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Original Article

The Economic Impact of the Mining Boom on Indigenous and Non-Indigenous Australians

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Abstract

Many mining operations are on or near Indigenous land, and the strong level of investment during the recent mining boom may have disproportionately affected Indigenous communities. This article examines changes in local Indigenous employment, income and housing costs to identify any localised 'resource curse' for Indigenous communities and the Australian population at large. Census data are used to show the mining boom has improved employment and income outcomes, but increased average housing costs. While the average increase in income has generally offset the increase in costs, housing stress for low-income households has increased as a result of the mining boom.

Key words: mining boom, Indigenous employment, income, housing stress, resource curse

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1. Introduction

The Australian mining boom of the 2000s generated great wealth and a large number of new jobs, including direct employment in mining and in companies supplying to the mining industry (Rayner & Bishop 2013). Indigenous Australians have benefited in terms of employment, with analysis of 2006 and 2011 census data showing substantial increases in Indigenous employment in mining, particularly in Western Australia and, to some extent, Queensland (Gray et al. 2013).

Historically, the mining sector has employed only small numbers of Indigenous workers. In the early 1990s, the number was measured in the hundreds (Taylor 1993); but by 2011, this had increased to more than 7,000. Between 2006 and 2011, the number of Indigenous people employed by the mining industry more than doubled. There was also a marked increase in participation of Indigenous women in mining over this period.

Whether Indigenous people have benefited from the mining boom has been a topic of debate, particularly in view of the evidence that Indigenous people did not experience substantial economic gains from previous mining

booms (e.g. Cousins & Nieuwenhuysen 1984; Taylor & Scambary 2005). Langton (2013) argues there are three reasons why the current mining boom—unlike those of earlier periods—has seen substantial numbers of Indigenous people employed by mining companies. First, the current mining boom is larger in magnitude, driven by economic growth in Asia, and has thus created many new jobs. Second, the current boom has taken place after a sustained period of growth in the Australian economy (hence the labour market has relatively low unemployment rates). Third, mining companies are realising that Indigenous employment is an important part of agreements to mine on Indigenous land because it supports their 'social licence' to operate.

There is broader debate about the extent to which the benefits of the Australian mining boom have been shared among various population groups (Minifie 2012; National Economics 2012). In some regions, the local economy has experienced substantial economic growth, with a substantial influx of labour, often fly-in, fly-out (FIFO) workers, and significant improvements in productivity and wages. Other areas are stagnant, as investment shifts to the mining regions and the higher Australian dollar make exports relatively uncompetitive. This is the regional manifestation of what is commonly referred to as the 'resource curse' (National Economics 2012). In essence, this is an economic imbalance, where capital and labour are not allocated to their optimal uses, with considerable social and political implications (Warr 2006).

Much of the academic literature focuses on national aspects of the resource curse that are driven by structural change associated with higher exchange rates as international enterprises buy resources. However, this article specifically focuses on regional dimensions of the issue within Australia.

The focus on the effect of the growth in mining and associated industries on Indigenous communities is justified because many Indigenous communities are located near operating mines. Langton (2010) describes a resource curse on local Indigenous populations in Western Australia. She argues that anyone who is not in paid employment is disadvantaged in important ways: their income is relatively lower, yet they must pay the same prices for housing, food and services that are inflated as a result of large-scale mining activities. She captures the nature of the concern thus:

> The threat of the curse still lingers. It is likely that costs in the mining provinces will rise and cause problems for residents who are caught in highly localised impacts. In the Pilbara anger is mounting as the distress of the locals becomes more apparent. A caravan park berth now costs a thousand dollars per week. (Langton 2010, p. 50)

This article uses data from the 2006 and 2011 censuses to estimate the impact of the mining boom on a range of economic indicators including employment, personal and household income, housing costs and housing stress, and home ownership. It also considers the extent to which the mining boom has affected income distribution within mining areas and how this compares to non-mining areas. Because the economic effects of mining may differ between remote and non-remote areas, much of the analysis in this article is presented separately for remote and non-remote areas.

2. Identifying Mining and Non-Mining Areas

Several geographic levels can be used to define mining and non-mining areas. In this article, we used the Australian Bureau of Statistics Indigenous Areas (IAREs), 2011 classification. IAREs are medium-sized geographical units (Australian Bureau of Statistics 2011). There are 429 IAREs covering the whole of Australia.[1]

1. The analysis in this article focused on IAREs, some of which can cover sizable areas, especially in remote areas (e.g. South Hedland IARE is about 800 km long and 200–400 km wide). IAREs have been used in this article as the geographic unit of analysis because it allows us to identify economic impacts of mining on Indigenous and non-Indigenous populations living in proximity to mines, particularly mines on Indigenous land. However, housing and

Three approaches to determining whether an area was mining or non-mining were considered. An area could be classified as a mining area if it met one of the following criteria:

- it had at least one operating mine[2]
- it had a mine or mines that exceeded an investment threshold or
- it had substantial employment in mining.

The first approach risks identifying areas with only a low level of mining activity as mining areas and does not take into account the scale of mining activities. In practice, mines are spread widely across Australia (Figure 1); therefore, this approach results in a high proportion of the population being classified as living in a mining area.

The second and third approaches involve taking into account the scale of mining activity in the area. The second approach does this by identifying IAREs in which at least one project had a mining investment of more than $40m in 2012 (Bureau of Resources and Energy Economics 2012).[3] The third approach uses the proportion of the local population employed in the mining industry—in this article, we used a threshold of 5 per cent of the population employed in mining in 2006.[4] Of the 429 IAREs across Australia, 49 were classified as mining areas according to the employment definition, and 37 had mining investments of more than $40 million.

Figure 1 shows which areas are classified as mining areas or non-mining areas for each of the three approaches. It is clear there is a substantial overlap of mining areas for the investment-based and employment-based measures (identified in dark blue)—22 IAREs are classified as mining areas by both the investment and mining employment classifications. Some areas are categorised as mining areas by one definition but not another (identified in the lighter blue shades)—27 IAREs are classified as mining areas using the employment measure but not the investment measure, and 15 IAREs are classified as mining using the investment measure but not the employment measure. The investment measure is more restrictive in that it classifies fewer IAREs as mining areas, but it has the advantage of identifying non-employment impacts of the scale of mining activity.

In this article, IAREs are identified as mining or non-mining areas using the employment measure. This is because employment data are available from the census and all analysis is based on a single source; this has advantages in terms of data consistency, particularly the boundaries of geographic areas. Employment data from the 2006 census allow us to identify mining areas based on the situation around the start of the current mining boom. The advantage of defining mining areas based on earlier census data is that the better outcomes in employment, income and housing in 2011 are not implicitly embedded in the classification. That is, the classification of mining is predetermined and the analysis of 2011 outcomes is independent of the definition of a mining area. The analysis therefore avoids issues arising from the statistical phenomenon known as ‘regression to the mean’.

As a test of the sensitivity of using the employment-based measure of identifying mining areas, an analysis was also conducted using the size of investment in mining measure. Although the results of that analysis are not reported here, the broad conclusions

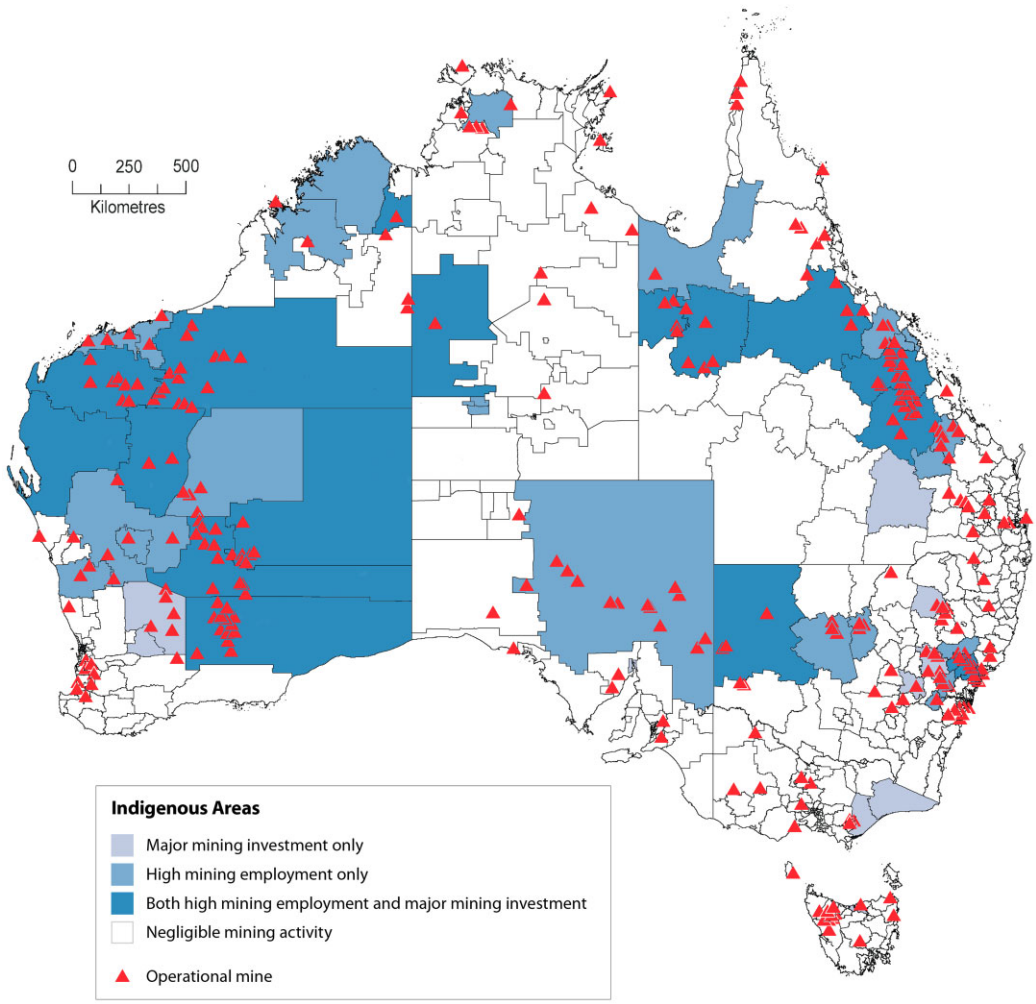
labour markets can vary substantially within such large areas, and there may be variations in the impact of mining within these areas. For example, there is evidence of substantial increases in house costs in some of the major mining towns such as Port Hedland in which average weekly rents increased from around $235 to $335 between 2006 and 2011 (ABS census data). Over the same period, average rents in an Indigenous community near Port Hedland, Tjalka Brooda, increased from around $75 to $100 per week.

2. Information on operating mines is from Geoscience Australia.

3. Data on major mining investment in 2012 are provided by the Bureau of Resources and Energy Economics for specific mining projects (including precise geographic coordinates).

4. This threshold is substantially higher that the national average for the 2006 census, in which 0.7 per cent of the total Australian working-age population was employed in mining.

Figure 1 Mining Areas Identified Using Different Approaches



Notes: This map is based on geographic boundaries for the 2011 IAREs. Operating mines are as at 2012. The employment definition is based on data from the 2006 census and aligned with the 2011 IAREs, using customised population concordances provided by the Australian Bureau of Statistics. The 'major mining investment' definition is for 2012. Major offshore investment in Australian territorial waters was assigned to the closest onshore IARE.

were the same as those drawn using the employment measure, showing that the conclusions are robust.[5]

3. Impact of the Mining Boom

We compared economic outcomes in mining areas with those in non-mining areas to estimate the economic impacts of mining. The

5. Not only were different measures of mining activities used to define mining areas, but different thresholds of mining activities were also used (i.e. if the percentage of the working-age population employed in mining in 2006 was more or less than the 5 per cent threshold used in this article). Rather than report all the sensitivity analyses, the overall positive socioeconomic outcomes associated with mining can be illustrated by the significant positive correlations between average household incomes and the proportion of the working-age population employed in mining in 2006. For example, average 2011 incomes for Indigenous and non-Indigenous households were significantly correlated with mining employment in 2006 at the 1 per cent level (with correlation coefficients of 0.30 and 0.39, respectively).

Table 1 Employment by Whether Mining Area, Remoteness and Indigenous Status, 2011

	Remote		*Non-remote*	
	Mining	*Non-mining*	*Mining*	*Non-mining*
Number of regions	32	87	17	271
Indigenous	%	%	%	%
Mining employment to population ratio	9	1	9	1
Total employment to population ratio	43	39	55	48
Full-time employment to population ratio	24	19	35	28
Non-Indigenous				
Mining employment to population ratio	22	2	13	1
Total employment to population ratio	84	85	76	72
Full-time employment to population ratio	64	66	52	46

Note: The population for this table is working-age people (aged between 15 and 64 years). The Community Development Employment Program (CDEP) is classified as employment, but there is no reason to expect that the proportion of the population in CDEP will differ systematically between mining and non-mining areas. Furthermore, there were virtually no CDEP participants in non-remote areas in 2011.

Source: Customised tables from 2011 census data.

analysis was conducted separately for remote and non-remote areas because of the different nature of the economy in these areas, and because mining tends to constitute a higher proportion of the economic activity in remote regions. Although the focus of this article is on Indigenous Australians, the impact of mining on non-Indigenous Australians is also presented as a point of comparison.

The economic outcomes analysed are employment (total employment rate, full-time employment and employment directly in the mining industry) expressed as a proportion of the working-age population (i.e. aged between 15 and 64 years), personal income and household income.

3.1 Employment

In remote mining areas, 9 per cent of Indigenous employment in 2011 was directly in the mining industry, which is lower than the 22 per cent of non-Indigenous employment in the same areas (Table 1). In non-remote mining areas, 9 per cent of Indigenous employment, and 13 per cent of non-Indigenous employment, was in mining.

In non-mining areas, Indigenous and non-Indigenous employment in the mining industry was only 1–2 per cent, and was likely to be in head offices or small-scale mines, or include FIFO workers who travel to mining areas to work.

While it follows that a higher proportion of employment in mining areas is directly in the mining industry, the overall level of employment and the level of full-time employment are also higher in mining areas. For Indigenous Australians in 2011, the employment to population ratio was higher in mining areas than in non-mining areas. In remote areas, the overall Indigenous employment rate in mining areas was 4 percentage points higher than in non-mining areas (43 per cent compared with 39 per cent), and the rate of full-time employment was 5 percentage points higher. In non-remote areas, there was an even more marked difference, with 55 per cent of Indigenous people in employment (compared with 48 per cent in non-mining areas), and the full-time employment rate in mining areas was 7 percentage points higher.

For the non-Indigenous population, in remote areas there is little difference in the employment rates between mining areas and non-mining areas. However, in non-remote areas, the employment rate is higher in mining than non-mining areas (76 per cent compared with 72 per cent).[6]

6. The following analysis uses this IARE data to assess whether differences between mining and other areas are statistically significant. The whiskers reported in bar

Table 2 Income by Whether Mining Area, Remoteness and Indigenous Status, 2011

	Remote		*Non-remote*	
	Mining	*Non-mining*	*Mining*	*Non-mining*
Indigenous	$	$	$	$
Income—mining	93,461	78,235	104,246	101,149
	(4,938)	(8,782)	(5,011)	(2,864)
Income full time	60,498	38,842	67,535	54,248
	(3,516)	(1,283)	(2,810)	(551)
Income employed	48,967	31,144	53,984	44,726
	(3,477)	(1,122)	(2,104)	(485)
Household income	70,808	58,219	80,637	65,903
	(4,035)	(1,657)	(4,755)	(1,004)
Non-Indigenous	$	$	$	$
Income—mining	113,601	98,406	115,271	101,780
	(2,799)	(5,246)	(1,706)	(903)
Income full time	85,626	64,824	75,325	63,374
	(3,661)	(1,378)	(2,310)	(637)
Income employed	79,946	60,660	63,965	52,902
	(3,680)	(1,362)	(2,091)	(558)
Household income	98,168	84,476	88,524	74,681
	(6,154)	(2,439)	(4,787)	(1,062)

Note: Standard errors are in parenthesis.

Source: Customised tables from 2011 census data.

Between 2006 and 2011, the proportion of both the Indigenous and non-Indigenous working-age populations employed in mining increased in all areas. The Indigenous working-age population employed in mining increased from 1.0 per cent to 1.7 per cent overall, from 1.7 to 3.1 per cent in remote areas, and from 0.7 to 1.3 per cent in non-remote areas. For the non-Indigenous population, employment in mining increased from 0.9 per cent to 1.3 per cent overall, from 7.9 to 11.6 per cent in remote areas and from 0.7 to 1.1 per cent in non-remote areas.

It is noteworthy that remote non-Indigenous residents have a high level of employment (around 85 per cent), regardless of whether they live in a mining or non-mining area. This may reflect non-Indigenous people moving to remote areas for specific jobs and leaving if they lose their job (Biddle & Hunter 2006). In contrast, Indigenous people may be more likely to remain in a region.

charts are the 95 per cent confidence intervals based on the bootstrapped standard errors of estimates of IARE data (MacKinnon 2002). If an estimate lies outside the range of a set of whiskers for another estimate, then the statistics are significantly different from one another.

3.2 Personal Income

Regional increases in demand for labour in mining areas generated by the mining boom could increase local wages, irrespective of whether workers are employed in mining. This section therefore compares the average personal income of people living in mining and non-mining areas.

The census provides a measure of total gross personal income (i.e. income from all sources) only, and so it is not possible to directly measure labour market income. In order to focus as clearly as possible on labour market income (which is hypothesised to be affected by the mining industry), we examined the personal incomes of full-time workers. This is because this group will receive relatively less of their income from government benefits than those who are not employed or are employed part time.

Table 2 shows the average personal incomes of Indigenous and non-Indigenous workers

employed full time in mining and non-mining areas and remote and non-remote areas. Average personal incomes (largely comprised of labour market incomes) are substantially higher in mining areas than non-mining areas for both Indigenous and non-Indigenous employees and in remote and non-remote areas. For example, for full-time employed Indigenous workers, the average annual income in remote mining areas is $60,000 compared with $39,000 in remote non-mining areas. The largest differential between mining and non-mining areas is for Indigenous workers employed full time in remote mining areas.[7]

Table 2 also shows the average personal incomes of Indigenous and non-Indigenous workers employed in the mining sector, in mining and non-mining areas, by geographic remoteness. Because 93 per cent of mining employment is full time, a high proportion of total income will be derived from employment for those who work in mining. Overall, Indigenous people employed in the mining sector in 2011 had an average annual personal income of $98,800 compared with the average annual personal income for all employed Indigenous people of $46,800. Non-Indigenous people employed in the mining sector had an average annual personal income of $114,400 compared with that for all non-Indigenous employed people of $57,200.

Average incomes of those employed in mining are higher in both remote and non-remote mining and non-mining areas than the total full-time employed (either in mining or non-mining sector jobs) in equivalent areas. This reflects the high average wages paid by the mining sector. The fact that average personal incomes of those employed in the mining sector are higher in remote mining areas than in remote non-mining areas for both Indigenous and non-Indigenous workers suggests that the substantially higher demand for labour, driven by a relatively large mining sector in such areas, leads to higher wages.

In non-remote areas, the incomes of mining workers are also higher in mining areas than in non-mining areas, but the difference is smaller than in remote areas (particularly for Indigenous workers).

3.3 Household Income

Household income provides a measure of financial well-being that takes into account the incomes of others with whom people live. When comparing financial living standards of households, it is important to adjust income for differences in household size and composition to reflect differences in costs of living. This is commonly done using equivalence scales. Unfortunately, the grouped nature of census data available at the time of writing this article makes it difficult to determine a precise and credible adjusted income (Hunter et al. 2004); therefore, unadjusted household incomes are reported in this article.

There are substantial differences in average household size and composition between Indigenous and non-Indigenous households, and, for the Indigenous population, between remote and non-remote areas.[8] This means that differences in household income between these groups cannot be interpreted as reflecting differences in living standards. However, because there are only small differences in household size between remote mining and non-mining areas and non-remote mining and non-mining areas, comparisons of household income between mining and non-mining areas can provide estimates of differences in household incomes that are not affected by differences in average household size.

Average household incomes are higher in mining areas than non-mining areas for both Indigenous and non-Indigenous households in both remote and non-remote areas (Table 2). This reflects both the higher wages paid in mining areas and the higher employment rate in mining areas. The differences in income are

7. The average income is for all employed people (including workers employed part time). The broad conclusions derived from Table 2 remain unchanged (albeit the size of the differentials in income is somewhat smaller) when the estimates include workers employed part time.

8. In this article, Indigenous households are defined as households in which at least one usual resident is an Aboriginal or Torres Strait Islander person.

Table 3 Housing Costs by Whether Mining Area, Remoteness and Indigenous Status, 2011

	Remote		*Non-remote*	
	Mining	*Non-mining*	*Mining*	*Non-mining*
Indigenous				
Rent	$6,284	$4,572	$13,626	$12,146
	($542)	($285)	($273)	($226)
Mortgage repayments	$20,574	$15,095	$22,655	$21,593
	($3,078)	($1,363)	($347)	($405)
Home ownership	16.7%	10.5%	42.7%	40.8%
	(2.7%)	(1.5%)	(3.1%)	(0.7%)
Overcrowding	26.2%	38.8%	10.5%	9.2%
	(2.8%)	(2.4%)	(0.9%)	(0.3%)
Non-Indigenous				
Rent	$8,495	$5,955	$12,669	$11,306
	($892)	($513)	($616)	($536)
Mortgage repayments	$21,979	$20,970	$23,707	$21,995
	($2,048)	($1,124)	($886)	($1,261)
Home ownership	37.3%	27.7%	67.5%	70.6%
	(3.8%)	(3.0%)	(2.6%)	(0.5%)
Overcrowding	2.6%	2.6%	2.4%	3.1%
	(0.3%)	(0.3%)	(0.2%)	(0.4%)

Note: Standard errors are in parenthesis.

Source: Customised tables from 2011 census data.

substantial—for example, in remote areas, Indigenous households in mining areas have an average income of $71,000 compared with $58,000 in non-mining areas.

3.4 Housing Costs

It is clear that the mining boom has resulted in substantial increases in Indigenous employment in the mining sector, which has had a positive impact on the employment and average income levels of Indigenous people living in mining areas. However, there are concerns about the impact of the increased economic activity and the influx of workers into the areas on housing costs and housing affordability. These concerns generally relate to people who are not employed in the mining industry, and particularly to those who are unemployed and on fixed-income government benefits.

The effect of the mining boom on the well-being of people in mining areas depends, in part, on the impact on the cost of living. A key component of the cost of living is housing. There are complexities in measuring housing costs, but rental and mortgage payments are a measure for people who do not own their home outright.[9] Rents in mining areas are substantially higher than in non-mining areas, for both Indigenous and non-Indigenous Australians in remote and non-remote areas (Table 3). For remote non-Indigenous households, rents in mining areas are about $2,500 higher per year (or about 43 per cent higher) than in non-mining areas. For remote Indigenous households, average rents are about $1,700 higher (about 37 per cent higher) in mining than non-mining areas. Rents are higher in non-remote areas than in remote areas.

Mortgage repayments also provide a measure of housing costs, and the size of the average mortgage is also related to housing costs. For Indigenous and non-Indigenous households, average mortgage repayments are slightly higher in mining areas than

9. The census does not provide data on costs of home ownership such as payment of rates. For those who own their home outright, housing costs are therefore treated as zero, which of course is not correct. However, these costs tend to be relatively small and an inability to take them into account will not have a material impact on the estimates of housing affordability and stress.

non-mining areas in both remote and non-remote areas (Table 3). For Indigenous households in non-remote areas, the difference in the average mortgage in mining and non-mining areas is relatively small, but in remote areas the difference is substantial—mortgages in mining areas are about one third higher (approximately $5,000 per year higher) than in non-mining areas. This suggests there is a shortage of housing in mining areas.

3.5 Home Ownership

Table 3 also reports home ownership rates (own outright or purchasing) in mining and non-mining areas according to remoteness and Indigenous status. Indigenous home ownership rates are substantially higher in remote mining areas than remote non-mining areas, reflecting the higher employment rates and incomes in mining areas. This is consistent with the estimates presented above that mortgage costs in mining areas are only slightly higher than in non-mining areas. In non-remote areas, Indigenous home ownership rates are slightly higher in mining areas (42.7 per cent) than non-mining areas (40.8 per cent).

Home ownership rates are also higher for non-Indigenous people in remote mining areas than remote non-mining areas. In non-remote areas, non-Indigenous home ownership rates are slightly lower in mining areas than non-mining areas.

3.6 Housing Overcrowding

In response to increasing housing costs relative to income, some households may accommodate more people per dwelling, potentially resulting in overcrowding. Overcrowding occurs when the number of people living in a household is greater than the minimum number of bedrooms required by a housing occupancy standard (taking into consideration the residents' age, sex and their relationship to one another). We used the Canadian National Occupancy Standard (CNOS), an internationally recognised standard, to estimate the extent of overcrowding. Although there is debate about the applicability of this standard in the context of remote Indigenous Australia (Memmott et al. 2012), it provides important benchmarks, and, considering the differences between mining and non-mining areas, the cultural differences that drive the call for Indigenous-specific measures of housing adequacy are relatively minimal.

Although housing costs are higher, on average, in mining areas than in non-mining areas, incomes are also higher. It is possible that the higher housing costs in mining areas reflect higher quality or larger houses being constructed and purchased in mining areas. The census has only limited data on quality of housing, but it does measure the number of bedrooms per resident. Using this measure, the proportion of households that are experiencing overcrowding is relatively small, except for remote, Indigenous households (Table 3).

The census data also reveal that, on average, Indigenous households in remote mining areas are substantially less likely to be overcrowded than Indigenous households in remote non-mining areas (26.2 per cent compared with 38.8 per cent). The census data do not support the hypothesis that there has been overcrowding in houses in mining areas, which has offset increases in average housing costs. It appears that, on average, higher incomes in remote mining areas offset the impacts of higher housing costs in these areas.

3.7 Income Distribution

We have shown that employment, average incomes and housing costs are all higher in mining areas compared with non-mining areas. However, these measures do not tell us about how mining has affected the distribution of income, or about how people on low incomes (generally, those not employed in the mining industry) are affected by the mining boom.

It is possible to consider the income distribution by remoteness and Indigenous status, using data from the 2011 census (detailed distributions of household incomes provided in Hunter et al. 2014). For remote Indigenous

Table 4 Proportion of Households in the Bottom 40 per cent of the Income Distribution in Mining and Non-Mining Areas, by Remoteness and Indigenous Status, 2011

	Remote		*Non-remote*	
	Mining %	*Non-mining* %	*Mining* %	*Non-mining* %
Indigenous	45.3	53.3	42.7	50.6
Non-Indigenous	25.6	41.7	36.8	41.7

Source: Customised tables from 2011 census data.

households, the income distribution is flatter in mining areas than non-mining areas due to slightly fewer very low income households, fewer middle-income households and substantially more higher income households in mining areas. For remote non-Indigenous households, there are also slightly fewer very low income households and substantially fewer middle-income households in mining areas compared with non-mining areas. There is a substantial spike in household income of between $130,000 and $156,000 in mining areas, which is not the case in non-mining areas.

For Indigenous households in non-remote areas, there is little difference in the proportion of very low income households between mining and non-mining areas. There are fewer middle-income and more high-income households in mining areas than non-mining areas.

To summarise the impact of the mining boom on household incomes, we considered the proportion of households in the bottom 40 per cent of the national income distribution. This equates to an income of less than $52,000 per year; households in this category are considered here to be low income.

Table 4 shows the proportion of Indigenous and non-Indigenous households that are classified as low income in mining and non-mining areas. In both remote and non-remote areas, the proportion of households that are classified as low income is less in mining areas than in non-mining areas. For Indigenous households, the proportion of households that are low income is about 8 percentage points lower in mining areas than non-mining areas, in both remote and non-remote areas. For non-Indigenous households, the proportion of low-income households is about 16 percentage points lower in remote mining areas than remote non-mining areas, and about 5 percentage points lower in non-remote mining areas than non-remote non-mining areas.

3.8 Housing Stress

A variety of different approaches to defining housing stress have been used in the literature. A common approach is to classify a household as experiencing housing stress if their housing costs are more than a certain proportion of their household income and they are a low-income household. Higher income households that spend more than the threshold proportion of their income on housing are not defined as experiencing housing stress because this is likely to reflect a choice either to use housing as an investment or to maintain a higher quality of housing than is required to meet their housing needs.

In this article, a household is classified as experiencing housing stress if their housing costs are more than 30 per cent of household income and if the household income is in the lowest 40 per cent of national household incomes—this is known as the '30/40 rule' (see, for example, Yates et al. 2007). We also use the '30 rule', where more than 30 per cent of household income is spent on housing, irrespective of income.

For households in the bottom 40 per cent of the national income distribution, the proportion of households experiencing housing stress depends on the combined effects of the cost of housing, the average income, and the proportion of low-income households in the region.

Table 5 Proportion of Households Experiencing Housing Stress in Mining and Non-Mining Areas, by Remoteness and Indigenous Status, 2011

	Remote		*Non-remote*	
	Mining %	*Non-mining* %	*Mining* %	*Non-mining* %
Housing stress, 30/40 rule, all households				
Indigenous	10.6	10.3	17.1	25.8
Non-Indigenous	5.0	8.4	8.8	13.9
Housing stress, 30 rule, all households				
Indigenous	14.2	12.3	23.2	32.6
Non-Indigenous	11.1	13.2	15.0	23.2
Housing stress, 30 rule, all renters				
Indigenous	12.6	11.3	25.2	37.5
Non-Indigenous	6.5	14.2	19.7	33.8
Housing stress, 30 rule, low income renters				
Indigenous	25.9	20.3	48.4	60.7
Non-Indigenous	37.4	36.9	53.7	68.5

Note: The rules for each panel are applied to the respective populations to estimate the number of households in housing stress (which is then expressed as a per cent of the relevant population). For example, housing stress in the last panel is measured as a per cent of low income renters who spend more than 30 per cent of income on rent.

Source: Customised tables from 2011 census data.

Table 5 shows the levels of housing stress for different types of households. 'All households' includes both renters and people who own or are purchasing their home. 'Renters' are also shown separately because many low-income households will not have the option of buying a house and are therefore confined to the rental market.

In remote areas generally, a slightly higher proportion of Indigenous households in mining areas experience housing stress compared with non-mining areas. However, Indigenous low-income renters experience a higher rate of housing stress in remote mining areas (25.9 per cent) than in non-mining areas (20.3 per cent). Although low-income renters are adversely affected by the mining boom, the mining boom has also reduced the number of renting low-income Indigenous households.

For the non-Indigenous population, housing stress is lower in remote mining areas than remote non-mining areas for all households (30/40 rule and 30 rule) and renters. However, there is a negligible difference between remote mining and non-mining areas for housing stress of low-income renters. This is explained by the lower proportion of low-income non-Indigenous households in remote mining areas (see Table 4).

In non-remote areas, housing stress is substantially lower for Indigenous households in mining areas compared with non-mining areas for all four measures of housing stress (Table 5). This reflects the fact that, in non-remote areas, the mining boom increases household incomes. However, the fact that mining accounts for a smaller proportion of employment in these areas means that the impact of mining on the housing market is much less in non-remote areas compared with remote areas.

4. Discussion and Conclusion

The major expansion of mining in Australia since the turn of the century has seen substantial increases in Indigenous employment in the mining industry, particularly in remote areas. Existing research on the economic impact of mining on Indigenous people living in mining areas has only been undertaken for specific communities as case studies. This article has taken a different approach, using national census data to estimate the impact of mining

on employment, income, house prices, rents, and housing costs (especially for low-income householders).

Indigenous employment is higher in mining areas than non-mining areas in both remote areas (4 percentage points higher) and non-remote areas (7 percentage points higher). Average incomes are also higher in mining areas, and there are fewer low-income Indigenous households in mining areas compared with non-mining areas.

Although housing costs are higher in remote mining areas than in remote non-mining areas, the increases in incomes associated with the recent mining boom means that, on average, housing stress (for those with a household income in the bottom 40 per cent of the national household income distribution) is not higher in mining areas. However, the averages hide an important distributional issue because the proportion of Indigenous households in the bottom 40 per cent of household incomes is 45.3 per cent in remote mining areas, compared with 53.3 per cent in remote non-mining areas. There is a similar picture in non-remote areas. This means that the similar estimates of housing stress in the Indigenous population in mining and non-mining areas are generated from a smaller pool of low-income Indigenous people; thus, the probability of a low-income household in a mining area being in housing stress is higher relative to non-mining areas.

It is important that attention is paid to the increase in inequality in living standards that the mining boom is generating in some remote areas of Australia. Although the average level of Indigenous housing stress is similar in remote mining and non-mining areas, the level of housing stress among low-income renting households is higher in remote mining than in non-mining areas. People on a fixed low income, particularly those who depend on government benefits for their income, are disadvantaged by increased housing and other costs resulting from the mining boom.

In non-remote areas, there is evidence that the higher incomes in mining areas are translating into substantially lower levels of housing stress than in non-mining areas, including for low-income rental households.

4.1 Implications for Housing and Policy

In remote mining areas, private investors may not see the value of building extra housing in response to housing price increases. They may be concerned that the increases in prices may be short-lived, given that mines have finite lives either due to exhaustion of the resource or declines in demand for the minerals being extracted. Because houses are long-term assets that are likely to last longer than the average mining boom, market mechanisms may not lead to the housing stock adjusting to meet short-term housing shortages. However, the housing market in non-remote areas seems to accommodate the increased ability to pay in areas experiencing the mining boom (arising from higher wages and incomes). One explanation for the different effects of mining on housing in remote and non-remote areas is that the housing stock is more likely to adjust in non-remote areas as price signals change due to the greater diversity of the local economy in non-remote areas and the relatively smaller contribution of mining.

How can policy best address the inflationary effects of mining on low-income households that are not benefiting economically from the mining activities occurring in their local area? One option is to increase the housing stock by increasing either private or public investment. Mining companies could be encouraged to minimise the demands on the local housing stock by ensuring that sufficient housing is available for their FIFO workforce[10] and workers who move to the area to work for the company, without driving up prices for existing housing. There is a range of ways for governments to encourage mining companies to

10. The 2013 Federal Inquiry into the impact of FIFO workforce practices cited Western Australian data that showed that 47 per cent of all mining workers were employed on a FIFO basis (House of Representatives Standing Committee on Regional Australia 2013). If extrapolated to the whole of Australia, this would mean that, at the time of the 2011 census, around 95,000 employees were FIFO workers, of whom around 3,300 were Indigenous.

invest in local housing, including through the tax system or by linking approval for mining to the company having a strategy for dealing with impacts on the local housing market.

Additionally, governments could choose to directly provide funding for public and community housing. One possibility is that local government facilitates the release of land suitable for residential development in such communities. Indeed, Fortescue Metals Group argues that it has been forced into heavier reliance on FIFO because of the slow and expensive release of land (Spooner 2012).

Although the mining boom may have social and environmental costs in affected communities, the main economic effect is positive for Indigenous and non-Indigenous communities, as the income improvements are substantial for most households and often greater than the increase in housing costs. The challenge for policy-makers and businesses is to ensure that the social costs are managed equitably and the benefits of the mining boom are shared throughout the local community.

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