

Through the Outdoor: Drivers of Training Supported by New Zealand Organisations

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Abstract

Factors affecting employer support for internal, external and industry training are assessed using data from the *Business New Zealand Skills and Training Survey 2003*. Explanatory factors considered in this analysis are the size, location and age of the organisation, the industry in which the organisation operates, the gender composition of the organisation's workforce, the extent of workforce casualisation, average employee skill level and qualifications earned, and the concentration of those skills and qualification within the organisation. Measures of these factors are specified in logistic regression models in which the likelihood the organisation invests in on-site (internal), off-site (external) and/or industry training is included as the dependent variable. Results from this analysis suggest that the industry in which a firm operates and use of casual and part-time staff are the most significant drivers of New Zealand employers' willingness to invest in on-site and industry training. Geographic location manifests a positive influence on firm investments in training provided off-site.

Introduction

Notwithstanding the focus over the past two decades on policy-level initiatives directed at training as a means of enhancing firm competitiveness, leading experts in the field have argued that global competitiveness can really only be achieved through initiatives developed at the enterprise level (Cappelli, 1995; Porter et al., 2004). That is, for firms to be competitive, they must demonstrate the flexibility to respond to frequent changes in their external environment (Storey, 1995). Such flexibility is often achieved through skill development and training. Yet, little is known about the factors that drive employer investment in such initiatives.

This study makes use of data from the *Business New Zealand Skills and Training Survey 2003*, conducted as a part of a joint study by Business New Zealand and the Industry Training Federation and supported by the New Zealand Department of Labour's Future of Work Contestable Fund. These data, which have been provided to the authors by Business New Zealand, are used here to assess the impact of various organisational characteristics and employee demographics on investments by New Zealand employers in both *internal* and *external* training programmes. The former encompass the activities of in-house training staff, training consultants and contractors, and modern apprenticeship

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coordinators. External training includes training offered by polytechnics, universities, and private training establishments (PTEs).

This analysis further distinguishes between internal and external training, as identified above, from industry training, which has elements of both internal and external training and includes training provided by Industry Training Organisations (ITOs), government-supported training, conference attendance, supplier-provided training, and Modern Apprenticeships. ITOs in New Zealand are similar to registered training organisations (RTOs) in Australia and offer nationally recognized training based on New Zealand's National Qualifications Framework (NQF). Moreover, since New Zealand's Modern Apprenticeships Programme is a work-based initiative coordinated at the industry level, it has elements of both in-house or internal training and industry training. As such, for purposes of this analysis, Modern Apprenticeships are encompassed in both the internal and industry training categories.

The analysis presented herein focuses on the following explanatory factors: *years of operation, enterprise size, industry sector, geographical location, casualisation of work, and the level and mix of qualifications and skills*. Logistic regression is used to predict the likelihood, or the odds given each of these explanatory factors, that an employer will invest in each of the three types of training considered: *internal, external and industry-level* training.

Key Drivers

Drivers of Employer-sponsored Training

Since mid 1980s, numerous attempts have been made to model the factors that drive investment in training at an enterprise level. Studies from the UK suggest that a firm's investment in training is influenced by a complex interaction of certain driving (*triggers*) and moderating (*stabilizers*) factors that are typical to an industry or an organisation (Sparrow & Pettigrew, 1985; Hendry & Pettigrew, 1989). In their study, Pettigrew and his colleagues found that, while training is *stabilized* by a combination of factors inside and outside the firm, *triggering* factors are closely linked to the firm's business strategy, which may have a profound impact on its skill requirements and, in turn, its investment in training.

More recently, studies in Australia have attempted to describe factors that influence the nature and extent of enterprise training (Hayton et al, 1996; Smith and Hayton, 1999; Ridoutt et al, 2002; Smith et al, 2002). Expanding on the earlier work conducted in the UK (Sparrow & Pettigrew, 1985; Hendry & Pettigrew, 1989), Hayton et al (1996) group factors influencing the nature (or various forms of training activities) and extent (or volume) of training under three headings: *training drivers, environmental factors* and *mediating factors*. The latter two factors are, respectively, influences that are external and internal to the firm.

As noted by Ridoutt et al. (2002), since one set of factors is not universally applicable or relevant to all industries, the Hayton et al model has the flexibility to accommodate certain training drivers and environmental and mediating factors to allow for industry-specific or organisation-specific modeling. Similarly the outputs of this model proposed by Hayton et al (1996), namely the *nature* and *extent* of training, can be modified to suit a specific context in which training is provided.

Drivers of International, External and Industry Training

Internal training has been found in other studies to be less prevalent in small and medium sized firms than it is in larger firms, which are more likely to have an integrated human resource strategy, base work around a team approach, link training to business strategy. Larger enterprises are also likely to have an established training infrastructure, such as a training department, a training manager and workplace trainers. Such workplaces are more likely to be unionised and be comprised of a more highly skilled workforce than are small- and medium-sized enterprises (SMEs). All of these attributes of larger organisations have been shown to be positively correlated with the provision of training by employers (Smith et al, 2002).

In addition to enterprise size, the extant literature points to a positive relationship between industry sector and internal training provision (Hayton et al, 1996; Ridoutt et al, 2002). No known studies, though, have considered the relationship between internal training and the number of years the organisation has been in operation, its geographical location, its use of a casual workforce, the qualification levels achieved by its workers or the concentration of skills and qualifications across its workforce.

One aspect of internal training that renders it difficult to distinguish from external training is that an employer may hire an external training provider to provide formal, structured training specifically to their employees. Unlike internal training, though, the nature of training provided through external training is not specific to that employer's needs but is, instead, more generally applicable across a broad range of employers. Also unlike the case of internal training, the impact of establishment size on the likely provision of external training is not clear (See, for instance, Hayton et al, 1996, and Ridoutt et al, 2002).

New Zealand's *Industry Training Act 1992* defines industry training as industry-specific employee learning or skills-upgrading that is supported by or on behalf of employers in an industry or combination of industries. As noted by Smith and Hayton (1999) with regard to Australia, some industries have long traditions of training that have developed over an extended period. In New Zealand, prior to 1992, employers and trade unions in many sectors, such as shipping, building trades, manufacturing and chartered accountancy, supported apprenticeship-based industry training. Subsequent to enactment of the *Industry Training Act 1992*, Industry Training Organisations (ITOs) were established in a range of sectors, however the need for and efficacy of that training likely varies from one sector to another (ITF 2006).

In addition to Industry Training Organisations (ITOs) recognised by the Associate Minister of Education (Tertiary Education) under the *Industry Training Act 1992*, there are other forms of training in New Zealand. Within the business and finance sector, for instance, some industry sub-sectors are served by ITOs with a well-established system of qualifications. This is the case, in real estate, where a formal qualification is required before one is permitted to work, and in call centres, where workers are typically encouraged to up-skill. In addition, chartered accountants are required to hold a qualification earned through what has been termed external training herein and approved by the New Zealand Institute of Chartered Accountants (NZICA). One would expect, nevertheless, that factors specific to the sector in which an organisation operates—be it competitive factors, changes in technology or merely the availability and accessibility of such training—are the primary driver of that organisation's support for industry training.

Data and Methods

This analysis makes use of data derived from the *Business New Zealand Skills and Training Survey 2003*. The population covered in this survey is the 2003 membership of Business New Zealand's regional associations. As such, the sample is not necessarily representative of all New Zealand employers. The survey sample was, nevertheless, stratified to ensure inclusion of a representative number of relatively small, medium and large size enterprises across all regions of the country. To this end, 15 percent of the respondents to the survey employ 5 or fewer people, while 21 percent employ 100 or more workers (Business NZ and ITF, 2003).

A demographic breakdown of the 467 establishments and the employees of those establishments that are covered in this analysis is provided in Table 1. As can be seen here, most of the organisations covered by this study are well established, having been in operation for at least five years. Most are in the tertiary sector, which has been subdivided, for purposes of this analysis into categories reflecting the wholesale and retail trade and accommodation, cafes and restaurants ("trade"); transport, storage and communication ("logistics"); finance and insurance; property and business services (business/finance"); government administration, defence and education ("government/education"); and health and community services; cultural, recreational, personal and other services ("service"). These data also reveal that, while more than half of the organisations in this study are located in Auckland or the Canterbury region, just over 10 percent operate on a national basis.

TABLE 1: Organisational Characteristics and Employee Demographics

Organisational Demographics			Employee Demographics			
Variable	Sample Proportion	N	Variable	Mean	Standard Deviation	N
>5 Yrs Operation	87.4%	408	Gender & Employment Status			
Sector			Female (%)	43.0%	28.1%	432
Primary	8.1%	38	Full-time (%)	78.7%	25.0%	452
Secondary	34.0%	159	Part-time (%)	15.3%	20.7%	452
Trade	15.4%	72	Casual (%)	7.0%	15.1%	452
Logistics	5.4%	25	Variable		Sample Proportion	N
Business/Finance	10.7%	50				
Gov't/Education	9.6%	45				
Service	14.3%	67	Skill Level			
Location			Simple	16.8%		349
National	10.3%	48	Moderate	33.6%		352
Auckland	22.1%	103	Complex	31.5%		354
Canterbury	31.0%	145	Very high	18.6%		354
Wellington	4.5%	21	Qualification			
Rural	32.1%	150	No qualification	18.2%		436
Training Supported			School	30.5%		436
External	67.0%	313	Trade	16.4%		436
Internal	62.0%	290	Certificate/Diploma	17.2%		436
Industry	51.6%	241	Degree	17.2%		436

Employees of the establishments encompassed in the study sample generally fall within the known demographics of the country's labour force. Forty-three percent of the workers covered in this analysis are female, and 78.6 percent work full-time. These numbers correspond with the 45.4 percent and 77.3 percent figures for the total working population in New Zealand derived from Statistics New Zealand's March 2003 *Household Labour Force Survey* (HLFS). In addition, the 18.2 percent share of those employed by establishments in the sample with no school qualification is not significantly different from the 18.7 percent figure for the New Zealand population as a whole reported by the New Zealand Department of Statistics for 2003 (Statistics New Zealand, 2003).

Of particular concern with regard to the generalisability of the findings from this survey as well as those from the present analysis, though, is the fact that 89 percent of the 479 New Zealand enterprises responding to the Business NZ survey indicated they support training for at least some of their employees (Business NZ and ITF, 2003). Nearly 50,000 workers were employed by these respondents at the time of this survey. Having noted this, however, while the Business New Zealand Skills and Training Survey 2003 likely under-represents organisations in New Zealand that do not provide support for training, the present analysis is concerned with factors that determine various types of training. Hence, the fact that the Business New Zealand Survey may have over-sampled organisations that support training does not necessarily bias results of this analysis.

Logistic Regression Analysis

Logistic regression (logit) is used to estimate the likelihood, after controlling for the organisational and employee factors described in Table 1, of an organisation supporting either internal, external or industry training. The dependent variable in these models is specific as the logarithm of the odds of that the specific type of training will be supported by the organisation. The odds ratio for each independent variable represents the *ceteris paribus* factor change in the odds of observing the dependent variable. Because of the difficulty inherent in interpreting logit coefficients, though, both the coefficient estimates and the odds ratios are reported. Odds ratios greater than 1 indicate an increase in the odds of Y occurring and odds ratios less than 1 represent a decrease in the odds of Y occurring.

In these regressions, average skill and average qualification are weighted measures of, respectively, skill levels and formal qualifications earned by employees of an organisation. The share of the organisation's employees with only a "simple" skill level is given a weight of 1; the shares of employees of the organisation with "moderate" and "complex/technical" skill level are provided a weight of 2 and 3, respectively; and the share of employees with a "very high" skill level is weighted by a factor of 4. Similarly, the share of the organisation's employees with only a school qualification is given a weight of 1; the share of employees of the organisation with a trade qualification and that with a certificate or diploma are given a weight of 2 and 3, respectively; and, the share of employees with a degree qualification is weighted by a factor of 4. The proportion of employees with no school qualification is not included in the calculation of this measure.

The variables S-concentration and Q-concentration are each specified as a Herfindahl-Hirschman Index (HHI), which is most commonly used as a measure of product market concentration. It is calculated, for purposes of this analysis, by squaring the share of each organisation's employees in each skill or qualification category, and then summing the squared values. The HHI can range from a minimum of 0.5 and 0.4, respectively, where one quarter of the employees of an organisation fall into each of the four skill and one fifth of the employees of an organisation fall into each of the five qualification categories, to a maximum of 1.0, where all employees fall into a single skill or qualification category. In this regard, then, higher values of S-concentration and Q-concentration reflect greater skill or qualification concentration – i.e., less spread or variation in skill or qualification levels – amongst the employees of the organisation. Alternatively, lower HHI values are an indicator of greater diversity of skill levels and qualifications within the organisation.

Empirical Results

Results of this analysis are presented in Table 2, however, one key finding from this study is that, as an organisation matures, it becomes less reliant on industry training as a means of developing its employees. This suggests that, over time, firms develop their own internal training infrastructures, but do not rely on internal training to the extent to which they previously relied on industry training. This later phenomenon might be explained by the fact that, in most sectors, once employees have received formal training, there is less of a need for further training. That is, concomitant with the maturation of an organisation, a larger proportion of those employees who remain with the organisation become sufficiently trained and, hence, a lesser share of those employees require training.

This same argument offers an explanation for our finding that the higher the average qualification earned by employees of an organisation, the less likely is the organisation to support both internal and industry training for its employees. That is, the saturation of formal qualifications may render it less likely that the organisation will support further training, especially that which is undertaken in an effort to earn formal qualifications. This, though, would seem to refute evidence from research conducted by OECD/CERI (1998), which found that skills and qualification possessed by current employees are significant drivers of internal training supported by firms undergoing technological change. One question which cannot be answered given the data employed in this analysis, however, is whether technological change has any impact on investment in training.

Additionally, as one would expect, and confirming findings from Hayton et al (1996), Ridoutt et al (2002) and Dawe (2003), results from our analysis point to the conclusion that the industry sector in which an enterprise operates is an important and statistically significant driver of industry training. However, the fact that employers in this sector typically rely on either external or, more likely, industry training explains why business and finance firms in New Zealand are not significantly more likely to provide internal training than their counterparts in the IT sector, the referent industry category in this analysis.

With regard to regional differences, the fact that Auckland is the commercial business hub for New Zealand and that the majority of external training providers are based in Auckland explains why organisations located in Auckland are more apt than their counterparts located elsewhere in New Zealand to support both external and industry training. Similarly, Canterbury being served by two universities and a range of polytechnics and private training establishments (PTEs) is a likely reason why results of this analysis suggest that organisations in Canterbury are significantly more likely to support external training of their employees than organisations in other regions of the country, including Auckland, where industry training uptake is also relatively high. It is also noteworthy that employer support for industry training is significantly greater in rural New Zealand, such as Bay of Plenty, Nelson and Marlborough, and South Otago, where ITOs count a substantial share of their student numbers than in most of the rest of the country (ITF 2006).

TABLE 2: Logistic Regression Results

Dependent Variable	Internal Training			External Training		Industry Training
Independent Variable	β (std err)	e^β	β (std err)	e^β	β (std err)	e^β
Constant	-4.72 (5.27)	0.01	-8.7(3.88)	0.00**	- 6.29(6.79)	0.00**
>5 Yrs Operation	0.09(1.06)	1.09	-0.26(0.78)	0.77	- 0.99(1.28)	0.37*
Sector						
Primary	4.95(2.04)	141.7**	2.31(2.15)	10.07	3.48(3.24)	32.60**
Secondary	3.81(1.56)	45.28**	0.29(1.93)	1.33	3.07(3.04)	21.44**
Trade	1.48(1.35)	4.38**	0.57(2.26)	1.76	3.75(3.30)	42.36**
Logistics	Predicts perfectly		1.51(2.87)	4.55	3.59(3.43)	
Business/Finance	3.23(2.10)	25.32	2.99(2.36)	19.97	4.24(3.09)	69.26**
Gov't/Education	2.63(1.19)	13.87**	-1.01(2.17)	0.36	1.75(2.89)	5.74
Service	3.01(1.75)	20.31	2.02(2.04)	7.57	3.22(3.11)	25.02
Location						
Auckland	-0.79(2.08)	0.45	1.97(1010)	7.20*	2.59(1.37)	13.35*
Canterbury	-1.29(2.01)	0.28	2.38(1.09)	10.85*	0.49(1.78)	1.63
Wellington	2.14(3.07)	8.52	2.27(1.55)	9.68	1.48(2.94)	4.39
Rural	-5.01(2.63)	.01*	1.12(1.01)	3.06	2.84(1.22)	17.12**
Employees						
No. of Employees	0.02(0.01)	1.02**	0.00(0.00)	1.00	0.00(0.00)	1.00
% Female	0.42(1.59)	1.53	-1.34(1.15)	0.26	- 0.29(1.57)	0.75
% Part-time	0.51(2.34)	1.67	2.37(1.34)	10.64*	- 0.90(2.02)	0.41
%Casual	2.22(1.47)	9.18*	2.01(0.91)	7.49**	1.19(2.95)	3.28
Average Skill	0.19(0.75)	1.21	-0.48(0.54)	0.62	1.32(0.74)	3.75**
S-Concentration	1.82(3.68)	6.15	2.41(2.37)	11.15	2.73(3.53)	15.36
Avg Qualification	-1.18(0.55)	0.31**	0.65(0.43)	1.92	- 1.20(0.54)	0.30**
Q-Concentration	-0.03(3.39)	0.97	2.23(2.24)	9.27	- 4.64(2.41)	0.01**
Other Training						
Internal	1.29(0.41)	3.7*			-2.22(1.24)	0.11***
External	-5.21(1.52)		0.01***	-1.80(1.12)		0.17***
Industry	-4.20(1.20)		0.01***	0.93(0.32)	2.5***	
Number of obs	300			306		306
Log Likelihood	-95.39			-141.67		181.15
LR χ^2	d.f. = 21	86.36	d.f. = 22	87.41	d.f.=22	61.69
Prob > χ^2	0.00			0.00		0.00

* Denotes significant at the 10% level.
 ** Denotes significant at the 5% level.
 *** Denotes significant at the 1% level.

Finally, other research has found that part-time and casual employees are much less likely than permanent employees to participate in internal training and are more likely to engage in external training and education (Campbell, 2001; VandenHeuvel and Wooden, 1999; Wooden and Hawke, 1998). Our analysis of the *Business NZ Skills and Training Survey* data would seem to confirm this general finding with regard to external training. However, our findings point to the conclusion that workforce casualisation is positively associated with internal training. What we are not able to determine, though, is which employees of the firm are provided this support. It may, therefore, be the case that, in firms where a relatively large share of the workforce is employed on a casual basis, the employer is more willing to provide in-house training to their permanent staff but not to the casual workers it employs.

Conclusion

To summarise the findings from this analysis, factors related to the industry in which a firm operates appear to be the most significant drivers of New Zealand employers' willingness to invest in on-site and industry training. Somewhat unexpectedly, though, casualisation of work, including increased use of part-time employees, also appears to have a positive effect on employer support for both of these categories of training. This does not necessarily point to the conclusion that New Zealand employers who are adopting a core-peripheral strategy are targeting their peripheral workforces for training. Rather, it may be the case that these organisations are investing more in training than other New Zealand employers but supporting only their full-time permanent staff in that endeavour. Finally, geographic region in which the organisation is located manifests a positive influence on firm investments in training provided off-site, including that offered at the industry-level and general training offered through polytechnics, universities, and private training establishments (PTEs).

Notwithstanding these results, it's important to note that, due to the manner in which the source of data employed in this analysis, the *Business New Zealand Skills and Training Survey*, was designed, a number of key variables identified in the literature – for example, adoption of new management practices like total quality management, the learning organisation, team working, lean production, and business process restructuring, as well as regulatory factors and alignment of business strategy to the organisation's human resource management strategy (Smith et al, 2002) – are not considered in our analysis. An important consideration in this regard is that these omitted variables may bias findings from this study. This, in turn, suggests directions for future research into factors influencing enterprise training in New Zealand.

References

- Campbell, I (2001). Casual employees and the training deficit: Exploring employer calculations and choices. *International Journal of Employment Studies*, 9: 61-102.
- Cappelli, P., (1995). Rethinking employment. *British Journal Of Industrial Relations*. 33(4): 515-30.
- Dawe, S. (2003). *Determinants of successful training practices in large Australian firms*. NCVET, Adelaide.
- Hayton, G., McIntyre, J., Smart, R., McDonald, R., Noble, C., Smith, A., & Roberts, P. (1996). Final Report: Enterprise Training in Australia, Melbourne: Office of Training and Further Education.
- Hendry, C., & Pettigrew, A. (1989, December). The factors that trigger training. *Personnel Management*, 28-32.
- Industry Training Federation (2006). *Leading a skilled workforce: key statistics*. Wellington: ITF.
- Organisation for Economic Co-operation and Development/CERI. (1988). *Human resources and corporate strategy: Technological change in banks and insurance companies*. Paris: OECD.
- Porter, M.E., Schwab, K., Sala-I-Martin, X., & Lopez-Claros, A. (2004). *The global competitiveness report*. Geneva, Switzerland: World Economic Forum.
- Ridoutt, L., Dutneall, R., Hummel, K., & Smith, A. (2002). *Factors influencing training and learning in the workplace*. Leabrook, SA: NCVET.
- Statistics New Zealand. (2006). *Labour market statistics*. Wellington: Statistics New Zealand
- Smith, A., Roberts, P., Noble, C., Hayton, G. & Thorne, E. (1995). *Enterprise training: The factors that affect demand*. Melbourne (Vic): Australian National Training Authority and the Office of Training and Further Education.
- Smith, A., & Hayton, G. (1999). What drives enterprise training? evidence from Australia. *The International journal of Human Resource Management*. 10(2): 251-72.
- Smith, A., Oczkowski, E., Noble, C. & Macklin, R. (2002). *New management practices and enterprise training*. National Centre for Vocational Educational Research, Leabrook SA: NCVET.

Sparrow, J. & Pettigrew, A. (1985). Britain's training problems: the search for a strategic HRM approach. *Human Resource Management*. 26(1): 109-127.

Storey, J. (1995). 'Human resource management: still marching on, or marching out', in J. Storey (ed.) *Human Resource Management: A critical text*. London: Routledge

VandenHeuvel, A. & Wooden, M (1999). *Casualisation and outsourcing: Trends and implications for work-related training*. NCVET, Leabrook, SA

Wooden, M. & Hawke, A. (1998). Factors associated with casual employment: Evidence from the AWIRS. *Economic and Labour Relations Review*. 9, 82-107.