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Correlates and consequences of high involvement work practices: the role of competitive strategy¹

James P. Guthrie, Chester S. Spell and Robert Ochoki Nyamori

Abstract Illustrative of world-wide trends, New Zealand has undergone drastic product and labour market reforms in an attempt to stimulate economic growth and national competitiveness. Towards this goal, firms have been urged to emphasize differentiation strategies in their approach to their markets and also to become more progressive in their management of human resources. This study finds that whereas more intensive use of high involvement work practices promotes firm effectiveness, this effect depends on the competitive strategy being pursued. The use of high involvement work practices is positively associated with performance in firms competing on the basis of differentiation and shows no relationship in firms pursuing a strategy of cost leadership.

Keywords Human resource management; strategy; performance

Introduction

There is perhaps no better illustration of economic reforms and restructuring aimed toward enhancing global competitiveness than in New Zealand. Described as the most comprehensive of any OECD country (Bray and Walsh, 1998), the 'New Zealand Experiment' (Kelsey, 1995) in product and labour market reforms has been undertaken as a means of stimulating increased economic activity and competitiveness. Following several decades of flagging economic growth and productivity, New Zealand has entered an era of dramatic political, economic and social change. After living with protectionist policies for nearly fifty years, in 1984 the newly elected Labour government moved rapidly toward a free market philosophy by deregulating product and financial markets, eliminating farming supports, dismantling import restrictions, quotas and licenses, and many other policy changes. Following the 1990 election, the National government, complemented Labour's product market reformations by radically transforming New Zealand's labour markets with the passage of the 1991 Employment Contracts Act (ECA). The ECA eliminated legislative protectionism for unions which had existed for over a century. As a result of these changes, union density has rapidly

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fallen from among the highest in the world in 1986 (54 per cent) to levels projected to approach those of the United States. Recent dramatic shifts in the New Zealand industrial relations system have been used to illustrate nations undergoing 'deep structure', discontinuous labour market change (Erickson and Kuruvilla, 1998).

In addition to these fairly radical reforms, a more modest undertaking aimed at strengthening the New Zealand economy was a project entitled *Upgrading New Zealand's Competitive Advantage* (Crocombe *et al.*, 1991). Based on the framework provided in Michael Porter's (1990) *The Competitive Advantage of Nations*, this project was dedicated to studying and improving New Zealand's economic strength and competitive advantage. In Porter's framework, there are four broad determinants of national competitive advantage: factor conditions; demand conditions; related and supporting industries; and firm strategy, structure and rivalry. 'Factor conditions' include physical resources, infrastructure, knowledge, capital and human resources. This paper focuses on two aspects of Porter's determinants of competitive advantage, human resources and firm strategy. More specifically, this paper presents results of a study examining the relationship between business strategy, human resource management and firm effectiveness during the New Zealand 'experiment'.

Human resource management as a source of competitive advantage

With some notable exceptions, Crocombe *et al.*'s (1991) report found that most New Zealand employers have historically been remiss in their approach to human resource management.

Limited management training, convoluted and antagonistic labour relations, low skill levels ... have contributed to one of the lowest levels of labour productivity in the industrialized world.

(Crocombe *et al.*, 1991: 100).

They advocated greater investment in human resources as a critically important 'factor condition' for improved productivity and competitive advantage.

In today's economy, human resource development is simply too important for firms to ignore or to leave to someone else. The quality and productivity of a firm's human resources is fundamental to its competitive advantage and its ability to move beyond competing solely on the basis of natural resources

(Crocombe *et al.*, 1991: 161).

Crocombe *et al.*'s (1991) recommendations are consistent with a developing literature focusing on the impact of firms' industrial relations or human resource management systems on organizational performance. The strategic human resource management (SHRM) literature has emerged as a major paradigm in the HR field (Dyer and Reeves, 1995). This literature blends the more 'macro' economics literature with the more 'micro' HR literature. Until recently, economists have largely ignored the organization and its policies and practices as a unit of study (Levine, 1995). At the same time, scholars in the field of human resource management and industrial-organizational psychology have generally ignored macro issues (e.g. firm level outcomes), concentrating instead on technical innovations in sub-discipline practices such as selection, training, appraisal and rewards, etc. (Wright and McMahan, 1992). Recent years have seen a merging of interests, as both economists and management researchers have become more interested in the relationship between human resource *bundles* or *systems* and firm level outcomes.

Various called 'high involvement' (Lawler, 1992), 'high commitment' (Arthur, 1992), 'high performance' (Huselid, 1995) or 'sophisticated' (Koch and McGrath, 1996) work practices, the common theme in this developing literature is an emphasis on utilizing a system of management practices giving employees the skills, information, motivation and latitude resulting in a work force which is a source of competitive advantage. While there is debate as to the specific configuration which constitute these human resource practices (Becker and Gerhart, 1996), there is a growing set of prescriptive writing and empirical evidence (e.g. Arthur, 1994; Kochan and Osterman, 1994; Pfeffer, 1994; Huselid, 1995; Levine, 1995; MacDuffie, 1995; Koch and McGrath, 1996; Guthrie, 2001; Richard and Johnson, 2001) suggesting that high involvement work practices (HIWPs) can enhance organizational performance. HIWPs represent a 'bundle' of mutually reinforcing, overlapping and synergistic HR practices which help to facilitate employee commitment and involvement (MacDuffie, 1995).

The effect of HRM: universal or contingent on firm strategy?

In their recommendations for improving New Zealand's competitiveness, Crocombe *et al.* (1991) also focus on the business strategies employed by New Zealand firms. Invoking Porter's (1980) typology of competitive strategy, they found that the typical New Zealand firm competes on the basis of cost. They strongly advocate a much greater orientation towards competing on the basis of differentiation: 'New Zealand firms need to seek out more sophisticated competitive advantages. They must move toward strategies that allow New Zealand to compete on quality, features or service rather than prices' (1991: 158). Although they do not directly discuss the linkage, it is noteworthy that Crocombe *et al.* (1991) urge greater use of differentiation competitive strategies in tandem with a more commitment-oriented approach to HRM.

Two primary perspectives, a *universal* approach and a *contingency* approach, have been used to model the link between HRM and firm effectiveness (Youndt *et al.*, 1996). The universal approach posits a direct relationship between 'best practice' HRM and firm performance. In contrast, the contingency approach proposes that the effect of HRM on firm performance will depend on a firm's characteristics, most importantly competitive strategy.

With respect to strategy, MacDuffie has been particularly articulate in specifying the conditions under which employees can 'make a difference':

- when employees possess knowledge and skills which owners and top managers lack;
- when employees are motivated to apply this expertise through discretionary effort; and
- when the firm's business or production strategy can only be achieved when employees contribute such discretionary effort (1995: 199).

In order to sustain success, certain competitive strategies, such as competing on the basis of innovation or unique product or service features, typically require greater depth and breadth of skills and a higher level of commitment from employees; that is, some competitive strategies create greater discretion where employee competencies and capability are relatively more important. Further, competitive strategies creating greater levels of discretion (e.g. competing on the basis of differentiation or innovation) are conceptually and empirically more consistent with high commitment or involvement HR systems (Arthur, 1992).

The 'behavioural perspective' (Jackson *et al.*, 1989), is perhaps the best known theoretical model supporting the contingency perspective linking competitive strategy

and HRM. The rationale is that employee role behaviours are fundamental to the effective implementation of competitive strategies. Invoking the Porter (1980) framework, differentiation and low cost strategies are thought to require different HR policies and practices in order to elicit particular sets of employee attitudes and behaviours to foster success. As discussed by Arthur (1992), a cost leadership business strategy will often be associated with narrow, well-specified job tasks, reduced training and skill requirements, low levels of employee influence, limited participation and close supervision. The opposite is true for firms competing on the basis of differentiation. These firms often need to quickly shift production and organizational processes to meet changing market and customer preferences. The increased uncertainty leads to greater need for depth and breadth of employee skills as well as a higher level of commitment and discretionary effort. In terms of HR practices, high involvement practices such as broadly defined tasks, decentralized decision-making, information sharing, higher levels of training and greater use of cross-utilization and teams are all consistent with providing employees with the opportunity, skills and motivation to contribute to organizational success in environments demanding greater levels of commitment and involvement. Arthur labelled these two different approaches to HR as 'control' versus 'commitment' systems and empirically documented the fact that competitive strategy and employee relations systems tend to be aligned.

Exposed to the rigors of the marketplace, New Zealand employers favoured the passage of the ECA so as to be free from the constraints imposed by multi-employer collective bargaining and agreements (Bray and Walsh, 1998). This freedom allowed firms to differentiate and tailor their HR policies and practices to their particular set of exigencies, including competitive strategy. In previous studies examining the relationship between strategy, HRM and performance, support for the universal versus the contingency model has been equivocal. For example, Huselid's (1995) empirical results supported the universal perspective, while Youndt *et al.*'s (1996) research supports the opposite conclusion. As presented below, within the newly competitive New Zealand business environment, we examine the extent to which the use of HIWPs is aligned with competitive strategy and whether such alignment affects firm performance.

Method

Sample and data collection

Data were collected by means of a mail survey during late 1996 and early 1997. The intended population was New Zealand business organizations employing at least 100 individuals. The source for this set of firms and mailing addresses was the New Zealand Post Direct Marketing Centre. After deleting government (i.e. public sector) employers and multiple establishments of the same organization (e.g. branch offices of national banks) from this list, the target population of firms numbered 701. Since organizations as small as 100 employees often do not have human resource departments or specialists (Heneman *et al.*, 1989), the survey was directed to the senior manager (e.g. Chief Executive Officer, Managing Director) of each organization. The eight-page survey asked for information on human resource policies and practices as well as on firm characteristics. Recipients of the letter were asked to complete the survey or forward it to a knowledgeable organizational member in a position to do so.

The initial mailing, a follow-up letter and a second mailing resulted in a 27 per cent response rate. This response rate compares favourably to survey-based 'high performance work system' studies reviewed by Becker and Huselid (1998), which had response

rates ranging from 6 per cent to 28 per cent, with an average of 17.4 per cent (a test of non-response bias for this study is reported below). Due to missing responses, the sample size for multivariate analyses ranged from 165 to 137 firms.

Respondents were asked to describe HR practices in existence in their firms during 1995–6. Since practices vary across employee groups (Huselid, 1995) questions pertaining to HR practices were asked separately for two categories of employees. Group A consisted of production, maintenance, service and clerical employees; group B was composed of executives, managers, supervisors and professional/technical employees. Respondents indicated the proportion of each group covered by each practice. For each firm, these proportions were used in conjunction with the number of employees in each category to compute a weighted average. This approach provides a fairly sensitive indication of both the breadth and depth of practice implementation.

Measures

Consistent with Becker and Huselid's (1998) recommendations pertaining to research on high performance work systems, we reviewed previous literature to develop a measure of *High Involvement Work Practices*. In particular, we were guided by the prescriptions of Lawler (1992), Levine (1995) and the empirical work of Arthur (1992; 1994) and Huselid (1995). This measure was a composite of twelve items: use of internal promotions, use of performance (versus seniority) based promotions, use of skill-based pay, use of group-based (i.e. gainsharing, profit-sharing) pay, use of employee stock ownership, use of cross-training or cross-utilization, average amount of training provided, use of training focused on future skill requirements, use of employee participatory programmes, use of information sharing, use of attitude surveys, and use of teams. Estimates of the proportion of each employee group (group A, group B) covered by each high involvement practice (0–100%) were obtained. Using the number of employees in each group, a weighted average for each practice was computed. These scores were then converted to z-scores. Cronbach's alpha for the composite HIWP scale (mean of z-scores) was 0.70.

The use of a single HIWP index is consistent with the arguments made by Becker and Huselid (1998) and study research goals (which did not include delineating effects associated with particular HR practices). In this measurement approach, firms may vary in both the number of practices utilized and the extensiveness of employee coverage. In theory, organizations may range from those making no use of HIWPs to those using *all* of the practices for *all* employees. A high score on the HIWP measure indicates relatively intensive use and investment in 'high commitment' (Arthur, 1992) or 'high involvement' (Lawler, 1992; Levine, 1995) human resource practices. Intensive use of these practices should 'lead to a highly motivated and empowered work force whose goals are closely aligned with those of management' (Arthur, 1994: 673). On the other hand, lower scores on this measure indicate less extensive use of HIWPs and more of a traditional, control-oriented approach to management.

As an additional validity check, the HIWP index was compared with other survey measures reflecting perceptions regarding the importance of human resources and the role of HRM in achieving competitive advantage. Using a five point Likert scale (1 = 'Of little importance'; 5 = 'Extremely important'), respondents were asked to rate the relative importance of each of five functional areas (R&D, manufacturing, marketing/sales, human resources, finance/budgeting) in implementing organizational strategy. Of the five functional areas, the importance rating for human resources $r = 0.40$; $p < 0.001$

was the only functional area rating having a significant bivariate correlation with the HIWP scale.

At a general level, labour *productivity* is defined as 'total output divided by labour inputs' (Samuelson and Nordhaus, 1989). It indicates the extent to which a firm's human capital is efficiently creating output. Consistent with prior work (e.g. Huselid, 1995; Koch and McGrath, 1996; Pritchard, 1992), we use logarithm of sales per employee as a measure of productivity. These data were collected via questionnaire, with respondents directed to provide the most recent estimates of annual sales and total employment available. Confirmatory information was available on the productivity data for a sub-sample of the organizations included in this study. Sources for these data included *Company Intelligence International*, *DATEX Database of New Zealand Listed Companies*, *Disclosure/Worldscope*, *ICC Financial Analysis*, *ICC Quoted Company Annual Reports* and *Kompass New Zealand*. For the 107 firms for which both survey and secondary data on number of employees is available, the correlation is $r = 0.97$ ($p < 0.001$); for the sixty-six firms for which both survey and secondary data on sales is available, the correlation is $r = 0.96$ ($p < 0.001$). The computed productivity figure (I_n of sales/ number of employees) correlates at $r = 0.81$ for the sub-sample of sixty-five firms for which both survey and secondary data on sales and employment levels are available. Although these results only pertain to a sub-sample of the firms, they are important in that they increase confidence in the validity of the primary dependent measure.

Using *competitive strategy* items from Gupta (1987), the written questionnaire asked respondents to use a five point Likert scale to 'indicate the competitive position of the products or services in your organisation relative to leading competitors' on eight different dimensions: cost, price, per cent of sales spent on R&D, per cent of sales spent on marketing, quality of product or service, brand image, product or service features and after sales service. Similar to Arthur (1994) these responses were subjected to a K-Means clustering technique with a two cluster solution. By way of description, Table 1 provides the strategy item means for the two cluster solution. In comparing the two clusters, the first cluster has higher mean scores on cost, price, R&D expenditures, marketing expenditures, quality of product or service, brand image, product/service features and after sales service. Based on these differences, Porter's terminology is invoked to label members of the first cluster as *differentiators* and members of the second cluster as *cost leaders*. As an additional validity check on this cluster solution, we also compared the cluster groups on their responses to a second approach to measuring strategic orientation utilized by Huselid and colleagues (Huselid, 1995; Huselid and Rau, 1997) and Guthrie and Olian (1991). In this approach, respondents are provided generic descriptions of the low cost and differentiation strategic archetypes and are asked to indicate the proportion of revenue derived from these respective strategies. As indicated in Table 1, members of the *differentiator* cluster reported that, on average, 54 per cent of sales are derived from 'Creating products or services perceived industry-wide as unique'. This compares with the average proportion of 33 per cent derived from this strategy reported by members of the Cost Leader cluster ($t = 4.56$, $p < 0.001$).² In subsequent analyses, firms are assigned a value of 1 or 0 on a variable called STRATEGY depending if they were clustered into the differentiator (= 1) or the cost leadership cluster (= 0).

Variables entered into subsequent models as controls included *firm size*, *firm age*, *union coverage*, *primary industry* and *market pay position*. *Firm size* is included as a control because it may be associated with the use of HIWPs (Wilson and Peel, 1991; Terpstra and Rozell, 1993; Jackson and Schuler, 1995) and productivity. Consistent

Table 1 Description and comparison of business strategy cluster solutions

Strategy item	Differentiator		Cost leader		<i>t</i>
	Mean	SD	Mean	SD	
Product/service cost ^a	3.16	0.79	2.94	0.77	1.91 [†]
Product/service selling price ^a	3.32	0.78	2.93	0.68	3.44**
% of sales spent on R&D ^a	3.41	0.93	2.15	0.86	8.40***
% of sales spent on marketing ^a	3.42	0.81	2.52	0.93	6.31***
Quality of product or service ^a	4.16	0.55	3.42	0.68	7.60***
Brand image ^a	4.26	0.65	3.32	0.81	8.13***
Product or service features ^a	3.94	0.65	3.18	0.71	7.26***
After sales service ^a	3.79	0.82	3.15	0.83	4.95***
Proportion of sales derived from creating products or services perceived industry-wide as unique ^b	53.71	29.61	32.81	28.85	4.55***

Notes

^a Measured on a five point Likert scale where 1 = significantly *Lower* than competitors and 5 = significantly *Higher* than competitors. Item used as input to K-Means cluster solution.

^b Item not used as input to K-Means cluster solution.

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

[†] $p < 0.10$; all tests are two-tailed.

with many previous studies, we use the logarithm of the number of employees to operationalize firm size. The *age of each firm* is included to control for any advantages associated with increased time for the evolution or adoption of HIWPs or learning curve advantages in productivity.

Authors have also argued that by fostering collective input and improved management practices, unions will tend to enhance firm productivity and performance (Freeman and Medoff, 1984). While some studies have supported this relationship (e.g. Freeman and Medoff, 1984; Cooke, 1994), others have not (Huselid, 1995; Koch and McGrath, 1996). In this study, we collected data on extent of union coverage for each of the two employee groups ('What proportion of your workforce is unionized?'). *Union representation* is a weighted average of the two employee groups, reflecting the proportion of a firm's employees represented by a union.

Either through conscious policy or ad hoc decisions, firms meet, lag or lead the 'market' in compensating employees. According to the efficiency wage hypothesis (Salop, 1979), *market pay level* position may result in increased productivity, although the evidence is mixed. While some authors include above-market wages as part of a high performance or high involvement system, the majority of studies to date emphasize the *form* of pay (especially the use of skill and group-based pay) rather than the *level* of pay. We include pay level in our analysis as a potentially important contributor to outcomes of interest to the study. A firm's market pay position was approximated from responses to the following item (per Becker and Huselid, 1998):

In terms of total remuneration (pay and benefits), what is your organization's position relative to the market? Assume the market is at the 50th percentile and indicate your position relative to this. For example, a response of '40' indicates that you are at the 40th percentile – 10 per cent below the market.

Because of potential *industry* differences in turnover productivity, analyses in this study controlled for this factor. In general, New Zealand firms are relatively non-

diversified so that the specification of a 'primary' industry is not particularly problematic. However, along with specifying a primary industry sector, respondents were also asked to estimate the proportion of total sales derived from this industry. Firms indicating that more than 50 per cent of sales were derived from the primary industry were retained for subsequent analyses. Dummy codes representing seven industries were created: communications, transportation, finance, manufacturing, service, retail/wholesale and agriculture, mining or construction.

Non-response bias

The generalizability of the findings of this study rests in part on the extent to which the sample is free from non-response bias. A 'time trend extrapolation test' (Armstrong and Overton, 1977) was performed as a check on non-response bias. The assumption behind this test for non-response bias is that 'late' respondents (responses received following the second mailing) are very similar to non-respondents, given that they would have fallen into that category had a second set of questionnaires not been mailed. The multivariate General Linear Model (GLM) procedure tested the null hypothesis of no difference by simultaneously comparing the two survey groups with respect to company age, unionization rate, firm size, market pay position, strategic cluster membership, use of HIWPs and productivity. This analysis indicated no difference (Wilks' lambda = 0.96, $p > 0.10$). Thus, while the threat of non-response bias cannot be ruled out, this comparison increases confidence in the representativeness of the sample.

Analysis and results

A summary of the variable definitions and descriptives is contained in Table 2. We first examined whether competitive strategy tends to be aligned with type of HR system employed. As indicated in Table 3, the point-biserial correlation between competitive strategy and use of a high involvement work practice system is $r = 0.20$ ($p < 0.01$),

Table 2 *Variable definitions and descriptives*

<i>Variable</i>	<i>Definition</i>	<i>Mean</i>	<i>SD</i>
FIRMAGE	Number of years firm has been in operation	51.24	32.18
FIRMSIZE	Log (number of employees in the firm)	5.78	1.03
UNION%	Percentage of employees with union representation	32.96	32.00
COMM	1 if primarily in communication industry; 0 otherwise	.04	.21
RETAIL	1 if primarily in retail/wholesale industry; 0 otherwise	.14	.34
FIN	1 if primarily in finance industry; 0 otherwise	.03	.17
MFG	1 if primarily in manufacturing industry; 0 otherwise	.38	.49
SVC	1 if primarily in service industry; 0 otherwise	.13	.34
TRNSPRT	1 if primarily in transportation industry; 0 otherwise	.10	.30
ACMNCN	1 if primarily in agriculture, mining or construction industry; 0 otherwise	.18	.38
MKT\$	Firm's market pay level position, expressed as a percentile	56.15	13.38
STRATEGY	Firm's competitive strategy; 1 = differentiation, 0 = low cost	.56	.50
HIWP	Firm's relative use of high involvement work practices (12 item scale; Cronbach's alpha = 0.70)	.00	.45
PRDCTV ^a	Log (sales/number of employees)	-1.53	.96

Note

^a Firm sales data coded as \$NZ000,000s.

Table 3 Variable intercorrelations^a

Variables	1	2	3	4	5	6	7
1 Firm age	–						
2 Firm size	–.03	–					
3 Union%	–.05	.07	–				
4 Market pay level	–.04	–.04	.07	–			
5 Strategy	.01	.01	–.02	.17*	–		
6 HIWP	.06	.10	–.06	.29***	.20**	–	
7 Productivity	.11	–.11	.08	.17*	–.10	.21*	–

Notes^a Dichotomous industry variables excluded.*** $p < 0.001$.** $p < 0.01$.* $p < 0.05$; all tests are two-tailed.

indicating that differentiators are somewhat more likely to utilize this type of system. This relationship is explored further in Table 4 which contains ordinary least square (OLS) regression results where the HIWP index is regressed on the measure of competitive strategy along with a number of controls. Beyond the predictors included in the restricted model (Model 1), the addition of the strategy measure (Model 2) accounted for an additional 2 per cent ($F = 4.49$; $p < 0.05$) of variance. Overall, Model 2 explained approximately 20 per cent of variance in sample firms' use of HIWPs

Table 4 Competitive strategy and high involvement work practices^{a,b,c}

Variables	Model 1	Model 2
Step 1: controls	β	β
FIRMSIZE	.11	.09
FIRMAGE	.07	.06
MFG	.24 [†]	.20
SVC	.11	.13
AGMNCN	.14	.13
TRNSPRT	.07	.05
FIN	.12	.13
COMM	.01	–.01
UNION%	–.13	–.09
MKT\$	.39***	.39***
Step 2: independent t		
STRATEGY	–	.16*
ΔR^2	–	.023*
MODEL R^2	.18***	.204***
N	164	164

Notes^a RETAIL is the omitted benchmark industry variable.^b Standardized regression coefficients presented.^c R^2 values are unadjusted.*** $p < 0.001$.** $p < 0.01$.* $p < 0.05$.[†] $p < 0.10$; all tests are two-tailed.

Table 5 *Competitive strategy, high involvement work practices and firm productivity^{a,b,c}*

Variables	Full sample				Differentiators		Cost leaders
	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Step 1: controls	β	β	β	β	β	β	β
FIRMSIZE	-0.05	-0.08	-0.06	-0.02	-0.03	-0.14	-0.15
FIRMAGE	0.06	0.04	0.05	-0.10	0.02	0.08	0.07
MFG	-0.24 [†]	-0.29*	-0.30*	-0.33 [†]	-0.46*	-0.09	-0.09
SVC	-0.33**	-0.36**	-0.38***	-0.30*	-0.40**	-0.37*	-0.37*
AGMNCN	-0.22 [†]	-0.24*	-0.26*	-0.22	-0.34*	-0.14	-0.14
TRNSPRT	-0.26*	-0.28*	-0.28**	-0.21	-0.29 [†]	-0.30 [†]	-0.30 [†]
FIN	0.18 [†]	0.15	0.14	0.06	0.01	0.31*	0.30 [†]
COMM	-0.06	-0.06	-0.06	-0.10	-0.12	0.04	0.04
UNION%	0.03	0.06	0.05	0.18	0.18	-0.14	-0.13
MKT\$	0.19*	0.11	0.12	0.27*	0.16	0.18	0.16
STRATEGY	-0.09	-0.13	-0.12	—	—	—	—
Step 2: independent t							
HIWP	—	0.23**	0.05	—	0.36**		0.05
ΔR^2	—	0.045**	—	—	0.112**		0.002
Step 3: interaction							
HIWP*STRATEGY	—	—	.24*	—	—	—	—
ΔR^2	—	—	.026*	—	—	—	—
Model R^2	0.213**	0.257***	0.283***	0.213	0.325**	0.30*	0.302 [†]
<i>n</i>	137	137	137	77	77	60	60

Notes^a RETAIL is the omitted benchmark industry variable.^b Standardized regression coefficients presented.^c R^2 values are unadjusted.*** $p < 0.001$.** $p < 0.01$.* $p < 0.05$.[†] $p < 0.10$; all tests are two-tailed.

($F_{(11, 153)} = 3.56$; $p < 0.001$). Thus, consistent with the correlation results, the OLS results indicate that firms competing more on the basis of differentiation are also somewhat more likely to utilize HIWPs.

To examine whether or not the influence of high involvement work practices on firm outcomes is moderated by a firm's competitive strategy, a series of OLS models were estimated (see Table 5). Models 3, 4 and 5 use the full sample for the test of the HIWP scale and the interactive effect of STRATEGY*HIWP on firm productivity.

Model 4 accounted for 26 per cent of the variance in firm productivity ($F_{(12, 124)} = 3.58$; $p < 0.001$), with the addition of the HIWP index in this model accounting for 5 per cent more variance ($F = 7.48$; $p < 0.01$) relative to Model 3. The addition of the STRATEGY*HIWP interaction term in Model 5 accounted for an additional 3 per cent of variance in productivity ($F = 4.38$; $p < .05$) relative to Model 4.

To help interpret this interaction, we repeated the estimations of OLS Models 3 and 4 for the two sub-samples represented in the two cluster strategy solution (differentiators and cost leaders). Table 5 contains the results of these analyses. Models 6 and 7 present results for the differentiator cluster sub-sample and Models 8 and 9 for the

cost leader cluster sub-sample. Looking first at the cost leader sub-sample results, Models 8 and 9 indicate that the addition of the HIWP variable (Model 9) does not increase the ability to explain variation in firm productivity ($R^2 = 0.002$; $F = 0.142$; n.s.). In contrast, in the differentiator sub-sample, results indicate that greater use of HIWPs is associated with greater levels of firm productivity. The addition of the HIWP index (Model 7) to the restricted model (Model 6) accounts for an additional 11 per cent of variance in productivity ($F = 10.78$; $p < 0.01$).

Discussion

Reflecting world-wide trends, product and labour markets in New Zealand have been radically restructured. As a further step toward global competitiveness, Crocombe *et al.* (1991) advocated that New Zealand firms take advantage of this 'experiment' in open markets by investing more in their human resources. Significantly, Crocombe *et al.* (1991) also advocated that firms begin competing more on the basis of differentiation (versus low cost). Based on arguments presented previously (e.g. Arthur, 1992) we examined whether or not a differentiation competitive strategy tended to be aligned with greater use of high involvement work practices and whether (mis)alignment affected firm outcomes.

Results indicate a moderate association between an orientation toward competing on a differentiation basis and the use of HIWPs. To further describe this relationship, Table 6 presents the relative use of each of the twelve high involvement work practices by firms in the two strategy clusters. As can be seen, while the sets of firms do not differ significantly in their use of a number of the practices (e.g. use of ESOPs, group-based pay), larger differences are observed in practices related to training and development. Firms in the differentiator cluster provide more hours of training along with greater focus on future-oriented training and cross-training. This may indicate that broad skill sets are particularly important to firms using a strategy associated with greater levels of change, uncertainty and employee discretion.

With respect to the question of alignment and firm performance, results indicate that utilizing higher levels of HIWPs is particularly beneficial to firms pursuing a differentiation strategy and less so for firms competing more on the basis of cost. This interaction effect is illustrated by the sub-group analyses which indicated a strong association between HIWPs and firm performance for the differentiators and no such relationship for the cost leadership group.

These results should be interpreted cautiously given the limitations inherent in this study. First, self-report, cross-sectional data are susceptible to priming and other biases associated with common method variance. This bias, however, is most problematic in studies analysing relationships among particular categories of variables. For example, when psychological or attitudinal data are collected from a single respondent at the same time, it is difficult to determine whether observed covariance among the variables are attributable to valid relationships or common method variance. However, as argued by Podsakoff and Organ (1986), other classes of data are less problematic. Data which are factual, which the respondent possesses accurate knowledge of and that are (in principle) verifiable, do not pose serious problems of interpretation. Much of the data in this study are of this type. More specifically, the primary dependent variable (sales/employees) and many of the predictor variables are factual in nature. In addition, data collected from secondary sources on the components of the productivity index (i.e. sales and number of employees) strongly correlated with the survey data.

Table 6 *High involvement work practices: a comparison of business strategy clusters*

<i>High involvement work practice</i>	<i>Differentiator</i>		<i>Cost leader</i>		<i>t</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	
Hold non-entry level jobs as a result of internal promotions ^a	48.20	25.10	41.56	30.65	1.43 [†]
Are promoted on the basis of merit or performance, as opposed to seniority ^a	82.67	26.35	76.76	33.42	1.30 [†]
Are paid primarily on the basis of a skill or knowledge-based pay system (versus a job-based system) ^a	29.30	36.80	25.82	34.57	.69
Are in company or group-based incentive plans (e.g. profit-sharing, gainsharing) ^a	29.88	43.04	24.19	38.79	.90
Own shares of organization's stock (e.g. an employee stock ownership plan) ^a	6.76	17.14	9.84	23.67	.96
Have been trained in a variety of jobs or skills (are 'cross trained') and/or routinely perform more than one job (are 'cross utilized') ^a	45.94	29.80	38.58	26.98	1.66*
Are trained in anticipation of skills that will be needed in the future ^a	33.32	28.85	23.34	23.62	2.49**
Participate in programmes designed to elicit participation, suggestions and feedback from them (e.g. quality of work life (QWL), quality circles (QC) or similar) ^a	49.07	39.72	38.07	39.32	1.80*
Are included in a formal information sharing programme (e.g. newsletter) informing them of important business and operations-related matters ^a	88.49	28.82	81.91	34.99	1.33 [†]
Are organized as part of a team in performing a major part of their work roles ^a	61.46	33.19	60.17	33.19	.25
Are administered attitude surveys on a regular basis ^a	43.47	47.09	32.96	46.07	1.47 [†]
Average number of hours of training received by a typical employee per year ^b	34.43	31.69	23.60	18.26	2.69**

Notes

^a Weighted average of the proportion of each of the two employee groups covered by this practice.

^b Weighted average of the estimated hours of training provided to each of the two employee groups.

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

[†] $p < 0.10$; all tests are one-tailed.

Other research also suggests that validity concerns with self-report methods may be limited to certain classes of variables. Crampton and Wagner's (1994) analysis of correlations from 581 studies indicated that percept-percept inflation due to common method variance has influenced bivariate relationships in some cases but has not had broad, comprehensive effects. Thus, while threats associated with same-source bias and other potential biases (cf. Gerhart, 1999) cannot be ruled out, the consistency of the survey and secondary data along with the factual nature of the measures examined in this study lessen this concern. A second concern is bias introduced by the non-respondents; i.e. the persons and companies which did respond to the survey may differ significantly from those which did not. Again, while this threat cannot be dismissed, the time trend extrapolation test lessens this concern.

Another legitimate concern is the question of simultaneity. Data are analysed and discussed as if the use of high involvement work practices leads to differences in productivity. Clearly, however, this interpretation is limited by the cross-sectional nature of the data. Respondents completed surveys during late 1996 or early 1997 and were encouraged to describe employment practices as they existed during 1995 and 1996. In contrast, they were instructed to provide the most current levels of employment and annual sales revenue. While this approach helps reduce the simultaneity problem, it is certainly possible that firms experiencing higher productivity are better positioned to invest in greater levels of HIWPs.

Future studies need to continue to explore issues related to the effectiveness of different configurations of HR systems in various organizational and industry contexts. The argument made here is that HIWPs may be more important to firms pursuing a differentiation-based strategy due to the greater employee discretion and skill levels engendered and required by these strategies. Other contextual conditions, however, such as industry characteristics, may also create greater requirements for a skilled, committed workforce. For example, firms competing in industries which are more dynamic and competitive may find greater value in the use of HIWPs relative to firms competing in more placid or less competitive industries. In addition, scholars have begun to question the use of static strategic typologies such as those employed here (e.g. Chadwick and Cappelli, 1999). As such, future studies may want to draw on, for example, process-oriented strategy theories as a basis for constructing arguments related to the concept of 'fit'.

Conclusion

Recent economic and labour market transformations in New Zealand were enacted to stimulate productivity and national competitiveness. Within this newly competitive landscape, our results indicate that firms adopting more of a differentiation strategy also opt to utilize higher levels of high involvement work practices. Moreover, for firms pursuing a differentiation-oriented strategy, higher levels of high involvement HR practices are associated with increasing levels of productivity. Thus, within the limitations outlined above, this study supports a contingency explanation for HIWP effectiveness wherein the implementation of a differentiation-oriented competitive strategy may increase the need for a committed, skilled workforce and, by extension, the utility of high involvement work practices.

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Notes

- 1 An earlier version of this paper was presented to the 1998 Annual Meeting of the Academy of International Business, Vienna, Austria. These data were collected while the first author was Visiting Associate Professor with the University of Waikato.
- 2 With respect to the low cost strategy, respondents were asked to estimate the proportion of total sales which was achieved through 'competing on the basis of lower costs (through economies of scale, experience, technology, etc.), resulting in lower prices to consumers'.

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