Regional Economic Multipliers in Australia's Tropical Savannas

Report for the Tropical Savannas CRC

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Executive summary

The research described in this report is a case study that comprised one, self-contained, investigation within a larger project: the Outback Livelihoods project, commissioned by the Tropical Savannas CRC (TS–CRC). The case study sought to generate estimates of economic multipliers associated with key industries across his important region, thus providing locally relevant data on economic conditions and industry interactions in Australia's north.

Covering an area of more than 1.9 million km^2 the tropical savannas stretches from roughly Townsville in the east to Broome in the west. Despite the fact that this region covers approximately 25% of Australia's mainland, it is home to only 3% of all Australians—a little more than 604,000[1] people. Most of the region is therefore sparsely populated and relatively little is known about the expenditure patterns of industries in the area.

It was, therefore, important to collect locally relevant data, because the economic structure of communities in the savannas is different to that of larger Australian communities. In the savannas, for example, the retail sector is the most substantial in terms of gross annual turnover. But the government, mining and agricultural sectors are the most important providers of employment in remote areas, and some industries that feature prominently within large urban centres (such as manufacturing and wholesale) are all but non-existent in remote parts of the savanna. Consequently, one also expects the industry interactions within these communities to be different to the industry interactions in large urban centres.

Rather than using a resource-intensive technique to estimate multipliers (such as compiling a computable general equilibrium model), researchers involved in this study used an established 'short-cut'; collecting survey data on the expenditure patterns of different organisations to estimate a range of locally relevant 'business-level multipliers'.

This required researchers to (a) develop and test an appropriate questionnaire; and (b) conduct a broad-scale survey of businesses and other organisations across a wide range of industries and regions. The sectors and groupings used in the survey follow the New Zealand Standard Industry Classification (ANZSIC) definitions—which are also used by many other economic modellers. Hence, the final multiplier estimates were able to be compared with other models (see following pages for the definition of terms).

The original intention had been to conduct the surveys in two phases: using telephone interviews (in a preliminary, tourism case study); and using email. However, administrative issues associated with the use of email for data gathering meant that Phase 2 could not be completed as planned. Consequently, researchers collected supplementary data in a postal survey (Phase 3).

In total, 978 organisations from 17 industry/enterprise sectors across most postcodes completed and returned the questionnaires. While the sample is imperfect (particularly given the low number of responses in the communications and electricity sectors) it can nevertheless be considered to be reasonably representative of organisations in the savannas and makes a significant contribution to the existing set of knowledge about industries and enterprises in northern Australia.

Most respondent organisations were relatively small—the median number of employees was generally fewer than 10, and those employees often worked part time and/or were members of the family that owned the organisation. The largest organisations (in terms of number of employees and gross annual turnover/budget) were those in mining and government.

Despite the fact that Aboriginal and Torres Strait Islanders (ATSI) comprise more than 25% of the population in the savannas, they were under-represented in the sample; fewer than 6% of respondent organisations were owned or operated by ATSI and only 14% of employees were ATSI.

The expenditure patterns of organisations located within the savannas seemed to differ somewhat to those of their wider Australian counterparts, as typified by the finding that many businesses within the savannas spent a larger share of revenue on labour than the 'average' Australian business within the same sector. This is particularly evident in the agricultural sector.

Across all respondents, the highest average percentage of revenues went towards wages and salaries (almost 20%). Respondent organisations also spent a relatively large share of total revenues within the retail sector (16.6% of all revenues); monies set aside for savings/profits (7.0% of total revenues) was

[1] Stoeckl and Stanley (2004)

the next big-ticket item. Expenditure in other sectors comprised less than 6% of all revenues—the smallest amounts, on average, going to the mining, personal, government, cultural and health sectors. While every sector was found to spend at least some revenue on wages and salaries, and on retail goods, few organisations spent a significant portion of revenues on their goods and services that were provided by the agricultural or mining sectors.

Across all respondents, goods and services provided by the education sector were most likely to be 'imported' from outside the local postcode (or town, if the town contained more than one postcode). Other goods and services which were frequently imported from outside the local postcode included those provided by the wholesale, transport, retail, and manufacturing sectors, with less than 75% of total expenditure within each of these sectors being spent with locally based businesses. More than 90% of all expenditure in the mining, personal and cultural sectors was spent with locally based businesses.

After accounting for imports, the local (within postcode) household sector was found to receive the largest share of revenues, when expressed as a percentage of total organisational revenues—17% on average. The retail sector was the next largest recipient; with local retail traders receiving an average of 8% of organisational revenues. Financial flows to other local businesses were generally quite small.

Organisations within the government and health sectors had the strongest backward links. On average, more than 60% of their total revenues/budget were spent within their local communities (postcodes). Consequently, the largest business level multipliers were found to be those associated with those organisations (2.1 for health and 2.04 for government). By contrast, the lowest business level multipliers occurred within the accommodation and transport sectors (1.4 and 1.5).

One implication of this result is the important suggestion that an expansion of the health or government sector could do more to promote regional development than an equal expansion of the accommodation or transport sector. This is somewhat disheartening news to those interested in promoting regional development in an era when trends are to reduce, rather than increase, government expenditure.

Ultimately, decisions about how much governments should spend in rural areas must be made in the political arena, but it is worth emphasising an important point. The labour force will be more productive if it is healthy, well educated, and has access to land, capital, and public infrastructure. So increased expenditures on health, education and public infrastructure might not only create short-run benefits like those estimated here. They could also create long-term regional benefits by increasing productivity and alleviating rural poverty. Furthermore, these long-term productivity gains could help mitigate any medium term 'crowding-out' effects that might occur in response to an increase in government or private expenditure. For example, mining companies in rural and remote Australia are currently finding it difficult to recruit employees even though there is unemployment in many communities and mass unemployment in the Indigenous communities. More investment in education/training and health would allow the rural and remote unemployed to gain these jobs while simultaneously alleviating some of the labour shortage problems of rural employers.

Significantly, this research does not simply provide information about the size of multipliers so that readers can 'judge' or argue about the importance of different industries to regional development. It also provides information about factors that influence the size of regional multipliers. Instead of arguing about how best to 'inject' funds into a regional economy (in an attempt to provide what may only be a temporary stimulus), policy makers can use this information to think about ways to increase the size of regional multipliers, thereby creating sustained benefits that build upon the strengths of *existing* local industries.

This research indicates that much of the difference in the size of multipliers was attributable to the fact that different industries/sectors had different input requirements, and that only some inputs were widely available across the savannas. Organisations with relatively high business-level multipliers—those in the government and health sectors—used inputs that were prevalent throughout the savannas (inputs provided by households, retail, agriculture and, to a lesser extent, construction). In contrast, organisations with relatively low business-level multipliers—those in the accommodation and transport sectors—spend comparatively less on wages and retail goods and comparatively more within sectors that are not generally prevalent in remote areas (e.g. the cultural, wholesale, property, transport, manufacturing sectors).

This suggests that it may be possible to increase the size of local multipliers by encouraging the development of 'support' industries—the overall aim being to provide existing organisations with the *option* of purchasing goods and services locally.

Businesses that seek to earn money by supplying inputs to other businesses will only receive a portion of the total revenues received by those at the 'top' of the supply chain (government organisations, for example, spend only 15% of their budget within the construction sector). But a small portion of someone else's revenues is still greater than a large portion of nothing. So the option of setting up a business that 'supports' an existing local enterprise may be preferable to the alternatives of (a) receiving no income at all, or (b) competing against existing businesses for scarce customers. Further, some individuals may like the option of running a part-time business and others may be able to provide inputs to multiple businesses, thereby receiving multiple portions.

Such a strategy will only work if existing organisations are both willing and able to purchase inputs from within their local area. Some of this will, necessarily, depend on how expensive local products are when compared to similar imports. But some of this will also depend upon the purchasing policies of local organisations. In other words, it may be possible to raise the size of local multipliers by encouraging existing organisations to source required inputs locally, since this may help stimulate the development of new regional industries. It is, however, important to bear in mind that the key reason for using a 'buy-local' policy is to provide short-term support to emerging industries. Once local supply chains are fully operational, buy local policies may be neither necessary nor desirable.

Little can be done to force a change in the purchasing policies of private companies. In some cases, local or state/territory governments may be able to encourage 'good neighbour' policies, which involve increasing local purchases of inputs. Local governments might also wish to consider the presence or absence of 'buy (or employ) local' policies when assessing the merits of building applications. Similarly, those negotiating mining concessions may wish to give preferential treatment to enterprises with this type of policy, which is already done under many Indigenous Land Use Agreements (ILUAs). At the very least, agreements could give preferential treatment to enterprises that are not party to contractual arrangements which *require* them to import goods and services from outside the local area.

There may also be scope to reconsider government purchasing policies, most of which focus on the cost savings that can be had by competitive tendering. These policies may, unintentionally, favour large urban suppliers and may even require some government departments to import commonly purchased goods from outside the local area. A purchase-local policy (where possible) would no doubt raise the operating costs of some government departments—particularly those operating in remote areas. But if such a policy increased local employment, then it might also reduce the need for other government departments to provide regional income support. If the savings made via reduced income-support payments outweigh the extra costs of the buy-local policy then the net effect will be to reduce the taxpayer burden.

Of course, whether or not buy-local policies have the potential to create both regional and national economic benefits is an empirical question. As is almost always the case, there is unlikely to be a 'one size fits all' answer. Buy-local policies may create net benefits in some regions, but probably not in all, and further research may be necessary to identify promising regions in which to test such policies.

This leads into what is, perhaps, *the* most important message of our research: those who are interested in regional development should not just think about the (final) goods and services that are delivered to or produced within remote communities. They should also think about the inputs that are used to produce, or deliver, those goods and services. The development paths of rural and remote communities will be just as heavily influenced by decisions that are made regarding input usage as they are by decisions regarding outputs. Indeed, input use decisions may be *more* important; when organisations purchase inputs from a variety of different sectors within a rural community they promote industrial diversification. This will ultimately increase that community's resilience, thereby ensuring that the development path is sustainable into the long run.

New Zealand Standard Industry Classification (ANZCIC) definitions

Retail Trade	e.g. petrol stations, supermarkets, butchers etc
Construction and trade services	e.g. building construction, trade services etc
Property and business services	e.g. cleaning services, accountants, lawyers etc
Finance and insurance	e.g. banks, insurance, finance etc
Agriculture, forestry and fishing	e.g. farming, horticulture, aquaculture, fishing etc
Accommodation, cafes and restaurants	e.g. hotels, cafes, restaurants, casinos, RSLs etc
Health and community services	e.g. childcare services, medical services, vets etc
Transport, travel and storage	e.g. air, road, rail or sea transport, warehousing
Cultural and recreational services	e.g. libraries, museums, radio and TV services etc
Personal and other services	e.g. households employing staff, religious organisations
Manufacturing	e.g food and beverage manufacturing etc
Educational services	e.g. schools, adult/community colleges
Government administration and defence	e.g. public administration, justice etc
Wholesale trade	e.g. builder supplies wholesaling etc
Communication services	e.g. postal and courier services etc
Mining, quarries and related services	e.g. sand and gravel, coal mining etc
Electricity, gas and water supply	e.g. sewerage and drainage services etc

Abbreviations and acronyms

ABS	Australian Bureau of Statistics
ANZSIC	Australia & New Zealand Standard Industry Classification
ARIA	Accessibility/Remoteness Index of Australia
CD	Collection district
CDEP	Commonwealth Development Employment Project
CGE	Computable general equilibrium
CRC	Cooperative Research Centre
FT	Full-time
GRIMP	Grit Impact Program
GSP	Gross state product
IO	Input-output
JCU	James Cook University
LGA	Local government area
NATSEM	National Centre for Social and Economic Modeling
NT	Northern Territory
OL	Outback Livelihoods project
PT	Part time
QLD	Queensland
SAM	Social accounting matrix
SD	Statistical Division
SLA	Statistical Local Area
TRYM	Treasury Macroeconomic Model
TS	Tropical savanna(s)
VRD	Victoria river district
WA	Western Australia

Industry/Sector	Abbreviation
Accommodation, Cafes, Restaurants	Accommodation
Agriculture, Forestry and Fishing	Agriculture
Communication Services	Communications
Construction and Trade Services	Construction
Cultural and Recreational Services	Cultural
Educational Services	Education
Electricity, Gas and Water Supply	Electricity
Finance and Insurance	Finance
Government Administration & Defence	Government
Health and Community Services	Health
Manufacturing	Manufacturing
Mining, Quarries and Related Services	Mining
Personal and Other Services	Personal
Property and Business Services	Property
Retail Trade	Retail
Transport, Travel and Storage	Transport
Wholesale Trade	Wholesale