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Predicting the economic and demographic impacts of long distance commuting in the resources sector: A Surat basin case study

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ABSTRACT

Predicting the economic and demographic impacts of resource development on regional areas is difficult to assess because of limited availability of analysis, difficulties of predicting where workforce are likely to be based, and different impacts on communities because of variations in size and economic structures. In this study modelling has been employed to identify future employment and demographic impacts of future resource developments on communities in the Surat Basin in southern Queensland, Australia. The analysis summarises potential employment increases over multiple projects and uses multipliers from Input–Output models to assess likely impacts by local government area when future workforce might commute to or live locally in the region. The results demonstrate that recent moves to commuting workforces limit the economic impacts on local and regional communities in complex ways.

Introduction

An important aspect of regional economic development in Australia is the extent to which development benefits from resource projects may be affected by different patterns of workforce location (Haslam Mckenzie, 2011). There are trends to support resource projects from outside local and regional areas, with increasing use of drive-in/drive-out (DIDO) or fly-in/fly-out (FIFO) workers, referred to in this paper as long distance commuting (LDC) workforce (Rolfe et al., 2007). These are now becoming commonplace in many sectors of the Australian economy, particularly in the resources sector. The House of Representatives enquiry into FIFO and DIDO practices in regional Australia (HRSCRA, 2013) identified that some regional areas, such as the Pilbera in Western Australia and the northern Bowen Basin in Queensland, had more LDC workers than locally resident workforce.

Growth in the resources sector, coupled with higher prices for energy and minerals, has underpinned the Australian economy in the decade from 2003 to 2012 (Measham et al., 2013; Corden, 2012). Most activity has been concentrated in resource-rich provinces of Western Australia and Queensland, with new projects being developed and employment growth associated with construction, operations and business supply chains. However there have been concerns that moves towards LDC workforces and supply chains outside of regional areas mean that the economic benefits of development largely accrue outside the regions where projects are based, while local communities bear some of the local 'Dutch Disease' effects such has higher housing prices and service shortages (Storey, 2001; Rolfe et al., 2007, Garton, 2008; Lim et al., 2009; Corden, 2012), thus shifting the balance of positive and negative cumulative impacts of resource sector development for local communities (Franks et al., 2010).

The direct economic impacts of resource operations are no longer focused on local communities in the same way that they were historically, because of changes in operations management, workforce location and supply purchasing (Storey, 2001; Haslam Mckenzie, 2011; Ivanova and Rolfe, 2011; Rolfe et al., 2007, 2011). In the past two decades in Australia, mining companies have reduced their provision of housing in mining towns, introduced greater use of externally based business suppliers and contractors, and changed a number of work patterns, including moves towards longer block shift patterns (Rolfe et al., 2007; Zheng et al., 2007). These changes have increased development of external supply chains, often located in regional hubs and major centres, and increased the use of LDC workforces commuting to sites for block shifts (Storey, 2001; Haslam Mckenzie, 2011). Trends in workforce mobility are also underpinned by improved transportation, social and demographic changes, and requirements to attract non-traditional workforces into mining operations (Rolfe et al., 2007; HRSCRA, 2013).

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When multiplier effects are considered, the economic effects of resource industries tend to be much more diffused than before and more likely to be located outside of the regions where resource operations occur. There are a number of reasons why LDC patterns have increased. These include improved access to labour, particularly as workforce and their families become more reluctant to move to regional areas because of factors such as lifestyle, access to services such as health and education, limited employment prospects for partners, and dislocation from support networks (Rolfe et al., 2007; Haslam Mckenzie, 2011). As well, trends towards more intensive work periods, with block shift patterns now commonplace across construction and resource sectors, and improved and cheaper transport have made the logistics of commuting more feasible over time. LDC arrangements can also be used to minimise adverse impacts on local communities, and can limit expensive investments in housing and infrastructure when projects may only operate for limited time periods.

While LDC arrangements may be the only practical option to supply labour into remote areas, there are more choices about workforce location in closely settled regions, with potential for workforce to be settled locally, commute from the regional area with DIDO, or commute from further away with FIFO. While the economic impacts of workforce location are a largely a 'zero sum game' at a national level, it can make a large difference to economic development and population growth at local and regional levels. However little analysis exists to explore the impacts of location on regional development outcomes, with most impact studies conducted for regulatory approval being very project specific with defined workforce locations. Key gaps in knowledge are therefore to understand how impacts on local and regional areas may vary with different arrangements for workforce location across multiple projects.

The focus of the research reported in this paper was to identify the economic impacts of different workforce location patterns in the resources sector, using a case study on the Surat Basin in southern Queensland to illustrate the approach. The contribution of this study is that it identifies the extent to which direct, indirect and final consumption impacts of new developments are expected to vary by local government area in the Surat Basin as the proportion of new workforce commuting or living locally varies. The research has been conducted by modelling the impact of resource industries on the Surat Basin, and then applying projected employment increases from new projects to estimate economic and demographic growth in the regional area.

The remainder of the paper is structured as follows. An overview of the study area is provided in the next section, followed in section three by a review of the methodology used. The results of input–output models to estimate the current contribution of the resources sector and the relationship between economic multipliers and community factors of population size and mining employment is reported in section four. In section five, information about resource developments and multiplier effects are inputted into economic and demographic modelling to predict the impact of future resources development on employment and populations by LGA in the Surat Basin. Final conclusions are provided in section six.

Study area

The Surat basin in southern Queensland is an emerging resource region in Australia, with developments in minerals and energy extraction (predominantly coal seam gas extraction and coal mining) making a major contribution to regional employment, regional salaries and economic activity in the business sectors (QDEEDI, 2010; QDLGP, 2011). Projected development in the region is expected to support a growing regional population with a diverse socio-economic profile (Skills Queensland, 2011). The Surat Basin region lies to the east of Brisbane in southern Queensland (Fig. 1). It covers an area of approximately 110,000 square kilometres and encompasses three regional councils. The majority (78%) of the population are concentrated in the Toowoomba Regional Council area; 16% live in the Western Downs Regional Council area (Dalby region), and 6% live in the Maranoa Regional Council area (Roma region).

Although a small number of coal mines have been operational in the region, agriculture has traditionally been the backbone of the regional economy (AEC Group, 2010). In the east, the fertile soils of the Darling Downs (often referred to as the bread basket of Queensland) support significant agricultural production. Further west the landscape becomes drier and agriculture has relied on grazing and dry land cropping. The region is a sparsely populated (declining towards the west reflecting the smaller economic base), and until the recent increase in mining activity, employment opportunities in the smaller towns have generally been diminishing.

At June 2011, the estimated population was 163,936 people for the Toowoomba LGA, 32,831 for the Western Downs LGA, and 13,422 for the Maranoa LGA (OESR, 2011a). The population for the region is projected to increase by an average annual growth rate of 1.8% to over 300,000 people by 2031, consistent with predicted growth in Queensland over the same period (OESR, 2011a). Population growth projections in the region have been calculated by the OESR under three different forecast scenarios (high, medium and low growth) (Fig. 2), with limited differences in growth rates between the shires (Fig. 3). This places the regional population in the range of 270,000–330,000 people by 2031, depending upon the chosen growth trajectory (OESR, 2011a).

There is a large labour force residing in the region, comprising 109,860 people or 4.5% of Queensland's total workforce (OESR,

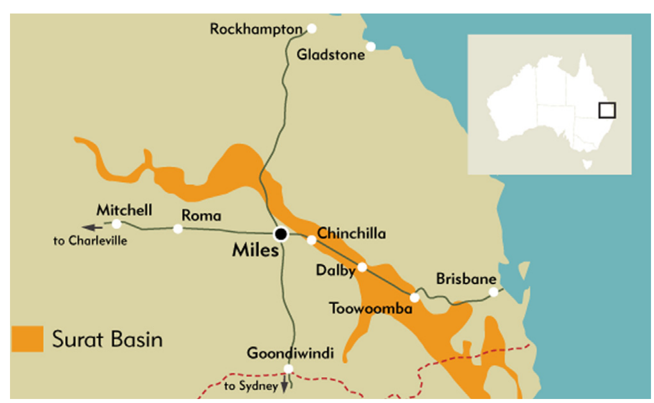

Fig. 1. The Surat Basin in southern Queensland.
Source: QDEEDI (2010).

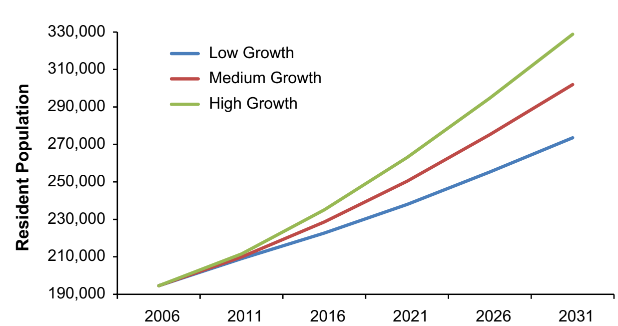

Fig. 2. High, medium and low growth population projections for Surat Basin.
Source: derived from OESR (2011a).