SA-BLADE PILOT PROJECT

Integration and analysis with sub-national micro-data

BLADE Expo: 13 February 2020
DISCLAIMER:

The views expressed in this report are those of the author(s) and do not necessarily reflect those of the Government of South Australia.
**SA BLADE links** SA program and administrative data with Commonwealth data from the ATO and the ABS Business Register, using the ABNs as the linking key.

The purpose of SA BLADE is to:

- Improve business location data
- Provide better economic analysis
- Inform future policy

The purpose of the pilot is to **evaluate what’s possible**
SA Government contributed key datasets
THE CONTEXT

The Sydney Morning Herald

BHP mothballs Olympic Dam expansion

By Peter Kerr
August 22, 2012 — 3.51pm

BHP Billiton has taken the axe to more than $US30 billion in spending on Australian expansion projects, in the clearest sign yet that the nation is past the peak of its resources boom.

News Corp Australia

South Australia stunned as GM announces Holden’s closure in Adelaide in 2017

The Australian car industry is all but dead and South Australia is in shock following confirmation that Holden will cease production after more than 80 years.

Tony Shepherd and Joshua Dowling

The Advertiser

Abbott Government to spend $20 billion on Japanese submarines in major blow to SA’s defence industry

The Premier and Prime Minister have both responded after The Advertiser today revealed the next generation of Australian submarines is all but certain to be built in Japan, not the Adelaide shipyard.

Ian McPhedran National Defence Writer

The Advertiser

Unemployment rate, trend

Government of South Australia

Department of the Premier and Cabinet
THE NEED

The employment dynamics of Australian entrepreneurship

Luke Hendrickson#, Stan Bucifal#, Antonio Balaguér# and David Hansell#

Department of Industry and Science# and Australian Bureau of Statistics#

September 2015

Abstract

This research paper is the first in a series to explore the dynamics of employment and productivity growth in Australian firms using the newly created Expanded Analytical Business Longitudinal Database. This paper examines the contribution of young firms, particularly start-ups, to net job creation in the Australian economy between 2001–2011. The results show that young SMEs contribute disproportionately to job creation. Young SMEs (firms aged 0–5 years) made the highest contribution to net job creation in Australia (44 per cent) and start-up activity (firms aged 0–2 years) is responsible for most of this growth. Australia’s start-up activity is high but they tend to reach smaller sizes relative to other OECD countries examined to date. A very small fraction (3 per cent) of start-ups drive the majority (77 per cent) of their post-entry job creation. These high growth start-ups also show superior growth and profit performance but lower labour productivity performance compared to other surviving start-ups.

JEL Codes: J21, L26, M13, O31, O57

Keywords: Australia, creative destruction, DynStemp, entrepreneurship, employment, innovation, OECD, productivity, start-up

Driving question:
Is this pattern the same for South Australia?
THE PROBLEM

There are few statistics available relating to sub-state economic activity.

**BLADE** is a complete record of all businesses, so offers the opportunity to do state and sub-state analysis, if location data is of sufficient quality.

Our pilot study is partly aimed at enhancing business location data in SA and explore its potential for State and sub-state analyses.
**LOCATION of ECONOMIC ACTIVITY:**
What do we know from each data set?

<table>
<thead>
<tr>
<th></th>
<th>LEED</th>
<th>Census</th>
<th>BLADE</th>
<th>BLADE-RTW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee place of residence</td>
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<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Employee place of work</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm location</td>
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<td>No</td>
<td>Yes (Primary only)</td>
<td>Yes (All)</td>
</tr>
<tr>
<td>Employer operations</td>
<td>No</td>
<td>No</td>
<td>Yes (National only)</td>
<td>Yes (National &amp; SA?)</td>
</tr>
</tbody>
</table>
BLADE BUSINESS LOCATION

BLADE’s use of ATO information:
• Business address for tax filing purposes may not line-up with the actual site of operations.

How do we impute business activity to complex or profiled firms with:
• Multi-state operations
• Multiple operations within a state

Complex firms may be small in number, but:
• They account for a larger share of the employment or output
What is a firm?
ABS Economic Units Model

Large complex businesses on BLADE are split up into their main production “type of activity units” – this is done to enable industry analysis.

These multiple “type of activity” units may also operate at different locations.
What is a firm?
ABS Economic Units Model

Legal entities can be companies, partnerships, trusts, sole proprietorships

Complex firms include multiple business units operating in different locations.

A TAU can have multiple legal entities and vice versa.

Industry codes (ANZSIC 2-digit apply to TAUs).

ABS has yet to assign TAUs to location with existing data sets ... Can RTWSA data help?
BLADE & RTWSA DATA (2015/16)

608,377
Total number of observations in the BLADE and RTW linked data set

Filtering out inactive businesses and duplicates

157,809
Remaining cleaned observations

113,506
Not Present in RTW

44,303
Present in RTW

102,824
SA exclusive

10,682
Multi-jurisdiction

36,718
SA exclusive

7,585
Multi-jurisdiction

How much of SA employment is captured by these firms?

How do we impute SA-based employment?
RETURN TO WORK SA DATA

- Firms registered in 2015/16 or previously "active"
- Multiple locations per ABN
- Multiple ABNs per location (part of employer group)
- Principal location is reported

Industry File

- SA industry codes adapted from ANZSIC
- Applies to location rather than TAU
- May change per location
- May have more than one per location
- Changes over time

Location File

Employer File

- Given to employees in each location per year
RETURN TO WORK SA DATA

In 2015-16, RTW identified:
- 52,882 employers
- Operating across 84,939 locations
- 74% simple (stand alone),
- 25% “complex” (common ownership with other locations).
- Out of 84,939 locations, 68,462 (82%) are in the remuneration file (i.e. paid wages in 2015-16).

- 96.4% coded to ASGS level
- 86% have valid geocoding
- 82% coded to mesh block
SA JOB COUNTS USING BLADE-RTWSA (15/16)

Derived from remuneration information of firms with multi-state operations
LEED uses a different imputation method for over 20% of jobs.

LEED reports job counts by place of residence of worker, not place of work.
DISCREPANCIES (LEED MINUS BLADE-RTW)
SA AND NATIONAL TALLIES (15/16)

A similar pattern emerges between SA and Australia (which doesn’t require imputation)
THE NEXT PHASE

Defining Clusters of Related Industries*

Mercedes Delgado
Michael E. Porter
Scott Stern
11/27/2014

Abstract
Clusters are geographic concentrations of industries related by knowledge, skills, inputs, demand, and/or other linkages. There is an increasing need for cluster-based data to support research, facilitate comparisons of clusters across regions, and support policymakers and practitioners in defining and evaluating regional strategies. This paper develops a novel clustering algorithm that systematically generates and assesses sets of cluster definitions (i.e., groups of closely related industries). We implemented the algorithm using 2009 data for U.S. industries (6-digit NAICS), and propose a new set of benchmark cluster definitions that incorporates measures of inter-industry linkages based on co-location patterns, input-output links, and similarities in labor occupations. We also illustrate the algorithm’s ability to compare alternative sets of cluster definitions by evaluating our new set against existing sets in the literature. We find that our proposed set outperforms other methods in capturing a wide range of inter-industry linkages, including grouping industries within the same 3-digit NAICS.

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Replicating this for Australia: Developing an economic geography for the nation and the states
Mapping clusters of tradable industries

What sort of industries tend to cluster within SA’s regions?
Next steps

• SA BLADE 2.0 – SABRE
• Sponsoring academics
• ARC linkage with Team Australia
Thank you!

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