

# **Does Primary Strategy Matter? A study of small Australian manufacturing firms**

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## **Abstract:**

The survival crisis of small manufacturing firms is most often blamed on cheap imports. However the real debate should centre on how to turnaround a 20th century small business culture of low innovation and domestic penetration to “international engagement”. We utilise panel data to demonstrate that when innovation is combined with international engagement they provide a statistically significant value added advantage. In particular we find support for the contention that export as an activity does not offer any performance benefit to the firm. We also demonstrate the dangers of drawing business policy conclusions from even high quality cross-sectional panel data.

## **Keywords:**

*Strategy, Innovation, International Engagement, Small & Medium Enterprises, Australia, Manufacturing*

## **INTRODUCTION**

The current discussion in both academic and media centres on a survival crisis of small Australian manufacturing firms (SAMFs) because of cheap imports from our Asian trading networks (Kavanagh, 2003; McMahon, 2001; Minchin, 1999; Roberts, 2005; Yellow-Pages-Australia, 2001). However we believe the crisis is more a question of how to turnaround a 20th century small business culture of low innovation and domestic penetration to what Lewis and Richardson (2001) term “international engagement”. We utilise data gathered by the Australian Bureau of Statistics growth and performance survey over four years from 1995 to 1998 to demonstrate that innovative research and development, and export commitment provide a statistically significant value added advantage (and by inference survival advantage) over those small manufacturing firms who do neither. In particular, we find support for the contention by Bernard and Jensen (1999) that export as an activity does not offer any performance benefit to the firm.

The study firstly examines the strategic management literature emanating from Ansoff's corporate strategy profiles (1965; 1990) to produce a multi-layered primary strategy typology (PST). The definition of the typology is founded on export orientation (international engagement) and innovation propensity (primarily R&D). The primary elements of the typology are then used

to select four samples (defined as primary strategy orientations or PSOs) of small Australian manufacturing firms, and by using cross-sectional and longitudinal comparative measures we examine two hypotheses regarding performance advantage, and by inference survival advantage of one strategic orientation over another.

Methodologically the study follows two approaches, firstly we utilise the cross-sectional organisational research tradition established by Hitt and Ireland (1985, examining corporate distinctive competence of large firms), Birley and Westhead (1990, examining the growth and performance of small firms), and Ansoff (1987, examining corporate strategy and positioning; 1991; 1990) to examine H1<sub>0</sub>. Secondly, we utilise the longitudinal tradition established in the field of behavioural psychology, following authors such as Willett and Sayer (1994; 1996) and others (Curran, Harford, & Muthen, 1996; Willett, Ayoub, & Robinson, 1991) to examine H2<sub>0</sub>.

## ***LITERATURE***

The importance of international trade in products, services and knowledge to the micro-economy of industries, firms and communities has gained momentum in the recent econometric literature (Brain, 2001; Doms & Bartlesman, 2000; Doms & Jensen, 1998; Foster, Haltiwanger, & Krizan, 1998; Jensen & McGuckin, 1997; Lewis III & Richardson, 2001; Richardson & Rindal, 1995, 1996; Roberts & Tybout, 1996; Tybout, 2000). Studies by Bernard and Jensen (1998a; 1998b; 1999) show that employment, shipments, capital intensity, growth rates and levels of success are all higher within firms that export. Lewis and Richardson (2001) in their meta-study of US manufacturing companies through the 1980s and 1990s used five criteria to assess international engagement, namely whether companies exported, imported, and whether companies had foreign investment links created by inbound (into the US) or outbound (indirect or direct) foreign investment. Compared with similar companies in the same industry, companies that exported grew faster in terms of both employment and sales, were less likely to go out of business, made greater use of technology, and paid their workers more.

Lewis and Richardson (2001) analysed a key contention in the trade literature relating to whether exporting can make a company successful (Austrade, 2002), or if companies must firstly

be successful to export (see Bernard et. al. (1999), Moini (1992), and Harcourt (2000)). In the domestic trade engagement profile, Lewis and Richardson found that the companies that have export experience also have core competencies in the key areas of; innovation (product development and R&D), quality (customer service and worker training), brand (market development), productivity (financial management) and service or product niche. In this study the authors found that innovation led to increased profitability and cash flow, and ultimately provided the resources to secure best-practice skills, capital and technology.

The research conducted by the American Institute for International Economics (Lewis III & Richardson, 2001) and the Australian National Institute of Economic and Industry Research, (see Brain, 2001) suggests that endogenous innovation may lead the firm to exploit international markets. Empirical studies of Small and Medium Enterprises (SMEs) such as that by Lefebvre et. al. (1998) appears to indicate that the effect is independent of firm size. Once committed, the means for supplying foreign markets may be subsumed in two activities: exporting to a foreign market and / or manufacturing in it. Most small manufacturing firms begin their involvement in overseas business by indirect exporting, i.e. selling some of their production in an international market via export intermediaries, largely because this method requires low capital investment, moderate human commitment and is thus considered relatively free of risks.

A fundamental way of thinking about primary strategy stems from Chandler's (1962) seminal work on the motivation for diversification within large M-form or multidivisional enterprises. Following this theme, research in management has often focused on geographic diversity as a strategy, while research in strategic management has focused on product diversification. However, strategy configurations may include both product and geographic market diversification components. Furthermore, until recently there has been little theoretical work linking the interaction of these two strategies to firm resources such as capital intensity, R&D, quality, training, marketing, employee benefits and performance.

It is often argued that in large firms, high levels of international diversification generally correlate with higher firm performance, up to a point, after which performance begins to decline

with increasing internationalisation (e.g. Geringer, Beamish, & daCosta, 1989; Hitt, Hoskisson, & Kim, 1997). Other reasons for this variation is that the relationship is more complex than has been theoretically anticipated. For example, the diversification - performance relationship may not only be curvilinear but also bi-directional (Coviello & McAuley, 1999; Covin & Slevin, 1991). That is, although there is strong evidence that innovation leads to international diversification (Harper, 1992), there has also been research to suggest that international geographic diversification may lead to innovation and product diversification (Bernard & Jensen, 1999), and perhaps a refocus on a core product-market portfolio.

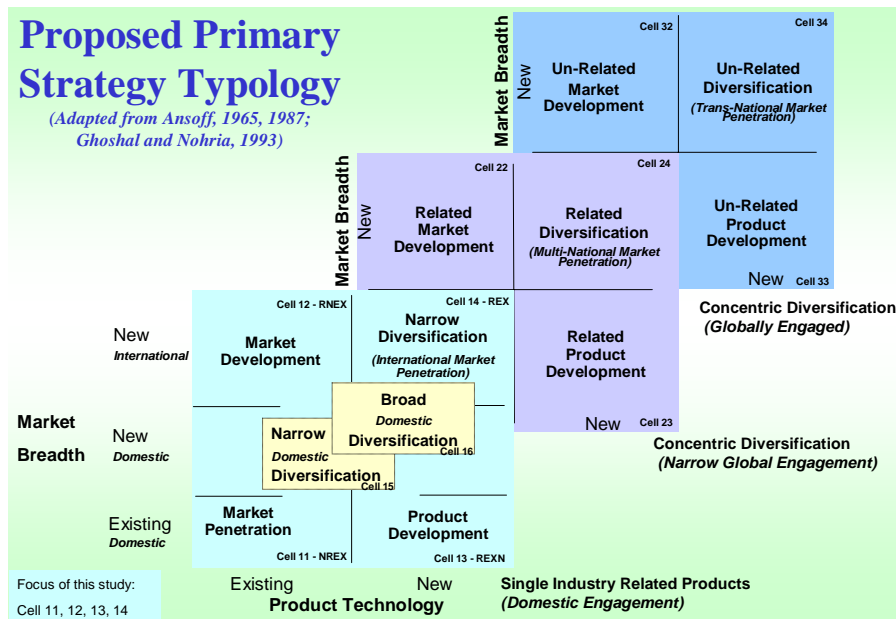
Consistent with the traditional loci of strategy and international business research, most empirical studies have been based on large internationalised firms (Jiang, 2002; McDougall & Oviatt, 1996). However, as suggested by Shuman and Seeger (1986:8), small businesses “...are not smaller versions of big business.” Rather, they differ fundamentally from large firms in terms of ownership, resources, organisational structures, as well as management processes and systems (Carrier, 1994). These differences could very well have an impact on the outcome of small manufacturing firm’s international diversification, and is at the core of what we examine in this study.

To link such structural breadth, analytic models must begin with broad conceptualisations of strategy (e.g. Ansoff’s (1965) product-market planning typology) and then in turn link this to the market interface via models such as Porter’s (1985) positioning typology. Ansoff’s (1987:97) suggested outline encompasses the following:

- Market-share maximisation strategy; a firm defends and grows its position within a product/service classification typically via cost/price efficiencies and synergies,
- Market differentiation strategy; a firm creates a distinctive branded presence in the minds of potential customers,
- Product differentiation strategy; a firm creates distinctive performance differences with competitors' products, and
- Product-market diversification strategy; a firm maps out what product-market to develop.

In a representative study, Axinn *et al.* (1996) note that this hierarchical structural analysis is very close to what occurs in practice. The authors conclude that product-market typologies appear to be generalisable across industries and company types, to the extent that scholars interested in

strategy and trade issues should use more of the product and / or market literature in framing their research (p.56). It is in this context that the present research has been framed.



**Figure 1 Proposed Primary Strategy Typology**

To that end, we focus on the question of whether and how value is created in the internationalisation of small manufacturing firms. To address this question, we directly test the performance outcomes of Ansoff's four primary strategic orientations for small manufacturing firms. Ansoff's expanded typology is shown in Figure 1. This research was thus dedicated to the analysis of cells 11, 12, 13, 14.

The typology acknowledges a baseline model that encompasses insular or domestically focused firms (cell 11 – NREX - those firms who do not innovate and do not export), against the two most prominent avenues of internationalisation, namely exporting and innovation/R&D. Against this backdrop we explore the comparative performance implications of small manufacturing firms that engage in exporting (cell 12 – RNEX - those firms who do not innovate but do export), innovation activities (cell 13 – REXN - those firms who do not export but do innovate), and the joint effects of these two strategies (cell 14 – REX - those firms who innovate and export). We test two key hypotheses in our research:

### **Hypothesis 1**

*H1<sub>0</sub>: Primary strategy orientations configured cross-sectionally will show no difference in their performance outcomes (value added or capital-labour).*

### **Hypothesis 2**

*H2<sub>0</sub>: Primary strategy orientations configured longitudinally will show no performance (value added or capital-labour) advantage over time.*

## **STATISTICAL ANALYSIS**

Many researchers have tested and support a linkage between various strategic orientations and performance at the corporate level (e.g. Tsai et. al. (1991); Dess and Davis, (1984); Gupta and Govindarajan, (1984); Beard and Dess, (1981); Snow and Hrebiniak, (1980)), and at the enterprise level (e.g. Ibrahim (1993); Ibrahim and Ellis, (1987); Ginn and Sexton, (1990); Sandberg and Hofer, (1987); Cooper et. al. (1986)).

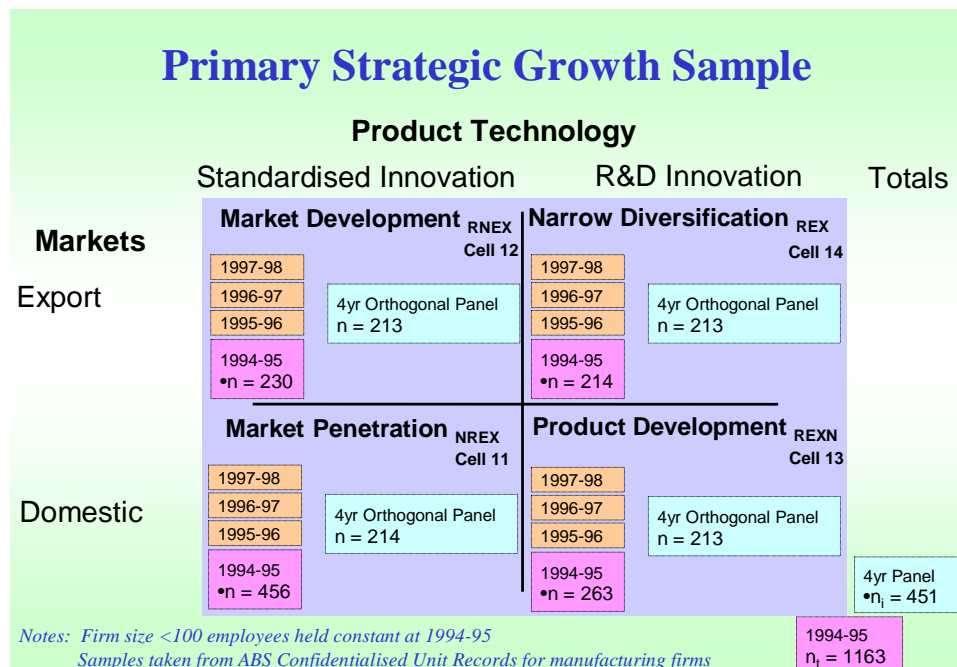
Extending the work of Porter (1980; 1985) several studies of small business strategy (e.g. Beal (2000), Beal and Lockamy (1999), Pelham (1996), Siegel et. al. (1993) Ibrahim and Goodwin (1987), Watkin (1986)) support the view that success is associated with entrepreneurs who adopt narrow, focused strategies. In contrast, research by Gray (1992), Olson and Bokor (1995), MacMillan and Day (1987), and Miller and Camp (1985) has indicated that small, rapidly growing firms appear to more frequently use innovative strategies to provide a differential competitive edge over non-innovative strategies.

In Australia, two seminal studies of small business strategy by Kotey and Meredith (1997) and Gray (1997) have found below average performance to be associated with Miles and Snow's (1978) reactive strategic orientation, and positive direct effects on employment and income were found in firms with proactive strategies.

The next section establishes the longitudinal testing approach using SPSS to investigate the relationships among strategic orientations of small manufacturing firms and associated business performance outcomes.

## Research Frame

The longitudinal (panel) data employed in this research was drawn from the Australian Bureau of Statistic's Growth and Performance Survey (GAPS). The GAPS was conducted on behalf of the Australian federal government's Industry, Science and Technology department over the financial years 1994-95, 1995-96, 1996-97 and 1997-98. Costing \$3-4 million, the GAPS was designed to provide information on the growth and performance of Australian employing businesses, and to identify selected economic and structural characteristics of small and medium enterprises (see overview ABS, 1996).



**Figure 2 Primary Strategy Sample Frame – Cross-Sectionally and Longitudinally**

Figure 2 shows the longitudinal panel classification according to each firm's primary strategy orientation (noted in Figure 1) as at 1994-95, that is  $n_{NREX}=456$ ,  $n_{RNEX}=230$ ,  $n_{REXN}=263$ , and  $n_{REX}=214$ . To enable comparative analysis of strategy orientations longitudinally, orthogonal samples of  $n_i=214$  were created at 1994-95 and kept constant across the panel (i.e. 1995-98).

## Development of the MDA and MANOVA Models

The comparison of strategic orientations was made using both multiple discriminate analysis (MDA) and Multiple Analysis of Variance (MANOVA). MANOVA provides a way to



test complex theoretical positions against observed data (Tabachnick & Fidell, 1996). The multivariate technique combines aspects of t-testing and Analysis of Variance to simultaneously test multiple relationships (Hair Jr., Anderson, Tatham, & Black, 1995).

Several authors (e.g. Dant, Lumpkin, & Bush, 1990; Darden & Perreault, 1975) have demonstrated the advantages of using MDA in conjunction with MANOVA to help determine the direction and intensity of each criterion variable's impact on the overall group differences. The advantages of using both techniques is that while MANOVA tests for a significant departure from the null hypothesis of no differences across groups, MDA determines the weights of the combination of criterion variables that maximize the departure from the null hypothesis. These weights are measured by discriminant loadings (correlations between the discriminating variables and the canonical discriminant function, see Hair, Anderson, Tatham, & Grablovsky, 1979), or as in this study the potency index (a relative measure comparing the overall discrimination provided by each independent variable across all significant discriminant functions, see Hair Jr., Anderson, Tatham, & Black, 1998:243), to enable a decision to be made on each variable's impact on the group separation.

In addition to the four strategic orientations (or engagement profiles), two measures of business performance were included: value added labour ratio and capital labour ratio. Several stages were involved in the MANOVA modelling sequence to compare various alternative strategic orientations to a baseline or null model (i.e. NREX model; cell 11 in Figure 1 and 2). A total of eleven covariates (definitions provided on request) were included in the analysis of both the baseline (NREX) and alternative strategic orientations (REXN, RNEX, REX). In behavioural terms the alternate strategic orientations were considered treatments (to a control baseline) in this study.

The sampling design used for the MANOVA was orthogonal so as to prevent any statistical bias creeping into the test of main effects. The guidance to accept a non-orthogonal sample design as opposed to the orthogonal or balanced sample design is presented by Tabachnick and Fidell

(1996:401-406), and it is an accepted limitation of this design that a balanced posthoc design may not represent the true population segmentation.

### Comparison of Strategic Orientations Across Variables

This section presents a comparison of strategic orientations in terms of the eleven environmental, organisational and performance variables (covariates) which comprise the model of technology adoption and performance presented above.

The results of the MDA and MANOVA analysis are presented in the tables below. The multivariate test was deemed significant if  $p < .05$ , indicating whether there are differences between each of the strategic orientations and the baseline model across the two performance variables. The predictive utility of the discriminant function was assessed by comparing the overall hit ratio in each year tested with the proportional chance criterion Hair et. al. (1995:204).

### Discrimination of Strategic Orientation in 1995

H<sub>10</sub>: posits that the strategic orientation of firms (i.e. REX NREX, REXN, RNEX) has no predictive utility in terms of the typical internal and external characteristics or attributes found in the literature. Specifically, innovative internationally engaged firms (e.g. REX) are predicted to be no different in terms of performance outcomes. To test this hypothesis, firms were grouped according to the strategic orientations noted above, and then the 11 attributes were contrasted across the four groups for the 1994-95 panel.

**Table 1 MANOVA results for 1995 Grand Product-Market Orientation**

| Performance<br>Strategic Orientation<br>(Baseline=NREX) | n=214<br>(a) | Capital Labour |           |       | Value Added |      |      |
|---|--------------|----------------|-----------|-------|-------------|------|------|
|   |              | REX            | REXN      | RNEX  | REX         | REXN | RNEX |
| Univariate F-value                                      | 1.09         |                |           |       | 4.31        |      |      |
| Univariate significance                                 | .352         |                |           |       | .005        |      |      |
| Power   | .3           |                |           |       | .87         |      |      |
| Multivariate t-value                                    |              | 1.03           | .90       | -1.28 | -3.52       | 1.63 | .29  |
| Multivariate significance                               |              | .30            | .37       | .2    | .001        | .10  | .77  |
| Power   |              | .18            | .17       | .25   | .94         | .37  | .04  |
| <b>Multivariate Effect Across Strategic Orientation</b> |              |                |           |       |             |      |      |
|   | Hyp. df      | Approx. F      | Sig. of F | Power |             |      |      |
| Pillai's F-value (b)                                    | 6            | 2.76           | .01       | .88   |             |      |      |

(a) Orthogonal design

(b) Bonferroni confidence intervals two-tailed observed power taken at .05 level adjusted for 11 covariates, Bartlett test of sphericity = 169.3 with 1 D. F.  $p < .001$

As reported in Table 1, Pillais' multivariate F-ratio is significant at the .01 level, indicating overall differences between the four groups. The multivariate results shown above reveal that REX firms do show a significant difference ( $p < .001$ ) in their value adding ability compared to the baseline NREX (1) firms. It is also worthy of note that the other two strategic orientations, namely REXN (3) and RNEX (4) firms showed no significant difference in either capital-labour or value added to the baseline NREX (1) firms. In summary, there is **strong support to reject the null hypothesis H1<sub>0</sub>**: of no differences across primary strategic orientations.

To help determine the direction and intensity of each criterion variable's impact on the overall group differences, MDA has been used to determine the weights of the combination of criterion variables that maximize the departure from the null hypothesis. Hair et al (1998:311) recommend that in simultaneous MDA the three preferred interpretive measures for each variable are; rotated discriminant loadings ( $> \pm .30$ ), univariate F ( $p < .001$ ) and potency index ( $> .1$ ). Univariate ANOVA procedures and MDA reveal that while seven of the 11 attributes were statistically significant at the .001 level, the group potency index refines this to six of the 11 attributes, namely; value added, (wages expense – excluded), foreign ownership, employee per location, manager per location, capital productivity, and training (details provided on request).

As an additional check, the predictive validity of the discriminant function was assessed by comparing the overall hit ratio of 43.1% with the proportional chance criterion of 25% (i.e. a balanced design). Hair et. al. (1979) suggest that the classification accuracy reflected in the overall hit ratio should be at least 25% higher than the proportional chance criterion (i.e. should be 31.25% or more) before one can have confidence in the predictive validity of the MDA function. Because this criterion is met, and six attribute differences are statistically significant, and the effect sizes are moderate, further supporting the rejection of H1<sub>0</sub>: in the 1995 data.

### **Discrimination of Strategic Orientations in 1998**

To further test H1<sub>0</sub>: that the strategic orientation of firms (i.e. REX NREX, REXN, RNEX) have no predictive performance utility, MANOVA and MDA were again used to test this

hypothesis in 1997-98. Comparisons of performance ratings across the same 11 attributes were made between the four groups, using the same panel of firms as that in 1994-95.

**Table 2 MANOVA results for 1998 Grand Product-Market Orientation**

| Performance   |              | Capital Labour |           |       | Value Added |      |      |
|---|--------------|----------------|-----------|-------|-------------|------|------|
| Strategic Orientation<br>(Baseline=NREX)            | n=214<br>(a) | REX            | REXN      | RNEX  | REX         | REXN | RNEX |
| Univariate F-value                                  | .92          |                |           |       | 2.48        |      |      |
| Univariate significance                             | .43          |                |           |       | .06         |      |      |
| Power   | .25          |                |           |       | .62         |      |      |
| Multivariate t-value                                |              | .83            | .5        | .28   | -2.42       | 1.95 | -.37 |
| Multivariate significance                           |              | .41            | .62       | .78   | .02         | .05  | .71  |
| Power   |              | .17            | .04       | .04   | .67         | .49  | .05  |
|   |              |                |           |       |             |      |      |
| Multivariate Effect Across<br>Strategic Orientation | Hyp. df      | Approx. F      | Sig. of F | Power |             |      |      |
| Pillais (b)   | 6            | 1.8            | .09       | .68   |             |      |      |

(a) Orthogonal design

(b) Bonferroni confidence intervals two-tailed observed power taken at .0500 level adjusted for 11 covariates, Bartlett test of sphericity = 255.9 with 1 D. F.  $p < .001$

As reported in Table 2, the MANOVA multivariate F-ratio is not significant at the .01 level ( $p = .09$ ,  $df = 6$ ), indicating that there is little difference between the four groups in 1997-98. The MANOVA results shown above reveal that while REX firms do show a significant multivariate difference ( $p < .02$ ) in their value adding ability compared to the baseline NREX (1) firms, there is poor univariate support for the hypothesised group difference. In summary, there is **strong support to accept the null hypothesis H1<sub>0</sub>**: of no differences across groups, and acceptance of H1<sub>a</sub>: that primary strategic orientations configured cross-sectionally show no performance advantage (i.e. a clear contrast to that reported for the 1995 data above in Table 1). Additionally, the differences in means of the four groups were moderate, giving rise to effect sizes of approximately 33% for the significant attributes, suggesting that the effects are more than an artefact of the sample size.

As an additional check, the predictive validity of the discriminant function was assessed by comparing the overall hit ratio of 40.4% with the Hair et. al. (1979) maximum chance criterion of 31.3%. Because this criterion is met, and six attribute differences are statistically significant, and the effect sizes are moderate, hypothesis H1<sub>a</sub>: receives further support in the 1998 data.

## Discrimination of Strategic Orientations Using the Four Year Panel (Average)

Hypothesis H2<sub>0</sub>: posits that strategic orientations have no predictive performance utility even over a longitudinal time. The previous cross-sectional analysis suggested that innovative engagement may be a complex process that requires more complex analysis to evaluate transitory impact on performance outcomes. To test this hypothesis the data was averaged over the four year longitudinal panel for those variables which were consistently collected. The most significant variable exclusion in this process was training, which was collected as an expenditure variable in 1994-95 and then recollected in 1997-98 as an ordinal variable. In addition, employees per location and managers per location were combined to produce a single variable employee-manager ratio, and justified in terms of achieving a more parsimonious model. Foreign investment was included in the analysis even though it was collected only in 1994-95, as it is considered to change very slowly in small firms (Tozer, 2001).

**Table 3 MANCOVA Results for Four Year Averaged Primary Strategy Orientations (a)**

| <i>Performance</i><br><i>Averaged Primary</i><br><i>Strategy Orientation</i><br><i>(Baseline=NREX)</i> | <i>Capital Labour</i> |                            |                            | <i>Value Added</i> |             |             |
|--|-----------------------|----------------------------|----------------------------|--------------------|-------------|-------------|
|  | <i>REX</i>            | <i>REXN</i>                | <i>RNEX</i>                | <i>REX</i>         | <i>REXN</i> | <i>RNEX</i> |
| Univariate F-value   | 1.21                  |                            |                            | 2.85               |             |             |
| Univariate significance  | .31                   |                            |                            | <b>.037</b>        |             |             |
| Power  | .32                   |                            |                            | <b>.68</b>         |             |             |
| Multivariate t-value (b)   | .43                   | 1.59                       | -.25                       | -2.31              | 1.87        | -1.07       |
| Multivariate significance  | .67                   | .11                        | .80                        | <b>.02</b>         | .06         | .28         |
| Power  | .046                  | .35                        | .04                        | <b>.63</b>         | .46         | .18         |
| <i>Multivariate Effect Across</i><br><i>Strategic Orientation</i>                                      | <i>Hyp. df</i>        | <i>Approx.</i><br><i>F</i> | <i>Sig. of</i><br><i>F</i> | <i>Power</i>       |             |             |
| Pillais F-value (c)  | 6                     | 2.55                       | <b>.018</b>                | <b>.85</b>         |             |             |

(a) Orthogonal design where  $n_{1-4}=180$  for  $n_5=720$

(b) Estimates adjusted for 9 covariates; Wages Expense, Other Expense, Eight-firm concentration, Gross cost margin, Unionisation, FIDI, Employee-Manager ratio, Return on Assets, Net Margin on Sales

(c) Bonferroni confidence intervals two-tailed observed power taken at .0500 level and Bartlett test of sphericity = 255.9 with  $df=1$ ,  $p<.001$ .

The results for the balanced orthogonal design are shown in Table 3. One can see from the results that only the value added DV is significant at  $p<.05$ . In addition, only the REX strategy orientation value added dimension shows any significant difference from the baseline NREX strategy orientation at  $p<.02$ . This result is supported by Pillais' multivariate F-ratio at  $p<.02$ , and

enables the **rejection of the null hypothesis  $H_{20}$** : that primary strategic orientations configured longitudinally will show no performance advantage over time.

There is thus a high level of confidence to accept Lewis and Richardson's (2001) contention that a strategy of innovative international engagement does produce performance benefits, and reject the notion of performance equifinality, regardless of strategy orientation, most notably put forward by Doty et. al. (1993). The results also support the econometric literature of analysis based on longitudinal moving averages. The results also imply that hidden macro-environmental shocks from political, financial and technological sources are very rarely accounted for in cross-sectional analyses and can thus lead to spurious conclusions.

## ***CONCLUSIONS***

In conclusion we have shown that small Australian manufacturing firms that commit to international engagement via R&D and export (REX) do show significant performance advantage over domestic firms that do neither (NREX) over the longer term (rejection of  $H_{20}$ ). In addition, those companies that embrace international engagement (REX firms) also tended to performed better on discriminating elements such as capital productivity, and as such further insure against survival crisis's. However, the current research is at odds with the international trade literature with respect to wage premiums for internationally engaged firms (lack of potency). This is suggestive of a small firm effect and an indication that (large) multinational firms do offer wage premiums to maintain their innovative status at the front edge of the product-market life cycle, and at worst indicates that innovative internationally engaged SAMFs (REX firms) are not targeting strategically defendable niche markets, and thus requiring much tighter micro-economic wage policy. This is supported by the Business Council of Australia recently claiming (Morgan, 2005) that Australia's HR skill shortage is due to increasing labour mobility, and arguing for government funded tax reductions. The present research views this proposition as a counter productive usage of public funds.

The practical application of this finding are immense, but for small Australian manufacturing firms it implies that prerequisites for entry into global supply chains (export

engagement) are a tight linkage between value added (cost competitiveness) and world class R&D (i.e. perceived value). That is, it is the firm's world class R&D that make its products both valuable and attractive to other manufacturers and consumers.

Methodologically we have demonstrated that isolated analysis of even high quality cross-sectional panel data can lead to conflicting and misleading conclusions (reject(1995)/accept(1998) of H1<sub>0</sub>). Our use of a four year longitudinal panel provides a sound benchmark on which other researchers of comparative strategy can build.

Finally, Hill (1994:319) suggests that it is not enough to merely identify and classify organisations, instead he calls on researchers to collect more detailed data on e.g. strategy, structure, internal processes, and integrating mechanisms. However, while Hill's statements are philosophically correct, they ignore the need for longitudinal research, the resources required to undertake such data collection, and the typically restrictive faculty budgets and corporate support available in Australia (the general feeling amongst SAMFs in the Australian TCFI was that the request for data is already an unnecessary burden). While one could assume that this type of research belongs in the domain of state and federal government funding, the authors note that even in this project where there was generous support at the federal level, it was time limited to a four-year interval. Further research must overcome these limitations by pooling resources across institutions and agencies to advance and promote the nature and benefits of strategic orientation in the small business environment.

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