Australian Petroleum Production & Exploration Association, Australia's import dependency on petroleum products has been rising and our trade deficit is expected to reach $30 billion annually by 2015.[38] Whatever the detailed merits of the PRRT, the fact is that exploration has not kept up with demand and there is an apparent need to create new incentives to achieve the necessary discoveries.

During the initial period of the RSPT announcement in May 2010, there were many statements critical of foreign companies. It was said that we needed to increase taxation because mining companies were foreign-owned and that "dollars were walking out the door." Finally an arrangement was reached with three multinationals in the form of the MRRT, a new tax that would affect Australian companies. While there is nothing wrong with foreign investment and foreign companies operating in Australia, it would be a legitimate question to ask whether or not it is appropriate for global companies to drive taxation policy that can affect Australian companies. It is also worth considering that the three companies concerned have a conflict of interest in the determination of taxation policy because those companies are active in many mining sectors besides iron ore and coal and in regions outside of Australia. Therefore, these companies will be less affected by this tax than companies only involved in iron ore and coal and only having operations in Australia.

A major problem associated with the proposed implementation of a new taxation regime has been the dearth of accurate information given to the public. Government communications frequently lump together flat and ad valorem royalties, implying both are not affected by rising commodity prices, thus constituting one justification for a new system of taxation. The most significant royalties, such as iron ore royalties in Western Australia, are a percentage of revenue and are thus

directly impacted by rising prices. Consequently, the Australian community is already benefiting from rising commodity prices.

Conclusion

It is clear that economists have argued for a long time and disagreed on what are the most important drivers of phenomena of value and price in an economy. While most agree that both supply and demand are important, it appears that markets and customer needs are the origin and initial stimulus for economic activity and hence constitute a primary force. Furthermore, a country's specific political and economic environment is likely to be as important in determining value of minerals resources. So to summarize, we may add a third blade to Marshall's famous scissors; in addition to demand and supply, a region's policy framework should rank as important in determining value of resources.

The required capital cost and length of time needed to implement projects are of such magnitude that small changes in government policy can have significant long-term consequences. As projects in sectors such as iron ore take 5-10 years or longer to implement, any negative impact on exploration may only be felt in decades. The recent instability in fiscal policy has the potential to affect exploration risk taking and hence reducing the value of tenements that may contain economic resources. This may in turn affect the value of a latent resource base that may never be found.

What has become clear from the review of historical and contemporary views on rents is that even if they do exist, measuring pure rent is in practice extremely difficult. Moreover, the economic rents that are usually associated with deposits are really not rents at all because if you were to tax them you would remove incentives to explore and to develop new technologies to exploit hitherto uneconomic resources.

It appears that the government is attempting to use the MRRT to gain additional revenue while assuming that there will be no affect on future exploration and mining activity. While many disagree on the shapes and applicability of Laffer curves, it is reasonable to expect that if taxation is raised high enough there will come a point where incentives are affected and tax revenue will fall. Therefore, it seems possible that the government attempts to maximise short term profits at the expense of future benefit for the nation. But as the late Franco Modigliani once told me, "profit maximisation is a meaningless goal because you can make expected profit anything you want but you increase risk."

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