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The Dutch Disease effects on tourism – The case of Australia

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HIGHLIGHTS

- We apply a tourism CGE model to analyse the mining boom impacts on tourism.
- We adopt a simulation procedure to decompose impacts into two stages of effects.
- The fly-in-fly-out of mining workers imposes more costs on the tourism markets.
- The extra investment of air transport and accommodation reduces costs for tourism.
- Impacts are broken down for inbound, inter-state, intra-state and outbound tourism.

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ABSTRACT

Industries in an economy are inter-dependent on each other. However, the relationship among them is not always positive. The recent mining boom in Australia has adversely affected many other non-mining related industries, including tourism, through the effects of resource constraints and a strong appreciation of the exchange rate. This paper examines in detail the mining boom effects on tourism in specific markets such as those for inter-state, intra-state and inbound tourism through the movement of price indexes of each market across states and territories in Australia. Furthermore, while negative impacts on tourism are consistent with the traditional Dutch Disease theory, this paper also highlights an important point to policy makers that strategic planning for investment in accommodation and aviation can have positive impacts on tourism during and after the boom has passed.

1. Introduction

The recent mining boom experienced in Australia over much of the past decade had the effect of boosting the overall economy, but with highly differential effects between regions and economic sectors. The boom generated high income growth and greatly increased the strength of the domestic currency, thus some sectors in the economy experienced positive impacts through income effects while others were left with negative impacts due to the adverse effects of the exchange rate through the loss of competitiveness for export industries and for import competing industries to import substitution. This phenomenon is often referred to the Dutch Disease effect (Corden, 2011; Gregory & Sheehan, 2011).

Tourism is among the adversely affected sectors. The impacts on tourism are complicated due to the offsetting income and exchange rate effects. Generally, higher incomes would lead to a greater tourism spend but the strong accompanying appreciation of the exchange rate diverts some tourism expenditure to overseas destinations. Furthermore, mining activities often occur in remote towns where the local labour supply cannot satisfy the rapid increases in demand for labour. The mining industry has to bring mining workers from outside to work on the mining sites, usually for short periods on a rotating schedule. Thus, the demand for air transport and accommodation induced by the mining industry through the use of this Fly-In/Fly-Out (FIFO) put higher price pressure on the two services and at the same time reduced the availability of these services for leisure tourists. Such impacts of

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FIFO have not been examined and estimated explicitly in previous studies.

In this paper, empirical work was undertaken to estimate the magnitude of the effects on the Australian economy of the recent mining boom. Results in this paper supplement the theoretical framework analysing the Dutch Disease in Corden and Neary (1982), Corden (1984, 2011). Although the empirical study reported here is in an Australian context, it also has a broader implication for the tourism industry in many other countries in relation to possible export booms which may emerge in their economies. More analysis of the Australian mining boom can also be found in Dwyer, Pham, Jago, Bailey, and Marshall (in press), Forsyth, Dwyer, and Spurr (2014) and Gregory (2012).

This paper examines an export boom in detail where FIFO associated with mining has major impacts on competing service sectors such as tourism at the state level in Australia. More specifically, the impacts drill down to the interaction of different tourism markets such inter-state, intra-state and inbound tourism sectors for each state. Positive and negative impacts of the mining boom are explicitly captured in the analysis, covering income, exchange rate and FIFO effects.

The modelling was devised to decompose the economic impacts of the mining boom through three stages. In the first stage, the modelling focuses on a base case that captures the mining boom with realistic conditions of FIFO in a constrained supply of accommodation and air transport services. These two sectors cannot expand quickly enough to meet the surge in demand from mining as well as maintaining their services to tourism. In the second stage, the effect of FIFO on the economy as a whole and tourism sectors is measured more explicitly. In the final stage, the modelling measures the potential effects of the situation where supply of both air transport and accommodation sectors increase capacity to the extent necessary to serve the FIFO demand.

Given the current development of the mining growth and the transition period of its associated investment in Australia, the paper provides a timely insight into the importance of management and planning aspects of investment that can affect tourism sectors during the boom as well as when the boom has passed.

2. Background

In a dynamic sequence, the mining boom went through different stages. In the initial stage, the boom began with larger export volumes and higher commodity prices for mining exports. This was associated with a substantial increase in investment in the mining industry and a strong appreciation in the terms of trade and the exchange rate, which hurt other export sectors. There were signs that mining investment was slowing down in the period 2008–09 to 2010–11, but whether or not the end of the mining investment growth has been reached is still unclear, as the investment in 2011–12 and 2012–13 is still growing (ABS, 2014, Cat. no. 5220.0). Nevertheless, when the mining industry has built up the required additional capital stock, investment growth in the industry will fall off, and the strong terms of trade will subside. This will help stabilise the export growth of mining, smooth out FIFO demand and provide a boost to the exports of other sectors. This paper does not, however, analyse the sequential development of the mining boom as such. Instead, it focuses on the essence of the changes that occur during the boom so that the impacts can be directly captured.

3. Modelling approach

The Computable General Equilibrium (CGE) tourism model (MMRF-TOUR) for the Australian economy used in preparing these reports is explained in Pham and Dwyer (2013). This model was extended to include a tourism module from the base MMRF model developed by the Centre of Policy Studies (Adams, 2008). Detailed description of the MMRF-TOUR model is attached in Appendix 1. The model was run using the GEMPACK software (Harrison & Pearson, 1996; and, Harrison, Horridge, Jerie, & Pearson, 2012). It is important to note that the MMRF-TOUR model captures only non-business tourism for interstate, intrastate, inbound visitors, and outbound travellers. Business tourism expenditure is not available for industries. Instead, it is embedded within the individual cost structures of the industries in the model database. Therefore, this paper does not attempt to model the impacts of the mining boom on business tourism per se. However, for the stated purpose of this modelling exercise, the demand for accommodation and air services generated by the mining industry's FIFO employees is separately identified and modelled specifically as increases in input usage by the mining sectors.

A base case scenario is used to reflect the impacts of the mining boom and its associated FIFO activity on the economy generally and on the tourism sectors specifically. Two additional simulations are used in conjunction with the base case to measure the effects of FIFO and the effects of additional investment injected into accommodation and air transport to satisfy FIFO demand. The first simulation captures the effect of high demand for accommodation and air transport required by the mining sector for FIFO activity under existing supply constraints of these two sectors. The capacity of the accommodation and air transport sectors in the model are assumed to be unable to respond quickly enough to the rapid increase in demand. This reflects the reality of a burst of FIFO demand crowding out the tourism services (in this case aviation and accommodation) available to service the non-business tourism sector in the affected regions.

The second simulation investigates the impacts when the accommodation and air transport sectors have responded fully to the additional FIFO demand, expanding their service levels by increasing their investment to build up capital stocks. This step was aimed at measuring the benefits from the spill-over effect of increased supply in the accommodation and air transport sectors on non-business tourism in terms of lower market price changes for these services.

The mining boom dates back to 2005. There was a subdued period during the global financial crisis, before it picked up again over the period 2010–12. The model database was for 2004–05, suitable for the impacts of the mining boom to be assessed on an average annual basis over the period 2004–05 to 2011–12.

The mining boom was mainly driven by strong demand for coal, iron ore and other non-ferrous ores from overseas countries such as China and India. Because the existing model database only contains separate data for coal, oil and gas—with all other mining outputs being aggregated into a single industry defined as "*other mining*"—, the modelling explicitly examined coal exports from Queensland and exports of *other mining* from Western Australia and Northern Territory. The inclusion of Northern Territory is to ensure that the relative importance of mining in the Northern Territory economy was factored into the analysis.

Over the period 2004–05 to 2011–12, black coal exports from Queensland were estimated to increase by 5% per year on average, while *other mining* was estimated to have increased by 12% per annum from Western Australia[1] and 10% from Northern Territory.[2]

[1] We acknowledge the assistance of the Bureau of Resources and Energy Economics in the development of these estimates.

[2] The assistance of Tourism Northern Territory in the development of these estimates is acknowledged.