Business Environment of Construction Firms: A Comparison of Metropolitan and Regional Enterprises In Australia

Smith, Jim; Mills, Anthony; Saunders, Andrew; Love, Peter

Published in:
Proceedings 18th Annual ARCOM Conference, 2-4 September 2002

Published: 01/01/2002

Document Version:
Publisher's PDF, also known as Version of record

BUSINESS ENVIRONMENT OF CONSTRUCTION FIRMS: A COMPARISON OF METROPOLITAN AND REGIONAL ENTERPRISES IN AUSTRALIA

Jim Smith[1], Anthony Mills[1], Andrew Saunders[1] and Peter Love

[1]*Faculty of Architecture, Building and Planning, University of Melbourne, Melbourne, Vic 3010.*
[2] *School of Management Information Systems, Edith Cowan University, Churchlands, Perth, WA 6018.*

The construction industry tends to be viewed as an indicator of economic activity and as a relatively large employer of labour either directly as employees or indirectly in the large number of small businesses that make up the sector. Many of these small businesses are geographically dispersed, forming a significant part of business activity in some areas. For these reasons governments take an active interest in the health of the construction industry. At a time when there is concern in Australia about the level of economic activity in non- metropolitan centres, this is expressed as a concern for the health of non-metropolitan construction markets. Non-metropolitan tendering and markets appears to be a neglected area of research and deserves closer examination and attention. Understanding regional tendering markets is thus the focus of this research. This research, supported by the University of Melbourne and the Building Control Commission of Victoria, suggests that the role of construction in the regional or non-metropolitan areas of Australia does have a significant role to play underpinning the social and economic life of regional communities. The specific objectives of the total research program are to identify and analyse the problems encountered by firms tendering for building projects in non-metropolitan areas throughout Australia and to provide a detailed picture of regional tendering markets by identifying the problems or factors that may inhibit competitive bidding in the regional areas of Victoria. These factors are considered under the headings of finance, labour, staff development, market, travel, communications and government contracts. The researchers present a review of their research to date based upon this survey of regional and metropolitan contractors in Victoria, Australia..

Keywords: business strategy, construction markets, regional tendering.

REGIONAL CONTEXT: AUSTRALIA

The demographic characteristics of Victoria, Australia, provide the background and the reason for this research. Whilst these demographics describe one state, they also apply to many of the other states in Australia and to possibly many other countries in the World (Storper, 2000). Disney (1993) summarises the national situation:

Australia is the most highly urbanised country in the world, with the exception of a few anomalies such as Singapore.

By international standards regional (Victoria and) Australia have few middle-sized cities with populations between 100,000 and 500,000 people. To compound this effect, regional Victoria has few areas with clusters of towns or cities that are separate but readily accessible to each other as a jointly comprised region of substantial population .

[1] smithjj@unimelb.edu.au

Smith, J, Mills, A, Saunders, A and Love, P E D (2002) Business environment of construction firms: a comparison of metropolitan and regional enterprises in Australia. *In:* Greenwood, D (Ed.), *18th Annual ARCOM Conference*, 2-4 September 2002, University of Northumbria. Association of Researchers in Construction Management, Vol. 1, 63-72.

Most cities cover a relatively large area in relation to the size of their population. They are relatively low-density cities by international standards. This is largely because our cities grew following the advent of auto-centric travel from the 1920's onwards.

The degree of urbanisation has increased remarkably in the last 50 years with a substantial increase in the numbers living in state capital cities, particularly Melbourne and Sydney.

The continuing trend towards consolidation of agricultural properties has rendered many rural towns economically unviable. However, this does not mean that middle-sized cities based on decentralised mobile industries, developed throughout regional Victoria, could not be used to reduce and intercept the steady flow of population to Melbourne (Steinke, 1977 and Storper, 1997). Since the 1970's national and state governments have attempted to reduce the flow of population from regional areas to the capital cities, but with no significant changes or reversal of the population flows.

When fostering development in regional Victoria, it is important that if the government spends money building in regional Victoria, as well as creating further infrastructure in the region, the money is also used to stimulate economic activity within the local community. Contrary to this, research undertaken by Smith and Love, (2000) identified that regional contractors faced difficulties in being considered, or pre-selected for medium to large sized government projects in regional areas of Victoria. Even when included on selected lists of tenders for projects in their region, many were unable to compete against their more adept Melbourne-based rivals.

IMPLICATIONS FOR THE CONSTRUCTION INDUSTRY

The construction industry tends to be viewed as an indicator of economic activity and as a relatively large employer of labour either directly as employees or indirectly in the large number of small businesses that make up the sector. Many of these small businesses are geographically dispersed, forming a significant part of business activity in some areas. For these reasons governments take an active interest in the health of the construction industry. At a time when there is concern about the level of economic activity in non- metropolitan centres, this is expressed as a concern for the health of non-metropolitan construction markets.

The Department of Industry, Science and Resources (DISR, 1999) have recently described the construction industry in Australia as follows.

> "There are some 158,000 firms in the construction trades sub-sector. The overwhelming majority are micro-businesses, employing an average of 2.3 people. Altogether 94 per cent of the businesses in this sub-sector employ fewer than five people. Only 800 firms - or less than 1 per cent - employ more than 20 people. Most construction trades firms operate in the residential building sector, resulting in a geographically dispersed sub-sector". (p.12)

Preliminary research undertaken by the authors (Smith *et al.* 2000) for the State Government of Victoria Department of Infrastructure (DoI), Building Policy Division, has identified that non-metropolitan based building contractors (in particular) face difficulties in being considered, or pre-selected, for medium to large sized projects in non-metropolitan areas of Victoria. Even when included on selected lists of tenderers for projects in their region they faced serious problems of winning tenders against their metropolitan-based rivals. On regional equity grounds the DoI speculated

whether any regional initiatives could be pursued to redress the balance and to improve the possibility of local firms being involved in local building projects.

The literature abounds with works pertaining to contractor selection, pre-qualification, and tendering practices (Skitmore, 1989; Ting and Mills, 1996; Jennings and Holt, 1998; Skitmore and Mills, 1999). However, to date limited research and literature has been discovered in the area of regional tendering and the problems regionally based building contractors face (Beliveau *et al.*, 1991; Chang, 1989; Zuhair and Roozbeh, 1994). Non-metropolitan tendering and markets appears to be a neglected research topic and deserves closer examination. Hence, the understanding regional tendering markets are the focus of this research.

THIS RESEARCH

Smith and Love's (2000) research, never identified why it was that regional contractors were struggling to win the middle to large contracts or what issues exist that are currently impacting upon their operations. This research therefore aimed to explore the question:

What factors impact on the ability of regional contractors to bid competitively against metropolitan-Melbourne based contractors?

The questionnaire comprised 38 factors that were perceived to impact on the ability of construction firms to effectively operate their businesses. Each respondent was asked to indicate the significances of each of the factors on a Likert scale from one to five. The mean scores were calculated and presented in the results below.

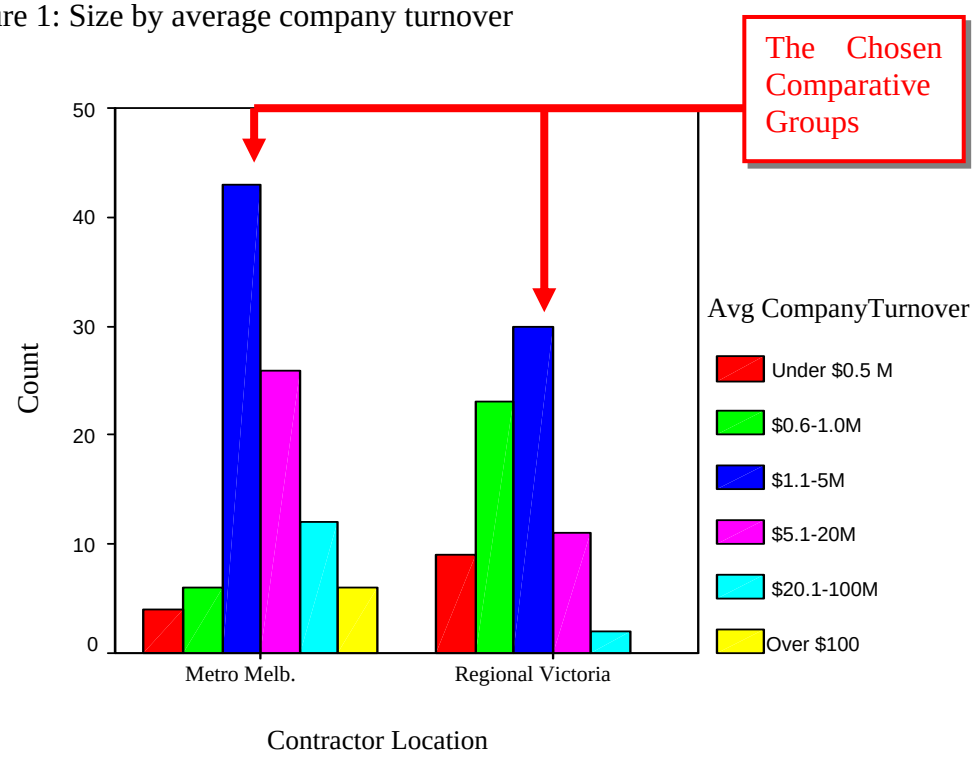
A database of 550 contractors was compiled from various sources, including the Victorian Building Control Commission, Department of Infrastructure pre-qualification lists and the *Yellow Pages.* A balance of numbers between regional and metropolitan contractors was attempted and the final locations of contractors based on postcodes indicated 46.2% were regional and 53.8% were metropolitan contractors.

After removing the 'return to sender' firms (52) from the total (550) left 498 delivered surveys. Out of this total, 172 survey returns were made giving a response rate of 34.5%. In construction research this is a good return rate (Chan and Fung, 1996). Within the 172 surveys received, 56.4% were from metropolitan Melbourne firms, compared with 43.6% from regional Victoria.

In terms of the analysis of the survey returns it was necessary to identify the comparative difficulties encountered by regional and metropolitan contractors of a similar size. This characteristic was considered to provide the most reliable basis for a valid comparison. The *Average Company Turnover* emerged as the best variable to group companies by size. Figure 1 indicates the profile of the respondent companies in the two groups. Companies with a turnover of between A$1.1 - A$5.0 million were close to the mean and most frequent in both groups and chosen as the comparison group.

For these two reasons this value was chosen to compare the two groups and all the 73 contractors in this category were selected for analysis. From this total of 73 contractors, 43 (58.9%) were based in Melbourne and 30 (41.1%) were from regional areas. The authors consider this is a large enough sample to validate a comparison between the groups and all the data analysis is based upon these 73 respondents.

Figure 1: Size by average company turnover



RESULTS

Overall results compare the Likert scores between regional and metropolitan contractors for the characteristics measured in the survey as summarised below:

Size of Firms

Operational Difficulties

Labour Difficulties

Staff Development/Learning

Market Difficulties

Distances Travelled to Site

Electronic Communications

Reliance on Government Work

The significant comparisons are now presented for information and discussion.

Size of Firms

Melbourne contractors of this size employ slightly more directly employed people with an average of 7.58 as against 6.18 in regional contractors. For sub-contracted employees the numbers show a larger variation. This is probably due to the larger Melbourne projects that require more sub-contractors and management staff. The relatively large standard deviations (over 20 in the metropolitan firms) reflect the flexible, temporary organisations that are found in the modern construction industry.

Table 1. Employee numbers

Contractor Location	Direct Employee Numbers		Sub-Contracted Employee Numbers	
	Mean	Std Dev.	Mean	Std Dev.
Metropolitan	7.58	7.11	9.40	20.16
Regional	6.18	3.54	5.27	7.09
Total	7.01	5.92	7.63	15.97

Operational Difficulties

Six operational characteristics were compared and the average Likert[2] scale mean values are shown in Table 2. In all cases the regional contractors experienced fewer problems in all these operational areas as their average scores were lower under each heading. These interesting results undermine some assumptions often made about management in small to medium enterprises (SME's) and regional-based builders.

Table 2. Mean Likert Values for Operational Characteristics

Contractor Location	Working Capital	Credit for Suppliers	High Interest Rates	Late Payments	PAYE to PAYG[(a)]	GST[b)] Admin Burden
Metropolitan	2.21	1.46	2.40	3.16	2.51	3.49
Regional	1.77	1.33	1.73	2.87	2.00	3.13
Total	2.03	1.41	2.12	3.04	2.30	3.34

(a) PAYE = Pay As You Earn; PAYG = Pay As You Go
(b) GST = Goods and Services Tax

Labour Difficulties

Results in this section of the survey indicated similar good results over the two groups. Again, except for the last characteristic, 'absenteeism', the regional builders' scores were better than their metropolitan counterparts. The regional builders also perceive that there is less stress (1.87 compared with 2.18) in supervising and organising the labour in their jobs than those in metropolitan firms.

Table 3. Mean Likert Values for Labour Difficulties

Contractor Location	Poor Morale	Ineffective Supervision	Excessive Stress	Workforce Conflict	Absenteeism
Metropolitan	1.90	2.00	2.18	1.79	1.71
Regional	1.66	1.90	1.87	1.57	1.77
Total	1.80	1.96	2.04	1.69	1.74

Staff Development/Learning

A significant difference is found between regional and metropolitan contractors in the issue of the *importance of distance travelled to training facilities* where the Likert scale average was 3.47 compared to 1.93. There is a significant difference between these figures. This sentiment is consistent with the average response to *internal training* (higher) and their use of *external training programs* (lower) indicating a more independent approach to these issues. Regional contractors also indicated they experienced more difficulties in getting training for site workers and managers when

[2] Likert scale conversion: 1 = not at all, 2 = no guiding comment, 3 = to some extent, 4 = no guiding comment, 5 = to a large extent.

compared to the average response levels of Melbourne contractors. *Research and Development, Company Benchmarking and Project Reviews* are also carried out to a higher degree by regional contractors and this possibly points to their companies being more isolated from the body of knowledge and opportunities that the larger metropolitan (Melbourne) market has created. Table 4 summarises the nine characteristics measured under staff development and training.

Table 4: Mean Likert Values for Staff Development/Learning

Difficulty Experienced	Metropolitan	Regional	Total
Internal Training	2.20	2.40	2.28
Self Learning	3.58	3.50	3.54
R & D	1.88	2.30	2.06
Company Benchmarking of Performance	2.22	2.43	2.31
Project Reviews	3.05	3.13	3.08
External Training Programs for staff	2.83	2.50	2.69
Difficulty Obtaining Training for Site Workers	1.83	2.33	2.04
Difficulty Obtaining Training for Managers	1.95	2.21	2.06
Importance of Distance Travelled to training	1.93	3.47	2.58

It appears from these responses that regional builders are not using the regionally based technical and further education (TAFE) institutions to access training programs. Alternatively, these TAFE colleges are not providing the type of training programs and courses that regional builders want for the staff in their businesses. The results from this section of the survey indicate a need to follow-up the reasons for these responses. *Self Learning* opportunities need to be urgently investigated as both groups indicated high scores for difficulties in this area (3.50 and 3.58).

In terms of the accessibility issue, respondents were also asked to indicate the average distance they travelled to training facilities. Naturally, regional contractors were involved in longer journeys with nearly 45% travelling an average round-trip distance of more than 100 km. One regional firm was involved in a trip in excess of a 500 kms round trip. The results are summarised in Table 5 below. Again, the role of regional TAFEs as vocational education must be explored to discover why this sector of the market appears to be travelling to the metropolitan area to gain suitable training programs.

Table 5: Average Distance Travelled to Training Facilities

Contractor Location		1-15 km	16-50 km	51-100 km	101-200 km	201 – 500 km	> 500km	Total
Metropolitan	Count	14	19	4	4	-	-	37
	%	37.8%	51.4%	10.8%	10.8%	-	-	100%
Regional	Count	7	4	5	5	5	1	29
	%	24.1%	13.8%	17.2%	24.1%	17.2%	3.4%	100%
Total	Count	21	23	9	7	5	1	66
	%	31.8%	34.8%	13.6%	10.6%	7.6%	1.5%	100%

Market Difficulties

Of the eight variables surveyed one of the biggest problems for both groups was *Excessive Competition for Work in Area* and the regional contractors felt this more keenly with an average score of 3.13. In fact, across all the variables the regional contractors indicated that they had more difficulties in gaining work and competing than their metropolitan counterparts. These results shown in Table 6 are a reflection

that the size of the regional market is smaller than the Melbourne market and it experiences greater competition.

Table 6**:** Mean Likert Values for Market Difficulties

Difficulty Experienced	Metropolitan	Regional	Total
Difficulty of Obtaining Sufficient Work in Area	2.17	2.20	2.18
Excessive Competition for Work in Area	2.60	3.13	2.82
Difficulty Establishing Long Term Relationships with Clients	1.98	2.03	2.00
Difficulty Obtaining Consistent Work of Most Preferred Type	2.48	2.53	2.50
Difficulty Obtaining Work of a Sufficiently Large Value	2.49	2.53	2.51
Difficulty Obtaining Sub-Contractors in Structural Trades	2.40	2.83	2.58
Difficulty Obtaining Sub-Contractors in Finishing Trades	2.40	2.83	2.58
Difficulty Obtaining Sub-Contractors in Services Trades	2.24	2.60	2.39

The fact that these contractors are in the largest size group (A$1.1 – A$5.0 million) naturally means there will be more competition from the greater number of builders. Further analysis of other size groups may provide an interesting comparison.

Distances Travelled to Site

Both groups noted that transportation costs of materials were considered not a major problem on most contracts. In fact, inspection and analysis of the Rawlinson's Construction Handbook (Rawlinson's, annual publication) over the last twenty years shows a steady fall in locality allowances (mainly due to transportation costs of materials). However, as could be expected the (higher) cost of fuel had a bigger impact on regional contractors (30%) than the metropolitan group (12.2%).

The mean distance travelled to sites was slightly more than double for the regional contractors at 55.6 km compared to 27.2 for the metropolitan contractors. The sourcing of materials showed a similar trend and these results are shown in Table 7.

Table 7: Distances Travelled

Contractor Location	Average Distance in kms Travelled to site	Average Distance in kms Materials are Sourced from and to site
Metropolitan	27.21	28.19
Regional	55.60	86.25
Total	39.55	53.07

Electronic Communications

The survey attempted to investigate the costs of the ubiquitous mobile phone used by all builders and to identify and quantify the use of the Internet connections. The results are interesting and are summarised in Tables 8 and 9.

Table 8: Impact of Cost of Mobile ‘Phone Charges on Business Operations

Contractor Location		1. Not at all	2. Minor Extent	3. To Some Extent	4. Major Extent	5. To a Very Large Extent	Total
Metropolitan	Count	4	8	20	7	3	42
	%	9.5%	19.0%	47.6%	16.7%	7.1%	100%
Regional	Count	3	4	13	6	4	30
	%	10.0%	13.3%	43.3%	20.0%	13.3%	100%
Total	Count	7	12	33	13	7	72
	%	9.7%	16.7%	45.8%	18.1%	9.7%	100%

On the cost of mobile phone calls 76.6% of the regional contractors indicated that the cost of calls had an impact on their business operations compared to a similar percentage (71.4%) for the metropolitan contractors. So, both groups of contractors were sensitive to the cost of mobile ‘phone charges. This part of the survey will be followed up with quantification of the charges involved that are causing such universal dissatisfaction.

The surprising figure of 86.7% of Internet connections for the regional contractors exceeded that of the metropolitan group of 81.4%. The regional builders are connected and it would be now useful to discover whether the full potential of the Internet is, and can be, realised. The next stage of the research will identify whether *e-business* and other capabilities can be integrated into the regional builders’ businesses. That is, can the high level of internet connection be usefully exploited?

Table 9. Connections to the Internet

Contractor Location		No	Yes	Total
Metropolitan	Count	8	35	43
	%	18.6%	81.4%	100%
Regional	Count	4	26	30
	%	13.3%	86.7%	100%
Total	Count	12	61	73
	%	16.4%	83.6%	100%

Reliance on Government Work

A higher proportion of the regional contractors (93.3%) were pre-qualified for government work compared to metropolitan contractors (78%). This indicates that regional contractors probably have to rely on all sources of work and government work (State and local, in particular) for their workload. More regional contractors perceived that winning government contracts was more difficult (41.4%) than their metropolitan counterparts (34.4%). In practice, regional contractors appear to be more dependent on winning state government contracts (33.1%) than metropolitan contractors (25.8%). One of the sponsoring bodies of this research, The Building Commission (Victoria), is interested in ensuring ready access from regional builders to regionally based government projects whilst still retaining the integrity of the pre-qualification systems with satisfactory levels probity and competitiveness being retained. This is a complex issue.

THE WAY FORWARD?

All State Governments have expressed a desire to maintain and possibly reinforce the population of their regions and regional economies. It is in the interests of the regional communities themselves and the state governments that this essential part of the cultural, social and economic fabric of national life is given renewed life and vigour (Storper, 1997). It is important that regional construction is not ignored in the Government's national quest to improve the performance of the construction industry generally. Regional building and construction companies have much to gain from linking it into expanded networks of IT and e-commerce. The impressive Internet base of regional contractors (86.7%) indicates that a strategy of upgrading and increasing awareness of IT has a sound basis for a number of IT and training developments. Regional building companies must be given the opportunity to participate in a strategy specified in the Federal Government’s Action Agenda (DISR, 1999):

foster the use of alliancing between metropolitan and regional based contractors

increase awareness of the benefits of IT;

support the development of industry standards and shared databases;

encourage and focus on added value from the use of IT; and

support restructuring of the industry supply chain to leverage benefits from IT.

This research indicates that such policies may succeed with suitable support in some key areas. If the regional tendering situation is not addressed metropolitan-based building contractors will continue to win the medium to large construction projects in regional areas ahead of the local competition. This has effect of further reducing the capacity of regional-based builders who cannot grow to add to the competitive environment that creates an innovative and efficient construction industry. The problems in regional Australia are probably common to many countries. These problems, opportunities and initiatives found in construction firms in regional areas around the world need to be shared to find solutions to the common problems, especially when better communications can bring the regions closer to the dominant metropolitan areas.

REFERENCES

Beliveau, Y J; Snyder, D A and Vorster, M C (1991) DBE Programs - new model. *Journal of Professional Issues in Engineering* (ASCE), **117** (1) 176 - 192.

Chan, A.PC and Fung, CY. (1996). Procurement systems in Australia. Proceedings of CIB W-89, 21st-24th October, Beijing, China [CD-ROM Proceedings].

Chang, L M (1989) Method to deal with dbe issues. *Journal of Professional Issues in Engineering* (ASCE), **115** (5) 305 - 319.

Department of Industry, Science and Resources (DISR) (1999) *Building for Growth: An Analysis of the Australian Building and Construction Industries (Competitive Australia)*, Commonwealth of Australia, Canberra.

Disney, J (1993) *Regional Development and Australia's future*. Canberra, Australia: Australian Council of Social Services, Office of Local Government.

Jennings, P and Holt, G (1998) Pre-qualification and multi-criteria selection: a measure of contractors opinion. *Construction Management and Economics*, **16** (3), pp. 651-660.

Rawlinsons (annual publication) *Australian Construction Cost Handbook*. Perth, Western Australia: Rawlhouse Publications.

Skitmore, M (1989) *Contract Bidding in Construction*. Harlow, UK: Longman Scientific and Technical.

Skitmore, R. M and Mills, A. J. (1999) A needs based methodology for classifying construction clients and selecting contractors: comment. *Construction Management and Economics*, **17** (1) 5-7.

Smith, J. Love, P E D. and Jackson, N (2000) *Regional Construction Markets*, unpublished report to the Department of Infrastructure, Building Policy Division, State Government of Victoria, Melbourne.

Steinke, J C (1977) *Australian Regional Policy and Regional Population Trends 1947-7*, Department of Decentralisation and Development, Sydney.

Storper, M (1997) *The regional world: territorial development in a global economy*. New York: Guildford Press.

Ting, S C and Mills, A. 1996, An analysis of contractors bidding decisions.*CIB W92 Procurement Systems Symposium*, ed. Taylor, R., University of Natal, University of Natal, Durban, South Africa, pp. 53-65.

Zuhair, E I and Roozbeh, K (1994) Improving effectiveness of equal business opportunity programs. *Journal of Professional Issues in Engineering* (ASCE), **120** (3) 295 - 312.