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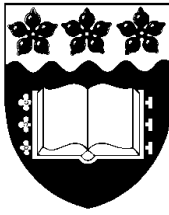
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**Export Performance in Small and Medium Enterprises
in New South Wales: Sectoral and Regional
Dimensions**

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and

Paul McPhee

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EXPORT PERFORMANCE IN SMALL AND MEDIUM ENTERPRISES IN NEW SOUTH WALES: SECTORAL AND REGIONAL DIMENSIONS

Ann Hodgkinson and Paul McPhee

1. INTRODUCTION

This paper discusses the results from a survey of 146 value-adding exporters from regional New South Wales, Australia, the majority of whom were small and medium enterprises, using the Australian definition of having less than 200 employees. This study established that SME regional exporters were successful in gaining and maintaining sales in overseas markets in a variety of product areas. It thus raises the question of what factors lie behind this process. By identifying the causes of successful exporting in regional areas, policy-makers can design programs which best meet the needs of these firms and will encourage growth in their exports in the future.

Earlier analyses of this database showed that factors identified in the European and North American literature as driving regional exports, particularly industry clustering and local networking, were not prevalent in New South Wales regions (McPhee & Hodgkinson 2002, Hodgkinson, et al. 2003). Rather, these firms tended towards the model of isolated entrepreneurs, a phenomenon found among exporters in peripheral regions in the United Kingdom and other parts of Europe (Vaessen & Wever 1993, Vaeseen & Keeble 1995, Wiig & Wood 1997). In these regions, successful exporting is a result of the internal technological and marketing capacities of the owner/managers of the firms themselves, rather than arising from the spillover benefits they obtain from interacting with the local business community and research institutions. This being the case, we need to look elsewhere for explanations of export success.

One such explanation is that it arises as a consequence of the industry sector in which these firms are located. That is, firms in particular sectors are able to achieve exports because they are producing the types of products that find ready sales in overseas markets. Then, providing the firm can tailor their product characteristics, price and marketing to international specifications, export sales will follow. Overseas sales of commodities such as wheat, rice, coal, etc., which are the basis of regional exports in Australia, are the result of a comparative advantage in specific industry sectors. The question here is whether such explanations also apply to value-added export products. If it can be established that firms in certain industrial sectors are more successful at exporting, then regions that specialise in those sectors should also be the more successful exporting areas.

The survey showed that regional exporters, typical of SMEs in general, displayed significant variation over a number of characteristics. Industry sector was one such variable. Possibly associated with the lack of clustering, exporting occurred over a wide range of products. Thus, we could only disaggregate sectors to the two digit Australian and New Zealand Standard Industry Classification (ANZSIC) code level. However, at this level, export firms strongly grouped into a few industries. In particular, a large

proportion of firms (76%) were manufacturers. These were identified predominantly in food, beverages and tobacco manufacturing 29.5% [abbreviated to 'food and beverages' in the rest of this chapter]; petroleum and coal-based, chemical and associated products 11.6% [abbreviated to 'coal based and chemical products' in the rest of this chapter]; and machinery and equipment manufacturing 19.2% [abbreviated to 'machinery and equipment']. Other manufacturing sectors have been aggregated and reported as 'other manufacturing' in this chapter. A very small proportion of our respondents (3.5%) were in value-added agriculture and fishing activities. These have been excluded from the rest of this analysis. The remainder was found in various service sectors. These have been aggregated as 'trade and transport', which includes construction, wholesaling, retailing and transport (11%) and 'services, etc.' which includes finance and insurance, business services and education (9.6%). A detailed breakdown of the survey firms by two digit industry sector is shown in Appendix 1. While the concentration of regional exporters in a few industry sectors is suggestive of clustering, the true situation is disguised by the high level of aggregation. Firms in each of our sectors produced a wide variety of mostly unrelated products and the scope for joint production activities among regional exporters was not high. Nor was there any significant level of subcontracting or ancillary production occurring among local firms in these regions (McPhee & Hodgkinson 2002).

The regions used in this study are shown on Map 1 below. They were chosen rather pragmatically on the basis of areas known to contain significant numbers of exporters. As such, they do not conform to standard administrative region definitions. The Shoalhaven and Wingecarribee are both local government areas within the broader Illawarra region. Shoalhaven is based in the south coast of NSW, and is a relatively old manufacturing and exporting region by Australian standards, where many firms decentralised from the capital city Sydney in the 1980s. Wingecarribee is a much newer manufacturing region, based in the southern highlands outside Sydney. People are attracted to this area for lifestyle reasons, but retain ready access to the Sydney market and services. The Far North Coast region is a composite of local government areas on the north coast of NSW between Coffs Harbour and the Queensland border. Again, people are attracted to this area for lifestyle reasons and exporters tend to be relatively new firms that have developed through combining local natural resources with know-how brought into the region by the incoming population.

Murrumbidgee is found in the south west of NSW in the agricultural irrigation area around Griffith and Leeton. This area has had a strong Italian immigration in the past, which has contributed to the development of a major winery sector that has now moved into exporting. Other exporting activities are also closely related to its agricultural base. This is one region where some evidence of cluster and networking activity was found. The Hunter region, outside Newcastle, also had a large number of export wineries and again there is some preliminary evidence of cluster and networking developments. More recently, other Hunter region manufacturing activities had moved into exporting after many years of being focused on the domestic market.

The Northern and Central West were the least successful regions in terms of exporting. Firms in the Northern region based on the northern tablelands around Armidale and

Tamworth were only recent exporters. This region, which is on the main east coast telecommunications networks, had a number of 'virtual' exporters in the service sectors who operated worldwide distribution activities. The Central West region is based around Dubbo and other western towns. Firms here tended to be larger, and to produce standardised products using mass production techniques. They thus tended to be more cost and price conscious than other regional exporters.

<Insert Map 1 about here>

2. THEORETICAL PERSPECTIVES ON THE RELATIONSHIP BETWEEN INDUSTRIAL STRUCTURE AND REGIONAL GROWTH

The relationship between local development and industrial structure in regional analysis is most easily explained by cluster theory. This focuses on the development of strong vertical input-output and subcontracting relationships among local firms, plus strong local horizontal collaborations among firms with the suppliers of producer services. Clusters facilitate the transfer of knowledge among innovating firms and this increases with closer proximity (Hodgkinson et al. 2003, p.15). Clusters thus require not only that firms in similar or related industries are geographically located in the same region, but that these firms also have transactional relationships with each other in order to encourage regional growth. As indicated above, most of the regions in NSW did contain groupings of firms from the same sectors. However, only limited vertical or horizontal relationships existed among these firms. Only two regions, Murrumbidgee and Hunter, had any indications of sector clusters. Thus, cluster relationships can be used as an explanation of regional growth performance in NSW in only a limited number of situations.

Product life-cycle theory argues that in the early stages of innovation, products have low elasticities of demand and thus are less sensitive to input prices. This allows innovative products from small firms to find niches within international markets and to achieve exports soon after establishment. Such firms are often referred to a 'born global'. As these firms grow they form backward and forward linkages with their users and suppliers, which may eventually form into sector clusters (Hoover & Vernon 1959, Simmie 1997). Many exporters in regional NSW appeared to be in this early innovative stage of the product cycle, which manifests as rapid growth rates and relatively high export intensities at an early stage in their development. Thus the presence of a relatively large number of small, new export firms in a region could explain high regional export growth rates. If sufficient numbers of these new exporters are in related sectors, they may develop into clusters in the future.

The flexible specialisation thesis (Piore & Sabel 1984) argues that firms, especially small firms, operating in international markets need to adopt strategies that will allow them to adjust to continuous technological and market change, and high levels of uncertainty as to future market conditions. This requires firms to shift from mass production technologies to using flexible computerised techniques where they can produce a range of

differentiated products at relatively low cost and change product characteristics quickly to meet changes in client demand. Such firms need to engage in continuous product development supported by continuous process innovation. A number of studies have identified this type of firm in successful regions in Europe, Japan and the USA (Pyke et al. 1990, Organa & Fujita 1993, Storper 1992, 1995, Saxenian 1996, Simmie 1997). In the Piore and Sabel analysis, flexible specialisation embraces not only the choice of production technique but also a tendency for these firms to form into industrial districts involving similar inter-firm relationships to clusters. Many of the firms in this survey used flexible, small batch production technologies, although no industrial districts existed. It thus can be expected that regions that contain concentrations of firms in sectors which use this type of techniques should have faster export growth performance than those where firms use mass production or other less effective technologies.

More recently, analysts have explained regional growth performance in terms of the availability and effectiveness of mechanism to transfer technical and market knowledge to and among regional firms. Local firms use such knowledge to develop new innovations and export product variations back into the world market (Tiberi Vipraio & Hodgkinson 2000). Knowledge transfer occurs through labour mobility, supplier relationships, joint production with other firms, and collaborative arrangements with research institutions. Regions that contain institutional arrangements to facilitate knowledge transfer among local firms would be expected to have higher rates of export growth. The benefits increase with the number of members participating in such networks, and with a mix of small and large firms (Courlet & Soulage 1994, Becattini 1990, Maillat et al. 1997). Our research has failed to find strong evidence of these innovative milieu or learning regions in NSW (McPhee & Hodgkinson 2002). Regional exporters do have strong capacities to access external market information and some had arrangements to access new technological information, although these rarely occurred through regional institutions.

Few examples of sector cluster relationships, industrial districts or innovative milieu were found in the NSW regions. Nevertheless, significant numbers of innovative exporters did exist in all these regions. However, as discussed earlier they operated primarily in isolation and used their own internal capacities to achieve exports. As they were predominantly small and medium enterprises, this approach places large demands on their relatively small resource base. It thus calls into question their capacity to sustain their current export growth. The relationship between size, regional export performance and industry structure is discussed in detail in the next section of this paper.

3. HIGH PERFORMING AND SUSTAINED EXPORTERS

As discussed in Hodgkinson and McPhee 2002 and shown in Table 1, small firms are effective exporters in terms of annual growth rates and levels of export intensity. However, this high performance may result from an initial high rate of growth from a small base as they first enter export markets. The question arises as to whether small firms are able to sustain their export growth over time. As shown in Table 1, when firms

that have been able to achieve high rates of export growth over a five year period are considered, the situation is somewhat reversed. The proportion of firms that can be classified as sustained exporters rises with employment size and is highest in the large-medium (100 to 199 employees) category.

Table 1
Export Performance by Firm Size

Size Category (employees)	Annual Growth Rate (%) ^a	Export Intensity 2001 (%) ^a	Sustained Exporters (% of firms) ^b	Committed Exporters (% of firms) ^c	Improving Exporters (% of firms) ^d
1 – 9	32.10	31.65	14.0	46.0	85.1
10 - 19	34.29	27.89	17.9	46.4	67.9
SMALL	32.10	30.39	15.4	46.2	78.7
20 – 49	10.16	28.57	12.5	41.9	67.7
50 – 99	11.00	30.00	21.4	30.8	74.9
100 – 199	23.89	10.00	38.5	23.1	30.8
MEDIUM	15.25	20.00	20.3	35.1	60.7
LARGE	7.90	46.50	14.3	50.0	62.5

Notes: a) reported as average median values.

b) firms which have export growths of 17% p.a. or above over 5 years 1996/97 to 2000/01.

c) firms with an export intensity ratio of 40% or over in 2000/01.

d) firms whose export intensity ratio increased over the 5 years 1996/97 to 2000/01.

Export intensity measures the percentage of total sales attributable to exports in a particular year. It is highest in large firms, but also in small firms. This latter result reflects the emergence of ‘born global’ firms which commence operations with a high level of exports. A similar pattern is found in firms classified as committed exporters (Cavusgil 1999), i.e. those with an export intensity of over 40 percent in 2000/01. When firms that have increased their export intensity over time are considered, a slightly different situation occurs. Improving exporters are most commonly found among the smallest firms (1 to 9 employees), followed by medium (50 to 99 employees) firms. The large-medium firms (100 to 199 employees) have the lowest proportion of improving exporters.

These results suggest that we need to look at SME regional exporters from two perspectives.

- (a) Those with sustained growth performance and increasing export intensity. These are found in the medium and large-medium size categories (50 to 199 employees). They represent the established exporters.
- (b) Born global firms with high growth and high and improving export intensities, but yet to prove a capacity to sustain this over time. These are found in the small size categories (1 – 19 employees). They represent the new exporters.

In Table 2, a similar analysis is presented by industrial sector. Considerable variation in export performance by sector is found. Machinery and equipment and Other manufacturing have the highest annual growth rates in exports, as well as the highest export intensities. Together, these data indicate that these are the high performing export

sectors, while Coal products and chemicals and Services, etc. are the lower performing export sectors.

Table 2
Export Performance by Industry Sector

Industrial Sector (2 digit ANZSIC)	Annual Growth Rate (%)a	Export Intensity 2001 (%)a	Sustained Exporters (% of firms)b	Committed Exporters (% of firms)c	Improving Exporters (% of firms)d
Food and Beverages	16.24	25.00	23.3	25.0	61.9
Coal products And Chemicals	7.14	12.00	5.9	8.3	58.9
Machinery & Equipment	47.41	32.50	7.4	23.3	88.9
Other Manufacturing	37.92	39.00	27.3	18.3	65.2
Trade and Transport	11.00	29.29	12.5	11.7	62.6
Services, etc	16.83	12.00	7.1	5.0	88.8

Notes: a) reported as average median values.

b) firms which have export growths of 17% p.a. or above over 5 years 1996/97 to 2000/01.

c) firms with an export intensity ratio of 40% or over in 2000/01.

d) firms whose export intensity ratio increased over the 5 years 1996/97 to 2000/01.

There were significant variations in the incidence of sustained exporters by sector. Other manufacturing and Food and beverages had substantially more sustained exporters than other sectors. Food and beverages and Machinery and equipment sectors had significantly more committed exporters than other sectors. Machinery and equipment and Services, etc. had the highest proportions of firms that had increased their export intensity over time.

From this data, it is clear that we must include Food and beverages as a successful exporting sector. This sector contains more established exporters, which have achieved high export growth over time as well as having high export intensity. Service, etc. firms, while performing less well on most indicators, have been improving exports over time. This indicates that, while relatively new exporters, they are achieving overseas sales with some success in recent times. In Table 3, export performance by region is described. Again, it indicates that there are substantial geographic variations in export performance. All five indicators need to be considered when categorising export performance in these regions.

The Murrumbidgee ranks high in terms of export intensity, the proportion of firms that have achieved sustained exports, and the proportion of firms that can be categorised as committed exporters. Thus, this region can be identified as an established exporting region. It has a particular concentration of Food and beverage sector firms in this region. Wingecarribee also has a high proportion of firms that have achieved sustained export growth, together with a high rating in annual export growth. This reflects a very

successful profile of export growth, but from firms whose export intensity is relatively low. It suggests that firms in this region have been steadily moving into exports over a long period of time, while still maintaining a strong focus on their domestic market.

Table 3
Export Performance by Region

Region	Annual Growth Rate (%) ^a	Export Intensity 2001 (%) ^a	Sustained Exporters (% of firms) ^b	Committed Exporters (% of firms) ^c	Improving Exporters (% of firms) ^d
Wingecarribee	31.27	18.00	26.7	40.0	66.7
Shoalhaven	17.33	17.66	21.4	37.9	51.6
Murrumbidgee	11.00	32.00	23.5	47.1	58.9
Hunter	32.10	27.89	10.5	30.0	85.0
Central West	13.89	10.00	15.0	40.0	64.7
Northern	23.19	25.00	18.8	26.7	85.7
Far North Coast	12.04	50.00	10.3	63.0	85.2

Notes: a) reported as average median values.

b) firms which have export growths of 17% p.a. or above over 5 years 1996/97 to 2000/01.

c) firms with an export intensity ratio of 40% or over in 2000/01.

d) firms whose export intensity ratio increased over the 5 years 1996/97 to 2000/01.

By contrast, the Far North Coast and the Hunter appear to represent new exporting regions. The Hunter rates high in terms of annual growth and the proportion of firms that have increased export intensity. This reflects a situation where firms, particularly in Machinery and equipment, have begun exporting after a long period focusing on the domestic market (Hodgkinson & Iredale 2003). The Far North Coast has a high average export intensity and rates high in terms of the number of improving exporters. Firms in this region are particularly distributed across the three successful export sectors identified above (see also Table 7 below). These results reflect the high proportion of 'born global' firms in this region (Hodgkinson & Iredale 2003).

Earlier, it was argued that successful SME exporters occur as two types: sustained exporters, which were mainly medium or large-medium firms, and new exporters, which were small firms. The better performing export sectors were Machinery and equipment, Other manufacturing, Food and beverages, and to some extent, Services, etc. The better performing regions were Wingecarribee, Murrumbidgee, Far North Coast and the Hunter. In the next section, the correlation between these three sets of characteristics is explored.

4. EXPORT PERFORMANCE BY INDUSTRY SECTOR

Within the context of global markets, firms that use flexible strategies including collaborative production and marketing arrangements and computerised, small batch production technologies, are best able to adapt to the uncertainty and short product cycles associated with these market environments. These flexible strategies particularly allow small and medium firms to compete in large international markets by developing

innovative, niche products. Similarly, firms that focused on client needs and development of their product range rather than on production improvements would be expected to be more successful exporters (Tiberi Vipraio & Hodgkinson 2000). The corporate strategies employed by firms in each of these sectors are shown in Table 4.

Corporate Strategies

Table 4
Sector Profiles (% of firms)

Characteristic	Food & Beverages	Coal & Chemicals	Machinery & Equip.	Other Manuf.	Trade & Transport	Services etc.	Average
<i>Age</i>							
1 – 8 years	30.2	35.3	18.5	17.4	31.3	50.0	28.3
9 – 13 years	20.9	17.6	18.5	26.1	18.8	35.7	22.1
14 – 23 years	18.6	23.5	37.0	34.8	12.5	14.3	24.8
24 plus years	30.2	23.5	25.9	21.7	37.5	-	24.8
<i>Years Exporting</i>							
Three or less	25.6	17.6	37.0	30.4	18.8	83.3	30.8
Four or five	23.3	41.2	25.9	17.4	37.5	8.3	24.5
Six to nine	25.6	23.5	18.5	17.4	18.8	8.3	20.3
Ten or more	25.6	17.6	18.5	34.8	25.0	-	24.5
<i>Firm Size</i>							
Small	51.2	52.9	50.0	56.5	62.6	50.0	53.4
Medium	37.2	47.1	46.4	34.8	37.5	50.0	41.1
Large	11.6	-	3.6	8.7	-	-	5.5
<i>Strategic Orientation</i>							
Clients, Products***	25.6	23.5	35.7	21.7	37.5	78.6	32.9
Production process**	2.3	-	10.7	4.3	25.0	-	6.8
Both***	72.1	76.5	53.6	73.9	37.5	21.4	60.3
Strategy Changed	30.2	23.5	35.7	39.2	6.3	7.1	27.4
<i>Primary Competitive Advantage</i>							
Technical innovation***	32.6	64.7	71.4	52.2	31.3	64.3	48.6
Product differentiation*	34.9	5.9	14.3	30.4	6.3	14.3	21.2
After sales, client service**	11.6	23.5	17.9	26.1	31.3	14.3	20.5
Market development	16.3	11.8	7.1	17.4	18.8	7.1	13.0
Production process	11.6	5.9	-	4.3	12.5	-	6.8
Price competitiveness	9.3	-	-	-	18.8	-	4.8
<i>Production Strategy</i>							
Mass production**	25.6	29.4	7.1	13.0	50.0	-	21.0
Flexible, small batch**	53.5	17.6	50.0	52.2	21.4	23.1	41.3
Flexible, differentiated*	16.3	35.3	7.1	8.7	7.1	30.8	15.4
Customisation**	4.7	17.6	35.7	26.1	21.4	46.2	22.4
Out source production***	10.0	36.4	59.1	50.0	7.7	27.3	28.6
Strategy Changed	25.6	17.6	21.4	13.0	14.3	23.1	19.6

Table 4: Sector Profiles (% of firms) - continued

Characteristic	Food & Beverages	Coal & Chemicals	Machinery & Equip.	Other Manuf.	Trade & Transport	Services etc.	Average
<i>Capital Expenditure Change</i>							
Increased	79.1	64.7	55.6	54.5	64.3	69.2	66.0
Stayed same	18.6	29.4	22.2	27.3	28.6	23.1	24.1
Decreased	2.3	5.9	22.2	18.2	7.1	7.7	9.9
<i>Export Growth Category†</i>							
Negative*	9.3	23.5	18.5	4.3	31.3	-	13.2
Zero*	16.0	17.6	7.4	13.0	12.5	42.9	16.0
Modest	25.6	23.5	18.5	21.7	12.5	7.1	20.1
Good	25.6	11.8	14.8	39.1	25.0	28.6	25.7
Fast	23.3	23.5	40.7	21.7	18.8	21.4	25.0

Notes to Table 4

* Significant at 90% confidence level

** Significant at 95% confidence level

*** Significant at 99% confidence level.

†Export Growth Categories defined as modest (0.1% to 16.5% per annum), good (16.6% to 75.5% per annum) and fast (76.6% and above per annum).

In another analysis of this database, a close correlation between firm size, age of firms, and years exporting was identified (Hodgkinson, et al. 2003). This pattern is most clearly identified in the Services, etc. sector where there is a high proportion of young, new exporter firms, which are all either small or medium enterprises. This confirms its position as a new, but improving export sector. Other manufacturing was a high performance export sector on growth rates, intensity and sustainability criteria. It has the highest proportion of experienced exporters and is comprised of relatively older firms. However, it also has an above average proportion of small firms, reinforcing the finding that size is not a constraint on exports in a diverse range of manufacturing sectors. It had a high proportion of firms able to achieve 'good' export growth over the study period. The other high performing export sector, Machinery and equipment, was predominantly comprised of small and medium firms, which were relatively older, but only recent exporters. This sector had a high proportion of firms that had obtained 'fast' export growth in the study period, but were yet to establish a record for sustained exports.

There were also significant variations in the strategies used by exports in the high performing export sectors. Other manufacturing exporters had a dual corporate focus on both clients needs and their production process. They nominated all the major areas of competitive advantage more frequently than the average, which also indicates that a diverse range of marketing strategies are being used in this sector. In relation to production, they were above average users of flexible, small batch production techniques and customisation, consistent with the requirements of international competition. However, relatively little new capital expenditure had been undertaken and there was some evidence of 'down-sizing'. The diverse range of corporate strategies in this sector

reflects the situation where it is a composite of a number of small sectors and so specific industry trends are submerged by aggregation.

Machinery and equipment firms had a higher emphasis on clients' needs and development of their product range, particularly when compared with the other manufacturing sectors. They used technical innovation for competitive advantage more frequently than any other sector. This is characteristic of new exporters that are able to achieve initial overseas sales based on the unique, innovative characteristics of their product. They were also relatively high users of flexible, small batch techniques and customisation. Again, a relatively high proportion of firms had reduced capital expenditure. This set of strategic choices is typical of new exporters, benefiting from overseas interest in a unique but often 'niche' market product. Their low levels of capital investment, however, indicate that they may not be utilizing this opportunity to grow, and thus their capacity to develop into sustained exporters may be queried.

The Food and beverages sector, which contains the important winery segment, was comprised of larger, older and more established firms. While export performance was lower, they had achieved sustained exports. These firms had a dual strategic focus on both clients and production. They had a higher than average emphasis on product differentiation and their production process than average as areas of competitive advantage. They were particularly high users of flexible, small batch production techniques. Over one-quarter of firms had changed their production strategy in recent years, often from mass production, which would facilitate a move towards more product differentiation, as a means of entering more premium foreign markets. Reflecting this, a higher proportion had increased capital expenditure. This capacity to change strategy in line with market needs is a major factor behind achieving sustained exports.

The Service, etc sector exporters had a particularly strong strategic focus on clients and development of their product range, and used customisation production techniques. This reflects the different environment of service firms relative to the others in the manufacturing and trade sectors. The high proportion of firms with zero export growth relates to their 'newness', such that many had only began exporting so that calculation of growth rates were not feasible.

The Trade and transport sector performed relatively poorly on most export indicators. It is comprised of a high proportion of small but older firms, with various experiences with exporting. Firms in this sector had a stronger than average focus on their production process as a dominant strategic orientation. This was reflected in the high use of mass production as a production strategy. They also had quite different emphases in terms of competitive advantage than the firms in the manufacturing sectors, and were one of the few areas where price competitiveness was still important. The figures suggest that firms in these sectors are still using older corporate strategies, competing on the basis of scale and cost, although supplemented by a focus on after sales and client service. As many of these firms are small, their capacity to compete under such conditions is constrained, and appears to be resulting in poorer levels of export performance.

The Coal-based products and chemicals sectors also performed relatively poorly in exports. They were small and medium firms of various ages, which had typically been exporting for four to five years. This period of export experience is significant as it was found that firms often experienced a drop in export growth after five years, as their initial export markets were saturated and they had difficulty in developing sales in new, less familiar areas (Hodgkinson, et al. 2003). This problem appears to particularly affect some firms in this sector. Firms in Coal-based products and chemicals predominantly had the dual focused corporate strategy. They had a particular emphasis on technical innovation for competitive advantage, which is most typical of new exporters. They tended to use flexible, differentiated products production techniques. These are used when a firm produces a relatively large number of different products, under a dominant brand name. It provides economies of scope but often lacks cost competitiveness except at large scales of operation. A relatively high proportion had not increased investments in capital in recent years. The picture presented by this sector is one of stalled exporting, where firms need to reassess and change strategies if they are to become successful sustained exporters.

Overall, the figures in Table 4 indicate that export behaviour as well as structural characteristics vary significantly among sectors. These sector variations result from a mix of different technical needs associated with different products and services, and differences in years of export experience. Nevertheless, all the better performing export sectors used flexible techniques, whereas the poorer performing sectors used other production strategies. Machinery and equipment and Services, etc. also had a client focus in their corporate strategies. These two sectors most clearly fit the profile expected of small firms competing in international markets. Trade and transport firms by contrast, although small firms, were attempting to compete on the basis of cost, a strategy which is likely to put them at a disadvantage in such markets.

Innovation

As well as exhibiting different corporate behaviours, regional exporters used different strategies to undertake research and development (R&D) and to source new technologies. Of particular interest is whether their R&D activities focused more on product or process development, and whether they primarily used their own internal capacities to develop new technologies compared to utilizing links outside their firm for this function. An internal R&D capacity is considered necessary to allow firms to develop their own innovations and to adapt ideas obtained from external sources. Access to external innovations allows firm to develop new products more quickly and effectively than relying solely on internal capacities (Freeman & Soete 1997). These results are shown in Table 5 below.

Table 5
Innovation and Technology by Sector (% of Firms)

	All firms	Food & Beverages	Coal based & Chemicals	Machinery & Equipment	Other Manuf.	Trade & Transport	Services etc.
R&D Activity							
New product Development***	80.7	81.4	82.4	96.4	87.0	43.8	76.9
Development of product range*	66.9	67.4	76.5	82.1	65.2	37.5	61.5
Substantial changes to production process	40.7	48.8	35.3	35.7	34.8	31.3	61.5
Continuous changes to production process	74.5	79.1	76.5	71.4	82.6	62.5	69.2
Sources of New Technology							
Self developed	83.4	81.4	94.1	89.3	87.0	62.5	84.6
Adapt from market*	44.1	44.2	52.9	39.3	69.6	25.0	38.5
Partnerships with firms	26.9	39.5	11.8	21.4	26.1	18.8	30.8
Licensing*	9.0	4.7	11.8	10.7	8.7	-	30.8
Transfer from parent*	8.3	-	5.9	10.7	8.7	18.8	23.1
Collaborations with public research instits.	13.8	11.6	29.4	10.7	4.3	25.0	15.4
Do not source Technology**	2.8	-	-	3.7	-	12.5	7.7

* significant at 90% confidence level, ** significant at 95% confidence level, *** significant at 99% level.

Firms in the four manufacturing sectors were more likely to undertake new product development than those in the two service sectors. Further, the highest performing sectors, and particularly Machinery and equipment firms, had the highest levels of this activity. Machinery and equipment firms were also more likely to be developing their range of products than those in the other sectors. This result is consistent with the earlier findings that firms in this sector had a higher emphasis in their corporate strategies on clients and product development, and with their choice of technical innovation as the major area of competitive advantage. Taken together, it highlights this sector as one comprised of new exporters using the unique, innovative characteristics of their products to gain export sales.

The sectors did not have great variations in production process R&D. Service, etc. firms, which were the last group to begin exporting, had the highest proportion of firms making substantial changes to their production process. This implies that they have had to improve this element of their businesses to meet export market requirements. Firms in all sectors had relatively high levels of R&D in continuous improvements to their production process, with the highest incidence occurring in Other manufacturing. This activity is usually undertaken as a complement to product development.

Self-development of new technologies was the most common means through which regional exporters sourced new technologies. There were no major variations in this factor by sector. The highest incidence was in Coal-based products and chemical firms,

one of the poorer performing export sectors. This finding implies that an internal technological capacity is a necessary but not sufficient condition for export success. Regional exporters also had a relatively high propensity to adapt products observed in the market for their own product range. Other manufacturing firms, a high performing sector, had the highest incidence of this activity.

Firms that obtain new technology from outside sources potentially have an innovative advantage as they can use knowledge developed elsewhere to enhance their own capabilities. The pattern of external sourcing varied considerably between sectors. Machinery and equipment firms did not have significantly high levels of external sourcing. As new exporters, they appeared to currently be relying predominantly on their own capacities. Other manufacturing firms were in a similar situation. However, the newest export sector, Services, etc. did have substantially higher use of external sourcing of new technologies, particularly licensing and transfers from parents. Indeed, it was above average in all these activities. Food and beverages had the highest level of involvement in technological partnerships with other firms, although relatively low use of other external technological linkages.

As well as having a strong internal technological capacity, Coal-based products and chemical firms were the highest collaborators with public research institutions. Although their export performance was lower than the other manufacturers, they were quite active in R&D and new technology development. Trade and transport, by contrast, had the lowest levels of R&D and of internal technological development. It also had the highest proportion of firms that did not source new technologies.

These data generally support the proposition that exporters have to be innovators. Low levels of internal innovative capacity appear to be associated with poor export performance. Firms that lack their own internal technological capacities are less able to adapt technologies bought in from outside the firm (Freeman & Soete 1997). This factor is possibly inhibiting the progress of regional Trade and transport firms. However, there is no clear discrimination between types of innovative activity and export success among the other sectors. Differences in patterns shown on Table 5 thus appear to reflect differences in the technological environments of each sector, rather than elements in competitive export strategies.

Exporting Strategies

Export channels are often considered in terms of simple mechanisms such as direct exporting, agency arrangements and more recently e-commerce sales, or more complex mechanisms involving overseas investment such as the establishment of a subsidiary (sales or manufacturing) or a joint venture. Intermediate arrangements include partnerships or collaborations associated with 'networking' arrangements, the introduction of minority partners through equity capital, or licensing a product for manufacture overseas (Hodgkinson 2004). As shown in Table 6, export channels varied considerably among the sectors and, in most cases, did not fit into a clear pattern of simple, intermediate or foreign investment choices of export channel.

Table 6
Exporting Strategies (% of Firms)

Characteristic	Food & Beverage	Coal & Chemical	Machinery & Equip.	Other Manuf.	Trade & Transport	Services etc.	Average Firms
Export Channels Used							
Partnerships or collaborations	44.2	35.3	35.7	43.5	31.3	46.2	40.7
Direct foreign investment***	-	-	14.3	4.3	-	7.7	5.5
Agency arrangements*	53.5	58.8	75.0	60.9	50.0	23.1	55.9
Direct exporting	62.9	64.7	53.6	56.5	68.8	46.2	58.6
E-commerce sales***	-	11.8	14.3	30.4	25.0	7.7	13.8
Equity capital	2.3	5.9	7.1	4.3	-	7.7	4.8
Other	2.3	-	7.1	4.3	6.9	7.7	4.1
Strategy changed	66.7	50.0	33.3	30.0	50.0	33.3	40.6
Overseas Presence							
Manuf. In overseas subsidiary	-	-	3.6	4.3	-	-	2.8
Manuf. In joint venture	7.0	17.6	17.9	4.3	-	7.1	10.4
Product licenced overseas	2.5	18.2	18.2	-	-	36.5	9.7
Problems Affecting Future Exports							
Adapting to market	2.3	17.6	10.7	8.7	-	7.1	6.8
Rising labour costs	27.9	35.3	28.6	34.8	25.0	-	27.4
Exchange rate movements	53.5	47.1	35.7	52.2	62.5	21.4	47.3
Remaining technologically Competitive	4.7	-	7.1	8.7	6.3	7.1	6.8
Matching cost reductions**	41.9	41.2	17.9	21.71	25.0	-	27.4
Organisational difficulties	16.3	17.6	10.7	30.4	12.5	35.7	18.5
Lack of investment funds*	30.2	23.5	50.0	17.4	37.5	28.6	30.8
Small volumes	25.6	17.6	21.4	4.3	25.0	7.1	17.8
Unfair competition by rivals*	34.9	23.5	17.6	8.7	12.5	7.1	21.1
Trade protection overseas	44.2	47.1	32.1	30.4	25.0	14.3	34.9
Costs of patents, IP overseas**	2.3	23.5	10.7	4.3	-	28.6	8.9
Lack of information***	16.3	58.8	21.4	13.0	6.3	21.4	20.5
Overseas partners	11.6	11.8	7.1	13.0	6.3	14.3	11.0
Aust. Govt. regulation**	16.3	11.8	17.9	21.7	31.3	21.4	21.2
Other	9.3	17.6	21.4	8.7	25.0	-	13.0

* significant at 90% confidence level, ** significant at 95% confidence level, *** significant at 99% level.

Machinery and equipment firms used collaborative mechanisms including agency arrangements and joint ventures. They also had a relatively high level of licensing their products for overseas manufacture. However, they were relatively low users of export partnerships or collaborations. Other manufacturing firms tended to the simple end of this spectrum, with relatively high use of e-commerce sales, direct exporting and agency arrangements. However, they also had the highest presence of overseas manufacturing subsidiaries. Food and beverage firms again had a higher use of direct exporting and agency arrangements, although they were also relatively high users of partnerships and collaborations.

Service, etc. firms, already identified as new and improving exporters, showed a clearer preference for the more modern 'networking' mechanisms such as partnerships and collaborations, the introduction of equity capital and licensing for overseas manufacture. The lower performing sectors, Trade and transport and Coal-based products and chemical firms, both had a strong preference for simple exporting mechanisms, particularly direct exporting.

Thus, there was no clear association among the patterns of choice of export channel in the higher performing export sectors. Choice thus appears to reflect the particular needs of markets for each sector, rather than act as an explanation for export success. However, lessons can be learnt for the other sectors. Service, etc. firms, which are new to exporting but have been able to improve their performance in recent years, choose intermediate mechanisms which give them the advantages of collaborations with (often) more experienced partners. The poorer performing sectors, however, are relying heavily on their own capacities to achieve export sales. A movement into more collaborative marketing activities could improve their performance.

The last section of Table 6 shows the problems identified by exporters as likely to affect future sales. Although certain problems such as exchange rate movements were important in almost all sectors, different sector patterns can be distinguished. The identified problems can be grouped into related areas. Some reflect cost related problems: rising labour costs, exchange rate movements, matching cost reductions. Others can be identified as problems associated with small size: organisational difficulties, lack of investment funds, small volumes, lack of information. A third group can be associated with inexperience in exporting: difficulties adapting to the market, trade protection overseas, problems with overseas partners, problems with Australian Government regulations. More experienced successful exporters tended to select remaining technologically competitive and unfair competition by rivals more frequently than other firms (Hodgkinson et al. 2003).

Machinery and equipment firms identified problems associated with small size. Rising labour costs and problems adapting to the market were also relatively important in this sector. Other manufacturing firms, which is a composite sector, selected a broad range of issues, where some may be specific to particular sub-sectors. Australian government regulations and remaining technologically competitive were selected by firms in this sector more frequently than elsewhere. Rising labour costs, exchange rate movements, and organisational difficulties were also relatively important, indicating that some of these firms saw difficulties in remaining cost competitive over time. Cost related problems plus trade competitive issues also most seriously affected firms in the Food and beverage sector.

Service, etc. firms predominantly identified problems associated with their new status as exporters. Interestingly, exchange rate movements were not considered so important in this sector. Trade and transport firms were particularly concerned with exchange rate movements. In addition, they tended to emphasise problems associated with small size.

The Coal-based products and chemical firms identified a wide range of problems, which included a number of cost related problems plus those associated with small size.

The problems identified by firms in the better performing sectors tended to group in ways that can be explained by the particular circumstances of each sector. The poorer performing sectors, however, identified a broader range of problems, which may be symptomatic of more deep-seated problems in their export process.

5. REGIONAL VARIATIONS

As shown in Table 3, export performance varied considerably among regions. This variation can first be explained by differences in industrial structure in each region. Regions that specialise in fast growing industries would be expected to have fastest growth, and vice versa. The industrial structure of each of the study regions is shown in Table 7, below.

Table 7
Industrial Structure by Regions (% of firms)

Sector	Winge-Carribee	Shoal-haven	Far North Coast	Northern	Murrumbidgee	Hunter	Central West
Food & beverages	13.3	6.9	27.6	18.8	58.8	50.0	40.0
Coal & chemicals	13.3	13.8	13.8	12.5	-	10.0	15.0
Machinery & equipment	33.3	20.7	24.1	18.8	5.9	15.0	15.0
Other manufacturing	20.0	27.6	24.1	18.8	-	10.0	-
Trade & transport	-	10.3	-	18.8	29.4	10.0	15.0
Services, etc.	13.3	10.3	10.3	12.5	-	5.0	15.0

The Wingecarribee and Hunter regions had the highest export growth rates. Wingecarribee also has an economic structure dominated by the high growth sectors, Machinery and equipment and Other manufacturing. This correlation suggests that the high growth in exports in that region can be explained by its industrial structure. However, this is not the case in the Hunter. The Hunter had high export growth and a high number of improving exporters. Its economic structure was dominated by Food and beverages, which tend to be older, established exporters with a high proportion of sustained exporters, but which had not achieved high growth rates. Thus the Hunter's growth appears to come from smaller, new exporters. Firms in its Machinery and equipment and other sectors containing new exporters are driving export growth in that region, rather than its more established winery sector.

The lowest growth rates were found in the Murrumbidgee and Far North Coast. Murrumbidgee region firms had relatively high export intensity as well as a high proportion of sustained exporters. This can be explained by the high proportion of Food and beverages firms in that region, which had medium growth rates but were established sustained exporters. The Far North Coast has a large proportion of firms with high export intensity and of committed exporters, however it had low proportions of firms with high growth rates and sustained exports. The Far North Coast had a complex industrial structure dominated by the three successful exporting manufacturing sectors. Thus its lower growth performance must be explained by factors other than industry sector. Indeed, firms in this region tended to use corporate strategies associated with lower growth such as mass production, flexible broad range of product production strategies and cited product differentiation as a major source of competitive advantage (Hodgkinson & Iredale 2003). Such strategies are potentially negating the growth potential of industries in this region, compared to that found elsewhere.

The Shoalhaven had a relatively high proportion of sustained exporters, although it rated low in terms of export intensity and number of improving exporters. The industrial structure of the Shoalhaven was also reasonably favourable to growth. However, it was a 'pioneer' exporting region, with many firms established during the 'decentralisation' programs in the 1980s. Many of these older, larger, long-term exporters date from that period (Hodgkinson & Iredale 2003). The Shoalhaven also had a relatively high proportion of Coal-based and chemical firms, which tend to under perform as exporters, bringing the regional average down. However, it would appear that the poorer performance in this region is not so much a reflection of its industrial structure, which contains good representation from the higher performing sectors. Rather the size and age of these firms means that their initial growth opportunities have been exhausted. To renew export performance, smaller, newer exporters need to be encouraged.

The Northern Region had a high proportion of improving exporters but ranked poorly in terms of number of committed exports and only medium on the other indicators. It had a very evenly distributed industrial structure and thus it is difficult to explain its export performance from that perspective. It had a significant number of Service, etc. sector exporters, which is reflected in the presence of improving exporters in this region. However, many of its exporters were older small and medium enterprises, which had low export values. They also tended to be reactive exporters, focused on the domestic market and entering exports only when this became saturated. More than any other, firms in this region lacked a clear export strategy or direction (Hodgkinson & Iredale 2003).

The Central West was the worst performing region in terms of exports. It did not rank highly on any of the indicators used, and ranked particularly low in terms of export intensity and number of improving exporters. It had a relatively high proportion of Coal-based and chemical, Service, etc. and Trade and transport firms, which may partly explain this performance. Firms in this region were more production focused than elsewhere, emphasising cost competitive rather than product quality strategies. They also tended to be reactive exporters relying on demand from overseas to initiate export sales and to use simple export strategies, particularly direct exporting.

Thus, industrial structure is an important explanation of export performance in all our regions. It most clearly explains regional outcomes in Wingecarribee, Hunter, Murrumbidgee and Central West. Elsewhere, other factors were also important in explaining performance. In particular, age and size of firms were significant. Regions that contained higher proportions of older and/or larger firms tended to have lower export growth. Moreover, those with higher proportions of new, small firms had less evidence of long term commitment to exports. Export and production strategies were also important. Regions where firms tended to be reactive exporters and focused on production rather than product development strategies tended to have lower growth rates.

6. CONCLUSIONS

This chapter presents an overview of export performance in regional NSW focusing on firms' structural characteristics, particularly size, age, export experience, industry sector and regional location. Firms in our study were highly variable across all these characteristics, which made it difficult to draw out clear lessons as to what is driving export success. Indeed, it appears that corporate, production, innovation and export strategies are highly sector specific and are chosen to reflect the competitive needs of particular markets rather than any 'golden' rules of exporting. Thus export strategies need to be particularly cognizant of the different technological and competitive environments affecting different products in global markets. It is clear that assuming that broad trends based on typical behaviour in international markets can be simply applied in all sectors is incorrect. From this, it can be concluded that specific sector strategies are an important element in export success. These should be included within more general small business export support and business development programs to allow assistance to be tailored to meet the different needs of firms in different product markets.

Nevertheless, there are some general lessons regarding the export process of SMEs that can be drawn from this study. Flexible production strategies, either small batch or customisation, were strongly associated with export success in SMEs because of the advantages that they offer to firms producing for highly volatile niche market segments. Further, firms that used mass production or differentiated product range strategies had poor export performances. Firms in the more successful export sectors were using the 'intermediate' collaborative exporting strategies associated with networking arrangements. These allow small, new exporters to partner with more experienced firms when developing their export markets. Those that relied predominantly on their own internal capacities for market knowledge or technological development had poor export performances. From the foregoing analysis, it can be concluded that the behaviour of the SME exporters in our study of NSW regions was generally consistent with that expected for small firms servicing niche global markets. Further, differential industry performance is a good, but not complete explanation of differences in regional export performance.

At the beginning of this analysis, it was argued that we needed to look at SME exporters from two perspectives: larger established exporters and small new exporters. This size /

export experience dimension can be found throughout the industry and geographic analysis. Industries and regions with a predominance of larger and older firms had lower growth rates but higher levels of export intensity and committed or sustained exporters. Experience and size contributed to long term export performance. Industries and regions that had a predominance of small new exporters had higher growth rates and more improving exporters. The first set of regions needed to focus on encouraging more new exporters to maintain growth rates. The second set of regions needed to focus on encouraging their new exporters to commit to exporting and adopt appropriate strategies to ensure exports are sustained over time.

Appendix 1: Exporters by Industry Sector by Region (%)

<i>Sector</i>	<i>Shoal- haven</i>	<i>Winge- carr- bee</i>	<i>Murrum- bidgee</i>	<i>Central West</i>	<i>Hunter</i>	<i>North- ern</i>	<i>Far North Coast</i>	<i>Average</i>
Agriculture	3.4	6.7	5.9	0.0	0.0	0.0	0.0	2.1
Services to Agriculture, Hunting & Trapping	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Commercial Fishing	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Food, Beverage and Tobacco Manufacturing	6.9	13.3	58.8	40.0	50.0	18.8	27.6	29.5
Textile, Clothing, Footwear & Leather Manufacturing	3.4	0.0	0.0	0.0	5.0	0.0	6.9	2.7
Wood & Paper Product Manufacturing	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.7
Printing, Publishing & Recorded Media	6.9	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Petroleum & Coal-based, Chemical & Associated Products	13.8	13.3	0.0	15.0	10.0	12.5	13.8	11.6
Non-Metallic Mineral Product Manufacturing	0.0	13.3	0.0	0.0	0.0	0.0	6.9	2.7
Metal Product Manuf.	6.9	0.0	0.0	0.0	5.0	12.5	3.4	4.1
Machinery & Equipment Manufacturing	20.7	33.3	5.9	15.0	15.0	18.8	24.1	19.2
Other Manufacturing	10.3	6.7	0.0	0.0	0.0	0.0	6.9	4.1
Construction Trade Services	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Basic Material Wholesaling	3.4	0.0	5.9	10.0	0.0	0.0	0.0	2.7
Personal & Household Good Wholesaling	3.4	0.0	23.5	0.0	0.0	0.0	0.0	3.4
Personal & Household Good Retailing	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.7
Motor Vehicle Retailing & Services	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.7
Air & Space Transport	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.7
Services to Transport	0.0	0.0	0.0	5.0	10.0	0.0	0.0	2.1
Services to Finance & Insurance	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.7
Business Services	6.9	6.7	0.0	10.0	5.0	12.5	6.9	6.8
Education	3.4	6.7	0.0	0.0	0.0	0.0	3.4	2.1
Total	29	15	17	20	20	16	29	146

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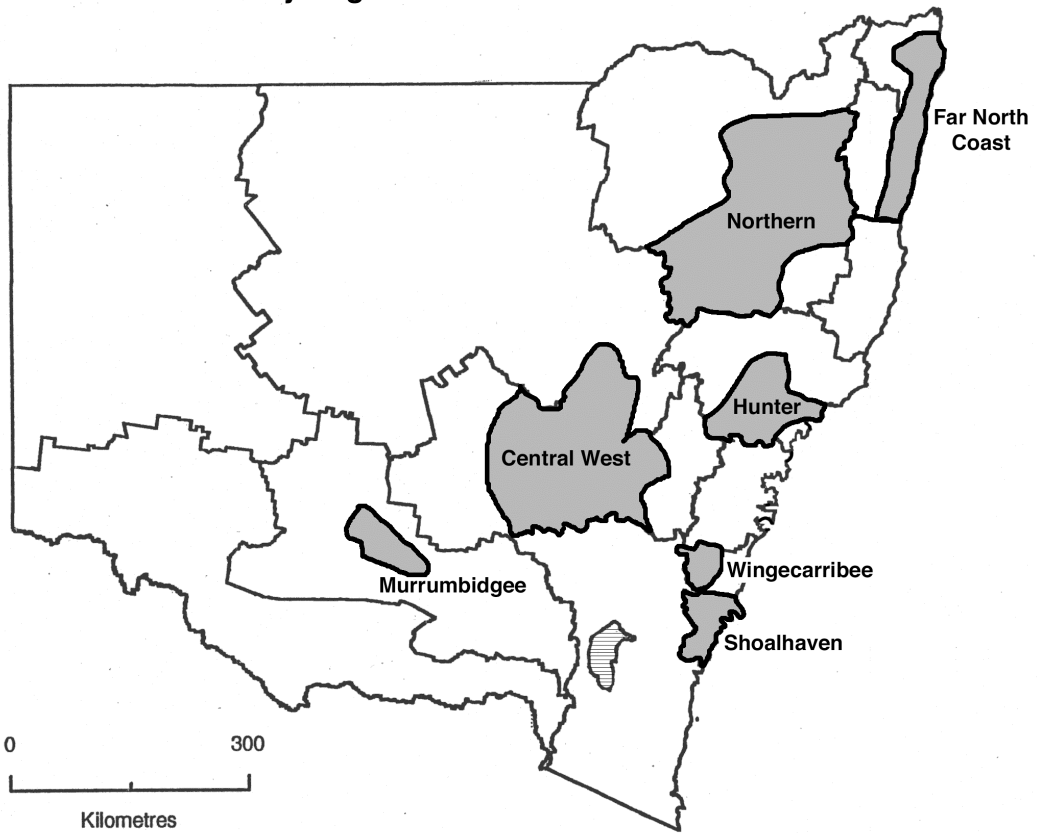
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Survey Regions: New South Wales



Source: Regional Statistics New South Wales, Australian Bureau of Statistics. Cat. No. 1304.1