

INCOME FACTOR SHARES FROM MINING IN REMOTE AUSTRALIA: AN ANALYSIS OF THE RANGER URANIUM MINE AND THE TANAMI GOLD MINE IN THE NORTHERN TERRITORY

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ABSTRACT: While considerable popular and scholarly attention has focused on the impact of the mining boom on the Australian economy, little has been done to assess how the returns from mining are shared between the different factors of production. Using remote case studies from the Northern Territory, this paper finds that labour shares in these instances are higher than their national counterparts, whereas capital shares vary in proportion to labour shares. Land factor share outcomes are mixed, with large returns to a gold mine compared both to its parent company and to a uranium mine. However, it is argued that further case study analysis is necessary to assess the representativeness of the results obtained in this paper.

KEY WORDS: Mining; factor shares; revenue; expenditure; remote Australia.

ACKNOWLEDGEMENTS: The work reported in this paper is supported by funding from the CRC for Remote Economic Participation (CRC REP) through Ninti One Limited and the University of New England; the views expressed herein do not necessarily represent the views of the CRC REP or Ninti One Limited or its participants. The authors are grateful to several colleagues for their helpful comments on earlier drafts of this paper.

1. INTRODUCTION

In his *Wealth of Nations*, Smith (1904 [1776], I.6.17) observed that “Wages, profit, and rent, are the three original sources of all revenue”. In a similar vein, this paper considers the disbursement of mining revenue to the factors of production, “either as the wages of [‘inhabitant’s’] labour, profits of their stock, or the rent of their land’ (Smith, 1904 [1776], I.6.17). This ‘factor share’ or ‘factor proportion’ approach is used to investigate the following question: What is the disbursement of mining revenue to the factors of production?

Atkinson (2009, p.3) has underlined the importance of calculating factor shares in order to shed light on at least three important questions in contemporary political economy:

[T]o make a link between incomes at the macroeconomic level (national accounts) and incomes at the level of the household; to help understand inequality in the personal distribution of income; and to address the concern of social justice with the fairness of different sources of income.

Factor share analysis is thus important from the perspective of current Australian public policy regarding remote Australia. This paper seeks to provide an initial exploratory attempt at yielding preliminary insights into the returns to owners of various factors of production in remote mining locations in the Northern Territory (NT). This is achieved on the basis of two finite case studies: the Tanami gold mine and the Ranger uranium mine. This mode of analysis not only allows for a comparison of these factor shares with those of industry averages, but also between the case study locations. In so doing the analysis conducted in this paper raises a number of salient questions.

From the outset, one question that this paper does not address is how factor share disbursement from mining affects the well-being of remote communities. This question is complex, difficult to answer and has been addressed in part by others but not specifically in remote locations (see, for instance, Everingham, 2007; Altman and Martin, 2009; Stanley, 2010; Ivanova and Rolfe 2011; Owen and Kemp, 2012; Sawyer and Gomez, 2012)

The paper is divided into five main parts. Following this introductory section, section two considers factors of production involved in mining and

seeks to define the returns to those factors. Section three provides a synoptic outline of the Tanami gold mine (of the Newmont Mining Corporation) and the Ranger uranium mine (of Energy Resources Australia (ERA)) case studies. Section four discusses the approach used in calculating factor shares for these two cases. The fifth section presents the results of these calculations. The paper ends with some brief concluding remarks in section six.

2. FACTORS OF PRODUCTION IN MINING

The range of factors of production varies in the literature from land, labour and capital (Gans *et al.*, 2009) to include technology (Samuelson, 1958), organisation (Marshall, 1920), entrepreneurship (Sullivan *et al.*, 2003) and management (Miskelly, 2004). Miskelly (2004) refers to five 'm' factors of production for mining: mineralisation (land), manpower (labour), materials (capital), management (entrepreneurship) and money. Money is used here as a proxy for capital, i.e., the funds which are used to purchase capital. A production function usually contains only physical inputs to the production process and returns to money are part of the distribution to capital. Column 2 of Table 1 provides definitions for the three fundamental factors of production in mining:

Table 1. Mining's Factor Definitions and Returns/Prices.

Factor	Definition	Owner	Return/price	Further disbursement/type
Land	Surface area of earth	Business	Rent, theoretical concept	Captured in profit and paid as: <ul style="list-style-type: none"> • interest on debt • share dividends or • retained earnings
		External parties e.g. government	Rent	Lease payment, rates, land taxes
	Mineral resources Land, water, and minerals below	Crown; State ATSI ^a	Resource rent Compensation for use of land, water and minerals	Royalties, licence fees (exploration, mining) Royalties and other payments (e.g. financial support)
Labour	Human work	Individuals	Wage and salary	Other employee benefits: superannuation, shares
Capital	Equipment and structures	Business	Rent, theoretical concept	Captured in profit and accounted as: <ul style="list-style-type: none"> • interest on debt • share dividends or • retained earnings
		External parties e.g. private sector	Rent	Lease payment

Notes: **a.** ATSI = Aboriginal and Torres Strait Islander. Source: the Authors.

Land is the geographical space of the earth's surface which is used to produce goods and services. In the case of mining - and in Marshall's (1920) definition - this constitutes the earth's surface and all that it contains (i.e. water, air and ore). This physical definition accounts for the passive and active use of the land surface area and also the active use or extraction of the minerals below the surface. The legal definitions of minerals, their extraction

and connection with the land are different under Australian law compared to this physical definition. By contrast, labour is the effort undertaken by people to produce goods and services. Finally, capital represents the equipment and structures, such as buildings and machines, used to produce goods and services (Gans *et al.*, 2009).

Return to Factors of Production

Ricardo (1911 [1817], p. 1) eloquently articulated the concept of factor shares in the 1800's:

The produce of the earth – all that is derived from its surface by the united application of labour, machinery and capital, is divided among three classes of the community, namely, the proprietor of the land, the owner of the stock or capital necessary for its cultivation, and the labourers by whose industry it is cultivated.

Column 4 of Table 1 provides an outline of the price of - or return to - the factor employed, with column 3 identifying the owner, and column 5 specifying any further disbursement or type. Land can be rented from its owner and a resource rent is paid as a royalty to the owners of the mineral resources (in the Australian milieu the relevant state or territory government). Royalties paid to traditional owners include compensation for the use of traditional lands and the resources which lie below it. Labour's return is the salary or wage paid to employees and can include other employee benefits, such as superannuation, annual leave, medical insurance and the like.

Capital's return is more complex. For instance, a machine can be leased by a business or it can be owned by the business. Where it is leased, the lease value represents its price. When equipment is owned by the firm in question, then its return forms part of the return to the owners of the business. In this latter case, and in common with land, capital's return can take three forms: interest paid on debt, dividends paid to shareholders and retained earnings.

Factor Shares' Calculation

Economists have a long history of calculating factor shares. Indeed, Ricardo (1911 [1817], p. 1) aligned the study of factor shares with the determination of 'the laws which regulate this distribution' as 'the principal problem in Political Economy'.

Many authors have focussed on 'labour's share of income', including Kaldor (1956), Solow (1958), Kuznets (1959), Prescott (1986), Poterba (1998), and Gomme and Rupert (2004). Most, if not all, factor share calculations in the economics literature are derived from national accounts (Gollin, 2002). The less well-trodden path is to use company accounts. Employing aggregate national accounts obviates concerns over releasing individual 'commercial in confidence' information to competitors and has the merits of a broad overview. However, specific company accounts have the advantage of local nuance and peculiarity, a crucial characteristic of remote Australia (See Blackwell (2012a) for a discussion of *sui generis* from unincorporated remote Australia).

The empirics from national accounts across industries and countries suggest that mining and agricultural industries typically have lower labour shares than those of manufacturing and service industries. For example, in the United States, employee compensation shares of value added to mining and agriculture were between 0.361 and 0.212 respectively, whereas shares in manufacturing and services were found to be 0.732 and 0.751 respectively (Gollin, 2002, p. 464).

However, on face value these calculations may be flawed since they neglect taking account of labour income to the self-employed and earnings of entrepreneurs (as tested by Gollin (2002) and suggested by Budd (1966)). This oversight was provided as one explanation for changing labour shares in time and space (Gollin, 2002). Accordingly, in this paper, adjustments for Gollin's (2002) findings are included in the calculation of factor shares. Because Gollin's work is a seminal piece in our line of inquiry, his work is referred to a number of times for guidance throughout the paper. The final distinction is that the calculations in the current paper use company reports for specific case study sites in order to compare shares for remote and non-remote mining operations. Together with calculations of labour shares from national accounts, the calculations from company accounts in this paper do not include labour that is embodied in capital purchased by the firm e.g.

materials and consumables. This approach ensures consistency in any comparison between company and national labour shares.

3. CASE STUDIES

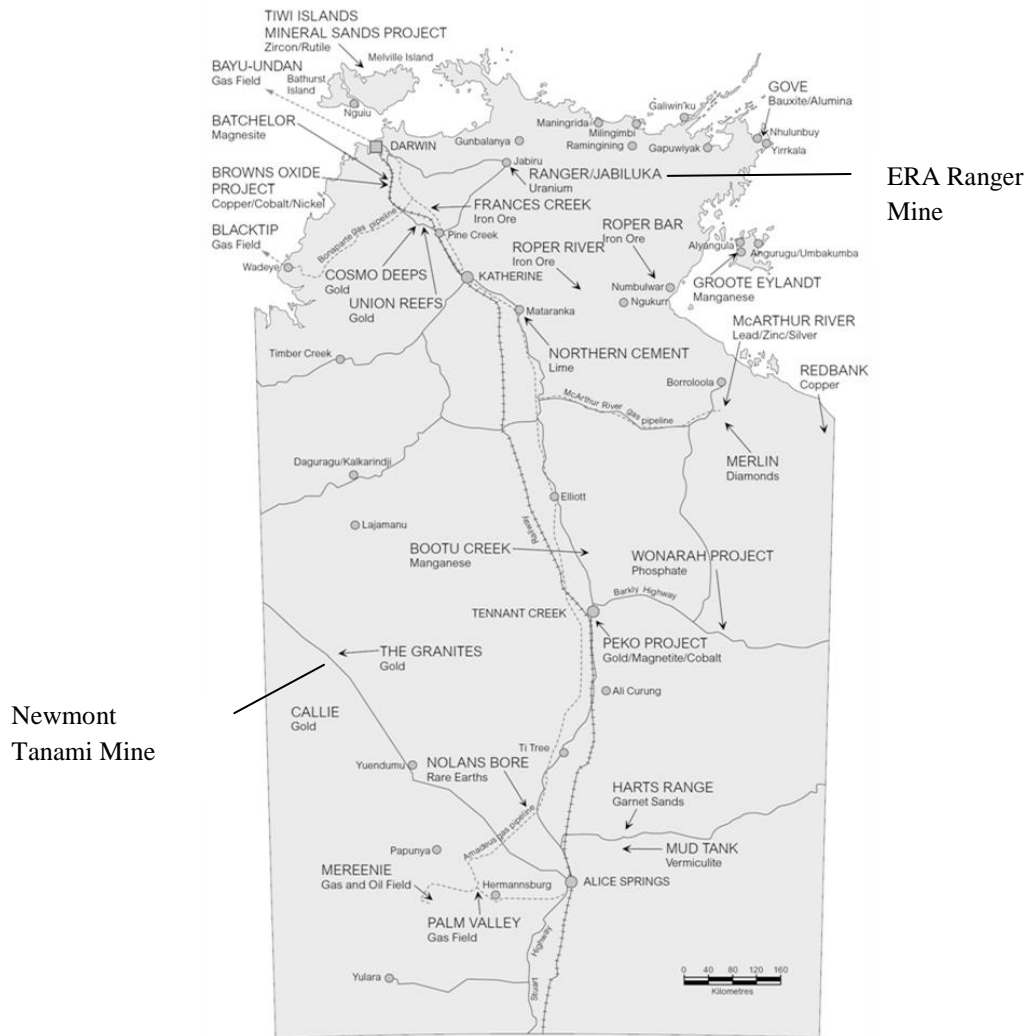
The case studies are located in the Northern Territory which is different to the other states of Australia for a number of reasons, a few of which are mentioned here. First institutionally, although the Territory has extended powers of self-government, the Commonwealth is able to exert considerable power over the Territory through the Commonwealth legislature. In addition, the Commonwealth retains rights in respect of Aboriginal and Torres Strait Islander (ATSI) land, the mining of uranium, and industrial relations (Guj, 2012). Hence, the royalty arrangements for uranium and minerals are different.

The second difference is in the structure of the Territory's economy. It is small and open, having the lowest of all state and territory gross products at \$16.3 billion (Northern Territory Government, 2012, p. 1), but the state also has a history of being shocked by large infrastructure projects e.g. the 2012 impacts of the large gas project of Inpex. Despite the Territory's small output, in 2010–2011 it had the third highest gross state product and household income per capita at almost \$71 000 and \$56 000 respectively, running closely behind the Australian Capital Territory (\$81 420; \$82 373) and Western Australia (\$80 858; \$59 493) (Northern Territory Government, 2012, p. 2).

Furthermore, the Territory's natural resources, including mineral wealth and natural and cultural heritage, are important to its economy. In 2010–2011, the mining industry contributed about 17 percent or \$2.8 billion to the territory's economy. Mining was the largest contributor of all industries followed by construction, and public administration and safety at approximately 11 percent and nine percent respectively (Northern Territory Government, 2012, p. 3). In February of 2012, the mining industry employed 4 561 full time people or almost four percent of total employment, the ninth largest employer in the territory, with construction being the third largest employer at almost 11 percent (Northern Territory Government, 2012, p. 5). Public administration and safety, and health care and social assistance were

the largest and second largest employers at approximately 15 and 12 percent respectively.

Given this background to the Territory and the role that mining plays, two case studies are used to analyse factor shares in remote locations. The first is the Tanami gold mine in central Australia which is owned by Newmont, a partner with the Cooperative Research Centre for Remote Economic Participation. The second case study is Energy Resources Australia's uranium Ranger mine in the north east of the territory. Both sites are shown in Figure 1.



Newmont
Tanami Mine

ERA Ranger
Mine

Source: Map modified from Department of Treasury and Finance (2012, p. 118).

Figure 1. Location of Newmont’s Tanami Mine and Era’s Ranger Mine, Northern Territory, Australia.

Newmont's Tanami Gold Mine

Newmont owns the Tanami gold mine which includes the mining operations of the Granites treatment plant, located about 550 kilometres along the Tanami highway northwest of Alice Springs, and the Dead Bullock Soak mining operations, about 40 kilometres west of the Granites (Newmont 2012a). The operation received its name from the remote desert in which it is located. Most mining occurs at the Callie underground mine at Dead Bullock Soak. The Tanami operations produced 221 000 ounces of gold in 2011 and on December 31, 2011 had 2.5 million ounces of gold reserves (Newmont 2012a, p. 29). In comparison to its larger but lower grade ore reserves at Kalgoorlie (50% Newmont owned) and Boddington in Western Australia with 3.1 million and 19.5 million ounces respectively (Newmont 2012a, p. 36).

ERA's Ranger Uranium Mine

Energy Resources of Australia Limited (ERA) is 'one of the world's major uranium producers, mining and processing uranium ore at the Ranger mine in the Northern Territory' (ERA, 2012a, p. 4). In 2011, the mine was one of three in the world to have produced - across three decades - in excess of 100 000 tonnes of uranium oxide (ERA, 2012b, p. 3). ERA is almost 70% owned by Rio Tinto with the remainder of shares publicly listed on the Australian Stock Exchange (ERA, 2012c).

Uranium mining in the tropical Northern Territory is susceptible to extreme rainfall which occurred at the Ranger mine in the 2010–2011 wet season. As a result, production was halted for almost six months (Fitzgerald, 2012). However, by the end of the second quarter of 2012, production had returned to 632 tonnes of uranium (ERA, 2012d, p. 1).

In 2012, both mines were undergoing processes to expand their operations. Newmont Tanami planned to build a \$450 million shaft to raise extraction rates and 'support underground expansion at the Callie and Auron ore bodies, reduce cut-off grade, enhance productivity and facilitate possible additional mine expansion' (Newmont, 2012a, p. 29). ERA had approved construction of a \$120 million exploration decline 'to conduct close spaced underground exploration drilling and to explore areas adjacent to the Ranger 3 Deeps resource' (ERA, 2012e).

4. FACTOR SHARE CALCULATION USING COMPANY REPORTS

Using company financial reports (rather than national accounts) to estimate income factor shares is preferred in remote area case studies since it is likely to better capture the specific income shares from mining. However, financial reporting for the case study companies considered in this paper differs in a number of ways.

For the Tanami mine case study, Newmont (2012a) reports each calendar year, but consolidated reports are presented given its overall global mining operations. A second difference is that Newmont reports under United States law. Some subsidiary reporting is done for sales, cost of sales and amortisation for Newmont Asia Pacific and the Tanami mine (Newmont, 2012a), but the reporting style does not separate benefits to employees (Newmont, 2012a). These combined differences make labour share calculations from annual financial reports difficult.

By contrast, reporting by ERA (2012b) has employee benefits separated from other components in their financial statements, which are prepared under Australian law. A second advantage is that ERA reports on the financial performance of the Ranger operation alone, giving a more precise representation of factor shares to the local and regional economies. Despite these advantages, an adjustment was required with ERA's reports. The 2010 calendar year was used instead of 2011 because 2011 was one of the wettest years in the 30 years of the mine's operation and resulted in flood inundation and a suspension of mining (ERA, 2012d). While the 2009 calendar year provides a better financial performance for ERA, it was not necessarily representative of the company's performance in the prior years.

Because employee benefits are not reported separately in the financial reports of Newmont, two approaches have been taken. First, a 'second-best' approach was used. The expense items from the Newmont accounts that represent materials were split into their labour and capital components using a proxy of 36 percent. This percentage was identical to the labour shares calculated from the ERA financial accounts and very similar to the 37 percent reported by Gollin (2002) for the mining sector in the United States using national accounts.

The second approach was to obtain percentage breakdowns directly from Newmont Asia Pacific for the Tanami operation. This was done through personal communication with Kelvyn Eglinton, the Head of Asia Pacific Corporate Social Responsibility, in August and September of 2012. A percentage breakdown was provided for expenses only, not overall revenues. Thus, percentages for royalties and taxes were needed.

Indirect Estimation Method for Royalty Payments to the Northern Territory Government

Royalties in the Northern Territory are levied using an accounting profit-based approach (Guj, 2012). Because of laws pertaining to confidentiality and commercial interest protection (s. 50, *Mineral Royalty Act 1982* (NT)), the NT government is unable to report the royalties paid by individual companies. However, royalty payments can be estimated using an indirect method (Blackwell, 2012b). The NT government reports the total amount of minerals produced and the royalties paid on this mineral production (Guj, 2012). Because Newmont is the only major producer of gold in the NT (from ruminations of ACIL Tasman, 2009), the ratio of total royalties paid to total mineral production in the NT can then be multiplied by gold production in the NT to estimate the equivalent amount of royalties paid by Newmont Tanami. In order to protect the commercial confidence of Newmont, royalties are presented as a percent of disbursement rather than an amount.

Indirect Estimation of Profit, Income Tax, and Central Land Council Royalties from the Tanami Accounts

Because the consolidated reports for Newmont had scant information on the Tanami operation, a percentage breakdown for factors was requested for the Tanami operation and provided by Newmont Asia Pacific (K Eglinton, 2012, Pers. Comm., 24 August and 5 September). This breakdown did not include percentages, stated as a proportion of revenue, for taxes and royalties. As outlined in the fourth section of the paper, royalties were therefore calculated indirectly. Some financial aggregates for the Tanami operation are provided in the Newmont annual reports including net sales. From net sales, profit and taxes, Central Land Council (CLC) royalties could be estimated as a percentage of net sales. CLC royalties are 2.5 percent of revenue, while

corporation tax is 30 percent of profit, and the Northern Territory Royalty is 20 percent of net profit. Net sales were assumed to be revenue and all disbursements were recalculated as a percentage of revenue.

5. RESULTS

Tables 2 and 3 provide the factor shares calculated using financial data from Newmont and ERA annual reports respectively. Expenditure by these companies is grouped into the four main factors of production: land, labour, capital and finance ('money') according to how their description best aligns to the factor of production. Because ERA's only uranium mine is Ranger, its accounts are specific to that mine and nearby operations in Darwin. The factor shares are well reported and can be grouped into the required categories.

In contrast, because Newmont's accounts report no labour component, we have separated these out using the approach described in section 4. However, as can be seen by comparing factor shares for land, capital and 'money' in Table 2 (Newmont) and in Table 3 (ERA), the approach is not satisfactory, with land and 'money' factor shares differing considerably for Newmont. This unsatisfactory result is not because mining and income tax rates are different in America and Australia, but rather because of the reporting approach used and resulting imperfection of attempting to separate the income component.

Tables 2 and 3 present sub-factor shares as a percent of each factor total and of total expenditure for the relevant entity. Key findings are as follows: For Table 2 (a) income tax (seven percent) is a much larger percentage imposed on Newmont than mining tax (one percent); (b) capital has the largest share of revenue at 50 percent with 'cost applicable to sales' having the largest sub-factor share of the total capital share at 42 percent; and (c) stock holders receive 60 percent of the return on funds invested in the business with 81 percent of this paid to controlling interests.

Table 2. Factor Shares, Newmont 2011.

Factor	Sub factor	Share of sub-factor	Share of total factors^a
Land	Mining tax (net of fed benefit) and other	7%	1%
	Income tax (net)	93%	7%
	Total	100%	7%
Labour	Total	100%	36%^b
Capital	Advanced projects R and D	4%	2%
	Reclamation and remediation	1%	1%
	Exploration	4%	2%
	Cost applicable to sales	42%	21%
	Amortisation	21%	11%
	General and administrative, write-down and other	28%	14%
	Total	100%	50%
Money^c	Interest on debt (net of capitalised interest)	40%	3%
	Net income attributable to Newmont stock holders	60%	4%
	-Dividends paid to controlling interests	81%	5%
	-Dividends paid to non-controlling interests	19%	1%
	Total	100%	6%
Grand total			100%

Notes: a. Rounding errors exist. b. Refer to discussion in methods.
Source: Manipulation of data from Newmont (2012a).

Table 3. Factor Shares, Energy Resources Australia 2010.

Factor	Sub factor	Share of sub-factor	Share of total factors^a
Land	Royalties (% of net sales)		
	-to Cth for Aboriginal Orgs (4.25%)	52%	3%
	-to Cth for NT Government (1.25%)	16%	1%
	Income tax	32%	2%
	Total	100%	6%
Labour	Employee benefits and contractor expense	97%	36%
	-Directors (non and exec.) and Chief Managers	2%	1%
	Defined contribution super	3%	1%
	Other employee payments	0%	0%
	Total	100%	37%
	Capital	Materials and consumables	41%
Purchased materials (e.g. U ₃ O ₈)		37%	17%
Inventory changes		-12%	-5%
Commission and shipping		4%	2%
Depreciation and amortisation		23%	10%
Rental expense on leases		1%	1%
Statutory, corporate and other		5%	2%
Total		100%	46%
Money^c	Financing costs (~interest on debt)	25%	3%
	Profits (After Tax)	75%	8%
	-Dividends paid ^b	100%	11%
	Total	100%	11%
	Grand Total		100%

Notes: a. Rounding errors exist. b. A dividend greater than profit was paid.

Source: Manipulation of data from ERA (2012b).

For Table 3, key findings include (a) ERA paid a similar share of return to land (approximately six percent), but a much larger share on royalties (68 percent of land's total) compared to Newmont. In particular, Newmont paid three percent of all revenue to the Commonwealth for Aboriginal organisations; (b) the labour share amounts to 37 percent with the majority paid as wages, salaries and contractor expenses; (c) capital's share was amongst the highest out of all factors with a similar percentage to Newmont (approximately 50%); and (d) a higher return was paid to shareholders as dividends at 11 percent.

In Table 4, the Tanami operation provides a number of interesting results compared to Newmont consolidated and ERA's Ranger mine. First, land's share is a percentage point or two, i.e. up to 25 percent, greater than that of the two comparators. Furthermore, income tax is greater for the Tanami than for ERA. Second, the labour share is considerably smaller than ERA's 37 percent or the assumed Newmont consolidated share at 27 percent. Third, capital takes on a larger proportion (61 percent) with materials and consumables taking the lions share (35 percent of capital share). Finally, profits for the Tanami have a lower share than ERA and Newmont consolidated, but this finding may reflect static conditions.

Table 4. Factor Shares, Newmont Tanami Operation 2011.

Factor	Sub factor	Share of sub-factor	Share of total factors
Land	CLC Royalties	30%	3%
	NT Royalty (considered as a tax)	26%	2%
	Community Relations	5%	0%
	Income tax	39%	3%
	total	100%	8%
Labour	Wages & Salaries	96%	26%
	Super Contribution	4%	1%
	Total	100%	27%
Capital	Materials & Consumables	35%	21%
	Inventory Change	-3%	-2%
	Depreciation & Amortisation	16%	10%
	Rental expense on leases	1%	0%
	Development Capital (Mine Development)	20%	12%
	Sustaining Capital	25%	16%
	Exploration	5%	3%
	Total	100%	61%
Money ^a	Bank Guarantee Fees	2%	0%
	Profit	98%	3%
	Total	100%	3%
Grand total			100%

Source: Manipulation of data from Newmont Tanami (K Eglinton, 2012, Pers. Comm., 24 August and 5 September).

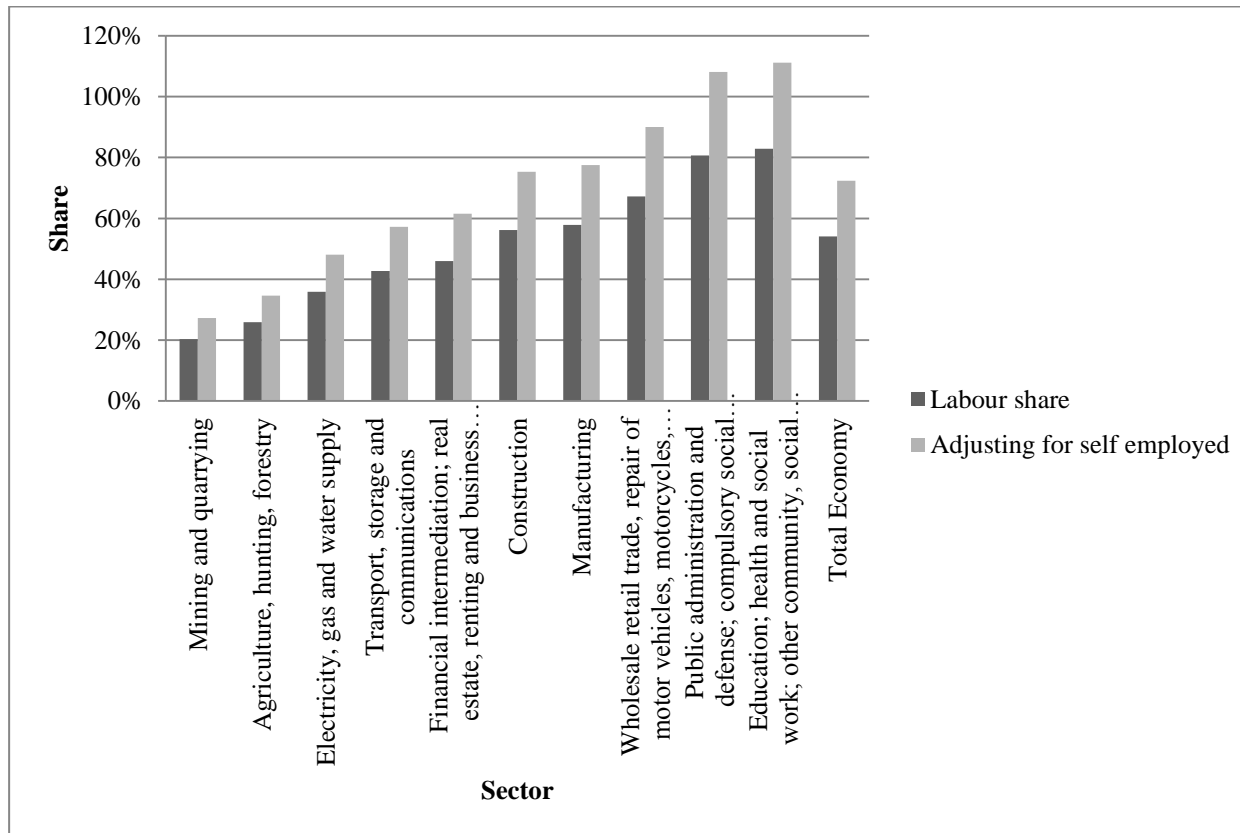
6. ASSESSMENT

What do the results obtained in this exploratory paper mean for factor shares in Australian mining? In addition, how do these results compare with factor shares in other industries? Gollin (2002) has found labour factor shares

in mining in the United States are typically lower than those of manufacturing and services industries. This is similar to the results presented in this paper, where income factor shares in ERA's Ranger mine were found to be 37 percent. In Australia, employee compensation shares were found by Gollin (2002, p. 465) to be around 54 percent in 1986 and expanded to around 70 percent when accounting for the labour shares of the self-employed and entrepreneurs in 1992 (Gollin, 2002, p. 470). However, the complete inclusion of income to the self-employed and entrepreneurs may be problematic, because some deduction should be made for the return to entrepreneurial skill, the organisation and management of factors of production, and compensation for risk bearing.

In contrast to mining, in 1992 American employee compensation shares in agriculture, manufacturing and services were found to be 21, 73 and 75 percent respectively without accounting for the self-employed and entrepreneurs (Gollin, 2002, p. 464). However, it is important to stress that these comparative factor shares were calculated using national accounts rather than company accounts.

For a more recent comparison, factor shares from the Australian national accounts are presented in Figure 2 using the *National Accounts Statistics: Main Aggregates and Detailed Tables, 2010* of the United Nations (2011), the same source used by Gollin (2002). Figure 2 presents both employee compensation shares ('labour shares') and those using Gollin's (2002) adjustment to include the self-employed for all sectors of the economy and in total. The excess adjustment made for high labour share industries is noteworthy such as for public administration and education; factor shares of greater than 100 percent are simply not possible. Caveats thus apply to interpreting the adjusted labour shares which include the self-employed.



Source and notes: The labour shares were calculated using basic prices data from the United Nations (UN, 2011, pp. 29-35) = employee compensation / (employee compensation + operating surplus + consumption of fixed capital). The adjustment used the mean adjustment fraction for Australia of 17/50 from Gollin (2002, p. 470).

Figure 2. Employee Compensation Shares, Australian Industries 2008.

As shown in Figure 2, the employee compensation share for mining and quarrying in Australia was 20 percent and slightly higher when accounting for the self-employed through Gollin's (2002) adjustment (as depicted by the second bar for each sector in Figure 2). It should be noted that mining and quarrying have the lowest labour shares across all industries, well below that for the entire economy. It should also be stressed that construction - an industry often tied to mining - has a higher labour share at 56 percent, closer to the Australian median share. The combined industries of 'mining and quarrying', and 'construction' yield a labour share of 38 percent.

Figure 2 shows that a number of industries have much higher labour shares compared to mining. These include education, health, social work and related services at 83 percent; public administration, defence and compulsory social security at 81 percent; wholesale retail trade, repair of motor vehicles, motorcycles, etc., and hotels and restaurants at 67 percent; and manufacturing at 58 percent.

What does this mean for factor shares in mining in remote locations? Moreover, can inflows and outflows in local remote economies be identified? It would appear that factor shares in mining in remote locations are different to those in non-remote locations, but how these are spread geographically is difficult to determine. In the case studies presented in this paper we have been able to identify the order of magnitude of direct royalties paid to Aboriginal people in the nearby communities, but this information is collected and published in a piecemeal fashion and it is not always transparent. While the popular press accentuates the benefits of mining and the higher incomes it provides for workers (see, for example, Hoshowsky, 2012; Overington, 2012; *West Australian*, 2009), our preliminary work indicates that labour factor shares are lower for mining than other industries, such as manufacturing and the service sector.

The lower labour shares are undoubtedly partly attributable to the capital intensity of mining compared to most other industries. However, other factors may also be present, including a lack of presence and influence of trade unions (see, for instance, Bentolia and Saint-Paul, 2003). In developing countries, wages are typically lower than in developed countries, largely as a consequence of the lower marginal productivity of labour in these nations. However, over the past few decades labour shares have declined in general,

probably as a result of factor price equalisation contingent upon globalisation (see, for example, Lübker, 2007).

The existence of mobile capital (Lee and Jayadev, 2005), greater foreign direct investment (Harrison, 2002), exchange rate flexibility (Harrison, 2002), financial crises (Diwan, 2001; Onaran, 2006), increased international labour mobility (Moses and Letnes, 2004), and a putative shift in productivity gains from labour to capital (Guscina, 2006), have all put downward pressure on labour's share of income. These forces have at least partly replaced the policy emphasis on higher government spending, capital controls, and restrictions on labour mobility, which may have previously raised labour's share of national income (Harrison, 2002).

As we have seen, royalties paid to the Northern Territory Government and to ATSI organisations, while small in percentage terms, as reflected in the low factor shares of land, are substantial in magnitude. These returns provide much needed funding both for the Territory government and for local communities and ATSI people more broadly. In addition, the mining companies involved in the two case studies examined in this paper support the provision of a number of essential services to local communities and have developed a number of partnership agreements which help communities.

The preliminary results obtained in this exploratory paper raise a multitude of further research and policy questions. For instance, will the factor shares calculated for the two case studies be replicated in other remote locations? If so, how are they different and what do they mean for creating enduring community value from mining?

On face value, one limitation of the likely replication of our results is that land tenure in the Northern Territory differs from that in other states through the operation of the *Aboriginal Land Rights Act 1978* (NT). This contrasts with land tenure established under the *Native Titles Act 1993* (Cth) which applies to states like Queensland and Western Australia. The different experience for community versus personal development in these states relative to the Northern Territory has resulted from these distinct land tenure arrangements, as pointed out by Stanley (2010).

In relation to our analysis, the Australian government pays an additional royalty to ATSI people as a result of the 'royalty equivalents' regime of the s.64 *Aboriginal Land Rights Act 1978* (NT). While providing an extra return

to *de facto* land 'owners', this return does not appear in our analysis because the mining companies do not pay the extra royalty. In regards to factor share returns to land, our analysis remains comparable with other states. Factor share calculation is a simple yet powerful tool in the analysis of these pressing public policy questions. The preliminary analysis undertaken in this paper suggests comparatively low aggregate labour shares of income from mining in general, but moderate shares were identified in the remote NT locations that were the focus of the case studies. In comparing the factor shares from ERA's operations with those of the mining sector more generally, labour shares would appear higher than those usually found in the industry. By contrast, the Tanami shares are more similar to the national average. Some possible reasons include recompense for working remotely, increased productivity through FIFO arrangements, and a different factor mix for remote mining. Analysis of other remote and non-remote cases is required to investigate empirically this phenomenon. In essence, this exploratory paper makes a start by attempting to track the flow of money from mining to various factors of production. However, given the complexities of mining in remote Australia, further research is vital.

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