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Fly-in, fly-out, drive-in, drive-out: The Australian mining boom and its impacts on the local economy

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Abstract

A traditional question in local economic development is whether it is better to take work to the workers or workers to the work. The widespread use of fly-in, fly-out (FIFO) or drive-in, drive-out (DIDO) to support Australia's mining industry raises a variant to this question: is it possible to promote regional development without a permanent, resident workforce? FIFO and DIDO have become the predominant ways of providing a permanent operational workforce to the mining industry. It explains why cities such as Perth, Brisbane and Mackay have large populations of mining workers while mining operations are located in remote parts of the country. FIFO brings advantages to mining companies and employees but is generally viewed as antithetical to local economic development: it is accused of eroding the viability of the resource towns that emerged with earlier phases of the mining industry and of generating social problems in both the places where FIFO workers reside permanently and around their temporary work locations. The offsetting advantages appear to provide a strong case for the use of non-resident workers but they arise from the particular context in which mining is occurring rather than being an inherent feature of this form of employment. A case study of the proposed Mt. Todd gold mine located in close proximity to the Northern Territory town of Katherine shows how the potential use of FIFO workers encourages local support for mining operations.

Keywords

Australia, commute, fly-in fly-out, local economic development, mining, towns

Introduction

The unusually long period of elevated commodity prices from the early 1990s and on

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into the 2010s, sometimes referred to as the resource super cycle (see *Financial Times*, 2013) has driven much of Australia's recent economic growth (Organisation for Economic Development and Cooperation (OECD), 2012). This resource boom has had major repercussions for regional Australia given that mining takes place in comparatively remote parts of Australia, with the fastest growing mining towns during 2006–2011 being located in north-west Western Australia, central and northern Queensland and central South Australia (Australian Bureau of Statistics, 2013). This has largely involved growth for places long connected to the mining industry but other regions have experienced their first association with mining. The mining boom is just beginning for the Northern Territory with numerous major mine projects, such as Sherwin Iron, Western Desert and Mt. Todd being announced since 2010. The potential positive impacts are significant. One recent study of communities close to mining operations, for example, identified a 4% increase in non-mining employment and a 2% increase in family income in communities close to mining operations (Fleming, 2013: 136). The impacts of mining on regional communities and the environment can be significant as:

> Resource development generates economic and employment benefits to towns and regions; however, the distribution of positive and negative impacts is uneven in scale and dimension as well as in space and time. The same regions also periodically contend with industry contraction. (Franks et al., 2010: 299)

For local economic development, the mining boom is giving rise to a variant of the traditional question of whether work should be taken to the workers, or workers should be encouraged to move to where the jobs are located (for an early presentation of this debate see Florida, 2002, Gilmore and Duff, 1975 and McCrone, 1969 for a contemporary application). Australia's remote resource communities are grappling with the challenge of promoting local economic development in the absence of a workforce, or at least a permanently settled workforce. The greatest concentrations of people who work in the mining industry are to be found in Perth and Brisbane. In 2011, these two state capitals were the usual place of residence for around 30% of Australia's workforce directly employed in mining (Australian Bureau of Statistics, 2013). This is explained by the location of mining industry offices and, of most interest to this paper by the importance of 'fly-in, fly-out' (FIFO) workers. FIFO involves long-distance and end-of-roster commuting rather than commuting between home and work on a daily basis. Even then, the commute distance pre and post each work roster cycle (ranging typically from short 9 days on, 5 days off to long 28 days on and 7 days off) makes flying the predominate mode of commuting although some can take the form of 'drive-in, drive-out' (DIDO).

This paper provides an overview of the issues arising from the growth of a FIFO workforce and particularly examines its impact for the communities of places located close to where mining occurs. Australia's mining industry workforce grew from 74,800 in 2000 (a decline from a previous peak in 1986) to a peak of 276,300 in 2012 (Australian Bureau of Statistics, 2013). Survey evidence from Western Australia suggests that around 50% of the current mining industry workforce is comprised of FIFO workers (HRSCRA, 2013: 16). From the perspective of mining companies and in terms of the individual preferences of people entering the mining industry, FIFO has become a preferred employment model. In contrast, for the mining communities that once were home to most of Australia's miners, FIFO is generally viewed as a destructive method of employment. It is accused of undermining communities that prior to the emergence of FIFO as the dominant employment mode, had appeared to be achieving a degree of economic diversification while continuing to support the mining industry. This paper explains the chasm that exists in the evaluation of FIFO and considers how it might be lessened to increase the possibility of the mining industry contributing to sustainable forms of regional development. This discussion makes reference to the proposed Mt Todd gold mine located near to the Northern Territory town of Katherine where the potential use of FIFO workers was avoided through significant community support for the proposed mine development.

The paper continues with a discussion of the origins of FIFO as the prominent style of employment in Australia's mining industry. It then considers the impact of FIFO and explains why it is considered damaging for the development of resource-based communities. A case study is then presented illustrating just how prevalent the preference for long-distance commuting has become and the special conditions needed to win support for a locally resident workforce. The potential for the wider uptake of this approach is then considered. Information on the use of FIFO draws partly from an investigation of the impact of FIFO on regional communities conducted by the Australian House of Representatives Standing Committee on Regional Australia (HRSCRA, 2013), hereafter referred to as the House of Representatives investigation.

Explaining FIFO

Up to the mid-1980s, modern resource industry development in Australia was supported by permanently settled, purpose-designed townships (Maude and Hugo, 1992). For example, in Western Australia, 25 new resource communities were established from 1960 to 1975 (HRSCRA, 2013: 11). In many instances, such townships existed as closed communities in which the company that constructed the town retained control of all aspects of its management as the settlement had no other function than to serve the mining company. Getting incorporated within local government administration generally depended on the town achieving some degree of economic diversification which a small number had achieved by the 1980s. This was a problematic process as the economic multiplier effects of mining were frequently weak as administration and service support tended to remain in urban centres which is also where much consumer spending was concentrated (Maude and Hugo, 1992). As well, the transition variously raised concerns for mining companies, mine workers and the potential successor authority as in how it might affect the amenities provided by mining companies and over the impact on local authority finances (Pilgrim, 1988). Even with 'normalisation' population imbalance and high turnover, physical and social isolation, income inequality and limited public services led to mining communities having a distinctive set of development challenges (e.g. see Parker, 1988).

FIFO became the dominant mining industry employment model for remote locations during the 1980s, at around the same time that it started to become the norm in Canada's mining industry too (Storey, 2010). It had always existed to service remotely located activity but typically only where there was no possibility of permanent settlement, as with construction projects (HRSCRA, 2013). The shift to FIFO in the 1980s responded to the increased feasibility of long-distance roster-based commuting and a context of declining mineral prices and of changes in the taxation treatment of non-salary benefits including company housing (Petkova et al., 2009). The immediate cost advantage to mining companies in avoiding the need to support a permanently settled township today is estimated as the difference between A$1 million to provide a company house and associated management compared with an annual cost of around A$40,000 to employ a FIFO worker (Regional Development Australia, 2012: 4). There is still a need to provide worker accommodation but without the need to provide amenities and services for the dependents of their workers and with no obligations existing beyond the life of the individual mine.

Infrastructure costs in the outback are generally around double the cost of providing the same infrastructure in a state capital (HRSCRA, 2013: 117). The direct financial advantage to companies avoiding the need to support a permanently settled workforce is higher when tax implications are considered too. For the employee, the FIFO option is better remunerated than being a local employee as it attracts an away-from-home and other allowances that cover some daily living costs (HRSCRA, 2013: 119). The company is able to claim these FIFO expenses as a business cost for taxation purposes. In contrast, company-provided house in a mining company town attracts fringe benefits tax where the employee's living costs are subsidised. However, from a local economic development perspective, better outcomes can be achieved by encouraging mine employees to purchase homes and to become part of the local community. For this option to be viable it typically needs to appeal to both the mine company and mine employee based on the life of the mine and the ability to access alternative job opportunities if a mine closes or reduces its operation.

With FIFO an economically feasible option, its use is further rationalised as the only likely way the substantial growth in employment numbers would have been achieved. In particular, it broadens recruitment to people who are part of households with dual incomes and dependents and who otherwise might be most deterred from accepting work in a remote locality. This is reflected, for example, in suggestions that FIFO has appealed less to workers with a young family than those with no dependents or school age dependents while a DIDO model is more appealing to families (HRSCRA, 2013: 92). The extent to which residents of resource communities have converted to FIFO when the option has been offered to them is another indicator suggesting the appeal of FIFO. As a whole, the uptake of FIFO has been viewed as showing how most workers prefer to live in larger, often metropolitan centres with better access to services, infrastructure and alternative job opportunities than adjust to living permanently in a remote resource town (Storey, 2010: 1176). Moreover, with appropriate support to employees to enable them to maintain their family relationships it has been shown that FIFO work schedules are compatible with healthy family cohesion (Clover Taylor, 2009).

The explanation for FIFO is nonetheless more complex than simply being a response to its feasibility and comparative acceptability as the comparison is influenced by the way mining companies package the FIFO option which in turn is influenced by broader considerations influencing their preference for FIFO. As noted, FIFO workers receive an away-from-home allowance but this is paid even when an option of living locally to a mine exists and it is the employee's preference to maintain a separate home residence. The payment of an allowance as an inducement is possible because they are tax exempted rather than being considered a fringe benefit subject to a taxation penalty. This practice was questioned by the House of Representatives investigation into FIFO which noted that 'the payment of allowances through the taxation system to encourage and support FIFO work practices is completely contrary to the aim of building regional Australia' (HRSCRA, 2013: 120). The use of FIFO has therefore to be seen in the context of an industry and public policy environment that encourages this form of employment.

The use of FIFO is, for example, linked to the move to 12 hour shift working. Mines typically operate 24 hours, 7 days a week based on two 12 hour shifts (HRSCRA, 2013: 53). The long shift hours increase the appeal of FIFO because they mean a longer block of off-work time than when working an 8 hour day, 5 days a week and because long work days heighten acceptance of the basic amenities on offer in a FIFO camp (Peetz and Murray, 2011). How far the resource industry has consciously made 12 hour shifts the norm to increase the appeal of FIFO, as compared with it being justified by the operational advantage of having only one shift change per day is unclear but it is now part of the logic maintaining the acceptability of FIFO. The Australian Work and Life Index (AWALI) survey suggests that 40 hours is the most preferred work time (data cited in Peetz and Murray, 2011: 20). Were a 38 hour week enforced, as is notionally the agreed standard for work hours in Australia, the proportion of employees favouring local living over FIFO would be expected to increase. Regardless of the working arrangement, 12 hour shifts negatively impact on work-life balance making the choice of FIFO less problematic than where the alternative is a 'normal' work day (Gibson, 1994). Moreover, 12 hour shift working is something that helps to mitigate the social impact of FIFO by minimising the amount of out-of-work time available to workers while on roster. It also helps to support high wages which are another factor explaining the acceptance of FIFO. Census data shows that nationally a little under 7% of Australia's population had a gross weekly personal income of A$2,000 or more while the proportion of people located in a high growth mining settlement (see below for definition) earning over this amount varied from 17% to 40% (Australian Bureau of Statistics, 2013).

The construction of purpose-built company towns is unattractive to mining companies for their potential to influence workplace relations as well as because of the high direct costs (Parker, 1988). The company-town option means that there is continuous co-location of the mine's workforce with mine operations whereas with FIFO at any point in time only a part of the workforce is on site and employees are absent when not on roster. Without job and residence being tied, the option of 'exit' over 'voice' is greater than where mine workers are tied to a location that may provide only one employment option. This reduces the possibility of industrial conflict intensifying although this is not necessarily the prime consideration for companies. The institutional environment has weakened the importance of trade unions and facilitated a move to the use of contracted labour and non-unionized labour and enabled mining companies to take greater control of employment relations (Peetz and Murray, 2011). A further attraction of employing a non-resident workforce is the investment flexibility provided. The relative costs of FIFO versus permanent settlement depend on the expected life of a mine and ultimate capacity to transition toward a 'normal' settlement. FIFO is linked to the concentration of ownership in the mining industry with major companies having a portfolio of assets over which they seek to maintain operational freedom, partly according to shifts in resource markets. One indicator of the importance of flexibility is the high labour turnover in the mining industry which is significantly above that which would be expected by the level of remuneration. Labour turnover runs at a similar rate to the retail sector where average wages are half those in the mining industry (Peetz and Murray, 2011). High turnover is expected with low job satisfaction but it is also a product of labour demands shifting between mine locations and of miners being redeployed to where their skills are currently most needed.

Under the current phase of resource industry development, maintaining investment flexibility has assumed importance as a way of minimising the long term obligations that exist when permanent settlement is supported. As well as enabling mining companies to shift resources between mine locations according to shifts in resource prices, the long term strategy of big mining companies such as BHP Billiton is to increase the capital intensity of mining operations (Stevens, 2014). This includes innovations such as driverless trucks, investment to lower the production downtime between shifts and moving oversight of production operations to a control centre in Perth. Such initiatives are targeting a significant drop in the ratio of employees per unit of volume mined but with further experimentation and learning required before the possibilities are realised as expected.

Communities affected by FIFO

One dimension of the impact of FIFO is evident from the comparative rarity of high growth mining towns despite the national growth in mining activity and employment. According to the Australian Bureau of Statistics (2013), in 2011 there were just 10 towns that satisfied two criteria: (i) at least a sixth of employment provided by the mining industry; (ii) annual population growth of at least 2% 2006–2011. These criteria were applied to the Census night population which, in the case of mining settlements captures FIFO as well as permanent residents. Were permanent residents only counted, two of the centres would not meet the population growth criteria and all experience a slower rate of population growth than where the Census night population is measured. The share of the population indicated as potential FIFO workers varies from 41% to 14%, being over 20% for seven of the high growth mining centres. In the case of the settlement with highest share of potential FIFO workers (Middlemount, central Queensland), further indicators of the unusual community profile are that 68% of the Census night population are male and 91.6% of all residents are in work.

These data capture a larger experience whereby established resource communities have experienced a growth in their non-resident population. This can be viewed as a way of protecting these towns from the boom and bust cycle that has tended to characterise the resource economy (Petkova et al., 2009). Even with the use of FIFO the damaging impact of commodity price movements on the economies of small resource town such as Moranbah, located in the Bowen Basin in central-eastern Queensland continues to suggest the value of initiatives to spread the impact of resource price movements. Moranbah is one of the high growth mining settlements identified by the Australian Bureau of Statistics (2013): in 2011, 46% of its Census night population of around 10,500 worked in mining with around a fifth of the population being FIFO or DIDO workers. As coal process fell in 2013, the median price of a house reduced from A$724,000 (double what it had been in 2007) to A$513,000 (Devine, 2013). In fact rather than assist adjustment, the large number of temporary residents amplifies the property cycle when large numbers are accommodated in rental accommodation.

As in the case of Moranbah, permanent residents tend to experience the disproportionate growth of the FIFO workforce as damaging and detrimental to the possibility of long term development. This was reflected in submissions to the House of Representatives investigation which variously emphasised the damaging impact on community image and social cohesion with FIFO workers perceived as a 'shadow population' who generate an 'us' versus 'them' divide (HRSCRA, 2013: 44–48). FIFO workers put pressure on living and especially housing costs as not all are necessarily accommodated in purpose-designed camps and where mining companies rent existing housing for their workforce the fringe benefit tax is less than where the company provides its own housing (HRSCRA, 2013: 114). This makes it hard for places to retain other functions such as tourism. At the extreme, the liveability of settlements is being questioned over concerns created by the influx of a large number of predominantly young, male workers. For established mining communities, a further concern is that the ability to maintain community services is threatened by FIFO as the increasing challenges in retaining a permanent population once FIFO is offered as an alternative to living within daily commuting distance of the mine. The issues here are partly a decline in the number of people able and willing to volunteer and participate in community activities and sports teams and the pressure on community resources from the growth in FIFO workers. Where FIFO takes the form of DIDO, involving possibly a three hour drive before and after each roster there is the additional concern with high accident and death rates. This has been a particular concern in the Bowen Basin (Queensland) where the incidence of DIDO is particularly high and where companies do not necessarily bus workers between their home and mine base (HRSCRA, 2013: 56; Petkova et al., 2009).

Those regional centres that have become service hubs for FIFO have a different experience. This involves places such as Mackay in northern Queensland which have developed into large home bases for FIFO and DIDO workers: in 2011, Mackay had the fourth largest concentration of mining industry workers in Australia after Perth, Brisbane and Adelaide (Australian Bureau of Statistics, 2013). This has introduced an influx of highly paid residents and while it also means pressure on housing and community services, source communities generally welcome their association with FIFO and argue that it helps to spread the benefits of the resource sector (HRSCRA, 2013).

Mt. Todd and the conditions for local employment

The Mt. Todd gold mine project is a case where a local community encouraged a mining company to plan for a locally resident workforce rather than use FIFO workers. This case is, therefore, of interest to illustrate circumstances where a company can be persuaded to move away from the dominant employment mode and bring greater local economic development opportunities than arise when FIFO is practised. To understand how this was achieved it is first necessary to consider the context of the proposed gold mine.

The town of Katherine is located 320 km. south of Darwin (Northern Territory) and in 2011 had a population of 10,640 which represents a small drop from the mid-1990s (Northern Territory Government, n.d). The larger region of which Katherine is the centre had a population of 21,379 in 2011, a growth of over 10% since the mid-1990s mainly attributed to the growth in the indigenous population. In 2011, just 3% of the region's workforce was employed in mining with the region being a centre for public administration, defence (the Tindal air force base), tourism and health services. The proposed Mt. Todd gold mine is situated 60 km north of Katherine, a drive of 45 min. The mining site has one of the world's largest proven reserves of gold. There are also a number of new and proposed mining operations in the greater Katherine region, such as the Sherwin Iron and Western Desert in Roper Gulf Shire. These projects have the potential to offset the loss of mining jobs that has occurred since the 1990s. In 2013, there was one working mine in the entire Northern Territory employing more than 12 people (Northern Territory Government, n.d: 23). GBS Gold ceased operations in 2008 closing four mine operations and causing a loss of 220 jobs, most held by people resident in Katherine. With a return of exploration interest in the region, Katherine is endeavouring to market itself as a mining service centre. A number of Katherine based businesses are providing mechanical, welding and other support services to the newly emerging mining sector replacing services sourced previously from Brisbane or Perth-based providers.

Given this history and the proximity of the Mt. Todd project to Katherine it may have been thought that recruitment of a locally resident workforce would be the only option considered. The Mt. Todd mine is expected to be operational for at least 20 years and with other mine developments in the pipeline, development of a permanent local workforce should be assisted by the comparative employment stability this offers. Added to this, Katherine offers a comparatively well serviced location and a diversified local economy although with some dependence on government services. Nonetheless, it was far from certain that this option would be accepted by both the mining company and the local community.

The proposed Mt. Todd gold mine project which was planned to commence in 2015 had potential to require 400 full-time employees. From the initial planning for the project, Katherine Town Council indicated its support for filling these jobs by a locally resident workforce because of the economic benefits and because the mining industry is not currently a large part of the economy. It was recognised that high mining salaries risked exasperating an already expensive housing market and could draw labour away from less well-paid but important local services (see Rolfe et al., 2007 for discussion of this effect). The Town Council view is that having workers own their homes and participate in the community would offset the negative impacts of the mining industry and was preferable to being asked to accept a transient FIFO workforce. Local residence, it is believed, should protect Katherine from the social disruption associated with being a settlement dependent on the mining industry, particularly one where mining operations are highly sensitive to resource prices that encourage a pronounced boom-bust cycle for small communities (Stedman et al., 2012).

From the developer's perspective, attempting to staff the mine locally was initially considered impractical given the wage premium associated with FIFO and DIDO operations. Mckenzie et al. (2013: 5) has determined that 'the difference between working in a FIFO position as opposed to an equivalent local position could provide an annual salary increase of approximately $40,000'. This salary differential was thought likely to significantly limit the ability to recruit workers with mining experience. In the event, the company involved (Vista Gold) was encouraged to pursue local recruitment once the Northern Territory Government indicated their willingness to assist in the preparation of sufficient housing land to accommodate the additional residents. As well as helping to minimise the mining company's initial investment cost the dependence of Vista Gold on the Mt. Todd project was a factor in enabling the resolution over the employment strategy.

Conclusions

Community leaders from places that perceive they have lost out through FIFO argue that not enough effort is being made to provide workers with a choice of employment and residential options (HRSCRA, 2013). From their perspective, the need to counter the traditional stereotypical images of life in a small, remote community compared with the quality of a life in a main centre has become a greater challenge than it was through the growth of the FIFO option. It has given some existing residents the ability to move away and made it harder to attract new residents who work in the mining industry and who are given the ability to choose between FIFO and local residence. For those communities that accommodate a FIFO workforce alongside a permanent population, there is the challenge of maintaining the quality of the living environment in the face of the influx of transient workers whose attitude toward the work locality is different to those who permanently reside. As expressed by some community leaders to the Federal Government inquiry (HRSCRA, 2013), ideally new recruits would get a chance to sample the lifestyle afforded in regional communities before determining whether to opt for FIFO. In practice, the choice is not offered and regional communities are challenged to maintain their quality of living once a large FIFO population is in their vicinity. With the FIFO model now firmly established and in use in or adjacent to established communities as well as being used in places with no locally resident population, it is evident that remoteness alone is not the principal driver of the use of this form of labour. The fit with the business strategies of corporate mining companies and an institutional environment favouring FIFO over the development of resource towns explains the growth of FIFO.

Encouraging a shift away from FIFO and changing the outlook of mining companies will require more than simply facilitating the ability of workers to make an informed choice of their residential options. Institutional reform is required to change the mining industry's preference for FIFO. This includes changing the taxation status of working away from home allowances and company-provided housing and requiring greater community contributions from companies employing FIFO workers to acknowledge the costs of the employment model. Some comparatively simple steps have potential to change the demand for FIFO working arrangements or at least diversify the geography of FIFO workers. Where possible, offering travel allowances rather than requiring the use of chartered aircraft to FIFO would, for example, give more choice over places of residence. Greater transparency in the number and location of FIFO workers and their use of the services in the towns near to mining camps is possible. The current understanding of the scale of FIFO and DIDO working arrangements tends to rely on incomplete survey evidence on indirect estimates. To date the demand for such forms of institutional reform has been lessened by the acceptance of the belief that the flexibility afforded mining companies and employees helps adjustment during periods of mining industry contraction. With the mining industry starting to experience a protracted slowdown in 2014 after the long commodities boom that saw the growth of FIFO it will be possible to test this expectation.

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